



Cisco Security Cloud Control Management: Firewall for Government

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PART I

Introduction

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- [Get Started, on page 7](#)
- [Manage Tenants and Users, on page 117](#)



CHAPTER 1

Welcome to Cisco Security Cloud Control Management: Firewall for Government

- [An Introduction to Security Cloud Control: Firewall, on page 1](#)
- [Create a Security Cloud Control Tenant, on page 2](#)
- [The Security Cloud Control Dashboard, on page 4](#)

An Introduction to Security Cloud Control: Firewall

Security Cloud Control (formerly Cisco Defense Orchestrator) is a cloud-based multi-device manager that facilitates management of security policies in highly distributed environments to achieve consistent policy implementation.

It helps you optimize your security policies by identifying inconsistencies with them and by giving you tools to fix them. Security Cloud Control gives you ways to share objects and policies, as well as make configuration templates, to promote policy consistency across devices.

Because Security Cloud Control coexists with local device managers such as the Adaptive Security Device Manager (ASDM), it keeps track of configuration changes made by Security Cloud Control and by other managers, and then reconcile the differences between managers.

Security Cloud Control has an intuitive user interface that allows you to manage a wide range of devices in one place. Advanced users will also find their traditional CLI interface with some new enhancements to make management even more efficient for them.

Security Cloud Control also provides a guided "Day 0" experience helping you quickly onboard threat defense devices to your on-premises or cloud-delivered Firewall Management Center. It also presents you with other key features you may benefit from and helps you enable and configure them.

Supported Features for Security Cloud Control Management: Firewall for Government

Cisco Security Cloud Control Management: Firewall for Government provides you with the following security functions:

- Management of Secure Firewall ASA and Secure Firewall Threat Defense devices, supporting both physical and virtual form factors.
- Security Analytics & Logging (SAL) Integration: Integration with the Security Cloud Control dashboard for enhanced event viewing and security analytics.

- Lightweight Security Package (Snort 3) updates for advanced intrusion detection.
- Automatic updates for Vulnerability Database (Vdb) and Geolocation Database (Geo db).

Onboard Devices

Before you onboard a device, make sure that you have successfully completed the installation wizard and licensed the device. Then use Security Cloud Control's onboarding wizard to onboard your device. Security Cloud Control can easily manage large deployments.



Note Once you have onboarded devices to a Security Cloud Control tenant, you cannot migrate the devices from one Security Cloud Control tenant to another. If you want to move your devices to a new tenant, you need to re-onboard the devices to the new tenant.

For a complete list of devices that Security Cloud Control supports and manages, see [Supported Devices, Software, and Hardware, on page 197](#).

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Create a Security Cloud Control Tenant

You can provision a new Security Cloud Control tenant to onboard and manage your devices. If you use an On-Premises Firewall Management Center Version 7.2 and later, and want to integrate it with the Cisco Security Cloud, you can also create a Security Cloud Control tenant as part of the integration workflow.

Procedure

1. Go to <https://us.manage.security.cisco.com/provision>.
2. Select the region where you want to provision your Security Cloud Control tenant and click **Sign Up**.
3. On the **Security Cloud Sign On** page, provide your credentials.
4. If you do not have a Security Cloud Sign On account and want to create one, click **Sign up now**.
 - a. Provide the information to create an account.

Account Sign Up

Provide following information to create enterprise account.

[Back to login page](#)

Email *

sample@cisco.com

First name *

John

Last name *

Smith

Country *

Please select *

Password *

Confirm Password *

☐ I agree to the [End User License Agreement](#) and [Privacy Statement](#).

Sign up

[Cancel](#)

Here are some tips:

- **Email:** Enter the email address that you will eventually use to log in to Security Cloud Control.
 - **Password:** Enter a strong password.
- b. Click **Sign up**. Cisco sends you a verification email to the address you registered with.
 - c. Open the email and click **Activate account** both on the mail and the **Security Cloud Sign On** page.
 - d. Configure multifactor authentication using Duo on a device of your choice and click **Log in with Duo** and **Finish**.



Note

We recommend installing the Duo Security app on a mobile phone. Review [Duo Guide to Two Factor Authentication: Enrollment Guide](#) if you have questions about installing Duo.

5. Provide a name for your tenant and click **Create new account**.
6. A new Security Cloud Control tenant is created in the region that you have chosen; you will also receive an email about your Security Cloud Control tenant being created, with the details. If you are associated with multiple Security Cloud Control tenants already, on the **Choose a tenant** page, select the tenant you

just created to log in to it. If you have created a new Security Cloud Control tenant for the first time, you get logged into your tenant directly.

For information about managing a Security Cloud Control tenant and various tenant settings, see [Tenant Management](#).

Upgrade your Security Cloud Control tenant to full version

If you are using a free trial version of Security Cloud Control, you will keep seeing the **You are in a free trial of** Security Cloud Control banner, with the number of days left in the trial period. You can choose to upgrade your Security Cloud Control tenant to the full version anytime during the trial period. Contact your Cisco sales representative or contact [Cisco Sales](#), and they can place an order on your behalf and get you the sales order number.

Once you obtain the sales order number, click **Upgrade to full version** on the banner and enter the order number to begin using the full version of Security Cloud Control.

Request Security Cloud Control trial period extension

If you want to continue using the trial version for 30 days, click **Request for an extension**.

The Security Cloud Control Dashboard

The Security Cloud Control dashboard is your central hub for monitoring and managing organization-level details across various categories. Upon logging in, you can access a customizable dashboard that offers critical insights and actions to optimize security and operational efficiency.

Customize Your Dashboard

Make your dashboard fit your specific needs by customizing the visible widgets.

1. On the **Home** page, click **Customize**.
2. Select or deselect the widgets you want to view on the dashboard.
3. You can drag and drop the widgets to arrange them as you prefer.

Top Information

This section provides detailed insights into various tenant-level metrics. If enabled, you can view the following widgets:

- **Configuration States:** Indicates the discrepancies between the configurations on your devices and those maintained by Security Cloud Control. This comparison helps identify any inconsistencies or conflicts that may exist.

For more information, see [Device Management](#).

- **Change Log Management:** Helps you manage the change logs for precise operational control. The widget displays **Completed** and **Pending** change logs.

For more information, see [Change Logs](#).

- **RA VPN Sessions:** Helps you monitor your Remote Access VPN sessions.

For more information, see [RA VPN Sessions](#).

- **Overall Inventory:** Helps you monitor the health and status of all devices. The widget displays the total number of devices, categorized into **Issues**, **Pending Actions**, **Other**, **Online** and devices that are nearing or have already reached their last day of hardware support.

For more information, see [All Devices](#).

- **Site-to-Site VPN:** Helps you manage and assess your site-to-site VPN connections. The widget displays the total number of VPN tunnels and the percentage that are **Active** and **Idle**.

For more information, see [Site-to-site VPN](#).

- **Accounts and Assets:**

- Helps you track and manage your multicloud accounts and resources effectively. You can launch the Multicloud Defense Controller from here.
- Click **+Add Account** to add a new account.

For more information, see [Multicloud Defense Controller](#).

- **Top Risky Destinations:** Helps you identify and monitor the top risky destinations that are granted access. The widget lists Applications and URL Categories and allows you to filter data for the last 90, 60, or 30 days. You can filter between Allowed (default) and Blocked traffic.
- **Top Intrusion and Malware Events:** Helps you monitor and respond to top intrusion and malware events. The widget displays Intrusion Events and Malware Events and allows you to filter data for the last 90, 60, and 30 days. You can filter between Allowed (default) and Blocked events.

Announcements

Click the **Announcements** icon to view the most recent Security Cloud Control features and updates. Links to related documentation are provided if you need more information on any of the items listed.



CHAPTER 2

Get Started

Security Cloud Control provides a unique view of policy management through a clear and concise interface. Below are topics that cover the basics of using Security Cloud Control for the first time.

- [Login Requirements for Security Cloud Control, on page 7](#)
- [Migrate to **Cisco Security Cloud Sign On** Identity Provider, on page 9](#)
- [Launch a Security Cloud Control Tenant, on page 10](#)
- [Security Cloud Control Integrations Page, on page 11](#)
- [Networking Requirements, on page 15](#)
- [Get Started With Security Cloud Control, on page 19](#)
- [Security Cloud Control Licenses, on page 19](#)
- [Manage Objects, on page 21](#)
- [Network Address Translation, on page 102](#)
- [Order of Processing NAT Rules, on page 103](#)
- [Network Address Translation Wizard, on page 105](#)
- [Common Use Cases for NAT, on page 106](#)

Login Requirements for Security Cloud Control

The IdP account contains the user's credentials and the IdP authenticates the user based on those credentials. Multifactor authentication provides an added layer of identity security. The Security Cloud Control user record primarily contains the username, the Security Cloud Control tenant with which they are associated, and the user's role. When a user logs in, Security Cloud Control tries to map the IdP's user ID to an existing user record on a tenant in Security Cloud Control. The user is logged in to that tenant when Security Cloud Control finds a match.

Unless your enterprise has its own single sign-on identity provider, your identity provider is Security Cloud Sign On. Security Cloud Sign On uses Duo for multifactor authentication.

To log into Security Cloud Control, you must first create an account in Cisco Security Cloud Sign On, configure multifactor authentication (MFA) using Duo Security and have your tenant Super Admin create a Security Cloud Control record.

On October 14, 2019, Security Cloud Control converted all previously existing tenants to use Cisco Security Cloud Sign On as their identity provider and Duo for MFA.

**Note**

- If you sign in to Security Cloud Control using your own single sign-on identity provider, the transition to Cisco Security Cloud Sign On did not affect you. You continue to use your own sign-on solution.
- If you are in the middle of a free trial of Security Cloud Control, this transition did affect you.

If your Security Cloud Control tenant existed before October 14, 2019, see [Migrate to Cisco Security Cloud Sign On Identity Provider](#), on page 9.

Initial Login to Your New Security Cloud Control Tenant

Before You Begin



Install DUO Security. We recommend installing the Duo Security app on a mobile phone. Review [Duo Guide to Two Factor Authentication: Enrollment Guide](#) if you have questions about installing Duo.

Time Synchronization. You are going to use your mobile device to generate a one-time password. It is important that your device clock is synchronized with real time as the OTP is time-based. Make sure your device clock is set automatically or manually set it to the correct time.

Security Cloud Control uses Cisco Security Cloud Sign On as its identity provider and Duo for multifactor authentication (MFA). If you do not have a Cisco Security Cloud Sign On account, when you create a new Security Cloud Control tenant, the provisioning flow involves various steps, including creating a Security Cloud Sign On account and configuring MFA using Duo. To create a new tenant, click [here](#).

MFA provides an added layer of security in protecting your user identity. Two-factor authentication, a type of MFA, requires two components, or factors, to ensure the identity of the user logging in to Security Cloud Control. The first factor is a username and password, and the second is a one-time password (OTP), which is generated on demand.

**Important**

If your Security Cloud Control tenant existed before October 14, 2019, use [Migrate to Cisco Security Cloud Sign On Identity Provider](#), on page 9 for login instructions instead of this article.

Signing in to Security Cloud Control in Different Regions

These are the URLs you use to sign in to Security Cloud Control in different AWS regions:

Table 1: Security Cloud Control URLs in Different Regions

Region	Security Cloud Control URL
Asia-Pacific and Japan (APJ)	https://apj.manage.security.cisco.com
Australia (AUS)	https://aus.manage.security.cisco.com
Europe, the Middle East, and Africa (EMEA)	https://eu.manage.security.cisco.com

Region	Security Cloud Control URL
India (IN)	https://in.manage.security.cisco.com
United States (US)	https://us.manage.security.cisco.com

Troubleshooting Login Failures

Login Fails Because You are Inadvertently Logging in to the Wrong Security Cloud Control Region

Make sure you are logging in to the appropriate Security Cloud Control region. After you log in to <https://sign-on.security.cisco.com>, you will be given a choice of what region to access.

Migrate to Cisco Security Cloud Sign On Identity Provider

On October 14, 2019, Security Cloud Control converted all tenants to Cisco Security Cloud Sign On as their identity provider and Duo for multifactor authentication (MFA). **To log into Security Cloud Control, you must first activate your account in Cisco Secure Sign-On and configure MFA using Duo.**

Security Cloud Control requires MFA which provides an added layer of security in protecting your user identity. Two-factor authentication, a type of MFA, requires two components, or factors, to ensure the identity of the user logging into Security Cloud Control. The first factor is a username and password, and the second is a one-time password (OTP), which is generated on demand.



Note

- If you sign in to Security Cloud Control using your own single sign-on identity provider, this transition to Cisco Security Cloud Sign On and Duo does not affect you. You continue to use your own sign-on solution.
- If you are in the middle of a free trial of Security Cloud Control, this transition does apply to you.

Before You Begin

We strongly recommend the following steps prior to migrating:

-  **Install DUO Security.** We recommend installing the Duo Security app on a mobile phone. Review [Duo Guide to Two Factor Authentication: Enrollment Guide](#) if you have questions about installing Duo.
- **Time Synchronization.** You are going to use your mobile device to generate a one-time password. It is important that your device clock is synchronized with real time as the OTP is time-based. Make sure your device clock is set automatically or manually set it to the correct time.
- **Create a New Cisco Security Cloud Sign On Account and Configure Duo Multi-factor Authentication.** It is a four-step process. You need to complete all four steps.

Troubleshooting Login Failures after Migration

Login to Security Cloud Control Fails Because of Incorrect Username or Password

Solution If you try to log in to Security Cloud Control and you *know* you are using the correct username and password and your login is failing, or you try the "forgot password" option and cannot recover a viable password, you may have tried to log in without creating a new Cisco Security Cloud Sign On account. You need to sign up for a new Cisco Security Cloud Sign On Account.

Login to the Cisco Security Cloud Sign On Dashboard Succeeds but You Can't Launch Security Cloud Control

Solution You may have created a Cisco Security Cloud Sign On account with a different username than your Security Cloud Control tenant. Contact the [Cisco Technical Assistance Center \(TAC\)](#) to standardize your user information between Security Cloud Control and Cisco Secure Sign-On.

Login Fails Using a Saved Bookmark

Solution You may be attempting to log in using an old bookmark you saved in your browser. The bookmark could be pointing to <https://cdo.onelogin.com>.

Solution Log in to <https://sign-on.security.cisco.com>.

- **Solution** If you have created your new secure sign-on account, click the Security Cloud Control tile on the dashboard that corresponds to the region in which your tenant was created:
 - **Solution** Security Cloud Control APJ
 - **Solution** Security Cloud Control Australia
 - **Solution** Security Cloud Control EU
 - **Solution** Security Cloud Control India
 - **Solution** Security Cloud Control US
- **Solution** Update your bookmark to point to <https://sign-on.security.cisco.com>.

Launch a Security Cloud Control Tenant

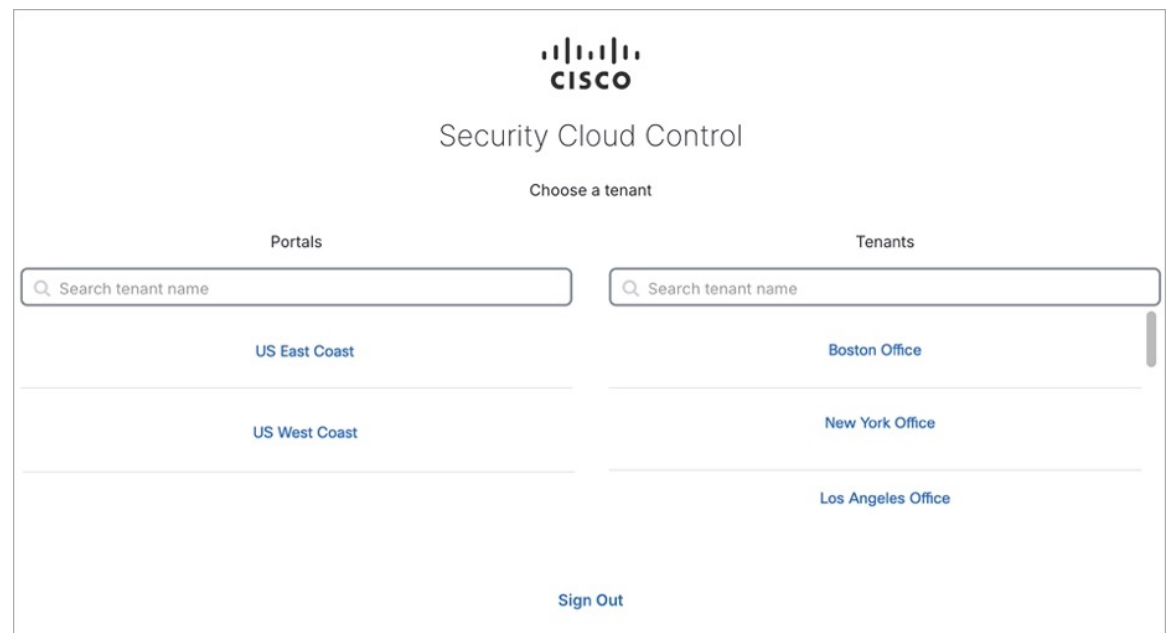
Procedure

-
- Step 1** Click the appropriate Security Cloud Control button for your region on the Cisco Security Cloud Sign-On dashboard.
- Step 2** Click the authenticator logo to choose Duo Security or Google Authenticator if you have set up both authenticators.
- If you already have a user record on an existing tenant, you are logged in to that tenant.
 - If you already have a user record on several portals, you will be able to choose which portal to connect to.

- If you already have a user record on several tenants, you will be able to choose which Security Cloud Control tenant to connect to.
- If you do not already have a user record on an existing tenant, you will be able to learn more about Security Cloud Control or request a trial tenant.

The **Portals** view retrieves and displays consolidated information from multiple tenants.

The **Tenant** view shows several tenants on which you have a user record.



Security Cloud Control Integrations Page

The **Integrations** page displays a list of FMCs that Security Cloud Control manages. Selecting the **FMC** tab lists the Cloud-Delivered Firewall Management Center that is linked to the Security Cloud Control account and all the on-premises management centers onboarded to Security Cloud Control. The devices that are managed by these on-prem management centers are listed in the **Security Devices** page. The **Integrations** page also lists the secure connectors under the **Secure Connectors** tab.

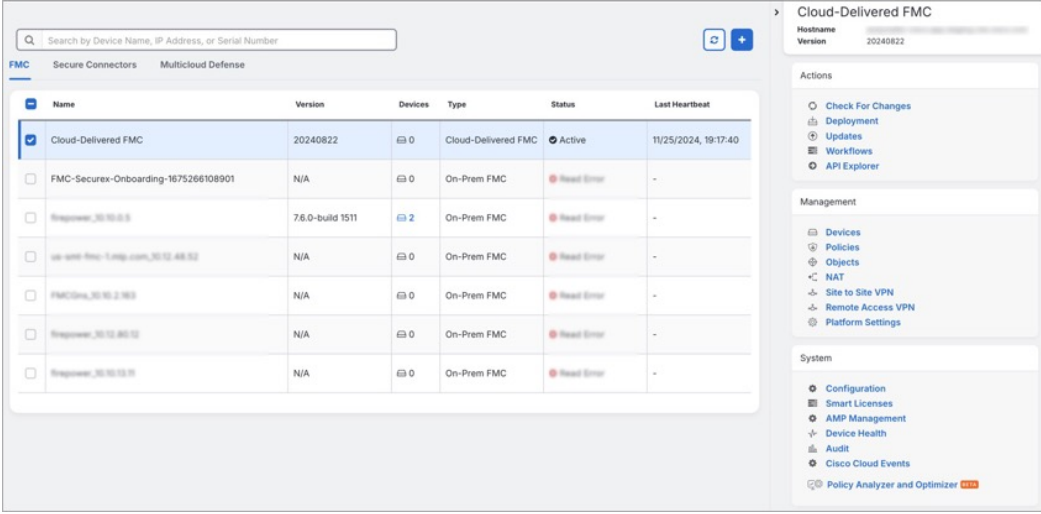
You can click the **FMC** tab and onboard an on-premises management center by clicking the blue plus icon



() and perform device actions using the options in the right pane. You can also see device information such as version, number of devices being managed by the management center, device type, and the synchronization status of the device. Clicking on the managed devices icon takes you to the **Security Devices** page, where devices managed by the selected on-premises management center are filtered automatically and displayed. The **Integrations** page also allows you to select more than one on-premises management center at a time for you to perform actions on a group of management centers all at once. You cannot select any on-premises management center while the Cloud-Delivered Firewall Management Center is selected. To add

a new secure connector or perform actions on existing secure connectors, choose the **Secure Connectors** tab and click .

In the left pane, click **Administration > Firewall Management Center**.



Name	Version	Devices	Type	Status	Last Heartbeat
☒ Cloud-Delivered FMC	20240822	0	Cloud-Delivered FMC	Active	11/25/2024, 19:17:40
☐ FMC-Securex-Onboarding-1675266108901	N/A	0	On-Prem FMC	Read Error	-
☐ Responder_30.10.0.8	7.6.0-build 1511	2	On-Prem FMC	Read Error	-
☐ on-prem-fmc-1.mpg.com_30.12.48.52	N/A	0	On-Prem FMC	Read Error	-
☐ FMCOne_30.10.2.163	N/A	0	On-Prem FMC	Read Error	-
☐ Responder_30.12.48.12	N/A	0	On-Prem FMC	Read Error	-
☐ Responder_30.10.13.11	N/A	0	On-Prem FMC	Read Error	-

Cloud-Delivered FMC
 Hostname: 20240822

Actions

- Check For Changes
- Deployment
- Updates
- Workflows
- API Explorer

Management

- Devices
- Policies
- Objects
- NAT
- Site to Site VPN
- Remote Access VPN
- Platform Settings

System

- Configuration
- Smart Licenses
- AMP Management
- Device Health
- Audit
- Cisco Cloud Events
- Policy Analyzer and Optimizer

For your Cloud-Delivered Firewall Management Center, the Integrations page displays the following information:

- If you do not have a Cloud-Delivered Firewall Management Center deployed on your tenant, click **Enable Cloud-Delivered FMC**. See [Enable Cloud-Delivered Firewall Management Center on Your Security Cloud Control Tenant](#) for more information.
- The number of Secure Firewall Threat Defense devices deployed on the Cloud-Delivered Firewall Management Center.
- Status of the connection between Security Cloud Control and the Cloud-Delivered Firewall Management Center page.
- The last heartbeat of the Cloud-Delivered Firewall Management Center. This represents the last time the status of the Cloud-Delivered Firewall Management Center itself and the number of devices that it manages were synchronized with the table on this page.
- The hostname of the selected Cloud-Delivered Firewall Management Center.

Choose **Cloud-Delivered FMC** and using the links in the **Actions**, **Management**, or **Settings** pane, you open the Cloud-Delivered Firewall Management Center user interface to perform the configuration tasks that are associated with the link you clicked.

Actions:

- **Check For Changes:** The Device Count and Status information in the table will be updated with the information available the last time this page and the Cloud-Delivered Firewall Management Center were synchronized. Synchronization happens every 10 minutes.
- **Deployment:** Takes you to the device configuration deployment page on Cloud-Delivered Firewall Management Center. See [Deploy Configuration Changes](#).

- **Workflows:** Takes you to the **Workflows** page to monitor every process that Security Cloud Control runs when communicating with devices. See [Workflows](#) page.
- **API Explorer:** Takes you to the page that lists the Cloud-Delivered Firewall Management Center REST APIs. See [Secure Firewall Management Center REST API Guide](#).
- **Unified Events:** Takes you to the **Unified Events** page on the Cloud-delivered Firewall Management Center portal, which provides a single-screen view of various firewall events, including connection, intrusion, file, malware, and security-related connection events. For more information, see [Unified Events](#).



Note The Unified Events feature requires activation. If you have not yet activated this feature, contact your Cisco sales representative to enable it.

Management:

- **Devices:** Takes you to the Firewall Threat Defense device listing page on the Cloud-Delivered Firewall Management Center portal. See [Configure Devices](#).
- **Policies:** Takes you to the policies page on the Cloud-Delivered Firewall Management Center portal to edit system-provided access control policies and create custom access control policies. See [Manage Access Control Policies](#).
- **Objects:** Takes you to the policies page on the Cloud-Delivered Firewall Management Center portal to manage reusable objects. See [Object Management](#).
- **NAT:** Takes you to the policies page on the Cloud-Delivered Firewall Management Center portal to configure Network Address Translation policies on the Firewall Threat Defense devices. See [Manage NAT policies](#).
- **Site to Site VPN:** Takes you to the site-to-site VPN dashboard page on the Cloud-Delivered Firewall Management Center portal to configure site-to-site VPN policy between two sites. See [Site-to-Site VPNs](#).
- **Remote Access VPN:** Takes you to the remote access VPN dashboard page on the Cloud-Delivered Firewall Management Center portal to configure a remote access VPN configuration. See [Remote Access VPN](#).
- **Platform Settings:** Takes you to the platform settings page on the Cloud-Delivered Firewall Management Center portal to configure a range of unrelated features whose values you might want to share among several devices. See [Platform Settings](#).

System:

- **Configuration:** Takes you to the system configuration settings page on the Cloud-Delivered Firewall Management Center portal to configure system configuration settings. See [System Configuration](#).
- **Smart Licenses:** Takes you to the smart licenses page on the Cloud-Delivered Firewall Management Center portal to assign licenses to devices. See [Assign Licenses to Devices](#).
- **AMP Management:** Takes you to the AMP management page on the Cloud-Delivered Firewall Management Center portal that provides intelligence that the system uses to detect and block malware on your network. See [Cloud Connections for Malware Protection](#).

- **Device Health:** Takes you to the health monitoring page on the Cloud-Delivered Firewall Management Center portal that tracks various health indicators to ensure that the hardware and software in the system are working correctly. See [About Health Monitoring](#).
- **Audit:** Takes you to the audit log page on the Cloud-Delivered Firewall Management Center portal to show the generated audit record for each user interaction with the web interface.
- **Cisco Cloud Events:** Takes you to the configure Cisco Cloud events page on the Security Cloud Control portal to configure Cloud-Delivered Firewall Management Center to send events directly to SAL (SaaS). See [Send Events to SAL \(SaaS\)](#).

After opening the Cloud-Delivered Firewall Management Center page, click the blue question mark button and select **Page-level Help** to learn more about the page you are on and what further action you can take.

Support to Open Security Cloud Control and Cloud-Delivered Firewall Management Center Applications in Separate Tabs

As you configure Firewall Threat Defense devices or objects in Cloud-Delivered Firewall Management Center, you can open the appropriate configuration pages in additional browser tabs to work simultaneously in the Security Cloud Control and the Cloud-Delivered Firewall Management Center portals without logging off.

For example, you can create an object on Cloud-Delivered Firewall Management Center and simultaneously monitor event logs on Security Cloud Control that are generated from the security policies.

This feature is available for all Security Cloud Control links that navigate to the Cloud-Delivered Firewall Management Center portal. To open the Cloud-Delivered Firewall Management Center portal in a new tab:

On the Security Cloud Control portal, press and hold the Ctrl (Windows) or Command (Mac) button, then click the corresponding link.



Note A single click opens the Cloud-Delivered Firewall Management Center page in the same tab.

Here are some examples of opening the Cloud-Delivered Firewall Management Center portal page in a new tab:

- Choose **Administration > Firewall Management Center** and select **Cloud-Delivered FMC**. In the right pane, press and hold the Ctrl (Windows) or Command (Mac) button, and then click the page that you want to access.
- Choose **Objects > Other FTD Objects**.
- Click the search icon in the top-right corner of the Security Cloud Control page and enter the search strings in the search field that appears.

From the search result, press and hold the Ctrl (Windows) or Command (Mac) button, and then click the arrow icon.

- Choose **Dashboard > Quick Actions**. Press and hold the Ctrl (Windows) or Command (Mac) button, and then click **Manage FTD Policies** or **Manage FTD Objects**.



Note When you switch to a new Security Cloud Control tenant, the corresponding Cloud-Delivered Firewall Management Center portal already opened in a new tab logs out.

Related Topics

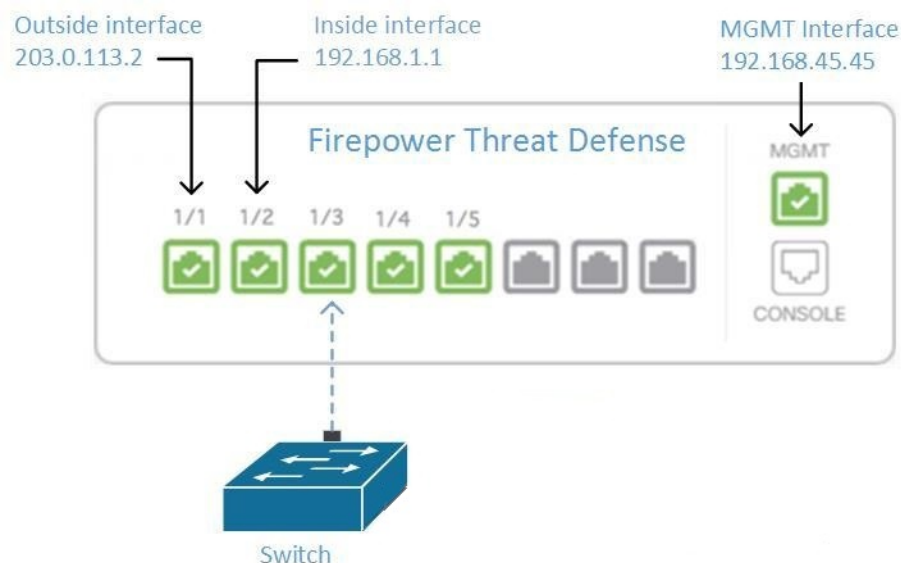
- [Managing On-Prem Firewall Management Center with Security Cloud Control](#)
- [Onboard an On-Prem Firewall Management Center](#)
- [Request a cloud-delivered Firewall Management Center for your Security Cloud Control tenant](#)
- [Secure Device Connector](#)
- [Secure Event Connectors](#)

Networking Requirements

Managing an FDM-Managed Device from the Inside Interface

Managing an FDM-managed device using the inside interface may be desirable if the dedicated MGMT interface is assigned an address that is not routable within your organization; for example, it might only be reachable from within your data center or lab.

Figure 1: Interface Addresses



Remote Access VPN Requirement

If the FDM-managed device you manage with Security Cloud Control will be managing Remote Access VPN (RA VPN) connections, Security Cloud Control must manage the device using the inside interface.

What to do next:

Continue to [Manage an FDM-Managed Device from the Inside Interface](#), on page 16 for the procedure for configuring the FDM-managed device.

Manage an FDM-Managed Device from the Inside Interface

This configuration method:

- Assumes that the FDM-managed device has not been on-boarded to Security Cloud Control.
- Configures a data interface as the inside interface.
- Configures the inside interface to receive MGMT traffic (HTTPS).
- Allows the address of the cloud connector to reach the inside interface of the device.

Before you begin

Review the prerequisites for this configuration in these topics:

- [Managing an FDM-Managed Device from the Inside Interface, on page 15](#)
- [Connect Security Cloud Control to your Managed Devices, on page 166](#)

Procedure

-
- Step 1** Log in to the Firepower Device Manager.
- Step 2** In the **System Settings** menu, click **Management Access**.
- Step 3** Click the **Data Interfaces** tab and click **Create Data Interface**.
- In the **Interface** field, select the pre-named "**inside**" interface from the list of interfaces.
 - In the **Protocols** field, select **HTTPS** if it is not already.
 - In the **Allowed Networks** field, select the network objects that represent the networks inside your organization that will be allowed to access the inside address of the FDM-managed device. The IP address of the SDC or cloud connector should be among the addresses allowed to access the inside address of the device.
- In the [Interface Addresses](#) diagram, the SDC's IP address, 192.168.1.10 should be able to reach 192.168.1.1.
- Step 4** **Deploy the change.** You can now manage the device using the inside interface.
-

What to do next

What if you are using a Cloud Connector?

Use the procedure above and add these steps:

- Add a step to "NAT" the outside interface to (203.0.113.2) to the inside interface (192.168.1.1). See [Interface Addresses](#).
- In step 3c of the procedure above, your "Allowed Network" is a network group object containing the public IP addresses of the cloud connector.

- Add a step that creates an Access Control rule allowing access to the outside interface (203.0.113.2) from the public IP addresses of the cloud connector. See for a list of all the Cloud Connector IP addresses for the various Security Cloud Control regions.

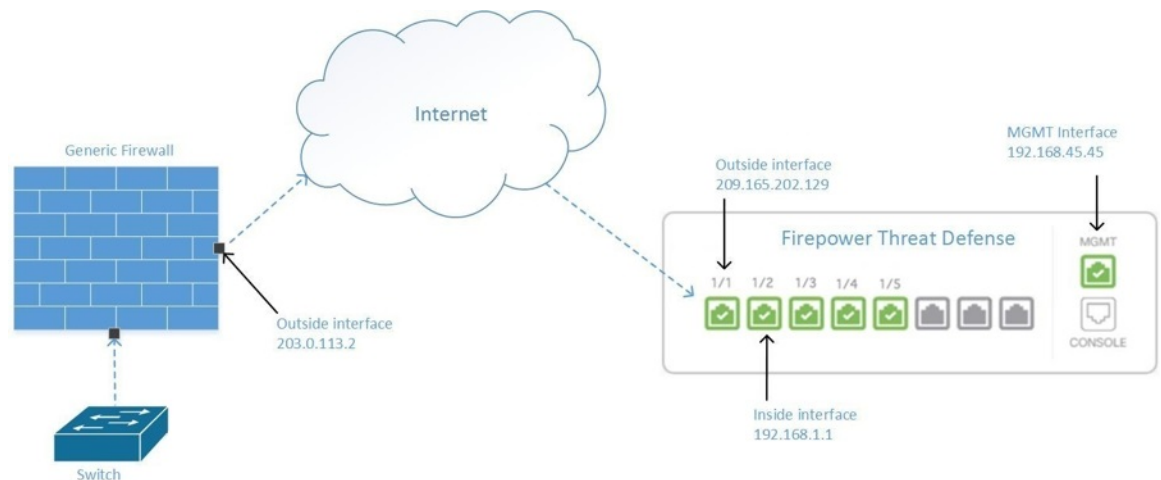
Onboard the FDM-Managed Device

The recommended way of onboarding the FDM-managed device to Security Cloud Control is to use the registration token onboarding approach. After you configure the inside interface to allow management access from the Cloud Connector to the FDM-managed device, onboard the FDM-managed device with the user name and password.

Managing an FDM-Managed Device from the Outside Interface

Managing an cloud-delivered Firewall Management Center device from the outside interface may be desirable if you have one public IP address assigned to a branch office and Security Cloud Control is managed using a Cloud Connector at another location.

Figure 2: Device Management on Outside Interface



This configuration doesn't mean that the physical MGMT interface is no longer the device's management interface. If you were in the office where the cloud-delivered Firewall Management Center device was located, you would be able to connect to the address of the MGMT interface and manage the device directly.

Remote Access VPN Requirement

If the device you manage with cloud-delivered Firewall Management Center will be managing Remote Access VPN (RA VPN) connections, cloud-delivered Firewall Management Center will not be able to manage the cloud-delivered Firewall Management Center device using the outside interface. See [Managing an FDM-Managed Device from the Inside Interface](#) instead.

What to do next:

Continue to [Manage the FDM-Managed Device's Outside Interface](#), on page 18 for the procedure for configuring the cloud-delivered Firewall Management Center device.

Manage the FDM-Managed Device's Outside Interface

This configuration method:

1. Assumes that the FDM-managed device has not been on-boarded to Security Cloud Control.
2. Configures a data interface as the outside interface.
3. Configures management access on the outside interface.
4. Allows the public IP address of the cloud connector (after it has been NAT'd through the firewall) to reach the outside interface.

Before you begin

Review the prerequisites for this configuration in these topics:

- [Manage the FDM-Managed Device's Outside Interface, on page 18](#)
- [Connect Security Cloud Control to your Managed Devices, on page 166](#)

Procedure

-
- Step 1** Log in to the Firepower Device Manager.
- Step 2** In the **System Settings** menu, click **Management Access**.
- Step 3** Click the **Data Interfaces** tab and click **Create Data Interface**.
- a. In the **Interface** field, select the pre-named "**outside**" interface from the list of interfaces.
 - b. In the **Protocols** field, select **HTTPS** if it is not already. Security Cloud Control only needs HTTPS access.
 - c. In the **Allowed Networks** field, create a host network object containing the public-facing IP address of the cloud connector after it gets NAT'd through the firewall.
- In the [Device Management from Outside Interface](#) network diagram, the cloud connector's IP address, 10.10.10.55, would be NAT'd to 203.0.113.2. For the Allowed Network, you would create a host network object with the value 203.0.113.2.
- Step 4** Create an Access Control policy in Firepower Device Manager that allows management traffic (HTTPS) from the public IP address of the SDC or cloud connector, to the outside interface of your FDM-managed device. In this scenario, the source address would be 203.0.113.2 and the source protocol would be HTTPS; the destination address would be 209.165.202.129 and the protocol would be HTTPS.
- Step 5** **Deploy the change.** You can now manage the device using the outside interface.
-

What to do next

What if you are using a cloud connector?

The process is very similar, except for two things:

- In step 3c of the procedure above, your "Allowed Network" is a network group object containing the public IP addresses of the cloud connector. See [Connecting Devices to Security Cloud Control Through](#)

the [Cloud Connector](#) for a list of Cloud Connector IP addresses for the various Security Cloud Control regions.

- In step 4 of the procedure above, you create an Access Control rule that allows access to the outside interface from the public IP addresses of the cloud connector.

Get Started With Security Cloud Control

The **Get started with Security Cloud Control** is an intuitive interface that guides you through sequential tasks for efficiently setting up and configuring your firewalls.

Sign in to Security Cloud Control and in the top menu, click ()

- The **On-premises management** page provides links to:
 - Onboard the Firewall Threat Defense device to the on-premises management center using Security Cloud Control.
 - Migrate a Firewall Threat Defense device that is managed by an on-premises management center to the Cloud-Delivered Firewall Management Center.
 - Perform bulk provisioning of multiple threat defense devices to the Cloud-Delivered Firewall Management Center using device templates.
 - Analyze your policies, detect anomalies, and receive curated remediation recommendations.
- The **Manage firewalls** page provides links to:
 - Onboard and manage Firewall Threat Defense, Cisco Secure Firewall ASA, and Meraki MX firewalls.
 - Set up a site-to-site VPN connection.
 - Leverage the Cisco AI Assistant to manage firewall policies and access-related documentation when needed.
 - Subscribe to receive notifications for troubleshooting common issues.
- The **Protect cloud assets** page provides links to:
 - Safeguard your cloud assets by protecting data and applications across multicloud environments with consistent security measures using Multicloud Defense.

Security Cloud Control Licenses

Security Cloud Control requires a base subscription for organization entitlement and device licenses for managing devices. You can buy one or more Security Cloud Control base subscriptions based on the number of tenants you require and device licenses based on the device model number and the quantity. In other words, purchasing the base subscription gives you a Security Cloud Control organization, and for every device you choose to manage using Security Cloud Control, you need separate device licenses.

For the purposes of planning your deployment, note that each Security Cloud Control tenant can manage approximately 500 devices through the Secure Device Connector (SDC) and any number of devices using the cloud connector. See [Secure Device Connector \(SDC\)](#) for more information.

To onboard and manage devices from Security Cloud Control, you need to purchase a base subscription and device-specific, term-based subscriptions based on the devices you want to manage.

Subscriptions

Security Cloud Control subscriptions are term-based:

- **Base** - Offers subscriptions for one, three, and five years, and provides entitlement to access the Security Cloud Control organization and onboard adequately licensed devices.
- **Device License** - Offers subscriptions for one, three, and five years for any supported device you choose to manage. For example, you can choose to manage a Cisco Firepower 1010 device using Security Cloud Control for three years, if you purchase a three-year software subscription to the Cisco Firepower 1010 device.

See [Software and Hardware Supported by Security Cloud Control](#) for more information on Cisco security devices that Security Cloud Control supports.



Note Catalyst SD-WAN doesn't require an additional license. Customers using DNA or WAN Essentials license will be able to integrate with Security Cloud Control.



Important You do not require two separate device licenses to manage a high availability device pair in Security Cloud Control. If you have a Secure Firewall ASA (ASA) Secure Firewall Threat Defense (FTD) high availability pair, purchasing one ASA/FTD device license is sufficient, as Security Cloud Control considers the pair of high availability devices as one single device.



Note You cannot manage Security Cloud Control licensing through the Cisco smart licensing portal.

Software Subscription Support

The Security Cloud Control base subscription includes software subscription support that is valid for the term of the subscription and provides access to software updates, major upgrades, and Cisco Technical Assistance Center (TAC), at no extra cost. While the software support is selected by default, you can also leverage the Security Cloud Control solution support based on your requirement.

Cloud-Delivered Firewall Management Center and Threat Defense Licenses

You do not have to purchase a separate license to use the Cloud-Delivered Firewall Management Center in Security Cloud Control; the base subscription for a Security Cloud Control tenant includes the cost for the Cloud-Delivered Firewall Management Center.

Cloud-delivered Firewall Management Center Evaluation License

The cloud-delivered Firewall Management Center comes provisioned with a 90-day evaluation license. After the evaluation period has elapsed, you can still onboard Firewall Threat Defense devices to the cloud-delivered Firewall Management Center. However, any manually triggered or scheduled deployments are blocked, until you register your cloud-delivered Firewall Management Center with the Cisco Smart Software Manager (CSSM). As your evaluation license approaches the expiry date, Security Cloud Control notifies you through alerts on the notifications window.

We also recommend that, after registering to CSSM, you purchase the required licenses for the features you want to use. Purchasing licenses keeps the cloud-delivered Firewall Management Center from going out of compliance.

To know more about how to register the cloud-delivered Firewall Management Center with CSSM, see [Register the Management Center with the Smart Software Manager](#).

To learn how to get a cloud-delivered Firewall Management Center provisioned on your Security Cloud Control tenant, see [Request a Cloud-delivered Firewall Management Center for your Security Cloud Control Tenant](#).



Note The Cloud-Delivered Firewall Management Center does not support specific license reservation (SLR) for devices in air-gapped networks.

Threat Defense Licenses for Cloud-Delivered Firewall Management Center

You need individual licenses for each Secure Firewall Threat Defense device managed by the Cloud-Delivered Firewall Management Center. See [Licensing](#) in *Managing Firewall Threat Defense with Cloud-Delivered Firewall Management Center in Security Cloud Control* for information.

To know how Security Cloud Control handles licensing for the devices migrated to the Cloud-Delivered Firewall Management Center, see [Migrate Threat Defense from Management Center to Cloud](#).



Note The Talos certificate for Evaluation Mode in Secure Firewall version 7.6.0 is set to expire on March 31, 2025. After this date, access to Talos-hosted services in Evaluation Mode (specifically those related to web reputation / categorization lookups) will be discontinued.

Manage Objects

An object is a container of information that you can use in one or more security policies. Objects make it easy to maintain policy consistency. You can create a single object, use it different policies, modify the object, and that change is propagated to every policy that uses the object. Without objects, you would need to modify all the policies, individually, that require the same change.

When you onboard a device, Security Cloud Control recognizes all the objects used by that device, saves them, and lists them on the **Objects** page. From the **Objects** page, you can edit existing objects and create new ones to use in your security policies.

Security Cloud Control calls an object used on multiple devices a **shared object** and identifies them in the **Objects** page with this badge .

Sometimes a shared object develops some "issue" and is no longer perfectly shared across multiple policies or devices:

- **Duplicate objects** are two or more objects on the same device with different names but the same values. These objects usually serve similar purposes and are used by different policies. Duplicate objects are identified by this issue icon: 
- **Inconsistent objects** are objects on two or more devices with the same name but different values. Sometimes users create objects in different configurations with same name and content but over time the values of these objects diverge which creates the inconsistency. Inconsistent objects are identified by this issue icon: 
- **Unused objects** are objects that exist in a device configuration but are not referenced by another object, an access-list, or a NAT rule. Unused objects are identified by this issue icon: 

You can also create objects for immediate use in rules or policies. You can create an object that is unassociated with any rule or policy. When you use that unassociated object in a rule or policy, Security Cloud Control creates a copy of it and uses the copy.

You can view the objects managed by Security Cloud Control by navigating to the **Objects** menu or by viewing them in the details of a network policy.

Security Cloud Control allows you to manage network and service objects across supported devices from one location. With Security Cloud Control, you can manage objects in these ways:

- Search for and [filter all your objects](#) based on a variety of criteria.
- Find duplicate, unused, and inconsistent objects on your devices and consolidate, delete, or resolve those object issues.
- Find unassociated objects and delete them if they are unused.
- Discover shared objects that are common across devices.
- Evaluate the impact of changes to an object on a set of policies and devices before committing the change.
- Compare a set of objects and their relationships with different policies and devices.
- Capture objects in use by a device after it has been on-boarded to Security Cloud Control.

If you have issues with creating, editing, or reading objects from an onboarded device, see [Troubleshoot Security Cloud Control, on page 798](#) for more information.

Object Types

The following table describes the objects that you can create for your devices and manage using Security Cloud Control.

Table 2: Adaptive Security Appliance (ASA) Object Types

Object	Description
Address Pool	Address pool objects can be configured to match against an individual IPv4 or IPv6 address or an IP address range.

Object	Description
AnyConnect Client Profile	AnyConnect Client Profile objects are file objects and represent files used in configurations, typically for remote access VPN policies. They can contain an AnyConnect Client Profile and AnyConnect Client Image files.
Network	Network groups and network objects (collectively referred to as network objects) define the addresses of hosts or networks.
Service	Service objects, service groups, and port groups are reusable components that contain protocols or ports considered part of the TCP/IP protocol suite.
Time Range	A time range object defines a specific time consisting of a start time, an end time, and optional recurring entries. You use these objects in network policies to provide time-based access to certain features or assets.
Trustpoints	Trustpoints let you manage and track digital certificates in ASA.

Table 3: FDM-Managed Device Object Types

Object	Description
Application Filter	An application filter object defines the applications used in an IP connection, or a filter that defines applications by type, category, tag, risk, or business relevance. You can use these objects in policies to control traffic instead of using port specifications.
AnyConnect Client Profile	AnyConnect Client Profile objects are file objects and represent files used in configurations, typically for remote access VPN policies. They can contain an AnyConnect Client Profile and AnyConnect Client Image files.
Certificate Filter	Digital certificates provide digital identification for authentication. Certificates are used for SSL (Secure Socket Layer), TLS (Transport Layer Security), and DTLS (Datagram TLS) connections, such as HTTPS and LDAPS.
DNS Group	DNS servers are needed to resolve fully-qualified domain names (FQDN), such as www.example.com, to IP addresses. You can configure different DNS group objects for management and data interfaces.

Object	Description
Geolocation	A geolocation object defines countries and continents that host the device that is the source or destination of traffic. You can use these objects in policies to control traffic instead of using IP addresses.
IKEv1 Policy	An IKEv1 policy object contain the parameters required for IKEv1 policies when defining VPN connections.
IKEv2 Policy	An IKEv2 policy objects contain the parameters required for IKEv2 policies when defining VPN connections.
IKEv1 IPSEC Proposal	IPsec Proposal objects configure the IPsec proposal used during IKE Phase 1 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel.
IKEv2 IPSEC Proposal	IPsec Proposal objects configure the IPsec proposal used during IKE Phase 2 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel.
Network	Network groups and network objects (collectively referred to as network objects) define the addresses of hosts or networks.
Security Zone	A security zone is a grouping of interfaces. Zones divide the network into segments to help you manage and classify traffic.
Service	Service objects, service groups, and port groups are reusable components that contain protocols or ports considered part of the TCP/IP protocol suite.
SGT Group	A SGT dynamic object identifies source or destination addresses based on an SGT assigned by ISE and can then be matched against incoming traffic.
Syslog Server	A syslog server object identifies a server that can receive connection-oriented or diagnostic system log (syslog) messages.
URL	Use URL objects and groups (collectively referred to as URL objects) to define the URL or IP addresses of web requests. You can use these objects to implement manual URL filtering in access control policies or blocking in Security Intelligence policies.

Table 4: On-Premises Secure Firewall Management Center Object Types

Object	Description
Network	Network groups and network objects (collectively referred to as network objects) define the addresses of hosts or networks.
Service	Service objects, service groups, and port groups are reusable components that contain protocols or ports considered part of the TCP/IP protocol suite.

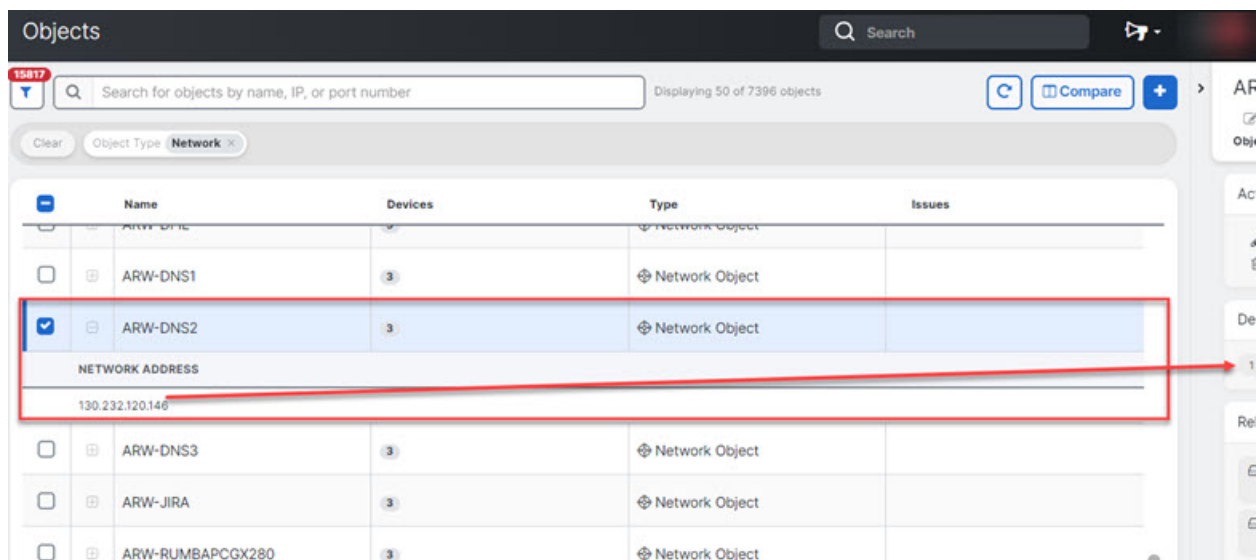
Shared Objects

Security Cloud Control calls objects on multiple devices with the same name and same contents, **shared objects**. Shared objects are identified by this icon



on the **Objects** page. Shared objects make it easy to maintain policies because you can modify an object in one place and that change affects all the other policies that use that object. Without shared objects, you would need to modify all the policies individually that require the same change.

When looking at a shared object, Security Cloud Control shows you the contents of the object in the object table. Shared objects have exactly the same contents. Security Cloud Control shows you a combined or "flattened" view of the elements of the object in the details pane. Notice that in the details pane, the network elements are flattened into a simple list and not directly associated with a named object.



Object Overrides

An object override allows you to override the value of a shared network object on specific devices. Security Cloud Control uses the corresponding value for the devices that you specify when configuring the override.

Although the objects are on two or more devices with the same name but different values, Security Cloud Control doesn't identify them as **Inconsistent objects** only because these values are added as overrides.

You can create an object whose definition works for most devices, and then use overrides to specify modifications to the object for the few devices that need different definitions. You can also create an object that needs to be overridden for all devices, but its use allows you to create a single policy for all devices. Object overrides allow you to create a smaller set of shared policies for use across devices without giving up the ability to alter policies when needed for individual devices.

For example, consider a scenario where you have a printer server in each of your offices, and you have created a printer server object `print-server`. You have a rule in your ACL to deny printer servers from accessing the internet. The printer server object has a default value that you want to change from one office to another. You can do this by using object overrides and maintain rule and "printer-server" object consistent across all locations, although their values may be different.

Editing Shared Network Object ✕

Object Name *

print-server

Devices

2 Devices

Usage

0 Rule Sets

Description

printer server object

Default Value

eq 126.0.1.0

ASAv-99-18

Override Values

Enter a value to add it

Value	Devices	
126.0.2.4	Pasadena-ftd-730-516-...	
126.0.1.6	BGL_FTD_7.3	
126.0.1.9	connected_fmc	

Cancel

Save



Note Security Cloud Control allows you to override objects associated with the rules in a ruleset. When you add a new object to a rule, you can override it only after you attach a device to the ruleset and save the changes. See [Configure Rulesets for an FTD](#) for more information.



Note If there are inconsistent objects, you can combine them into a single shared object with overrides. For more information, see [Resolve Inconsistent Object Issues, on page 804](#).

Unassociated Objects

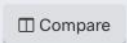
You can create objects for immediate use in rules or policies. You can also create an object that is unassociated with any rule or policy. When you use that unassociated object in a rule or policy, Security Cloud Control creates a copy of it and uses the copy. The original unassociated object remains among the list of available objects until it is either deleted by a nightly maintenance job, or you delete it.

Unassociated objects remain in Security Cloud Control as a copy to ensure that not all configurations are lost if the rule or policy associated with the object is deleted accidentally.

In the left pane, click **Objects** >  and check the **Unassociated** checkbox.

Compare Objects

Procedure

-
- Step 1** In the left pane, click **Objects** and choose an option.
- Step 2** Filter the objects on the page to find the objects you want to compare.
- Step 3** Click the **Compare** button .
- Step 4** Select up to three objects to compare.
- Step 5** View the objects, side-by-side, at the bottom of the screen.
- Click the up and down arrows in the Object Details title bar to see more or less of the Object Details.
 - Expand or collapse the Details and Relationships boxes to see more or less information.
- Step 6** (Optional) The Relationships box shows how an object is used. It may be associated with a device or a policy. If the object is associated with a device, you can click the device name and then click **View Configuration** to see the configuration of the device. Security Cloud Control shows you the device's configuration file and highlights the entry for that object.
-

Filters

You can use many different filters on the **Security Devices** and **Objects** pages to find the devices and objects you are looking for.

To filter, click  in the left-hand pane of the Security Devices, Policies, and Objects tabs:

The Security Devices filter allows you to filter by device type, hardware and software versions, snort version, configuration status, connection states, conflict detection, and secure device connectors, and labels. You can apply filters to find devices within a selected device type tab. You can use filters to find devices within the selected device type tab.



Note When the **FTD** tab is opened, the filter pane provides filters to show FDM-managed devices based on the management application through which the devices are accessed from Security Cloud Control.

- FDM: Devices managed using FTD API or FDM.
 - FMC-FTD: Devices managed using Firepower Management Center.
 - FTD: Devices managed using FTD Management.
-

The object filter allows you to filter by device, issue type, shared objects, unassociated objects, and object type. You can include system objects in your results or not. You can also use the search field to search for objects in the filter results that contain a certain name, IP address, or port number.

The object type filter allows you to filter objects by type, such as network object, network group, URL object, URL group, service object, and service group. The shared objects filter allows filtering objects having default values or override values.

When filtering devices and objects, you can combine your search terms to create several potential search strategies to find relevant results.

In the following example, filters are applied to search for objects that are "Issues (Unused OR Inconsistent) AND Shared Objects (with Default Values OR Additional Values) AND Unassociated Objects."

Filter

Filter by Device

Show System-Defined Objects

Issues 18661

Unused 4754

Duplicate 13846

Inconsistent 61

Ignored Issues

Ignored

Shared Objects

Default Values

Override Values

Additional Values

Unassociated Objects

Unassociated

Object Type

Network

Protocol

Service

Object Filters

To filter, click  in the left-hand pane of the Objects tab:

- **Filter by Device:** Lets you pick a specific device so that you can see objects found on the selected device.
- **Issues:** Lets you pick unused, duplicate, and inconsistent objects to view.
- **Ignored Issues:** Lets you view all the objects whose inconsistencies you had ignored.
- **Shared Objects:** Lets you view all the objects that Security Cloud Control has found to be shared on more than one device. You can choose to see shared objects with only default values or override values, or both.
- **Unassociated Objects:** Lets you view all the objects that are not associated with any rule or policy.
- **Object Type:** Lets you select an object type to see only those type of objects that you have selected, such as network objects, network groups, URL objects, URL groups, service objects, and service groups.

Sub filters – Within each main filter, there are sub-filters you can apply to further narrow down your selection. These sub-filters are based on Object Type – Network, Service, Protocol, etc.

The selected filters in this filter bar would return objects that match the following criteria:

- * Objects that are on one of two devices. (Click **Filter by Device** to specify the devices.) AND are
- * **Inconsistent** objects AND are
- * **Network** objects OR **Service** objects AND
- * Have the word "**group**" in their object naming convention

Because **Show System Objects** is checked, the result would include both system objects and user-defined objects.

Show System-Defined Objects Filter

Some devices come with predefined objects for common services. These system objects are convenient because they are already made for you and you can use them in your rules and policies. There can be many system objects in the objects table. System objects cannot be edited or deleted.

Show System-Defined Objects is **off** by default. To display system objects in the object table, check **Show System-Defined Objects** in the filter bar. To hide system objects in the object table, leave Show System Objects unchecked in the filter bar.

If you hide system objects, they will not be included in your search and filtering results. If you show system objects, they will be included in your object search and filtering results.

Configure Object Filters

You can filter on as few or as many criteria as you want. The more categories you filter by, the fewer results you should expect.

Procedure

-
Step 1	In the left pane, click Objects and choose an option.
Step 2	In the left pane, click Objects .
Step 3	Open the filter panel by clicking the filter icon  at the top of the page. Uncheck any filters that have been checked to make sure no objects are inadvertently filtered out. Additionally, look at the search field and delete any text that may have been entered in the search field.
Step 4	If you want to restrict your results to those found on particular devices: a. Click Filter By Device. b. Search all the devices or click a device tab to search for only devices of a certain kind. c. Check the device you want to include in your filter criteria. d. Click OK.
Step 5	Check Show System Objects to include system objects in your search results. Uncheck Show System Objects to exclude system objects from your search results.

- Step 6** Check the object **Issues** you want to filter by. If you check more than one issue, objects in any of the categories you check are included in your filter results.
- Step 7** Check **Ignored** issues if you want to see the object that had issues but was ignored by the administrator.
- Step 8** Check the required filter in **Shared Objects** if you are filtering for objects shared between two or more devices.
- **Default Values:** Filters objects having only the default values.
 - **Override Values:** Filters objects having overridden values.
 - **Additional Values:** Filters objects having additional values.
- Step 9** Check **Unassociated** if you are filtering for objects that are not part of any rule or policy.
- Step 10** Check the **Object Types** you want to filter by.
- Step 11** You can also add an object name, IP address, or port number to the Objects search field to find objects with your search criteria among the filtered results.
-

When to Exclude a Device from Filter Criteria

When adding a device to filtering criteria, the results show you the objects on a device but not the relationships of those objects to other devices. For example, assume **ObjectA** is shared between ASA1 and ASA2. If you were to filter objects to find shared objects on ASA1, you would find **ObjectA** but the **Relationships** pane would only show you that the object is on ASA1.

To see all the devices to which an object is related, don't specify a device in your search criteria. Filter by the other criteria and add search criteria if you choose to. Select an object that Security Cloud Control identifies and then look in the Relationships pane. You will see all the devices and policies the object is related to.

Unignore Objects

One way to resolve unused, duplicate, or inconsistent objects is to ignore them. You may decide that though an object is **unused**, a **duplicate**, or **inconsistent**, there are valid reasons for that state and you choose to leave the object issue unresolved. At some point in the future, you may want to resolve those ignored objects. As Security Cloud Control does not display ignored objects when you search for object issues, you will need to filter the object list for ignored objects and then act on the results.

Procedure

- Step 1** In the left pane, click **Objects** and choose an option.
- Step 2** In the **Object** table, select the object you want to unignore. You can unignore one object at a time.
- Step 3** Click **Unignore** in the details pane.
- Step 4** Confirm your request. Now, when you filter your objects by issue, you should find the object that was previously ignored.
-

Deleting Objects

You can delete a single object or multiple objects.

Delete a Single Object



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

- Step 1** In the left pane, choose **Objects** and choose an option.
- Step 2** In the left pane, click **Objects**.
- Step 3** Locate the object you want to delete by using object filters and the search field, and select it.
- Step 4** Review the **Relationships** pane. If the object is used in a policy or in an object group, you cannot delete the object until you remove it from that policy or group.
- Step 5** In the Actions pane, click the **Remove** icon .
- Step 6** Confirm that you want to delete the object by clicking **OK**.
- Step 7** [Review and deploy](#) the changes you made, or wait and deploy multiple changes at once.

Delete a Group of Unused Objects

As you onboard devices and start resolving object issues, you find many unused objects. You can delete up to 50 unused objects at a time.

Procedure

- Step 1** Use the **Issues** filter to find **unused** objects. You can also use the Device filter to find objects that are not associated with a device by selecting **No Device**. Once you have filtered the object list, the object checkboxes appear.
- Step 2** Check the **Select all** checkbox in the object table header to select all the objects found by the filter that appear in the object table; or, check individual checkboxes for individual objects you want to delete.
- Step 3** In the Actions pane, click the **Remove** icon .
- Step 4** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Network Objects

A **network object** can contain a host name, a network IP address, a range of IP addresses, a fully qualified domain name (FQDN), or a subnetwork expressed in CIDR notation. **Network groups** are collections of network objects and other individual addresses or subnetworks that you add to the group. Network objects and network groups are used in access rules, network policies, and NAT rules.

Note that not all platforms support network objects, such as Cisco Meraki and Multicloud Defense; when you share dynamic objects, Security Cloud Control automatically translates the appropriate information from the originating platform or device into a set of usable information that Security Cloud Control can use.

Table 5: Permitted Values of Network Objects

Device type	IPv4 / IPv6	Single Address	Range of addresses	Fully Qualified Domain Name	Subnet using CIDR Notation
ASA	IPv4 and IPv6	Yes	Yes	Yes	Yes
FTD	IPv4 and IPv6	Yes	Yes	Yes	Yes
Multicloud Defense	IPv4 and IPv6	Yes	Yes	Yes	Yes

Table 6: Permitted Contents of a Network Group

Device type	IP Value	Network Object	Network Groups
ASA	Yes	Yes	Yes
FTD	No	Yes	Yes
Multicloud Defense	Yes	Yes	Yes

Reusing Network Objects Across Products

If you have a Security Cloud Control tenant with a Cloud-Delivered Firewall Management Center and one or more on-premises management centers onboarded to your tenant:

- When you create a Secure Firewall Threat Defense, FDM-managed Firewall Threat Defense, ASA, or Meraki network object or group, a copy of the object is also added to the objects list on the **Objects** page used when configuring Cloud-Delivered Firewall Management Center, and vice versa.
- When you create a Secure Firewall Threat Defense, FDM-managed Firewall Threat Defense, or ASA network object or group, an entry is created in the **Devices with Pending Changes** page for each On-Premises Firewall Management Center for which **Discover & Manage Network Objects** is enabled. From this list, you can choose and deploy the object to the on-premises management center on which you want to use the object and discard the ones that you do not want. Navigate **Tools & Services > Firewall Management Center, Administration > Firewall Management Center** select the on-premises management center, and click **Objects** to see your objects in the On-Premises Firewall Management Center user interface and assign them to policies.

Changes you make to network objects or groups on either page apply to the object or group instance on both pages. Deleting an object from one page also deletes the corresponding copy of the object from the other page.

Exceptions:

- If a network object of the same name already exists for Cloud-Delivered Firewall Management Center, the new Secure Firewall Threat Defense, FDM-managed Firewall Threat Defense, ASA, or Meraki network object will not be replicated on the **Objects** page of Security Cloud Control.
- Network objects and groups in onboarded Firewall Threat Defense devices that are managed by on-premises Secure Firewall Management Center are not replicated and cannot be used in Cloud-Delivered Firewall Management Center.

Note that for on-premises Secure Firewall Management Center instances that have been *migrated* to Cloud-Delivered Firewall Management Center, network objects and groups *are* replicated to the Security Cloud Control objects page if they are used in policies that were deployed to FTD devices.

- Sharing Network Objects between Security Cloud Control and Cloud-Delivered Firewall Management Center is automatically enabled on new tenants but must be requested for existing tenants. If your network objects are not being shared with Cloud-Delivered Firewall Management Center, [contact TAC](#) to have the features enabled on your tenant.
- Sharing network objects between Security Cloud Control and On-Premises Management Center is not automatically enabled on Security Cloud Control for new on-premises management centers onboarded to Security Cloud Control. If your network objects are not being shared with On-Premises Management Center, ensure the **Discover & Manage Network Objects** toggle button is enabled for the on-premises management center in **Settings** or [contact TAC](#) to have the features enabled on your tenant.

Viewing Network Objects

Network objects you create using Security Cloud Control and those Security Cloud Control recognizes in an onboarded device's configuration are displayed on the Objects page. They are labeled with their object type. This allows you to filter by object type to quickly find the object you are looking for.

When you select a network object on the Objects page, you see the object's values in the Details pane. The Relationships pane shows you if the object is used in a policy and on what device the object is stored.

When you click on a network group, you see the contents of that group. The network group is a conglomerate of all the values given to it by the network objects.

Create or Edit ASA Network Objects and Network Groups

An **ASA network object** can contain a hostname, an IP address, or a subnet address expressed in CIDR notation. **Network groups** are conglomerates of network objects, network groups, and IP addresses that are used in access rules, network policies, and NAT rules. You can create, read, update, and delete network objects and network groups using Security Cloud Control.

Table 7: Permitted Values of ASA Network Objects and Groups

Device type	IPv4 / IPv6	Single Address	Range of addresses	Partially Qualified Domain Name (PQDN)	Subnet using CIDR Notation
ASA	IPv4 / IPv6	Yes	Yes	Yes	Yes



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.



Caution If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Create an ASA Network Object

A **network object** can contain a host name, a network IP address, a range of IP addresses, a fully qualified domain name (FQDN), or a subnetwork expressed in CIDR notation. Network objects are used in access rules, network policies, and NAT rules. You can create, update, and delete network objects and network groups using Security Cloud Control.



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.

Procedure

Step 1 In the left pane, click **Manage > Objects**.



Step 2 Click the blue plus button to create an object.

Step 3 Click **ASA > Network**.

Step 4 Enter an object name.

Step 5 Select **Create a network object**.

Step 6 (optional) Enter an object description.

- Step 7** In the **Value** section, add the IP address information in one of these ways:
- Select **eq** and then enter a single IP address, a subnet address using CIDR notation, or a Partially Qualified Domain Name (PQDN).
 - Select **range** and then enter a range of IP addresses. Enter the range with the beginning and ending address in the range separated by a space. For example, 10.1.1.1 10.1.1.255 or 2001:DB8:1::1 2001:DB8:1::3

Step 8 Click **Add**.

Important

The newly created network objects aren't associated with any ASA device as they aren't part of any rule or policy. To see these objects, select the **Unassociated** objects category in object filters.

Create an ASA Network Group

A **network group** can contain IP address values, network objects, and network groups. When you are creating a new network group, you can search for existing objects by their name, IP addresses, IP address range, or FQDN and add them to the network group. If the object isn't present, you can instantly create that object in the same interface and add it to the network group. Network groups can contain both IPv4 and IPv6 addresses.



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.

Procedure

Step 1 In the left pane, click **Manage > Objects**.



Step 2 Click the blue plus button to create an object.

Step 3 Click **ASA > Network**.

Step 4 Enter an **Object Name**.

Step 5 Select **Create a network group**.

Step 6 (optional) Enter an object description.

Step 7 In the **Values** field, enter a value or object name. When you start typing, Security Cloud Control provides object names or values that match your entry.

Step 8 You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.

Step 9 If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object or network group to the new network group.

Step 10 If you have entered a value or object that is not present, you can perform one of the following:

- Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the check mark to save it.
- Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the check mark to save it.
- Click **Add Value** to create an inline value without using an object. Enter a value and click the check mark to save it.

It is possible to create a new object even though the value is already present. You can make changes to those objects and save them.

Note

You can click the edit icon to modify the details. Clicking the delete button doesn't delete the object itself; instead, it removes it from the network group.

Step 11 After adding the required objects, click **Add** to create a new network group.

Step 12 [Preview and Deploy Configuration Changes for All Devices, on page 615.](#)

Edit an ASA Network Object



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Locate the object you want to edit by using object filters and search field.

Step 3 Select the network object and click the edit icon  in the **Actions** pane.

Step 4 Edit the values in the dialog box in the same fashion that you created in the procedures above.

Note

Click the delete icon next to remove the object from the network group.

Step 5 Click **Save**. Security Cloud Control displays the devices that will be affected by the change.

Step 6 Click **Confirm** to finalize the change to the object and any devices affected by it.

Edit an ASA Network Group



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Locate the network group you want to edit by using object filters and search field.

Step 3 Select the network group and click the edit icon  in the **Actions** pane.

Step 4 If you want to change the objects or network groups that are already added to the network group, perform the following steps:

- a. Click the edit icon  appearing beside the object name or network group to modify them.
- b. Click the checkmark to save your changes.

Note

You can click the remove icon to delete the value from a network group.

Step 5 If you want to add new network objects or network groups to this network group, you have to perform the following steps:

- a. In the **Values** field, enter a new value or the name of an existing network object. When you start typing, Security Cloud Control provides object names or values that match your entry. You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.
- b. If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object, or network group to the new network group.
- c. If you have entered a value or object that is not present, you can perform one of the following:
 - Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the checkmark to save it.
 - Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the checkmark to save it.

- Click **Add Value** to create an inline value without using an object. Enter a value and click the checkmark to save it.

It is possible to create a new object even though the value is already present. You can make changes to those objects and save them.

- Step 6** Click **Save**. Security Cloud Control displays the policies that will be affected by the change.
- Step 7** Click **Confirm** to finalize the change to the object and any devices affected by it.
- Step 8** [Preview and Deploy Configuration Changes for All Devices, on page 615](#).

Add Additional Values to a Shared Network Group in Security Cloud Control

The values in a shared network group that are present on all devices associated with it are called "default values." Security Cloud Control allows you to add "additional values" to the shared network group and assign those values to some devices associated with that shared network group. When Security Cloud Control deploys the changes to the devices, it determines the contents and pushes the "default values" to all devices associated with the shared network group and the "additional values" only to the specified devices.

For example, consider a scenario where you have four AD main servers in your head office that should be accessible from all your sites. Therefore, you have created an object group named "Active-Directory" to use it in all your sites. Now you want to add two more AD servers to one of your branch offices. You can do this by adding their details as additional values specific to that branch office on the object group "Active-Directory." These two servers do not participate in determining whether the object "Active-Directory" is consistent or shared. Therefore, the four AD main servers are accessible from all your sites, but the branch office (with two additional servers) can access two AD servers and four AD main servers.



Note If there are inconsistent shared network groups, you can combine them into a single shared network group with additional values. See [Resolve Inconsistent Object Issues](#) for more information.



Caution If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the shared network group that you want to edit by using object filters and search field.

Step 3

Click the edit icon  in the **Actions** pane.

- The **Devices** field shows the devices that the shared network group is present.
- The **Usage** field shows the rulesets associated with the shared network group.
- The **Default Values** field specifies the default network objects and their values associated with the shared network group that was provided during their creation. Next to this field, you can see the number of devices that contain this default value, and you can click to see their names and device types. You can also see the rulesets associated with this value.

Step 4

In the **Additional Values** field, enter a value or name. When you start typing, Security Cloud Control provides object names or values that match your entry.

Step 5

You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.

Step 6

If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object or network group to the new network group.

Step 7

If you have entered a value or object that is not present, you can perform one of the following:

- Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the checkmark to save it.
- Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the checkmark to save it.
- Click **Add Value** to create an inline value without using an object. Enter a value and click the checkmark to save it.

It is possible to create a new object even though the value is already present. You can make changes to those objects and save them.

Step 8

In the **Devices** column, click the cell associated with the newly added object and click **Add Devices**.

Step 9

Select the devices that you want and click **OK**.

Step 10

Click **Save**. Security Cloud Control displays the devices that will be affected by the change.

Step 11

Click **Confirm** to finalize the change to the object and any devices affected by it.

Step 12

[Preview and Deploy Configuration Changes for All Devices, on page 615.](#)

Edit Additional Values in a Shared Network Group in Security Cloud Control

**Caution**

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object having the override you want to edit by using object filters and search field.
- Step 3** Click the edit icon  in the **Actions** pane.
- Step 4** Modify the override value:
- Click the edit icon to modify the value.
 - Click the cell in the **Devices** column to assign new devices. You can select an already assigned device and click **Remove Overrides** to remove overrides on that device.
 - Click  arrow in **Default Values** to push and make it an additional value of the shared network group. All devices associated with the shared network group are automatically assigned to it.
 - Click  arrow in **Override Values** to push and make it as default objects of the shared network group.
 - Click the delete icon next to remove the object from the network group.
- Step 5** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.
- Step 6** Click **Confirm** to finalize the change to the object and any devices affected by it.
- Step 7** [Preview and Deploy Configuration Changes for All Devices, on page 615](#).
-

Deleting Network Objects and Groups in Security Cloud Control

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Deleting a network object or group from the **Manage > Objects** page deletes the replicated network object or group from the **Manage > Objects** page on the Cloud-Delivered Firewall Management Center and vice-versa.

Create or Edit a Firepower Network Object or Network Groups

A **Firepower network object** can contain a hostname, an IP address, or a subnet address expressed in CIDR notation. **Network groups** are conglomerates of network objects and network groups that are used in access rules, network policies, and NAT rules. You can create, read, update, and delete network objects and network groups using Security Cloud Control.

Firepower network objects and groups can be used by ASA, Firewall Threat Defense, FDM-managed, and Meraki devices. See [Reusing Network Objects Across Products, on page 33](#).



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.

**Caution**

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Table 8: IP addresses that can be added to network objects

Device type	IPv4 / IPv6	Single Address	Range of addresses	Partially Qualified Domain Name (PQDN)	Subnet using CIDR Notation
Firepower	IPv4 / IPv6	Yes	Yes	Yes	Yes

Related Information:

- [Create a Firepower Network Object, on page 42](#)
- [Edit a Firepower Network Object, on page 44](#)
- [Add Additional Values to a Shared Network Group, on page 47](#)
- [Edit Additional Values in a Shared Network Group, on page 49](#)

Create a Firepower Network Object

**Note**

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click the blue plus button  to create an object.
- Step 3** Click **FTD > Network**.
- Step 4** Enter an **Object Name**.
- Step 5** Select **Create a network object**.

Step 6 In the **Value** section:

- Select **eq** and enter a single IP address, a subnet address expressed in CIDR notation, or a Partially Qualified Domain Name (PQDN).
- Select **range** and enter an IP address range.

Note

Do not set a host bit value. If you enter a host bit value other than 0, Security Cloud Control unsets it while creating the object, because the cloud-delivered Firewall Management Center only accepts IPv6 objects with host bits not set.

Step 7 Click **Add**.

Attention: The newly created network objects aren't associated with any FDM-managed device as they aren't part of any rule or policy. To see these objects, select the **Unassociated** objects category in object filters. For more information, see [Object Filters](#). Once you use the unassociated objects in a device's rule or policy, such objects are associated with that device.

Create a Firepower Network Group

A **network group** can contain network objects and network groups. When you create a new network group, you can search for existing objects by their name, IP addresses, IP address range, or FQDN and add them to the network group. If the object isn't present, you can instantly create that object in the same interface and add it to the network group.



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Click the blue plus button  to create an object.

Step 3 Click **FTD > Network**.

Step 4 Enter an **Object Name**.

Step 5 Select **Create a network group**.

Step 6 In the **Values** field, enter a value or name. When you start typing, Security Cloud Control provides object names or values that match your entry.

Step 7 You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.

Step 8 If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object or network group to the new network group.

Step 9 If you have entered a value or object that is not present, you can perform one of the following:

- Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the checkmark to save it.
- Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the checkmark to save it.

It is possible to create a new object even though the value is already present. You can make changes to those objects and save them.

Note: You can click the edit icon to modify the details. Clicking the delete button doesn't delete the object itself; instead, it removes it from the network group.

Step 10 After adding the required objects, click **Save** to create a new network group.

Step 11 [Preview and Deploy Configuration Changes for All Devices](#).

Edit a Firepower Network Object



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Locate the object you want to edit by using object filters and search field.

Step 3 Select the network object and click the edit icon  in the **Actions** pane.

Step 4 Edit the values in the dialog box in the same fashion that you created them in "Create a Firepower Network Group".

Note

Click the delete icon next to remove the object from the network group.

Step 5 Click **Save**. Security Cloud Control displays the devices that will be affected by the change.

Step 6 Click **Confirm** to finalize the change to the object and any devices affected by it.

Edit a Firepower Network Group

**Caution**

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the network group you want to edit by using object filters and search field.
- Step 3** Select the network group and click the edit icon  in the **Actions** pane.
- Step 4** Change the object name and description if needed.
- Step 5** If you want to change the objects or network groups that are already added to the network group, perform the following steps:
- Click the edit icon  appearing beside the object name or network group to modify them.
 - Click the checkmark to save your changes. **Note:** You can click the remove icon to delete the value from a network group.
- Step 6** If you want to add new network objects or network groups to this network group, you have to perform the following steps:
- In the **Values** field, enter a new value or the name of an existing network object. When you start typing, Security Cloud Control provides object names or values that match your entry. You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.
 - If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object or network group to the new network group.
 - If you have entered a value or object that is not present, you can perform one of the following:
 - Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the checkmark to save it.
 - Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the checkmark to save it.
- It's possible to create a new object even though the value is already present. You can make changes to those objects and save them.
- Step 7** Click **Save**. Security Cloud Control displays the policies that will be affected by the change.

Step 8 Click **Confirm** to finalize the change to the object and any devices affected by it.

Step 9 [Preview and Deploy Configuration Changes for All Devices](#).

Add an Object Override



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Locate the object to which you want to add an override, using object filters and search field.

Step 3 Select the network object and click the edit icon  in the **Actions** pane.

Step 4 Enter the value in the **Override Values** dialog box and click + **Add Value**.

Important

The override you are adding must have the same type of value that the object contains. For example, to a network object, you can configure an override only with a network value and not a host value.

Step 5 Once you see that the value is added, click the cell in the **Devices** column in **Override Values**.

Step 6 Click **Add Devices**, and choose the device to which you want the override to be added. The device you select must contain the object to which you are adding the override.

Step 7 Click **Save**. Security Cloud Control displays the devices that will be affected by the change.

Step 8 Click **Confirm** to finalize the addition of the override to the object and any devices affected by it.

Note

You can add more than one override to an object. However, you must select a different device, which contains the object, each time you are adding an override.

Step 9 See [Object Overrides, on page 25](#) to know more about object overrides and [Edit Object Overrides, on page 46](#) to edit an existing override.

Edit Object Overrides

You can modify the value of an existing override as long as the object is present on the device.

Procedure

-
- Step 1** Navigate to **Manage > Objects**.
- Step 2** Locate the object having override you want to edit by using object filters and search field.
- Step 3** Select the object having override and click the edit icon  in the Actions pane.
- Step 4** Modify the override value:
- Click the edit icon to modify the value.
 - Click on the cell in the **Devices** column in **Override Values** to assign new devices. You can select an already assigned device and click **Remove Overrides** to remove overrides on that device.
 - Click  arrow in **Override Values** to push and make it as the default value of the shared object.
 - Click the delete icon next to the override you want to remove.
- Step 5** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.
- Step 6** Click **Confirm** to finalize the change to the object and any devices affected by it.
- Step 7** [Preview and Deploy Configuration Changes for All Devices](#).
-

Add Additional Values to a Shared Network Group

The values in a shared network group that are present on all devices associated with it are called "default values." Security Cloud Control allows you to add "additional values" to the shared network group and assign those values to some devices associated with that shared network group. When Security Cloud Control deploys the changes to the devices, it determines the contents and pushes the "default values" to all devices associated with the shared network group and the "additional values" only to the specified devices.

For example, consider a scenario where you have four AD main servers in your head office that should be accessible from all your sites. Therefore, you have created an object group named "Active-Directory" to use in all your sites. Now you want to add two more AD servers to one of your branch offices. You can do this by adding their details as additional values specific to that branch office on the object group "Active-Directory." These two servers do not participate in determining whether the object "Active-Directory" is consistent or shared. Therefore, the four AD main servers are accessible from all your sites, but the branch office (with two additional servers) can access two AD servers and four AD main servers.



Note If there are inconsistent shared network groups, you can combine them into a single shared network group with additional values. See [Resolve Inconsistent Object Issues, on page 804](#) for more information.

**Caution**

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the shared network group you want to edit by using object filters and search field.
- Step 3** Click the edit icon  in the **Actions** pane.
- The **Devices** field shows the devices the shared network group is present.
 - The **Usage** field shows the rulesets associated with the shared network group.
 - The **Default Values** field specifies the default network objects and their values associated with the shared network group that was provided during their creation. Next to this field, you can see the number of devices that contain this default value, and you can click to see their names and device types. You can also see the rulesets associated with this value.
- Step 4** In the **Additional Values** field, enter a value or name. When you start typing, Security Cloud Control provides object names or values that match your entry.
- Step 5** You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.
- Step 6** If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object or network group to the new network group.
- Step 7** If you have entered a value or object that is not present, you can perform one of the following:
- Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the checkmark to save it.
 - Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the checkmark to save it.
- It is possible to create a new object even though the value is already present. You can make changes to those objects and save them.
- Step 8** In the **Devices** column, click the cell associated with the newly added object and click **Add Devices**.
- Step 9** Select the devices that you want and click **OK**.
- Step 10** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.
- Step 11** Click **Confirm** to finalize the change to the object and any devices affected by it.

Step 12 [Preview and Deploy Configuration Changes for All Devices.](#)

Edit Additional Values in a Shared Network Group



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object having the override you want to edit by using object filters and search field.
- Step 3** Click the edit icon  in the **Actions** pane.
- Step 4** Modify the override value:
 - Click the edit icon to modify the value.
 - Click the cell in the **Devices** column to assign new devices. You can select an already assigned device and click **Remove Overrides** to remove overrides on that device.
 - Click  arrow in **Default Values** to push and make it an additional value of the shared network group. All devices associated with the shared network group are automatically assigned to it.
 - Click  arrow in **Override Values** to push and make it as default objects of the shared network group.
 - Click the delete icon next to remove the object from the network group.
- Step 5** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.
- Step 6** Click **Confirm** to finalize the change to the object and any devices affected by it.
- Step 7** [Preview and Deploy Configuration Changes for All Devices.](#)

Deleting Network Objects and Groups in Security Cloud Control

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Deleting a network object or group from the **Manage > Objects** page deletes the replicated network object or group from the **Manage > Objects** page on the Cloud-Delivered Firewall Management Center and vice-versa.

Discover and Manage On-Prem Firewall Management Center Network Objects

If you have an On-Premises Firewall Management Center that you manage using Security Cloud Control and you want to share and manage its objects, do the following:

Procedure

-
- Step 1** In the left pane, choose **Tools & Services > Firewall Management Center Administration > Integrations > Firewall Management Center** to view the **Services** page.
- Step 2** If you already have onboarded an on-premises management center to Security Cloud Control, select it. If you want to onboard a new on-premises management center, see [Onboard an On-Prem Firewall Management Center](#).
- Step 3** Choose **Settings** from the **Actions** pane on the right. Note that you do not get to see the **Actions** pane when you select more than one on-premises management center.
- Note**
You must be an admin or a super admin to be able to use **Settings**.
- Step 4** Enable the **Discover & Manage Network Objects** toggle button. If you want your changes to be automatically synchronized with on-premises management center and not staged for review, turn the **Enable automatic sync of network objects** toggle on.
- Note**
- You cannot turn the **Discover & Manage Network Objects** toggle on if the on-premises management center that you have selected has one or more child domains or has the Change Management workflow enabled on it.
 - You cannot turn the **Enable automatic sync of network objects** toggle on if the **Discover & Manage Network Objects** toggle is turned off.

For every new on-premises management center onboarded to Security Cloud Control, this toggle button needs to be enabled manually. Once you enable this option, Security Cloud Control starts to discover objects from your on-premises management center, which you can share, manage, and use to set consistent object definitions across other platforms managed by Security Cloud Control.

In Security Cloud Control, when you add overrides to objects that are discovered from an on-premises management center and push the changes back to the on-premises management center, these objects start accepting overrides in the on-premises management center even if they were not accepting overrides before—the **Allow Overrides** checkbox in **View Network Object** window is checked automatically when an override is added from Security Cloud Control.

Note

If you want to assign already-existing objects in Security Cloud Control to your on-premises management center, choose the on-premises management center and click **Assign Objects** from the **Actions** pane.

Related Information

- [Network Objects](#)
- [Preview and Deploy On-Prem Firewall Management Center Configurations](#)

URL Objects

URL objects and URL groups are used by Firepower devices. Use URL objects and groups (collectively referred to as URL objects) to define the URL or IP addresses of web requests. You can use these objects to implement manual URL filtering in access control policies or blocking in Security Intelligence policies. A URL object defines a single URL or IP address, whereas a URL group defines more than one URL or IP address.

Before You Begin

When creating URL objects, keep the following points in mind:

- If you do not include a path (that is, there is no / character in the URL), the match is based on the server's hostname only. The hostname is considered a match if it comes after the `://` separator, or after any dot in the hostname. For example, `ign.com` matches `ign.com` and `www.ign.com`, but it does not match `verisign.com`.
- If you include one or more / character, the entire URL string is used for a substring match, including the server name, path, and any query parameters. However, we recommend that you do not use manual URL filtering to block or allow individual web pages or parts of sites, as servers can be reorganized and pages moved to new paths. Substring matching can also lead to unexpected matches, where the string you include in the URL object also matches paths on unintended servers or strings within query parameters.
- The system disregards the encryption protocol (HTTP vs HTTPS). In other words, if you block a website, both HTTP and HTTPS traffic to that website is blocked, unless you use an application condition to target a specific protocol. When creating a URL object, you do not need to specify the protocol when creating an object. For example, use `example.com` rather than `http://example.com`.
- If you plan to use a URL object to match HTTPS traffic in an access control rule, create the object using the subject common name in the public key certificate used to encrypt the traffic. Also, the system disregards subdomains within the subject common name, so do not include subdomain information. For example, use `example.com` rather than `www.example.com`.

However, please understand that the subject common name in the certificate might be completely unrelated to a web site's domain name. For example, the subject common name in the certificate for `youtube.com` is `*.google.com` (this of course might change at any time). You will get more consistent results if you use the SSL Decryption policy to decrypt HTTPS traffic so that URL filtering rules work on decrypted traffic.



Note URL objects will not match HTTPS traffic if the browser resumes a TLS session because the certificate information is no longer available. So even if you carefully configure the URL object, you might get inconsistent results for HTTPS connections.

Create or Edit an FDM-Managed URL Object

URL objects are reusable components that specify a URL or IP address.

To create a URL object, follow these steps:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
 - Step 2** Click  > **FTD > URL**.
 - Step 3** Enter an object name and description.
 - Step 4** Select **Create a URL object**.
 - Step 5** Enter the specific URL or IP address for your object.
 - Step 6** Click **Add**.
-

Create a Firepower URL Group

A URL group can be made up of one or more URL objects representing one or more URLs or IP addresses. The Firepower Device Manager and Firepower Management Center also refer to these objects as "URL Objects."

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
 - Step 2** Click  > **FTD > URL**.
 - Step 3** Enter an object name and description.
 - Step 4** Select **Create a URL group**.
 - Step 5** Add an existing object by clicking **Add Object**, selecting an object, and clicking **Select**. Repeat this step to add more objects.
 - Step 6** Click **Add** when you are done adding URL objects to the URL group.
-

Edit a Firepower URL Object or URL Group

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
 - Step 2** Filter the objects to find the object you want to edit and then select the object in the object table.
 - Step 3** In the details pane, click  to edit.
 - Step 4** Edit the values in the dialog box in the same fashion that you created them in the procedures above.
 - Step 5** Click **Save**.

- Step 6** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
-

Application Filter Objects

Application filter objects are used by Firepower devices. An application filter object defines the applications used in an IP connection, or a filter that defines applications by type, category, tag, risk, or business relevance. You can use these objects in policies to control traffic instead of using port specifications.

Although you can specify individual applications, application filters simplify policy creation and administration. For example, you could create an access control rule that identifies and blocks all high risk, low business relevance applications. If a user attempts to use one of those applications, the session is blocked.

You can select applications and application filters directly in a policy without using application filter objects. However, an object is convenient if you want to create several policies for the same group of applications or filters. The system includes several pre-defined application filters, which you cannot edit or delete.



Note Cisco frequently updates and adds additional application detectors via system and vulnerability database (VDB) updates. Thus, a rule blocking high risk applications can automatically apply to new applications without you having to update the rule manually.



Note When an FDM-managed device is onboarded to Security Cloud Control, it converts the application filters to application filter objects without altering the rule defined in Access Rule or SSL Decryption. Because of a configuration change, the device's configuration status is changed to 'Not Synced' and requires configuration deployment from Security Cloud Control. In general, FDM does not convert the application filters to application filter objects until you manually save the filters.

Related Information:

- [Create and Edit a Firepower Application Filter Object](#)
- [Deleting Objects](#)

Create and Edit a Firepower Application Filter Object

An application filter object allows you to target hand-picked applications or a group of applications identified by the filters. This application filter objects can be used in policies.

Create a Firepower Application Filter Object

To create an application filter object, follow this procedure:

Procedure

- Step 1** In the left pane, click **Manage > Objects**.

Step 2 Click  > **FTD** > **Application Filter**.

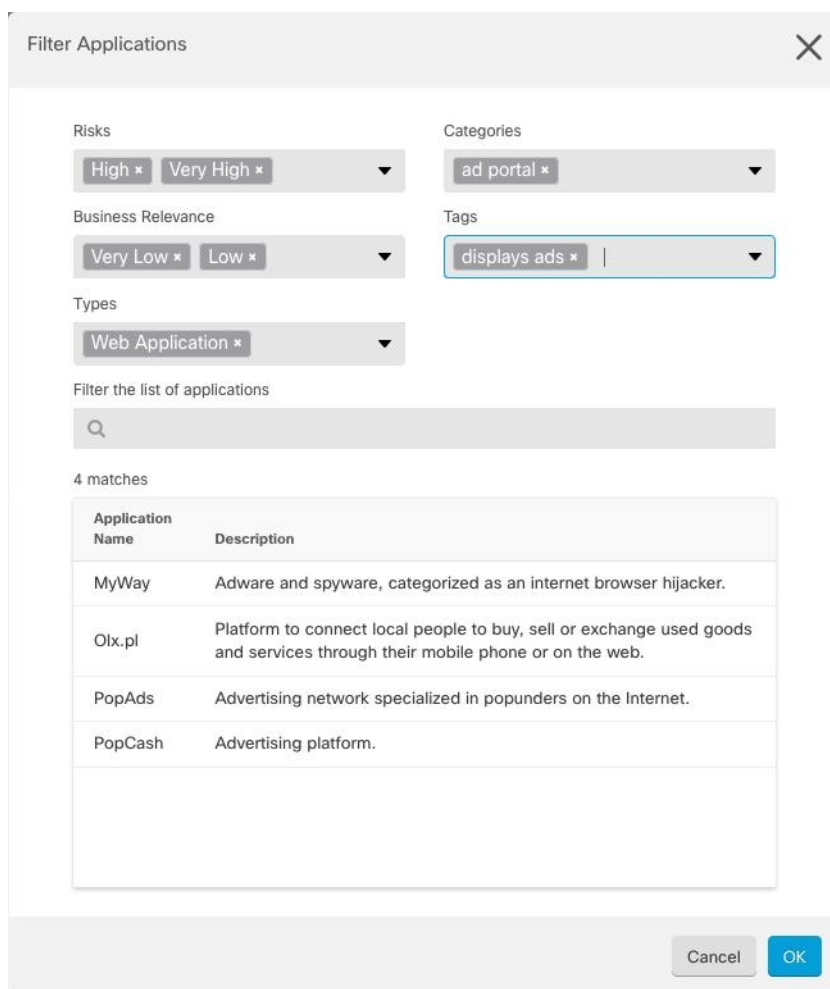
Step 3 Enter an **object name** for the object and optionally, a **description**.

Step 4 Click **Add Filter** and select the applications and filters to add to the object.

The initial list shows applications in a continually scrolling list. Click **Advanced Filter** to see the filter options and to get an easier view for selecting applications. Click **Add** when you have made your selections. You can repeat the process to add additional applications or filters.

Note

Multiple selections within a single filter criteria have an OR relationship. For example, Risk is High OR Very High. The relationship between filters is AND, so Risk is High OR Very High, AND Business Relevance is Low OR Very Low. As you select filters, the list of applications in the display updates to show only those that meet the criteria. You can use these filters to help you find applications that you want to add individually, or to verify that you are selecting the desired filters to add to the rule.



Filter Applications

Risks: High * Very High *

Categories: ad portal *

Business Relevance: Very Low * Low *

Tags: displays ads * |

Types: Web Application *

Filter the list of applications

4 matches

Application Name	Description
MyWay	Adware and spyware, categorized as an internet browser hijacker.
Olx.pl	Platform to connect local people to buy, sell or exchange used goods and services through their mobile phone or on the web.
PopAds	Advertising network specialized in popunders on the Internet.
PopCash	Advertising platform.

Cancel OK

Risks: The likelihood that the application is used for purposes that might be against your organization's security policy, from very low to very high.

Business Relevance: The likelihood that the application is used within the context of your organization's business operations, as opposed to recreationally, from very low to very high.

Types: The type of application.

- **Application Protocol:** Application protocols such as HTTP and SSH, which represent communications between hosts.
- **Client Protocol:** Clients such as web browsers and email clients, which represent software running on the host.
- **Web Application:** Web applications such as MPEG video and Facebook, which represent the content or requested URL for HTTP traffic.

Categories: A general classification for the application that describes its most essential function.

Tags: Additional information about the application, similar to category.

For encrypted traffic, the system can identify and filter traffic using only the applications tagged SSL Protocol. Applications without this tag can only be detected in unencrypted or decrypted traffic. Also, the system assigns the decrypted traffic tag to applications that the system can detect in decrypted traffic only, not encrypted or unencrypted.

Applications List (bottom of the display): This list updates as you select filters from the options above the list, so you can see the applications that currently match the filter. Use this list to verify that your filter is targeting the desired applications when you intend to add filter criteria to the rule. To add a specific application or applications to your object, select them from the filtered list. Once you select the applications, the filter will no longer apply. If you want the filter itself to be the object, do not select an application from the list. Then the object will represent every application identified by the filter.

Step 5 Click **OK** to save your changes.

Edit a Firepower Application Filter Object

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object you want to edit by using object filters and search field.
- Step 3** Select the object you want to edit.
- Step 4** Click the edit icon  in the Actions pane of the details panel.
- Step 5** Edit the values in the dialog box in the same fashion that you created them in the procedures above.
- Step 6** Click **Save**.
- Step 7** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
-

Related Information:

- [Objects](#)
- [Object Filters](#)
- [Delete a Firepower Object](#)

Geolocation Objects

A geolocation object defines countries and continents that host the device that is the source or destination of traffic. You can use these objects in policies to control traffic instead of using IP addresses. For example, using geographical location, you could easily restrict access to a particular country without needing to know all of the potential IP addresses used there.

You can typically select geographical locations directly in a policy without using geolocation objects. However, an object is convenient if you want to create several policies for the same group of countries and continents.

Update Geolocation Database

To ensure that you are using up-to-date geographical location data to filter your traffic, Cisco strongly recommends that you regularly update the geolocation database (GeoDB). At this time, this is not a task that you can perform using Security Cloud Control. See the following sections of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running to learn more about the GeoDB and how to update it.

- Updating System Databases and Feeds
- Updating System Databases

Create and Edit a Firepower Geolocation Filter Object

You can create a geolocation object by itself on the object page or when creating a security policy. This procedure creates a geolocation object from the object page.

To create a geolocation object, follow these steps:

Procedure

-
Step 1	In the left pane, click Manage > Objects .
Step 2	Click  > FTD > Geolocation .
Step 3	Enter an object name for the object and optionally, a description .
Step 4	In the filter bar, start typing the name of a country or a region and you are presented with a list of possible matches.
Step 5	Check the country, countries, or regions that you want to add to the object.
Step 6	Click Add .
-

Edit a Geolocation Object

Procedure

-
Step 1	In the left pane, choose Manage > Objects .
Step 2	Use the filter panes and search field to locate your object.
Step 3	In the Actions pane, click Edit .

- Step 4** You can change the name of the object and add or remove countries and regions to your object.
 - Step 5** Click **Save**.
 - Step 6** You will be notified if any devices are impacted. Click **Confirm**.
 - Step 7** If a device or policy was impacted, open the **Security Devices** page and **Preview and Deploy** the changes to the device.
-

DNS Group Objects

Domain Name System (DNS) groups define a list of DNS servers and some associated attributes. DNS servers are needed to resolve fully-qualified domain names (FQDN), such as `www.example.com`, to IP addresses. You can configure different DNS group objects for management and data interfaces.

Create a DNS Group Object

Use the following procedure to create a new DNS group object in Security Cloud Control:

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
 - Step 2** Click  > **FTD > DNS Group**.
 - Step 3** Enter an **Object Name**.
 - Step 4** (Optional) Add a description.
 - Step 5** Enter the IP address of a **DNS server**. You can add up to six DNS servers; click the **Add DNS Server**. If you want to remove a server address, click the delete icon.

Note
The list is in priority order: the first server in the list is always used, and subsequent servers are used only if a response is not received from the servers above it. Although you can add up to six servers, only the first 3 servers listed will be used for the management interface.
 - Step 6** Enter the **Domain Search Name**. This domain is added to hostnames that are not fully qualified; for example, `serverA` instead of `serverA.example.com`.
 - Step 7** Enter the number of **Retries**. The number of times, from 0 to 10, to retry the list of DNS servers when the system does not receive a response. The default is 2. This setting applies to DNS groups used on the data interfaces only.
 - Step 8** Enter the **Timeout** value. The number of seconds, from 1 to 30, to wait before trying the next DNS server. The default is 2 seconds. Each time the system retries the list of servers, this timeout doubles. This setting applies to DNS groups used on the data interfaces only.
 - Step 9** Click **Add**.
-

Edit a DNS Group Object

You can edit a DNS group object that was created in Security Cloud Control or in Firewall Device Manager. Use the following procedure to edit an existing DNS group object:

Procedure

-
- Step 1** In the Security Cloud Control navigation bar on the left, click **Manage > Objects**.
- Step 2** Locate the **DNS Group Object** you want to edit by using object filters and search field.
- Step 3** Select the object and click the edit icon  in the **Actions** pane.
- Step 4** Edit any of the following entries:
- Object Name.
 - Description.
 - DNS Server. You can edit, add, or remove DNS servers from this list.
 - Domain Search Name.
 - Retries.
 - Timeout.
- Step 5** Click **Save**.
- Step 6** [Preview and Deploy Configuration Changes for All Devices](#).
-

Delete a DNS Group Object

Use the following procedure to delete a DNS Group Object from Security Cloud Control:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the **DNS Group Object** you want to edit by using object filters and search field.
- Step 3** Select the object and click the **Remove** icon .
- Step 4** Confirm you want to delete the DNS group object and click **Ok**.
- Step 5** [Preview and Deploy Configuration Changes for All Devices](#).
-

Add a DNS Group Object as an FDM-Managed DNS Server

You can add a DNS group object as the preferred DNS Group for either the **Data Interface** or the **Management Interface**.

Certificate Objects

Digital certificates provide digital identification for authentication. Certificates are used for SSL (Secure Socket Layer), TLS (Transport Layer Security), and DTLS (Datagram TLS) connections, such as HTTPS and LDAPS.

See the **About Certificates** and **Configuring Certificates** following sections of the [Reusable Objects](#) chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.

About Certificates

Digital certificates provide digital identification for authentication. A digital certificate includes information that identifies a device or user, such as the name, serial number, company, department, or IP address. A digital certificate also includes a copy of the public key for the user or device. Certificates are used for SSL (Secure Socket Layer), TLS (Transport Layer Security), and DTLS (Datagram TLS) connections, such as HTTPS and LDAPS.

You can create the following types of certificate:

- **Internal certificates**—Internal identity certificates are certificates for specific systems or hosts. You can generate these yourself using the OpenSSL toolkit or get them from a certificate authority (CA). You can also generate a self-signed certificate.

The system comes with the following pre-defined internal certificates, which you can use as is or replace: **DefaultInternalCertificate** and **DefaultWebServerCertificate**

- **Internal Certificate Authority (CA) certificates**—Internal CA certificates are certificates that the system can use to sign other certificates. These certificates differ from internal identity certificates with respect to the basic constraints extension and the CA flag, which are enabled for CA certificates but disabled for identity certificates. You can generate these yourself using the OpenSSL toolkit or get them from a certificate authority. You can also generate a self-signed internal CA certificate. If you configure self-signed internal CA certificates, the CA runs on the device itself.

The system comes with the following pre-defined internal CA certificate, which you can use as is or replace: **NGFW-Default-InternalCA**

- **Trusted Certificate Authority (CA) certificates**—A trusted CA certificate is used to sign other certificates. It is self-signed and called a root certificate. A certificate that is issued by another CA certificate is called a subordinate certificate.

Certificate Authorities (CAs) are trusted authorities that "sign" certificates to verify their authenticity, thereby guaranteeing the identity of the device or user. CAs issue digital certificates in the context of a PKI, which uses public-key or private-key encryption to ensure security. A CA can be a trusted third party, such as VeriSign, or a private (in-house) CA that you establish within your organization. CAs are responsible for managing certificate requests and issuing digital certificates.

The system includes many trusted CA certificates from third-party certificate authorities. These are used by SSL decryption policies for Decrypt Re-Sign actions.

For more information, see the **Certificate Types Used by Feature** section of the Reusable Objects chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.

Certificate Types Used by Feature

You need to create the right type of certificate for each feature. The following features require certificates.

Identity Policies (Captive Portal)—Internal Certificate

(Optional.) Captive portal is used in identity policies. Users must accept this certificate when authenticating to the device for purposes of identifying themselves and receiving the IP address associated with their usernames. If you do not supply a certificate, the device uses an automatically generated certificate.

SSL Decryption Policy—Internal, Internal CA, and Trusted CA Certificates.

(Required.) The SSL decryption policy uses certificates for the these purposes:

- Internal certificates are used for known key decryption rules.
- Internal CA certificates are used for decrypt re-sign rules when creating the session between the client and FDM-managed device.
- Trusted CA certificates
 - They are used indirectly for decrypt re-sign rules when creating the session between the FDM-managed device and server. Unlike the other certificates, you do not directly configure these certificates in the SSL decryption policy; they simply need to be uploaded to the system. The system includes a large number of trusted CA certificates, so you might not need to upload any additional certificates.
 - When creating an Active Directory Realm object and configuring the directory server to use encryption.

Configuring Certificates

Certificates used in identity policies or SSL decryption policies must be an X509 certificate in PEM or DER format. You can use OpenSSL to generate certificates if needed, obtain them from a trusted Certificate Authority, or create self-signed certificates.

Use these procedures to configure certificate objects:

- [Uploading Internal and Internal CA Certificates](#)
- [Uploading Trusted CA Certificates](#)
- To view or edit a certificate, click either the edit icon or the view icon for the certificate.
- To delete an unreferenced certificate, click the trash can icon (delete icon) for the certificate. See [Deleting Objects](#).

Uploading Internal and Internal CA Certificates

Internal identity certificates are certificates for specific systems or hosts. You can generate these yourself using the OpenSSL toolkit or get them from a Certificate Authority. You can also generate a self-signed certificate.

Internal Certificate Authority (CA) certificates (Internal CA certificates) are certificates that the system can use to sign other certificates. These certificates differ from internal identity certificates with respect to the basic constraints extension and the CA flag, which are enabled for CA certificates but disabled for identity certificates. You can generate these yourself using the OpenSSL toolkit or get them from a Certificate Authority.

You can also generate a self-signed internal CA certificate. If you configure self-signed internal CA certificates, the CA runs on the device itself.

For information on the features that use these certificates, see [Certificate Type Used by Feature](#).

Procedure

This procedure creates an internal or internal CA certificate by uploading a certificate file or pasting existing certificate text into a text box. If you want to generate a self-signed certificate, see [Generating Self-Signed Internal and Internal CA Certificates](#).

To create an internal or internal CA certificate object, or when adding a new certificate object to a policy, follow this procedure:

Procedure

Step 1 Do one of the following:

- Create the certificate object in the Objects page:
 - a. In the left pane, click **Manage > Objects**.
 - b. Click the plus button  and select **FTD > Certificate**
- Click **Create New Object** when adding a new certificate object to a policy.

Step 2 Enter a **Name** for the certificate. The name is used in the configuration as an object name only, it does not become part of the certificate itself.

Step 3 In step 1, select **Internal Certificate** or **Internal CA**.

Step 4 In step 2, select **Upload** to upload the certificate file.

Step 5 In step 3, in the **Server Certificate** area, paste the certificate contents in the text box or upload the certificate file as explained in the wizard. If you paste the certificate into the text box, the certificate must include the BEGIN CERTIFICATE and END CERTIFICATE lines. For example:

```
-----BEGIN CERTIFICATE-----
MIICMTCCAZoCCQDdUV3NGK/cUjANBgkqhkiG9w0BAQsFADBDMQswCQYDVQQGEwJV
UzETMBEGA1UECAwKU29tZS1TdGF0ZTEhMB8GA1UECgwYSW50ZXJuZXQvV2lkZ210
(...5 lines removed...)
shGJDReRYJQqilhHZrYTWZAYTrD7NQPHutK+ZiJng67cPgnNDuXEn55UwMOQoHBp
HMUwmhiGZlzM8BpX2Js2yQ3ms30pr8ro+gPCPMCAwEAATANBgkqhkiG9w0BAQsF
AAOBgQCB02CebA6YjJCGGr2CJZrQSeUwSverBpmOuoqm98o2Z+5gJM5CkqgfwCUn
RV7LRfQGfYd76V/5uor4Wx2ZCjgy6+zuQEm4ZxWNSZpA9UBixFXJCs9MBO4qkG5D
v1k3WYJfcgyJ10h4E4b0W2xiixBU+xoOTLRATnbKY36EWAG5cw==
-----END CERTIFICATE-----
```

Step 6 In step 3, in the **Certificate Key** area, paste the key contents into the Certificate Key text box or upload the key file as explained in the wizard. If you paste the key into the text box, the key must include the BEGIN PRIVATE KEY or BEGIN RSA PRIVATE KEY and END PRIVATE KEY or END PRIVATE KEY lines.

Note

The key cannot be encrypted.

Step 7 Click **Add**.

Uploading Trusted CA Certificates

A trusted Certificate Authority (CA) certificate is used to sign other certificates. It is self-signed and called a root certificate. A certificate that is issued by another CA certificate is called a subordinate certificate.

For information on the features that use these certificates, see [Certificate Type Used by Feature](#).

Obtain a trusted CA certificate from an external certificate authority, or create one using your own internal CA, for example, with OpenSSL tools. Then, use the following procedure to upload the certificate.

Procedure

Procedure

Step 1 Do one of the following:

- Create the certificate object in the Objects page:
 - a. In the left pane, click **Manage > Objects**.
 - b. Click  > **FTD > Certificate**.
- Click **Create New Object** when adding a new certificate object to a policy.

Step 2 Enter a **Name** for the certificate. The name is used in the configuration as an object name only; it does not become part of the certificate itself.

Step 3 In step 1, select **External CA Certificate** and click **Continue**. The wizard advances to step 3.

Step 4 In step 3, in the **Certificate Contents** area, paste the certificate contents in the text box or upload the certificate file as explained in the wizard.

The certificate must adhere to these guidelines:

- The name of the server in the certificate must match the server Hostname / IP Address. For example, if you use 10.10.10.250 as the IP address but ad.example.com in the certificate, the connection fails.
- The certificate must be an X509 certificate in PEM or DER format.
- The certificate you paste must include the BEGIN CERTIFICATE and END CERTIFICATE lines. For example:

```
-----BEGIN CERTIFICATE-----
MIIFgtCCA2mgAwIBAgIJANvdcLnabFGYMA0GCSqGSIb3DQEBCwUAMFcxZAJBgNV
BAYTA1VTMQswCQYDVQQIDAJUWDEPMA0GA1UEBwwGYXVzdGluMRQwEgYDVQQKDAsx
OTIuMTY4LjEjEUMTEUMBIGA1UEAwwLMTkyLjE2OC4xLjEwHhcNMjYxMDI3MjIzNDE3
WhcNMjYxMDI3MjIzNDE3WjBXMjYxMDI3MjIzNDE3WjBXMjYxMDI3MjIzNDE3WjBXMjYx
BgNVBAMMBmF1c3RpbjEUMBIGA1UECgwLMTkyLjE2OC4xLjEwFDASBgNVBAMMCzE5
Mi4xNjguMS4xMIICIjANBgkqhkiG9w0BAQEFAAOCAg8AMIICCgKCAGEA5NceYwtP
ES6Ve+S9z7WLKGX5JlF58AvH82GPkOQdrixn3FZeWLQapTpJZt/vgtAI2FZIK3lh
(...20 lines removed...)
hbr6HOgKlOwXbRvOdkstZTEzVUqbgxt5Lwupg3b2ebQhWJz4BZvMsZX9etveEXDh
PY184V3yeSeYjbSCF5rP71fObG9Iu6+u4EfHp/NQv9s9dN5PMffXKieqpuN200jv
```

```
2b1sf0ydf4GMUKLBUMkhQnip6+3W
-----END CERTIFICATE-----
```

Step 5 Click **Add**.

Generating Self-Signed Internal and Internal CA Certificates

Internal identity certificates are certificates for specific systems or hosts. You can generate these yourself using the OpenSSL toolkit or get them from a Certificate Authority. You can also generate a self-signed certificate.

Internal Certificate Authority (CA) certificates (Internal CA certificates) are certificates that the system can use to sign other certificates. These certificates differ from internal identity certificates with respect to the basic constraints extension and the CA flag, which are enabled for CA certificates but disabled for identity certificates. You can generate these yourself using the OpenSSL toolkit or get them from a Certificate Authority. You can also generate a self-signed internal CA certificate. If you configure self-signed internal CA certificates, the CA runs on the device itself.

You can also create these certificates using OpenSSL, or obtain them from a trusted CA, and upload them. For more information, see [Uploading Internal and Internal CA Certificates](#).

For information on the features that use these certificates, see [Certificate Type Used by Feature](#).



Note

New self-signed certificates are generated with a 5-year validity term. Be sure to replace certificates before they expire.



Warning

Upgrading devices that have self-signed certificates may experience issues; see [New Certificate Detected](#) for more information.

Procedure

This procedure generates a self-signed certificate by entering the appropriate certificate field values in a wizard. If you want to create an internal or internal CA certificate by uploading a certificate file, see [Uploading Internal and Internal CA Certificates](#).

To generate a self-signed certificate, follow this procedure:

Procedure

Step 1 Do one of the following:

- Create the certificate object in the Objects page:
 - a. In the left pane, click **Manage** > **Objects**.
 - b. Click  > **FTD** > **Certificate**.

- Click **Create New Object** when adding a new certificate object to a policy.

- Step 2** Enter a **Name** for the certificate. The name is used in the configuration as an object name only, it does not become part of the certificate itself.
- Step 3** In step 1, select **Internal Certificate** or **Internal CA**.
- Step 4** In step 2, select **Self-Signed** to create the self-signed certificate in this step.
- Step 5** Configure at least one of the following for the certificate subject and issuer information.
- Country (C)— Select the country code from the drop-down list.
 - State or Province (ST)— The state or province to include in the certificate.
 - Locality or City (L)— The locality to include in the certificate, such as the name of the city.
 - Organization (O)— The organization or company name to include in the certificate.
 - Organizational Unit (Department) (OU)— The name of the organization unit (for example, a department name) to include in the certificate.
 - Common Name (CN)— The X.500 common name to include in the certificate. This could be the name of the device, web site, or another text string. This element is usually required for successful connections. For example, you must include a CN in the internal certificate used for remote access VPN.
- Step 6** Click **Add**.
-

Trustpoint Objects

Security Cloud Control allows you to add digital certificates as trustpoint objects and then install them on one or multiple managed ASA devices. A single trustpoint object is a container that holds an identity pair (identity certificate and issuer's CA certificate), identity certificate only, or CA certificate only.

You can configure many trustpoints in an ASA device. The supported certificate formats are PKCS12, PEM, and DER.

Adding an Identity Certificate Object Using PKCS12

This procedure creates an internal certificate identity or internal identity certificate by uploading a certificate file or pasting existing certificate text into a text box. You can generate as many identity certificates as you want.

You can upload a file encoded in **PKCS12** format. A PKCS12 is a single file that holds the CA server certificate, any intermediate certificates, and the private key in one encrypted file. A PKCS#12, or PFX, file holds a server certificate, intermediate certificates, and a private key in one encrypted file. Enter the **Passphrase** value for decryption.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.

- Step 2** Click  and select **ASA > Trustpoints**.
- Step 3** Enter an **Object Name** for the certificate. The name is used in the configuration as an object name only, it does not become part of the certificate itself.
- Step 4** In the **Certificate Type** step, select **Identity Certificate**.
- Step 5** In the **Import Type** step, select **Upload** to upload the certificate file.
The **Enrollment** step is set to Terminal.
- Step 6** In the **Certificate Contents** step, enter the PKCS12 format details.
A PKCS#12, or PFX, file holds a server certificate, intermediate certificates, and a private key in one encrypted file. Enter the **Passphrase** value for decryption.
- Step 7** Click **Continue**.
- Step 8** In the **Advanced Options** step, you can configure the following:
In the **Revocation** tab, you can configure the following:

- **Enable Certificate Revocation Lists (CRL)** — Check to enable CRL checking.

By default the **Use CRL distribution point from the certificate** check box is selected to obtain the revocation lists distribution URL from the certificate.

Cache Refresh Time (in minutes) — Enter the number of minutes between cache refreshes. The default is 60 minutes. The range is 1-1440 minutes. To avoid having to retrieve the same CRL from a CA repeatedly, the ASA can store retrieved CRLs locally, which is called CRL caching. The CRL cache capacity varies by platform and is cumulative across all contexts. If an attempt to cache a newly retrieved CRL would exceed its storage limits, the ASA removes the least recently used CRL until more space becomes available.

- **Enable Online Certificate Status Protocol (OCSP)** — Check to enable OCSP checking.

OCSP Server URL—The URL of the OCSP server checking for revocation if you require OCSP checks. This URL must start with **http://**.

Disable Nonce Extension — Enable the check box which cryptographically binds requests with responses to avoid replay attacks. This process works by matching the extension in the request to that in the response, ensuring that they are the same. Uncheck the **Disable Nonce Extension** check box if the OCSP server you are using sends pregenerated responses that do not include this matching nonce extension.

Evaluation Priority — Specify whether to evaluate the revocation status of a certificate first in CRL or OSCP.

- **Consider the certificate valid if revocation information cannot be reached**— Select this check box to consider the certificate to be a valid certificate if revocation information is unreachable.

For more information on revocation check, see the "Digital Certificates" chapter in the "[Basic Settings](#)" book of the *Cisco ASA Series General Operations ASDM Configuration*, X.Y document.

Click the **Others** tab:

- **Use CA Certificate for the Validation of** — Specify the type of connections that can be validated by this CA.
 - **IPSec Client** — Validates certificate presented by remote SSL servers.
 - **SSL Client** — Validates certificates presented by incoming SSL connections.

- **SSL Server** — Validates certificates presented by incoming IPSec connections.
- **Use Identity Certificate for** — Specify how the enrolled ID certificate can be used.
 - **SSL & IPSec** — Use for authenticating SSL & IPSec connections
 - **Code Signer** — Code signer certificates are special certificates whose associated private keys are used to create digital signatures. The certificates used to sign code are obtained from a CA, with the signed code itself revealing the certificate origin.
- **Other Options:**
 - **Enable CA flag in basic constraints extension** — Select this option if this certificate should be able to sign other certificates. The basic constraints extension identifies whether the subject of the certificate is a Certificate Authority (CA), in which case the certificate can be used to sign other certificates. The CA flag is part of this extension.
 - **Accept certificates issued by this CA** — Select this option to indicate that the ASA should accept certificates from the specified CA.
 - **Ignore IPSec Key Usage** — Select this option if you do not want to validate values in the key usage and extended key usage extensions of IPsec remote client certificates. You can suppress key usage checking on IPsec client certificates. By default, this option is not enabled.

Step 9 Click **Add**.

Create a Self-Signed Identity Certificate Object

This procedure describes steps for generating a self-signed certificate for your ASA by entering the appropriate certificate field values in a wizard. You can generate as many self-signed certificates as you want.

To create a Self-Signed identity certificate object, perform these steps:

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  and select **ASA > Trustpoints**.
- Step 3** Enter an **Object Name** for the certificate.
The name is used in the configuration as an object name only; it does not become part of the certificate itself.
- Step 4** In the **Identity Certificate** step, select **Identity Certificate**.
- Step 5** In the **Import Type** step, select **New** to upload the certificate file and click **Continue**.
- Step 6** In the **Enrollment** step, select **Self-Signed** and click **Continue**.
The **Certificates Content** step appears. Read [Self-Signed and CSR Certificate Generation Based on Certificate Contents](#) to understand the CN and SANS content in the Self-Signed certificate that is being generated.
- Step 7** In the **Certificate Contents** step, configure the following:

- **Country (C)**— Select the country code from the drop-down list.
- **State or Province (ST)**—The state or province to include in the certificate.
- **Locality or City (L)**—The locality to include in the certificate, such as the name of the city.
- **Organization (O)**—The organization or company name to include in the certificate.
- **Organizational Unit (Department) (OU)**—The name of the organization unit (for example, a department name) to include in the certificate.
- **Common Name (CN)**—The X.500 common name to include in the certificate. This could be the name of the device, web site, or another text string. This element is usually required for successful connections. For example, you must include a CN in the internal certificate used for remote access VPN.
- **Email Address (EA)**— The e-mail address associated with the identity certificate.
- **IP Address**— The ASA IP address on the network in four-part dotted-decimal notation.
- **Device's FQDN**— An unambiguous domain name, to indicate the position of the node in the DNS tree hierarchy.
- **Include Device's Serial Number**— Select the check box if you want to add the ASA serial number to the certificate parameters.

a) Click the **Key** tab.

- Choose the **RSA** or **ECDSA** key type.
- **Key Size**: If the key pair does not exist, defines the desired key size (modulus), in bits. The recommended key size for RSA is 1024 and for ECDSA is 384. The larger the modulus size, the more secure the key. However, keys with larger modulus sizes take longer to generate (a minute or more when larger than 512 bits) and longer to process when exchanged.
- Click **Continue**.

Step 8

In the **Advanced Options** step, you can configure the following:

In the **Revocation** tab, you can configure the following:

- **Enable Certificate Revocation Lists (CRL)** — Check to enable CRL checking.

By default the **Use CRL distribution point from the certificate** check box is selected to obtain the revocation lists distribution URL from the certificate.

Cache Refresh Time (in minutes) — Enter the number of minutes between cache refreshes. The default is 60 minutes. The range is 1 to 1440 minutes. To avoid having to retrieve the same CRL from a CA repeatedly, the ASA can store retrieved CRLs locally, which is called CRL caching. The CRL cache capacity varies by platform and is cumulative across all contexts. If an attempt to cache a newly retrieved CRL would exceed its storage limits, the ASA removes the least recently used CRL until more space becomes available.

- **Enable Online Certificate Status Protocol (OCSP)** — Check to enable OCSP checking.

OCSP Server URL — The URL of the OCSP server checking for revocation if you require OCSP checks. This URL must start with **http://**.

Disable Nonce Extension — Enable the check box which cryptographically binds requests with responses to avoid replay attacks. This process works by matching the extension in the request to that in the response,

ensuring that they are the same. Uncheck the **Disable Nonce Extension** check box if the OCSP server you are using sends pregenerated responses that do not include this matching nonce extension.

Evaluation Priority — Specify whether to evaluate the revocation status of a certificate first in CRL or OSCP.

- **Consider the certificate valid if revocation information cannot be reached** — Select this check box to consider the certificate to be a valid certificate if revocation information is unreachable.

For more information on revocation check, see the "Digital Certificates" chapter in the ["Basic Settings" book of the Cisco ASA Series General Operations ASDM Configuration, X.Y document.](#)

Click the **Others** tab:

- **Use CA Certificate for the Validation of** — Specify the type of connections that can be validated by this CA.
 - **IPSec Client** — Validates certificate presented by remote SSL servers.
 - **SSL Client** — Validates certificates presented by incoming SSL connections.
 - **SSL Server** — Validates certificates presented by incoming IPSec connections.
- **Use Identity Certificate for** — Specify how the enrolled ID certificate can be used.
 - **SSL & IPSec** — Use for authenticating SSL & IPSec connections
 - **Code Signer** — Code signer certificates are special certificates whose associated private keys are used to create digital signatures. The certificates used to sign code are obtained from a CA, with the signed code itself revealing the certificate origin.
- **Other Options:**
 - **Enable CA flag in basic constraints extension** — Select this option if this certificate should be able to sign other certificates. The basic constraints extension identifies whether the subject of the certificate is a Certificate Authority (CA), in which case the certificate can be used to sign other certificates. The CA flag is part of this extension. The presence of these items in a certificate i
 - **Accept certificates issued by this CA** — Select this option to indicate that the ASA should accept certificates from the specified CA.
 - **Ignore IPSec Key Usage** — Select this option if you do not want to validate values in the key usage and extended key usage extensions of IPsec remote client certificates. You can suppress key usage checking on IPsec client certificates. By default, this option is not enabled.

Step 9 Click **Add**.

Add an Identity Certificate Object for Certificate Signing Request (CSR)

The Certification Authority (CA) server information and enrollment parameters are required to generate Certificate Signing Requests (CSRs) and obtain Identity Certificates from the specified CA. You need to select either Rivest-Shamir-Adleman (RSA) or Elliptic Curve Digital Signature Algorithm (ECDSA) key type to generate the request.

Create a trustpoint object by providing identification information and optionally uploading a CA certificate obtained from a CA.

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  and select **ASA > Trustpoints**.
- Step 3** Enter an **Object Name** for the certificate.
- The name is used in the configuration as an object name only; it does not become part of the certificate itself.
- Step 4** In the **Identity Certificate** step, select **Identity Certificate**.
- Step 5** In the **Import Type** step, select **New** to upload the certificate file and click **Continue**.
- Step 6** In the **Enrollment** step, select **Manual**.
- Step 7** (optional) You can paste or upload the CA certificate obtained from your CA. You can leave the field empty.
- Step 8** Click **Continue**.
- The Certificates Content step appears. Read [Self-Signed and CSR Certificate Generation Based on Certificate Contents](#) to understand the CN and SANS content in the Signed certificate that is being generated.
- Step 9** In the **Certificate Contents** step, configure the following:
- **Country (C)**— Select the country code from the drop-down list.
 - **State or Province (ST)**—The state or province to include in the certificate.
 - **Locality or City (L)**—The locality to include in the certificate, such as the name of the city.
 - **Organization (O)**—The organization or company name to include in the certificate.
 - **Organizational Unit (Department) (OU)**—The name of the organization unit (for example, a department name) to include in the certificate.
 - **Common Name (CN)**—The X.500 common name to include in the certificate. This could be the name of the device, web site, or another text string. This element is usually required for successful connections. For example, you must include a CN in the internal certificate used for remote access VPN.
 - **Email Address (EA)**— The e-mail address associated with the identity certificate.
 - **IP Address**— The ASA IP address on the network in four-part dotted-decimal notation.
 - **Subject Alternative Name (SAN)**— This field will be part of Certificate Subject DN as 'unstructuredName' as well. We recommend you use this field if the certificate is used for multiple domains or IP addresses.
 - **Use Device Host Name:** Host name of the device is used.
 - **Custom: Device's FQDN**— An unambiguous domain name, to indicate the position of the node in the DNS tree hierarchy.

Note

We recommend the values specified in CN and **Custom FQDN** are the same.

- **Include Device's Serial Number**— Select the check box if you want to include the serial number of ASA in the certificate. The CA uses the serial number to either authenticate certificates or to later associate a certificate with a particular device. If you are in doubt, include the serial number, as it is useful for debugging purposes.

a) Click the **Key** tab.

- Choose the **RSA** or **ECDSA** key type.
- **Key Size**: If the key pair does not exist, defines the desired key size (modulus), in bits. The recommended key size for RSA is 1024 and for ECDSA is 348. The larger the modulus size, the more secure the key. However, keys with larger modulus sizes take longer to generate (a minute or more when larger than 512 bits) and longer to process when exchanged.
- Click **Continue**.

Step 10

In the **Advanced Options** step, you can configure the following:

In the **Revocation** tab, you can configure the following:

- **Enable Certificate Revocation Lists (CRL)** — Check to enable CRL checking.

By default, the **Use CRL distribution point from the certificate** check box is selected to obtain the revocation lists distribution URL from the certificate.

Cache Refresh Time (in minutes) — Enter the number of minutes between cache refreshes. The default is 60 minutes. The range is 1 to 1440 minutes. To avoid having to retrieve the same CRL from a CA repeatedly, the ASA can store retrieved CRLs locally, which is called CRL caching. The CRL cache capacity varies by platform and is cumulative across all contexts. If an attempt to cache a newly retrieved CRL would exceed its storage limits, the ASA removes the least recently used CRL until more space becomes available.

- **Enable Online Certificate Status Protocol (OCSP)** — Check to enable OCSP checking.

OCSP Server URL—The URL of the OCSP server checking for revocation if you require OCSP checks. This URL must start with **http://**.

Disable Nonce Extension — Enable the check box which cryptographically binds requests with responses to avoid replay attacks. This process works by matching the extension in the request to that in the response, ensuring that they are the same. Uncheck the **Disable Nonce Extension** check box if the OCSP server you are using sends pregenerated responses that do not include this matching nonce extension.

Evaluation Priority — Specify whether to evaluate the revocation status of a certificate first in CRL or OSCP.

- **Consider the certificate valid if revocation information cannot be reached**— Select this check box to consider the certificate to be a valid certificate if revocation information is unreachable.

For more information on revocation check, see the "Digital Certificates" chapter in the "[Basic Settings](#)" book of the [Cisco ASA Series General Operations ASDM Configuration](#), X.Y document.

Click the **Others** tab:

- **Use CA Certificate for the Validation of** — Specify the type of connections that can be validated by this CA.
 - **IPSec Client** — Validates certificate presented by remote SSL servers.

- **SSL Client** — Validates certificates presented by incoming SSL connections.
- **SSL Server** — Validates certificates presented by incoming IPSec connections.
- **Use Identity Certificate for** — Specify how the enrolled ID certificate can be used.
 - **SSL & IPSec** — Use for authenticating SSL & IPSec connections
 - **Code Signer** — Code signer certificates are special certificates whose associated private keys are used to create digital signatures. The certificates used to sign code are obtained from a CA, with the signed code itself revealing the certificate origin.
- **Other Options:**
 - **Enable CA flag in basic constraints extension** — Select this option if this certificate should be able to sign other certificates. The basic constraints extension identifies whether the subject of the certificate is a Certificate Authority (CA), in which case the certificate can be used to sign other certificates. The CA flag is part of this extension. The presence of these items in a certificate i
 - **Accept certificates issued by this CA** — Select this option to indicate that the ASA should accept certificates from the specified CA.
 - **Ignore IPSec Key Usage** — Select this option if you do not want to validate values in the key usage and extended key usage extensions of IPSec remote client certificates. You can suppress key usage checking on IPSec client certificates. By default, this option is not enabled.

Step 11 Click **Add**.

This creates a trustpoint certificate object.

Add a Trusted CA Certificate Object

Obtain a trusted CA certificate from an external certificate authority, or create one using your own internal CA, for example, with OpenSSL tools. You can upload a file encoded in one of the following supported formats:

- Distinguished Encoding Rules (DER)
- Privacy-enhanced Electronic Mail (PEM)

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Click  and select **ASA > Trustpoints**.

Step 3 Enter an **Object Name** for the certificate.

The name is used in the configuration as an object name only; it does not become part of the certificate itself.

Step 4 In the **Certificate Type** step, select **Trusted CA Certificate**.

Step 5 In the **Certificate Contents** step, paste the certificate contents in the text box or upload the CA certificate file as explained in the wizard.

Step 6 Click **Continue**. The wizard advances to step 4.

The certificate must follow these guidelines:

- The name of the server in the certificate must match the server Hostname / IP Address. For example, if you use 10.10.10.250 as the IP address but ad.example.com in the certificate, the connection fails.
- The certificate must be an X509 certificate in PEM or DER format.
- The certificate you paste must include the BEGIN CERTIFICATE and END CERTIFICATE lines. For example:

```
-----BEGIN CERTIFICATE-----
MIIFgTCCA2mgAwIBAgIJANvdcLnabFGYMA0GCSqGSIb3DQEBCwUAMFcxZAJBgNV
BAYTA1VTMQswCQYDVQQIDAJUWDEPMA0GA1UEBwwGYXVzdGluMRQwEgYDVQQKDAsx
OTIuMTY4LjEuMTEUMBIGA1UEAwwLMTkyLjE2OC4xLjEwHhcNMjYxMDI3MjIzNDE3
WhcNMjYxMDI3MjIzNDE3WjBXMQswCQYDVQQGEwJVUzELMAkGA1UECAwCVFgxZDZAN
BgNVBACMBmFlc3RpbjEUMBIGA1UECgwLMTkyLjE2OC4xLjEwHhcNMjYxMDI3MjIzNDE3
WjBXMQswCQYDVQQGEwJVUzELMAkGA1UECAwCVFgxZDZANBgNVBACMBmFlc3RpbjEUM
i4xNjguMS4xMjE3ZjE2OC4xLjEwHhcNMjYxMDI3MjIzNDE3WjBXMQswCQYDVQQGEw
ES6Ve+S9z7WLKX5JlF58AvH82GPKOQdrinxn3FZEWLQapTpJZt/vgtAI2FZIK3lh
(...20 lines removed...)
hbr6HOgKlOwXbRvOdkstZTEzVUqbgxt5Lwupg3b2ebQhWJz4BZvMsZX9etveEXDh
PY184V3yeSeYjbSCF5rP71fObG9Iu6+u4EfHp/NQv9s9dN5PMffXKieqpuN20Ojv
2b1sfOydf4GMUKLBUMkhQnip6+3W
-----END CERTIFICATE-----
```

Step 7 In the **Advanced Options** step, you can configure the following:

In the **Revocation** tab, you can configure the following:

- **Enable Certificate Revocation Lists (CRL)** — Check to enable CRL checking.

By default, the **Use CRL distribution point from the certificate** check box is selected to obtain the revocation lists distribution URL from the certificate.

Cache Refresh Time (in minutes) — Enter the number of minutes between cache refreshes. The default is 60 minutes. The range is 1 to 1440 minutes. To avoid having to retrieve the same CRL from a CA repeatedly, the ASA can store retrieved CRLs locally, which is called CRL caching. The CRL cache capacity varies by platform and is cumulative across all contexts. If an attempt to cache a newly retrieved CRL would exceed its storage limits, the ASA removes the least recently used CRL until more space becomes available.

- **Enable Online Certificate Status Protocol (OCSP)** — Check to enable OCSP checking.

OCSP Server URL—The URL of the OCSP server checking for revocation if you require OCSP checks. This URL must start with **http://**.

Disable Nonce Extension — Enable the check box which cryptographically binds requests with responses to avoid replay attacks. This process works by matching the extension in the request to that in the response, ensuring that they are the same. Uncheck the **Disable Nonce Extension** check box if the OCSP server you are using sends pregenerated responses that do not include this matching nonce extension.

Evaluation Priority — Specify whether to evaluate the revocation status of a certificate first in CRL or OSCP.

- **Consider the certificate valid if revocation information cannot be reached**— Select this check box to consider the certificate to be a valid certificate if revocation information is unreachable.

For more information on revocation check, see the "Digital Certificates" chapter in the ["Basic Settings" book of the Cisco ASA Series General Operations ASDM Configuration, X.Y document](#).

Click the **Others** tab:

- **Use CA Certificate for the Validation of** — Specify the type of connections that can be validated by this CA.
 - **IPSec Client** — Validates certificate presented by remote SSL servers.
 - **SSL Client** — Validates certificates presented by incoming SSL connections.
 - **SSL Server** — Validates certificates presented by incoming IPSec connections.
- **Other Options:**
 - **Enable CA flag in basic constraints extension** — Select this option if you want to validate if the subject of the certificate is a CA using the basic constraints extension.
 - **Accept certificates issued by this CA** — Select this option to indicate that the ASA should accept certificates from the specified CA.
 - **Accept certificates issued by the subordinates CAs of this CA** — Select this option to indicate that the ASA should accept certificates from the subordinate CA.
 - **Ignore IPSec Key Usage** — Select this option if you do not want to validate values in the key usage and extended key usage extensions of IPsec remote client certificates. You can suppress key usage checking on IPsec client certificates. By default, this option is not enabled.

Step 8 Click **Add**.

This creates a trustpoint certificate object.

Self-Signed and CSR Certificate Generation Based on Certificate Contents

You need to have an idea of the CN and SANS content in the Self-Signed and CSR certificates. The content is based on the parameters you specify during their creation. You need to configure the parameters precisely for the AnyConnect clients to connect to the intended VPN headends of your organization.

This section provides different use cases with examples to give you an idea of the content of Self-Signed and CSR certificates based on the parameters specified.

Usecase 1: Different CN and FQDN values

Example:

- Common Name (CN): mywebsite.com
- FQDN: mysan.com

Table 9: Example: Different CN and FQDN values

	Common Name	unstructuredName	SANS
Self-Signed	mywebsite.com	mysan.com	mysan.com
CSR	mywebsite.com	mysan.com	-

Usecase 2: FQDN field set to None

Example:

- Common Name (CN): mywebsite.com
- FQDN: None

Table 10: Example: FQDN field set to None

	Common Name	SANS
Self-Signed	Host Name	-
CSR	mywebsite.com	-

Usecase 3: No FQDN (Default FQDN)

Example:

- Common Name (CN): mywebsite.com

Table 11: Example: No FQDN (Default FQDN)

	Common Name	unstructuredName	SANS
Self-Signed	mywebsite.com	Host Name	-
CSR	mywebsite.com	Host Name	Host Name

Usecase 4: IP Address is specified in FQDN

Example:

- Common Name (CN): mywebsite.com
- FQDN: 4.5.6.7

Table 12: Example: IP Address is specified in FQDN

	Common Name	unstructuredName	SANS
Self-Signed	mywebsite.com	4.5.6.7	-
CSR	mywebsite.com	4.5.6.7	4.5.6.7

Usecase 5: IP Address is Specified

Example:

- IP Address: 4.5.6.7
- Common Name (CN): mywebsite.com
- FQDN: fqdn.com

Table 13: Example: IP Address is specified

	Common Name	unstructuredAddress	unstructuredName	SANS
Self-Signed	mywebsite.com	4.5.6.7	fqdn.com	-
CSR	mywebsite.com	4.5.6.7	fqdn.com	fqdn.com

Usecase 6: Serial Number Check box is Selected

Example:

- Serial Number: 9AQXMWOKDT9

Table 14: Example: IP Serial Number Check box is Selected

	serialNumber	SANS
Self-Signed	9AQXMWOKDT9	-
CSR	9AQXMWOKDT9	fqdn.com

Usecase 7: Email Address is Specified

Example:

- EA: abc@xyz.com

Table 15: Example: Email Address is Specified

	unstructuredName	emailAddress	SANS
Self-Signed	Host Name	abc@xyz.com	Host Name
CSR	Host Name	abc@xyz.com	-

About IPsec Proposals

IPsec is one of the most secure methods for setting up a VPN. IPsec provides data encryption at the IP packet level, offering a robust security solution that is standards-based. With IPsec, data is transmitted over a public network through tunnels. A tunnel is a secure, logical communication path between two peers. Traffic that enters an IPsec tunnel is secured by a combination of security protocols and algorithms called a transform

set. During the IPsec security association (SA) negotiation, peers search for a transform set that is the same at both peers.

There are separate IPsec proposal objects based on the IKE version, IKEv1, or IKEv2:

- When you create an IKEv1 IPsec proposal, you select the mode in which IPsec operates, and define the required encryption and authentication types. You can select single options for the algorithms. If you want to support multiple combinations in a VPN, create and select multiple IKEv1 IPsec Proposal objects.
- When you create an IKEv2 IPsec proposal, you can select all of the encryption and hash algorithms allowed in a VPN. The system orders the settings from the most secure to the least secure and negotiates with the peer until a match is found. This allows you to potentially send a single proposal to convey all the allowed combinations instead of the need to send each allowed combination individually as with IKEv1.

The Encapsulating Security Protocol (ESP) is used for both IKEv1 and IKEv2 IPsec proposals. It provides authentication, encryption, and antireplay services. ESP is IP protocol type 50.



Note We recommend using both encryption and authentication on IPsec tunnels.

Managing an IKEv1 IPsec Proposal Object

IPsec Proposal objects configure the IPsec proposal used during IKE Phase 2 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel. There are separate objects for IKEv1 and IKEv2. Currently, Security Cloud Control supports IKEv1 IPsec proposal objects.

The Encapsulating Security Protocol (ESP) is used for both IKEv1 and IKEv2 IPsec proposals. It provides authentication, encryption, and anti-replay services. ESP is IP protocol type 50.



Note We recommend using both encryption and authentication on IPsec tunnels.

Related Topics

[Create an IKEv1 IPsec Proposal Object](#), on page 444

Create or Edit an IKEv1 IPsec Proposal Object

There are several pre-defined IKEv1 IPsec proposals. You can also create new proposals to implement other combinations of security settings. You cannot edit or delete system-defined objects.

This procedure explains how you can create and edit objects directly through the Objects page. You can also create IKEv1 IPsec Proposals objects while editing the IKEv1 IPsec settings in a Site-to-Site VPN connection by clicking the **Create New IKEv1 Proposal** link shown in the object list.

Procedure

-
- Step 1** From the left pane, click **Manage > Objects**.
- Step 2** Do one of these things:

- Click , and select **FTD > IKEv1 IPsec Proposal** to create the new object.
- On the object page, select the IPsec proposal you want to edit and click **Edit** in the **Actions** pane at the right.

Step 3 Enter an **object name** for the new object.

Step 4 Select the Mode in which the IKEv1 IPsec Proposal object operates.

- **Tunnel mode** encapsulates the entire IP packet. The IPsec header is added between the original IP header and a new IP header. This is the default. Use tunnel mode when the firewall is protecting traffic to and from hosts positioned behind the firewall. Tunnel mode is the normal way regular IPsec is implemented between two firewalls (or other security gateways) that are connected over an untrusted network, such as the Internet.
- **Transport mode** encapsulates only the upper-layer protocols of an IP packet. The IPsec header is inserted between the IP header and the upper-layer protocol header (such as TCP). Transport mode requires that both the source and destination hosts support IPsec, and can only be used when the destination peer of the tunnel is the final destination of the IP packet. Transport mode is generally used only when protecting a Layer 2 or Layer 3 tunneling protocol such as GRE, L2TP, and DLSW.

Step 5 Select the **ESP Encryption** (Encapsulating Security Protocol encryption) algorithm for this proposal. For an explanation of the options, see [Deciding Which Encryption Algorithm to Use, on page 446](#).

Step 6 Select the **ESP Hash** or integrity algorithm to use for authentication. For an explanation of the options, see [Deciding Which Hash Algorithms to Use, on page 447](#).

Step 7 Click **Add**.

Managing an IKEv2 IPsec Proposal Object

IPsec Proposal objects configure the IPsec proposal used during IKE Phase 2 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel.

When you create an IKEv2 IPsec proposal, you can select all of the encryption and hash algorithms allowed in a VPN. The system orders the settings from the most secure to the least secure and negotiates with the peer until a match is found. This allows you to potentially send a single proposal to convey all the allowed combinations instead of the need to send each allowed combination individually as with IKEv1.

Related Topics

[Create or Edit an IKEv2 IPsec Proposal Object](#), on page 445

Create or Edit an IKEv2 IPsec Proposal Object

There are several pre-defined IKEv2 IPsec proposals. You can also create new proposals to implement other combinations of security settings. You cannot edit or delete system-defined objects.

The following procedure explains how you can create and edit objects directly through the Objects page. You can also create IKEv2 IPsec Proposals objects while editing the IKEv2 IPsec settings in a VPN connection by clicking the Create New IPsec Proposal link shown in the object list.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Do one of these things:

- Click  and select **FTD > IKEv2 IPsec Proposal** to create the new object.
- In the object page, select the IPsec proposal you want to edit and click **Edit** in the Actions pane at the right.

Step 3 Enter an **object name** for the new object.

Step 4 Configure the IKE2 IPsec proposal objects:

- **Encryption**—The Encapsulating Security Protocol (ESP) encryption algorithm for this proposal. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Deciding Which Encryption Algorithm to Use, on page 446](#).
- **Integrity Hash**—The hash or integrity algorithm to use for authentication. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Deciding Which Hash Algorithms to Use, on page 447](#).

Step 5 Click **Add**.

About Global IKE Policies

Internet Key Exchange (IKE) is a key management protocol that is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

The IKE negotiation comprises two phases. Phase 1 negotiates a security association between two IKE peers, which enables the peers to communicate securely in Phase 2. During Phase 2 negotiation, IKE establishes SAs for other applications, such as IPsec. Both phases use proposals when they negotiate a connection. An IKE proposal is a set of algorithms that two peers use to secure the negotiation between them. IKE negotiation begins by each peer agreeing on a common (shared) IKE policy. This policy states which security parameters are used to protect subsequent IKE negotiations.

IKE policy objects define the IKE proposals for these negotiations. The objects that you enable are the ones used when the peers negotiate a VPN connection: you cannot specify different IKE policies per connection. The relative priority of each object determines which of these policies are tried first, with the lower number being a higher priority. The connection is not established if the negotiation fails to find a policy that both peers can support.

To define the global IKE policy, you select which objects to enable for each IKE version. If the pre-defined objects do not satisfy your requirements, create new policies to enforce your security policy.

Managing IKEv1 Policies

About IKEv1 Policy

Internet Key Exchange (IKE) version 1 policy objects contain the parameters required for IKEv1 policies when defining VPN connections. IKE is a key management protocol that facilitates the management of IPsec-based communications. It is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

There are several pre-defined IKEv1 policies. If any suit your needs, simply enable them by clicking the State toggle. You can also create new policies to implement other combinations of security settings. You cannot edit or delete system-defined objects.

Create or Edit an IKEv1 Policy

The following procedure explains how you can create and edit objects directly through the Objects page. You can also create an IKEv1 policy while editing the IKE settings in a Site-to-Site VPN connection by clicking the **Create New IKEv1 Policy** link shown in the object list.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Do one of these things:

- Click  and select **FTD > IKEv1 Policy** to create a new IKEv1 policy.
- In the object page, select the IKEv1 policy you want to edit and click **Edit** in the Actions pane at the right.

Step 3 Enter an **object name**, up to 128 characters.

Step 4 Configure the IKEv1 properties.

- **Priority**—The relative priority of the IKE policy, from 1 to 65,535. The priority determines the order of the IKE policy compared by the two negotiating peers when attempting to find a common security association (SA). If the remote IPsec peer does not support the parameters selected in your highest priority policy, it tries to use the parameters defined in the next lowest priority. The lower the number, the higher the priority.
- **Encryption**—The encryption algorithm used to establish the Phase 1 security association (SA) for protecting Phase 2 negotiations. For an explanation of the options, see *Deciding Which Encryption Algorithm to Use*.
- **Diffie-Hellman Group**—The Diffie-Hellman group to use for deriving a shared secret between the two IPsec peers without transmitting it to each other. A larger modulus provides higher security but requires more processing time. The two peers must have a matching modulus group. For an explanation of the options, see *Deciding Which Diffie-Hellman Modulus Group to Use*.
- **Lifetime**—The lifetime of the security association (SA), in seconds, from 120 to 2147483647 or blank. When the lifetime is exceeded, the SA expires and must be renegotiated between the two peers. As a general rule, the shorter the lifetime (up to a point), the more secure your IKE negotiations will be. However, with longer lifetimes, future IPsec security associations can be set up more quickly than with

shorter lifetimes. The default is 86400. To specify an unlimited lifetime, enter no value (leave the field blank).

- **Authentication**—The method of authentication to use between the two peers. For more information, see [Deciding Which Authentication Method to Use, on page 448](#).
 - **Preshared Key**—Use the preshared key that is defined on each device. These keys allow for a secret key to be shared between two peers and to be used by IKE during the authentication phase. If the peer is not configured with the same preshared key, the IKE SA cannot be established.
 - **Certificate**—Use the device identity certificates for the peers to identify each other. You must obtain these certificates by enrolling each peer in a Certificate Authority. You must also upload the trusted CA root and intermediate CA certificates used to sign the identity certificates in each peer. The peers can be enrolled in the same or a different CA. You cannot use self-signed certificates for either peer.
- **Hash**—The hash algorithm for creating a message digest, which is used to ensure message integrity. For an explanation of the options, see [Encryption and Hash Algorithms Used in VPN, on page 446](#).

Step 5 Click **Add**.

Managing IKEv2 Policies

About IKEv2 Policy

Internet Key Exchange (IKE) version 2 policy objects contain the parameters required for IKEv2 policies when defining VPN connections. IKE is a key management protocol that facilitates the management of IPsec-based communications. It is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

There are several pre-defined IKEv2 policies. If any suit your needs, simply enable them by clicking the State toggle. You can also create new policies to implement other combinations of security settings. You cannot edit or delete system-defined objects.

Create or Edit an IKEv2 Policy

The following procedure explains how you can create and edit objects directly through the Objects page. You can also create an IKEv2 policy while editing the IKE settings in a Site-to-Site VPN connection by clicking the **Create New IKEv2 Policy** link shown in the object list.

Procedure

Step 1 In the Security Cloud Control navigation bar on the left, click **Manage > Objects**.

Step 2 Do one of these things:

- Click  and select **FTD > IKEv2 Policy** to create a new IKEv2 policy.
- In the object page, select the IKEv2 policy you want to edit and click **Edit** in the Actions pane at the right.

Step 3 Enter an **object name**, up to 128 characters.

Step 4 Configure the IKEv2 properties.

- **Priority**—The relative priority of the IKE policy, from 1 to 65,535. The priority determines the order of the IKE policy compared by the two negotiating peers when attempting to find a common security association (SA). If the remote IPsec peer does not support the parameters selected in your highest priority policy, it tries to use the parameters defined in the next lowest priority. The lower the number, the higher the priority.
- **State**—Whether the IKE policy is enabled or disabled. Click the toggle to change the state. Only enabled policies are used during IKE negotiations.
- **Encryption**—The encryption algorithm used to establish the Phase 1 security association (SA) for protecting Phase 2 negotiations. Select all algorithms that you want to allow, although you cannot include both mixed-mode (AES-GCM) and normal mode options in the same policy. (Normal mode requires that you select an integrity hash, whereas mixed-mode prohibits a separate integrity hash selection.) The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Deciding Which Encryption Algorithm to Use, on page 446](#).
- **Diffie-Hellman Group**—The Diffie-Hellman group to use for deriving a shared secret between the two IPsec peers without transmitting it to each other. A larger modulus provides higher security but requires more processing time. The two peers must have a matching modulus group. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest group until a match is agreed upon. For an explanation of the options, see [Deciding Which Diffie-Hellman Modulus Group to Use, on page 447](#).
- **Integrity Hash**—The integrity portion of the hash algorithm for creating a message digest, which is used to ensure message integrity. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. The integrity hash is not used with the AES-GCM encryption options. For an explanation of the options, see [Encryption and Hash Algorithms Used in VPN, on page 446](#).
- **Pseudo-Random Function (PRF) Hash**—The pseudo-random function (PRF) portion of the hash algorithm, which is used as the algorithm to derive keying material and hashing operations required for the IKEv2 tunnel encryption. In IKEv1, the Integrity and PRF algorithms are not separated, but in IKEv2, you can specify different algorithms for these elements. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Encryption and Hash Algorithms Used in VPN, on page 446](#).
- **Lifetime**—The lifetime of the security association (SA), in seconds, from 120 to 2147483647 or blank. When the lifetime is exceeded, the SA expires and must be renegotiated between the two peers. As a general rule, the shorter the lifetime (up to a point), the more secure your IKE negotiations will be. However, with longer lifetimes, future IPsec security associations can be set up more quickly than with shorter lifetimes. The default is 86400. To specify an unlimited lifetime, enter no value (leave the field blank).

Step 5 Click **Add**.

RA VPN Objects

Configure Identity Sources for FDM-Managed Device

Identity Sources, such as Microsoft AD realms and RADIUS Servers, are AAA servers and databases that define user accounts for the people in your organization. You can use this information in a variety of ways, such as providing the user identity associated with an IP address, or authenticating remote access VPN connections or access to Security Cloud Control.

Click **Manage > Objects**, then click  and choose **> RA VPN Objects (ASA & FTD) > Identity Source** to create your sources. You would then use these objects when you configure the services that require an identity source. You can apply appropriate filters to search existing sources and manage them.

Active Directory Realms

Active Directory provides user account and authentication information. When you deploy a configuration that includes an AD realm to an FDM-managed device, Security Cloud Control fetches users and groups from the AD server.

You can use this source for the following purposes:

- Remote Access VPN, as a primary identity source. You can use AD in conjunction with a RADIUS server.
- Identity policy, for active authentication and as the user identity source used with passive authentication.
- Identity rule, for active authentication for a user.

Security Cloud Control requests an updated list of user groups once every 24 hours. Because you can add a maximum of 50 users or groups to a rule, selecting groups usually makes more sense than selecting individual users. For example, you could create a rule allowing the Engineering group access to a development network, and create a subsequent rule that denies all other access to the network. Then, to make the rule apply to new engineers, you only need to add the engineer to the Engineering group in the directory server.

Active Directory Realms In Security Cloud Control

You configure the AD realm when you create an AD Identity object. The identity source objects wizard assists in determining how to connect to the AD server and where the AD server is located in the network.



Note If you create an AD realm in Security Cloud Control, Security Cloud Control remembers the AD password when you create affiliate identity source objects and when you add those objects to an identity rule.

Active Directory Realms In FDM

You can point to AD realm objects that were created in FDM from the Security Cloud Control objects wizard. Note that Security Cloud Control does **not** read the AD password for AD realm objects that are created in FDM. You must manually enter the correct AD password in Security Cloud Control.

To configure an AD realm in Firewall Device Managers, see the **Configuring AD Identity Realms** section of the Reusable Objects chapters of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.

Supported Directory Servers

You can use AD on Windows Server 2008 and 2012.

Note the following about your server configuration:

- If you want to perform user control on user groups or on users within groups, you must configure user groups on the directory server. The system cannot perform user group control if the server organizes the users in a basic object hierarchy.
- The directory server must use the field names listed in the following table in order for the system to retrieve user metadata from the servers for that field:

Metadata	Active Directory Field
LDAP user name	samaccountname
First name	givenname
Last Name	sn
email address	mail userprincipalname (if mail has no value)
Department	department distinguishedname (if department has no value)
Telephone number	telephonenumber

Determining the Directory Base DN

When you configure directory properties, you need to specify the common base Distinguished Name (DN) for users and groups. The base is defined in your directory server and differs from network to network. You must enter the correct bases for identity policies to work. If the base is wrong, the system cannot determine user or group names, and thus identity-based policies will be inoperable.



Note To get the correct bases, consult the administrator who is responsible for the directory servers.

For an active directory, you can determine the correct bases by logging into the AD server as a domain administrator, and using the **dsquery** command at a command prompt as follows to determine the bases:

User search base

Enter the **dsquery user** command with known username (partial or complete) to determine the base distinguished name. For example, the following command uses the partial name "John*" to return information for all users that start with "John."

```
C:\Users\Administrator>dsquery user -name "John*"
```

```
"CN=John Doe,CN=Users,DC=csc-lab,DC=example,DC=com"
```

The base DN would be "DC=csc-lab,DC=example,DC=com."

Group search base

Enter the **dsquery group** command with a known group name to determine the base DN. For example, the following command uses the group name Employees to return the distinguished name:

```
C:\>dsquery group -name "Employees"
"CN=Employees,CN=Users,DC=csc-lab,DC=example,DC=com"
```

The group base DN would be "DC=csc-lab,DC=example,DC=com."

You can also use the ADSI Edit program to browse the AD structure (**Start > Run > adsiedit.msc**). In ADSI Edit, right click any object, such as an organizational unit (OU), group, or user, and choose **Properties** to view the distinguished name. You can then copy the string of DC values as the base.

To verify that you have the correct base:

Procedure

-
- Step 1** Click the **Test Connection** button in the directory properties to verify connectivity. Resolve any problems, and save the directory properties.
 - Step 2** Commit changes to the device.
 - Step 3** Create an access rule, select the **Users** tab, and try to add known user and group names from the directory. You should see auto-complete suggestions as you type for matching users and groups in the realm that contains the directory. If these suggestions appear in a drop-down list, then the system was able to query the directory successfully. If you see no suggestions, and you are certain the string you typed should appear in a user or group name, you need to correct the corresponding search base.
-

What to do next

See [Create and Edit a Firepower Threat Defense Active Directory Realm Object](#) for more information.

RADIUS Servers and Groups

You can use RADIUS servers to authenticate and authorize administration users.

When you configure a feature to use RADIUS servers, you select a RADIUS group instead of individual servers. A RADIUS group is a collection of RADIUS servers that are copies of each other. If a group has more than one server, they form a chain of backup servers to provide redundancy in case one server becomes unavailable. But even if you have only one server, you must create a one-member group to configure RADIUS support for a feature.

You can use this source for the following purposes:

- Remote Access VPN, as an identity source for authentication, and for authorization and accounting. You can use AD in conjunction with a RADIUS server.
- Identity policy, as a passive identity source to collect user identity from remote access VPN logins.

See [Create and Edit a Firepower Threat Defense RADIUS Server Object or Group](#) for more information.

Related Information:

- [Create an Active Directory Realm Object](#)
- [Create a RADIUS Server Object or Group](#)

Create or Edit an Active Directory Realm Object

About Active Directory Realm Objects

When you create or edit an identity source object such as an AD realm object, Security Cloud Control sends the configuration request to the FDM-managed devices through the SDC. The FDM-managed device then communicates with the configured AD realm.

Note that Security Cloud Control does not read the Directory Password for AD realms that are configured through the Firewall Device Manager console. If you use an AD realm object that was originally created in Firewall Device Manager, you must manually enter the Directory Password.

Create an FTD Active Directory Realm Object

Use the following procedure to create an object:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click , then click **RA VPN Objects (ASA & FTD) > Identity Source**.
- Step 3** Enter an **Object Name** for the object.
- Step 4** Select the **Device Type** is as **FTD**.
- Step 5** In the first part of the wizard, select **Active Directory Realm** as the **Identity Source Type**. Click **Continue**.
- Step 6** Configure the basic realm properties.
- **Directory Username, Directory Password** - The distinguished username and password for a user with appropriate rights to the user information you want to retrieve. For AD, the user does not need elevated privileges. You can specify any user in the domain. The username must be fully qualified; for example, [Administrator@example.com](#) (not simply Administrator).
- Note**
The system generates ldap-login-dn and ldap-login-password from this information. For example, [Administrator@example.com](#) is translated as cn=administrator,cn=users,dc=example,dc=com. Note that cn=users is always part of this translation, so you must configure the user you specify here under the common name "users" folder.
- **Base Distinguished Name** - The directory tree for searching or querying user and group information, that is, the common parent for users and groups. For example, cn=users,dc=example,dc=com.
 - **AD Primary Domain** - The fully qualified AD domain name that the device should join. For example, example.com.
- Step 7** Configure the directory server properties.
- **Hostname/IP Address** - The hostname or IP address of the directory server. If you use an encrypted connection to the server, you must enter the fully-qualified domain name, not the IP address.
 - **Port** - The port number used for communications with the server. The default is 389. Use port 636 if you select LDAPS as the encryption method.

- **Encryption** - To use an encrypted connection for downloading user and group information, select the desired method, **STARTTLS** or **LDAPS**. The default is **None**, which means that user and group information is downloaded in clear text.
 - **STARTTLS** negotiates the encryption method and uses the strongest method supported by the directory server. Use port 389. This option is not supported if you use the realm for remote access VPN.
 - **LDAPS** requires LDAP over SSL. Use port 636.
- **Trusted CA Certificate** - If you select an encryption method, upload a Certificate Authority (CA) certificate to enable a trusted connection between the system and the directory server. If you are using a certificate to authenticate, the name of the server in the certificate must match the server Hostname / IP Address. For example, if you use 10.10.10.250 as the IP address but ad.example.com in the certificate, the connection fails.

- Step 8** (Optional) Use the **Test** button to validate the configuration.
- Step 9** (Optional) Click **Add another configuration** to add multiple AD servers to the AD realm. The AD servers need to be duplicates of each other and support the same AD domain. Therefore, the basic realm properties such as **Directory name**, **Directory Password**, and **Base Distinguished Name** must be the same across all AD servers associated with that AD realm.
- Step 10** Click **Add**.
- Step 11** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Edit an FTD Active Directory Realm Object

Note that you cannot change the Identity Source Type when editing an Identity source object. You must create a new object with the correct type.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object you want to edit by using object filters and search field.
- Step 3** Select the object you want to edit.
- Step 4** Click the edit icon  in the **Actions** pane of the details panel.
- Step 5** Edit the values in the dialog box in the same fashion that you created in the procedures above. Expand the configuration bar listed below to edit or test the hostname/IP address or encryption information.
- Step 6** Click **Save**.
- Step 7** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- Step 8** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Create or Edit a RADIUS Server Object or Group

About RADIUS Server Objects or Groups

When you create or edit an identity source object such as a RADIUS server object or a group of RADIUS server objects, Security Cloud Control sends the configuration request to the FDM-managed devices through the SDC. The FDM-managed device then communicates with the configured AD realm.

Create a RADIUS Server Object

RADIUS servers provide AAA (authentication, authorization, and accounting) services.

Use the following procedure to create an object:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click , then click **RA VPN Objects (ASA & FTD) > Identity Source**.
- Step 3** Enter an **Object name** for the object.
- Step 4** For the **Device Type**, select **FTD**.
- Step 5** For the **Identity Source** type, select **RADIUS Server**. Click **Continue**.
- Step 6** Edit the Identity Source configuration with the following properties:
- **Server Name or IP Address** - The fully-qualified host name (FQDN) or IP address of the server.
 - **Authentication Port** (Optional) - The port on which RADIUS authentication and authorization are performed. The default is 1812.
 - **Timeout** - The length of time, 1-300 seconds, that the system waits for a response from the server before sending the request to the next server. The default is 10 seconds.
 - Enter the **Server Secret Key**(Optional) - The shared secret that is used to encrypt data between the Firepower Threat Defense device and the RADIUS server. The key is a case-sensitive, alphanumeric string of up to 64 characters, with no spaces. The key must start with an alphanumeric character or an underscore, and it can contain the special characters: \$ & - _ . + @. The string must match the one configured on the RADIUS server. If you do not configure a secret key, the connection is not encrypted.
- Step 7** If you have Cisco Identity Services Engine (ISE) already configured for your network and are using the server for remote access VPN Change of Authorization configuration, click the **RA VPN Only** link and configure the following:
- **Redirect ACL** - Select the extended Access Control List (ACL) to use for the RA VPN redirect ACL. If you do not have an extended ACL you must create the required extended ACL object from a Smart CLI template in the FDM-managed device console. See the **Configuring Smart CLI Objects** section of the Advanced Configuration chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running. The purpose of the redirect ACL is to send initial traffic to ISE to assess the client posture. The ACL should send HTTPS traffic to ISE, but not traffic that is already destined for ISE, or traffic that is directed to a DNS server for name resolution. See the **Configure Change of Authorization** section of the Virtual Private Networks (VPN) chapter of

the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.

- **Diagnostic Interface** - Enabling this option allows the system to always use the "Diagnostic" interface to communicate with the server. If you leave this disabled, Security Cloud Control will default to using the routing table to determine the which interface to use.

Step 8 Click **Add**.

Step 9 [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Create a RADIUS Server Group

A RADIUS server group contains one or more RADIUS server objects. The servers within a group must be copies of each other. These servers form a chain of backup servers, so that if the first server is unavailable, the system can try the next server in the list.

Use the following procedure to create an object group:

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Click , then click **FTD > Identity Source**.

Step 3 Enter an **Object name** for the object.

Step 4 Select the **Device Type** as **FTD**.

Step 5 Select **RADIUS Server Group** as the Identity Source Type. Click **Continue**.

Step 6 Edit the Identity Source configuration with the following properties:

- **Dead Time** - Failed servers are reactivated only after all servers have failed. The dead time is how long to wait after the last server fails before reactivating all servers.
- **Maximum Failed Attempts** - The number of failed requests (that is, requests that do not get a response) sent to a RADIUS server in the group before trying the next server. When the maximum number of failed attempts is exceeded, the system marks the server as Failed. For a given feature, if you configured a fallback method using the local database, and all the servers in the group fail to respond, then the group is considered to be unresponsive, and the fallback method is tried. The server group remains marked as unresponsive for the duration of the dead time, so that additional AAA requests within that period do not attempt to contact the server group, and the fallback method is used immediately.
- **Dynamic Authorization/Port** (Optional) - If you enable RADIUS dynamic authorization or change of authorization (CoA) services for this RADIUS server group, the group will be registered for CoA notification and listen on the specified port for CoA policy updates from Cisco Identity Services Engine (ISE). Enable dynamic authorization only if you are using this server group in a remote access VPN in conjunction with ISE.

Step 7 Select an AD realm that supported the RADIUS server from the drop-down menu. If you have not already created an AD realm, click **Create** from inside the drop-down menu.

Step 8 Click the **Add** button  to add existing RADIUS server objects. Optionally, you can create a new RADIUS server object from this window if necessary.

Note

Add these objects in priority, as the first server in the list is used until it is unresponsive. FDM-managed device then defaults to the next server in the list.

Step 9 [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Edit a Radius Server Object or Group

Use the following procedure to edit a Radius server object or Radius server group:

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object you want to edit by using object filters and search field.
- Step 3** Select the object you want to edit.
- Step 4** Click the edit icon  in the **Actions** pane of the details panel.
- Step 5** Edit the values in the dialog box in the same fashion that you created them in the procedures above. To edit or test the hostname/IP address or encryption information, expand the configuration bar.
- Step 6** Click **Save**.
- Step 7** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- Step 8** [Review and Deploy](#) now the changes you made, or wait and deploy multiple changes at once.
-

Security Zone Object

A security zone is a grouping of interfaces. Zones divide the network into segments to help you manage and classify traffic. You can define multiple zones, but a given interface can be in one zone only.

The Firepower system creates the following zones during initial configuration and they are displayed in Security Cloud Control's object page. You can edit zones to add or remove interfaces, or you can delete the zones if you no longer use them.

- **inside_zone**-Includes the inside interface. This zone is intended to represent internal networks.
- **outside_zone**-Includes the outside interface. This zone is intended to represent networks external to your control, such as the internet.

Typically, you would group interfaces by the role they play in your network. For example, you would place the interface that connects to the internet in the **outside_zone** security zone, and all of the interfaces for your internal networks in the **inside_zone** security zone. Then, you could apply access control rules to traffic coming from the outside zone and going to the inside zone.

Before creating zones, consider the access rules and other policies you want to apply to your networks. For example, you do not need to put all internal interfaces into the same zone. If you have 4 internal networks, and you want to treat one differently than the other three, you can create two zones rather than one. If you have an interface that should allow outside access to a public web server, you might want to use a separate zone for the interface.

Related Information:

- [Create or Edit a Firepower Security Zone Object](#)

Create or Edit a Firepower Security Zone Object

A security zone is a grouping of interfaces. Zones divide the network into segments to help you manage and classify traffic. You can define multiple zones, but a given interface can be in one zone only.

A security zone object is not associated with a device unless it is used in a rule for that device.

Create a Security Zone Object

To create a security zone object, follow these instructions:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
 - Step 2** Click  > **FTD > Security Zone** to create the object.
 - Step 3** Give the object a name and, optionally, a description.
 - Step 4** Select the interfaces to put in the security zone.
 - Step 5** Click **Add**.
-

Edit a Security Zone Object

After onboarding an FDM-managed device, you will find there are already at least two security zones, one is the `inside_zone` and the other is the `outside_zone`. These zones can be edited or deleted. To edit any security zone object, follow these instructions:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
 - Step 2** Find the object you want to edit:
 - If you know the name of the object, you can search for it in the Objects page:
 - Filter the list by security zone.
 - Enter the name of the object in the search field.
 - Select the object.

- If you know the object is associated with a device, you can search for it starting on the **Security Devices** page.
 - In the left pane, click **Security Devices**.
 - Click the **Devices** tab.
 - Click the appropriate tab.
 - Use the device [filter](#) and [search](#) bar to locate your device.
 - Select the device.
- In the Management pane at the right, click  **Objects**.
- Use the object filter  and search bar to locate the object you are looking for.

Note

If the security zone object you created is not associated with a rule in a policy for your device, it is considered "unassociated" and you will not see it among the search results for a device.

- Step 3** Select the object.
- Step 4** Click the **Edit** icon  in the Actions pane at the right.
- Step 5** After editing any of the attributes of the object. Click **Save**.
- Step 6** After clicking Save you receive a message explaining how these changes will affect other devices. Click **Confirm** to save the changes or **Cancel**.

Service Objects

ASA Service Objects

ASA service objects, service groups, and port groups are reusable components that contain protocols or ports considered part of the IP protocol suite. In a service object you can specify a single protocol and assign it to a source port, destination port, or both source and destination ports. A service group contains many service objects and can include a mix of protocols.

A port group is a kind of ASA service object. Port groups contain port objects that pair a service type, such as TCP or UDP, and a port number or a range of port numbers. You can then use the objects in security policies for the purposes of defining traffic matching criteria. For example, you can use them in access control rules to allow traffic to a specific range of TCP ports.

See [Create and Edit ASA Service Objects](#) for more information.

Firepower Service Objects

FTD service objects, service groups, and port groups are reusable components that contain protocols or ports considered part of the IP protocol suite.

FTD service groups are collections of service objects. A service group may contain objects for one or more protocols. You can use the objects and groups in security policies for purposes of defining network traffic matching criteria, for example, to use access rules to allow traffic to specific TCP ports. The system includes several pre-defined objects for common services. You can use these objects in your policies; however, you cannot edit or delete system-defined objects.

Firepower Device Manager and Firepower Management Center refer to service objects as port objects and service groups and port groups.

See [Create and Edit Firepower Threat Defense Service Objects](#) for more information.

Protocol Objects

Protocol objects are a type of service object that contain less-commonly used or legacy protocols. Protocol objects are identified by a name and [protocol number](#). Security Cloud Control recognizes these objects in ASA and Firepower (FDM-managed device) configurations and gives them their own filter of "Protocols" so you can find them easily.

See [Create and Edit Firepower Threat Defense Service Objects](#) for more information.

ICMP Objects

An Internet Control Message Protocol (ICMP) object is a service object specifically for ICMP and IPv6-ICMP messages. Security Cloud Control recognizes these objects in ASA and Firepower configurations when those devices are onboarded and Security Cloud Control gives them their own filter of "ICMP" so you can find the objects easily.

Using Security Cloud Control, you can rename or remove ICMP objects from an ASA configuration. You can use Security Cloud Control to create, update, and delete ICMP and ICMPv6 objects in a Firepower configuration.



Note For the ICMPv6 protocol, AWS does not support choosing specific arguments. Only rules that allow all ICMPv6 messages are supported.

See [Create and Edit Firepower Threat Defense Service Objects](#) for more information.

Related Information:

- [Deleting Objects, on page 32](#)

Create and Edit ASA Service Objects

In a service object, you can specify a single protocol and assign it to a source port, destination port, or both source and destination ports.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click **Create Object > ASA > Service**.
- Step 3** Enter an object name.

Step 4 Select **Create a service object**

Step 5 Click the **Service Type** button and select the protocol for which you want to make an object.

- **For TCP, UDP, and TCP-UDP service types**, enter a source port, destination port, or both:
 - The source port identifier allows you to match traffic originating from a particular numbered port. In the source port identifier, select an operator: equal to, range, less than, greater than, or not equal to and provide the appropriate port number or range.
 - The destination port identifier allows you to match traffic arriving at a particular numbered port. In the destination port identifier, select an operator: equal to, range, less than, greater than, or not equal to and provide the appropriate port number or range.
- **For Protocol service types**, enter a [protocol number](#) between 0-255, or a well-known name, such as ip, tcp, udp, gre, and so forth.

Step 6 Click **Add**.

Examples

- A service object that identifies incoming FTP traffic would be one with a TCP Service type and a destination port range of 21.
- A service object that identifies outgoing DNS and DNS over TCP traffic would be one with a tcp-udp service type and a source port equal to 53.

Create an ASA Service Group

A service group can be made up of one or more service objects representing one or more protocols.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Click **Create Object > ASA > Service**.

Step 3 Enter an object name.

Step 4 Select **Create a service group**.

Step 5 Add an existing object by clicking **Add Object**, selecting an object, and clicking **Select**. Repeat this step to add more objects.

Step 6 If needed, add an extra individual service type value to the service group

- **For TCP, UDP, and TCP-UDP service types**, enter a source port, destination port, or both:
 - The source port identifier allows you to match traffic originating from a particular numbered port. In the source port identifier, select an operator: equal to, range, less than, greater than, or not equal to and provide the appropriate port number or range.
 - The destination port identifier allows you to match traffic arriving at a particular numbered port. In the destination port identifier, select an operator: equal to, range, less than, greater than, or not equal to and provide the appropriate port number or range.

- **For Protocol service types**, enter a [protocol number](#) between 0-255, or a well-known name, such as ip, tcp, udp, gre, and so forth.

- Step 7** To add more individual port values, click **Add Another Value** and repeat step 6.
- Step 8** Click **Add** when you are done adding service objects and service values to the service group.

Edit an ASA Service Object or Service Group

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Filter the objects to find the object you want to edit and then select the object in the object table.
- Step 3** In the details pane, click edit .
- Step 4** Edit the values in the dialog box in the same fashion that you created them in the procedures above.
- Step 5** Click **Save**.
- Step 6** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.

Create and Edit Firepower Service Objects

To create a firepower service object, follow these steps:

Firewall Device Manager (FDM-managed) service objects are reusable components that specify a TCP/IP protocol and a port. The Firewall Device Manager, On-Premises Firewall Management Center and Cloud-Delivered Firewall Management Center refer to these objects as "Port Objects."

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  > **FTD > Service**.
- Step 3** Enter an object name and description.
- Step 4** Select **Create a service object**.
- Step 5** Click the **Service Type** button and select the protocol for which you want to create an object.
- Step 6** Configure the protocol as follows:
- **TCP, UDP**
 - Select **eq** and then enter either a port number or a protocol name. For example, you could enter 80 as a port number or HTTP as the protocol name.
 - You can also select **range** and then enter a range of port numbers, for example, **1 65535** (to cover all ports).

- **ICMP, IPv6-ICMP**-Select the ICMP **Type**. Select **Any** for the type to apply to all ICMP messages. For information on the types and codes, see the following pages:

- ICMP-<http://www.iana.org/assignments/icmp-parameters/icmp-parameters.xml>
- ICMPv6-<http://www.iana.org/assignments/icmpv6-parameters/icmpv6-parameters.xml>

- **Other**-Select the desired protocol.

Step 7 Click **Add**.

Step 8 [Review and deploy](#) the changes you made now, or wait and deploy multiple changes at once.

Create a Firepower Service Group

A service group can be made up of one or more service objects representing one or more protocols. The service objects need to be created before they can be added to the group. The Firepower Device Manager and Firepower Management Center refer to these objects as "Port Objects."

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Click  > **FTD > Service**.

Step 3 Enter an object name and description.

Step 4 Select **Create a service group**.

Step 5 Add an object to the group by clicking **Add Object**.

- Click **Create** to create a new object as you did above in [Create a Firepower Service Object](#) above.
- Click **Choose** to add an existing service object to the group. Repeat this step to add more objects.

Step 6 Click **Add** when you are done adding service objects to the service group.

Step 7 [Review and deploy](#) the changes you made now, or wait and deploy multiple changes at once.

Edit a Firepower Service Object or Service Group

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Filter the objects to find the object you want to edit and then select the object in the object table.

Step 3 In the Actions pane, click **Edit** .

Step 4 Edit the values in the dialog box in the same fashion that you created them in the procedures above.

Step 5 Click **Save**.

- Step 6** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- Step 7** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes at once.

Security Group Tag Group

Security Group Tags

About Security Group Tags

If you use Cisco Identity Services Engine (ISE) to define and use **security group tag** (SGT) for classifying traffic in a Cisco TrustSec network, you can write access control rules that use SGT as matching criteria. Thus, you can block or allow access based on security group membership rather than IP addresses.

In ISE, you can create a SGT and assign host or network IP addresses to each tag. If you assign an SGT to a user's account, the SGT is assigned to the user's traffic. After you configure FDM-managed device to connect to an ISE server and create the SGT, you can create SGT groups in Security Cloud Control and build access control rules around them. Note that you must configure ISE's SGT Exchange Protocol (SXP) mapping before you can associate an SGT to an FDM-managed device. See [Security Group Tag Exchange Protocol](#) in the [Cisco Identity Services Engine Administrator Guide](#) of the version you are currently running for more information.

When an FDM-managed device evaluates SGT as a traffic matching criteria for an access control rule, it uses the following priority:

1. The source SGT defined in the packet, if any. No destination matching is done using this technique. For the SGT to be in the packet, the switches and routers in the network must be configured to add them. See the ISE documentation for information on how to implement this method.
2. The SGT assigned to the user session, as downloaded from the ISE session directory. You need to enable the option to listen to session directory information for this kind of SGT matching, but this option is on by default when you first create the ISE identity source. The SGT can be matched to source or destination. Although not required, you would also normally set up a passive authentication identity rule, using the ISE identity source along with an AD realm, to collect user identity information.
3. The SGT-to-IP address mapping downloaded using SXP. If the IP address is within the range for an SGT, then the traffic matches the access control rule that uses the SGT. The SGT can be matched to source or destination.



Note You cannot use the information retrieved from ISE directly in an access control rule. Instead, you need to create SGT groups, which refer to the downloaded SGT information. Your SGT groups can refer to more than one SGT, so you can apply policy based on a relevant collections of tags if that is appropriate.

Version Support

Security Cloud Control currently supports SGT and SGT groups on FDM-managed devices running Version 6.5 and later. an FDM-managed device allows you to configure and connect to an ISE server in Version 6.5 and later but does not support SGT configuration in the UI until Version 6.7.

From the FDM-managed UI, this means that an FDM-managed device running Version 6.5 or later can download SXP mappings of SGTs but cannot be manually added to objects or access control rules. To make changes to the SGTs for devices running Version 6.5 or Version 6.6, you must use the ISE UI. If the device running Version 6.5 is onboarded to Security Cloud Control, however, you can see the current SGTs associated with the device and create SGT groups.

SGT in Security Cloud Control

Security Group Tags

SGTs are read-only in Security Cloud Control. You cannot create or edit an SGT in Security Cloud Control. To create an SGT, see the [Cisco Identity Services Engine Administrator Guide](#) of the version your are currently running.

SGT Groups



Note An FDM-managed device refers to groups of SGTs as SGT dynamic objects. In Security Cloud Control, these lists of tags are currently called SGT groups. You can create an SGT group in Security Cloud Control without referring to the FDM-managed device or ISE UI.

Use SGT groups to identify source or destination addresses based on an SGT assigned by ISE. You can then use the objects in access control rules for purposes of defining traffic matching criteria. You cannot use the information retrieved from ISE directly in an access control rule. Instead, you need to create SGT groups, which refer to the downloaded SGT information.

Your SGT groups can refer to more than one SGT, so you can apply policy based on relevant collections of tags if that is appropriate.

In order to create an SGT group in Security Cloud Control, you must have at least one SGT already configured and SGT mappings from an ISE server configured for the FDM-managed console of the device you want to use. Note that if more than one FDM-managed device is associated with the same ISE server, an SGT or SGT group can be applied to more than one device. If a device is not associated with an ISE server, you cannot include SGT objects in your access control rule, or apply an SGT group to that device configuration.

SGT Groups in Rules

SGT groups can be added to access control rules; they appear as source or destination network objects.

You can create an SGT group from the Objects page. See [Create an SGT Group, on page 97](#) for more information.

Create an SGT Group

To create an SGT group that can be used for an access control rule, use the following procedure:

Before you begin

You must have the following configurations or environments configured prior to creating a security group tag (SGT) group:

- FDM-managed device must be running at least Version 6.5.

- You must configure the ISE identity source to subscribe to SXP mappings and enable deploy changes. To manage SXP mappings, see **Configure Security Groups and SXP Publishing in ISE** of the [Firepower Device Manager Configuration Guide](#) for the version you're using, Version 6.7 and later.
- All SGTs must be created in ISE. To create an SGT, see the [Cisco Identity Services Engine Configuration Guide](#) of the version you are currently running.

Edit an SGT Group

To edit an SGT group, use the following procedure:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the SGT group you want to edit by using object filters and search field.
- Step 3** Select the SGT group and click the edit icon  in the **Actions** pane.
- Step 4** Modify the SGT group. Edit the name, description, or the SGTs associated with the group.
- Step 5** Click **Save**.

Note

You cannot create or edit SGTs in Security Cloud Control, you can only add or remove them from an SGT group. To create or edit an SGT, see the [Cisco Identity Services Engine Configuration Guide](#) of the version you are currently running.

Add an SGT Group to an Access Control Rule

To add an SGT group to an access control rule, use the following procedure:

Procedure

-
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the **FTD** tab and select the device you want to add the SGT group to.
- Step 5** In the **Management** pane, select **Policy**.
- Step 6** Click the blue plus button  for either the **Source** or **Destination** objects and select **SGT Groups**.
- Step 7** Locate the SGT group(s) you want to edit by using object filters and search field.
- Step 8** Click **Save**.
- Step 9** [Preview and Deploy Configuration Changes for All Devices](#).

Note

If you need to create an additional SGT group, click **Create New Object**. Fill in the required information mentioned in [Create an FTD SGT Group](#) and **Add** the SGT group to the rule.

Syslog Server Objects

FDM-managed devices have a limited capacity to store events. To maximize storage for events, you can configure an external server. A system log (syslog) server object identifies a server that can receive connection-oriented or diagnostic syslog messages. If you have a syslog server set up for log collection and analysis, you can use the Security Cloud Control to create objects to define them and use the objects in the related policies.

Create and Edit Syslog Server Objects

To create a new syslog server object, follow these steps:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click the **Create Object** button .
- Step 3** Select **Syslog Server** under FDM-managed device object types
- Step 4** Configure the syslog server object properties:
- **IP Address**—Enter the IP address of the syslog server.
 - **Protocol Type**—Select the protocol that your syslog server uses to receive messages. If you select TCP, the system can recognize when the syslog server is not available, and stops sending events until the server is available again.
 - **Port Number**—Enter a valid port number to use for syslog. If your syslog server uses default ports, enter 514 as the default UDP port or 1470 as the default TCP port. If the server does not use default ports, enter the correct port number. The port must be in the range 1025 to 65535.
 - **Select an interface**—Select which interface should be used for sending diagnostic syslog messages. Connection and intrusion events always use the management interface. Your interface selection determines the IP address associated with syslog messages. Note that you can only select **one** of the options listed below. You cannot select both. Select one of the following options:
 - **Data Interface**—Use the data interface you select for diagnostic syslog messages. Select an interface from the generated list. If the server is accessible through a bridge group member interface, select the bridge group interface (BVI). If it is accessible through the Diagnostic interface (the physical management interface), we recommend that you select Management Interface instead of this option. You cannot select a passive interface. For connection and intrusion syslog messages, the source IP address will either be for the management interface, or for the gateway interface if you route through data interfaces.

- **Management Interface**—Use the virtual management interface for all types of syslog messages. The source IP address will either be for the management interface, or for the gateway interface if you route through data interfaces.

Step 5 Click **Add**.

Step 6 [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Edit Syslog Server Objects

To edit an existing syslog server object, follow these steps:

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Locate the desired syslog server object and select it. You can **filter**  the object list by the syslog server object type.

Step 3 In the Actions pane, click **Edit**.

Step 4 Make the desired edits and click **Save**.

Step 5 Confirm the changes you made.

Step 6 [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Related Information:

- [Deleting Objects](#)

Create a Syslog Server Object for Secure Logging Analytics (SaaS)

Create a syslog server object with the IP address, TCP port, or UDP port of the Secure Event Connector (SEC) you want to send events to. You would create one syslog object for every SEC that you have onboarded to your tenant but you would only send events from one rule to one syslog object representing one SEC.

Procedure

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Click the **Create Object** button .

Step 3 Select **Syslog Server** under FDM-managed device object types.

Step 4 Configure the syslog server object properties. To find these properties of the SEC, from the navigation pane on the left, choose **Tools & Services > Secure Connectors**. Then select the Secure Event Connector you want to configure the syslog object for and look in the Details pane on the right.

- **IP Address**—Enter the IP address of the SEC.
- **Protocol Type**—Select TCP or UDP.
- **Port Number**—Enter port 10125 if you selected TCP or 10025 if you selected UDP.
- **Select an interface**—Select the interface configured to reach the SEC.

Note

FDM-managed device supports one syslog object per IP address so you will have to choose between using TCP and UDP.

Step 5 Click **Add**.

ASA Time Range Objects

What is a Time Range Object?

A time range object defines a specific time consisting of a start time, an end time, and optional recurring entries. You use these objects in network policies to provide time-based access to certain features or assets. For example, you could create an access rule that allows access to a particular server during working hours only. Creating a time range does not restrict access to the device. Note that the times configured for these objects are local to the device.

You can add an absolute or recurring time ranges to this object. Recurring ranges are considered to be periodic time ranges.



Note If a time range has both absolute and periodic values specified, then the periodic values are evaluated only after the absolute start time is reached and they are not further evaluated after the absolute end time is reached.

Create an ASA Time Range Object

Use the following procedure to create a time range object for an ASA device:

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  > **ASA > Time Range**.
- Step 3** Enter an object name.
- Step 4** Define a time range.
- **Absolute Time Range** - Enter a Start Time and an End Time for the desired time range; you can choose to execute this object over a matter of minutes, hours, days, or weeks. A time range object can only have one absolute time range.

- Recurring Time Ranges - click the  to add a periodic time range that will repeat throughout the week. Select the **Frequency** from the drop-down menu, the **Days** of the week the time range should go into effect, and the **Start** and **End** times. A time range object can have multiple periodic ranges.

Note

The **start** and **end** times for a time range object are optional. If an object has no start time established, the time range goes into effect immediately. If an object has no end time established, the time range lasts indefinitely.

Step 5 Click **Add** to create the object.

Edit an ASA Time Range Object

Use the following procedure to edit a time range object for an ASA device:

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Filter the objects to find the object you want to edit and then select the object in the object table.
- Step 3** In the details pane, click edit .
- Step 4** Edit the values as needed and click **Save**.
- Step 5** If the object is currently used by any policies, Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- Step 6** If the object is used in a policy on a device, [review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
-

Related Information:

- [Deleting Objects](#)
- [ASA Access List](#)

Network Address Translation

Each computer and device within an IP network is assigned a unique IP address that identifies the host. Because of a shortage of public IPv4 addresses, most of these IP addresses are private and not routable anywhere outside of the private company network. RFC 1918 defines the private IP addresses you can use internally that should not be advertised:

- 10.0.0.0 through 10.255.255.255
- 172.16.0.0 through 172.31.255.255
- 192.168.0.0 through 192.168.255.255

One of the main functions of Network Address Translation (NAT) is to enable private IP networks to connect to the Internet. NAT replaces a private IP address with a public IP address, translating the private addresses in the internal private network into legal, routable addresses that can be used on the public Internet. In this way, NAT conserves public addresses because it can be configured to advertise at a minimum only one public address for the entire network to the outside world.

Other functions of NAT include:

- Security-Keeping internal IP addresses hidden discourages direct attacks.
- IP routing solutions-Overlapping IP addresses are not a problem when you use NAT.
- Flexibility-You can change internal IP addressing schemes without affecting the public addresses available externally; for example, for a server accessible to the Internet, you can maintain a fixed IP address for Internet use, but internally, you can change the server address.
- Translating between IPv4 and IPv6 (Routed mode only)-If you want to connect an IPv6 network to an IPv4 network, NAT lets you translate between the two types of addresses.

You can use Security Cloud Control to create NAT rules for many different use cases. Use the NAT rule wizard or these topics to create different NAT rules:

Order of Processing NAT Rules

Network Object NAT and twice NAT rules are stored in a single table that is divided into three sections. Section 1 rules are applied first, then section 2, and finally section 3, until a match is found. For example, if a match is found in section 1, sections 2 and 3 are not evaluated. The following table shows the order of rules within each section.

Table 16: NAT Rule Table

Table Section	Rule Type	Order of Rules within the Section
Section 1	Twice NAT (ASA) Manual NAT (FTD)	Applied on a first match basis, in the order they appear in the configuration. Because the first match is applied, you must ensure that specific rules come before more general rules, or the specific rules might not be applied as desired. By default, twice NAT rules are added to section 1.

Table Section	Rule Type	Order of Rules within the Section
Section 2	Network Object NAT (ASA) Auto NAT (FTD)	If a match in section 1 is not found, section 2 rules are applied in the following order: 1. Static rules. 2. Dynamic rules. Within each rule type, the following ordering guidelines are used: 1. Quantity of real IP addresses—From smallest to largest. For example, an object with one address will be assessed before an object with 10 addresses. 2. For quantities that are the same, then the IP address number is used, from lowest to highest. For example, 10.1.1.0 is assessed before 11.1.1.0. 3. If the same IP address is used, then the name of the network object is used, in alphabetical order. For example, object "Arlington" is assessed before object "Detroit."
Section 3	Twice NAT (ASA) Manual NAT (FTD)	If a match is still not found, section 3 rules are applied on a first match basis, in the order they appear in the configuration. This section should contain your most general rules. You must also ensure that any specific rules in this section come before general rules that would otherwise apply.

For section 2 rules, for example, you have the following IP addresses defined within network objects:

- 192.168.1.0/24 (static)
- 192.168.1.0/24 (dynamic)
- 10.1.1.0/24 (static)
- 192.168.1.1/32 (static)
- 172.16.1.0/24 (dynamic) (object Detroit)
- 172.16.1.0/24 (dynamic) (object Arlington)

The resultant ordering would be:

- 192.168.1.1/32 (static)
- 10.1.1.0/24 (static)
- 192.168.1.0/24 (static)
- 172.16.1.0/24 (dynamic) (object Arlington)

- 172.16.1.0/24 (dynamic) (object Detroit)
- 192.168.1.0/24 (dynamic)

Network Address Translation Wizard

The Network Address Translation (NAT) wizard helps you create NAT rules on your devices for these types of access:

- **Enable Internet Access for Internal Users.** You may use this NAT rule to allow users on an internal network to reach the internet.
- **Expose an Internal Server to the Internet.** You may use this NAT rule to allow people outside your network to reach an internal web or email server.

Prerequisites to "Enable Internet Access for Internal Users"

Before you create your NAT rule, gather this information:

- The interface that is closest to your users; this is usually called the "inside" interface.
- The interface closest to your Internet connection; this is usually called the "outside" interface.
- If you want to allow only specific users to reach the internet, you need the subnet addresses for those users.

Prerequisites to "Expose an Internal Server to the Internet"

Before you create your NAT rule, gather this information:

- The interface that is closest to your users; this is usually called the "inside" interface.
- The interface closest to your Internet connection; this is usually called the "outside" interface.
- The IP address of the server inside your network that you would like to translate to an internet-facing IP address.
- The public IP address you want the server to use.

What to do Next

See [Create a NAT Rule by using the NAT Wizard](#), on page 105.

Create a NAT Rule by using the NAT Wizard

Before you begin

See [Network Address Translation Wizard](#), on page 105 for the prerequisites needed to create NAT rules using the NAT wizard.

Procedure

-
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Use the filter and search fields to find the device for which you want to create the NAT rule.
- Step 6** In the **Management** area of the details panel, click **NAT**  **NAT**.
- Step 7** Click  > **NAT Wizard**.
- Step 8** Respond to the NAT Wizard questions and follow the on-screen instructions.
- Before you can save the NAT rule, all IP addresses need to be defined as network objects.
- Step 9** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
-

Common Use Cases for NAT

Twice NAT and Manual NAT

Here are some common tasks that can be achieved using "Network Object NAT", also known as "Auto NAT":

- [Enable a Server on the Inside Network to Reach the Internet Using a Public IP address, on page 106](#)
- [Enable Users on the Inside Network to Access the Internet Using the Outside Interface's Public IP Address, on page 108](#)
- [Make a Server on the Inside Network Available on a Specific Port of a Public IP Address, on page 109](#)
- [Translate a Range of Private IP Addresses to a Range of Public IP Addresses, on page 113](#)

Network Object NAT and Auto NAT

Here is a common task that can be achieved using "Twice NAT", also known as "Manual NAT":

- [Prevent a Range of IP Addresses from Being Translated When Traversing the Outside Interface, on page 114](#)

Enable a Server on the Inside Network to Reach the Internet Using a Public IP address

Use Case

Use this NAT strategy when you have a server with a private IP address that needs to be accessed from the internet and you have enough public IP addresses to NAT one public IP address to the private IP address. If

you have a limited number of public IP addresses, see [Make a server on the inside network available to users on a specific port of a public IP address](#) (that solution may be more suitable).

Strategy

Your server has a static, private IP address, and users outside your network have to be able to reach your server. Create a network object NAT rule that translates the static private IP address to a static public IP address. After that, create an access policy that allows traffic from that public IP address to reach the private IP address. Finally, deploy these changes to your device.

Before you begin

Before you begin, create two network objects. Name one object *servername_inside* and the other object *servername_outside*. The *servername_inside* network object should contain the private IP address of your server. The *servername_outside* network object should contain the public IP address of your server.

Procedure

-
Step 1	In the left pane, click Inventory .
Step 2	In the left pane, click Security Devices .
Step 3	Click the Devices tab to locate the device or the Templates tab to locate the model device.
Step 4	Click the appropriate device type tab.
Step 5	Select the device you want to create the NAT rule for.
Step 6	Click NAT in the Management pane at the right.
Step 7	Click  > Network Object NAT .
Step 8	In section 1, Type , select Static . Click Continue .
Step 9	In section 2, Interfaces , choose inside for the source interface and outside for the destination interface. Click Continue .
Step 10	In section 3, Packets , perform these actions: a. Expand the Original Address menu, click Choose, and select the servername_inside object. b. Expand the Translated Address menu, click Choose, and select the servername_outside object.
Step 11	Skip section 4, Advanced .
Step 12	For an FDM-managed device, in section 5, Name , give the NAT rule a name.
Step 13	Click Save .
Step 14	For ASA, deploy a Network Policy rule or for FDM-managed device, deploy an access control policy rule to allow the traffic to flow from <i>servername_inside</i> to <i>servername_outside</i> .
Step 15	Review and deploy now the changes you made, or wait and deploy multiple changes at once.
-

Entries in the ASA's Saved Configuration File

Here are the entries that are created and appear in an ASA's saved configuration file as a result of this procedure.



Note This does not apply to FDM-managed devices.

Objects created by this procedure:

```
object network servername_outside
host 209.165.1.29
object network servername_inside
host 10.1.2.29
```

NAT rules created by this procedure:

```
object network servername_inside
nat (inside,outside) static servername_outside
```

Enable Users on the Inside Network to Access the Internet Using the Outside Interface's Public IP Address

Use Case

Allow users and computers in your private network to connect to the internet by sharing the public address of your outside interface.

Strategy

Create a port address translation (PAT) rule that allows all the users on your private network to share the outside interface public IP address of your device.

After the private address is mapped to the public address and port number, the device records that mapping. When incoming traffic bound for that public IP address and port is received, the device sends it back to the private IP address that requested it.

Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device you want to create the NAT rule for.
- Step 6** Click **NAT** in the **Management** pane at the right.
- Step 7** Click  **Network Object NAT**.
- Step 8** In section 1, **Type**, select **Dynamic**. Click **Continue**.
- Step 9** In section 2, **Interfaces**, choose **any** for the source interface and **outside** for the destination interface. Click **Continue**.
- Step 10** In section 3, **Packets**, perform these actions :
 - a. Expand the Original Address menu, click **Choose** and select the **any-ipv4** or **any-ipv6** object depending on your network configuration.

- b. Expand the Translated Address menu, and select **interface** from the available list. Interface indicates to use the public address of the outside interface.

Step 11 For an FDM-managed device, in section 5, **Name**, enter a name for the NAT rule.

Step 12 Click **Save**.

Step 13 [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Entries in the ASA's Saved Configuration File

Here are the entries that are created and appear in an ASA's saved configuration file as a result of this procedure.



Note This does not apply to FDM-managed devices.

Objects created by this procedure:

```
object network any_network
subnet 0.0.0.0 0.0.0.0
```

NAT rules created by this procedure:

```
object network any_network
nat (any,outside) dynamic interface
```

Make a Server on the Inside Network Available on a Specific Port of a Public IP Address

Use Case

If you only have one public IP address, or a very limited number, you can create a network object NAT rule that translates inbound traffic, bound for a static IP address and port, to an internal address. We have provided procedures for specific cases, but you can use them as a model for other supported applications.

Prerequisites

Before you begin, create three separate network objects, one each for an FTP, HTTP, and SMTP server. For the sake of the following procedures, we call these objects **ftp-server-object**, **http-server-object**, and **smtp-server-object**.

NAT Incoming FTP Traffic to an FTP Server

Procedure

Step 1 In the left pane, click **Inventory**.

Step 2 In the left pane, click **Security Devices**.

Step 3 Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.

Step 4 Click the appropriate device type tab.

- Step 5** Select the device you want to create the NAT rule for.
- Step 6** Click **NAT** in the **Management** pane at the right.
- Step 7** Click  > **Network Object NAT**.
- Step 8** In section 1, **Type**, select **Static**. Click **Continue**.
- Step 9** In section 2, **Interfaces**, choose **inside** for the source interface and **outside** for the destination interface. Click **Continue**.
- Step 10** In section 3, **Packets**, perform these actions:
- Expand the Original Address menu, click **Choose**, and select the **ftp-server-object**.
 - Expand the Translated Address menu, click **Choose**, and select the **Interface**.
 - Check **Use Port Translation**.
 - Select **tcp**, **ftp**, **ftp**.



- Step 11** Skip section 4, **Advanced**.
- Step 12** For an FDM-managed device, in section 5, **Name**, give the NAT rule a name.
- Step 13** Click **Save**. The new rule is created in [section 2](#) of the NAT table.
- Step 14** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Entries in the ASA's Saved Configuration File

Here is the entry that is created and appears in the ASA's saved configuration file as a result of this procedure.



Note This does not apply to FDM-managed devices.

Object created by this procedure

```
object network ftp-object
host 10.1.2.27
```

NAT rule created by this procedure

```
object network ftp-object
nat (inside,outside) static interface service tcp ftp ftp
```

NAT Incoming HTTP Traffic to an HTTP Server

If you only have one public IP address, or a very limited number, you can create a network object NAT rule that translates inbound traffic, bound for a static IP address and port, to an internal address. We have provided procedures for specific cases, but you can use them as a model for other supported applications.

Before you begin

Before you begin, create a network object for the http server. For the sake of this procedure, we will call the object, **http-object**.

Procedure

-
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device you want to create the NAT rule for.
- Step 6** Click **NAT** in the **Management** pane at the right.
- Step 7** Click  > **Network Object NAT**.
- Step 8** In section 1, **Type**, select **Static**. Click **Continue**.
- Step 9** In section 2, **Interfaces**, choose **inside** for the source interface and **outside** for the destination interface. Click **Continue**.
- Step 10** In section 3, **Packets**, perform these actions:
- Expand the Original Address menu, click **Choose**, and select the **http-object**.
 - Expand the Translated Address menu, click **Choose**, and select the **Interface**.
 - Check **Use Port Translation**.
 - Select **tcp**, **http**, **http**.
-
- Step 11** Skip section 4, **Advanced**.
- Step 12** For an FDM-managed device, in section 5, **Name**, give the NAT rule a name.
- Step 13** Click **Save**. The new rule is created in [section 2](#) of the NAT table.
- Step 14** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
-

Entries in the ASA's Saved Configuration File

Here are the entries that are created and appear in an ASA's saved configuration file as a result of this procedure.



Note This does not apply to FDM-managed devices.

Object created by this procedure

```
object network http-object
host 10.1.2.28
```

NAT rule created by this procedure

```
object network http-object
nat (inside,outside) static interface service tcp www www
```

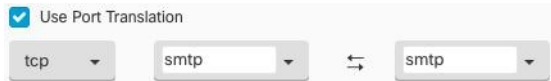
NAT Incoming SMTP Traffic to an SMTP Server

If you only have one public IP address, or a very limited number, you can create a network object NAT rule that translates inbound traffic, bound for a static IP address and port, to an internal address. We have provided procedures for specific cases, but you can use them as a model for other supported applications.

Before you begin

Before you begin, create a network object for the smtp server. For the sake of this procedure, we will call the object, **smtp-object**.

Procedure

-
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device you want to create the NAT rule for.
- Step 6** Click **NAT** in the **Management** pane at the right.
- Step 7** Click  > **Network Object NAT**.
- Step 8** In section 1, **Type**, select **Static**. Click **Continue**.
- Step 9** In section 2, **Interfaces**, choose **inside** for the source interface and **outside** for the destination interface. Click **Continue**.
- Step 10** In section 3, **Packets**, perform these actions:
- Expand the Original Address menu, click **Choose**, and select the smtp-server-object.
 - Expand the Translated Address menu, click **Choose**, and select the **Interface**.
 - Check **Use Port Translation**.
 - Select **tcp**, **smtp**, **smtp**.
- 
- Step 11** Skip section 4, **Advanced**.
- Step 12** For an FDM-managed device, in section 5, **Name**, give the NAT rule a name.
- Step 13** Click **Save**. The new rule is created in [section 2](#) of the NAT table.

Step 14 [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Entries in the ASA's Saved Configuration File

Here are the entries that are created and appear in an ASA's saved configuration file as a result of this procedure.



Note This does not apply to FDM-managed devices.

Object created by this procedure

```
object network smtp-object  
host 10.1.2.29
```

NAT rule created by this procedure

```
object network smtp-object  
nat (inside,outside) static interface service tcp smtp smtp
```

Translate a Range of Private IP Addresses to a Range of Public IP Addresses

Use Case

Use this approach if you have a group of specific device types, or user types, that need to have their IP addresses translated to a specific range so that the receiving devices (the devices on the other end of the transaction) allow the traffic in.

Translate a Pool of Inside Addresses to a Pool of Outside Addresses

Before you begin

Create a network object for the pool of private IP addresses you want to translate and create a network object for the pool of public addresses you want to translate those private IP addresses into.

For the ASA, the "original address" pool, (the pool of private IP addresses you want to translate) can be a network object with a range of addresses, a network object that defines a subnet, or a network group that includes all the addresses in the pool. For the FTD, the "original address" pool can be a network object that defines a subnet or a network group that includes all the addresses in the pool.



Note For the ASA FTD, the network group that defines the pool of "translated address" cannot be a network object that defines a subnet.

For the sake of the following procedure, we named the pool of private addresses, **inside_pool** and name the pool of public addresses, **outside_pool**.

Procedure

Step 1 In the left pane, click **Inventory**.

- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device you want to create the NAT rule for.
- Step 6** Click **NAT** in the **Management** pane at the right.
- Step 7** Click  > **Network Object NAT**.
- Step 8** In section 1, **Type**, select **Dynamic** and click **Continue**.
- Step 9** In section 2, **Interfaces**, set the source interface to **inside** and the destination interface to **outside**. Click **Continue**.
- Step 10** In section 3, **Packets**, perform these tasks:
- For the Original Address, click **Choose** and then select the **inside_pool** network object (or network group) you made in the prerequisites section above.
 - For the Translated Address, click **Choose** and then select the **outside_pool** network object (or network group) you made in the prerequisites section above.
- Step 11** Skip section 4, **Advanced**.
- Step 12** For an FDM-managed device, in section 5, **Name**, give the NAT rule a name.
- Step 13** Click **Save**.
- Step 14** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Entries in the ASA's Saved Configuration File

These are the entries that would appear in an ASA's saved configuration file as a result of these procedures.



Note This does not apply to FDM-managed devices.

Objects created by this procedure

```
object network outside_pool
  range 209.165.1.1 209.165.1.255
object network inside_pool
  range 10.1.1.1 10.1.1.255
```

NAT rules created by this procedure

```
object network inside_pool
nat (inside,outside) dynamic outside_pool
```

Prevent a Range of IP Addresses from Being Translated When Traversing the Outside Interface

Use Case

Use this Twice NAT use case to enable site-to-site VPN.

Strategy

You are translating a pool of IP addresses to itself so that the IP addresses in one location on the network arrives unchanged in another.

Create a Twice NAT Rule

Before you begin

Create a network object or network group that defines the pool of IP addresses you are going to translate to itself. For the ASA, the range of addresses can be defined by a network object that uses an IP address range, a network object that defines a subnet, or a network group object that includes all the addresses in the range. For the FTD, the range of addresses can be defined by a network object that defines a subnet or a network group object that includes all the addresses in the range.

For the sake of the following procedure, we are going call the network object or network group, Site-to-Site-PC-Pool.

Procedure

-
Step 1	In the left pane, click Inventory .
Step 2	In the left pane, click Security Devices .
Step 3	Click the Devices tab to locate the device or the Templates tab to locate the model device.
Step 4	Click the appropriate device type tab.
Step 5	Select the device you want to create the NAT rule for.
Step 6	Click NAT in the Management pane at the right.
Step 7	Click  > Twice NAT .
Step 8	In section 1, Type , select Static . Click Continue .
Step 9	In section 2, Interfaces , choose inside for the source interface and outside for the destination interface. Click Continue .
Step 10	In section 3, Packets , make these changes: • Expand the Original Address menu, click Choose, and select the Site-to-Site-PC-Pool object you created in the prerequisites section. • Expand the Translated Address menu, click Choose, and select the Site-to-Site-PC-Pool object you created in the prerequisites section.
Step 11	Skip section 4, Advanced .
Step 12	For an FDM-managed device, in section 5, Name , give the NAT rule a name.
Step 13	Click Save .
Step 14	For an ASA, create a crypto map. See CLI Book 3: Cisco ASA Series VPN CLI Configuration Guide and review the chapter on LAN-to-LAN IPsec VPNs for more information on creating a crypto map.
Step 15	Review and deploy now the changes you made, or wait and deploy multiple changes at once.
-

Entries in the ASA's Saved Configuration File

These are the entries that would appear in an ASA's saved configuration file as a result of these procedures.



Note This does not apply to FDM-managed devices.

Objects created by this procedure

```
object network Site-to-Site-PC-Pool
range 10.10.2.0 10.10.2.255
```

NAT rules created by this procedure

```
nat (inside,outside) source static Site-to-Site-PC-Pool Site-to-Site-PC-Pool
```



CHAPTER 3

Manage Tenants and Users

- [Manage a Security Cloud Control Tenant, on page 117](#)
- [Manage Users in Security Cloud Control, on page 142](#)
- [Active Directory Groups in User Management, on page 143](#)
- [Create a New Security Cloud Control User, on page 149](#)
- [User Roles in Security Cloud Control, on page 155](#)
- [Add a User Account to Security Cloud Control, on page 159](#)
- [Edit a User Record for a User Role, on page 160](#)
- [Delete a User Record for a User Role, on page 161](#)

Manage a Security Cloud Control Tenant

Security Cloud Control gives you the ability to customize certain aspects of your tenant, users, and notification preferences. Review the following settings available for customized configuration:

Configure User Preferences

See the following topics regarding general Security Cloud Control Settings:

- [General Preferences, on page 117](#)
- [User Notification Preferences](#)

General Preferences

Select the desired language and theme for the Security Cloud Control UI to display in. This selection only affects the user who makes this change.

Change the Security Cloud Control Web Interface Appearance

You can change the way the web interface appears.

Procedure

Step 1 From the drop-down list under your username, choose **Preferences**.

Step 2 In the **General Preferences** area, select a **Theme**:

- **Light**
- **Dark**

User Notification Preferences

Security Cloud Control generates notifications whenever a device linked to your tenant encounters a specific event. This includes actions taken by the device, expiring or expired device certificates, or the start, completion, or failure of a report generation task. By default, these notifications are enabled and visible to all users associated with the tenant, regardless of their role. You have the option to customize your personal notification preferences to display only the alerts that interest you. These preferences are unique to you and do not impact other users connected to the tenant.



Note Changes made to the notifications listed below are automatically updated in real time and do not require deployment.

View your personal preferences in the **Username ID > Preferences > Notification Preferences** page. Your Username ID is always located in the upper right corner of Security Cloud Control across all pages. From this page you can configure the following "**Notify Me in Security Cloud Control When**" alerts.

Send Alerts for Device Workflows

- **Deployments** - This action does not include integration instances for SSH or IOS devices.

- **Backups** - This action is only applicable for FDM-managed devices.
- **Upgrades** - This action is only applicable for ASA and FDM-managed devices.
- **Migrate FTD to cloud** - This action is applicable when changing the FTD device manager from FMC to Security Cloud Control.

Send Alerts for Device Events

- **Went offline** - This action applies to all devices associated with your tenant.
- **Back online** - This action applies to all the devices associated with your tenant.
- **Conflict detected** - This action applies to all the devices associated with your tenant.
- **HA state changed** - This action indicates the device within an HA or failover pair, the current state, and the state it changed from. This action applies to all HA and failover configurations associated with your tenant.
- **Site-to-Site session disconnected** - This action applies to all site-to-site VPN configurations configured in your tenant.

Send Alerts for Event Search Report Generation

- **Report generation started**: Receive a notification when a report generation task starts. This applies to both immediate and scheduled search reports.
- **Report generation completed**: Receive a notification when a report generation task ends. This applies to both immediate and scheduled search reports.
- **Report generation failed**: Receive a notification when a report generation task fails. This applies to both immediate and scheduled search reports. Check the parameters or the query and try again.

Opt Out of Notification Preferences

By default, all events are enabled and generate notifications. To opt out of notifications generated by the events mentioned above, you must manually **uncheck** the notification types. Note that you must click **Save** to confirm any changes.

Email Alerts

Enable the **Email Alerts** toggle to receive any of the alerts mentioned above. Check which alerts you would like to receive by email and click the **Save** button. By default, the **Use Security Cloud Control notification settings above** is checked. This means that you will receive email alerts on all of the same notifications and events as you have checked in the "Send Alerts When..." sections mentioned on this page.

If you only want **some** of the events or alerts mentioned above forwarded to your email, uncheck the **Use Security Cloud Control notification settings above**". This action generates an additional location to modify and personalize the available alerts. This may help reduce redundancy.

View Security Cloud Control Notifications



Click the notifications icon to view the most recent alerts that have occurred or affected the devices you have onboarded to your tenant. The selections that you make in the **Notification Settings** page impact the types of notifications displayed in Security Cloud Control. Continue reading for more information.

This drop-down page is grouped into three tabs: Overview, All, and Dismissed.

Overview Tab

The **Overview** tab displays a combination of the most recent high-priority alerts and events to which you are subscribed. High priority events are the following:

- Deployment Failed
- Backup Failed
- Upgrade Failed
- Migrate FTD to cdFMC Failed
- Device went offline
- Device HA state changed
- Device certificates expiring

You can configure which alerts you want to receive by clicking the Notification Settings in the Notifications window or by selecting **UserID > User Preferences** page. The User ID button in the upper right corner of the dashboard.

All Tab

The **All** tab displays all notifications regardless of their priority ranking, including email subscription notifications and all of the items listed as high priority.

Dismissed Tab

The **Dismissed** tab displays notifications you have dismissed. You can dismiss individual notifications by clicking the "x" of the notification.

Opting to **Dismiss** notifications from the drop-down menu dismisses notifications from **both** the "Overview" and "All" tabs. They will remain in the **Dismiss** tab for 30 days, after which they will be removed from Security Cloud Control.

Search Notifications

When viewing the notifications drop-down window, for any of the tabs mentioned above, you can use the search bar at the top of the drop-down to query for key words or alerts.

Tenant Settings

Enable the Option to Auto-accept Device Changes

Enabling auto-accept for device changes allows Security Cloud Control to automatically accept any changes made directly on the device. If you leave this option disabled, or disable it at a later time, you are required to review each device conflict before you can accept it.

To enable auto-accept for device changes, follow this procedure:

Procedure

-
- Step 1** In the left pane, click **Settings > General Settings**.
 - Step 2** In the left pane, **Administration > General Settings**.
 - Step 3** Click the slider under **Enable the option to auto-accept device changes**.
-

Enable Object Sharing with Multicloud Defense

To enable the sharing of Multicloud Defense network objects from Security Cloud Control, follow this procedure:

Procedure

-
- Step 1** From the Security Cloud Control menu bar, select **Settings > General Settings**.
 - Step 2** In the left pane, click **Administration > General Settings**.
 - Step 3** Click the slider under **Enable object sharing with Multicloud Defense**.
-

Default Conflict Detection Interval

This interval determines how often Security Cloud Control polls onboarded devices for changes. This selection affects all devices managed with this tenant, and can be changed at any time.



Note This selection can be overridden via the **Conflict Detection** option available from the **Security Devices** page after you have selected one or multiple devices.

To configure this option and select a new interval for conflict detection, follow this procedure:

Procedure

-
- Step 1** From the Security Cloud Control menu bar, select **Settings > General Settings**.

- Step 2** In the left pane, click **Administration > General Settings**.
- Step 3** Click the drop-down menu for **Default conflict detection interval** and select a time value.

Enable the Option to Schedule Automatic Deployments

Enabling the option to schedule automatic deployments allows you to schedule future deployments at a date and time when it is convenient. Once enabled, you can schedule a single or a recurring automatic deployment. To schedule an automatic deployment, see [Schedule an Automatic Deployment](#).

Note that changes made on Security Cloud Control for a device are not automatically deployed to the device

if it has pending changes of its own . If a device is not in the **Synced** state, such as **Conflict Detected** or **Not Synced**, scheduled deployments are not executed. The jobs page lists any instance where a scheduled deployment fails.

If **Enable the Option to Schedule Automatic Deployments** is turned off, all scheduled deployments are deleted.



Important If you use Security Cloud Control to create more than one scheduled deployment for a device, the new deployment overwrites the existing deployment. If you create more than one scheduled deployment a device using API, you **must** delete the existing deployment prior to schedule the new deployment.

To enable the option to schedule automatic deployments, follow this procedure:

Procedure

- Step 1** From the Security Cloud Control menu bar, select **Settings > General Settings**.
- Step 2** In the left pane, click **Administration > General Settings**.
- Step 3** Click the slider under **Enable the option to schedule automatic deployments**.

Web Analytics

Web analytics provides anonymous product usage information to Cisco based on page hits. The information includes pages viewed, the time spent on a page, browser versions, product version, device hostname, and so forth. This information can help Cisco determine feature usage patterns and help Cisco improve the product. All usage data is anonymous and no sensitive data is transmitted.

Web analytics is enabled by default. To disable web analytics, or to enable in the future, follow this procedure:

Procedure

- Step 1** From the Security Cloud Control menu bar, select **Settings > General Settings**.
- Step 2** In the left pane, click **Administration > General Settings**.

- Step 3** Click the toggle under **Web Analytics**.
-

Share Event Data with Cisco Talos

When you enable the **Enable event data sharing with Talos** toggle button, data about malicious events present in your device is shared with Talos, Cisco's threat intelligence organization. Sharing event data helps Talos improve its threat detection and response capabilities, allowing it to provide more targeted security updates for your network and better protection against emerging threats.

For more information about Talos, see the [Cisco Talos](#) product page.

Sharing event data with Talos is enabled by default. To opt out, follow this procedure:

Procedure

- Step 1** In the left navigation bar, click **Settings > General SettingsAdministration > General Settings**.

- Step 2** Click the **Enable event data sharing with Talos** toggle button to disable the setting.

Note

Sharing event data enables Talos to provide relevant security insights for your network. Disabling this setting might limit your ability to fully leverage Talos' capabilities, potentially impacting your network's defense against evolving threats.

Configure a Default Recurring Backup Schedule

To make backup schedules across your devices consistent, use this setting to configure your own default recurring backup schedule. When you schedule a backup for a particular device, you can use the default settings or change them. Changing the default recurring backup schedule does not change any existing scheduled backups or recurring backup schedules.

Procedure

- Step 1** Select **Settings > General Settings**.

- Step 2** In the left pane, click **Administration > General Settings**.

- Step 3** In the Tenant Settings area, find the **FDM Default Recurring Backup Schedule** section, and in **Frequency** field select daily, weekly, or monthly backup.

- Step 4** Select the time of day, in 24-hour time, you want the backup to occur. Note that you schedule the time in Coordinated Universal Time (UTC).

- For weekly backups: Check the days of the week on which you want the backup to occur.
- For monthly backups: Click in the **Days of Month** field and add whichever days of the month you want to the schedule the backup. Note: If you enter day 31 but a month doesn't have 31 days in it, the backup will not take place. Give the scheduled backup time a name and a description.

Step 5 Click **Save**.

Tenant ID

Your tenant ID identifies your tenant. This information will be helpful if you need to contact the Cisco Technical Assistance Center (TAC).

Tenant Name

Your tenant name also identifies your tenant. Note that the tenant name is not the organization name. This information will be helpful if you need to contact the Cisco Technical Assistance Center (TAC).

Security Cloud Control Platform Navigator

The platform navigator is a nine-block applications cross-launcher () that appears on the top right corner of Security Cloud Control. You can readily cross-launch to the following Cisco networking and security applications:

Networking Applications

- **Catalyst**—Cisco Catalyst products include a wide variety of network switches, wireless controllers, wireless access points, and edge platforms and routers, supporting enterprise-class business needs to heavy-duty and rugged networking environments.
- **Intersight**—Cisco Intersight is a cloud operations platform that consists of optional, modular capabilities of advanced infrastructure, workload optimization, and Kubernetes services. Cisco Intersight infrastructure services include the deployment, monitoring, management, and support of your physical and virtual infrastructure. It supports Cisco Unified Computing System (Cisco UCS) and Cisco HyperFlex hyperconverged infrastructure (HCI), and other third-party Intersight-connected targets.
- **IoT Operations Dashboard**—Cisco IoT Operations Dashboard is a cloud-based IoT services platform that empowers operations teams to securely connect, maintain, and gain insights from industrial networking devices and connected industrial assets at massive scale. With one comprehensive view of all their connected industrial assets, operation teams can uncover valuable insights that help them streamline operations and drive business continuity.
- **Meraki**—Cisco Meraki is an IT and IoT cloud-managed platform that provides a centralized management platform for Cisco Meraki devices.
- **Spaces**—Cisco Spaces is a cloud-based location services platform through which organizations can gain insights into how people and things move throughout their physical spaces. With these insights, they can deliver contextual engagements that are valuable and relevant. Besides looking at where people go, organizations can also drive operational efficiencies by monitoring the location, movement, and utilization of assets.
- **ThousandEyes**—Cisco ThousandEyes is a cloud service suite that helps monitor and measure the availability and performance of web applications, services, and networks. It provides end-to-end visibility from any user to any application over any network, enabling enterprises to swiftly get to the source of issues, resolve them faster, and manage performance effectively.
- **Workflows**—Cisco Workflows is a cloud-hosted automation application that is part of the larger Cisco Networking Cloud vision. Workflows provides an entitlement to cross-domain automation capabilities

to current Cisco customers by streamlining repetitive and error-prone tasks across both Cisco and third-party applications through custom and premade automation templates and a plethora of adapter options, both provided by Cisco and build your own, to reach targets in the cloud or on-premises.

Security Applications

- **Duo Security**—Cisco Duo is a user-centric zero-trust security platform with two-factor authentication to protect access to sensitive data for all users, devices, and applications. It offers features such as adaptive policies, single sign-on (SSO), and advanced endpoint visibility, making it a comprehensive solution for securing remote access and maintaining business continuity.
- **Secure Access**—Cisco Secure Access simplifies IT operations through a single, cloud-managed console, unified client, centralized policy creation, and aggregated reporting. Extensive security capabilities converged in one solution (ZTNA, SWG, CASB, FWaaS, DNS security, RBI and more) mitigate security risk by applying zero trust principles and enforcing granular security policies. Market leading Talos threat intelligence fuels unmatched threat blocking to mitigate risk and speed investigations.
- **Secure Endpoint**—Cisco Secure Endpoint, formerly known as Cisco AMP for Endpoints, is a cloud-managed endpoint security solution designed to prevent breaches and rapidly detect, contain, and remediate threats. It is an instant check of your files against a cloud-based scanner with advanced tracking features that enable security analysts to determine and isolate initial sources of outbreaks, and it provides a retrospective quarantine of files that are discovered to be malicious.
- **Cisco Security Provisioning and Administration**—Cisco Security Provisioning and Administration is a web application that provides centralized management of Cisco Secure product instances, user identity, and user access management across Cisco Security Cloud. Security Cloud Control administrators can create new Security Cloud enterprises, manage users in an enterprise, claim domains, and integrate their organization's SSO identity provider, among other tasks.
- **XDR**—Cisco Extended Detection and Response (XDR) is a cloud-based solution designed to simplify security operations and empower security teams to detect, prioritize, and respond to sophisticated threats. By integrating both Cisco and third-party security solutions into a unified platform, Cisco XDR offers a comprehensive approach to threat management. Integrated with the threat intelligence provided by Talos, Cisco XDR enriches incident data with additional context and asset insights, reducing false positives and enhancing overall threat detection, response, and forensic capabilities.

Tenant Notification Settings

On the Security Cloud Control toolbar, click the notification button .

All users associated with your tenant will automatically see these alerts. In addition, some or all of these alerts can be emailed to you.



Note You must have an **Super Administrator** user role to change these settings. See [User Roles](#) for more information.

Email Subscribers

Add or modify the emails that receive alerts from your Security Cloud Control tenant. See [Enable Email Subscribers, on page 126](#) for more information.

Service Integrations

Enable Incoming Webhooks on your messaging app and receive Security Cloud Control notifications directly to your app dashboard. See [Enable Service Integrations for Security Cloud Control Notifications](#) for more information.

Enable Email Subscribers

An email notification from Security Cloud Control denotes the type of action and the affected devices.



Warning

Be sure to enter the correct email if you are adding a mailer. Security Cloud Control does not check email addresses against known users associated with your tenant.

Add an Email Subscription

Before you begin

You must be an **Admin** to view the email subscription list, and a **SuperAdmin** to add, remove, or edit email subscriptions.

Procedure

- Step 1** Log into Security Cloud Control.
- Step 2** Navigate to **Settings > Notification Settings**.
- Step 3** In the left pane, click **Administration > Notification Settings**.
- Step 4** Click the + icon in the upper right corner of the page.
- Step 5** Enter a valid email address in the text field.
- Step 6** Check and uncheck the appropriate checkboxes for events and alerts you want the subscriber to be notified about.
- Step 7** Click **Save**. At any point, click **Cancel** to create the new email subscription for the tenant.

Edit Email Subscriptions

Before you begin

You must be an **Admin** to view the email subscription list, and a **SuperAdmin** to add, remove, or edit email subscriptions.

Procedure

-
- Step 1** Log into Security Cloud Control.
- Step 2** Navigate to **Settings > Notification Settings**.
- Step 3** In the left pane, click **Administration > Notification Settings**.
- Step 4** Locate the email address you want to enable to edit for email subscriptions.
- Step 5** Click the **Edit** icon.
- Step 6** Edit the following attributes for Security Cloud Control to send alerts to the configured email address:
- **Email address**
 - **Device Workflows**
 - **Device Events**
 - **Event Log Reports**
- Step 7** Click **Ok**. At any point, click **Cancel** to negate any changes made to the email subscription.
-

Delete an Email Subscription

Use the following procedure to delete a mailer from the email subscription list.:

Before you begin

You must be an **Admin** to view the email subscription list, and a **SuperAdmin** to add, remove, or edit email subscriptions.

Procedure

-
- Step 1** Log into Security Cloud Control.
- Step 2** Navigate to **Settings > Notification Settings**.
- Step 3** In the left pane, click **Administration > Notification Settings**.
- Step 4** Locate the user you want to remove from email subscriptions for the tenant.
- Step 5** Click the **Remove** icon for the user you want to remove.
- Step 6** Confirm you want to remove the user from the subscription list. Note that this does not affect the user functionality in any way.
-

Enable Service Integrations for Security Cloud Control Notifications

Enable service integration to forward Security Cloud Control notifications through a specified messaging application or service. You need to generate a webhook URL from your messaging application and point Security Cloud Control to that webhook in Security Cloud Control's **Notification Settings** page to receive notifications.

Security Cloud Control natively supports Cisco Webex, Microsoft Teams, and Slack as service integrations. Messages sent to these services are specially formatted for channels and automated bots.



Note You must check the appropriate boxes for the notifications you want to receive per webhook.

Incoming Webhooks for Webex Teams

Before you begin

Security Cloud Control notifications appear in a designated workspace or as an automated bot in a private message. You must have the following before completing this procedure:

- A Webex account.
- A Security Cloud Control account and tenant.

Use the following procedure to allow incoming webhooks for Webex Teams:

Procedure

-
- Step 1** Open the [Webex apphub](#).
- Step 2** Click **Connect** at the top of the page.
- Step 3** Scroll to the bottom of the page and configure the following:
- **Webhook name** - Provide a name to identify the messages provided by this application.
 - **Select a space** - Use the drop-down menu to choose a Webex **Space**. The Space must already exist in Webex team and you must have access to this space. If a space does not exist, you can create a new space in Webex Teams and refresh the application's configuration page to display the new space.
- Note**
If a Webex incoming webhook has been configured in the past and you are re-enabling it, the previous webhooks are preserved at the bottom of this page. You can delete previous webhooks if they are no longer needed or if the Webex space no longer exists.
- Step 4** Select **Add**. The Webex Space you chose will receive a notification that the application is added.
- Step 5** Copy the Webhook URL.
- Step 6** Log into Security Cloud Control.
- Step 7** From the navigation bar to the left, click **Settings > Notification Settings**.
- Step 8** In the left pane, click **Administration > Notification Settings**.
- Step 9** Examine and confirm the notifications that are checked are correct. If they are not, we strongly recommend modifying the notification selection before you connect to a service integration.
- Step 10** Scroll to **Service Integrations**.
- Step 11** Click the blue plus button.
- Step 12** Enter a **Name**. This name appears in Security Cloud Control as a configured service integration. It does not appear in any events forwarded to the configured service.

- Step 13** Expand the drop-down menu and select **Webex** as the Service Type.
- Step 14** Paste the webhook URL that you generated from the service.
- Step 15** Click **OK**.
-

Incoming Webhooks for Microsoft Teams

Security Cloud Control can forward notifications to Microsoft Teams. These messages are displayed either in a designated channel or as an automated bot in a private chat message in Microsoft Teams. To enable this functionality, you must generate a webhook URL from Microsoft Teams and point Security Cloud Control to that webhook. For more information about adding incoming webhooks to a Microsoft Teams channel, see [Create incoming webhooks with Workflows for Microsoft Teams](#).

Prerequisites

These are the prerequisites to allow Security Cloud Control notifications in Microsoft Teams:

- A Microsoft Teams account.
- A Security Cloud Control account and tenant.

Use this procedure to generate a webhook URL in Microsoft Teams and enable notifications from Security Cloud Control:

Procedure

- Step 1** Log in to your Microsoft Teams account.
- Step 2** In the **New Teams** client, click **Teams** and navigate to the channel in which you want to add an incoming webhook.
- Step 3** Click **More options** ⋮ next to the channel name.
- Step 4** Click **Workflows**.
- Step 5** Click **Post to a channel when a webhook request is received**.
- Step 6** Provide a name for the webhook and click **Next**.
- Step 7** Choose the channel where notifications must be posted.
- If you use this workflow from a Microsoft Teams chat or channel, these fields get populated automatically.
- Step 8** After you enter the required details, click **Add workflow**.
- Step 9** Copy the unique webhook URL from the dialog box that is displayed. The URL maps to the channel. You can use it to send information to Teams.
- Step 10** Log into Security Cloud Control.
- Step 11** From the left pane, click **Settings > Notification Settings**.
- Step 12** In the left pane, click **Administration > Notification Settings**.
- Step 13** Scroll to **Service Integrations**.
- Step 14** Click the blue plus button.
- Step 15** Enter a **Name**.

This name is displayed in Security Cloud Control as a configured service integration. However, it does not appear in any of the events forwarded to the configured service.

- Step 16** Expand the drop-down list, and select **Microsoft Teams** as the **Service Type**.
 - Step 17** Paste the webhook URL generated from Microsoft Teams into **URL**.
 - Step 18** Under **Send Alerts When**, examine and confirm that the selected notifications are correct. If not, modify the notification selection before proceeding.
 - Step 19** Click **Save**.
-

Incoming Webhooks for Slack

Security Cloud Control notifications appear in a designated channel or as an automated bot in a private message. For more information on how Slack handles incoming webhooks, see [Slack Apps](#) for more information.

Use the following procedure to allow incoming webhooks for Slack:

Procedure

- Step 1** Log into your Slack account.
- Step 2** In the panel to the left, scroll to the bottom and select **Add Apps**.
- Step 3** Search application directory for **Incoming Webhooks** and locate the app. Select **Add**.
- Step 4** If you are not the admin of your Slack workspace, you must send a request to the admin of your org and wait for the app to be added to your account. Select **Request Configuration**. Enter an optional message and select **Submit Request**.
- Step 5** Once the Incoming Webhooks app is enabled for your workspace, refresh the Slack settings page and select **Add New Webhook to Workspace**.
- Step 6** Use the drop-down menu to select the Slack channel you want the Security Cloud Control notifications to appear in. Select **Authorize**. If you navigate away from this page while waiting for the request to get enabled, simply log into Slack and select the workspace name in the upper left corner. From the drop-down menu, select **Customize Workspace** and select **Configure Apps**. Navigate to **Manage > Custom Integrations**. Select **Incoming Webhooks** to open app's landing page and then select **Configuration** from the tabs. This lists all the users within your workspace that has this app enabled. You can only see and edit your account's configuration. Select your workspace name to edit the configuration and move forward.
- Step 7** The Slack settings page redirects you to the configuration page for the app. Locate and copy the webhook URL.
- Step 8** Log into Security Cloud Control.
- Step 9** From the navigation bar to the left, click **Settings > Notification Settings**.
- Step 10** In the left pane, click **Administration > Notification Settings**.
- Step 11** Examine and confirm the notifications that are checked are correct. If they are not, we strongly recommend modifying the notification selection before you connect to a service integration.
- Step 12** Scroll to **Service Integrations**.
- Step 13** Click the blue plus button.
- Step 14** Enter a **Name**. This name appears in Security Cloud Control as a configured service integration. It does not appear in any events forwarded to the configured service.
- Step 15** Expand the drop-down menu and select **Slack** as the Service Type.
- Step 16** Paste the webhook URL that you generated from the service.

Step 17 Click OK.

Incoming Webhooks for a Custom Integration

Before you begin

Security Cloud Control does not format messages for custom integration. If you opt to integrate a custom service or application, Security Cloud Control sends a JSON message.

Refer to the service's documentation on how to enable incoming webhooks and generate a webhook URL. Once you have a webhook URL, use the procedure below to enable webhooks:

Procedure

- Step 1** Generate and copy the webhook URL from the custom service or application of your choice.
 - Step 2** Log into Security Cloud Control.
 - Step 3** From the navigation bar to the left, click **Settings > Notification Settings**.
 - Step 4** In the left pane, click **Administration > Notification Settings**.
 - Step 5** Examine and confirm the notifications that are checked are correct. If they are not, we strongly recommend modifying the notification selection before you connect to a service integration.
 - Step 6** Scroll to **Service Integrations**.
 - Step 7** Click the blue plus button.
 - Step 8** Enter a **Name**. This name appears in Security Cloud Control as a configured service integration. It does not appear in any events forwarded to the configured service.
 - Step 9** Expand the drop-down menu and select **Custom** as the Service Type.
 - Step 10** Paste the webhook URL that you generated from the service.
 - Step 11** Click OK.
-

Logging Settings

View your monthly event logging limit and how many days are left until the limit resets. Note that stored logging represents the compressed event data that the Cisco cloud received.

Click **View Historical Usage** to see logs your tenant has received over the past 12 months.

There are also links you can use to request additional storage.

Integrate Your SAML Single Sign-On with Security Cloud Control

Security Cloud Control uses Cisco Secure Sign-On as its SAML single sign-on identity provider (IdP) and Duo Security for multifactor authentication (MFA). This is Security Cloud Control's preferred authentication method.

If, however, customers want to integrate their own SAML single sign-on IdP solution with Security Cloud Control, they can as long as their IdP supports SAML 2.0 and identity provider-initiated workflow.

To integrate your own or third-party identity provider (IdP) with Cisco Security Cloud Sign On, see [Cisco Security Cloud Sign On Identity Provider Integration Guide](#).

If you need more support to integrate your own SAML solution with Security Cloud Control, contact support and [create a case](#).



Attention When you open a case, ensure that you choose **Manually Select A Technology** and select **SecureX - Sign-on and Administration** for your request to reach the right team.

Renew SSO Certificate

Your Identity Provider (IdP) is usually integrated with SecureX SSO. Open a [Cisco TAC](#) case and provide the metadata.xml file. For more information, see [Cisco SecureX Sign-On Third-Party Identity Provider Integration Guide](#).



Attention When you open a case, ensure that you choose **Manually Select A Technology** and select **SecureX - Sign-on and Administration** for your request to reach the right team.

(legacy only) If your Identity Provider (IdP) integration is directly with Security Cloud Control, open a [support ticket with Security Cloud Control TAC](#) and provide the metadata.xml file.

My Tokens

See [API Tokens](#) for more information.

API Tokens

Developers use Security Cloud Control API tokens when making Security Cloud Control REST API calls. The API token must be included in the REST API authorization header for a successful call. Although API tokens serve as "long-lived" access tokens and do not expire, they can be renewed or revoked.

To generate an API token in Security Cloud Control, you must first [create an API Only User](#) if one does not already exist. This user is specifically designated for API token generation and usage.

Once the API Only User is created, you can generate a new API token for that user. The token is visible only immediately after it is generated and remains visible as long as you stay on the **General Settings** page. If you navigate away and then return to the **General Settings** page, the token will no longer be displayed, although it is clear that a token has been issued.



Note API Only Users can generate API tokens; individual users cannot create API tokens for themselves or others.

API Token Format and Claims

The API token is a JSON Web Token (JWT). To learn more about the JWT token format, read the [Introduction to JSON Web Tokens](#).

The Security Cloud Control API token provides the following set of claims:

- **id** - user/device uid
- **parentId** - tenant uid
- **ver** - the version of the public key (initial version is 0, for example, **cdo_jwt_sig_pub_key.0**)
- **subscriptions** - Security Services Exchange subscriptions (optional)
- **client_id** - "api-client"
- **jti** - token id

Token Management

Create API Only Users

Procedure

-
- Step 1** Log in to Security Cloud Control.
- Step 2** From the Security Cloud Control navigation bar, click **Settings > User Management**.
- Step 3** In the left pane, click **Administration > API User Management**.
- Step 4** Click the blue plus button () to add a new user to your tenant.
- Step 5** Select the **API Only User** checkbox.
- Step 6** In the **Username** field, enter a name for the user and click **OK**.
- Important**
The user name can't be an email address or contain the '@' character as the '@yourtenant' suffix will be automatically appended to the user name.
- Step 7** Select the user's **role** from the drop-down menu.
- Step 8** Click **OK**.
- Step 9** Click the **User Management** tab.
- Step 10** In the **Token** column for the new API Only user, click **Generate API Token** to obtain an API token.
-

Generate an API Token

Procedure

-
- Step 1** From the navigation bar to the left, click **Settings > General Settings**.
- Step 2** From the drop-down list under your username, click **Preferences > General Preferences**.
- Step 3** In My Tokens, click **Generate API Token**.

- Step 4** Save the token in a secure location in accordance with your enterprise's best practices for maintaining sensitive data.
-

Refresh an API Token

The API token does not expire. However, you may choose to refresh your API token, which renews the existing token, if the token is lost, compromised, or to conform to your enterprise's security guidelines.

Procedure

- Step 1** From the navigation bar to the left, click **Settings > General Settings**.
- Step 2** From the drop-down list under your username, click **Preferences**.
- Step 3** In **General Preferences > My Tokens**, click **Refresh Token**. Security Cloud Control generates a *new* API token.
- Step 4** Save the new token in a secure location in accordance with your enterprise's best practices for maintaining sensitive data.

Note

The **Revoke**, **Refresh**, **Delete**, and **Edit** options for the API-only user for the Cisco Secure Dynamic Attributes Connector service account (csdac-service@tenantname) have been disabled. This is to ensure customers don't delete, edit, or revoke the API tokens for this API account, which is required for the Cisco Secure Dynamic Attributes Connector functionality.

Revoke an API Token

Procedure

- Step 1** From the drop-down list under your username, click **Preferences**.
- Step 2** In **General Preferences > My Tokens**, click **Revoke Token**. Security Cloud Control revokes the token.

Note

The **Revoke**, **Refresh**, **Delete**, and **Edit** options for the API-only user for the Cisco Secure Dynamic Attributes Connector service account (csdac-service@tenantname) have been disabled. This is to ensure customers don't delete, edit, or revoke the API tokens for this API account, which is required for the Cisco Secure Dynamic Attributes Connector functionality.

Relationship Between the Identity Provider Accounts and Security Cloud Control User Records

To log in to Security Cloud Control, a customer needs an account with a SAML 2.0-compliant identity provider (IdP), a multi-factor authentication provider, and a user record in Security Cloud Control. The IdP account

contains the user's credentials and the IdP authenticates the user based on those credentials. Multi-factor authentication provides an added layer of identity security. The Security Cloud Control user record primarily contains the username, the Security Cloud Control tenant with which they are associated, and the user's role. When a user logs in, Security Cloud Control tries to map the IdP's user ID to an existing user record on a tenant in Security Cloud Control. When Security Cloud Control finds a match, the user is logged in to that tenant.

Unless your enterprise has its own single sign-on identity provider, your identity provider is Cisco Security Cloud Sign On. Cisco Security Cloud Sign On uses Duo for multi-factor authentication. Customers can [integrate their own IdP with Security Cloud Control](#) if they choose.

Login Workflow

This is a simplified description of how the IdP account interacts with the Security Cloud Control user record to log in a Security Cloud Control user:

Procedure

- Step 1** The user requests access to Security Cloud Control by logging in to a SAML 2.0-compliant identity provider (IdP) such as Cisco Security Cloud Sign On (<https://sign-on.security.cisco.com>) for authentication.
- Step 2** The IdP issues a SAML assertion that the user is authentic, and a portal displays the applications the user can access. One of the tiles represents Security Cloud Control.
- Step 3** Security Cloud Control validates the SAML assertion, extracts the username and attempts to find a user record among its tenants that corresponding to that username.
- If the user has a user record on a single tenant on Security Cloud Control, Security Cloud Control grants the user access to the tenant and the user's role determines the actions they can take.
 - If the user has a user record on more than one tenant, Security Cloud Control presents the authenticated user with a list of tenants they can choose from. The user picks a tenant and is allowed to access the tenant. The user's role on that specific tenant determines the actions they can take.
 - If Security Cloud Control does not have a mapping for the authenticated user to a user record on a tenant, Security Cloud Control displays a landing page giving users the opportunity to learn more about Security Cloud Control or request a free trial.

Creating a user record in Security Cloud Control does not create an account in the IdP and creating an account in the IdP does not create a user record in Security Cloud Control.

Similarly, deleting an account on the IdP does not mean you have deleted the user record from Security Cloud Control; although, without the IdP account, there is no way to authenticate a user to Security Cloud Control. Deleting the Security Cloud Control user record does not mean you have deleted the IdP account; although, without the Security Cloud Control user record, there will be no way for an authenticated user to access a Security Cloud Control tenant.

Implications of this Architecture

Customers Who Use Cisco Security Cloud Sign On

For customers who use Security Cloud Control's Cisco Security Cloud Sign On identity provider, a Super Admin can create a user record in Security Cloud Control and a user can self-register themselves with Security Cloud Control. If the two usernames match, and the user is properly authenticated, the user can log in to Security Cloud Control.

Should the Super Admin ever need to prevent a user from accessing Security Cloud Control, they can simply delete the Security Cloud Control user's user record. The Cisco Security Cloud Sign On account will still exist and if the Super Admin ever wants to restore the user, they can by creating a new Security Cloud Control user record with the same username as the one used for Cisco Security Cloud Sign On.

Should a customer ever run into a problem with Security Cloud Control that requires a call to our Technical Assistance Center (TAC), the customer could create a user record for the TAC engineer so they could investigate the tenant and report back to the customer with information and suggestions.

Customers Who Have Their Own Identity Provider

For [customers who have their own identity provider](#), they control both the identity provider accounts and the Security Cloud Control tenants. These customers can create and manage identity provider accounts and user records in Security Cloud Control.

Should they ever need to prevent a user from accessing Security Cloud Control, they can delete the IdP account, the Security Cloud Control user record, or both.

If they ever need help from Cisco TAC, they can create both the identity provider account and a Security Cloud Control user record, with a read-only role, for their TAC engineer. The TAC engineer would then be able to access the customer's Security Cloud Control tenant, investigate, and report back the customer with information and suggestions.

Cisco Managed Service Providers

If Cisco Managed Service Providers (MSPs) use Security Cloud Control's Cisco Security Cloud Sign On IdP, they can self-register for Cisco Security Cloud Sign On and their customers can create a user record for them in Security Cloud Control so that the MSP can manage the customer's tenant. Of course, the customer has full control to delete the MSP's record when they choose to.

Related Topics

- [General Settings](#)
- [User Management](#)
- [Security Cloud Control User Roles](#)

MSSP Portal

The MSSP portal in Security Cloud Control is a multitenant, cloud-based management platform for managed security service providers (MSSPs) to efficiently monitor and manage devices across multiple tenants.

The portal consolidates real-time information, such as **Configuration Status**, **Connectivity State**, **Software Version**, and overall network health, into a single interface, providing a seamless overview without the need to access individual tenant environments.

Before you begin

- Open a support ticket with Cisco TAC to create an MSSP portal to manage your tenants. For more information, see [Open a Support Ticket with TAC, on page 835](#).
- We recommend that you clear the cache and cookies from your web browser to avoid browser-related issues.

MSSP Portal

The options provided in the left pane of the portal enable you to view the details about security devices and tenants in the portal and configure the portal settings.

• Security Devices

- Provides information about all the devices, cloud services, templates, and firewall managers that are onboarded to the tenants added to the portal. For more information, see [Security Devices Details, on page 138](#).

Name	Device/Service	Tenant	Configuration Status	Connectivity
	IOS		Retrieving...	Online
	IOS		Synced	Online
	Meraki MX		Not Synced	Invalid C
	Meraki MX		Synced	Unreach
	Meraki MX		Retrieving...	Invalid C
	ASA		-	Unreach
	cdFMC-managed FTD		Not Synced	Online

• Tenants

- Provides information about all the tenants managed by the portal. You can search by tenant name and export the tenants' information to a comma-separated value (.csv) file.
- Note that only users with **Super Admin** privileges can create new tenants or add existing tenants to the portal.

• Settings

- **General Settings** provides information about **Portal Settings**.
- **User Management** provides a list of all the **Users**, **Active Directory Groups**, and **Audit Logs**. For more information, see [User Management](#).



Note If you are a user with Super Admin privileges, you can use API endpoints to:

- [Create a Security Cloud Control tenant](#)
- [Add an existing Security Cloud Control tenant to the multitenant portal](#)

Security Devices Details

Click **Security Devices** in the left pane to view the **Security Devices** page containing the following tabs:

Table 17: Security Devices Page Tab Descriptions

Tab name	Description
Devices	View all the devices that are onboarded to the tenants in the portal. • Click a device to view the Device Details, Tenant Details, and Actions. • You can manage this device in Security Cloud Control by clicking Manage Device on Tenant under Actions. This link is displayed if you have an account on that tenant and the tenant is in the same region as the portal. If you don't have permission to access the tenant, you will not see the Manage Device on Tenant link. Contact the Super Admin in your organization to get the required permission. • Click Filters to filter your devices by Device/Services, Configuration Status, Connectivity State, Software Version, Tenant, or Conflict Detection.
Cloud Services	View all the cloud services that are onboarded to the tenants in the portal. • Click a cloud service to view the Device Details, Tenant Details, and Actions. • Click Filters to filter your cloud services by Services, Configuration Status, Connectivity State, Tenant, or Conflict Detection.

Tab name	Description
Templates	View all the templates that are onboarded to the tenants in the portal. - Click a template to view the Device Details, Tenant Details, and Actions. - Click Filters to filter your cloud services by Template Type, Configuration Status, Software Version, or Tenant.
Firewall Managers	View all the firewall managers that are onboarded to the tenants in the portal. - Click a firewall manager to view the Device Details, Tenant Details, and Actions. - Click Filters to filter your cloud services by Device Managers, Connectivity State, Tenant, or Software Version.

- You can export the details to a comma-separated value (.csv) file to help you with analysis and compliance reporting. Every time you export data, Security Cloud Control creates a new .csv file that has the creation time stamp and the universally unique identifier of the portal in the file's name.

- The column selector allows you to select or clear the properties that you want to view in the table. Click the gear icon () at the top-right corner of the table to view the table settings.

If you customize the table, Security Cloud Control remembers your selection the next time you view the **Security Devices** page.

Add a Tenant to the MSSP Portal

A user with **Super Admin** privileges can add tenants to the MSSP portal across multiple regions. For example, they can add a tenant from Europe to the US and vice versa.



Important

We recommend that you [create an API-Only user](#) for your tenant and generate an API token for authenticating to Security Cloud Control.



Note

If you want to add multiple tenants to the portal, generate API tokens from each tenant and paste them into a text file. You can then add the tenants one after another to the portal without switching to the tenant every time to generate a token.

Procedure

Step 1 In the left pane, click **Tenants**.

Step 2 Click the  icon at the top-right corner of the page.

Step 3 To add a new tenant, click **Next**.

Note

- a. To import existing tenants, check the **Would you like to import existing tenant?** check box.
- b. Add existing tenants from Security Cloud Control by pasting multiple API tokens separated by commas.
- c. Click **Import**.

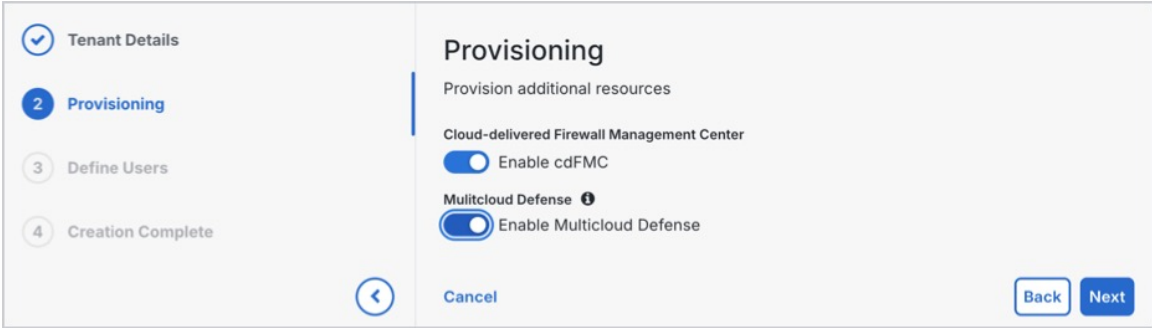
Step 4 Under **Tenant Details**, enter the **Display Name**, **Tenant Name**, and **Sales Order Number**.

Note that tenants created without a sales order number are placed on a 30-day proof-of-value trial.

Step 5 Click **Next**.

Step 6 Under **Provisioning**,

- Click the **Enable cdFMC** toggle button to provision cloud-delivered Firewall Management Center for your tenant.
- Click the **Enable Multicloud Defense** toggle button to provision Multicloud Defense for your tenant.
- Click **Next**.



Step 7 Under **Define Users**, either add users manually by entering their email address and selecting their role, or download the CSV file template, fill the necessary details, and upload the file.

The added users are displayed in the **User list** section.

Step 8 Click **Create Tenant**.

Tenant creation is complete, and provisioning may take a few minutes.

Delete a Tenant from the MSSP Portal

Procedure

- Step 1** In the left pane, click **Tenants**.
- Step 2** Click the corresponding delete icon on the right to remove the tenant.
- Step 3** Click **Remove**.

Note that the associated devices are also removed from the portal.

Manage MSSP Portal Settings

Security Cloud Control enables you to customize certain aspects of your MSSP portal and individual user accounts on the settings page. Click **Settings** in the left pane to access the settings page.

Settings

General Settings

Web analytics provides anonymous product usage information to Cisco based on page hits. The information includes pages viewed, the time spent on a page, browser versions, product version, device hostname, and so forth. This information can help Cisco determine feature usage patterns and help Cisco improve the product. All usage data is anonymous, and no sensitive data is transmitted.

Web analytics is enabled by default. To disable web analytics or to enable in the future, follow this procedure:

1. From the Security Cloud Control dashboard, click **Settings** in the navigation bar to the left.
2. Click **General Settings**.
3. From the left pane, choose **Administration > General Settings**.
4. Click the **Web Analytics** toggle button.

User Management

You can see all the user records associated with the MSSP portal on the **User Management** screen. You can add, edit, or delete a user account. For more information, see [User Management](#).

Switch Tenant

If you have more than one portal tenants, you can switch between different portal or tenants without signing out from Security Cloud Control.

Procedure

- Step 1** On the MSSP portal, click your tenant menu at the top-right corner.
- Step 2** Click **Switch Tenant**.

Step 3 Choose the portal or tenant that you want to view.

The Cisco Success Network

Cisco Success Network is a user-enabled cloud service. When you enable Cisco Success Network, a secure connection is established between the device and the Cisco cloud to stream usage information and statistics. Streaming telemetry provides a mechanism to select data of interest from the device and to transmit it in a structured format to remote management stations for the following benefits:

- To inform you of available unused features that can improve the effectiveness of the product in your network.
- To inform you of additional technical support services and monitoring that might be available for your product.
- To help Cisco improve our products.

The device establishes and maintains the secure connection at all times, and allows you to enroll in the Cisco Success Network. After you have registered the device, you can change the Cisco Success Network setting.



Note

- For Firewall Threat Defense high availability pairs, the selection of the active device overrides the Cisco Success Network setting on the standby device.
 - Security Cloud Control does not manage the Cisco Success Network settings. The settings managed through, and telemetry information is provided by, the Firewall Device Manager user interface.
-

Enable or Disable the Cisco Success Network

During initial system setup, you are prompted to register the device with Cisco Smart Software Manager. If you instead elected to use the 90-day evaluation license, you must register the device before the end of the evaluation period. To enroll the device, either register the device with Cisco Smart Software Manager (on the Smart Licensing page) or enroll with Security Cloud Control by entering a registration key.

When you register the device, your virtual account allocates the license to the device. Registering the device also registers any optional licenses that you have enabled.

You can turn off this connection at any time by disabling Cisco Success Network, although you can only disable this option through the Firewall Device Manager UI. Disabling will disconnect the device from the cloud. Disconnection does not impact the receipt of updates or the operation of the Smart Licensing capabilities, which continue to operate normally. See the **Connecting to the Cisco Success Network** section of the System Administration chapter of the [Firepower Device Manager configuration Guide](#), Version 6.4.0 or later for more information.

Manage Users in Security Cloud Control

Before you create or edit a user record in Security Cloud Control, read [Relationship Between Identity Provider Accounts and Security Cloud Control User Records](#) to learn how the identity provider (IdP) account and the

user record interact. Security Cloud Control users need a record and a corresponding IdP account so they can be authenticated and access the Security Cloud Control tenant.

Unless your enterprise has its own IdP, Cisco Secure Sign-On is the identity provider for all Security Cloud Control tenants. The rest of this article assumes you are using Cisco Secure Sign-On as your identity provider.

You can see all the user records associated with your tenant on the **User Management** screen. This includes any Cisco support engineer who is temporarily associated with your account to resolve a support ticket.

Manage Super Admins on Your Tenant

View the API User Records Associated with your Tenant

Procedure

-
- Step 1** In the left pane, choose **Settings > User Management**.
- Step 2** In the left pane, **Administration > API User Management**.
-

Active Directory Groups in User Management

For tenants that have a high turnover for large quantities of users, you can map Security Cloud Control to your Active Directory (AD) groups instead of adding individual users to Security Cloud Control for an easier way to manage your user lists and user roles. Any user changes, such as a new user addition or removing existing users, can now be done in Active Directory and no longer need to be done in Security Cloud Control.

You must have a **SuperAdmin** user role to add, edit, or delete an Active Directory group from the **User Management** page. See [User Roles](#) for more information.

In the left pane, choose **Settings > User Management**

Active Directory Groups

- In the left pane, choose **Settings > User Management > Active Directory Groups**. This page shows the Active Directory groups that are currently mapped to Security Cloud Control.
- In the left pane, click **Administration > API User Management > Active Directory Groups**.
- This page displays the role of the Active Directory group as assigned in your Active Directory manager.
- Users within an Active Directory group are not listed individually in either the **Active Directory Groups** tab or the **Users** tab.

Audit Logs

Audit Logs in Security Cloud Control record user-related and system-level actions. Key events that are captured by the **Audit Logs** include:

- **User Login:** Records every instance of user authentication.

- **Tenant Association and Disassociation:** Tracks user associations with, or disassociations from, tenants.
- **User Role Change:** Records any modifications to user roles.
- **Active Directory Groups:** Records any addition, deletion, and role changes within AD groups.

Procedure:

1. In the left pane, click **Settings > User Management**.
2. In the left pane, click **Administration > API User Management**.
3. Click the **Audit Logs** tab. A list of events and activities in the current tenant you are logged into is displayed.
4. Use the **Search** text box to find logs for a specific user.
5. Click the filter icon to refine your search results and view specific events. You can filter the logs based on the **Time Range** and **Event Action**.
6. Click **Export** to download the details in CSV format.

Figure 3: Audit Logs

Action	Details	Date/Time	User
User Login	User test@clisco.com logged in	7/31/2024 7:20:50 AM	test@clisco.com
User Role Change	Role changed to Edit Only for user test@clisco.com	7/26/2024 8:21:52 PM	pranona2@clisco.com
Tenant Association	User test@clisco.com associated to tenant CDOG_dragon-001	7/26/2024 8:21:21 PM	pranona2@clisco.com
Tenant Disassociation	User test@clisco.com disassociated from tenant CDOG_dragon-001	7/24/2024 11:32:33 PM	pranona2@clisco.com
AD Group Added	AD group test added	7/23/2024 8:34:25 PM	pranona2@clisco.com
AD Group Deleted	AD group test deleted	7/23/2024 8:18:42 PM	pranona2@clisco.com

Multi-role Users

As an extension along the IAM capabilities in Security Cloud Control, it is now possible for a user to have multiple roles.

A user can be part of multiple groups in Active Directory, and those groups can be defined in Security Cloud Control with different Security Cloud Control roles. The final permissions that a user gets on login are a

combination of the roles of all the Active Directory groups that are defined in Security Cloud Control that the user is part of. For instance, if a user is part of two Active Directory groups and both the groups are added in Security Cloud Control with two different roles such as edit-only and deploy-only, the user would have both edit-only and deploy-only permissions. This applies to any number of groups and roles.

Active Directory group mappings must only be defined one time in Security Cloud Control, and managing access and permissions for users can after be achieved exclusively in Active Directory by adding, removing, or moving users between different groups.



Note If a user is both an individual user and part of an Active Directory group on the same tenant, the user role of the individual user overrides the user role of the Active Directory group.

API Endpoints for Active Directory Groups

If you are a super admin, you can use API endpoints to do the following:

- [Create an Active Directory group](#)
- [Remove an Active Directory group](#)
- [Modify an Active Directory group](#)
- [Get Active Directory groups](#)
- [Get an Active Directory group](#)

The aforementioned links point to the corresponding sections of the Cisco DevNet website.

Prerequisites for Adding an Active Directory Group to Security Cloud Control

Before adding an Active Directory group mapping to Security Cloud Control as a form of user management, you must have your Active Directory that is integrated with Security Cloud Sign On. If your Active Directory Identity Provider (IdP) is not already integrated, see [identity provider integration guide](#) to integrate a custom Active Directory IdP integration with the following information:

- Your Security Cloud Control tenant name and region
- Domain to define custom routing for (for example: @cisco.com, @myenterprise.com)
- Certificate and federation metadata in the XML format

After your Active Directory integration is complete, add the following custom SAML claims in your Active Directory. The SAML claims and attributes are required, for you to be able to successfully sign-in to your Security Cloud Control tenant after your Active Directory integration is done. These values are case sensitive:

- **SamlADUserGroupIds** - This attribute describes all group associations that a user has on Active Directory. For example, in Azure select + **Add a group claim** as seen in the screenshot below:

Figure 4: Custom Claims Defined in Active Directory

Microsoft Azure

Home > Cisco-CDO-Dev > Enterprise applications > securex-okta-ci > SAML-based Sign-on >

Attributes & Claims

+ Add new claim + Add a group claim Columns Got feedback?

Claim name	Value
Unique User Identifier (Name ID)	user.userprincipalname (nameid-for-... ***

Additional claims

Claim name	Value
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress	user.mail ***
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/givenname	user.givenname ***
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/name	user.userprincipalname ***
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/surname	user.surname ***
SamlADUserGroupIds	user.groups ***
SamlSourceIdpIssuer	"https://sts.windows.net/1e491488-... ***

- **SamlSourceIdpIssuer** - This attribute uniquely identifies an Active Directory instance. For example, in Azure select + **Add a group claim** and scroll to locate the Azure Active Directory Identifier as seen in the screenshot below:

Figure 5: Locate the Azure Active Directory Identifier

The screenshot displays the Azure portal configuration for an enterprise application named 'securex-stage | SAML-based Sign-on'. The left navigation pane shows various management options. The main content area is organized into four numbered sections:

- Section 1:** General settings including 'Sign-in URL', 'Relay State', and 'Logout URL'.
- Section 2:** 'Attributes & Claims' table mapping application attributes to user attributes.

Attribute	Value
givenname	user.givenname
surname	user.surname
emailaddress	user.mail
name	user.userprincipalname
SamSourceIdIssuer	"https://sts.windows.net/1e491488-625a-4ff1-a021-0330b-f45c766f"
SamADUserGroupIds	user.groups
Unique User Identifier	user.userprincipalname
- Section 3:** 'SAML Signing Certificate' showing status as 'Active', thumbprint, expiration date, and download links for the certificate and metadata.
- Section 4:** 'Set up securex-stage' configuration. The 'Azure AD Identifier' field is highlighted with a red box.

Field	Value
Login URL	https://login.microsoftonline.com/1e491488-625a...
Azure AD Identifier	https://sts.windows.net/1e491488-625a-4ff1-a021...
Logout URL	https://login.microsoftonline.com/1e491488-625a...

Add an Active Directory Group for User Management

You must have a **SuperAdmin** user role to add, edit, or delete an Active Directory group.

Procedure

- Step 1** Log in to Security Cloud Control.
- Step 2** In the left pane, choose **Settings > User Management**.
- Step 3** In the left pane, click **Administration > API User Management**.
- Step 4** Click the **Active Directory Groups** tab.
- Step 5** Click the add Active Directory group () button.

Step 6 Provide the following information:

- **Group Name:** Enter a unique name. This name does not have to match the group name in your Active Directory. Security Cloud Control does not support special characters for this field.
- **Group Identifier:** Manually enter the Group Identifier from your Active Directory. The value of the group identifier should be the same as the group identifier in the custom claim definition. It could be any value that corresponds to the unique identity of the group, for example, my-favourite-group, 12345, and so forth.
- **AD Issuer:** Manually enter the Active Directory Issuer value from your Active Directory.
- **Role:** Select a user role. This determines the role for all the users included in this Active Directory group. See [User Roles](#) for more information.
- (Optional) **Notes:** Add any notes that are applicable to this Active Directory group.

Step 7 Select **OK**.

Edit an Active Directory Group for User Management

Before you begin

Note that editing an Active Directory Group's user management in Security Cloud Control only allows you to modify how Security Cloud Control limits the Active Directory group. You cannot edit the Active Directory group itself in Security Cloud Control. You must use Active Directory to edit the list of users within an Active Directory group.

Procedure

Step 1 Log in to Security Cloud Control.

Step 2 In the left pane, choose **Settings > User Management**.

Step 3 In the left pane, click **Administration > API User Management**.

Step 4 Click the **Active Directory Groups** tab.

Step 5 Identify the Active Directory Group you want to edit and click the edit icon.

Step 6 Modify the following values:

- **Group Name:** Enter a unique name. Security Cloud Control does not support special characters for this field.
- **Group Identifier:** Manually enter the Group Identifier from your Active Directory. The value of the group identifier should be the same as the group identifier in the custom claim definition. It could be any value that corresponds to the unique identity of the group, for example, my-favourite-group, 12345 and so forth.
- **AD Issuer:** Manually enter the Active Directory Issuer value from your Active Directory.
- **Role:** This determines the role for all the users included in this Active Directory group. See [User Roles](#) for more information.

- **Notes:** Add any notes that are applicable to this Active Directory group.

Step 7 Click **OK**.

Delete an Active Directory Group for User Management

Procedure

- Step 1** Log in to Security Cloud Control.
 - Step 2** In the left pane, choose **Settings > User Management**.
 - Step 3** In the left pane, click **Administration > API User Management**.
 - Step 4** Click the **Active Directory Groups** tab.
 - Step 5** Identify the Active Directory Group you want to delete.
 - Step 6** Click the delete icon.
 - Step 7** Click **OK** to confirm you want to delete the Active Directory group.
-

Create a New Security Cloud Control User

These two tasks are necessary for creating a new Security Cloud Control user. They do not have to be done in sequence:

- [Create a Cisco Secure Sign-on Account for the New User](#)
- [Create a Security Cloud Control User Record with Your Security Cloud Control Username](#)

After these tasks are done, then the user can [open Security Cloud Control from the Cisco Secure Sign-On dashboard](#).

Create a Cisco Security Cloud Sign On Account for the New User

Creating a Cisco Security Cloud Sign On account can be done by the new user at any time, without needing to know the name of the assigned tenant.

About Logging in to Security Cloud Control

Security Cloud Control uses Cisco Secure Sign-On as its identity provider and Duo for multi-factor authentication (MFA). **To log into Security Cloud Control, you must first create your account in Cisco Security Cloud Sign On and configure MFA using Duo.**

Security Cloud Control requires MFA which provides an added layer of security in protecting your user identity. Two-factor authentication, a type of MFA, requires two components, or factors, to ensure the identity of the user logging into Security Cloud Control. The first factor is a username and password, and the second is a one-time password (OTP), which is generated on demand.



Important If your Security Cloud Control tenant existed before October 14, 2019, use [Migrate to Cisco Security Cloud Sign On Identity Provider, on page 9](#) for log in instructions instead of this article.

Before You Log In

Install DUO Security



We recommend installing the Duo Security app in a mobile phone. Review [Duo Guide to Two Factor Authentication: Enrollment Guide](#) if you have questions about installing Duo.

Time Synchronization

You are going to use your mobile device to generate a one-time password. It is important that your device clock is synchronized with real time as the OTP is time-based. Make sure your device clock set automatically or manually set it to the correct time.

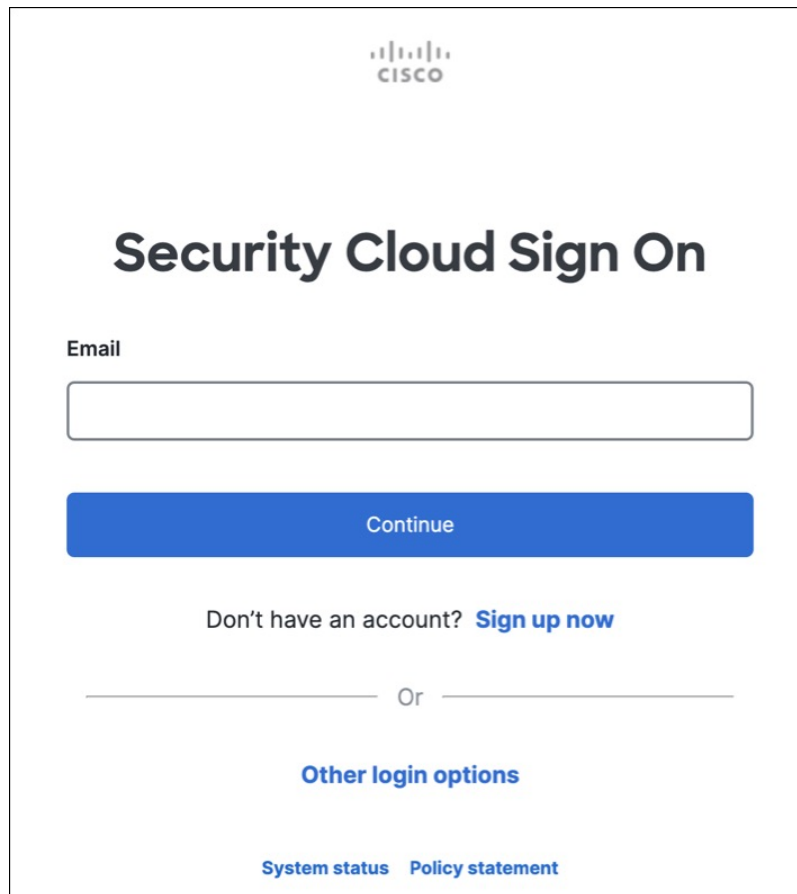
Create a New Cisco Security Cloud Sign On Account and Configure Duo Multi-factor Authentication

The initial sign-on workflow is a four-step process. You need to complete all four steps.

Procedure

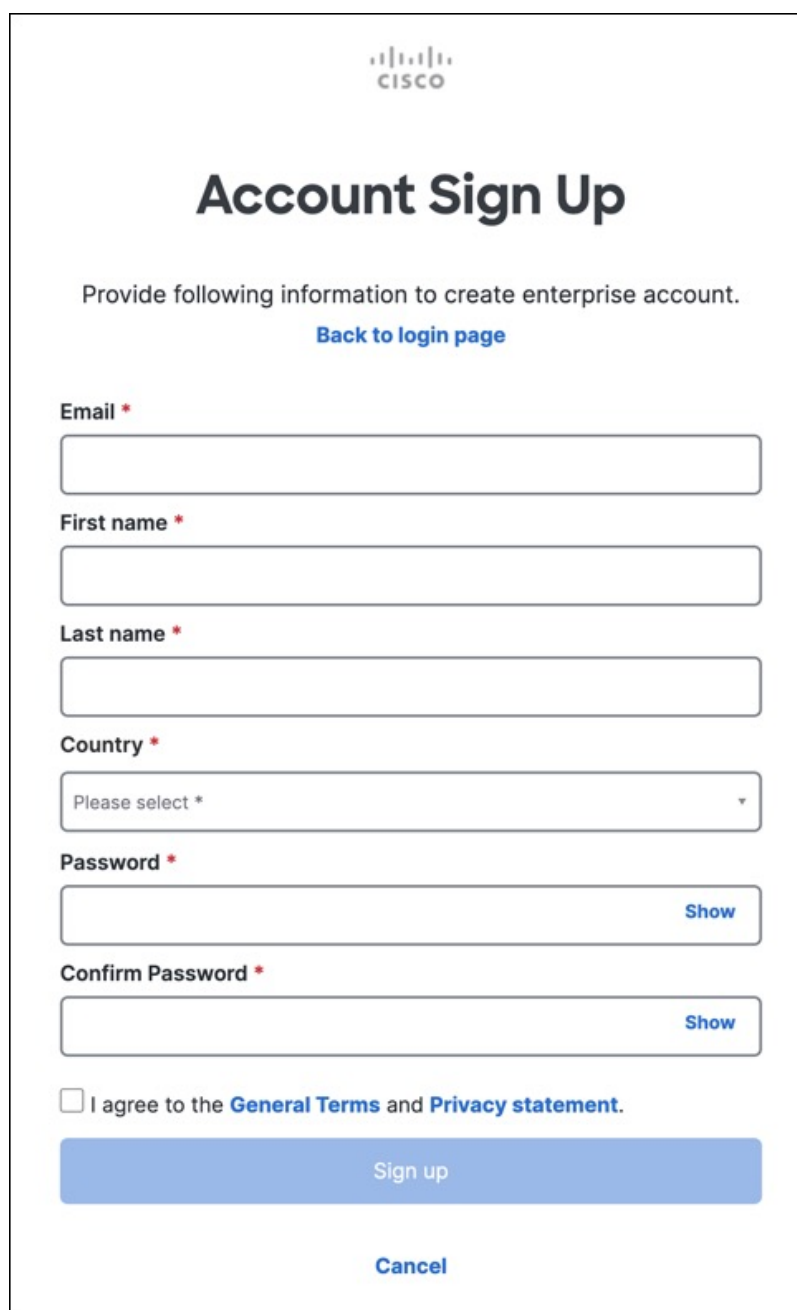
Step 1 Sign Up for a New Cisco Security Cloud Sign On Account.

- a. Open <https://sign-on.security.cisco.com>.
- b. At the bottom of the sign in screen, click **Sign up now**.



The image shows the Cisco Security Cloud Sign On page. At the top is the Cisco logo. Below it is the title "Security Cloud Sign On". There is an "Email" label above a text input field. Below the input field is a blue "Continue" button. Under the button, it says "Don't have an account? [Sign up now](#)". Below this is a horizontal line with "Or" in the center. Under the line is the text "[Other login options](#)". At the bottom are two links: "[System status](#)" and "[Policy statement](#)".

- c. Provide the following information to create enterprise account.



The image shows a Cisco Account Sign Up form. At the top is the Cisco logo. Below it is the title "Account Sign Up" in a large, bold font. Under the title is the instruction "Provide following information to create enterprise account." followed by a blue link "Back to login page". The form contains several input fields: "Email *" (a text box), "First name *" (a text box), "Last name *" (a text box), "Country *" (a dropdown menu with "Please select *" as the placeholder), "Password *" (a text box with a "Show" link to its right), and "Confirm Password *" (a text box with a "Show" link to its right). Below these fields is a checkbox with the text "I agree to the General Terms and Privacy statement." where "General Terms" and "Privacy statement" are blue links. At the bottom of the form are two buttons: a large blue "Sign up" button and a smaller blue "Cancel" link below it.

Here are some tips:

- **Email:** Enter the email address that you will eventually use to log in to Security Cloud Control.
- **Password:** Enter a strong password.

d. Click **Sign up**.

Cisco sends you a verification email to the address you registered with. Open the email and click **Activate account**.

Step 2 Set up Multi-factor Authentication Using Duo

We recommend using a mobile device when setting up multi-factor authentication.

- a. In the **Set up multi-factor authentication** screen, click **Configure factor**.
- b. Click **Start setup** and follow the prompts to choose a mobile device and verify the pairing of that mobile device with your account.

For more information, see [Duo Guide to Two Factor Authentication: Enrollment Guide](#). If you already have the Duo app on your device, you'll receive an activation code for this account. Duo supports multiple accounts on one device.
- c. At the end of the wizard click **Continue to Login**.
- d. Log in to Cisco Security Cloud Sign On with the two-factor authentication.

Step 3 (Optional) Setup Google Authenticator as an additional authenticator

- a. Choose the mobile device you are pairing with Google Authenticator and click **Next**.
- b. Follow the prompts in the setup wizard to setup Google Authenticator.

Step 4 Configure Account Recovery Options for your Cisco Security Cloud Sign On

- a. Choose a recovery phone number for resetting your account using SMS.
- b. Choose a security image.
- c. Click **Create My Account**.

Create a User Record with Your Security Cloud Control Username

Only a Security Cloud Control user with **Super Admin** privileges can create the Security Cloud Control user record. The **Super Admin** must create the user record with the same email address that was specified in the **Create Your Security Cloud Control Username** task above.

Use the following procedure to create a user record with an appropriate user role:

Procedure

-
- Step 1** Login to Security Cloud Control.
 - Step 2** In the left pane, choose **Settings > User Management**.
 - Step 3** Click  to add a new user to your tenant.
 - Step 4** Provide the email address of the user.

Note
The user's email address must correspond to the email address of the Cisco Secure Log-On account.
 - Step 5** From the **Role** drop-down list, select the user's [role](#).

Step 6 Click **OK**.

The New User Opens Security Cloud Control from the Cisco Secure Sign-On Dashboard

Procedure

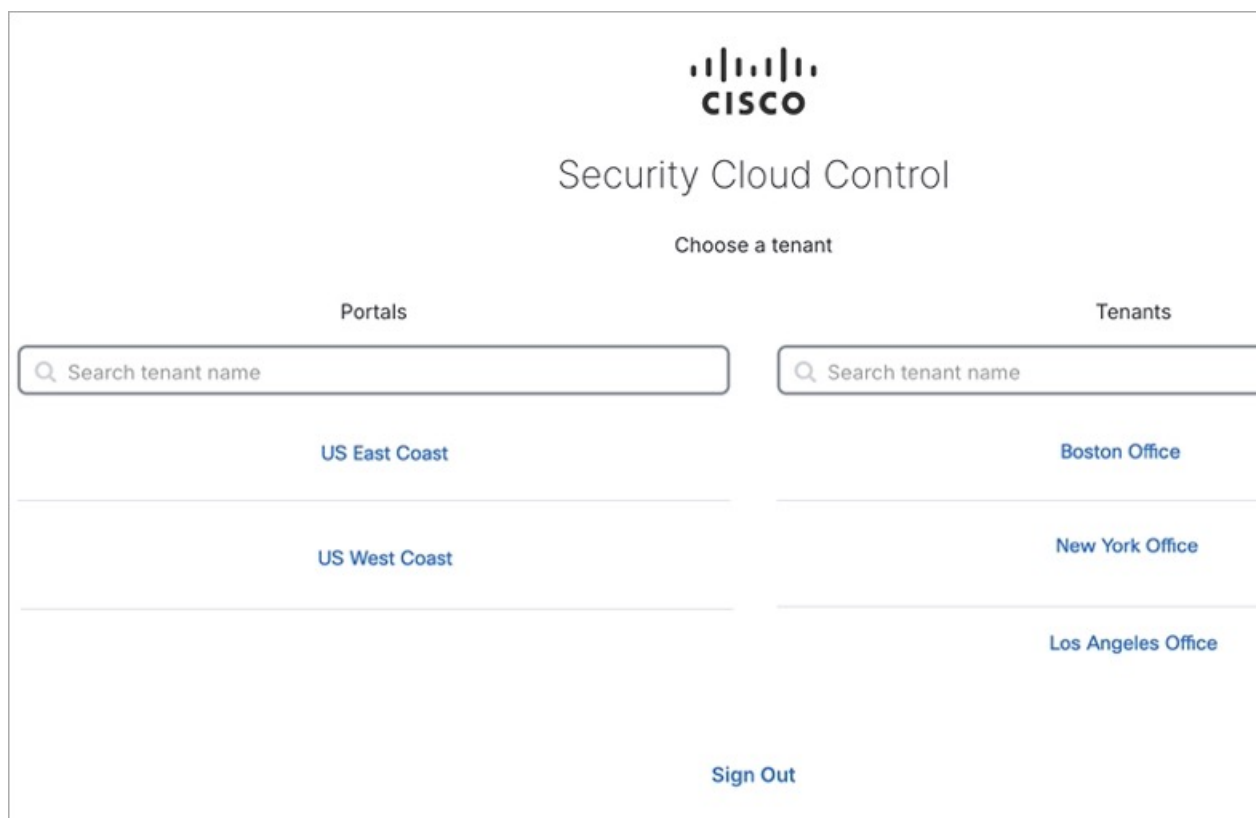
Step 1 Click the appropriate **Security Cloud Control** tile on the Cisco Secure Sign-on dashboard for your tenant's region.

Step 2 Click the authenticator logo to choose Duo Security or Google Authenticator if you have set up both authenticators.

- If you already have a user record on an existing tenant, you are logged into that tenant.
- If you already have a user record on several portals, you will be able to choose which portal to connect to.
- If you already have a user record on several tenants, you will be able to choose which Security Cloud Control tenant to connect to.
- If you do not already have a user record on an existing tenant, you will be able to learn more about Security Cloud Control or request a trial tenant.

The **Portals** view retrieves and displays consolidated information from multiple tenants. See [Manage Multiple Security Cloud Control Tenants](#) for more information.

The **Tenant** view shows several tenants on which you have a user record.



User Roles in Security Cloud Control

There are a variety of user roles in Security Cloud Control: Read-Only, Edit-Only, Deploy-only, Admin, and Super Admin. User roles are configured for each user on each tenant. If a Security Cloud Control user has access to more than one tenant, they may have the same user ID but different roles on different tenants. A user may have a read-only role on one tenant and a Super Admin role on another. When the interface or the documentation refers to a Read-only user, an Admin user, or a Super Admin user we are describing that user's permission level on a particular tenant.

Read-only Role

A user assigned the Read-Only role sees this blue banner on every page:

Read Only User. You cannot make configuration changes.

Users with the Read-Only role can do the following:

- View any page or any setting in Security Cloud Control.
- Search and filter the contents of any page.
- Compare device configurations, view the change log, and see VPN mappings.

- View every warning regarding any setting or object on any page.
- Generate, refresh, and revoke their own API tokens. Note that if a read-only user revokes their own token, they cannot recreate it.
- Contact support through our interface and can export a change log.

Read-Only users **cannot** do the following:

- Create, update, configure, or delete anything on any page.
- Onboard devices.
- Step-through the tasks needed to create something like an object or a policy, but not be able to save it.
- Create Security Cloud Control user records.
- Change user role.
- Attach or detach access rules to a policy.

Edit-Only Role

Users with the Edit-Only role can do the following:

- Edit and save device configurations, including but not limited to objects, policies, rulesets, interfaces, VPN, etc.
- Allow configuration changes that are made through the **Read Configuration** action.
- Utilize the Change Request Management action.

Edit-Only users **cannot** do the following:

- Deploy changes to a device or to multiple devices.
- Discard staged changes or changes that are detected through OOB.
- Upload AnyConnect Packages, or configure these settings.
- Schedule or manually start image upgrades for devices.
- Schedule or manually start a security database upgrade.
- Manually switch between Snort 2 and Snort 3 versions.
- Create a template.
- Change the existing OOB Change settings.
- Edit System Management settings.
- Onboard devices.
- Delete devices.
- Delete VPN sessions or user sessions.
- Create Security Cloud Control user records.

- Change user role.

Deploy-Only Role

Users with the Deploy-Only role can do the following:

- Deploy staged changes to a device, or to multiple devices.
- Revert or restore configuration changes for ASA devices.
- Schedule or manually start image upgrades for devices.
- Schedule or manually start a security database upgrade.
- Utilize the Change Request Management action.

Deploy-Only users **cannot** do the following:

- Manually switch between Snort 2 and Snort 3 versions.
- Create a template.
- Change the existing OOB Change settings.
- Edit System Management settings.
- Onboard devices.
- Delete devices.
- Delete VPN sessions or user sessions.
- Create, update, configure, or delete anything on any page.
- Onboard devices.
- Step-through the tasks needed to create something like an object or a policy, but not be able to save it.
- Create Security Cloud Control user records.
- Change user role.
- Attach or detach access rules to a policy.

VPN Sessions Manager Role

The VPN Sessions Manager role is designed for administrators monitoring remote access VPN connections, not site to site VPN connections.

Users with the VPN Sessions Manager role can do the following:

- View any page or any setting in Security Cloud Control.
- Search and filter the contents of any page.
- Compare device configurations, view the change log, and see RA VPN mappings.
- View every warning regarding any setting or object on any page.

- Generate, refresh, and revoke their own API tokens. Note that if a VPN Sessions Manager user revokes their own token, they cannot recreate it.
- Contact support through our interface and export a change log.
- Terminate existing RA VPN sessions.

VPN Sessions Manager users **cannot** do the following:

- Create, update, configure, or delete anything on any page.
- Onboard devices.
- Step-through the tasks needed to create something like an object or a policy, but not be able to save it.
- Create Security Cloud Control user records.
- Change user role.
- Attach or detach access rules to a policy.

Admin Role

Admin users have complete access to most aspects of Security Cloud Control. Admin users can do the following:

- Create, read, update, and delete any object or policy in Security Cloud Control and configure any setting.
- Onboard devices.
- View any page or any setting in Security Cloud Control.
- Search and filter the contents of any page.
- Compare device configurations, view the change log, and see VPN mappings.
- View every warning regarding any setting or object on any page.
- Generate, refresh, and revoke their own API tokens. If their token is revoked, they can contact support through our interface and can export a change log.

Admin users **cannot** do the following:

- Create Security Cloud Control user records.
- Change user role.

Super Admin Role

Super Admin users have complete access to all aspects of Security Cloud Control. Super Admins can do the following:

- Change a user role.
- Create user records.



Note Though Super Admins can create a Security Cloud Control user record, that user record is not all that is needed for a user to log in to your tenant. The user also needs an account with the identity provider used by your tenant. Unless your enterprise has its own single sign-on identity provider, your identity provider is Cisco Security Cloud Sign On. Users can self-register for their Cisco Security Cloud Sign On account; see [Initial Login to Your New Security Cloud Control Tenant, on page 8](#) for more information.

- Create, read, update, and delete any object or policy in Security Cloud Control and configure any setting.
- Onboard devices.
- View any page or any setting in Security Cloud Control.
- Search and filter the contents of any page.
- Compare device configurations, view the change log, and see VPN mappings.
- View every warning regarding any setting or object on any page.
- Generate, refresh, and revoke their own API tokens. If their token is revoked, they can
- Contact support through our interface and can export a change log.

Change The Record of the User Role

The user record is the currently recorded role of a user. By looking at the users associated with your tenant, you can determine what role each user has by their record. By changing a user role, you change the user record. User's roles are identified by their role in the User Management table. See [User Management](#) for more information.

You must be a Super Admin to change the user record. If your tenant has no Super Admins, contact [Security Cloud Control support](#).

Add a User Account to Security Cloud Control

Security Cloud Control users need a Security Cloud Control record and a corresponding IdP account so they can be authenticated and access your Security Cloud Control tenant. This procedure creates the user's Security Cloud Control user record, not the user's account in Cisco Security Cloud Sign On. If the user does not have an account in Cisco Security Cloud Sign On, they can self-enroll by navigating to <https://sign-on.security.cisco.com> and clicking **Sign up** at the bottom of the Sign in screen.



Note You will need to have the role of [Super Admin](#) on Security Cloud Control to perform this task.

Create a User Record

Use the following procedure to create a user record with an appropriate user role:

Procedure

-
- Step 1** Log in to Security Cloud Control.
- Step 2** From the Security Cloud Control navigation bar, click **Settings > User Management**.
- Step 3** In the left pane, click **Administration > API User Management**.
- Step 4** Click the blue plus button () to add a new user to your tenant.
- Step 5** Provide the email address of the user.

Note

The user's email address must correspond to the email address of the Cisco Secure Log-On account.

- Step 6** Select the user's **role** from the drop-down menu.
- Step 7** Click **Save**.

Note

Though Super Admins can create a Security Cloud Control user record, that user record is not all that is needed for a user to log in to your tenant. The user also needs an account with the identity provider used by your tenant. Unless your enterprise has its own single sign-on identity provider, your identity provider is Cisco Secure Sign-on. Users can self-register for their Cisco Secure Sign-On account; see [Initial Login to Your New Security Cloud Control Tenant](#), on page 8 for more information.

Edit a User Record for a User Role

You will need to have the role of Super Admin to perform this task. If the Super Admin changes the role of a Security Cloud Control user that is logged in, once their role has been changed, the user is automatically logged out of their session. Once the user logs back in, they assume their new role.



Note You will need to have the role of [Super Admin](#) on Security Cloud Control to perform this task.



Caution Changing the role of a user record will delete an [API token](#) associated with the user record if there is one. The user must generate a new API token once the user role changes.

Edit a User Role



Note If a Security Cloud Control user is logged in, and a Super Admin changes their role, the user must log out and log back in again for the change to take effect.

To edit the role defined in the user record, follow this procedure:

Procedure

-
- Step 1** Log in to Security Cloud Control.
 - Step 2** From the Security Cloud Control navigation bar, click **Settings > User Management**.
 - Step 3** In the left pane, click **Administration > API User Management**.
 - Step 4** Click the edit icon in the user's row.
 - Step 5** Select the user's new [role](#) from the Role drop-down menu.
 - Step 6** If the user record shows that there is an API token associated with the user, you will need to confirm that you want to change the user's role and delete the API token as a result.
 - Step 7** Click **v**.
 - Step 8** If Security Cloud Control deleted the API token, contact the user so that they may create a new API Token.

Note

The **Revoke**, **Refresh**, **Delete**, and **Edit** options for the API-only user for the Cisco Secure Dynamic Attributes Connector service account (csdac-service@tenantname) have been disabled. This is to ensure customers don't delete, edit, or revoke the API tokens for this API account, which is required for the Cisco Secure Dynamic Attributes Connector functionality.

Delete a User Record for a User Role

Deleting a user record in Security Cloud Control prevents the associated user from logging in to Security Cloud Control by breaking the mapping of the user record with the Cisco Security Cloud Sign On account. When you delete a user record, you are also deleting the API token associated with that user record should there be one. Deleting a user record in Security Cloud Control does not delete the user's IdP account in Cisco Security Cloud Sign On.



Note You will need to have the role of [Super Admin](#) on Security Cloud Control to perform this task.

Delete a User Record

To delete the role defined in the user record, see the following procedure:

Procedure

-
- Step 1** Log in to Security Cloud Control.
 - Step 2** From the Security Cloud Control navigation bar, click **Settings > User Management**.
 - Step 3** In the left pane, click **Administration > API User Management**.

- Step 4** Click the trash can icon  in the row of the user you want to delete.
- Step 5** Click **OK**.
- Step 6** Confirm that you want to remove the account from the tenant by clicking **OK**.

Note

The **Revoke**, **Refresh**, **Delete**, and **Edit** options for the API-only user for the Cisco Secure Dynamic Attributes Connector service account (csdac-service@tenantname) have been disabled. This is to ensure customers don't delete, edit, or revoke the API tokens for this API account, which is required for the Cisco Secure Dynamic Attributes Connector functionality.



PART II

Manage Security Devices

- [Onboard Devices and Services, on page 165](#)
- [Onboard a Firewall Threat Defense Device, on page 201](#)
- [Onboard Secure Firewall ASA, on page 217](#)
- [Onboard an On-Premises Firewall Management Center, on page 249](#)



CHAPTER 4

Onboard Devices and Services

You can onboard both live devices and model devices to Security Cloud Control. Model devices are uploaded configuration files that you can view and edit using Security Cloud Control.

Most live devices and services require an open HTTPS connection so that the Secure Device Connector can connect Security Cloud Control to the device or service.

This chapter covers the following sections:

- [Secure Device Connector, on page 165](#)
- [Supported Devices, Software, and Hardware, on page 197](#)

Secure Device Connector

The Secure Device Connector (SDC) is an intelligent proxy that allows your Cisco devices to communicate with Security Cloud Control. When onboarding a device that is not directly reachable over the internet to Security Cloud Control using device credentials, you can deploy an SDC in your network to proxy communications between the devices and Security Cloud Control. Alternatively, if you prefer, you can enable a device to receive direct communications through its outside interface from Security Cloud Control.

Adaptive Security Appliances (ASA), Meraki MXs, Secure Firewall Management Center devices, and generic SSH and IOS devices can be onboarded to Security Cloud Control using an SDC. Secure Firewall Threat Defense devices managed by Cloud-Delivered Firewall Management Center do not require onboarding using an SDC and do not support onboarding through proxies. Ensure that the threat defense devices have proper DNS settings and outbound internet connectivity to connect to Cloud-Delivered Firewall Management Center. For more information, see [Onboarding Overview](#).

The SDC monitors Security Cloud Control for commands that need to be executed on your managed devices, and messages that need to be sent to your managed devices. The SDC executes the commands on behalf of Security Cloud Control, sends messages to Security Cloud Control on behalf of the managed devices, and returns replies from the managed devices to Security Cloud Control.

The SDC uses secure communication messages signed and encrypted using AES-128-GCM over HTTPS (TLS 1.3) to communicate with Security Cloud Control. All credentials for onboarded devices and services are encrypted directly from the browser to the SDC as well as encrypted at rest using AES-128-GCM. Only the SDC has access to the device credentials. No other Security Cloud Control service has access to the credentials.

The SDC can be installed on any Ubuntu instance. For convenience, we provide an OVA for a hardened Ubuntu 22 instance which includes the SDC CLI pre-installed. The CLI helps you configure your VM, install all required system packages, and bootstrap the SDC as a Docker container on the host. Alternatively, you

can roll your own Ubuntu instance (versions 20 through 24 are currently tested) and download the CLI separately.

Each Security Cloud Control tenant can have an unlimited number of SDCs. These SDCs are not shared between tenants, they are dedicated to a single tenant. The number of devices a single SDC can manage depends on the features implemented on those devices and the size of their configuration files. For the purposes of planning your deployment, however, expect one SDC to support approximately 500 devices.

Deploying more than one SDC for your tenant also provides these benefits:

- You can manage more devices with your Security Cloud Control tenant without experiencing performance degradation.
- You can deploy an SDC to an isolated network segment within your network and still manage the devices in that segment with the same Security Cloud Control tenant. Without multiple SDCs, you would need to manage the devices in those isolated network segments with different Security Cloud Control tenants.

Multiple SDCs can run on a single host, follow the bootstrap procedure for each SDC you want to run. The initial SDC on your tenant incorporates the name of your tenant and the number 1 and is displayed on the **Secure Connectors** tab in the **Services** page of Security Cloud Control. Each additional SDC is numbered in order.

Related Information:

- [Update your Secure Device Connector, on page 186](#)
- [Remove a Secure Device Connector, on page 184](#)

Connect Security Cloud Control to your Managed Devices

Security Cloud Control connects to the devices that it manages through the cloud connector or through a Secure Device Connector (SDC).

If your device can be accessed directly from the internet, you should be using the cloud connector to connect to your device. If you can, configure the device to allow inbound access on port 443 from the Security Cloud Control IP addresses in your cloud region.

If your device is not accessible from the internet, you can deploy an on-premises SDC in your network to allow Security Cloud Control to communicate with your devices.

Configure the device to allow full inbound access from your device subnets/IPs on port 443 (or whichever port you have configured for your device management).

An FDM-managed device can be onboarded to Security Cloud Control using its device credentials, a registration key, or its serial number whether it is directly accessible from the internet. If the FDM-managed device does not have direct access to the internet, but it resides on a network that does; the Security Services Exchange connector delivered as part of the device can reach the Security Services Exchange cloud allowing the FDM-managed device to be onboarded.

You need an on-premises SDC in your network to onboard:

- An ASA device that is not accessible from the cloud.
- An FDM-managed device that is not accessible from the cloud and the credentials onboarding method is used.

All other devices and services do not require an on-premise SDC as Security Cloud Control will connect using its cloud connector. See the next section to know the IP addresses that must be allowed for inbound access.

Connecting Devices to Security Cloud Control Through the Cloud Connector

When connecting Security Cloud Control directly to your device through the cloud connector, you should allow inbound access on port 443 (or whichever port you have configured for your device management) for the various IP addresses in the EMEA, United States, or APJ region.

If you are a customer in the **Asia-Pacific-Japan (APJ)** region, and you connect to Security Cloud Control at <https://apj.manage.security.cisco.com>, allow inbound access from the following IP addresses:

- 54.199.195.111
- 52.199.243.0

If you are a customer in the **Australia (AUS)** region, and you connect to Security Cloud Control at <https://aus.manage.security.cisco.com>, allow inbound access from the following IP addresses:

- 13.55.73.159
- 13.238.226.118

If you are a customer in **Europe, the Middle East, or Africa (EMEA)** region, and you connect to Security Cloud Control at <https://eu.manage.security.cisco.com>, allow inbound access from the following IP addresses:

- 35.157.12.126
- 35.157.12.15

If you are a customer in the **India (IN)** region, and you connect to Security Cloud Control at <https://in.manage.security.cisco.com>, allow inbound access from the following IP addresses:

- 35.154.115.175
- 13.201.213.99

If you are a customer in the **United States (US)** region, and you connect to Security Cloud Control at <https://us.manage.security.cisco.com>, allow inbound access from the following IP addresses:

- 52.34.234.2
- 52.36.70.147

Connecting Security Cloud Control to SDC

When connecting Security Cloud Control to your device through an SDC, the devices you want Security Cloud Control to manage must allow full inbound access from your SDC host on port 443 (or whichever port you have configured for your device management). This is configured using a management access control rule.

You must also ensure that the virtual machine on which the SDC is deployed has network connectivity to the management interface of the managed device.

Special Consideration for Connecting an ASA to an SDC

Specifically, for ASA the SDC uses the same secure communications channel used by ASDM.

If the ASA under management is also configured to accept AnyConnect VPN Client connections, the ASDM HTTP server port must be changed to a value of 1024 or higher. Note that this port number will be the same port number used when onboarding the ASA device into Security Cloud Control.

Example ASA Commands

The following examples assume that the ASA outside interface is named 'outside' and an AnyConnect client is configured on the ASA so the ASDM HTTP server is listening on port 8443.

To enable the outside interface, enter these commands:

Asia-Pacific-Japan Region:

- `http 54.199.195.111 255.255.255.255 outside`
- `http 52.199.243.0 255.255.255.255 outside`

Australia Region

- `http 13.55.73.159 255.255.255.255 outside`
- `http 13.238.226.118 255.255.255.255 outside`

EMEA Region

- `http 35.157.12.126 255.255.255.255 outside`
- `http 35.157.12.15 255.255.255.255 outside`

India Region

- `http 35.154.115.175 255.255.255.255 outside`
- `http 13.201.213.99 255.255.255.255 outside`

United States Region

- `http 52.34.234.2 255.255.255.255 outside`
- `http 52.36.70.147 255.255.255.255 outside`

To enable the ASDM HTTP server port, in the case where AnyConnect VPN Client is in use, enter this command:

`http server enable 8443`

Deploy a VM for Running the Secure Device Connector and Secure Event Connector

When using device credentials to connect Security Cloud Control to a device, it is a best practice to download and deploy an SDC in your network to manage the communication between Security Cloud Control and the device. Typically, these devices are nonperimeter based and do not have a public IP address, or have an open port to the outside interface.

The SDC monitors Security Cloud Control for commands that need to be executed on your managed devices, and messages that need to be sent to your managed devices. The SDC executes the commands on behalf of

Security Cloud Control, sends messages to Security Cloud Control on behalf of the managed devices, and returns replies from the managed devices to Security Cloud Control.

The number of devices a single SDC can manage depends on the features that are implemented on those devices and the size of their configuration files. To plan your deployment, however, we expect one SDC to support approximately 500 devices. For more information, see [Using Multiple SDCs on a Single Security Cloud Control Tenant](#).

This procedure describes how to install an SDC in your network, using Security Cloud Control's VM image. This is the recommended and most reliable way to create an SDC.

Before you begin

- Security Cloud Control requires strict certificate checking and does not support Web or Content Proxy inspection between the Secure Device Connector (SDC) and the internet. If using a proxy server, disable inspection for traffic between the SDC and Security Cloud Control.
- The SDC must have full outbound access to the internet on TCP port 443, or the port you have configured for device management.
- The devices that are managed by Security Cloud Control must allow inbound traffic from the SDC VM's IP address.
- Review Connect [Connect Security Cloud Control to your Managed Devices, on page 166](#) to the Secure Device Connector to ensure proper network access.
- If you are using a proxy on your network, ensure that you have all the required details before running the host setup command. Most of the issues are related to incorrect proxy configurations. Important details are:
 - The IP/hostname of your proxy.
 - Whether or not your proxy intercepts traffic and reencrypts it using its own cert. This detail is the cause of most of the complications with the SDC VM setup.
 - If your proxy does intercept traffic, have the root certificate ready when configuring the VM. You can paste it in when prompted so that the host and the SDC know to trust the certificates generated by your proxy.
 - If your proxy does not intercept traffic, then nothing else is required here.
 - The following items are most likely the same for proxied HTTP and HTTPS connections. However, if you use a different proxy for each protocol, you would need all of the following for each:
 - The IP address of your proxy
 - The port your proxy uses
 - Whether your proxy requires that the connection to the proxy itself be over HTTPS (typically not the case). For example, if the address of your proxy is listed as <https://proxy.corp.com:80> then you would answer yes. If the listed address is <http://proxy.corp.com:80> then you would answer no. Note that both URLs use port 80, but the protocol is different.
 - The authentication details of your proxy including:
 - Whether your proxy requires auth (most do not)
 - If yes, then you'll need the username and password available when you configure the host.

Supported Installations

- Security Cloud Control supports installing its SDC VM OVF image using the vSphere web client or the ESXi web client.
- Security Cloud Control does not support installing the SDC VM OVF image using the vSphere desktop client.
- Security Cloud Control supports installing the SDC on your own Ubuntu instance. Versions 20LTS - 24LTS are currently supported.
- ESXi 5.1 hypervisor.

System Requirements

- System requirements for a VM with one SDC:
 - 2 vCPUs
 - 2 GB of memory
 - 64 GB of disk space
- Each SDC you add to your host requires an additional 1 vCPU and 1 GB of RAM.
- System requirements for a VM with one SEC (a component that is used in Cisco Security Analytics and Logging):
 - 4 vCPUs minimum
 - 8 GB of memory
- Each SEC you add to the host requires doubling its resources, therefore, these are the requirements for a VMware ESXi host with one SDC and one SEC:
 - 6 vCPUs
 - 10 GB memory
 - 64 GB of disk space

Prepare for Installation

- To configure networking manually on the host, gather the following information:
 - The static IP address that you want to use for your VM
 - The passwords to use for the `cdouser` (or whichever user has sudo access) and the ``sdc`` user (the user under which Docker runs)
 - The IP address of the DNS server your organization uses
 - The gateway IP address of the network the SDC address is on
 - The FQDN or IP address of your time/NTP server

- The SDC virtual machine is configured to install security patches regularly and to do this, opening port 80 outbound is required.

If your network is using allow/deny lists for outbound connections, you need to allow connections to ubuntu.com so those security updates can be applied.



Note Ubuntu secures its updates with checksums and only uses HTTP, not HTTPS. To pull security updates, you must allow HTTP connections to ubuntu.com.

Deploy the VM

There are two options for deploying the VM used to run the SDC and SEC.

1. Follow the steps below to download the VMware image provided by Security Cloud Control.
2. To deploy Ubuntu 20, 22, or 24 yourself. If deploying your own Ubuntu instance, you may skip the following section and proceed to the Configure the VM section.

Procedure

1. In the left pane, click **Administration > Integrations > Secure Connectors**.
2. Select the **Secure Connectors** tab on the **Services** page, click the blue plus button, and select **Secure Device Connector**.
3. Click **Download the SDC VM** image. This opens in a new tab.
4. Extract all the files from the .zip file. They look similar to these:
 - CDO-SDC-VM-ddd50fa.ovf
 - CDO-SDC-VM-ddd50fa.mf
 - CDO-SDC-VM-ddd50fa-disk1.vmdk
5. Log in to your VMware server as an administrator using the vSphere Web Client.



Note Do not use the ESXi Web Client.

Deploy the Secure Device Connector virtual machine from the OVF template by following the prompts.

6. When the setup is complete, power on the SDC VM.
7. Open the console for your new SDC VM.
8. Log in with the `cdo` username. The default password is `adm123`.

Configure the VM

Now you are able to bring up the console for the VM image you deployed (or SSH into it if you rolled your own and enabled SSH), you should run the configuration script to get your host ready to run the SDC or SEC Docker container(s).

1. If you downloaded the Security Cloud Control-provided VM, the CLI is already installed, and you can proceed to step 2. If you have deployed your own VM, SSH into it and run the command to install the CLI:


```
curl -O
https://s3.us-west-2.amazonaws.com/download.defenseorchestrator.com/sdc-cli/sdc-cli-package-latest.tgz
&& tar -xvf sdc-cli-package-latest.tgz && chmod +x ./install.sh && ./install.sh
```
2. Start the host configuration by running the command:


```
sudo sdc host configure
```
3. When prompted for the password, enter `adm123` for the Security Cloud Control-provided VM or whatever admin password you chose for your own VM.
4. Follow the prompts to configure the `sdc` user.
5. When prompted for the networking configuration, choose one of the following:
 - Manually configure this host with a static IP: If you want to specify the IP, gateway, DNS server, and so on, for this host and write it to the system config on the VM.
 - DHCP: If you have a DHCP server assigning static IPs to your VMs.
 - Static IP is already configured and I don't want to change my networking now.
6. When prompted, answer the questions about your proxy configuration. Review the detailed list at the top of this topic for all the prerequisites and potential proxy configuration options.
7. If you have configured a proxy, you will be prompted to reboot the VM for all the proxy settings to take effect. If you did not, you will not be prompted to reboot and you can move on to step 8.
8. Set a custom internet access test URL. You only need to do this if you deny all outbound connections by default. If you do, then specify a publicly accessible web url such as `https://google.com` that is on your allow list.
9. Install the latest security patches, some requires os tools and Docker server.
10. When prompted, indicate whether you want to have the script harden your SSH configuration.

If using our VM, proceed. If you are using your own VM and configuring SSH yourself, you may want to skip this step to avoid changing your current configuration.
11. When prompted to enable automatic updates for the SDC or SEC and the CLI itself, it is recommended that you do this to stay up to date with bug fixes, patches, and new features. If your policies prevent you from allowing automatic updates, see [Update your Secure Device Connector](#).

Deploy a Secure Device Connector On Your VM

When using device credentials to connect Security Cloud Control to a device, it is a best practice to download and deploy a Secure Device Connector (SDC) in your network to manage the communication between Security Cloud Control and the device. Typically, these devices are non-perimeter based, do not have a public IP address, or have an open port to the outside interface. Adaptive Security Appliances (ASAs), FDM-managed devices, and Firepower Management Centers (FMCs) devices can all be onboarded to Security Cloud Control using device credentials.

The SDC monitors Security Cloud Control for commands that need to be executed on your managed devices, and messages that need to be sent to your managed devices. The SDC executes the commands on behalf of

Security Cloud Control, sends messages to Security Cloud Control on behalf of the managed devices, and returns replies from the managed devices to Security Cloud Control.

The number of devices a single SDC can manage depends on the features implemented on those devices and the size of their configuration files. For the purposes of planning your deployment, however, we expect one SDC to support approximately 500 devices. See [Using Multiple SDCs on a Single Security Cloud Control Tenant, on page 187](#) for more information.

This procedure describes how to install an SDC in your network by using your own virtual machine image.



Note The preferred, easiest, and most reliable way to install an SDC is to download Security Cloud Control's SDC OVA image and install it.

Before you begin

- Security Cloud Control requires strict certificate checking and does not support a Web/Content Proxy between the SDC and the Internet.
- The SDC must have full outbound access to the Internet on TCP port 443 in order for it to communicate with Security Cloud Control.
- Devices that reach Security Cloud Control through the SDC must allow inbound access from the SDC on port 443.
- Review [Connect to Security Cloud Control using Secure Device Connector](#) for networking guidelines.
- VMware ESXi host installed with vCenter web client or ESXi web client.



Note We do not support installation using the vSphere desktop client.

- ESXi 5.1 hypervisor.
- Ubuntu 22.04 and Ubuntu 24.04 operating system.
- System requirements for a VM with only an SDC:
 - VMware ESXi host needs 2 CPUs.
 - VMware ESXi host needs a minimum of 2 GB of memory.
 - VMware ESXi requires 64 GB disk space to support the virtual machine depending on your provisioning choice. This value assumes you are using Logical Volume Management (LVM) with the partition so you can expand required disk space as needed.
- System requirements for a VM with an SDC and a **single** Secure Event Connector (SEC) for your tenant. (The SEC is a component used in [Cisco Security Analytics and Logging](#)).

Each SEC you add to the VMware ESXi host requires an additional 4 CPUs and an additional 8 GB of memory.

Therefore, these are the requirements for a VMware ESXi host with one SDC and one SEC:

- VMware ESXi host needs 6 CPU.

- VMware ESXi host needs a minimum of 10 GB of memory.
- VMware ESXi requires 64 GB disk space to support the virtual machine depending on your provisioning choice.
- After you have updated the CPU and memory on the VM, power on the VM and ensure that the Secure Connectors page indicates that the SDC is in the "Active" state.
- Users performing this procedure should be comfortable working in a Linux environment and using the vi visual editor for editing files.
- If you are installing your on-premise SDC on a CentOS virtual machine, we recommend you install Yum security patches on a regular basis. Depending on your Yum configuration, to acquire Yum updates, you may need to open outbound access on port 80 as well as 443. You will also need to configure yum-cron or crontab to schedule the updates. Work with your security-operations team to determine if any security policies need to change to allow you to get the Yum updates.



Note **Before you get started:** Do not copy and paste the commands in the procedure into your terminal window, type them instead. Some commands include an "n-dash" and in the cut and paste process, these commands can be applied as an "m-dash" and that may cause the command to fail.

Procedure

-
- Step 1** Log on to the Security Cloud Control tenant you are creating the SDC for.
- Step 2** In the left pane, choose **Tools & Services > Secure Connectors**.
- Step 3** In the left pane, click **Administration > Integrations > Secure Connectors**.
- Step 4** On the **Services** page, select the **Secure Connectors** tab, click the blue plus button, and select **Secure Device Connector**.
- Step 5** Copy the bootstrap data in step 2 on the window to a notepad.
- Step 6** Install a **CentOS 7 virtual machine** with at least the following RAM and disk space allotted to the SDC:
- 8GB of RAM
 - 10GB disk space
- Step 7** Once installed, configure basic networking such as specifying the IP address for the SDC, the subnet mask, and gateway.
- Step 8** Configure a DNS (Domain Name Server) server.
- Step 9** Configure a NTP (Network Time Protocol) server.
- Step 10** Install an SSH server on CentOS for easy interaction with SDC's CLI.
- Step 11** Run a Yum update and then install the packages: **open-vm-tools**, **nettools**, and **bind-utils**
- ```
[root@sdc-vm ~]# yum update -y
[root@sdc-vm ~]# yum install -y open-vm-tools net-tools bind-utils
```
- Step 12** Install the AWS CLI package; see <https://docs.aws.amazon.com/cli/latest/userguide/awscli-install-linux.html>.

**Note**

Do not use the `--user` flag.

**Step 13** Install the Docker CE packages; see <https://docs.docker.com/install/linux/docker-ce/centos/#install-docker-ce>

**Note**

Use the "Install using the repository" method.

**Step 14** Start the Docker service and enable it to start on boot:

```
[root@sdc-vm ~]# systemctl start docker
[root@sdc-vm ~]# systemctl enable docker
Created symlink from /etc/systemd/system/multiuser.target.wants/docker.service to
/usr/lib/systemd/system/docker.service.
```

**Step 15** Create two users: `cdo` and `sdc`. Use the `cdo` user to perform administrative tasks without directly accessing the root user. The `sdc` user will be designated for running the SDC docker container.

```
[root@sdc-vm ~]# useradd cdo
[root@sdc-vm ~]# useradd sdc -d /usr/local/cdo
```

**Step 16** Set a password for the `sdc` user.

```
[root@sdc-vm ~]# passwd cdo
Changing password for user cdo.
New password: <type password>
Retype new password: <type password>
passwd: all authentication tokens updated successfully.
```

**Step 17** Add the `sdc` user to the `wheel` group to give it administrative (sudo) privileges.

```
[root@sdc-vm ~]# usermod -aG wheel cdo
[root@sdc-vm ~]#
```

**Step 18** When Docker is installed, there is a user group created. Depending on the version of CentOS/Docker, this may be called either "docker" or "dockerroot". Check the `/etc/group` file to see which group was created, and then add the `sdc` user to this group.

```
[root@sdc-vm ~]# grep docker /etc/group
docker:x:993:
[root@sdc-vm ~]#
[root@sdc-vm ~]# usermod -aG docker sdc
[root@sdc-vm ~]#
```

**Step 19** If the `/etc/docker/daemon.json` file does not exist, create it, and populate with the contents below. Once created, restart the docker daemon.

**Note**

Make sure that the group name entered in the "group" key matches the group you found in the `/etc/group` file the previous step.

```
[root@sdc-vm ~]# cat /etc/docker/daemon.json
{
 "live-restore": true,
 "group": "docker"
}
```

```
[root@sdc-vm ~]# systemctl restart docker
[root@sdc-vm ~]#
```

**Step 20** If you are currently using a vSphere console session, switch over to SSH and log in with the `cdo` user. Once logged in, change to the `sdsc` user. When prompted for a password, enter the password for the `cdo` user.

```
[CDO@sdc-vm ~]$ sudo su sdc
[sudo] password for cdo: <type password for cdo user>
[sdc@sdc-vm ~]$
```

**Step 21** Change directories to `/usr/local/CDO`.

**Step 22** Create a new file called `bootstrapdata` and paste the bootstrap data from Step 2 of the **Deploy an On-Premises Secure Device Connector** wizard into this file. **Save** the file. You can use `vi` or `nano` to create the file.

**Step 23** The bootstrap data comes encoded in base64. Decode it and export it to a file called `extractedbootstrapdata`

```
[sdc@sdc-vm ~]$ base64 -d /usr/local/CDO/bootstrapdata >
/usr/local/CDO/extractedbootstrapdata
[sdc@sdc-vm ~]$
```

Run the `cat` command to view the decoded data. The command and decoded data should look similar to this:

```
[sdc@sdc-vm ~]$ cat /usr/local/CDO/extractedbootstrapdata
CDO_TOKEN=<token string>
CDO_DOMAIN="www.defenseorchestrator.com"
CDO_TENANT=<tenant-name>
```

```
CDO_BOOTSTRAP_URL="https://www.defenseorchestrator.com/sdc/bootstrap/tenant-name/<tenant-name-SDC>"
```

**Step 24** Run the following command to export the sections of the decoded bootstrap data to environment variables.

```
[sdc@sdc-vm ~]$ sed -e 's/^/export /g' extractedbootstrapdata > sdscenv && source sdscenv
[sdc@sdc-vm ~]$
```

**Step 25** Download the bootstrap bundle from Security Cloud Control.

```
[sdc@sdc-vm ~]$ curl -O -H "Authorization: Bearer $CDO_TOKEN" "$CDO_BOOTSTRAP_URL"
100 10314 100 10314 0 0 10656 0 --:--:-- --:--:-- --:--:-- 10654
[sdc@sdc-vm ~]$ ls -l /usr/local/CDO/*SDC
-rw-rw-r--. 1 sdc sdc 10314 Jul 23 13:48 /usr/local/CDO/tenant-name-SDC
```

**Step 26** Extract the SDC tarball, and run the `bootstrap.sh` file to install the SDC package.

```
[sdc@sdc-vm ~]$ tar xzvf /usr/local/CDO/tenant-name-SDC
<snipped - extracted files>
[sdc@sdc-vm ~]$
[sdc@sdc-vm ~]$ /usr/local/CDO/bootstrap/bootstrap.sh
[2018-07-23 13:54:02] environment properly configured
download: s3://onprem-sdc/toolkit/prod/toolkit.tar to toolkit/toolkit.tar
toolkit.sh
common.sh
[2018-07-23 13:54:04] startup new container
Unable to find image 'ciscodefenseorchestrator/sdc_prod:latest' locally
sha256:d98f17101db10e66db5b5d6afda1c95c29ea0004d9e4315508fd30579b275458:
Pulling from
ciscodefenseorchestrator/sdc_prod
08d48e6f1c9f: Pull complete
ebbd10b629b1: Pull complete
d14d580ef2ed: Pull complete
45421d451ab8: Pull complete
<snipped - downloads>
no crontab for sdc
```



The SDC should now show "Active" in Security Cloud Control.

---

#### What to do next

- 
- Return to [Install a Secure Event Connector on an SDC Virtual Machine, on page 664](#) if you are installing a Secure Event Connector.
- Return to [Install Multiple SECs for your tenant](#), if you are installing your **second or more** Secure Event Connectors on your tenant.

## Bootstrap a Secure Device Connector on the Deployed Host

### Procedure

---

- Step 1** In the left pane, click **Admin > Secure Connectors**.
- Step 2** In the left pane, click **Administration > Integrations > Secure Connectors**.
- Step 3** On the **Services** page, select the **Secure Connectors** tab, click the + icon, and select **Secure Device Connector**.
- Step 4** Copy the bootstrap data in step 2 on the window to a notepad.
- Step 5** SSH into your VM using the admin user, typically `cdo`, and your chosen password.
- Step 6** Switch to the `sdm` user using the command:
- ```
sudo su - sdm
```
- Step 7** Bootstrap your new SDC using the command:
- ```
sdm bootstrap <paste-your-bootstrap-data-here>
```
- Step 8** Select the version of the SDC you want to use.
- We have three options for the SDC version:
- SDC 2024- This is the version that most will want to run.
  - SDC 2024 with FIPS enabled- Choose this version if you are subject to FedRamp compliance.
  - SDC Legacy- This version is no longer receiving feature updates and it is recommended to run SDC 2024 instead.
- Step 9** The CLI pulls the container image and starts the SDC and you can validate that your SDC is active and operational on the user interface, and also on the host by running:
- ```
sdm show running
```
-

You should now see an SDC for your tenant.

Deploy a Secure Device Connector to vSphere Using Terraform

Before you begin

This procedure details how you can use the [Security Cloud Control SDC Terraform module for vSphere](#) in conjunction with the [Security Cloud Control Terraform Provider](#) to deploy an SDC to your vSphere. Ensure you review the following prerequisites before attempting to perform this task procedure:

- You have vSphere datacenter version 7 and above
- You have an admin account on the datacenter with permissions to do the following:
 - Create VMs
 - Create folders
 - Create content libraries
 - Upload files to content libraries
- Terraform knowledge

Procedure

Step 1 Create an API-only user in Security Cloud Control and copy the API token. To know how to create an API-only user, see [Create API Only Users](#).

Step 2 Configure the Security Cloud Control Terraform provider in your Terraform repository by following the instructions in [Security Cloud Control Terraform Provider](#).

Example:

```
terraform {
  required_providers {
    cdo = {
      source = "CiscoDevNet/cdo"
      version = "0.7.0"
    }
  }
}

provider "cdo" {
  base_url = "<the CDO URL you use to access CDO>"
  api_token = "<the API Token generated in step 1>"
}
```

Step 3 Write Terraform code to create a `cdo_sdc` resource using the Security Cloud Control Terraform provider. See the [Terraform registry for Security Cloud Control-sdc resource](#) for more information.

Example:

```
Resource "cdo_sdc" "my-sdc" {
  name = "my-sdc-in-vsphere"
}
```

The `bootstrap_data` attribute of this resource is populated with the value of the Security Cloud Control bootstrap data and is provided to the `cdo_sdc` Terraform module in the next step.

Step 4 Write Terraform code to create the SDC in vSphere using [Security Cloud Control_sdc Terraform module](#).

Example:

```
data "cdo_tenant" "current" {}

module "vsphere-cdo-sdc" {
  source           = "CiscoDevNet/cdo-sdc/vsphere"
  version          = "1.0.0"
  vsphere_username = "<replace-with-username-with-admin-privileges>"
  vsphere_password = "<super-secure-password>"
  vsphere_server   = "<replace-with-address-of-vsphere-server>"
  datacenter       = "<replace-with-datacenter-name>"
  resource_pool    = "<replace-with-resource-pool-name>"
  cdo_tenant_name  = data.cdo_tenant.current.human_readable_name
  datastore        = "<replace-with-name-of-datastore-to-deploy-vm-in>"
  network          = "<replace-with-name-of-network-to-deploy-vm-in>"
  host             = "<replace-with-esxi-host-address>"
  allow_unverified_ssl = <boolean; set to true if your vsphere server does not have a valid
  SSL certificate>
  ip_address       = "<sdc-vm-ip-address; must be in the subnet of the assigned network
  for the VM>"
  gateway          = "<replace-with-network-gateway-address>"
  cdo_user_password = "<replace-with-password-for-cdo-user-in-sdc-vm>"
  root_user_password = "<replace-with-password-for-root-user-in-sdc-vm>"
  cdo_bootstrap_data = cdo_sdc.sdc-in-vsphere.bootstrap_data
}
```

Note that the VM created has two users—a `root` user and a user called `cdo`—and the IP Address of the VM is configured statically. The `cdo_bootstrap_data` attribute is given the value of the `bootstrap_data` attribute generated when the `cdo_sdc` resource is created.

Step 5 Plan and apply your Terraform using `terraform plan` and `terraform apply`, as you would normally.

See the [Security Cloud Control Automation Repository](#) in the CiscoDevNet for a complete example.

If your SDC stays in the onboarding state, connect to the vSphere VM using remote console, log in as the `cdo` user, and execute the following command:

```
sdc host status
```

Depending on the readout, you may need to manually run:

```
sdc host configure
```



Note The Security Cloud Control Terraform modules are published as Open Source Software under the Apache 2.0 license. You can file issues on GitHub if you require support.

Deploy a Secure Device Connector on an AWS VPC Using a Terraform Module

Before you begin

Review these prerequisites before attempting to deploy an SDC on your AWS VPC:

- Security Cloud Control requires strict certificate checking and does not support Web/Content Proxy inspection between the SDC and the Internet. If using a proxy server, disable inspection for traffic between the Secure Device Connector (SDC) and Security Cloud Control.
- See [Connect Security Cloud Control to the Secure Device Connector](#) to ensure proper network access.
- You require an AWS account, an AWS VPC with at least one subnet, and an AWS Route53-hosted zone.
- Ensure you have the Security Cloud Control bootstrap data, your AWS VPC ID, and its subnet ID handy.
- Ensure that the private subnet to which you deploy the SDC has a NAT gateway attached.
- Open traffic on the port on which your firewall management HTTP interface is running, from your firewalls to the Elastic IP attached to the NAT gateway.

Procedure

Step 1 Add the following lines of code in your Terraform file; make sure you manually enter inputs for variables:

```
module "example-sdc" {
  source =
    "git::https://github.com/cisco-lockhart/terraform-aws-cdo-sdc.git?ref=v0.0.1"
  env      = "example-env-ci"
  instance_name = "example-instance-name"
  instance_size = "r5a.xlarge"
  cdo_bootstrap_data = "<replace-with-cdo-bootstrap-data>"
  vpc_id      = <replace-with-vpc-id>
  subnet_id   = <replace-with-private-subnet-id>
}
```

See the [Secure Device Connector Terraform module](#) for a list of input variables and descriptions.

Step 2 Register `instance_id` as an output in your Terraform code:

```
output "example_sdc_instance_id" {
  value = module.example-sdc.instance_id
}
```

You can use the `instance_id` to connect to the SDC instance for troubleshooting using the AWS Systems Manager Session Manager (SSM). See [Outputs](#) in the Secure Device Connector Terraform module for a list of available outputs.

What to do next

For any troubleshooting of your SDC, you need to connect to the SDC instance using AWS SSM. See [AWS Systems Manager Session Manager](#) to know more about how to connect to your instance. Note that the ports to connect to the SDC instance using SSH are not exposed because of security reasons.



Note The Security Cloud Control Terraform modules are published as Open Source Software under the Apache 2.0 license. You can file issues on GitHub if you require support.

Migrate an On-Premises Secure Device Connector and Secure Event Connector from a CentOS 7 Virtual Machine to an Ubuntu Virtual Machine

Security Cloud Control's on-premises Secure Device Connector (SDC) has been installed on CentOS 7 virtual machines up to this point. Since CentOS 7 is now end-of-life and has been deprecated by Security Cloud Control, we have created this migration process to help you migrate all SDCs from CentOS 7 to an Ubuntu virtual machine.

Before You Migrate

- The SDC must have full outbound access to the internet on TCP port 443.
- The Ubuntu virtual machine running the SDC must have network access to the management interfaces of the devices it communicates with, such as ASAs and Cisco IOS devices.
- Any networking rules created for the IP address or FQDN of the old SDC VM to reach your devices should be recreated with the IP address or FQDN of the new SDC VM.
- The migration will take 10 to 15 minutes. During this time, your device will continue to enforce security policy and route network traffic, but you will not be able to communicate with it through the SDC.

Prerequisites

Deploy a new host by following the instructions on [Deploy a VM for Running the Secure Device Connector and Secure Event Connector](#).

Host Configuration

Follow this procedure if you are migrating the SDC and/or SEC:

1. Download the new VM image [here](#).
2. Unzip the CDO-SDC_VM.zip file. You should see three VM files named similarly to the following:
 - CDO-SDC-VM-708cd33-2024-05-30-2031-disk1.vmdk
 - CDO-SDC-VM-708cd33-2024-05-30-2031.mf
 - CDO-SDC-VM-708cd33-2024-05-30-2031.ovf
3. Deploy the VM you just downloaded.
4. Note the static IP address or FQDN you assigned to the new VM.
5. Using SSH, log in to the new VM as the `cdo` user.
6. At the prompt, enter the command:

```
sudo sdc host configure
```

**Note**

- Follow the prompts in the migration script closely. The script is well-documented and will guide you through the migration process, explaining each step.
- At the end of the migration script, you will receive a message indicating that your SDC has been migrated to the new VM. The SDC will retain its name after the migration.

SDC Migration**Procedure:**

1. Using SSH, log in to the old (CentOS) SDC as the `cdo` user.
2. Install the CLI using the command:

```
curl -O
https://s3.us-west-2.amazonaws.com/download.defenseorchestrator.com/sdc-cli/sdc-cli-package-latest.tgz
&& tar -xvf sdc-cli-package-latest.tgz && chmod +x ./install.sh && ./install.sh
```

3. Run the following command and follow the prompts:

```
sudo sdc migrate now
```

Verification:

1. Log in to your Security Cloud Control tenant.
2. In the left pane, click **Tools & Services > Secure Connectors**.
3. Select the SDC you migrated, and in the **Actions** pane, click **Request Heartbeat**.

**Note**

Ensure that the SDC is in the **Active** state.

SEC Migration**Procedure:**

1. Using SSH, log in to the old (CentOS) SDC as the `cdo` user.
2. Install the CLI using the command:

```
curl -O
https://s3.us-west-2.amazonaws.com/download.defenseorchestrator.com/sdc-cli/sdc-cli-package-latest.tgz
&& tar -xvf sdc-cli-package-latest.tgz && chmod +x ./install.sh && ./install.sh
```

3. Run the following command and follow the prompts:

```
sudo sdc eventing migrate
```

4. You can configure your devices to point to the new IP address of the SEC or you can shut down the old host and assign the new host the same IP address that the old host had so that the devices do not need to be updated.

Verification:

For information on the state of the SEC, see [Use Health Check to Learn the State of your Secure Event Connector](#).

Additional Instructions

Do Not Restart Your Old SDC

After the migration is complete, do not restart your old SDC on the original virtual machine.

Revert Failed Migration

If the migration fails for any reason, or the result is not what you are expecting and you want to revert to the old SDC, follow the instructions below:

1. Log in to the new VM and switch to the **SDC** user.
2. Ensure the SDC is not currently running on the new VM using the command:

```
docker ps
```

3. If the SDC is running, run the command:

```
sdm stop
```

4. Confirm that the SDC has stopped running by executing `docker ps` again.

5. Log in to the old VM and run the command:

```
sdm migrate revert
```

6. When the old SDC is active and visible in the UI, return to the new VM and execute the command:

```
sdm delete <your-tenant-name-here>
```

7. Refresh the browser completely, click on the SDC, and verify that the IP of the old host appears in the sidebar.

If the new IP still appears despite following these steps, request a new health check, refresh the browser, and check again.

8. To revert the SEC migration, run the command:

```
sdm eventing revert
```

Change the IP Address of a Secure Device Connector

Before you begin

- You must be an admin to perform this task.
- The SDC must have full outbound access to the Internet on TCP port 443, or the port you have configured for device management.



Note

You will not be required to re-onboard any devices to Security Cloud Control after changing the SDC's IP address.

Procedure

- Step 1** Create an SSH connection to your SDC or open your virtual machine's console, and log in as the **CDO** user.
- Step 2** To view your SDC VM's network interface configuration information before changing the IP address, use the command:

```
[cdo@localhost ~]$ ip addr
```

- Step 3** To change the IP address of the interface, re-initiate the host configuration using the command:

```
[cdo@localhost ~]$ sdc host configure network
```

- Step 4** Enter your password at the prompt.

- Step 5** The configure script will then ask you about your networking configuration, write the new config file with the new IP and apply that configuration.

Note

You will lose your SSH connection at this time.

- Step 6** Create an SSH connection using the new IP address you assigned to your SDC and log in.

- Step 7** Your SDC should start automatically, but if it does not, run the following commands:

```
[cdo@localhost ~]$ sudo su - sdc
```

```
[cdo@localhost ~]$ sdc start
```

Note

If you are performing this procedure in the VM's console, when you confirm the values are correct, the connectivity status test is automatically run and the status is shown.

- Step 8** You can also check your SDC's connectivity through the Security Cloud Control user interface. To do that, open the Security Cloud Control application and navigate to **Tools & Services > Secure Connectors Administration > Integrations > Secure Connectors** page.

- Step 9** Refresh the page once and select the secure connector whose IP address you changed.

- Step 10** On the **Actions** pane, click **Request Heartbeat**. You should see the **Heartbeat** requested successfully message, and the **Last Heartbeat** should display the current date and time.

Remove a Secure Device Connector



Warning

This procedure deletes your Secure Device Connector (SDC). It is not reversible. After taking this action, you will not be able to manage the devices connected to that SDC until you install a new SDC and reconnect your devices. Reconnecting your devices may require you to re-enter the administrator credentials for each device you need to reconnect.

To remove the SDC from your tenant, follow this procedure:

Procedure

-
- Step 1** Remove any devices connected to the SDC you want to delete. You can do this one of two ways:
- Remove from Security Cloud Control any devices connected to the SDC you want to delete.
 - a. See [Find all Devices that Connect to Security Cloud Control Using the Same SDC](#) to identify all the devices used by the SDC.
 - b. In the **Security Devices** page, select all the devices you identified.
 - c. In the Device Actions pane, click **Remove** and click **OK** to confirm your action.
- Step 2** In the left pane, choose **Tools & Services > Secure Connectors**.
- Step 3** In the left pane, click **Administration > Integrations > Secure Connectors**.
- Step 4** On the **Services** page with the **Secure Connectors** tab selected, click the blue plus button and select **Secure Device Connector**.
- Step 5** In the Secure Connectors table, select the SDC you want to remove. Its device count should now be zero.
- Step 6** In the Actions pane, click  **Remove**. You receive this warning:
- Warning**
 You are about to delete <sd_name>. Deleting the SDC is not reversible. Deleting the SDC will require you to create and onboard a new SDC before you can onboard, or re-onboard, your devices.
- Because you currently have onboarded devices, removing the SDC will require you to reconnect those devices and provide credentials again after setting up a new SDC.
- If you have any questions or concerns, click **Cancel** and contact Security Cloud Control support.
 - If you wish to proceed, enter <sd_name> in the text box below and click **OK**.
- Step 7** In the confirmation dialog box, if you wish to proceed, enter your SDC's name as it is stated in the warning message.
- Step 8** Click **OK** to confirm the SDC removal.
-

Move an ASA from one SDC to Another

Procedure

-
- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab.
- Step 4** Select the ASA or ASAs you want to move to a different SDC.
- Step 5** In the **Device Actions** pane, click **Update Credentials**.

- Step 6** Click the Secure Device Connector button and select the SDC you want to move the device to.
- Step 7** Enter the administrator username and password Security Cloud Control uses to log into the device and click **Update**. Unless they were changed, the administrator username and password are the same credentials you used to onboard the ASA. You do not have to deploy these changes to the device.

Note

If all the ASAs use the same credentials, you can move ASAs in bulk from one SDC to another. If the ASAs have different credentials, you have to move them from one SDC to another one at a time.

Rename a Secure Device Connector

Procedure

- Step 1** In the left pane, choose **Administration > Integrations > Secure Connectors**.
- Step 2** Select the SDC you want to rename.
- Step 3** In the Details pane, click the edit icon  next to the name of the SDC.
- Step 4** Rename the SDC.

This new name will appear wherever the SDC name appears in the Security Cloud Control interface including the Secure Device Connectors filter of the **Security Devices** pane.

Specify a Default Secure Device Connector

Many devices managed by Security Cloud Control, though not all, connect to Security Cloud Control through a SDC. When you onboard devices that connect to Security Cloud Control through an SDC, they are associated with the default SDC for your tenant unless you specify otherwise during onboarding.

You can specify which SDC is selected by default on the Secure Connectors page:

Procedure

- Step 1** In the left pane, choose **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
- Step 2** Select the SDC that you want to be the default.
- Step 3** In the Actions pane, click **Make Default**. If you don't see the Make Default action, then the SDC already is the default SDC.

Update your Secure Device Connector

Use this procedure as a troubleshooting tool. Usually, the SDC is updated automatically and you should not have to use this procedure. In case of errors, you may need to initiate a manual update.

Procedure

Step 1 Connect to your SDC. You can connect using SSH or use the console view in your Hypervisor.

Step 2 Log in to the SDC as the admin user, typically **cdo**.

Step 3 Switch to the SDC user to update the SDC docker container:

```
[cdo@sdcc-vm ~]$ sudo su sdc
[sudo] password for cdo: <type password for cdo user>
[sdc@sdcc-vm ~]$
```

Step 4 Upgrade the SDC:

```
sdc upgrade
```

Note

Recommended updates and maintenance on the SDC Virtual Machine

Ensure that you monitor and apply updates to the SDC VM running on Ubuntu Linux following your organisation's internal IT security and patch management policies. We highly recommend regularly reviewing and applying relevant security patches to ensure that the SDC VM remains secure and functions optimally within your network environment.

Using Multiple SDCs on a Single Security Cloud Control Tenant

Deploying more than one SDC for your tenant allows you to manage more devices without experiencing performance degradation. The number of devices a single SDC can manage depends on the features implemented on those devices and the size of their configuration files.

You can install an unlimited number of SDCs on a tenant. Each SDC could manage one network segment. These SDCs would connect the devices in those network segments to the same Security Cloud Control tenant. Without multiple SDCs, you would need to manage the devices in isolated network segments with different Security Cloud Control tenants.

- The procedure for deploying a second or subsequent SDC is the same for deploying your first SDC.
- The initial SDC for your tenant incorporates the name of your tenant and the number 1. Each additional SDC is numbered in order.

Security Cloud Control Devices that Use the Same SDC

Follow this procedure to identify all the devices that connect to Security Cloud Control using the same SDC:

Procedure

Step 1 In the left pane, **Security Devices**.

Step 2 In the navigation bar, click **Inventory**.

- Step 3** Click the **Devices** tab to locate the device.
- Step 4** Click the appropriate device type tab.
- Step 5** If there is any filter criteria already specified, click the **clear** button at the top of the **Security Devices** page to show all the devices and services you manage with Security Cloud Control.
- Step 6** In the **Secure Device Connectors** section of the filter, check the name of the SDC(s) you're interested in. The **Security Devices** page displays only the devices that connect to Security Cloud Control through the SDC you checked in the filter.
- Step 7** (Optional) Check additional filters in the filter menu to refine your search further.
- Step 8** (Optional) When you're done, click the **clear** button at the top of the **Security Devices** page to show all devices and services you manage with Security Cloud Control.

Open Source and Third-Party License in SDC

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Michael Bridgen <mikeb@squaremobius.net>

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*** async ***

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*** bluebird ***

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* command-line-args *

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*** json-buffer ***

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*** json-stable-stringify ***

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* json-stringify-safe *

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*** log4js ***

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*** mkdirp ***

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*** node-forge ***

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*** rimraf ***

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*** validator ***

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Supported Devices, Software, and Hardware

Security Cloud Control is a cloud-based management solution enabling the management of security policies and device configurations across multiple security platforms. Security Cloud Control centrally manages policy and configuration across:

- Cisco Secure Firewall ASA, both on-premises and virtual
- Cisco Secure Firewall Threat Defense (FTD), both on-premises and virtual
- Cisco Catalyst SD-WAN Manager
- Cisco Secure Firewall Management Center, on-premises

The documentation describes devices, software, and hardware Security Cloud Control supports. It does not point out software and devices that Security Cloud Control does not support. If we do not explicitly claim support for a software version or a device type, then we do not support it.

Cisco Secure Firewall ASA

Cisco Adaptive Security Appliance (ASA) is a security device integrating firewall, VPN, and intrusion prevention capabilities. It protects networks from unauthorized access, cyber threats, and data breaches, offering robust security services in a single platform. Security Cloud Control supports the management of ASA devices, offering features to streamline configuration management and ensure regulatory compliance across the network infrastructure.

Cisco Secure Firewall Threat Defense

Firewall Threat Defense integrates traditional firewall features with advanced threat protection capabilities. It offers comprehensive security functions, including intrusion prevention, application control, URL filtering, advanced malware protection, and so on. An FTD can be deployed on ASA hardware appliances, and Cisco

firewall hardware appliances, and in virtual environments. Managing threat defense devices is possible through various management interfaces, such as Cisco Firewall Management Center and Security Cloud Control

For more information on software and hardware compatibility, see the [Cisco Secure Firewall Threat Defense Compatibility Guide](#).

Cisco Secure Firewall Management Center

Security Cloud Control simplifies the management of on-premises Firewall Management Center by establishing a secure integration, discovering security devices, and enabling centralized policy management. Security policies such as firewall rules, VPN settings, and intrusion prevention policies can be efficiently managed and deployed across all devices under FMC.

ASA Support Specifics

Security Cloud Control can manage all platforms running currently supported code versions, including ASAv instances, except for the ASA Services Module (ASASM), which is not supported by Security Cloud Control.



Note We do not test end-of-life ASA code versions and do not recommend using them in production. For optimal results, we suggest using the currently supported ASA code versions. Additionally, ASA 8.3 is not supported with the new policy view.

There may be a Security Cloud Control feature that does not support all versions of ASA, such as [ASA upgrades](#) from pre-9.12 versions. In those cases, the Security Cloud Control documentation will list any version exceptions with the prerequisites for that feature.

Security Cloud Control does not manage the ASA FirePOWER module, which runs a different operating system from ASA. You must manage an ASA FirePOWER module separately with Firepower Management Center or ASDM.



Note EOL code and hardware may continue work with Security Cloud Control, but we cannot assure all functionality of Security Cloud Control with respect to EOL code and hardware, as it is not part of our testing. Security Cloud Control makes no guarantees nor assurances of correct operation with EOL software and hardware. An example of this would be the EOL ASA versions 8.x, 9.1, and 9.2 do not support TLS 1.2 on the management plane and would be considered an insecure way to manage ASA software.

Please defer to the [version download](#) page for Cisco "suggested release" or "gold star" versions.

For a full discussion of ASA, ASDM, and hardware compatibility, see the [Cisco Secure Firewall ASA Compatibility](#) guide.

Secure Firewall Threat Defense Device Support Specifics

Secure Firewall Threat Defense is Cisco's next generation firewall. It can be installed on a variety of hardware and virtual platforms; see the [Cisco Secure Firewall Threat Defense Compatibility Guide](#).

FTD with Firepower Device Manager

You can add Security Cloud Control management to threat defense Version 6.4+ with FDM. However, this option is only available upon request for those who already have device manager support enabled on their tenant. See:

- [Open a Support Ticket with TAC, on page 835](#) to request this option.

Snort

Snort 3 is the default inspection engine for threat defense starting in threat defense Version 6.7 (with device manager) and Version 7.0 (with management center).



Important

If you are still using the Snort 2 inspection engine, switch to Snort 3 now for improved detection and performance. Snort 2 will be deprecated in a future release and will eventually prevent threat defense upgrade.

Migrate FTD to cdFMC Support Specifics

Migrate FTD to cdFMC is Cisco's multi-FTD management appliance.

See the [Cisco Firepower Compatibility Guide](#) for explanations of which Cisco hardware supports which versions of Firepower software.

Note that Security Cloud Control partially supports Migrate FTD to cdFMC functionality. To review the features we support in this initial release, review [Configure On-Premises Firewall Management Center-Managed Secure Firewall Threat Defense Devices, on page 429](#). See [Onboard an FMC](#) for a full discussion of onboarding prerequisites and requirements.



Note

An Migrate FTD to cdFMC can manage older FTD devices, usually a few major versions back. For example, a Version 6.6.0 Migrate FTD to cdFMC can manage a Version 6.4.0 device.

Physical Migrate FTD to cdFMC Devices	Firepower Software Support
FMC 1600, FMC 2600, FMC 4600	6.4.0+
FMC 1000, FMC 2500, FMC 4500	6.4.0+
FMC 2000, FMC 4000	6.4.0+
FMC 750, FMC 1500, FMC 3500	6.4.0
Virtual FMC Version	VMware vSphere/VMware ESXi
Version 6.0	6.4.0+
Version 6.5	6.4.0+
Version 6.7	6.5.0+



Note Support for FMCv 300 on VMware begins in Version 6.5.0.

Cloud Device Support Specifics

The following table describes software and device type support for cloud-based devices. Read the affiliated links for more information about onboarding and feature functionality for the device types in the table below:

Devices Types	Notes
Google Cloud Platform	Google Cloud Platform (GCP) receives any updates through the GCP console. See Google Cloud documentation for more information on the platform and available services. See
Microsoft Azure	Azure receives any updates through the Azure console. See Azure documentation for more information on the platform and available services.



CHAPTER 5

Onboard a Firewall Threat Defense Device

There are various ways to onboard a Firewall Threat Defense device for management. See the following use cases for what best meets your environment:

Firewall Threat Defense Devices Managed by Cloud-delivered Firewall Management Center

Devices that are to be managed by the cloud-delivered Firewall Management Center can be brand new, reimaged, or currently managed by another managing platform. For onboarding procedures, see the [Onboarding Overview, on page 201](#) for cloud-delivered Firewall Management Center.

Firewall Threat Defense Devices Managed by On-Premises Firewall Management Center

Devices that are managed by the on-premises management center are not actually onboarded to Security Cloud Control directly; when you onboard the on-premises management center, all of the devices that are managed by that platform are onboarded by association and are nested under the "FMC" device entry in the **Security Devices** page. For more information, see [Onboard an On-Premises Management Center to Security Cloud Control, on page 249](#).

- [Onboard a Firewall Threat Defense Device to Cloud-Delivered Firewall Management Center, on page 201](#)

Onboard a Firewall Threat Defense Device to Cloud-Delivered Firewall Management Center

Onboarding Overview

Review the following use cases and supported software versions that are compatible with cloud-delivered Firewall Management Center management.



Note You must ensure that the Firewall Threat Defense device ports have external and outbound access for the cloud-delivered Firewall Management Center to onboard them. There is no requirement for an on-premises or cloud-based Security Device Controller (SDC) for this operation. For more information, see [Network Requirements](#).

To send Firewall Threat Defense Syslog events to the Cisco cloud, you can set up the Secure Event Connector (SEC). For more information, see [Installing Secure Event Connectors](#).

Firewall Threat Defense Devices Currently Managed by Cloud-Delivered Firewall Management Center

The following scenarios occur when you either move or migrate a device to the cloud-delivered Firewall Management Center:

- If you delete a device from an on-premises management center or Secure Firewall Threat Defense FDM to onboard to the cloud-delivered Firewall Management Center, the change of managers wipes any policies configured through the on-premises management center.
- If you **migrate** a device from an on-premises management center to the cloud-delivered Firewall Management Center, the device retains the majority of your previously configured policies.



Note If you do not know if your device is already managed by an alternative manager, use the `show managers` command in the device's CLI.

Onboarding Methods

Cloud-Delivered Firewall Management Center supports the following onboarding methods:

- [Registration Key](#) - Onboard a device with a registration key. The initial device setup wizard is complete on the device.
- [Zero-Touch Provisioning](#) - Onboard a new factory-shipped device with its serial number. Note that this method only supports Firepower 1000, Firepower 2100, or Secure Firewall 3100 devices.



Note Version 7.0.3 does not support zero-touch provisioning.

- [Zero-Touch Provisioning](#) using a device template - Onboard new factory-shipped devices using serial numbers and a device template. Note that this method only supports Firepower 1000, Firepower 2100, Secure Firewall 1200 or Secure Firewall 3100 devices.

Prerequisites to Onboard a Device to Cloud-Delivered Firewall Management Center

Onboard Limitations and Requirements

Be aware of the following limitations when onboarding a device to the cloud-delivered Firewall Management Center:

- Devices **must** be running version 7.0.3, or version 7.2 and later. We **strongly** recommend version 7.2 or later.
- You can migrate an HA pair that is managed by an On-Premises Firewall Management Center by following the [Migrate FTD to Cloud-Delivered Firewall Management Center](#) process. Confirm both peers are in a healthy state prior to migrating.
- Only devices that are configured for local management and are managed by a FDM can be onboarded with the serial number and zero-touch provisioning methods.
- If the device is managed by an on-premises management center, you can either onboard the device to cloud-delivered Firewall Management Center or migrate the device. Migrating retains any existing policies and objects, whereas onboarding the device removes most policies and all objects. See [Migrate FTD to Cloud-Delivered Firewall Management Center](#) for more information.
- If your device is currently managed by a FDM, unregister all your smart licenses before you onboard the device. Even if you switch device management, the Cisco Smart Software Manager will retain the smart licenses.
- If you have previously onboarded a device that was managed by a FDM and deleted the device from Security Cloud Control with the intention of re-onboarding for cloud management, you **must** register the FDM to the Security Services Exchange cloud after deleting the device. See the "Access Security Services Exchange" chapter in the *Firepower and Cisco SecureX Threat Response Integration Guide*.



Tip

Onboarding a device to the cloud-delivered Firewall Management Center removes any policies and most objects configured through the previous manager. If your device is currently managed by an on-premises management center, it is possible to migrate the device and retain your policies and objects. See [Migrate FTD to Cloud-Delivered Firewall Management Center](#) for more information.

Network Requirements

Before you onboard a device, ensure the following ports have external and outbound access. Confirm the following ports on the device are allowed. If communication ports are blocked behind a firewall, onboarding the device may fail.



Note

You cannot configure these ports in the Security Cloud Control UI. You must enable these ports through the device's SSH.

Table 18: Device Port Requirements

Port	Protocol / Feature	Details
443/tcp	HTTPS	Send and receive data from the internet.
443	HTTPS	Communicate with the AMP cloud (public or private)
8305/tcp	Appliance communications	Securely communicate between appliances in a deployment.

Management and Data Interfaces

Make sure your device is correctly configured with either a management or data interface.

To configure a management or data interface on your device, see [Complete the Initial Configuration of a Secure Firewall Threat Defense Device Using the CLI, on page 830](#).

Onboard a Device with a CLI Registration Key

Use the procedure below to onboard a device for cloud-delivered Firewall Management Center with a CLI registration key.



Note If your device is currently managed by an on-premises management center, onboarding the device will fail. You can either delete the device from the on-premises management center and onboard as a fresh, new device with no policies or objects, or you can migrate the device and retain the existing policies and objects. See [Migrate FTD to Cloud-Delivered Firewall Management Center](#) for more information.



Important You can create a Security Cloud Control-managed, standalone logical Firewall Threat Defense device using the Secure Firewall chassis manager or the FXOS CLI.

Before you begin

Before you onboard a device, be sure to complete the following tasks:

- Cloud-Delivered Firewall Management Center is enabled for your tenant.
- Confirm the device's CLI configuration is successfully completed. See [Complete the Initial Configuration of a Secure Firewall Threat Defense Device Using the CLI, on page 830](#) for more information.
- Review the prerequisites and limitations before you onboard the device. See "Prerequisites to Onboard a Device to Cloud-Delivered Firewall Management Center" in [Managing Firewall Threat Defense with Cloud-Delivered Firewall Management Center in Security Cloud Control](#) for more information.
- The device can be configured for either local management with Firepower Device Manager or remote management with Firepower Management Center.



Note If you want the device to maintain management from the Firepower Device Manager, select **FDM** and see for more information.

- Device must be running version 7.0.3, or 7.2.0 and later.
- You have reset the device's SSH password as part of the bootstrap process. If you have not reset the SSH password, Security Cloud Control recommends using the [Onboard a Firewall Threat Defense Device to Cloud-Delivered Firewall Management Center using Zero-Touch Provisioning, on page 206](#) method

Procedure

- Step 1** Log in to Security Cloud Control.
 - Step 2** In the left pane, click **Security Devices**.
 - Step 3** In the top-right corner, click **Onboard** (.
 - Step 4** Click the **FTD** tile.
 - Step 5** Under **Management Mode**, ensure you select **FTD**. By selecting **FTD** under **Management Mode**, you will not be able to manage the device using the previous management platform. All existing policy configurations except for interface configurations will be reset. You must re-configure policies after you onboard the device.
- Note**
If you are using the 90-day Evaluation License, the number of days left is listed under the **FTD** and **FDM** toggle options. Click the **Manage Subscription License** link to opt into a full subscription license. See [Managed Device Licensing Types](#) for more information.
- Step 6** Select **Use CLI Registration Key** as the onboarding method.
 - Step 7** Enter the device name in the **Device Name** field and click **Next**.
 - Step 8** In the **Policy Assignment** step, use the drop-down menu to select an access control policy to deploy once the device is onboarded. If you have no policies configured, select the **Default Access Control Policy**.
 - Step 9** Specify whether the device you are onboarding is a physical or virtual device. If you are onboarding a virtual device, you must select the device's performance tier from the drop-down menu.
 - Step 10** Select the subscription licenses you want to apply to the device. Click **Next**.
 - Step 11** Security Cloud Control generates a command with the registration key. Connect to the device you are onboarding using SSH. Log in as "admin" or a user with equivalent admin privileges and paste the entire registration key as is into the device's CLI.

Note: For Firepower 1000, Firepower 2100, ISA 3000, and FTDv devices, open an SSH connection to the device and log in as `admin`. Copy the entire registration command and paste it into the device's CLI interface at the prompt. In the CLI, enter **Y** to complete the registration. If your device was previously managed by FDM, enter **Yes** to confirm the submission.
 - Step 12** Click **Next** in the Security Cloud Control onboarding wizard.
 - Step 13** (Optional) Add labels to your device to help sort and filter the **Security Devices** page. Enter a label and select the blue plus button. Labels are applied to the device after it's onboarded to Security Cloud Control.

What to do next

Once the device is synchronized, select the device you just onboarded from the **Security Devices** page and select any of the options listed under the **Device Management** pane located to the right. We strongly recommend the following actions:

- If you did not already, create a custom access control policy to customize the security for your environment. See [Access Control Overview](#) in *Managing Firewall Threat Defense with Cloud-Delivered Firewall Management Center in Security Cloud Control* for more information.
- Enable Cisco Security Analytics and Logging (SAL) to view events in the Security Cloud Control dashboard **or** register the device to an Firepower Management Center for security analytics. See [Cisco Security Analytics and Logging](#) in *Managing Firewall Threat Defense with Cloud-Delivered Firewall Management Center in Security Cloud Control* for more information.

Onboard a Firewall Threat Defense Device to Cloud-Delivered Firewall Management Center using Zero-Touch Provisioning

Only the Firepower 1000, Firepower 2100, Secure Firewall 1200, and Secure Firewall 3100 devices can be onboarded with the zero-touch provisioning method.

Before you begin

Confirm that the following is completed before onboarding:

- You have a Security Cloud Control tenant. If you do not, see [Request a Security Cloud Control Tenant](#) for more information.
- Cloud-Delivered Firewall Management Center is enabled for your tenant.
- The device is freshly installed but has never been logged into by either the device CLI, a FMC, or the FDM.
- The device is running version 7.2 or later. Version 7.0.3 does **not** support zero-touch provisioning.
- The device's outside or management interface should be able to access the Security Services Exchange domain registration.us.sse.itd.cisco.com.

Procedure

-
Step 1	Log in to Security Cloud Control.
Step 2	In the left pane, click Security Devices .
Step 3	In the top-right corner, click Onboard ( .
Step 4	Click the FTD tile.
Step 5	Under Management Mode , ensure you select FTD . By selecting FTD under Management Mode , you will not be able to manage the device using the previous management platform. All existing policy configurations except for interface configurations will be reset. You must re-configure policies after you onboard the device.

Note

If you are using the 90-day Evaluation License, the number of days left is listed under the **FTD** and **FDM** toggle options. Click the **Manage Subscription License** link to opt into a full subscription license. See [Managed Device Licensing Types](#) for more information.

Step 6 Click the **Use Serial Number** tile.

Step 7 Select Cloud-Delivered Firewall Management Center from the drop-down list. Click **Next**.

For information on onboarding a threat defense device to On-Prem Firewall Management Center, see [Onboard a Threat Defense Device to On-Prem Firewall Management Center using Zero-Touch Provisioning](#).

Step 8 Enter the **Device Serial Number** and the **Device Name**. Select **Next**.

Step 9 Choose an option depending on whether the device is logged into and configured for a manager:

- If your device is brand new and has never been configured for a manager, click **Yes, this new device has never been logged into or configured for a manager**.
- If your device has been previously registered for a manager or is **still** registered to a manager, click **No, this device has been logged into and configured for a manager**.

Step 10 Click **Next**.

Step 11 In the **Policy Assignment** step, use the drop-down menu to select an access control policy to deploy once the device is onboarded. If you have no policies configured, select the **Default Access Control Policy**.

Step 12 Select the subscription licenses you want to apply to the device. Click **Next**.

What to do next

Once the device is synchronized, select the device you just onboarded from the **Security Devices** page and select any of the options listed under the **Device Management** pane located to the right. We strongly recommend the following actions:

- If you did not already, create a custom access control policy to customize the security for your environment. See [Access Control Overview](#) in *Managing Firewall Threat Defense with Cloud-Delivered Firewall Management Center in Security Cloud Control* for more information.
- Enable Cisco Security Analytics and Logging (SAL) to view events in the Security Cloud Control dashboard **or** register the device to an Firepower Management Center for security analytics. See [Cisco Security Analytics and Logging](#) in *Managing Firewall Threat Defense with Cloud-Delivered Firewall Management Center in Security Cloud Control* for more information.

Onboard a Secure Firewall Threat Defense Cluster



Note If you must delete a cluster, delete the cluster from the Security Cloud Control **Security Devices** page.

The following table provides information about device models that support cluster onboarding and creation on the Cloud-Delivered Firewall Management Center:

Secure Firewall Threat Defense Platforms	Minimum Secure Firewall Threat Defense Version for Cluster Management	Support cluster creation from Cloud-Delivered Firewall Management Center?
VMware, KVM	7.2.1	Yes
AWS, GCP	7.2.1	No
Azure	7.3	No
Secure Firewall 3100	7.2.1	Yes
Firepower 4100	7.0.6	No
Secure Firewall 4200	7.4	Yes
Firepower 9300	7.0.6	No

Before you begin

Read through the following limitations:

- Firepower 4100 and Firepower 9300 devices must be clustered through the device's Firepower Chassis Manager.
- Secure Firewall 3100 devices, Secure Firewall 4200 devices, KVM, and VMware environments must be clustered through the Firepower Management Center UI.
- Azure, AWS, and GCP environment clusters must be created through their own environment and onboarded to Firepower Management Center.

Procedure

-
- Step 1** Log in to Security Cloud Control.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **FTD** tile.
- Step 4** Under **Management Mode**, ensure you select **FTD**. By selecting **FTD** under **Management Mode**, you will not be able to manage the device using the previous management platform. All existing policy configurations except for interface configurations will be reset. You must re-configure policies after you onboard the device.
- Note**
If you are using the 90-day Evaluation License, the number of days left is listed under the **FTD** and **FDM** toggle options. Click the **Manage Subscription License** link to opt into a full subscription license. See [Managed Device Licensing Types](#) for more information.
- Step 5** Select **Use CLI Registration Key**.
- Step 6** Enter the device name in the **Device Name** field and click **Next**.
- Step 7** In the **Policy Assignment** step, use the drop-down menu to select an access control policy to deploy once the device is onboarded. If you have no policies configured, select the **Default Access Control Policy**.

- Step 8** Specify whether the device you are onboarding is a physical or virtual device. If you are onboarding a virtual device, you must select the device's performance tier from the drop-down menu.
- Step 9** Select the subscription licenses you want to apply to the device. Click **Next**.
- Step 10** Security Cloud Control generates a command with the registration key. Paste the entire registration key as is into the device's CLI.
- Step 11** (Optional) Add labels to your device to help sort and filter the **Security Devices** page. Enter a label and select the blue plus button. Labels are applied to the device after it's onboarded to Security Cloud Control.

What to do next

Once the device is synchronized, select the device you just onboarded from the **Security Devices** page and select any of the options listed under the **Device Management** pane located to the right. We strongly recommend the following actions:

- If you did not already, create a custom access control policy to customize the security for your environment. See [Access Control Overview](#) in *Managing Firewall Threat Defense with Cloud-Delivered Firewall Management Center in Security Cloud Control* for more information.
- Enable Cisco Security Analytics and Logging (SAL) to view events in the Security Cloud Control dashboard **or** register the device to an Firepower Management Center for security analytics. See [Cisco Security Analytics and Logging](#) in *Managing Firewall Threat Defense with Cloud-Delivered Firewall Management Center in Security Cloud Control* for more information.

Onboard a Chassis

You can add a Firepower 4100/9300 chassis to the Cloud-Delivered Firewall Management Center. The management center and the chassis share a separate management connection using the chassis MGMT interface. The FMC offers chassis-level health alerts. For configuration, you still need to use the Firepower Chassis Manager or FXOS CLI.

Security Cloud Control does not record the processes on the **Workflow** page when you onboard a chassis or provision a multi-instance FMC Firewall Threat Defense device from the Cloud-Delivered Firewall Management Center chassis manager page.



Note To onboard the Secure Firewall 3100/4200 multi-instance chassis, see the [multi-instance](#) chapter.

Procedure

- Step 1** Connect to the chassis FXOS CLI, either using the console port or SSH.
- Step 2** In the Security Cloud Control navigation pane, click **Security Devices**, then click the blue plus button () to **Onboard** a device.
- Step 3** Click the **FTD Chassis** tile to open the **Add Chassis** dialog box.

Figure 6: FTD Chassis Tile



Figure 7: Add Chassis

Add Chassis ×

ⓘ This operation is only supported on 3100, 4100 & 9300 chassis

Copy the CLI key below and paste it into the FXOS CLI of the chassis

```
create device-manager localhost hostname localhost nat-id PA5dsUm55M1pHVJjoGweXNfXWmjJzZi9
```

Paste the following string when prompted for the "Registration Key"

```
4tqmzu8Qs04Pk9IyQQPiGoFgvhmrWRqb
```

Chassis name*

Device Group

Cancel Submit

- Step 4** Click **Copy** (📋) to copy the top generated command, then paste it at the FXOS CLI of your chassis.
- Step 5** When prompted for the Registration Key at the FXOS CLI, click **Copy** (📋) on the **Add Chassis** dialog box for the generated registration key and paste it at the FXOS CLI.
- You can disconnect from the FXOS CLI at this point.
- Step 6** In the Cloud-Delivered Firewall Management Center **Chassis Name** field, enter a name for the chassis as you want it to display in the FMC.
- Step 7** (Optional) Add the chassis to a **Device Group**.
- Step 8** Click **Submit**.

The chassis is added to the **Device > Device Management** page.

Troubleshooting

Use the following scenarios to troubleshoot any onboarding issues.

Troubleshoot Onboarding a Device to the Cloud-Delivered Firewall Management Center Using the CLI Registration Key

Error: Device Remains in Pending Setup State After Onboarding

When a device fails to register, the device's connectivity status is displayed as **Pending Setup**. In the panel located to the right, Security Cloud Control displays a **Registration Failed** message as well as a **Retry Onboarding** button to immediately allow you to reattempt onboarding the device.

If you fail to execute the `configuration manager` command in the device CLI within 3 mins after onboarding it to Security Cloud Control, the device's registration attempt expires and results in a registration failure. Use the following procedure to resolve the issue:

Procedure

-
Step 1	Log into Security Cloud Control and navigate to the Security Devices page. Locate the device that failed to register.
Step 2	In the panel located to the right, locate the Registration Failed window. Beside the device's CLI registration key, click Copy . This action copies the CLI key to a local clipboard.
Step 3	Open an SSH connection to the device and log in as <code>admin</code> .
Step 4	Paste the CLI registration key into the device's CLI interface. In the CLI, enter Y to complete the registration. If your device was previously managed by FDM, enter Yes to confirm the submission.
-

Troubleshoot Onboarding a Device to Cloud-Delivered Firewall Management Center Using the Serial Number

Device is Offline or Unreachable

If the device is unreachable during the onboarding process, or at any point post-onboarding, Security Cloud Control displays an **Unreachable** connectivity status. The device will not be able to fully onboard to Security Cloud Control until the device is able to connect. The following scenarios might be the cause:

- The device is cabled incorrectly.
- Your network may require a static IP address for the device.
- Your network uses custom DNS, or there is external DNS blocking the network.
- If your device is associated with the European region (<https://defenseorchestrator.eu/>), you may need to enable PPPoE authentication. For other domains, review the [domain requirements](#).
- The device may be blocked by a firewall, or is incorrectly blocking a port for connectivity. Review the device [Network Requirements, on page 203](#) and confirm the correct outgoing ports are enabled.

Error: Serial Number Already Claimed

The Device was Purchased From an External Vendor

If the device was purchased from an external vendor and fails to onboard with a **Serial Number Already Claimed** error, it's possible the device is still associated to the vendor's tenant. Use the following steps to claim the device and its serial number:

1. Delete the device from your Security Cloud Control tenant.
2. Install the FXOS image on the device. For more information, see the "Reimage Procedures" chapter of the Cisco [FXOS Troubleshooting Guide for the Firepower 1000/21000 and Secure Firewall 3100 Firepower Threat Defense](#) guide.
3. Connect a laptop to the device's console port.
4. Connect to the FXOS CLI and log in as **admin**.
5. In the FXOS CLI, connect to **local-mgmt** with the `firepower # connect local-mgmt` command.
6. Execute the `firepower(local-mgmt) # cloud deregister` command to deregister the device from the cloud tenancy.
7. Once the device is successfully unregistered, the CLI interface returns a success message. An example of the message:

```
Example: firepower(local-mgmt) # cloud deregister Release Image Detected RESULT=success
MESSAGE=SUCCESS 10, X-Flow-Id: 2b3c9e8b-76c3-4764-91e4-cfd9828e73f9
```



Note If the device was never registered to another Security Cloud Control tenant, the message above states `RESULT=success MESSAGE=DEVICE_NOT_FOUND`.

8. Onboard the device to your Security Cloud Control tenant with its serial number. See [Onboard a Firewall Threat Defense Device to Cloud-Delivered Firewall Management Center using Zero-Touch Provisioning, on page 206](#) for more information.

The Device is Claimed By a Security Cloud Control Tenant in Another Region

The device may have been previously managed by another Security Cloud Control instance in a different region and is still registered to that tenant.

If you **do** have access to the tenant the device is currently registered to, use the following procedure:

1. Delete the device from the incorrect Security Cloud Control tenant.
2. Log into the device's FDM UI.
3. Navigate to **System Settings > Cloud Services**.
4. Click **Cloud Services** and select **Unregister Cloud Services** from the drop-down list.
5. Confirm the action and click **Unregister**. This action generates a warning to indicate that the device has been removed from Security Cloud Control. This is expected behavior.

6. Log into Security Cloud Control tenant in the correct region and onboard the device. See [Onboard a Firewall Threat Defense Device to Cloud-Delivered Firewall Management Center using Zero-Touch Provisioning, on page 206](#) for more information.
7. Navigate to **System Settings > Cloud Services**.
8. Click **Cloud Services** and select **Unregister Cloud Services** from the drop-down list.
9. Select the **Auto-enroll with Tenancy from Security Cloud Control** and click **Register**. The device maps to the new tenant that belongs to the new region and Security Cloud Control onboards the device.

If you **do not** have access to the tenant, use the procedure below:

1. Connect to the FXOS CLI from the console port and log in as **admin**. For information on how to log into the FXOS CLI, see [Accessing the FXOS CLI](#).
2. In the FXOS CLI, connect to **local-mgmt** with the `firepower # connect local-mgmt` command.
3. Execute the `firepower(local-mgmt) # cloud deregister` command to deregister the device from the cloud tenancy.
4. Once the device is successfully unregistered, the CLI interface returns a success message. An example of the message:

```
Example: firepower(local-mgmt) # cloud deregister Release Image Detected RESULT=success
MESSAGE=SUCCESS 10, X-Flow-Id: 2b3c9e8b-76c3-4764-91e4-cfd9828e73f9
```



Note If the device was never registered to another Security Cloud Control tenant, the message above states `RESULT=success MESSAGE=DEVICE_NOT_FOUND`.

5. In your Security Cloud Control tenant in the correct domain, onboard the device. See [Onboard a Firewall Threat Defense Device to Cloud-Delivered Firewall Management Center using Zero-Touch Provisioning, on page 206](#) for more information.
6. In the device's FDM UI, navigate to **System Settings > Cloud Services**.
7. Select the **Auto-enroll with Tenancy from Security Cloud Control** and click **Register**. The device maps to the new tenant that belongs to the new region and Security Cloud Control onboards the device.

Error: Claim Error

If you enter the wrong serial number when onboarding a device, Security Cloud Control generates a **Claim Error** status.



Note Confirm that the device is claimed in the correct region within Security Cloud Control.

Resolve this issue with the procedure below:

Procedure

-
- Step 1** Log into Security Cloud Control and navigate to the **Security Devices** page. Locate the device with the error.
- Step 2** Select the device so it is highlighted and **Remove** the device from Security Cloud Control.
- Step 3** Confirm the following:
- The device is online and can reach the internet.
 - The device has not already been onboarded to your Security Cloud Control instance or claimed by a Security Cloud Control tenant in another region.
- Step 4** Locate the device's serial number. You can use one of the following methods:
- For the 1000, 2100 and 3100 series model, locate the serial number on the physical device.
 - Open an SSH connection to the device and issue the `show serial-number` command.
 - If the device is currently FDM-managed, log into the FDM UI and locate the serial number on the **Cloud Services** page.
- Step 5** In Security Cloud Control, onboard the device with the correct serial number. See [Onboard a Firewall Threat Defense Device to Cloud-Delivered Firewall Management Center using Zero-Touch Provisioning](#), on page 206 for more information.
-

Error: Failed to Claim

If you see an **Error: Failed to Claim** connectivity status or error message after attempting to onboard a device, the following might be the cause:

- The Security Services Exchange platform may have temporary issues that result in no connectivity.
- The Security Cloud Control server may be down.

Follow the procedure below to resolve this issue:

Procedure

-
- Step 1** Log into Security Cloud Control and navigate to the **Security Devices** page. Locate the device that failed to register.
- Step 2** Select the device so it is highlighted and **Remove** the device from your Security Cloud Control tenant.
- Step 3** Wait at least 10 minutes before attempting to onboard the device back to your Security Cloud Control tenant. See [Onboard a Firewall Threat Defense Device to Cloud-Delivered Firewall Management Center using Zero-Touch Provisioning](#), on page 206 for more information.
-

What to do next

If you are still unable to claim the device, review the device's workflow to see if there is an error message. If there is, [Export the Workflow](#) and [open a support case](#) to further troubleshoot the issue.

Error: Provisional Error

Device Password Has Not Been Changed

If you did not change the default password of the device when configuring the device for remote management and selected the **No, this device has been logged into and configured for a manager** option when onboarding the device to Security Cloud Control, the device will generate an **UnProvisioned** connectivity status in the **Security Devices** page.

Use the following procedure to resolve this issue:

1. Log into Security Cloud Control and navigate to the **Security Devices** page.
2. Locate and select the device with the **UnProvisioned** connectivity status so it is highlighted.
3. In the pane located to the right, locate the **Change Password** window.
4. Click **Change Password** and enter a new password for your device. This overwrites the default password.

It may take a few minutes for the device to onboard and fully synchronize to Security Cloud Control.

Device Password Has Already Been Changed

If you **did** change the default password of the device when configuring the device for remote management and selected the **Is this a new device that has never been logged into or configured before?** option when onboarding the device to Security Cloud Control, Security Cloud Control generates an **UnProvisioned** connectivity status in the **Security Devices** page.

Use the following procedure to resolve this issue:

1. Log into Security Cloud Control and navigate to the **Security Devices** page.
2. Locate and select the device with the **UnProvisioned** connectivity status so it is highlighted.
3. In the pane located to the right, locate the **Confirm and Proceed** window.
4. Click **Confirm and Proceed**. This action ignores the password that was provided in the onboarding wizard and reinstates the default password for the device. Security Cloud Control then continues to onboard the device.

Other Provisional Error Scenarios

Regardless of the default password configuration of the device, it is still possible for a device to result in an **UnProvisioned** connectivity status during the onboarding process. If you confirm the password selection in the onboarding wizard is accurate for the state of the device, consider the following options to resolve the issue:

- Select the device so it is highlighted. In the window located on the right pane of the screen, click **Retry** to force Security Cloud Control to re-onboard the device with existing provisional parameters.
- Delete the device from the **Security Devices** page and attempt to re-onboard the device.

- In the device's FDM UI, navigate to **System Settings > Cloud Services**. Select the **Auto-enroll with Tenancy from Security Cloud Control** and click **Register**.

If you are still unable to claim the device, review the device's workflow to see if there is an error message. If there is, [Export the Workflow](#) and [open a support case](#) to further troubleshoot the issue.



CHAPTER 6

Onboard Secure Firewall ASA

This chapter explains the various different methods using which a Secure Firewall ASA can be onboarded.

- [Onboard Secure Firewall ASA, on page 217](#)

Onboard Secure Firewall ASA

This chapter explains the various different methods using which a Secure Firewall ASA can be onboarded.

Onboard ASA Device to Security Cloud Control

Use this procedure to onboard a single live ASA device, not an ASA model, to Security Cloud Control. If you want to onboard multiple ASAs at once, see [Onboard ASAs in Bulk](#).

Before you begin

Device Prerequisites

- Device must be running at least version 8.4+.



Note TLS 1.2 was not available for the ASA management-plane until version 9.3(2). With version 9.3(2), a local SDC is required to onboard to Security Cloud Control.

- The running configuration file of your ASA must be less than 4.5 MB.
- IP addressing: Each ASA, ASAv, or ASA security context must have a unique IP address and the SDC must connect to it on the interface configured to receive management traffic.

Certificate Prerequisites

If your ASA device does not have a compatible certificate, onboarding the device may fail. Ensure the following requirements are met:

- The device uses a TLS version equal to or greater than 1.0.
- The certificate presented by the device is not expired, and its issuance date is in the past (i.e. it is already valid, not scheduled to become valid at a later date).

- The certificate must be a SHA-256 certificate. SHA1 certificates are not accepted.
- One of these conditions is true:
 - The device uses a self-signed certificate, and it is the same as the most recent one trusted by an authorized user.
 - The device uses a certificate signed by a trusted Certificate Authority (CA), and provides a certificate chain linking the presented leaf certificate to the relevant CA.

Open SSL Cipher Prerequisites

If the device does not have a compatible SSL cipher suite, the device cannot successfully communicate to the Secure Device Connector (SDC). Use any of the following cipher suites:

- ECDHE-RSA-AES128-GCM-SHA256
- ECDHE-ECDSA-AES128-GCM-SHA256
- ECDHE-RSA-AES256-GCM-SHA384
- ECDHE-ECDSA-AES256-GCM-SHA384
- DHE-RSA-AES128-GCM-SHA256
- ECDHE-RSA-AES128-SHA256
- DHE-RSA-AES128-SHA256
- ECDHE-RSA-AES256-SHA384
- DHE-RSA-AES256-SHA384
- ECDHE-RSA-AES256-SHA256
- DHE-RSA-AES256-SHA256

Procedure

-
- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Onboard device or service** (.
- Step 4** Click the **ASA** tile.
- Step 5** In the **Locate Device** step, perform the following:
- a. Give the device a name.
 - b. Enter the location (IP address, FQDN, or URL) of the device or service. The default port is 443.
 - c. Click **Next**.
- Step 6** In the **Credentials** step, enter the username and password of the ASA administrator, or similar highest-privilege ASA user, that Security Cloud Control will use to connect to the device and click **Next**.

Step 7 After labeling your device or service, you can view it in the **Security Devices** list.

Note

Depending on the size of the configuration and the number of other devices or services, it may take some time for the configuration to be analyzed.

Onboard a High Availability Pair of ASA Devices to Security Cloud Control

When onboarding an ASA that is part of a high-availability pair, use [Onboard ASA Device to Security Cloud Control, on page 217](#) to onboard only the primary device of the pair.

Onboard an ASA in Multi-Context Mode to Security Cloud Control

About Multi-Context Mode

You can partition a single ASA, installed on a physical appliance, into multiple logical devices known as contexts. There are three kinds of configurations used in an ASA configured in multi-context mode:

- Security Context
- Admin Context
- System Configuration

About Security Contexts

Each security context acts as an independent device, with its own security policy, interfaces, and administrators. Multiple security contexts are similar to having multiple standalone devices. A security context is not a virtual ASA in the sense of a virtual machine image installed in a private cloud infrastructure. A security context is configured on an ASA installed on a hardware appliance. Each context is configured on a physical interface of that appliance.

See the [ASA CLI and ASDM configuration guides](#) for more information about multi-context mode.

Security Cloud Control onboards each security context as a separate ASA and manages it as if it were a separate ASA.

About Admin Contexts

The admin context is like a security context, except that when a user logs in to the admin context, then that user has system administrator rights and can access the system and all other contexts. The admin context is not restricted in any way, and can be used as a regular context. However, because logging into the admin context grants you administrator privileges over all contexts, you might need to restrict access to the admin context to appropriate users.

Security Cloud Control onboards each admin context as a separate ASA and manages it as if it were a separate ASA. Security Cloud Control also uses the admin context when upgrading ASA and ASDM software on the appliance.

About System Configuration

The system administrator adds and manages contexts by configuring each context configuration location, allocated interfaces, and other context operating parameters in the system configuration, which, like a single mode configuration, is the startup configuration. The system configuration identifies basic settings for the ASA. The system configuration does not include any network interfaces or network settings for itself; rather, when the system needs to access network resources (such as downloading the contexts from the server), it uses one of the contexts that is designated as the *admin context*.

Security Cloud Control does not onboard the system configuration.

Onboarding Prerequisites for Security and Admin Contexts

The prerequisites for onboarding security and admin contexts are the same for onboarding any other ASA. See [Onboard ASA Device to Security Cloud Control, on page 217](#) for the list of prerequisites.

To learn which Cisco appliances support ASAs in multi-context mode, see the "Multiple Context Mode" chapter in the [CLI Book 1: Cisco ASA Series General Operations CLI Configuration Guide](#) for whatever ASA software version you are running.

For an ASA running as a single context firewall and for the admin context of a multiple-context firewall, many different port numbers could be used for ASDM and Security Cloud Control access. However, for security contexts, the ASDM and Security Cloud Control access port is fixed to port 443. This is a limitation of ASA.

Onboarding ASA Security and Admin Contexts

The method of onboarding a security context or admin context is the same for onboarding any other ASA. See [Onboard ASA Device to Security Cloud Control, on page 217](#) or [Onboard Multiple ASAs to Security Cloud Control, on page 220](#) for onboarding instructions.

Upgrading Security Contexts

Security Cloud Control treats each security and admin context of a multiple-context ASA as a separate ASA and each is onboarded separately. However, all security and admin contexts of a multiple-context ASA run the same version of ASA software installed on the appliance.

To upgrade the versions of ASA and ASDM used by the ASA's security contexts, you onboard the admin context and perform the upgrade on that context.

Onboard Multiple ASAs to Security Cloud Control

Security Cloud Control allows you to bulk onboard ASAs by providing the necessary information for all the ASAs in a .csv file. As the ASAs are being onboarded, you can use the filter pane to show which onboarding attempts are queued, loading, complete, or have failed.

Before you begin

- Prepare a .csv file with the connection information of the ASAs you want to onboard. Add the information about one ASA on its own line. You can use a # at the beginning of a line to indicate a comment.
 - ASA location (either IP address or FQDN)
 - ASA administrator username

- ASA administrator password
- (Optional) Device name for Security Cloud Control
- (Optional) Device labels for Security Cloud Control
- To add one label, add the label name to the last CSV field.
- To add more than one label to a device, surround the values with quotes. For example, `alpha,beta,gamma.`
- To add a category and choice label, separate the two values with a colon (:). For example, `Rack:50.`

Sample of the configuration file:

```
#Location,Username,Password,DeviceName,SDCName,DeviceLabel
192.168.3.2,admin,CDO123!,ASA3,sdc1,"HA-1,Rack:50"
192.168.4.2,admin,CDO123!,ASA4,sdc1,"HA-1,Rack:50"
ASA2.example.com,admin,CDO123!,ASA2,none,Rack:51
asav.virtual.io,admin,CDO123!,ASA-virtual,sdc3,Test
```



Caution

Security Cloud Control does not validate any of the data in the .csv file. You need to ensure the accuracy of the entries.

Procedure

- Step 1** In the navigation bar, click **Inventory**
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the blue plus button  to onboard an ASA.
- Step 4** On the Onboarding page, click the **Multiple ASAs** tile.
- Step 5** Click **Browse** to locate the .csv file containing your ASA entries. The devices you specified are now queued in the ASA Bulk Onboarding table ready to be onboarded.

Caution

Do not navigate away from the ASA Bulk Onboarding page until the onboarding process is complete. Navigating away stops the onboarding process.

- Step 6** Click **Start**. You will see the progress of the onboarding process in the status column of the ASA Bulk Onboarding table. After the device have been successfully onboarded you will see their status change to "Complete."

What to do next

If you need to pause bulk onboarding and resume it later, see [Pause and Resume Onboarding Multiple ASAs](#), on page 222

Pause and Resume Onboarding Multiple ASAs

If you need to pause the onboarding process, click **Pause**. Security Cloud Control finishes onboarding any device it started onboarding. To resume the bulk onboarding process, click **Start**. Security Cloud Control will start onboarding the next queued device.

If you click **Pause** and navigate away from this page, you will need to return to the page and follow the bulk onboarding procedure again from the beginning. However, Security Cloud Control recognizes the devices it has already onboarded, marks the devices from this new onboarding attempts as duplicates, and quickly moves through the list to onboard the queued devices.

Create and Import an ASA Model to Security Cloud Control

Procedure

-
- Step 1** In the navigation bar, click **Inventory**.
 - Step 2** In the left pane, click **Security Devices**.
 - Step 3** Click the **Devices** tab.
 - Step 4** Click the **ASA** tab.
 - Step 5** Select an ASA device and in the **Management** on the left pane, click **Configuration**.
 - Step 6** Click **Download** to download the device configuration to your local computer.
-

Import ASA Configuration

Attention: The ASA running configuration file you are onboarding must be less than 4.5 MB. Confirm the size of the configuration file before you onboard it.

Procedure

-
- Step 1** In the navigation bar, click **Inventory**.
 - Step 2** In the left pane, click **Security Devices**.
 - Step 3** Click the blue plus (+) button to import the configuration.
 - Step 4** Click on **Import configuration for offline management**.
 - Step 5** Select the **Device Type** as **ASA**.
 - Step 6** Click **Browse** and select the configuration file (text format) to upload.
 - Step 7** After labeling your model device, you can view it in the **Security Devices** list.

Note

Depending on the size of the configuration and the number of other devices or services, it may take some time for the configuration to be analyzed.

Import Configuration for Offline Device Management

Importing a device's configuration for offline management allows you to review and optimize a device's configuration without having to work on a live device in your network. Security Cloud Control also refers to these uploaded configuration files as "models."

You can import the configurations of these devices to Security Cloud Control:

- Adaptive Security Appliance (ASA). See [Create and Import an ASA Model](#).
- Cisco IOS devices like the Aggregation Services Routers (ASR) and Integrated Services Routers (ISRs).

FDM Software Upgrade Paths

Upgrading FDM Versions

If you use Security Cloud Control to upgrade your FDM-managed firewalls, Security Cloud Control determines which version you can upgrade to and you will not need this topic. If you maintain your own repository of FDM images and upgrade your FDM-managed devices using your own images, this topic explains what upgrade paths are available to you.

You can upgrade an FDM-managed device directly from one major or maintenance version to another; for example, Version 6.4.0 > 6.5.0, or Version 6.4.0 > 7.0.1. You do not need to be running any specific patch level.

If direct upgrade is not possible, your upgrade path must include intermediate versions, such as Version 6.4.0 > 7.0.0 > 7.1.0.

Table 19: Upgrade Paths for Major Releases

Target Version	Oldest Release you can Upgrade to the Target Version
7.3.x	7.0.0
7.2.x	6.6.0
7.1.x	6.5.0
7.0.x	6.4.0
6.7.x	6.4.0
6.6.x	6.4.0
6.5.0	6.4.0

Patching FDM-Managed Devices

You cannot upgrade directly from a patch of one version to a patch of another version, such as from Version 6.4.0.1 > 6.5.0.1. You must upgrade to the major release first, and then patch that release. For example you must upgrade from Version 6.4.0.1 > 6.5.0 > 6.5.0.1.

Firepower Hotfixes

Security Cloud Control does not support hotfix updates or installations. If there is a hotfix available for your device model or software version, we strongly recommend using the configured manager's dashboard or UI. After a hotfix is installed on the device, Security Cloud Control detects out of band configuration changes.

Removing FDM Upgrades

You cannot use Security Cloud Control to remove or downgrade any release type, whether major, maintenance, or patch.

Starting with Secure Firewall Threat Defense Version 6.7.0, you can use Firepower Device Manager or the FTD CLI to revert a successfully upgraded device to its state just before the last major or maintenance upgrade (also called a snapshot). Reverting after patching necessarily removes patches as well. After reverting, you must reapply any configuration changes you made between **upgrading** and reverting. **Note that to revert a major or maintenance upgrade to FDM Version 6.5.0 through 6.6.x, you must reimage.** See the "System Management" section of a [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for more information.

Removing FDM Patches

You cannot remove an FDM patch with either Security Cloud Control or FDM. To remove a patch, you must reimage to a major or maintenance release.

Snort Upgrade

Snort is the main inspection engine for the product and is packaged into the Secure Firewall Threat Defense software for your convenience. Version 6.7 introduces an update to the package that you can upgrade to, or revert from, at any time. Although you can switch Snort versions freely, some intrusion rules in Snort 2.0 might not exist in Snort 3.0, and vice versa. We strongly recommend reading about the differences in the Firepower Device Manager Configuration Guide for Version 6.7.0 for more information.

To proceed with upgrading your FDM-managed device to use Snort 3 or to revert from Snort 3 back to Snort 2 from the Security Cloud Control UI, see [Upgrade to Snort 3.0](#) and [Revert From Snort 3.0 for FTD](#) respectively.

Other Upgrade Limitations

2100 Series Devices

Security Cloud Control can upgrade Firepower 2100 series devices only if they are running appliance mode.

- Firepower Threat Defense devices are always in appliance mode.
- ASA devices are appliance mode by default.

To confirm that your Firepower 2100 running ASA is in appliance mode:

Procedure

-
Step 1	Connect your management computer to the console port or connect to the device using SSH.
Step 2	Enter global configuration mode.
Step 3	Run the show fxos mode command,


```
ciscoasa(config)# show fxos mode
Mode is currently set to appliance
```

What to do next

See the "[Cisco Firepower 2100 Getting Started Guide](#)" for a more detailed discussion of these commands.

4100 and 9300 Series Devices

Security Cloud Control does not support the upgrade for the 4100 or 9300 series devices. You must upgrade these devices outside of Security Cloud Control.

Related Information:

- [FTD Upgrade Prerequisites](#)
- [ASA and ASDM Upgrade Prerequisites](#)
- [Upgrade a Single FDM-Managed Device](#)
- [Upgrade ASA and ASDM Images on a Single ASA](#)
- [Bulk FTD Upgrade](#)
- [Bulk ASA and ASDM Upgrade](#)
- [Upgrade an FDM-Managed High Availability Pair](#)

FDM-Managed Device Upgrade Prerequisites

Security Cloud Control provides a wizard that helps you upgrade the Firewall Device Manager (FDM) images installed on an individual device or an HA pair.

The wizard guides you through the process of choosing compatible images, installs them, and reboots the device to complete the upgrade. We secure the upgrade process by validating that the images you chose on Security Cloud Control are the ones copied to, and installed on, your FDM-managed device. We strongly recommend the FDM-managed devices you are upgrading have outbound access to the internet.

If your FDM-managed device does not have outbound access to the internet, you can download the image you want from Cisco.com, store them in your own repository, provide the upgrade wizard with a custom URL to those images, and Security Cloud Control performs upgrades using those images. In this case, however, you determine what images you want to upgrade to. Security Cloud Control does not perform the image integrity check or disk-space check.

Configuration Prerequisites

- DNS needs to be enabled on the FDM-managed device. See the "Configuring DNS" section of the **System Administration** chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running for more information.
- The FDM-managed device should be able to reach the internet if you use upgrade images from Security Cloud Control's image repository.

- The FDM-managed device has been successfully onboarded to Security Cloud Control.
- The FDM-managed device is reachable.
- The FDM-managed device is synced.
 - If you update a device that has pending changes in Security Cloud Control and you do not accept changes, pending changes are lost after the upgrade completes. Best practice is to deploy any pending changes before you upgrade..
 - If you have staged changes in Firewall Device Manager and the device is not synced, the upgrade in Security Cloud Control will fail at an eligibility check.

4100 and 9300 Series Running FTD

Security Cloud Control does not support the upgrade for the 4100 or 9300 series devices. You must upgrade these devices outside of Security Cloud Control.

Software and Hardware Requirements

Security Cloud Control is a cloud management platform. Software updates are released over time and are generally not dependent on hardware.

Devices running Firewall Device Manager software have a recommended upgrade path for optimal performance. See [Firepower Software Upgrade Path](#) for more information.

Upgrade Notes

You cannot deploy changes to a device while it is upgrading.

Related Information:

- [Firepower Software Upgrade Path](#)
- [Upgrade a Single FDM-Managed Device](#)
- [Bulk FDM-Managed Devices Upgrade](#)
- [Upgrade an FDM-Managed High Availability Pair](#)

Upgrade a Single FDM-Managed Device

Before You Begin

Be sure to read through the [FTD Upgrade Prerequisites](#), [Firepower Software Upgrade Path](#), and the Supported Devices, Software, and Hardware by Security Cloud Control before you upgrade.

This document covers any requirements and warnings you should know prior to upgrading to your desired version of Firepower software.

Upgrade A Single FDM-Managed Device with Images from Security Cloud Control's Repository

Use the following procedure to upgrade a standalone FDM-managed device using a software image that is stored in Security Cloud Control's repository:

Procedure

-
- Step 1** In the navigation bar, click **Security Devices**.
- Step 2** Click the **Devices** tab to locate your device..
- Step 3** Click the **FTD** tab.
- Step 4** Select the device you want to upgrade.
- Step 5** In the **Device Actions** pane, click **Upgrade**.
- Step 6** In step 1, click **Use Security Cloud Control Image Repository** to select the software image you want to upgrade to, and click **Continue**. You are only presented with choices that are compatible with the device you can upgrade.
- Step 7** In step 2, confirm your choices and decide whether you only want to download the images to your device or copy the images, install them, and reboot the device.
- Step 8** Click **Perform Upgrade** when you are ready. From the **Security Devices** page, devices that are upgrading have a "Upgrade in Progress" configuration status.
- Warning**
If you decide to cancel the upgrade while it is in progress, click **Abort Upgrade** from the Upgrade page. If you cancel the upgrade after it has started, Security Cloud Control does not deploy or check for changes from the device and the device does not roll back to the previous configuration. This may cause the device to enter an unhealthy state. If you experience any issues during the upgrade process, contact Cisco TAC.
- Step 9** Alternatively, if you want Security Cloud Control to perform the upgrade later, select the Schedule Upgrade check box. Click the field to select a date and time in the future. When you are done, click the Schedule Upgrade button.
- Step 10** Look at the notifications tab for the progress of the bulk upgrade action. If you want more information about how the actions in the bulk upgrade job succeeded or failed, click the blue Review link and you will be directed to the Jobs page .
- Step 11** Upgrade the system databases. You must do this step in Firewall Device Manager. See "Updating System Databases" in [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#), Version 6.4in for more information.
-

Upgrade a Single FDM-Managed Device with Images from your own Repository

Use the following procedure to upgrade a standalone FDM-managed device using a URL protocol to locate a software image:

Procedure

-
- Step 1** In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab to locate your device..
- Step 3** Click the **FTD** tab.
- Step 4** Select the device you want to upgrade.
- Step 5** In the **Device Actions** pane, click **Upgrade**.

- Step 6** In step 1, click **Specify Image URL** to select the software image you want to upgrade to, and click **Continue**. You are only presented with choices that are compatible with the device you can upgrade.
- Step 7** In step 2, confirm your choices and decide whether you only want to download the images to your device or copy the images, install them, and reboot the device.
- Step 8** Click **Perform Upgrade** when you are ready. From the **Security Devices** page, devices that are upgrading have a "Upgrade in Progress" configuration status.
- Warning**
If you decide to cancel the upgrade while it is in progress, click **Abort Upgrade** from the Upgrade page. If you cancel the upgrade after it has started, Security Cloud Control does not deploy or check for changes from the device and the device does not roll back to the previous configuration. This may cause the device to enter an unhealthy state. If you experience any issues during the upgrade process, contact Cisco TAC.
- Step 9** Alternatively, if you want Security Cloud Control to perform the upgrade later, select the Schedule Upgrade check box. Click the field to select a date and time in the future. When you are done, click the Schedule Upgrade button.
- Step 10** Look at the notifications tab for the progress of the bulk upgrade action. If you want more information about how the actions in the bulk upgrade job succeeded or failed, click the blue Review link and you will be directed to the Jobs page .
- Step 11** Upgrade the system databases. You must do this step in Firewall Device Manager. See [Updating System Databases](#) in [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#), Version 6.4 for more information.

Monitor the Upgrade Process

You can view the progress of your single device by selecting that device on the **Security Devices** page and clicking the upgrade button. Security Cloud Control takes you to the Device Upgrade page for that device.

If the upgrade fails at any point, Security Cloud Control displays a message. Security Cloud Control does not automatically restart the upgrade process.



Warning Upgrading devices that have self-signed certificates may experience issues; see [New Certificate Detected](#) for more information

Bulk FDM-Managed Devices Upgrade

Before You Begin

Be sure to read through the [FDM-Managed Device Upgrade Prerequisites](#), [Firepower Software Upgrade Path](#), and the Supported Devices, Software, and Hardware supported by Security Cloud Control before you upgrade.

This document covers any requirements and warnings you should know prior to upgrading to your desired version of Firepower software.



Note You can only bulk upgrade FDM-managed devices if they are all upgrading to the same software version.

Upgrade Bulk FDM-Managed Devices with Images from Security Cloud Control's Repository

Use the following procedure to upgrade multiple FDM-managed devices using a software image that is stored in Security Cloud Control's repository:

Procedure

-
Step 1	In the left pane, click Security Devices .
Step 2	Click the Devices tab to locate your devices.
Step 3	Click the FTD tab.
Step 4	From the filtered list of devices, select the devices you want to upgrade.
Step 5	In the Device Actions pane, click Upgrade .
Step 6	On the Bulk Device Upgrade page, the devices that can be upgraded are presented to you. If any of the devices you chose are not upgradable, Security Cloud Control gives you a link to view the not upgradable devices.
Step 7	Alternatively, if you want Security Cloud Control to perform the upgrade later, select the Schedule Upgrade check box. Click the field to select a date and time in the future. When you are done, click the Schedule Upgrade button.
Step 8	In step 1, click Use Security Cloud Control Image Repository to select the software image you want to upgrade to. You are only presented with choices that are compatible with the devices you can upgrade. Click Continue .
Step 9	In step 2, confirm your choices and decide whether you only want to download the images to your device or copy the images, install them, and reboot the device.
Step 10	Click Perform Upgrade when you are ready. From the Security Devices page, devices that are upgrading have a "Upgrade in Progress" configuration status.

Warning

If you decide to cancel the upgrades while in progress, click **Abort Upgrade** from the Upgrade page. If you cancel the upgrades after it has started, Security Cloud Control does not deploy or poll for changes from the devices. Devices do not roll back to the previous configuration after a canceled upgrade, either. This may cause the devices to enter an unhealthy state. If you experience any issues during the upgrade process, contact Cisco TAC.

Step 11	Look at the notifications tab for the progress of the bulk upgrade action. If you want more information about how the actions in the bulk upgrade job succeeded or failed, click the blue Review link and you will be directed to the Jobs page .
Step 12	Upgrade the system databases. You must do this step in Firewall Device Manager. See Updating System Databases in Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager , for the version your device is running.
-

Upgrade Bulk FDM-Managed Devices with Images from your own Repository

Use the following procedure to upgrade multiple FDM-managed devices using a URL protocol to locate a software image:

Procedure

-
- Step 1** In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab to locate your devices.
- Step 3** Click the **FTD** tab.
- Step 4** From the filtered list of devices, select the devices you want to upgrade.
- Step 5** In the **Device Actions** pane, click **Upgrade**.
- Step 6** On the Bulk Device Upgrade page, the devices that can be upgraded are presented to you. If any of the devices you chose are not upgradable, Security Cloud Control gives you a link to view the not upgradable devices.
- Step 7** Alternatively, if you want Security Cloud Control to perform the upgrade later, select the Schedule Upgrade check box. Click the field to select a date and time in the future. When you are done, click the Schedule Upgrade button.
- Step 8** In step 1, click **Specify Image URL** to select the software image you want to upgrade to, and click **Continue**.
- Step 9** In step 2, confirm your choices and decide whether you only want to download the images to your devices or copy the images, install them, and reboot the device.
- Step 10** Click **Perform Upgrade** when you are ready. From the **Security Devices** page, devices that are upgrading have a "Upgrade in Progress" configuration status.
- Warning**
If you decide to cancel the upgrades while in progress, click **Abort Upgrade** from the Upgrade page. If you cancel the upgrades after it has started, Security Cloud Control does not deploy or poll for changes from the devices and the devices do not roll back to the previous configuration. This may cause the devices to enter an unhealthy state. If you experience any issues during the upgrade process, contact Cisco TAC.
- Step 11** Look at the notifications tab for the progress of the bulk upgrade action. If you want more information about how the actions in the bulk upgrade job succeeded or failed, click the blue Review link and you will be directed to the Jobs page .
- Step 12** Upgrade the system databases. You must do this step in Firewall Device Manager. See "Updating System Databases" in [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#), Version 6.4 in for more information.
-

Monitor the Bulk Upgrade Process

You can view the progress of a single device that was included in the bulk upgrade by selecting that device on the **Security Devices** page and clicking the upgrade button. You can also view the progress details by clicking **Jobs** in the left pane and expanding the bulk operation.

If the upgrade fails at any point, Security Cloud Control displays a message. Security Cloud Control does not automatically restart the upgrade process.

Upgrade an FDM-Managed High Availability Pair

Upgrade your HA pair without disrupting traffic; the standby device continues to handle traffic detection while the secondary device is upgraded.

When you upgrade an HA pair, Security Cloud Control executes an eligibility check and copies or identifies the image location before starting the upgrade. The secondary device in a high availability pair upgrades first, even if it is currently the active device; if the secondary device is the Security Cloud Control active device, the paired devices automatically switch roles for the upgrade process. Once the secondary devices successfully upgrade, the devices switch roles, then the new standby device upgrades. When the upgrade completes, the devices are automatically configured so the primary device is active and the secondary device is standby.

We do not recommend deploying to the HA pair during the upgrade process.

Before You Begin

- Deploy all pending changes to the active device before upgrading.
- Ensure there are no tasks running during the upgrade.
- Both devices in the HA pair are healthy.
- Confirm you are ready to upgrade; you cannot rollback to a previous version in Security Cloud Control.

Upgrade an FDM-Managed HA Pair with Images from Security Cloud Control's Repository

Use the following procedure to upgrade an FDM-managed HA pair using a software image that is stored in Security Cloud Control's repository:

Procedure

-
Step 1	In the left pane, click Security Devices .
Step 2	Click the Devices tab to locate your device.
Step 3	Click the FTD tab.
Step 4	Select the HA pair you want to upgrade.
Step 5	In the Device Actions pane, click Upgrade .
Step 6	In step 1, click Use Security Cloud Control Image Repository to select the software image you want to upgrade to, and click Continue . You are only presented with choices that are compatible with the device you can upgrade.
Step 7	In step 2, confirm your choices and decide whether you only want to download the images to your device or copy the images, install them, and reboot the device.
Step 8	Click Perform Upgrade when you are ready. From the Security Devices page, devices that are upgrading have a "Upgrade in Progress" configuration status.

Warning

If you decide to cancel the upgrade while it is in progress, click **Abort Upgrade** from the Upgrade page. If you cancel the upgrade after it has started, Security Cloud Control does not deploy or poll changes from the device and the device does not roll back to the previous configuration. This may cause the device to enter an unhealthy state. If you experience any issues during the upgrade process, contact Cisco TAC.

Step 9	Alternatively, if you want Security Cloud Control to perform the upgrade later, select the Schedule Upgrade check box. Click the field to select a date and time in the future. When you are done, click the Schedule Upgrade button.

- Step 10** Look at the notifications tab for the progress of the bulk upgrade action. If you want more information about how the actions in the bulk upgrade job succeeded or failed, click the blue Review link and you will be directed to the Jobs page .
- Step 11** Upgrade the system databases. You must do this step in FDM. See "Updating System Databases" in [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#), Version 6.4 in for more information.

Upgrade an FDM-Managed HA Pair with Images from your own Repository

Use the following procedure to upgrade an FDM-managed HA pair using a URL protocol to locate a software image:

Procedure

- Step 1** In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab to locate your device.
- Step 3** Click the **FTD** tab.
- Step 4** Select the HA pair you want to upgrade.
- Step 5** In the **Device Actions** pane, click **Upgrade**.
- Step 6** In step 1, click **Specify Image URL** to select the software image you want to upgrade to, and click **Continue**. You are only presented with choices that are compatible with the device you can upgrade.
- Step 7** In step 2, confirm your choices and decide whether you only want to download the images to your device or copy the images, install them, and reboot the device.
- Step 8** Click **Perform Upgrade** when you are ready. From the **Security Devices** page, devices that are upgrading have a "Upgrade in Progress" configuration status.

Warning

If you decide to cancel the upgrade while it is in progress, click **Abort Upgrade** from the Upgrade page. If you cancel the upgrade after it has started, Security Cloud Control does not deploy or poll changes from the device and the device does not roll back to the previous configuration. This may cause the device to enter an unhealthy state. If you experience any issues during the upgrade process, contact Cisco TAC.

- Step 9** Alternatively, if you want Security Cloud Control to perform the upgrade later, select the Schedule Upgrade check box. Click the field to select a date and time in the future. When you are done, click the Schedule Upgrade button.
- Step 10** Look at the notifications tab for the progress of the bulk upgrade action. If you want more information about how the actions in the bulk upgrade job succeeded or failed, click the blue Review link and you will be directed to the Jobs page .
- Step 11** Upgrade the system databases. You must do this step in Firewall Device Manager. See "Updating System Databases" in [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#), Version 6.4 for more information.

Monitor the Upgrade Process

You can view the progress of your single device by selecting that device on the **Security Devices** page and clicking the upgrade button. Security Cloud Control takes you to the **Device Upgrade** page for that device.

During the upgrade, the system suspends HA while updating system libraries, which includes an automatic deployment, and may not be in a healthy state for the entirety of the upgrade process. This is expected. The device is available for SSH connections during the last part of this process, so if you log in shortly after applying an upgrade, you might see HA in suspended status. If the system experiences issues during the upgrade process and the HA pair appears to be suspended, manually resume HA from the Firewall Device Manager console of the active device.



Note If the upgrade fails at any point, Security Cloud Control displays a message. Security Cloud Control does not automatically restart the upgrade process.



Warning Upgrading devices that have self-signed certificates may experience issues; see [New Certificate Detected](#) for more information.

Upgrade to Snort 3.0

Snort 3 is the latest snort engine, or a powerful preprocessor that uses Open Source Intrusion Prevention System (IPS), available for Firepower Version 6.7 and later. The snort engine uses a series of rules that help define malicious network activity and uses those rules to find packets that match against them and generates alerts for users and is ideally used as a packet sniffer, a packet logger, or, more traditionally, as a standalone network IPS.

With Snort 3, you can now create custom intrusion policies; every FDM-managed device running Snort 3 has a set of intrusion policies that are pre-defined from Cisco's Talos Intelligence Group (Talos). Snort 3 makes it possible to change these default policies, although we strongly recommend building on top of the base for a more robust policy.

You cannot create custom policies with Snort 2.

Switching from Snort 2 to Snort 3

You can switch Snort versions freely, though some intrusion rules in Snort 2.0 might not exist in Snort 3.0, and vice versa. If you changed the rule action for an existing rule, that change is not preserved if you switch to Snort 3 and then back to Snort 2, or back again to Snort 3. Your changes to rule actions for rules that exist in both versions are preserved. Note that the mapping between rules in Snort 3 and Snort 2 can be one-to-one or one-to-many, so preservation of changes is done on a best-effort basis.

If you choose to upgrade from Snort 2 to Snort 3, please note that upgrading the snort engines is comparable to a system upgrade. We strongly recommend upgrading during a maintenance window to minimize the interruption in traffic monitoring for your network. See [Managing Intrusion Policies \(Snort3\)](#) in the *Firepower Device Manager Configuration Guide* as to how switching snort versions will affect how rules process traffic.



Tip You can filter by Snort version on the **Security Devices** page, and the Details window of a selected device displays the current version running on the device.

Snort 3 Limitations

License Requirements

To allow the snort engine to process traffic for intrusion and malware analysis, you must have the **license** enabled for the FDM-managed device. To enable this license through Firewall Device Manager, log into the Firewall Device Manager UI and navigate to **Device > View Configuration > Enable/Disable** and enable the license.

Hardware Support

The following devices support Snort 3:

- FTD 1000 series
- FTD 2100 series
- FTD 4100 series
- FTD virtual with AWS
- FTD virtual with Azure
- ASA 5500-X Series with FTD

Software Support

Devices **must** be running at least Firewall Device Manager Version 6.7. Security Cloud Control supports Snort 3 functionality for devices running Version 6.7 and later.

For FTD 1000 and 2000 series, see [FXOS bundled support](#) for more information on FXOS patch support.

Configuration Limitations

Security Cloud Control does not support upgrading to Snort 3 if your device has the following configurations:

- Device is not running at least Version 6.7.
- If a device has pending changes. Deploy any changes prior to upgrading.
- If a device is currently upgrading. Do not attempt to upgrade or deploy to the device until the device is synced.
- If a device is configured with a virtual router.



Note If you upgrade or revert the Snort version, the system automatically deploys to implement the changes between Snort 2 intrusion policies and Snort 3 intrusion policies.

Rulesets and Snort 3

Note that Snort 3 does not have full feature support at this time. Security Cloud Control rulesets are not supported on Snort 3 devices. If you simultaneously upgrade a device to Firewall Device Manager 6.7 or

higher, and from Snort 2 to Snort 3, any rulesets configured prior to the upgrade are broken up and the rules in them are saved as individual rules.

Upgrade the Device and the Intrusion Prevention Engine Simultaneously

Security Cloud Control allows you to upgrade the device to Version 6.7 and the Snort 3. Use the following procedure to upgrade the FDM-managed device:

Procedure

-
- Step 1** In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** Click the **FTD** tab and select the device or devices you want to upgrade.
- Step 4** In the **Devices Actions** pane located to the right, click **Upgrade**.
- Step 5** Set the upgrade toggle to **FTD System Upgrade**.
- FTD System Upgrade
 Intrusion Prevention Engine
- Step 6** (Optional) If you want Security Cloud Control to perform the upgrade later, check the **Schedule Upgrade** check box. Click in the field to select a date and time in the future.
- Step 7** In step 1, select your upgrade method. Either use the Security Cloud Control Image Repository and an image from your own repository:
- **Use Security Cloud Control Image Repository** - Click this option to select the software image you want to upgrade to, and click **Continue**. You are only presented with choices that are compatible with the device you can upgrade.
 - **Specify Image URL** - Click this option to select the software image that is currently stored in your own repository, and click **Continue**. You are only presented with choices that are compatible with the device you can upgrade.
- Step 8** In step 2, confirm your choices and decide whether you only want to download the images to your device or copy the images, install them, and reboot the device.
- Step 9** Check **Upgrade to Snort 3 Engine**.
- Step 10** Click **Perform Upgrade** when you are ready. From the **Security Devices** page, devices that are upgrading have a "Upgrade in Progress" configuration status.

Warning

If you decide to cancel the upgrade while it is in progress, click **Abort Upgrade** from the Upgrade page. If you cancel the upgrade after it has started, Security Cloud Control does not deploy or check for changes from the device and the device does not roll back to the previous configuration. This may cause the device to enter an unhealthy state. If you experience any issues during the upgrade process, contact Cisco TAC.

Upgrade the Intrusion Prevention Engine

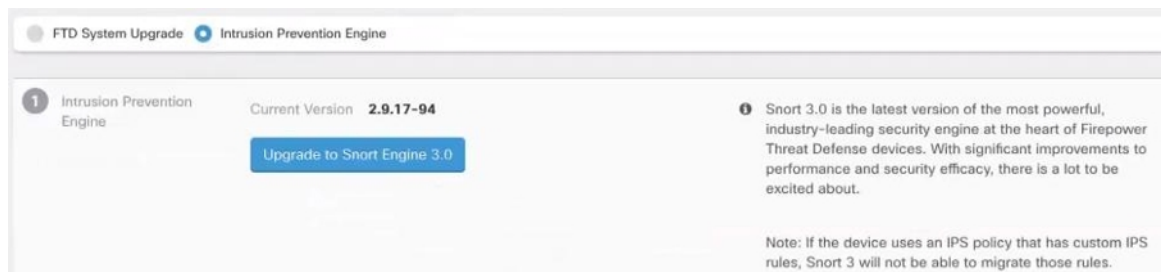
For devices that are already running Version 6.7 with Snort 2, use the following procedure to update just the Snort engine to version 3:

Procedure

- Step 1** In the navigation bar, click **Security Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** Click the **FTD** tab and select the device or devices you want to upgrade.
- Step 4** In the **Device Actions** pane located to the right, click **Upgrade**.
- Step 5** Set the upgrade toggle to **Intrusion Prevention Engine**.



- Step 6** Click **Upgrade to Snort Engine 3.0**.



- Step 7** From the **Security Devices** page, devices that are upgrading have a "Upgrade in Progress" configuration status.

Monitor the Upgrade Process



- Warning** If you decide to cancel the upgrade while it is in progress, click **Abort Upgrade** from the Upgrade page. If you cancel the upgrade after it has started, Security Cloud Control does not deploy or check for changes from the device and the device does not roll back to the previous configuration. This may cause the device to enter an unhealthy state. If you experience any issues during the upgrade process, contact Cisco TAC.

You can view the progress of your single device by selecting that device on the **Security Devices** page and clicking the upgrade button. Security Cloud Control takes you to the **Device Upgrade** page for that device.

If the upgrade fails at any point, Security Cloud Control displays a message. Security Cloud Control does not automatically restart the upgrade process.



- Warning** Upgrading devices that have self-signed certificates may experience issues; see [New Certificate Detected](#) for more information

Revert From Snort 3.0 for FDM-Managed Device

Some intrusion rules in Snort 2.0 might not exist in Snort 3.0. If you downgrade to 2.0, any custom intrusion policies that you created are converted to the base policy used in the custom policy. As far as possible, rule action overrides are retained. If more than one custom policy uses the same base policy, the overrides of the custom policy that is used in the most access control policies are retained, and the overrides for the other custom policies are lost. Access control rules that used these "duplicate" policies will now use the base policy created from your most-used custom policy. All custom policies are deleted.

Before you opt to revert from Snort 3.0, read [Managing Intrusion Policies \(Snort2\)](#) of the *Firepower Device Manager Configuration Guide* and find out how switching snort engine versions will affect your current rules and policies.



Note Reverting to version 2 does not uninstall the Firepower software version.

Revert From Snort 3.0

If you change the Snort version, the system will perform an automatic deployment to implement the change. Note that you can only revert individual devices from Snort 3.0 to version 2.

Use the following procedure to revert the intrusion prevention engine:

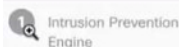
Procedure

- Step 1** In the navigation pane, click **Security Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** Click the **FTD** tab and click the device you want to revert.
- Step 4** In the **Device Actions** pane located to the right, click **Upgrade**.
- Step 5** Set the upgrade toggle to **Intrusion Prevention Engine**.

☐ FTD System Upgrade ☒ Intrusion Prevention Engine

- Step 6** In Step 1, confirm you want to revert from Snort version 3, and click **Revert to Snort Engine 2**.

☐ FTD System Upgrade ☒ Intrusion Prevention Engine



Current Version **3.0.0-269.37**

Revert to Snort Engine 2.0

! Snort 3.0 is the latest version of the most powerful, industry-leading security engine at the heart of Firepower Threat Defense devices. With significant improvements to performance and security efficacy, there is a lot to be excited about.

Note: If the device uses an IPS policy that has custom IPS rules, Snort 3 will not be able to migrate those rules.

- Step 7** From the **Security Devices** page, devices that are upgrading have a "Upgrade in Progress" configuration status.

Schedule a Security Database Update

Use the following procedure to create a scheduled task to check and update the security databases for an FDM-managed device:

Procedure

- Step 1** In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** Click the **FTD** tab and select the desired FDM-managed device.
- Step 4** In the Actions pane, locate the **Security Database Updates** section and click the add + button.

Note

If there is an existing scheduled task for the selected device, click the edit icon to create a new task. Creating a new task will overwrite the existing one.

- Step 5** Configure the scheduled task with the following:
- **Frequency** - Choose for the update to occur daily, weekly, or monthly.
 - **Time** - Choose the time of day. Note that the time displayed is UTC.
 - **Select Days** - Choose which day(s) of the week you want the update to occur.
- Step 6** Click **Save**.
- Step 7** The device's Configuration Status will change to "Updating Databases".
-

Edit a Scheduled Security Database Update

Use the following procedure to edit an existing scheduled task to check and update the security databases for an FDM-managed device

Procedure

- Step 1** In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** Click the **FTD** tab and select the desired FDM-managed device.
- Step 4** In the Actions pane, locate the **Database Updates** section and click the edit icon.
- Step 5** Edit the scheduled task with the following:
- **Frequency** - Choose for the update to occur daily, weekly, or monthly.
 - **Time** - Choose the time of day. Note that the time displayed is UTC.
 - **Select Days** - Choose which day(s) of the week you want the update to occur.

- Step 6** Click **Save**.
- Step 7** The device's Configuration Status will change to "Updating Databases".
-

Prerequisites for ASA and ASDM Upgrade in Security Cloud Control

Security Cloud Control provides a wizard that helps you upgrade the ASA and ASDM images installed on an individual ASA, multiple ASAs, ASAs in an active-standby configuration, and ASAs running in single-context or multi-context mode.

Security Cloud Control maintains a repository of ASA and ASDM images that you can upgrade to. When you choose your upgrade images from Security Cloud Control's image repository, Security Cloud Control performs all the necessary upgrade steps behind the scenes. The wizard guides you through the process of choosing compatible ASA software and ASDM images, installs them, and reboots the device to complete the upgrade. We secure the upgrade process by validating that the images you chose on Security Cloud Control are the ones copied to, and installed on, your ASA. Security Cloud Control periodically reviews its inventory of ASA binaries and adds the newest ASA and ASDM images to its repository when they are available. This is the best option for customers whose ASAs have outbound access to the internet.

Security Cloud Control's image repository only contains generally available (GA) images. If you do not see a specific GA image in the list, please contact Cisco TAC or email support from the **Contact Support** page. We will process the request using the established support ticket SLAs and upload the missing GA image.

If your ASAs do not have outbound access to the internet, you can download the ASA and ASDM images you want from Cisco.com, store them in your own repository, provide the upgrade wizard with a custom URL to those images, and Security Cloud Control performs upgrades using those images. In this case, however, you determine what images you want to upgrade to. Security Cloud Control does not perform the image integrity check or disk-space check. You can retrieve the images from your repository using any of these protocols: FTP, TFTP, HTTP, HTTPS, SCP, and SMB.

Configuration Prerequisites for All ASAs

- DNS needs to be enabled on the ASA.
- ASA should be able to reach the internet if you use upgrade images from Security Cloud Control's image repository.
- Ensure HTTPS connectivity between the ASA and the repository [FQDN](#).
- The ASA has been successfully onboarded to Security Cloud Control.
- The ASA is synced to Security Cloud Control.
- The ASA is online.
- For custom URL upgrades:
 - Use the [Cisco ASA Upgrade Guide](#) to determine what version of ASA and ASDM are compatible with your ASAs.
 - [Download the ASA and ASDM images](#) to your image repository.
 - Ensure that the ASA has access to your image repository.
 - Ensure you have enough disk space on your ASA for your ASA and ASDM images.

- Read [Custom URL Upgrade](#) for URL syntax information.

Configuration Prerequisites for Firepower 1000 and Firepower 2100 Series Devices

- The FXOS mode of a Firepower 2100 series device must be configured for **appliance** mode. See [Set the Firepower 2100 to Appliance or Platform Mode](#) for more information.
- The device must be running ASA Version 9.13(1) or later.
- You must upgrade the FXOS bundle prior to upgrading the ASA software. See [Firepower 2100 ASA and FXOS Compatibility](#) for more information.

Firepower 4100 and Firepower 9300 Series Devices Running ASA

Security Cloud Control does not support the upgrade for the Firepower 4100 or Firepower 9300 series devices. You must upgrade these devices outside of Security Cloud Control.

Upgrade Guidelines

- Security Cloud Control can upgrade ASAs configured as an Active/Standby "failover" pair. Security Cloud Control cannot upgrade ASAs configured in an Active/Active "clustered" pair.

Software and Hardware Prerequisites

Minimum ASA and ASDM versions from which you can upgrade:

- ASA: ASA 9.1.2
- ASDM: There is no minimum version.

Supported Hardware Versions

Upgrade Bulk ASA and ASDM in Security Cloud Control

Procedure

-
Step 1	Review ASA and ASDM Upgrade Prerequisites for upgrade requirements and important information about upgrading ASA and ASDM images.
	Note If you are upgrading an ASA 1000 or 2000 series device, be sure to read Configuration Prerequisites for 1000 and 2000 Series.
Step 2	(Optional) In the navigation bar, click Inventory .
Step 3	(Optional) In the left pane, click Security Devices .
Step 4	Click the Devices tab.
Step 5	From the filtered list of devices, select the devices you want to upgrade.
Step 6	In the Device Actions pane, click Upgrade .

Step 7

On the Bulk Device Upgrade page, the devices that can be upgraded are presented to you. If any of the devices you chose are not upgradable, Security Cloud Control gives you a link to view the not upgradable devices.

1 ASA Software Image

Please ensure the following before proceeding with the upgrade:

- DNS is configured properly on each device. For details, reference [Configure DNS on ASA](#).
- Each device has HTTPS connectivity to the internet in order to download the upgrade image.

Image Source: ☒ Use CDO Image Repository ☐ Specify Image URL

Software Image:

Select the ASA software image you want to upgrade to. Only compatible versions of ASA and ASDM are shown.

NAME	SOFTWARE	ASDM VERSION	FREE SPACE	FAILOVER MODE	CONTEXT MODE
10.82.109.150	9.4(1)	7.4(1)	3.89 GB	Not Configured	Single Context
10.82.109.176	9.9(1)	7.9(1)	4.27 GB	Not Configured	Single Context
FW-4-ASA	9.6(1)	7.6(1)	3.97 GB	Not Configured	Multi-Context Admin

[Continue](#) [View not upgradable devices \(1\)](#)

Step 8

In step 1, click **Use Security Cloud Control Image Repository** to select the ASA software image you want to upgrade to, and click **Continue**.

The list indicates how many of the ASAs you chose can be upgraded to the software version you chose. In the example below, all of the devices can be upgraded to version 9.9(1.2), two devices can be upgraded to

Software Image

9.6(2)

9.9(1.2) 3 Devices

9.9(1) 2 Devices

9.8(2) 2 Devices

9.8(1) 2 Devices

9.6(1) 1 Devices

9.8(2), and one of the devices can be upgraded to 9.6(1).

Security Cloud Control alerts you if any of the software versions you chose are incompatible with any of the devices you chose. In the example below, Security Cloud Control cannot upgrade the 10.82.109.176 device to a version earlier than it already runs.

NAME	SOFTWARE	ASDM VERSION	FREE SPACE	FAILOVER MODE	CONTEXT MODE
✓ 10.82.109.150	9.4(1)	7.4(1)	3.89 GB	Not Configured	Single Context
✓ FW-4-ASA	9.6(1)	7.6(1)	3.97 GB	Not Configured	Multi-Context Admin
✗ 10.82.109.176	9.9(1)	7.9(1)	4.27 GB	Not Configured	Single Context

Step 9

In step 2, select the ASDM image you want to upgrade to. You are only presented with ASDM choices that are compatible with the ASA you can upgrade.

Step 10

In step 3, confirm your choices and decide whether you only want to download the images to your ASAs or copy the images, install them, and reboot the device.

Step 11

Click **Perform Upgrade** when you are ready.

Note

If the upgrade fails, Security Cloud Control displays a message. Often the reason for a failed upgrade is a network issue preventing the ASA and ASDM images from being transferred to the ASA.

- Step 12** Alternatively, if you want Security Cloud Control to perform the upgrade later, select the Schedule Upgrade check box. Click the field to select a date and time in the future. When you are done, click the Schedule Upgrade button.
- Step 13** (For multi-context mode) After the admin context and the security contexts boot, you may see that the security contexts display the message, "New certificate detected." If you see that message, accept the certificate for all security contexts. Accept any other changes caused by the upgrade.
- Step 14** Look at the notifications tab for the progress of the bulk upgrade action. If you want more information about how the actions in the bulk upgrade job succeeded or failed, click the blue Review link and you will be directed to the Jobs page .
- Step 15** If you created and activated a change request label, remember to clear it so that you don't inadvertently associate other configuration changes with this event.

Upgrade Multiple ASAs with Images from your own Repository

Procedure

- Step 1** (Optional) In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** From the filtered list of devices, select the devices you want to upgrade.
- Step 4** In the **Device Actions** pane, click **Upgrade**.
- Step 5** In step 1, click **Specify Image URL**, enter the URL to the ASA image you want to upgrade to in the **Software Image URL** field, and click **Continue**. See [Custom URL Upgrade](#) for URL syntax information.

Note

The picture below shows an HTTPS URL in the Software Image URL field. You can retrieve the images from your repository using any of these protocols: FTP, TFTP, HTTP, HTTPS, SCP, and SMB. See [Custom URL Upgrade](#) for URL syntax information.

1 ASA Software Image

Please ensure the following before proceeding with the upgrade:

- DNS is configured properly on each device. For details, reference [Configure DNS on ASA](#)
- Each device has HTTPS connectivity to the internet in order to download the upgrade image.

Image Source

☐ Use CDO Image Repository

☒ Specify Image URL

Software Image URL:

You can specify a custom image URL if your device does not have outbound access to the internet or you need an image that CDO does not currently provide. This URL must be accessible from your device.

NAME	SOFTWARE	ASDM VERSION	FREE SPACE	FAILOVER MODE	CONTEXT MODE
10.82.109.176	9.9(1)	7.9(1)	4.27 GB	Not Configured	Single Context
10.82.109.150	9.4(1)	7.4(1)	3.89 GB	Not Configured	Single Context
FW-4-ASA	9.6(1)	7.6(1)	3.97 GB	Not Configured	Multi-Context Admin

[Continue](#)

- Step 6** In step 2, click **Specify Image URL**, enter the URL to the ASDM image you want to upgrade to in the **Software Image URL** field, and click **Continue**.

- Step 7** In step 3, confirm your choices and decide whether you only want to download the images to your ASAs or copy the images, install them, and reboot the device.
- Step 8** Click **Perform Upgrade** when you are ready.
- Note**
If the upgrade fails, Security Cloud Control displays a message. Often the reason for a failed upgrade is a network issue preventing the ASA and ASDM images from being transferred to the ASA.
- Step 9** Alternatively, if you want Security Cloud Control to perform the upgrade later, select the Schedule Upgrade check box. Click the field to select a date and time in the future. When you are done, click the Schedule Upgrade button.
- Step 10** (For multi-context mode) After the admin context and the security contexts boot, you may see that the security contexts display the message, "New certificate detected." If you see that message, accept the certificate for all security contexts. Accept any other changes caused by the upgrade.
- Step 11** Look at the notifications tab for the progress of the bulk upgrade action. If you want more information about how the actions in the bulk upgrade job succeeded or failed, click the blue Review link and you will be directed to the Jobs page .
- Step 12** If you created and activated a change request label, remember to clear it so that you don't inadvertently associate other configuration changes with this event.

What to do next

Upgrade Notes

- You can also monitor the progress of the batch of upgrades by opening the **Security Devices** page and viewing the Configuration Status column in the table.
- You can view the progress of a single device that was included in the bulk upgrade by selecting that device on the **Security Devices** page and clicking the upgrade button. Security Cloud Control takes you to the Device Upgrade page for that device.

Upgrade ASA and ASDM Images on a Single ASA

Follow this procedure to upgrade the ASA and ASDM images on a single ASA.

Procedure

- Step 1** In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** Select the device you want to upgrade.
- Step 4** In the **Device Actions** pane, click **Upgrade**.
- Step 5** On the Device Upgrade page, follow the instructions presented to you by the wizard.
- a. In step 1, click **Use Security Cloud Control Image Repository** to select the ASA software image you want to upgrade to, and click **Continue**.

Note

When upgrading your ASAs and ASDMs to images stored in your own repository, select **Specify Image URL** and enter the URL of the ASA or ASDM image in the Software Image URL field. You can retrieve the images from your repository using any of these protocols: FTP, TFTP, HTTP, HTTPS, SCP, and SMB. See [Custom URL Upgrade](#) for URL syntax information.

(Optional) If you want Security Cloud Control to perform the upgrade later, select the Schedule Upgrade check box. Click the field to select a date and time in the future. When you are done, click **Schedule Upgrade**.

- b. In step 2, select the ASDM image you want to upgrade to. You are only presented with ASDM choices that are compatible with the ASA you can upgrade.
- c. In step 3, confirm your choices and decide whether you only want to download the images to your ASAs or copy the images, install them, and reboot the device.

Step 6 Click **Perform Upgrade** when you are ready.

Step 7 (For multi-context mode) After the admin context and the security contexts boot, you may see that the security contexts display the message, "New certificate detected." If you see that message, accept the certificate for all security contexts. Accept any other changes caused by the upgrade. 📺 Want to see a demo? Watch a [screencast](#) of this procedure!

What to do next

Upgrade Notes

- If you select an image to upgrade to, and you change your mind, check the **Skip Upgrade** check box associated with the software image. The image will not be copied to the device, nor will the device be upgraded with the image.
- In the **Perform Upgrade** step, if you choose only to copy the images to the ASA, you can return to the Device Upgrade page later and click "Upgrade Now" to perform the upgrade. After the copying task is complete, you will see the message "Ready to Upgrade" for that device on the **Security Devices** page.
- You cannot take action on a device during the process of copying the image, installing it, and rebooting the device. Devices that are installing the image and then rebooting are shown as "Upgrading" in the **Security Devices** page.
- You cannot take action on a device during the upgrade process; that is, installing the image and rebooting the device.
- You can take action on a device if you choose only to copy the images to the device. Devices that are copying images are shown as "Copying Images" in the **Security Devices** page.
- Upgrading devices that have self-signed certificates may experience issues; see [New Certificate Detected](#) for more information.

Upgrade ASA and ASDM Images in a High Availability Pair

Before you upgrade your pair of ASAs in active/standby failover mode, review the prerequisites below. If you need more information about how ASAs are configured and work in failover mode, see [Failover for High Availability](#) in the ASA documentation.



Want to see a demo? Watch a [screencast](#) of this procedure.

Prerequisites

- Review [ASA and ASDM Upgrade Prerequisites](#) for requirements and important information about upgrading ASA and ASDM images.
- The primary (active) and secondary (standby) ASAs are configured in active/standby failover mode.
- The primary ASA is the active device in the active/standby pair. If the primary ASA is inactive, Security Cloud Control will not perform the upgrade.
- The primary and secondary ASA software versions are the same.

Workflow

This is the process by which Security Cloud Control upgrades the active/standby pair of ASAs:

Procedure

Step 1 Security Cloud Control downloads the ASA and ASDM images to both ASAs.

Note

Users have the choice of downloading ASA and ASDM images but not upgrading immediately. If the ASA and ASDM images were downloaded previously, Security Cloud Control will not download them again; Security Cloud Control continues the upgrade workflow with the next step.

Step 2 Security Cloud Control upgrades the secondary ASA first.

Step 3 Once the upgrade is complete and the secondary ASA returns to the "Standby-Ready" state, Security Cloud Control initiates a failover so that the secondary ASA becomes the active ASA.

Step 4 Security Cloud Control upgrades the primary ASA, which is now the current standby ASA.

Step 5 Once the primary ASA returns to the "Standby-Ready" state, Security Cloud Control initiates a failover so that the primary ASA becomes the active ASA.

Warning

Upgrading devices that have self-signed certificates may experience issues; see [New Certificate Detected](#) for more information.

Upgrade ASA and ASDM Images in a High Availability Pair

Procedure

Step 1 In the left pane, click **Inventory**.

Step 2 In the left pane, click **Security Devices**.

- Step 3** Click the **Devices** tab.
- Step 4** Select the device you want to upgrade.
- Step 5** In the **Device Actions** pane, click **Upgrade**.

Notice that the failover mode of the device is Active/Standby:

Device Details	
Location	
Model	ASAv (V01)
Serial	
Chassis Serial	
Software Version	9.12(1)
ASDM Version	7.12(2)
Context Mode	Single Context
Firewall Mode	routed
Uptime	150 days 19 hours?
Failover Mode	Active/Standby
This Host	Primary - Active
Other Host	Secondary - Failed
SDC	

- Step 6** On the Device Upgrade page, follow the instructions presented to you by the wizard.

Note

When upgrading your ASAs and ASDMs to images stored in your own repository, select **Specify Image URL** and enter the URL of the ASA or ASDM image in the Software Image URL field. You can retrieve the images from your repository using any of these protocols: FTP, TFTP, HTTP, HTTPS, SCP, and SMB. See [Custom URL Upgrade](#) for URL syntax information.

Upgrade an ASA or ASDM Using Your Own Image

When you upgrade your ASA with new ASA software and ASDM images, you can either use images that Security Cloud Control stores in its image repository or you can use images that you store in your own image repository. If your ASA does not have outbound access to the internet, maintaining your own image repository is the best option for upgrading your ASAs using Security Cloud Control.

Security Cloud Control uses ASA's copy command to retrieve the image and copy it to the flash drive (disk0:/) of your ASA. In the Specify Image URL field you are providing the URL portion of the copy command. For example, if the whole copy command would have been:

```
ciscoasa# copy ftp://admin:adminpass@10.10.10.10/asa991-smp-k8.bin disk:/0
```

You are providing:

```
ftp://admin:adminpass@10.10.10.10/asa991-smp-k8.bin
```

in the Specify Image URL field.

Security Cloud Control supports http, https, ftp, tftp, smb, and scp methods of retrieving the upgrade image.

URL Syntax examples

Here are examples of URL syntax for the ASA copy command. For the sake of these URL examples, assume the following:

- **Image repository address:** 10.10.10.10
- **Username to access the image repository:** admin
- **Password:** adminpass
- **Path:** images/asa
- **Image filename:** asa991-smp-k8.bin

```
http[s]:// [[ user [ : password ] @ ] server [ : port ] / [ path / ] filename ]
```

```
https://admin:adminpass@10.10.10.10:8080/images/asa/asa991-smp-k8.bin
```

HTTP[s] example without a username and password:

```
https://10.10.10.10:8080/images/asa/asa991-smp-k8.bin
```

```
ftp:// [[ user [ : password ] @ ] server [ : port ] / [ path / ] filename [ ;type= xx ]]â€œThe
```

type can be one of these keywords: **ap** (ASCII passive mode), **an** (ASCII normal mode),

ip (Defaultâ€œBinary passive mode), **in** (Binary normal mode).

```
ftp://admin:adminpass@10.10.10.10:20/images/asa/asa991-smp-k8.bin
```

FTP example without a username and password:

```
ftp://10.10.10.10:20/images/asa/asa991-smp-k8.bin
```

```
tftp:// [[ user [ : password ] @ ] server [ : port ] / [ path / ] filename [ ;int=
interface_name ]]
```

```
tftp://admin:adminpass@10.10.10.10/images/asa/asa991-smp-k8.bin outside
```

TFTP example without a username and password:

```
tftp://10.10.10.10/images/asa/asa991-smp-k8.bin outside
```



Note The pathname cannot contain spaces. If a pathname has spaces, set the path in the **tftp-server** command instead of in the **copy tftp** command. The **;int= interface** option bypasses the route lookup and always uses the specified interface to reach the TFTP server.

```
smb://[[ path / ] filename ] - Indicates a UNIX server local file system.
```

```
smb:/images/asa/asa991-smp-k8.bin
```

```
scp:// [[ user [ : password ] @ ] server [ / path ] / filename [ ;int= interface_name
]]â€œThe;int= interface option bypasses the route lookup and always uses the specified
interface to reach the Secure Copy (SCP) server.
```

```
scp://admin:adminpass@10.10.10.10:8080/images/asa/asa991-smp-k8.bin outside
```

SCP example without a username and password:

```
scp://10.10.10.10:8080/images/asa/asa991-smp-k8.bin outside
```

The complete copy command with URL syntax in the [Cisco ASA Series Command Reference, A - H Commands](#) guide.



CHAPTER 7

Onboard an On-Premises Firewall Management Center

- [Onboard an On-Premises Firewall Management Center, on page 249](#)

Onboard an On-Premises Firewall Management Center

Onboard an On-Premises Management Center to Security Cloud Control

Security Cloud Control provides the following methods to onboard on-premises management centers:

- (Recommended) [Auto discover and onboard on-premises management center integrated with Cisco Security Cloud](#)
- [Use on-premises management center credentials](#)



Note

Security Cloud Control complements FMC by allowing you to:

- Drive consistent policy through shared object management with FMCs.
- Enable zero-touch provisioning of Firewall Threat Defense devices.

For more information, see [Onboard a Device to On-Premises Management Center with Zero-Touch Provisioning](#).

- Get a centralised view of **Security Devices**.

For more information, see [Device and Service Management](#).

- Leverage cloud CSDC and Cloud-Delivered Firewall Management Center.

For more information, see [Cisco Secure Dynamic Attributes Connector](#).

Limitations and Guidelines

These are the limitations applicable to onboarding an on-premises management center:

- Onboarding an on-premises management center also onboards all of the devices registered to the on-premises management center. Be aware that if a managed device is disabled, or unreachable, Security Cloud Control may display the device in the **Security Devices** page, but cannot successfully send requests or view device information.
- Onboarding an on-premises management center does not cascade the policies in the on-premises management center to Security Cloud Control or Cloud-Delivered Firewall Management Center. However, you can migrate a Firewall Threat Defense managed by on-premises management center to Cloud-Delivered Firewall Management Center using the inbuilt **Migrate FTD to cdFMC** feature, which brings all the policies linked to the device. See [Migrate Threat Defense to Cloud-delivered Firewall Management Center](#) for more information.
- We recommend creating a new user on the on-premises management center specifically for Security Cloud Control communication that has administrator-level permissions. If you onboard an on-premises management center and then simultaneously log into that on-premises management center with the same login credentials, onboarding fails.
- If you create a new user on the on-premises management center for Security Cloud Control communication, the **Maximum Number of Failed Logins** for the user configuration must be set to "0".
- For On-Premises Management Centers running version 7.4 and older, if you experience a switchover and the FMC is no longer connected to the cloud, try disabling SecureX and then re-enabling it.

Auto-Onboard an On-Premises Management Center Integrated with Cisco Security Cloud

The auto-discovery and onboarding feature is enabled by default in Security Cloud Control, so you can expect all on-premises management centers that are running Version 7.2 or later and integrated with Cisco Security Cloud are automatically discovered and onboarded to Security Cloud Control. Additionally, the associated Firewall Threat Defense devices are onboarded to Security Cloud Control.

Security Cloud Control also onboards the on-premises management center high availability (HA) pair.

Before you begin

Ensure that the following prerequisites are met:

- Allow outbound traffic from port 443 on the on-premises management center.

Procedure

-
- Step 1** Integrate the on-premises management center you want to onboard with Cisco Security Cloud and register it with a Security Cloud Control tenant. See [Integrate On-Premises Management Center With Cisco Security Cloud, on page 251](#).
- Step 2** Log in to the Security Cloud Control tenant that was registered with the on-premises management center.
- Step 3** In the left pane, click **Tools & Services > Firewall Management Center Administration > Integrations > Firewall Management Center**.

All on-premises management centers associated with your tenant is displayed in the **FMC** tab. See [View Onboarded On-Premises Firewall Management Center](#).

Integrate On-Premises Management Center With Cisco Security Cloud

This procedure describes how to integrate the on-premises management center with Cisco Security Cloud. By enabling Cisco Security Cloud integration, your management center gets registered to the Cisco cloud tenancy.

Before you begin

- Security Cloud Control uses Cisco security cloud sign on as its identity provider and Duo for multifactor authentication. Ensure that you have your Cisco security cloud sign on credentials and can sign in to the Cisco regional cloud where your account was created.
- A Security Cloud Control tenant is required to integrate the on-premises management center with Cisco Security Cloud. If you do not already have a Security Cloud Control tenant, request one. See [Create a Security Cloud Control Tenant, on page 2](#) for more information.

Procedure

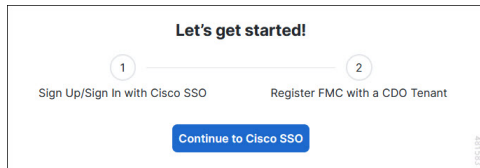
- Step 1** In your on-premises management center, perform the following:
- For on-premises management center version between 7.2 and 7.4.x, go to **Integration > SecureX**.
 - For on-premises management center version 7.6 or later, go to **Integration > Cisco Security Cloud**.
- Step 2** For on-premises management center version between 7.2 and 7.4.x, click **Enable Secure X**.
For on-premises management center version 7.6 or later, click **Cisco Security Cloud**.
A separate browser tab opens to log you in to your Security Cloud Control account. Make sure this page is not blocked by a pop-up blocker.
- Step 3** Click **Continue to Cisco SSO**.
- Figure 8: Cisco Security Cloud Welcome Page*
- 
- Step 4** Log in to your Security Cloud Control account.

Figure 9: Cisco Security Cloud Sign On

CISCO

CONNECTING TO CISCO DEFENSE ORCHESTRATOR

Security Cloud Sign On

Email

Continue

Don't have an account? [Sign up now](#)

Or

[Other login options](#)

481588

If you do not have a security cloud sign on account to log in to Security Cloud Control and you want to create one, click **Sign up now** in the **Security Cloud Sign On** page. See [Create a New Cisco Security Cloud Sign On Account](#).

Step 5

Choose a Security Cloud Control tenant that you want to use for this integration. The on-premises management center and the managed devices get onboarded to the Security Cloud Control tenant that you choose here.

Figure 10: Choose the Security Cloud Control Tenant

Welcome to Cisco Defense Orchestrator

To proceed with the registration of your FMC, please select a CDO tenant to register with the FMC and verify the code displayed below matches the user code from your FMC.

☒ Select Tenant ☐ Create Tenant

Search Tenants

Grant Application Access

Compare the code below to the authorization code shown in the FMC tab. If the codes match, authorize the FMC to complete the registration. If the codes do not match, [cancel registration](#).

6059BAEC

Authorize FMC

If you do not already have a Security Cloud Control tenant or if you want to use a new tenant for this integration, create a new tenant.

See [Create a Security Cloud Control Tenant, on page 2](#) for more information.

- Step 6** Verify that the code displayed in the Security Cloud Control login page matches the code provided by the on-premises management center.

Figure 11: Verification Code in the on-premises management center

Grant Application Access

Verify this code when prompted in the new browser window.

6059BAEC

Close

- Step 7** Click **Authorize FMC**.

- Step 8** In the on-premises management center UI, click **Save** to save the configuration.

You can view the task progress under **Notifications > Tasks**.

The registration task can take up to 90 second to complete. If you must use on-premises management center while the registration task is in progress, open the on-premises management center in a new window.

Disable Auto-Onboarding of an On-Premises Management Center

Disabling the auto-onboarding of the on-premises management centers functionality prevents auto onboarding of new on-premises management centers from your Cisco Security Cloud to this Security Cloud Control tenant.

Only a Super Admin or Admin user on Security Cloud Control can enable or disable this functionality.

Procedure

- Step 1** In the left pane, choose **Settings > General Settings**.
- Step 2** In the left pane, click **Administration > General Settings**
- Step 3** In the **General Settings** screen, click the **Auto onboard On-Prem FMCs with Cisco Security Cloud** toggle button to disable the auto onboarding of on-premises management center functionality.
- Step 4** Click **Confirm**.

Onboard an On-Premises Firewall Management Center to Security Cloud Control with Credentials

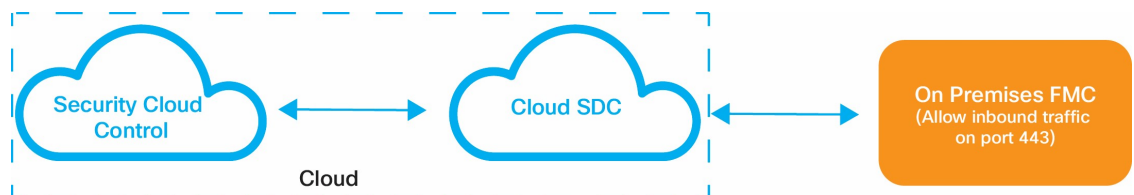
To onboard an on-premises management center to Security Cloud Control with credentials, follow this procedure:

Before you begin

The following prerequisites must be met:

- **For Cloud Secure Device Connector (SDC):** Allow inbound traffic on port 443 of the on-premises management center.

The SDC reaches the on-premises management center by allowing inbound traffic on port 443.



Both the Security Cloud Control and the SDC are hosted in the cloud.

- **For On-Premises Secure Device Connector (SDC):** Allow outbound connectivity on port 443 of the SDC.

The SDC requires connectivity to the Security Cloud Control, making it imperative to permit outbound traffic from the SDC to the Security Cloud Control. No additional port configuration required on the on-premises FMC.



Procedure

-
- Step 1** In the left pane, click **Tools & Services > Firewall Management Center**.
 - Step 2** In the left pane, click **Administration > General Settings**.
 - Step 3** Click  to onboard an on-premises management center.
 - Step 4** Click **Firewall Management Center**.
 - Step 5** Select the **Use Credentials** card.
 - Step 6** Enter the device name and location. Click **Next**.
 - Step 7** Enter the **Username** and **Password** of the account credentials you want to use to access the on-premises management center. Click **Next**.
 - Step 8** The device is onboarded. From here you can opt to add labels to your on-premises management center, or click **Go to Services** to view the page of onboarded devices. If healthy, the FMC is displayed with a **Synced** status.

Note

Note that the devices managed by the on-premises management center are automatically named as "<fmcname>_<manageddevicename>."

Redirect Security Cloud Control to an On-Premises Firewall Management Center

After you have onboarded an On-Premises Management Center to Security Cloud Control, you must update the management interface's hostname in the On-Premises Management Center UI to contain the FQDN. If you do not, you cannot cross-launch from Security Cloud Control.

Use the following procedure to update the management interface hostname and redirect from Security Cloud Control to the On-Premises Management Center:

Procedure

-
- Step 1** Log into the On-Premises Management Center UI.
 - Step 2** Navigate to **System > Configuration**.
 - Step 3** Select the **Management Interfaces** tab.
 - Step 4** Expand the **Shared Settings** header and click the edit icon.
 - Step 5** Locate the **Hostname** field and enter the FMC's FQDN.
 - Step 6** Save changes.

Note: You may have to log out of Security Cloud Control before you can click **Manage Devices in Firepower Management Center** and cross-launch to the On-Premises Management Center UI.

Remove an On-Premises Firewall Management Center from Security Cloud Control

If you choose to remove an on-premises management center from Security Cloud Control, all devices by that on-premises management center will also be removed.

Before you begin

Disable the auto-onboarding option to remove one or more on-premises management centers onboarded using auto-onboarding functionality.

1. In the left pane, choose **Settings > General Settings**.
2. In the **Tenant Settings** section, disable **Auto onboard On-Prem FMCs integrated to Cisco Security Cloud**.

Procedure

Step 1	In the left pane, click Tools & Services > Firewall Management Center .
Step 2	In the left pane, click Administration > Integrations > Firewall Management Center .
Step 3	Ensure the FMC tab is selected and choose the on-premises management center you want to remove.
Step 4	In the Device Actions pane located to the right, click Remove On-Prem FMC and its managed devices .
Step 5	Click OK to confirm that you want to remove the on-premises management center and its managed devices from your tenant.
Step 6	Refresh your browser to see an updated list of available devices.
-



PART III

Configure Devices And Services

- [Manage Objects, on page 259](#)
- [Configure Secure Firewall ASA Devices, on page 343](#)
- [Configure Cloud-Delivered Firewall Management Center-Managed Secure Firewall Threat Defense, on page 423](#)
- [Configure On-Premises Firewall Management Center-Managed Secure Firewall Threat Defense Devices, on page 429](#)



CHAPTER 8

Manage Objects

An object is a container of information that you can use in one or more security policies. Objects make it easy to maintain policy consistency. You can create a single object, use it in different policies, modify the object, and that change is propagated to every policy that uses the object. Without objects, you would need to modify all the policies, individually, that require the same change.

When you onboard a device, Security Cloud Control recognizes all the objects used by that device, saves them, and lists them on the **Objects** page. From the **Objects** page, you can edit existing objects and create new ones to use in your security policies.

Security Cloud Control calls an object used on multiple devices a **shared object** and identifies them in the **Objects** page with this badge .

Sometimes a shared object develops some "issue" and is no longer perfectly shared across multiple policies or devices:

- **Duplicate objects** are two or more objects on the same device with different names but the same values. These objects usually serve similar purposes and are used by different policies. Duplicate objects are identified by this issue icon: .
- **Inconsistent objects** are objects on two or more devices with the same name but different values. Sometimes users create objects in different configurations with same name and content but over time the values of these objects diverge which creates the inconsistency. Inconsistent objects are identified by this issue icon: .
- **Unused objects** are objects that exist in a device configuration but are not referenced by another object, an access-list, or a NAT rule. Unused objects are identified by this issue icon: .

You can also create objects for immediate use in rules or policies. You can create an object that is unassociated with any rule or policy. When you use that unassociated object in a rule or policy, Security Cloud Control creates a copy of it and uses the copy.

You can view the objects managed by Security Cloud Control by navigating to the **Objects** menu or by viewing them in the details of a network policy.

Security Cloud Control allows you to manage network and service objects across supported devices from one location. With Security Cloud Control, you can manage objects in these ways:

- Search for and [filter all your objects](#) based on a variety of criteria.
- Find duplicate, unused, and inconsistent objects on your devices and consolidate, delete, or resolve those object issues.

- Find unassociated objects and delete them if they are unused.
- Discover shared objects that are common across devices.
- Evaluate the impact of changes to an object on a set of policies and devices before committing the change.
- Compare a set of objects and their relationships with different policies and devices.
- Capture objects in use by a device after it has been on-boarded to Security Cloud Control.

If you have issues with creating, editing, or reading objects from an onboarded device, see [Troubleshoot Security Cloud Control, on page 798](#) for more information.

- [Manage Objects, on page 260](#)

Manage Objects

An object is a container of information that you can use in one or more security policies. Objects make it easy to maintain policy consistency. You can create a single object, use it different policies, modify the object, and that change is propagated to every policy that uses the object. Without objects, you would need to modify all the policies, individually, that require the same change.

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Security Cloud Control allows you to manage network and service objects across supported devices from one location. With Security Cloud Control, you can manage objects in these ways:

- Search for and [filter all your objects](#) based on a variety of criteria.

- Find duplicate, unused, and inconsistent objects on your devices and consolidate, delete, or resolve those object issues.
- Find unassociated objects and delete them if they are unused.
- Discover shared objects that are common across devices.
- Evaluate the impact of changes to an object on a set of policies and devices before committing the change.
- Compare a set of objects and their relationships with different policies and devices.
- Capture objects in use by a device after it has been on-boarded to Security Cloud Control.

If you have issues with creating, editing, or reading objects from an onboarded device, see [Troubleshoot Security Cloud Control, on page 798](#) for more information.

Object Types

The following table describes the objects that you can create for your devices and manage using Security Cloud Control.

Table 20: Adaptive Security Appliance (ASA) Object Types

Object	Description
Address Pool	Address pool objects can be configured to match against an individual IPv4 or IPv6 address or an IP address range.
AnyConnect Client Profile	AnyConnect Client Profile objects are file objects and represent files used in configurations, typically for remote access VPN policies. They can contain an AnyConnect Client Profile and AnyConnect Client Image files.
Network	Network groups and network objects (collectively referred to as network objects) define the addresses of hosts or networks.
Service	Service objects, service groups, and port groups are reusable components that contain protocols or ports considered part of the TCP/IP protocol suite.
Time Range	A time range object defines a specific time consisting of a start time, an end time, and optional recurring entries. You use these objects in network policies to provide time-based access to certain features or assets.
Trustpoints	Trustpoints let you manage and track digital certificates in ASA.

Table 21: FDM-Managed Device Object Types

Object	Description
Application Filter	An application filter object defines the applications used in an IP connection, or a filter that defines applications by type, category, tag, risk, or business relevance. You can use these objects in policies to control traffic instead of using port specifications.
AnyConnect Client Profile	AnyConnect Client Profile objects are file objects and represent files used in configurations, typically for remote access VPN policies. They can contain an AnyConnect Client Profile and AnyConnect Client Image files.
Certificate Filter	Digital certificates provide digital identification for authentication. Certificates are used for SSL (Secure Socket Layer), TLS (Transport Layer Security), and DTLS (Datagram TLS) connections, such as HTTPS and LDAPS.
DNS Group	DNS servers are needed to resolve fully-qualified domain names (FQDN), such as www.example.com, to IP addresses. You can configure different DNS group objects for management and data interfaces.
Geolocation	A geolocation object defines countries and continents that host the device that is the source or destination of traffic. You can use these objects in policies to control traffic instead of using IP addresses.
IKEv1 Policy	An IKEv1 policy object contain the parameters required for IKEv1 policies when defining VPN connections.
IKEv2 Policy	An IKEv2 policy objects contain the parameters required for IKEv2 policies when defining VPN connections.
IKEv1 IPSEC Proposal	IPsec Proposal objects configure the IPsec proposal used during IKE Phase 1 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel.
IKEv2 IPSEC Proposal	IPsec Proposal objects configure the IPsec proposal used during IKE Phase 2 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel.
Network	Network groups and network objects (collectively referred to as network objects) define the addresses of hosts or networks.

Object	Description
Security Zone	A security zone is a grouping of interfaces. Zones divide the network into segments to help you manage and classify traffic.
Service	Service objects, service groups, and port groups are reusable components that contain protocols or ports considered part of the TCP/IP protocol suite.
SGT Group	A SGT dynamic object identifies source or destination addresses based on an SGT assigned by ISE and can then be matched against incoming traffic.
Syslog Server	A syslog server object identifies a server that can receive connection-oriented or diagnostic system log (syslog) messages.
URL	Use URL objects and groups (collectively referred to as URL objects) to define the URL or IP addresses of web requests. You can use these objects to implement manual URL filtering in access control policies or blocking in Security Intelligence policies.

Table 22: On-Premises Secure Firewall Management Center Object Types

Object	Description
Network	Network groups and network objects (collectively referred to as network objects) define the addresses of hosts or networks.
Service	Service objects, service groups, and port groups are reusable components that contain protocols or ports considered part of the TCP/IP protocol suite.

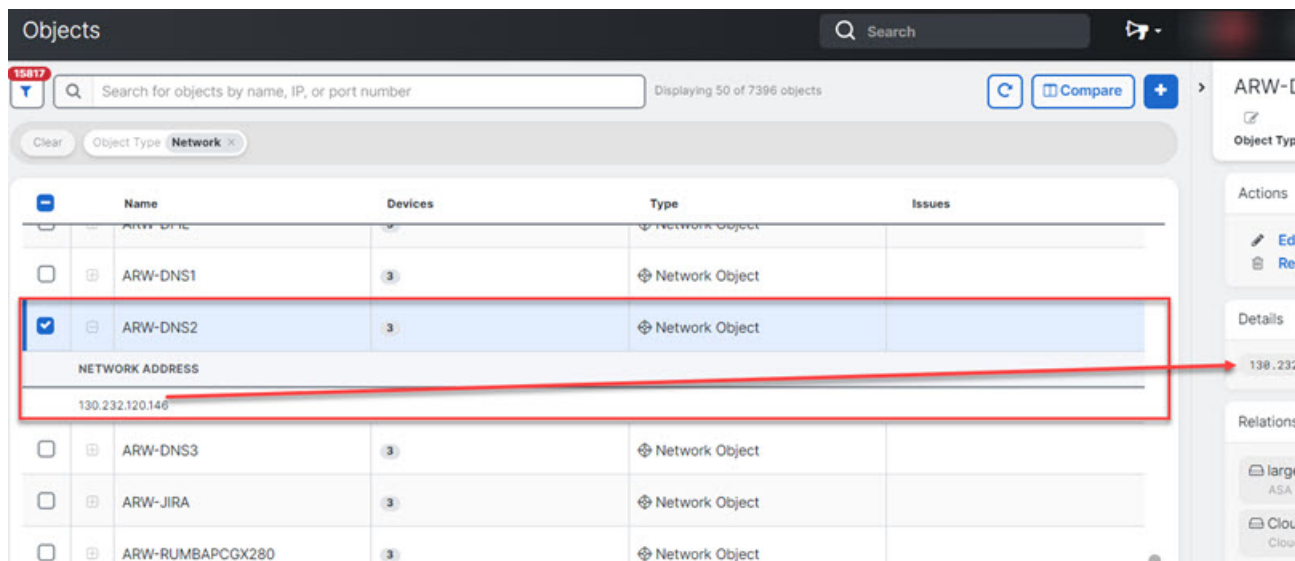
Shared Objects

Security Cloud Control calls objects on multiple devices with the same name and same contents, **shared objects**. Shared objects are identified by this icon



on the **Objects** page. Shared objects make it easy to maintain policies because you can modify an object in one place and that change affects all the other policies that use that object. Without shared objects, you would need to modify all the policies individually that require the same change.

When looking at a shared object, Security Cloud Control shows you the contents of the object in the object table. Shared objects have exactly the same contents. Security Cloud Control shows you a combined or "flattened" view of the elements of the object in the details pane. Notice that in the details pane, the network elements are flattened into a simple list and not directly associated with a named object.



Object Overrides

An object override allows you to override the value of a shared network object on specific devices. Security Cloud Control uses the corresponding value for the devices that you specify when configuring the override. Although the objects are on two or more devices with the same name but different values, Security Cloud Control doesn't identify them as **Inconsistent objects** only because these values are added as overrides.

You can create an object whose definition works for most devices, and then use overrides to specify modifications to the object for the few devices that need different definitions. You can also create an object that needs to be overridden for all devices, but its use allows you to create a single policy for all devices. Object overrides allow you to create a smaller set of shared policies for use across devices without giving up the ability to alter policies when needed for individual devices.

For example, consider a scenario where you have a printer server in each of your offices, and you have created a printer server object `print-server`. You have a rule in your ACL to deny printer servers from accessing the internet. The printer server object has a default value that you want to change from one office to another. You can do this by using object overrides and maintain rule and "printer-server" object consistent across all locations, although their values may be different.

Editing Shared Network Object

Object Name *

print-server

Devices

2 Devices

Usage

0 Rule Sets

Description

printer server object

Default Value

eq

126.0.1.0

ASAv-99-18

Override Values

Enter a value to add it

Value	Devices	
126.0.2.4	Pasadena-ftd-730-516-...	
126.0.1.6	BGL_FTD_7.3	
126.0.1.9	connected_fmc	

Cancel

Save



Note Security Cloud Control allows you to override objects associated with the rules in a ruleset. When you add a new object to a rule, you can override it only after you attach a device to the ruleset and save the changes. See [Configure Rulesets for an FTD](#) for more information.



Note If there are inconsistent objects, you can combine them into a single shared object with overrides. For more information, see [Resolve Inconsistent Object Issues, on page 804](#).

Unassociated Objects

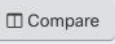
You can create objects for immediate use in rules or policies. You can also create an object that is unassociated with any rule or policy. When you use that unassociated object in a rule or policy, Security Cloud Control creates a copy of it and uses the copy. The original unassociated object remains among the list of available objects until it is either deleted by a nightly maintenance job, or you delete it.

Unassociated objects remain in Security Cloud Control as a copy to ensure that not all configurations are lost if the rule or policy associated with the object is deleted accidentally.

In the left pane, click **Objects** >  and check the **Unassociated** checkbox.

Compare Objects

Procedure

-
- Step 1** In the left pane, click **Objects** and choose an option.
- Step 2** Filter the objects on the page to find the objects you want to compare.
- Step 3** Click the **Compare** button .
- Step 4** Select up to three objects to compare.
- Step 5** View the objects, side-by-side, at the bottom of the screen.
- Click the up and down arrows in the Object Details title bar to see more or less of the Object Details.
 - Expand or collapse the Details and Relationships boxes to see more or less information.
- Step 6** (Optional) The Relationships box shows how an object is used. It may be associated with a device or a policy. If the object is associated with a device, you can click the device name and then click **View Configuration** to see the configuration of the device. Security Cloud Control shows you the device's configuration file and highlights the entry for that object.
-

Filters

You can use many different filters on the **Security Devices** and **Objects** pages to find the devices and objects you are looking for.

To filter, click  in the left-hand pane of the Security Devices, Policies, and Objects tabs:

The Security Devices filter allows you to filter by device type, hardware and software versions, snort version, configuration status, connection states, conflict detection, and secure device connectors, and labels. You can apply filters to find devices within a selected device type tab. You can use filters to find devices within the selected device type tab.



-
- Note** When the **FTD** tab is opened, the filter pane provides filters to show FDM-managed devices based on the management application through which the devices are accessed from Security Cloud Control.
- FDM: Devices managed using FTD API or FDM.
 - FMC-FTD: Devices managed using Firepower Management Center.
 - FTD: Devices managed using FTD Management.
-

The object filter allows you to filter by device, issue type, shared objects, unassociated objects, and object type. You can include system objects in your results or not. You can also use the search field to search for objects in the filter results that contain a certain name, IP address, or port number.

The object type filter allows you to filter objects by type, such as network object, network group, URL object, URL group, service object, and service group. The shared objects filter allows filtering objects having default values or override values.

When filtering devices and objects, you can combine your search terms to create several potential search strategies to find relevant results.

In the following example, filters are applied to search for objects that are "Issues (Unused OR Inconsistent) AND Shared Objects (with Default Values OR Additional Values) AND Unassociated Objects."

The screenshot shows the 'Filter' section of the Object Filters interface. It includes a 'Filter by Device' button, a 'Show System-Defined Objects' checkbox, and several filter categories with their respective counts and selection status:

- Issues** (18661):
 - ☒ Unused (4754)
 - ☐ Duplicate (13846)
 - ☒ Inconsistent (61)
- Ignored Issues**:
 - ☐ Ignored
- Shared Objects**:
 - ☒ Default Values
 - ☐ Override Values
 - ☒ Additional Values
- Unassociated Objects**:
 - ☒ Unassociated
- Object Type**:
 - ☐ Network
 - ☐ Protocol
 - ☐ Service

Object Filters

To filter, click  in the left-hand pane of the Objects tab:

- **Filter by Device:** Lets you pick a specific device so that you can see objects found on the selected device.
- **Issues:** Lets you pick unused, duplicate, and inconsistent objects to view.
- **Ignored Issues:** Lets you view all the objects whose inconsistencies you had ignored.

- **Shared Objects:** Lets you view all the objects that Security Cloud Control has found to be shared on more than one device. You can choose to see shared objects with only default values or override values, or both.
- **Unassociated Objects:** Lets you view all the objects that are not associated with any rule or policy.
- **Object Type:** Lets you select an object type to see only those type of objects that you have selected, such as network objects, network groups, URL objects, URL groups, service objects, and service groups.

Sub filters – Within each main filter, there are sub-filters you can apply to further narrow down your selection. These sub-filters are based on Object Type – Network, Service, Protocol, etc.

The selected filters in this filter bar would return objects that match the following criteria:

- * Objects that are on one of two devices. (Click **Filter by Device** to specify the devices.) AND are
- * **Inconsistent** objects AND are
- * **Network** objects OR **Service** objects AND
- * Have the word "**group**" in their object naming convention

Because **Show System Objects** is checked, the result would include both system objects and user-defined objects.

Show System-Defined Objects Filter

Some devices come with predefined objects for common services. These system objects are convenient because they are already made for you and you can use them in your rules and policies. There can be many system objects in the objects table. System objects cannot be edited or deleted.

Show System-Defined Objects is **off** by default. To display system objects in the object table, check **Show System-Defined Objects** in the filter bar. To hide system objects in the object table, leave Show System Objects unchecked in the filter bar.

If you hide system objects, they will not be included in your search and filtering results. If you show system objects, they will be included in your object search and filtering results.

Configure Object Filters

You can filter on as few or as many criteria as you want. The more categories you filter by, the fewer results you should expect.

Procedure

-
Step 1	In the left pane, click Objects and choose an option.
Step 2	In the left pane, click Objects .
Step 3	Open the filter panel by clicking the filter icon  at the top of the page. Uncheck any filters that have been checked to make sure no objects are inadvertently filtered out. Additionally, look at the search field and delete any text that may have been entered in the search field.
Step 4	If you want to restrict your results to those found on particular devices: Click Filter By Device.

- b. Search all the devices or click a device tab to search for only devices of a certain kind.
- c. Check the device you want to include in your filter criteria.
- d. Click **OK**.

- Step 5** Check **Show System Objects** to include system objects in your search results. Uncheck **Show System Objects** to exclude system objects from your search results.
- Step 6** Check the object **Issues** you want to filter by. If you check more than one issue, objects in any of the categories you check are included in your filter results.
- Step 7** Check **Ignored** issues if you want to see the object that had issues but was ignored by the administrator.
- Step 8** Check the required filter in **Shared Objects** if you are filtering for objects shared between two or more devices.
- **Default Values:** Filters objects having only the default values.
 - **Override Values:** Filters objects having overridden values.
 - **Additional Values:** Filters objects having additional values.
- Step 9** Check **Unassociated** if you are filtering for objects that are not part of any rule or policy.
- Step 10** Check the **Object Types** you want to filter by.
- Step 11** You can also add an object name, IP address, or port number to the Objects search field to find objects with your search criteria among the filtered results.

When to Exclude a Device from Filter Criteria

When adding a device to filtering criteria, the results show you the objects on a device but not the relationships of those objects to other devices. For example, assume **ObjectA** is shared between ASA1 and ASA2. If you were to filter objects to find shared objects on ASA1, you would find **ObjectA** but the **Relationships** pane would only show you that the object is on ASA1.

To see all the devices to which an object is related, don't specify a device in your search criteria. Filter by the other criteria and add search criteria if you choose to. Select an object that Security Cloud Control identifies and then look in the Relationships pane. You will see all the devices and policies the object is related to.

Unignore Objects

One way to resolve unused, duplicate, or inconsistent objects is to ignore them. You may decide that though an object is **unused**, a **duplicate**, or **inconsistent**, there are valid reasons for that state and you choose to leave the object issue unresolved. At some point in the future, you may want to resolve those ignored objects. As Security Cloud Control does not display ignored objects when you search for object issues, you will need to filter the object list for ignored objects and then act on the results.

Procedure

- Step 1** In the left pane, click **Objects** and choose an option.
- Step 2** In the **Object** table, select the object you want to unignore. You can unignore one object at a time.
- Step 3** Click **Unignore** in the details pane.

- Step 4** Confirm your request. Now, when you filter your objects by issue, you should find the object that was previously ignored.
-

Deleting Objects

You can delete a single object or multiple objects.

Delete a Single Object

**Caution**

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

-
- Step 1** In the left pane, choose **Objects** and choose an option.
- Step 2** In the left pane, click **Objects**.
- Step 3** Locate the object you want to delete by using object filters and the search field, and select it.
- Step 4** Review the **Relationships** pane. If the object is used in a policy or in an object group, you cannot delete the object until you remove it from that policy or group.
- Step 5** In the Actions pane, click the **Remove** icon .
- Step 6** Confirm that you want to delete the object by clicking **OK**.
- Step 7** [Review and deploy](#) the changes you made, or wait and deploy multiple changes at once.
-

Delete a Group of Unused Objects

As you onboard devices and start resolving object issues, you find many unused objects. You can delete up to 50 unused objects at a time.

Procedure

-
- Step 1** Use the **Issues** filter to find **unused** objects. You can also use the Device filter to find objects that are not associated with a device by selecting **No Device**. Once you have filtered the object list, the object checkboxes appear.

- Step 2** Check the **Select all** checkbox in the object table header to select all the objects found by the filter that appear in the object table; or, check individual checkboxes for individual objects you want to delete.
- Step 3** In the Actions pane, click the **Remove** icon .
- Step 4** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Network Objects

A **network object** can contain a host name, a network IP address, a range of IP addresses, a fully qualified domain name (FQDN), or a subnetwork expressed in CIDR notation. **Network groups** are collections of network objects and other individual addresses or subnetworks that you add to the group. Network objects and network groups are used in access rules, network policies, and NAT rules.

Note that not all platforms support network objects, such as Cisco Meraki and Multicloud Defense; when you share dynamic objects, Security Cloud Control automatically translates the appropriate information from the originating platform or device into a set of usable information that Security Cloud Control can use.

Table 23: Permitted Values of Network Objects

Device type	IPv4 / IPv6	Single Address	Range of addresses	Fully Qualified Domain Name	Subnet using CIDR Notation
ASA	IPv4 and IPv6	Yes	Yes	Yes	Yes
FTD	IPv4 and IPv6	Yes	Yes	Yes	Yes
Multicloud Defense	IPv4 and IPv6	Yes	Yes	Yes	Yes

Table 24: Permitted Contents of a Network Group

Device type	IP Value	Network Object	Network Groups
ASA	Yes	Yes	Yes
FTD	No	Yes	Yes
Multicloud Defense	Yes	Yes	Yes

Reusing Network Objects Across Products

If you have a Security Cloud Control tenant with a Cloud-Delivered Firewall Management Center and one or more on-premises management centers onboarded to your tenant:

- When you create a Secure Firewall Threat Defense, FDM-managed Firewall Threat Defense, ASA, or Meraki network object or group, a copy of the object is also added to the objects list on the **Objects** page used when configuring Cloud-Delivered Firewall Management Center, and vice versa.
- When you create a Secure Firewall Threat Defense, FDM-managed Firewall Threat Defense, or ASA network object or group, an entry is created in the **Devices with Pending Changes** page for each On-Premises Firewall Management Center for which **Discover & Manage Network Objects** is enabled. From this list, you can choose and deploy the object to the on-premises management center on which

you want to use the object and discard the ones that you do not want. Navigate **Tools & Services > Firewall Management Center, Administration > Firewall Management Center** select the on-premises management center, and click **Objects** to see your objects in the On-Premises Firewall Management Center user interface and assign them to policies.

Changes you make to network objects or groups on either page apply to the object or group instance on both pages. Deleting an object from one page also deletes the corresponding copy of the object from the other page.

Exceptions:

- If a network object of the same name already exists for Cloud-Delivered Firewall Management Center, the new Secure Firewall Threat Defense, FDM-managed Firewall Threat Defense, ASA, or Meraki network object will not be replicated on the **Objects** page of Security Cloud Control.
- Network objects and groups in onboarded Firewall Threat Defense devices that are managed by on-premises Secure Firewall Management Center are not replicated and cannot be used in Cloud-Delivered Firewall Management Center.

Note that for on-premises Secure Firewall Management Center instances that have been *migrated* to Cloud-Delivered Firewall Management Center, network objects and groups *are* replicated to the Security Cloud Control objects page if they are used in policies that were deployed to FTD devices.

- Sharing Network Objects between Security Cloud Control and Cloud-Delivered Firewall Management Center is automatically enabled on new tenants but must be requested for existing tenants. If your network objects are not being shared with Cloud-Delivered Firewall Management Center, [contact TAC](#) to have the features enabled on your tenant.
- Sharing network objects between Security Cloud Control and On-Premises Management Center is not automatically enabled on Security Cloud Control for new on-premises management centers onboarded to Security Cloud Control. If your network objects are not being shared with On-Premises Management Center, ensure the **Discover & Manage Network Objects** toggle button is enabled for the on-premises management center in **Settings** or [contact TAC](#) to have the features enabled on your tenant.

Viewing Network Objects

Network objects you create using Security Cloud Control and those Security Cloud Control recognizes in an onboarded device's configuration are displayed on the Objects page. They are labeled with their object type. This allows you to filter by object type to quickly find the object you are looking for.

When you select a network object on the Objects page, you see the object's values in the Details pane. The Relationships pane shows you if the object is used in a policy and on what device the object is stored.

When you click on a network group, you see the contents of that group. The network group is a conglomerate of all the values given to it by the network objects.

Create or Edit ASA Network Objects and Network Groups

An **ASA network object** can contain a hostname, an IP address, or a subnet address expressed in CIDR notation. **Network groups** are conglomerates of network objects, network groups, and IP addresses that are used in access rules, network policies, and NAT rules. You can create, read, update, and delete network objects and network groups using Security Cloud Control.

Table 25: Permitted Values of ASA Network Objects and Groups

Device type	IPv4 / IPv6	Single Address	Range of addresses	Partially Qualified Domain Name (PQDN)	Subnet using CIDR Notation
ASA	IPv4 / IPv6	Yes	Yes	Yes	Yes



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.



Caution If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Create an ASA Network Object

A **network object** can contain a host name, a network IP address, a range of IP addresses, a fully qualified domain name (FQDN), or a subnetwork expressed in CIDR notation. Network objects are used in access rules, network policies, and NAT rules. You can create, update, and delete network objects and network groups using Security Cloud Control.



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.

Procedure

Step 1 In the left pane, click **Manage > Objects**.



Step 2 Click the blue plus button to create an object.

Step 3 Click **ASA > Network**.

Step 4 Enter an object name.

Step 5 Select **Create a network object**.

Step 6 (optional) Enter an object description.

Step 7 In the **Value** section, add the IP address information in one of these ways:

- Select **eq** and then enter a single IP address, a subnet address using CIDR notation, or a Partially Qualified Domain Name (PQDN).
- Select **range** and then enter a range of IP addresses. Enter the range with the beginning and ending address in the range separated by a space. For example, 10.1.1.1 10.1.1.255 or 2001:DB8:1::1 2001:DB8:1::3

Step 8 Click **Add**.

Important

The newly created network objects aren't associated with any ASA device as they aren't part of any rule or policy. To see these objects, select the **Unassociated** objects category in object filters.

Create an ASA Network Group

A **network group** can contain IP address values, network objects, and network groups. When you are creating a new network group, you can search for existing objects by their name, IP addresses, IP address range, or FQDN and add them to the network group. If the object isn't present, you can instantly create that object in the same interface and add it to the network group. Network groups can contain both IPv4 and IPv6 addresses.



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.

Procedure

Step 1 In the left pane, click **Manage > Objects**.



Step 2 Click the blue plus button to create an object.

Step 3 Click **ASA > Network**.

- Step 4** Enter an **Object Name**.
- Step 5** Select **Create a network group**.
- Step 6** (optional) Enter an object description.
- Step 7** In the **Values** field, enter a value or object name. When you start typing, Security Cloud Control provides object names or values that match your entry.
- Step 8** You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.
- Step 9** If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object or network group to the new network group.
- Step 10** If you have entered a value or object that is not present, you can perform one of the following:
- Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the check mark to save it.
 - Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the check mark to save it.
 - Click **Add Value** to create an inline value without using an object. Enter a value and click the check mark to save it.
- It is possible to create a new object even though the value is already present. You can make changes to those objects and save them.
- Note**
You can click the edit icon to modify the details. Clicking the delete button doesn't delete the object itself; instead, it removes it from the network group.
- Step 11** After adding the required objects, click **Add** to create a new network group.
- Step 12** [Preview and Deploy Configuration Changes for All Devices, on page 615.](#)

Edit an ASA Network Object



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object you want to edit by using object filters and search field.

- Step 3** Select the network object and click the edit icon  in the **Actions** pane.
- Step 4** Edit the values in the dialog box in the same fashion that you created in the procedures above.
- Note**
Click the delete icon next to remove the object from the network group.
- Step 5** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.
- Step 6** Click **Confirm** to finalize the change to the object and any devices affected by it.

Edit an ASA Network Group



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the network group you want to edit by using object filters and search field.
- Step 3** Select the network group and click the edit icon  in the **Actions** pane.
- Step 4** If you want to change the objects or network groups that are already added to the network group, perform the following steps:
- Click the edit icon  appearing beside the object name or network group to modify them.
 - Click the checkmark to save your changes.
- Note**
You can click the remove icon to delete the value from a network group.
- Step 5** If you want to add new network objects or network groups to this network group, you have to perform the following steps:
- In the **Values** field, enter a new value or the name of an existing network object. When you start typing, Security Cloud Control provides object names or values that match your entry. You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.
 - If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object, or network group to the new network group.

- c. If you have entered a value or object that is not present, you can perform one of the following:
- Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the checkmark to save it.
 - Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the checkmark to save it.
 - Click **Add Value** to create an inline value without using an object. Enter a value and click the checkmark to save it.

It is possible to create a new object even though the value is already present. You can make changes to those objects and save them.

- Step 6** Click **Save**. Security Cloud Control displays the policies that will be affected by the change.
- Step 7** Click **Confirm** to finalize the change to the object and any devices affected by it.
- Step 8** [Preview and Deploy Configuration Changes for All Devices, on page 615](#).

Add Additional Values to a Shared Network Group in Security Cloud Control

The values in a shared network group that are present on all devices associated with it are called "default values." Security Cloud Control allows you to add "additional values" to the shared network group and assign those values to some devices associated with that shared network group. When Security Cloud Control deploys the changes to the devices, it determines the contents and pushes the "default values" to all devices associated with the shared network group and the "additional values" only to the specified devices.

For example, consider a scenario where you have four AD main servers in your head office that should be accessible from all your sites. Therefore, you have created an object group named "Active-Directory" to use it in all your sites. Now you want to add two more AD servers to one of your branch offices. You can do this by adding their details as additional values specific to that branch office on the object group "Active-Directory." These two servers do not participate in determining whether the object "Active-Directory" is consistent or shared. Therefore, the four AD main servers are accessible from all your sites, but the branch office (with two additional servers) can access two AD servers and four AD main servers.



Note

If there are inconsistent shared network groups, you can combine them into a single shared network group with additional values. See [Resolve Inconsistent Object Issues](#) for more information.



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the shared network group that you want to edit by using object filters and search field.
- Step 3** Click the edit icon  in the **Actions** pane.
- The **Devices** field shows the devices that the shared network group is present.
 - The **Usage** field shows the rulesets associated with the shared network group.
 - The **Default Values** field specifies the default network objects and their values associated with the shared network group that was provided during their creation. Next to this field, you can see the number of devices that contain this default value, and you can click to see their names and device types. You can also see the rulesets associated with this value.
- Step 4** In the **Additional Values** field, enter a value or name. When you start typing, Security Cloud Control provides object names or values that match your entry.
- Step 5** You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.
- Step 6** If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object or network group to the new network group.
- Step 7** If you have entered a value or object that is not present, you can perform one of the following:
- Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the checkmark to save it.
 - Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the checkmark to save it.
 - Click **Add Value** to create an inline value without using an object. Enter a value and click the checkmark to save it.
- It is possible to create a new object even though the value is already present. You can make changes to those objects and save them.
- Step 8** In the **Devices** column, click the cell associated with the newly added object and click **Add Devices**.
- Step 9** Select the devices that you want and click **OK**.
- Step 10** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.
- Step 11** Click **Confirm** to finalize the change to the object and any devices affected by it.
- Step 12** [Preview and Deploy Configuration Changes for All Devices, on page 615](#).
-

Edit Additional Values in a Shared Network Group in Security Cloud Control



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object having the override you want to edit by using object filters and search field.
- Step 3** Click the edit icon  in the **Actions** pane.
- Step 4** Modify the override value:
 - Click the edit icon to modify the value.
 - Click the cell in the **Devices** column to assign new devices. You can select an already assigned device and click **Remove Overrides** to remove overrides on that device.
 - Click  arrow in **Default Values** to push and make it an additional value of the shared network group. All devices associated with the shared network group are automatically assigned to it.
 - Click  arrow in **Override Values** to push and make it as default objects of the shared network group.
 - Click the delete icon next to remove the object from the network group.
- Step 5** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.
- Step 6** Click **Confirm** to finalize the change to the object and any devices affected by it.
- Step 7** [Preview and Deploy Configuration Changes for All Devices, on page 615.](#)

Deleting Network Objects and Groups in Security Cloud Control

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Deleting a network object or group from the **Manage > Objects** page deletes the replicated network object or group from the **Manage > Objects** page on the Cloud-Delivered Firewall Management Center and vice-versa.

Create or Edit a Firepower Network Object or Network Groups

A **Firepower network object** can contain a hostname, an IP address, or a subnet address expressed in CIDR notation. **Network groups** are conglomerates of network objects and network groups that are used in access

rules, network policies, and NAT rules. You can create, read, update, and delete network objects and network groups using Security Cloud Control.

Firepower network objects and groups can be used by ASA, Firewall Threat Defense, FDM-managed, and Meraki devices. See [Reusing Network Objects Across Products, on page 33](#).



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.



Caution If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Table 26: IP addresses that can be added to network objects

Device type	IPv4 / IPv6	Single Address	Range of addresses	Partially Qualified Domain Name (PQDN)	Subnet using CIDR Notation
Firepower	IPv4 / IPv6	Yes	Yes	Yes	Yes

Related Information:

- [Create a Firepower Network Object, on page 42](#)
- [Edit a Firepower Network Object, on page 44](#)
- [Add Additional Values to a Shared Network Group, on page 47](#)
- [Edit Additional Values in a Shared Network Group, on page 49](#)

Create a Firepower Network Object



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Click the blue plus button  to create an object.

Step 3 Click **FTD > Network**.

Step 4 Enter an **Object Name**.

Step 5 Select **Create a network object**.

Step 6 In the **Value** section:

- Select **eq** and enter a single IP address, a subnet address expressed in CIDR notation, or a Partially Qualified Domain Name (PQDN).
- Select **range** and enter an IP address range.

Note

Do not set a host bit value. If you enter a host bit value other than 0, Security Cloud Control unsets it while creating the object, because the cloud-delivered Firewall Management Center only accepts IPv6 objects with host bits not set.

Step 7 Click **Add**.

Attention: The newly created network objects aren't associated with any FDM-managed device as they aren't part of any rule or policy. To see these objects, select the **Unassociated** objects category in object filters. For more information, see [Object Filters](#). Once you use the unassociated objects in a device's rule or policy, such objects are associated with that device.

Create a Firepower Network Group

A **network group** can contain network objects and network groups. When you create a new network group, you can search for existing objects by their name, IP addresses, IP address range, or FQDN and add them to the network group. If the object isn't present, you can instantly create that object in the same interface and add it to the network group.



Note If Cloud-Delivered Firewall Management Center is deployed on your tenant:

When you create an FTD, FDM, or ASA network object or group on the **Objects** page, a copy of the object is automatically added to the Cloud-Delivered Firewall Management Center and vice-versa. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the objects to the on-premises management center on which you want these objects.

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click the blue plus button  to create an object.
- Step 3** Click **FTD > Network**.
- Step 4** Enter an **Object Name**.
- Step 5** Select **Create a network group**.
- Step 6** In the **Values** field, enter a value or name. When you start typing, Security Cloud Control provides object names or values that match your entry.
- Step 7** You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.
- Step 8** If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object or network group to the new network group.
- Step 9** If you have entered a value or object that is not present, you can perform one of the following:
- Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the checkmark to save it.
 - Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the checkmark to save it.
- It is possible to create a new object even though the value is already present. You can make changes to those objects and save them.
- Note:** You can click the edit icon to modify the details. Clicking the delete button doesn't delete the object itself; instead, it removes it from the network group.
- Step 10** After adding the required objects, click **Save** to create a new network group.
- Step 11** [Preview and Deploy Configuration Changes for All Devices](#).
-

Edit a Firepower Network Object

**Caution**

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
 - Step 2** Locate the object you want to edit by using object filters and search field.
 - Step 3** Select the network object and click the edit icon  in the **Actions** pane.
 - Step 4** Edit the values in the dialog box in the same fashion that you created them in "Create a Firepower Network Group".
- Note**
Click the delete icon next to remove the object from the network group.
- Step 5** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.
 - Step 6** Click **Confirm** to finalize the change to the object and any devices affected by it.

Edit a Firepower Network Group

**Caution**

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the network group you want to edit by using object filters and search field.

- Step 3** Select the network group and click the edit icon  in the **Actions** pane.
- Step 4** Change the object name and description if needed.
- Step 5** If you want to change the objects or network groups that are already added to the network group, perform the following steps:
- Click the edit icon  appearing beside the object name or network group to modify them.
 - Click the checkmark to save your changes. **Note:** You can click the remove icon to delete the value from a network group.
- Step 6** If you want to add new network objects or network groups to this network group, you have to perform the following steps:
- In the **Values** field, enter a new value or the name of an existing network object. When you start typing, Security Cloud Control provides object names or values that match your entry. You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.
 - If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object or network group to the new network group.
 - If you have entered a value or object that is not present, you can perform one of the following:
 - Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the checkmark to save it.
 - Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the checkmark to save it.
- It's possible to create a new object even though the value is already present. You can make changes to those objects and save them.
- Step 7** Click **Save**. Security Cloud Control displays the policies that will be affected by the change.
- Step 8** Click **Confirm** to finalize the change to the object and any devices affected by it.
- Step 9** [Preview and Deploy Configuration Changes for All Devices.](#)

Add an Object Override



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object to which you want to add an override, using object filters and search field.
- Step 3** Select the network object and click the edit icon  in the **Actions** pane.
- Step 4** Enter the value in the **Override Values** dialog box and click + **Add Value**.
- Important**
The override you are adding must have the same type of value that the object contains. For example, to a network object, you can configure an override only with a network value and not a host value.
- Step 5** Once you see that the value is added, click the cell in the **Devices** column in **Override Values**.
- Step 6** Click **Add Devices**, and choose the device to which you want the override to be added. The device you select must contain the object to which you are adding the override.
- Step 7** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.
- Step 8** Click **Confirm** to finalize the addition of the override to the object and any devices affected by it.
- Note**
You can add more than one override to an object. However, you must select a different device, which contains the object, each time you are adding an override.
- Step 9** See [Object Overrides, on page 25](#) to know more about object overrides and [Edit Object Overrides , on page 46](#) to edit an existing override.
-

Edit Object Overrides

You can modify the value of an existing override as long as the object is present on the device.

Procedure

-
- Step 1** Navigate to **Manage > Objects**.
- Step 2** Locate the object having override you want to edit by using object filters and search field.
- Step 3** Select the object having override and click the edit icon  in the **Actions** pane.
- Step 4** Modify the override value:
- Click the edit icon to modify the value.
 - Click on the cell in the **Devices** column in **Override Values** to assign new devices. You can select an already assigned device and click **Remove Overrides** to remove overrides on that device.
 - Click  arrow in **Override Values** to push and make it as the default value of the shared object.
 - Click the delete icon next to the override you want to remove.
- Step 5** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.

Step 6 Click **Confirm** to finalize the change to the object and any devices affected by it.

Step 7 [Preview and Deploy Configuration Changes for All Devices](#).

Add Additional Values to a Shared Network Group

The values in a shared network group that are present on all devices associated with it are called "default values." Security Cloud Control allows you to add "additional values" to the shared network group and assign those values to some devices associated with that shared network group. When Security Cloud Control deploys the changes to the devices, it determines the contents and pushes the "default values" to all devices associated with the shared network group and the "additional values" only to the specified devices.

For example, consider a scenario where you have four AD main servers in your head office that should be accessible from all your sites. Therefore, you have created an object group named "Active-Directory" to use in all your sites. Now you want to add two more AD servers to one of your branch offices. You can do this by adding their details as additional values specific to that branch office on the object group "Active-Directory." These two servers do not participate in determining whether the object "Active-Directory" is consistent or shared. Therefore, the four AD main servers are accessible from all your sites, but the branch office (with two additional servers) can access two AD servers and four AD main servers.



Note If there are inconsistent shared network groups, you can combine them into a single shared network group with additional values. See [Resolve Inconsistent Object Issues, on page 804](#) for more information.



Caution If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Locate the shared network group you want to edit by using object filters and search field.

Step 3 Click the edit icon  in the **Actions** pane.

- The **Devices** field shows the devices the shared network group is present.
- The **Usage** field shows the rulesets associated with the shared network group.
- The **Default Values** field specifies the default network objects and their values associated with the shared network group that was provided during their creation. Next to this field, you can see the number of

devices that contain this default value, and you can click to see their names and device types. You can also see the rulesets associated with this value.

- Step 4** In the **Additional Values** field, enter a value or name. When you start typing, Security Cloud Control provides object names or values that match your entry.
- Step 5** You can choose one of the existing objects shown or create a new one based on the name or value that you have entered.
- Step 6** If Security Cloud Control finds a match, to choose an existing object, click **Add** to add the network object or network group to the new network group.
- Step 7** If you have entered a value or object that is not present, you can perform one of the following:
- Click **Add as New Object With This Name** to create a new object with that name. Enter a value and click the checkmark to save it.
 - Click **Add as New Object** to create a new object. The object name and value are the same. Enter a name and click the checkmark to save it.
- It is possible to create a new object even though the value is already present. You can make changes to those objects and save them.
- Step 8** In the **Devices** column, click the cell associated with the newly added object and click **Add Devices**.
- Step 9** Select the devices that you want and click **OK**.
- Step 10** Click **Save**. Security Cloud Control displays the devices that will be affected by the change.
- Step 11** Click **Confirm** to finalize the change to the object and any devices affected by it.
- Step 12** [Preview and Deploy Configuration Changes for All Devices](#).

Edit Additional Values in a Shared Network Group



Caution

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Changes you make to the ASA, FDM, and FTD network objects and groups are reflected in the corresponding Cloud-Delivered Firewall Management Center network object or group. In addition, an entry is created in the **Devices with Pending Changes** page for each on-premises management center with **Discover & Manage Network Objects** enabled, from which you can choose and deploy the changes to the on-premises management center on which you have these objects.

Deleting a network object or group from either page deletes the object or group from both pages.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object having the override you want to edit by using object filters and search field.
- Step 3** Click the edit icon  in the **Actions** pane.
- Step 4** Modify the override value:

- Click the edit icon to modify the value.
- Click the cell in the **Devices** column to assign new devices. You can select an already assigned device and click **Remove Overrides** to remove overrides on that device.
- Click  arrow in **Default Values** to push and make it an additional value of the shared network group. All devices associated with the shared network group are automatically assigned to it.
- Click  arrow in **Override Values** to push and make it as default objects of the shared network group.
- Click the delete icon next to remove the object from the network group.

Step 5 Click **Save**. Security Cloud Control displays the devices that will be affected by the change.

Step 6 Click **Confirm** to finalize the change to the object and any devices affected by it.

Step 7 [Preview and Deploy Configuration Changes for All Devices](#).

Deleting Network Objects and Groups in Security Cloud Control

If Cloud-Delivered Firewall Management Center is deployed on your tenant:

Deleting a network object or group from the **Manage > Objects** page deletes the replicated network object or group from the **Manage > Objects** page on the Cloud-Delivered Firewall Management Center and vice-versa.

Discover and Manage On-Prem Firewall Management Center Network Objects

If you have an On-Premises Firewall Management Center that you manage using Security Cloud Control and you want to share and manage its objects, do the following:

Procedure

Step 1 In the left pane, choose **Tools & Services > Firewall Management CenterAdministration > Integrations > Firewall Management Center** to view the **Services** page.

Step 2 If you already have onboarded an on-premises management center to Security Cloud Control, select it.

If you want to onboard a new on-premises management center, see [Onboard an On-Prem Firewall Management Center](#).

Step 3 Choose **Settings** from the **Actions** pane on the right. Note that you do not get to see the **Actions** pane when you select more than one on-premises management center.

Note

You must be an admin or a super admin to be able to use **Settings**.

Step 4 Enable the **Discover & Manage Network Objects** toggle button. If you want your changes to be automatically synchronized with on-premises management center and not staged for review, turn the **Enable automatic sync of network objects** toggle on.

Note

- You cannot turn the **Discover & Manage Network Objects** toggle on if the on-premises management center that you have selected has one or more child domains or has the Change Management workflow enabled on it.

- You cannot turn the **Enable automatic sync of network objects** toggle on if the **Discover & Manage Network Objects** toggle is turned off.

For every new on-premises management center onboarded to Security Cloud Control, this toggle button needs to be enabled manually. Once you enable this option, Security Cloud Control starts to discover objects from your on-premises management center, which you can share, manage, and use to set consistent object definitions across other platforms managed by Security Cloud Control.

In Security Cloud Control, when you add overrides to objects that are discovered from an on-premises management center and push the changes back to the on-premises management center, these objects start accepting overrides in the on-premises management center even if they were not accepting overrides before—the **Allow Overrides** checkbox in **View Network Object** window is checked automatically when an override is added from Security Cloud Control.

Note

If you want to assign already-existing objects in Security Cloud Control to your on-premises management center, choose the on-premises management center and click **Assign Objects** from the **Actions** pane.

Related Information

- [Network Objects](#)
- [Preview and Deploy On-Prem Firewall Management Center Configurations](#)

URL Objects

URL objects and URL groups are used by Firepower devices. Use URL objects and groups (collectively referred to as URL objects) to define the URL or IP addresses of web requests. You can use these objects to implement manual URL filtering in access control policies or blocking in Security Intelligence policies. A URL object defines a single URL or IP address, whereas a URL group defines more than one URL or IP address.

Before You Begin

When creating URL objects, keep the following points in mind:

- If you do not include a path (that is, there is no / character in the URL), the match is based on the server's hostname only. The hostname is considered a match if it comes after the :// separator, or after any dot in the hostname. For example, ign.com matches ign.com and www.ign.com, but it does not match verisign.com.
- If you include one or more / character, the entire URL string is used for a substring match, including the server name, path, and any query parameters. However, we recommend that you do not use manual URL filtering to block or allow individual web pages or parts of sites, as servers can be reorganized and pages moved to new paths. Substring matching can also lead to unexpected matches, where the string you include in the URL object also matches paths on unintended servers or strings within query parameters.
- The system disregards the encryption protocol (HTTP vs HTTPS). In other words, if you block a website, both HTTP and HTTPS traffic to that website is blocked, unless you use an application condition to target a specific protocol. When creating a URL object, you do not need to specify the protocol when creating an object. For example, use example.com rather than <http://example.com>.

- If you plan to use a URL object to match HTTPS traffic in an access control rule, create the object using the subject common name in the public key certificate used to encrypt the traffic. Also, the system disregards subdomains within the subject common name, so do not include subdomain information. For example, use example.com rather than www.example.com.

However, please understand that the subject common name in the certificate might be completely unrelated to a web site's domain name. For example, the subject common name in the certificate for youtube.com is *.google.com (this of course might change at any time). You will get more consistent results if you use the SSL Decryption policy to decrypt HTTPS traffic so that URL filtering rules work on decrypted traffic.



Note URL objects will not match HTTPS traffic if the browser resumes a TLS session because the certificate information is no longer available. So even if you carefully configure the URL object, you might get inconsistent results for HTTPS connections.

Create or Edit an FDM-Managed URL Object

URL objects are reusable components that specify a URL or IP address.

To create a URL object, follow these steps:

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  > **FTD > URL**.
- Step 3** Enter an object name and description.
- Step 4** Select **Create a URL object**.
- Step 5** Enter the specific URL or IP address for your object.
- Step 6** Click **Add**.

Create a Firepower URL Group

A URL group can be made up of one or more URL objects representing one or more URLs or IP addresses. The Firepower Device Manager and Firepower Management Center also refer to these objects as "URL Objects."

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  > **FTD > URL**.

- Step 3** Enter an object name and description.
 - Step 4** Select **Create a URL group**.
 - Step 5** Add an existing object by clicking **Add Object**, selecting an object, and clicking **Select**. Repeat this step to add more objects.
 - Step 6** Click **Add** when you are done adding URL objects to the URL group.
-

Edit a Firepower URL Object or URL Group

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
 - Step 2** Filter the objects to find the object you want to edit and then select the object in the object table.
 - Step 3** In the details pane, click  to edit.
 - Step 4** Edit the values in the dialog box in the same fashion that you created them in the procedures above.
 - Step 5** Click **Save**.
 - Step 6** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
-

Application Filter Objects

Application filter objects are used by Firepower devices. An application filter object defines the applications used in an IP connection, or a filter that defines applications by type, category, tag, risk, or business relevance. You can use these objects in policies to control traffic instead of using port specifications.

Although you can specify individual applications, application filters simplify policy creation and administration. For example, you could create an access control rule that identifies and blocks all high risk, low business relevance applications. If a user attempts to use one of those applications, the session is blocked.

You can select applications and application filters directly in a policy without using application filter objects. However, an object is convenient if you want to create several policies for the same group of applications or filters. The system includes several pre-defined application filters, which you cannot edit or delete.



Note Cisco frequently updates and adds additional application detectors via system and vulnerability database (VDB) updates. Thus, a rule blocking high risk applications can automatically apply to new applications without you having to update the rule manually.



Note When an FDM-managed device is onboarded to Security Cloud Control, it converts the application filters to application filter objects without altering the rule defined in Access Rule or SSL Decryption. Because of a configuration change, the device's configuration status is changed to 'Not Synced' and requires configuration deployment from Security Cloud Control. In general, FDM does not convert the application filters to application filter objects until you manually save the filters.

Related Information:

- [Create and Edit a Firepower Application Filter Object](#)
- [Deleting Objects](#)

Create and Edit a Firepower Application Filter Object

An application filter object allows you to target hand-picked applications or a group of applications identified by the filters. This application filter objects can be used in policies.

Create a Firepower Application Filter Object

To create an application filter object, follow this procedure:

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  > **FTD > Application Filter**.
- Step 3** Enter an **object name** for the object and optionally, a **description**.
- Step 4** Click **Add Filter** and select the applications and filters to add to the object.

The initial list shows applications in a continually scrolling list. Click **Advanced Filter** to see the filter options and to get an easier view for selecting applications. Click **Add** when you have made your selections. You can repeat the process to add additional applications or filters.

Note

Multiple selections within a single filter criteria have an OR relationship. For example, Risk is High OR Very High. The relationship between filters is AND, so Risk is High OR Very High, AND Business Relevance is Low OR Very Low. As you select filters, the list of applications in the display updates to show only those that meet the criteria. You can use these filters to help you find applications that you want to add individually, or to verify that you are selecting the desired filters to add to the rule.

Filter Applications

Risks: High, Very High

Categories: ad portal

Business Relevance: Very Low, Low

Tags: displays ads

Types: Web Application

Filter the list of applications

4 matches

Application Name	Description
MyWay	Adware and spyware, categorized as an internet browser hijacker.
Olx.pl	Platform to connect local people to buy, sell or exchange used goods and services through their mobile phone or on the web.
PopAds	Advertising network specialized in popunders on the Internet.
PopCash	Advertising platform.

Cancel OK

Risks: The likelihood that the application is used for purposes that might be against your organization's security policy, from very low to very high.

Business Relevance: The likelihood that the application is used within the context of your organization's business operations, as opposed to recreationally, from very low to very high.

Types: The type of application.

- **Application Protocol:** Application protocols such as HTTP and SSH, which represent communications between hosts.
- **Client Protocol:** Clients such as web browsers and email clients, which represent software running on the host.
- **Web Application:** Web applications such as MPEG video and Facebook, which represent the content or requested URL for HTTP traffic.

Categories: A general classification for the application that describes its most essential function.

Tags: Additional information about the application, similar to category.

For encrypted traffic, the system can identify and filter traffic using only the applications tagged SSL Protocol. Applications without this tag can only be detected in unencrypted or decrypted traffic. Also, the system assigns

the decrypted traffic tag to applications that the system can detect in decrypted traffic only, not encrypted or unencrypted.

Applications List (bottom of the display): This list updates as you select filters from the options above the list, so you can see the applications that currently match the filter. Use this list to verify that your filter is targeting the desired applications when you intend to add filter criteria to the rule. To add a specific application or applications to your object, select them from the filtered list. Once you select the applications, the filter will no longer apply. If you want the filter itself to be the object, do not select an application from the list. Then the object will represent every application identified by the filter.

Step 5 Click **OK** to save your changes.

Edit a Firepower Application Filter Object

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object you want to edit by using object filters and search field.
- Step 3** Select the object you want to edit.
- Step 4** Click the edit icon  in the Actions pane of the details panel.
- Step 5** Edit the values in the dialog box in the same fashion that you created them in the procedures above.
- Step 6** Click **Save**.
- Step 7** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.

Related Information:

- [Objects](#)
- [Object Filters](#)
- [Delete a Firepower Object](#)

Geolocation Objects

A geolocation object defines countries and continents that host the device that is the source or destination of traffic. You can use these objects in policies to control traffic instead of using IP addresses. For example, using geographical location, you could easily restrict access to a particular country without needing to know all of the potential IP addresses used there.

You can typically select geographical locations directly in a policy without using geolocation objects. However, an object is convenient if you want to create several policies for the same group of countries and continents.

Update Geolocation Database

To ensure that you are using up-to-date geographical location data to filter your traffic, Cisco strongly recommends that you regularly update the geolocation database (GeoDB). At this time, this is not a task that

you can perform using Security Cloud Control. See the following sections of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running to learn more about the GeoDB and how to update it.

- Updating System Databases and Feeds
- Updating System Databases

Create and Edit a Firepower Geolocation Filter Object

You can create a geolocation object by itself on the object page or when creating a security policy. This procedure creates a geolocation object from the object page.

To create a geolocation object, follow these steps:

Procedure

-
Step 1	In the left pane, click Manage > Objects .
Step 2	Click  > FTD > Geolocation .
Step 3	Enter an object name for the object and optionally, a description .
Step 4	In the filter bar, start typing the name of a country or a region and you are presented with a list of possible matches.
Step 5	Check the country, countries, or regions that you want to add to the object.
Step 6	Click Add .
-

Edit a Geolocation Object

Procedure

-
Step 1	In the left pane, choose Manage > Objects .
Step 2	Use the filter panes and search field to locate your object.
Step 3	In the Actions pane, click Edit .
Step 4	You can change the name of the object and add or remove countries and regions to your object.
Step 5	Click Save .
Step 6	You will be notified if any devices are impacted. Click Confirm .
Step 7	If a device or policy was impacted, open the Security Devices page and Preview and Deploy the changes to the device.
-

DNS Group Objects

Domain Name System (DNS) groups define a list of DNS servers and some associated attributes. DNS servers are needed to resolve fully-qualified domain names (FQDN), such as `www.example.com`, to IP addresses. You can configure different DNS group objects for management and data interfaces.

Create a DNS Group Object

Use the following procedure to create a new DNS group object in Security Cloud Control:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  > **FTD > DNS Group**.
- Step 3** Enter an **Object Name**.
- Step 4** (Optional) Add a description.
- Step 5** Enter the IP address of a **DNS server**. You can add up to six DNS servers; click the **Add DNS Server**. If you want to remove a server address, click the delete icon.
- Note**
The list is in priority order: the first server in the list is always used, and subsequent servers are used only if a response is not received from the servers above it. Although you can add up to six servers, only the first 3 servers listed will be used for the management interface.
- Step 6** Enter the **Domain Search Name**. This domain is added to hostnames that are not fully qualified; for example, `serverA` instead of `serverA.example.com`.
- Step 7** Enter the number of **Retries**. The number of times, from 0 to 10, to retry the list of DNS servers when the system does not receive a response. The default is 2. This setting applies to DNS groups used on the data interfaces only.
- Step 8** Enter the **Timeout** value. The number of seconds, from 1 to 30, to wait before trying the next DNS server. The default is 2 seconds. Each time the system retries the list of servers, this timeout doubles. This setting applies to DNS groups used on the data interfaces only.
- Step 9** Click **Add**.
-

Edit a DNS Group Object

You can edit a DNS group object that was created in Security Cloud Control or in Firewall Device Manager. Use the following procedure to edit an existing DNS group object:

Procedure

-
- Step 1** In the Security Cloud Control navigation bar on the left, click **Manage > Objects**.
- Step 2** Locate the **DNS Group Object** you want to edit by using object filters and search field.

- Step 3** Select the object and click the edit icon  in the **Actions** pane.
- Step 4** Edit any of the following entries:
- Object Name.
 - Description.
 - DNS Server. You can edit, add, or remove DNS servers from this list.
 - Domain Search Name.
 - Retries.
 - Timeout.
- Step 5** Click **Save**.
- Step 6** [Preview and Deploy Configuration Changes for All Devices](#).
-

Delete a DNS Group Object

Use the following procedure to delete a DNS Group Object from Security Cloud Control:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the **DNS Group Object** you want to edit by using object filters and search field.
- Step 3** Select the object and click the **Remove** icon .
- Step 4** Confirm you want to delete the DNS group object and click **Ok**.
- Step 5** [Preview and Deploy Configuration Changes for All Devices](#).
-

Add a DNS Group Object as an FDM-Managed DNS Server

You can add a DNS group object as the preferred DNS Group for either the **Data Interface** or the **Management Interface**.

Certificate Objects

Digital certificates provide digital identification for authentication. Certificates are used for SSL (Secure Socket Layer), TLS (Transport Layer Security), and DTLS (Datagram TLS) connections, such as HTTPS and LDAPS.

See the **About Certificates** and **Configuring Certificates** following sections of the [Resuable Objects](#) chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.

About Certificates

Digital certificates provide digital identification for authentication. A digital certificate includes information that identifies a device or user, such as the name, serial number, company, department, or IP address. A digital certificate also includes a copy of the public key for the user or device. Certificates are used for SSL (Secure Socket Layer), TLS (Transport Layer Security), and DTLS (Datagram TLS) connections, such as HTTPS and LDAPS.

You can create the following types of certificate:

- **Internal certificates**—Internal identity certificates are certificates for specific systems or hosts. You can generate these yourself using the OpenSSL toolkit or get them from a certificate authority (CA). You can also generate a self-signed certificate.

The system comes with the following pre-defined internal certificates, which you can use as is or replace: **DefaultInternalCertificate** and **DefaultWebServerCertificate**

- **Internal Certificate Authority (CA) certificates**—Internal CA certificates are certificates that the system can use to sign other certificates. These certificates differ from internal identity certificates with respect to the basic constraints extension and the CA flag, which are enabled for CA certificates but disabled for identity certificates. You can generate these yourself using the OpenSSL toolkit or get them from a certificate authority. You can also generate a self-signed internal CA certificate. If you configure self-signed internal CA certificates, the CA runs on the device itself.

The system comes with the following pre-defined internal CA certificate, which you can use as is or replace: **NGFW-Default-InternalCA**

- **Trusted Certificate Authority (CA) certificates**—A trusted CA certificate is used to sign other certificates. It is self-signed and called a root certificate. A certificate that is issued by another CA certificate is called a subordinate certificate.

Certificate Authorities (CAs) are trusted authorities that "sign" certificates to verify their authenticity, thereby guaranteeing the identity of the device or user. CAs issue digital certificates in the context of a PKI, which uses public-key or private-key encryption to ensure security. A CA can be a trusted third party, such as VeriSign, or a private (in-house) CA that you establish within your organization. CAs are responsible for managing certificate requests and issuing digital certificates.

The system includes many trusted CA certificates from third-party certificate authorities. These are used by SSL decryption policies for Decrypt Re-Sign actions.

For more information, see the **Certificate Types Used by Feature** section of the Reusable Objects chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.

Certificate Types Used by Feature

You need to create the right type of certificate for each feature. The following features require certificates.

Identity Policies (Captive Portal)—Internal Certificate

(Optional.) Captive portal is used in identity policies. Users must accept this certificate when authenticating to the device for purposes of identifying themselves and receiving the IP address associated with their usernames. If you do not supply a certificate, the device uses an automatically generated certificate.

SSL Decryption Policy—Internal, Internal CA, and Trusted CA Certificates.

(Required.) The SSL decryption policy uses certificates for the these purposes:

- Internal certificates are used for known key decryption rules.
- Internal CA certificates are used for decrypt re-sign rules when creating the session between the client and FDM-managed device.
- Trusted CA certificates
 - They are used indirectly for decrypt re-sign rules when creating the session between the FDM-managed device and server. Unlike the other certificates, you do not directly configure these certificates in the SSL decryption policy; they simply need to be uploaded to the system. The system includes a large number of trusted CA certificates, so you might not need to upload any additional certificates.
 - When creating an Active Directory Realm object and configuring the directory server to use encryption.

Configuring Certificates

Certificates used in identity policies or SSL decryption policies must be an X509 certificate in PEM or DER format. You can use OpenSSL to generate certificates if needed, obtain them from a trusted Certificate Authority, or create self-signed certificates.

Use these procedures to configure certificate objects:

- [Uploading Internal and Internal CA Certificates](#)
- [Uploading Trusted CA Certificates](#)
- To view or edit a certificate, click either the edit icon or the view icon for the certificate.
- To delete an unreferenced certificate, click the trash can icon (delete icon) for the certificate. See [Deleting Objects](#).

Uploading Internal and Internal CA Certificates

Internal identity certificates are certificates for specific systems or hosts. You can generate these yourself using the OpenSSL toolkit or get them from a Certificate Authority. You can also generate a self-signed certificate.

Internal Certificate Authority (CA) certificates (Internal CA certificates) are certificates that the system can use to sign other certificates. These certificates differ from internal identity certificates with respect to the basic constraints extension and the CA flag, which are enabled for CA certificates but disabled for identity certificates. You can generate these yourself using the OpenSSL toolkit or get them from a Certificate Authority. You can also generate a self-signed internal CA certificate. If you configure self-signed internal CA certificates, the CA runs on the device itself.

For information on the features that use these certificates, see [Certificate Type Used by Feature](#).

Procedure

This procedure creates an internal or internal CA certificate by uploading a certificate file or pasting existing certificate text into a text box. If you want to generate a self-signed certificate, see [Generating Self-Signed Internal and Internal CA Certificates](#).

To create an internal or internal CA certificate object, or when adding a new certificate object to a policy, follow this procedure:

Procedure

- Step 1** Do one of the following:
- Create the certificate object in the Objects page:
 - a. In the left pane, click **Manage > Objects**.
 - b. Click the plus button  and select **FTD > Certificate**
 - Click **Create New Object** when adding a new certificate object to a policy.
- Step 2** Enter a **Name** for the certificate. The name is used in the configuration as an object name only, it does not become part of the certificate itself.
- Step 3** In step 1, select **Internal Certificate** or **Internal CA**.
- Step 4** In step 2, select **Upload** to upload the certificate file.
- Step 5** In step 3, in the **Server Certificate** area, paste the certificate contents in the text box or upload the certificate file as explained in the wizard. If you paste the certificate into the text box, the certificate must include the BEGIN CERTIFICATE and END CERTIFICATE lines. For example:
- ```
-----BEGIN CERTIFICATE-----
MIICMTCCAZoCCQDdUV3NGK/cUjANBgkqhkiG9w0BAQsFADBdMQswCQYDVQQGEwJV
UzETMBEGA1UECAwKU29tZS1TdGF0ZTEhMB8GA1UECgwYSW50ZXJuZXQv21kZ210
(...5 lines removed...)
shGJDRrYJQqilhHZrYTWZAYTrD7NQPHutK+ZiJng67cPgnNDuXEn55UwMOQoHBp
HMUwmhiGZ1zJM8BpX2Js2yQ3ms30pr8rO+gPCPMCAwEAATANBgkqhkiG9w0BAQsF
AAOBgQCB02CebA6YjJCGr2CJZrQSeUwSveRBpmOuoqm98o2Z+5gJM5CkqgfxxwCUn
RV7LRfQGFYd76V/5uor4Wx2ZCjy6+zuQEm4ZxWNSZpA9UBixFXJCs9MBO4qkG5D
v1k3WYJfcgyJ10h4E4b0W2xiixBU+xoOTLRATnbKY36EWAG5cw==
-----END CERTIFICATE-----
```
- Step 6** In step 3, in the **Certificate Key** area, paste the key contents into the Certificate Key text box or upload the key file as explained in the wizard. If you paste the key into the text box, the key must include the BEGIN PRIVATE KEY or BEGIN RSA PRIVATE KEY and END PRIVATE KEY or END PRIVATE KEY lines.
- Note**  
The key cannot be encrypted.
- Step 7** Click **Add**.

## Uploading Trusted CA Certificates

A trusted Certificate Authority (CA) certificate is used to sign other certificates. It is self-signed and called a root certificate. A certificate that is issued by another CA certificate is called a subordinate certificate.

For information on the features that use these certificates, see [Certificate Type Used by Feature](#).

Obtain a trusted CA certificate from an external certificate authority, or create one using your own internal CA, for example, with OpenSSL tools. Then, use the following procedure to upload the certificate.

## Procedure

## Procedure

- Step 1** Do one of the following:
- Create the certificate object in the Objects page:
    - a. In the left pane, click **Manage > Objects**.
    - b. Click  > **FTD > Certificate**.
  - Click **Create New Object** when adding a new certificate object to a policy.
- Step 2** Enter a **Name** for the certificate. The name is used in the configuration as an object name only; it does not become part of the certificate itself.
- Step 3** In step 1, select **External CA Certificate** and click **Continue**. The wizard advances to step 3.
- Step 4** In step 3, in the **Certificate Contents** area, paste the certificate contents in the text box or upload the certificate file as explained in the wizard.

The certificate must adhere to these guidelines:

- The name of the server in the certificate must match the server Hostname / IP Address. For example, if you use 10.10.10.250 as the IP address but ad.example.com in the certificate, the connection fails.
- The certificate must be an X509 certificate in PEM or DER format.
- The certificate you paste must include the BEGIN CERTIFICATE and END CERTIFICATE lines. For example:

```
-----BEGIN CERTIFICATE-----
MIIFgTCCA2mgAwIBAgIJANvdcLnabFGYMA0GCSqGSIb3DQEBCwUAMFcx
CzAJBgNV
BAYTA1VTMQswCQYDVQQIDAJUWDEPMA0GA1UEBwwGYXVzdGluMRQwEgY
YDVQQKDAx
OTIuMTY4LjEuMTEUMBIGA1UEAwwLMTkyLjE2OC4xLjEwHhcNMjYxMDI
3MjIzNDE3
WhcNMjYxMDI3MjIzNDE3WjBXMQswCQYDVQQGEwJVUzELMAkGA1UECAw
CVFgxDzAN
BgNVBACMBmF1c3RpbjEUMBIGA1UECgwLMTkyLjE2OC4xLjEwHhcNMjY
xMDI3MjIzNDE3
Mi4xNjguMS4xMjIuMTYxMDI3MjIzNDE3WjBXMQswCQYDVQQGEwJVUz
ELMAkGA1UECAw
ES6Ve+S9z7WLKGX5JlF58AvH82GPkOQdrxn3FZeWLQapTpJZt/vgtAI
2FZIK31h
(...20 lines removed...)
hbr6H0gKlOwXbRvOdkstZTEzVUqbgxt5Lwupg3b2ebQhWJz4BZvMsZ
X9etveEXDh
PY184V3yeSeYjbSCF5rP71fObG9Iu6+u4EfHp/NQv9s9dN5PMffXKie
qpuN20Ojv
2b1sfOydf4GMUKLBUMkhQnip6+3W
-----END CERTIFICATE-----
```

- Step 5** Click **Add**.

## Generating Self-Signed Internal and Internal CA Certificates

**Internal identity certificates** are certificates for specific systems or hosts. You can generate these yourself using the OpenSSL toolkit or get them from a Certificate Authority. You can also generate a self-signed certificate.

**Internal Certificate Authority (CA) certificates** (Internal CA certificates) are certificates that the system can use to sign other certificates. These certificates differ from internal identity certificates with respect to the basic constraints extension and the CA flag, which are enabled for CA certificates but disabled for identity certificates. You can generate these yourself using the OpenSSL toolkit or get them from a Certificate Authority. You can also generate a self-signed internal CA certificate. If you configure self-signed internal CA certificates, the CA runs on the device itself.

You can also create these certificates using OpenSSL, or obtain them from a trusted CA, and upload them. For more information, see [Uploading Internal and Internal CA Certificates](#).

For information on the features that use these certificates, see [Certificate Type Used by Feature](#).



**Note** New self-signed certificates are generated with a 5-year validity term. Be sure to replace certificates before they expire.



**Warning** Upgrading devices that have self-signed certificates may experience issues; see [New Certificate Detected](#) for more information.

## Procedure

This procedure generates a self-signed certificate by entering the appropriate certificate field values in a wizard. If you want to create an internal or internal CA certificate by uploading a certificate file, see [Uploading Internal and Internal CA Certificates](#).

To generate a self-signed certificate, follow this procedure:

### Procedure

- 
- Step 1** Do one of the following:
- Create the certificate object in the Objects page:
    - a. In the left pane, click **Manage > Objects**.
    - b. Click  > **FTD > Certificate**.
  - Click **Create New Object** when adding a new certificate object to a policy.
- Step 2** Enter a **Name** for the certificate. The name is used in the configuration as an object name only, it does not become part of the certificate itself.
- Step 3** In step 1, select **Internal Certificate** or **Internal CA**.
- Step 4** In step 2, select **Self-Signed** to create the self-signed certificate in this step.
- Step 5** Configure at least one of the following for the certificate subject and issuer information.
- Country (C)— Select the country code from the drop-down list.
  - State or Province (ST)— The state or province to include in the certificate.

- Locality or City (L)— The locality to include in the certificate, such as the name of the city.
- Organization (O)— The organization or company name to include in the certificate.
- Organizational Unit (Department) (OU)— The name of the organization unit (for example, a department name) to include in the certificate.
- Common Name (CN)— The X.500 common name to include in the certificate. This could be the name of the device, web site, or another text string. This element is usually required for successful connections. For example, you must include a CN in the internal certificate used for remote access VPN.

**Step 6** Click **Add**.

---

## Trustpoint Objects

Security Cloud Control allows you to add digital certificates as trustpoint objects and then install them on one or multiple managed ASA devices. A single trustpoint object is a container that holds an identity pair (identity certificate and issuer's CA certificate), identity certificate only, or CA certificate only.

You can configure many trustpoints in an ASA device. The supported certificate formats are PKCS12, PEM, and DER.

### Adding an Identity Certificate Object Using PKCS12

This procedure creates an internal certificate identity or internal identity certificate by uploading a certificate file or pasting existing certificate text into a text box. You can generate as many identity certificates as you want.

You can upload a file encoded in **PKCS12** format. A PKCS12 is a single file that holds the CA server certificate, any intermediate certificates, and the private key in one encrypted file. A PKCS#12, or PFX, file holds a server certificate, intermediate certificates, and a private key in one encrypted file. Enter the **Passphrase** value for decryption.

#### Procedure

---

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  and select **ASA > Trustpoints**.
- Step 3** Enter an **Object Name** for the certificate. The name is used in the configuration as an object name only, it does not become part of the certificate itself.
- Step 4** In the **Certificate Type** step, select **Identity Certificate**.
- Step 5** In the **Import Type** step, select **Upload** to upload the certificate file.
- The **Enrollment** step is set to Terminal.
- Step 6** In the **Certificate Contents** step, enter the PKCS12 format details.
- A PKCS#12, or PFX, file holds a server certificate, intermediate certificates, and a private key in one encrypted file. Enter the **Passphrase** value for decryption.

**Step 7** Click **Continue**.

**Step 8** In the **Advanced Options** step, you can configure the following:

In the **Revocation** tab, you can configure the following:

- **Enable Certificate Revocation Lists (CRL)** — Check to enable CRL checking.

By default the **Use CRL distribution point from the certificate** check box is selected to obtain the revocation lists distribution URL from the certificate.

**Cache Refresh Time (in minutes)** — Enter the number of minutes between cache refreshes. The default is 60 minutes. The range is 1-1440 minutes. To avoid having to retrieve the same CRL from a CA repeatedly, the ASA can store retrieved CRLs locally, which is called CRL caching. The CRL cache capacity varies by platform and is cumulative across all contexts. If an attempt to cache a newly retrieved CRL would exceed its storage limits, the ASA removes the least recently used CRL until more space becomes available.

- **Enable Online Certificate Status Protocol (OCSP)** — Check to enable OCSP checking.

**OCSP Server URL**—The URL of the OCSP server checking for revocation if you require OCSP checks. This URL must start with **http://**.

**Disable Nonce Extension** — Enable the check box which cryptographically binds requests with responses to avoid replay attacks. This process works by matching the extension in the request to that in the response, ensuring that they are the same. Uncheck the **Disable Nonce Extension** check box if the OCSP server you are using sends pregenerated responses that do not include this matching nonce extension.

**Evaluation Priority** — Specify whether to evaluate the revocation status of a certificate first in CRL or OSCP.

- **Consider the certificate valid if revocation information cannot be reached**— Select this check box to consider the certificate to be a valid certificate if revocation information is unreachable.

For more information on revocation check, see the "Digital Certificates" chapter in the "[Basic Settings](#)" book of the [Cisco ASA Series General Operations ASDM Configuration](#), X.Y document.

Click the **Others** tab:

- **Use CA Certificate for the Validation of** — Specify the type of connections that can be validated by this CA.

- **IPSec Client** — Validates certificate presented by remote SSL servers.
- **SSL Client** — Validates certificates presented by incoming SSL connections.
- **SSL Server** — Validates certificates presented by incoming IPSec connections.

- **Use Identity Certificate for** — Specify how the enrolled ID certificate can be used.

- **SSL & IPSec** — Use for authenticating SSL & IPSec connections
- **Code Signer** — Code signer certificates are special certificates whose associated private keys are used to create digital signatures. The certificates used to sign code are obtained from a CA, with the signed code itself revealing the certificate origin.

- **Other Options:**

- **Enable CA flag in basic constraints extension** — Select this option if this certificate should be able to sign other certificates. The basic constraints extension identifies whether the subject of the



certificate is a Certificate Authority (CA), in which case the certificate can be used to sign other certificates. The CA flag is part of this extension.

- **Accept certificates issued by this CA** — Select this option to indicate that the ASA should accept certificates from the specified CA.
- **Ignore IPSec Key Usage** — Select this option if you do not want to validate values in the key usage and extended key usage extensions of IPSec remote client certificates. You can suppress key usage checking on IPSec client certificates. By default, this option is not enabled.

**Step 9** Click **Add**.

## Create a Self-Signed Identity Certificate Object

This procedure describes steps for generating a self-signed certificate for your ASA by entering the appropriate certificate field values in a wizard. You can generate as many self-signed certificates as you want.

To create a Self-Signed identity certificate object, perform these steps:

### Procedure

**Step 1** In the left pane, click **Manage > Objects**.

**Step 2** Click  and select **ASA > Trustpoints**.

**Step 3** Enter an **Object Name** for the certificate.

The name is used in the configuration as an object name only; it does not become part of the certificate itself.

**Step 4** In the **Identity Certificate** step, select **Identity Certificate**.

**Step 5** In the **Import Type** step, select **New** to upload the certificate file and click **Continue**.

**Step 6** In the **Enrollment** step, select **Self-Signed** and click **Continue**.

The **Certificates Content** step appears. Read [Self-Signed and CSR Certificate Generation Based on Certificate Contents](#) to understand the CN and SANS content in the Self-Signed certificate that is being generated.

**Step 7** In the **Certificate Contents** step, configure the following:

- **Country (C)**— Select the country code from the drop-down list.
- **State or Province (ST)**—The state or province to include in the certificate.
- **Locality or City (L)**—The locality to include in the certificate, such as the name of the city.
- **Organization (O)**—The organization or company name to include in the certificate.
- **Organizational Unit (Department) (OU)**—The name of the organization unit (for example, a department name) to include in the certificate.
- **Common Name (CN)**—The X.500 common name to include in the certificate. This could be the name of the device, web site, or another text string. This element is usually required for successful connections. For example, you must include a CN in the internal certificate used for remote access VPN.

- **Email Address (EA)**— The e-mail address associated with the identity certificate.
- **IP Address**— The ASA IP address on the network in four-part dotted-decimal notation.
- **Device's FQDN**— An unambiguous domain name, to indicate the position of the node in the DNS tree hierarchy.
- **Include Device's Serial Number**— Select the check box if you want to add the ASA serial number to the certificate parameters.

a) Click the **Key** tab.

- Choose the **RSA** or **ECDSA** key type.
- **Key Size**: If the key pair does not exist, defines the desired key size (modulus), in bits. The recommended key size for RSA is 1024 and for ECDSA is 348. The larger the modulus size, the more secure the key. However, keys with larger modulus sizes take longer to generate (a minute or more when larger than 512 bits) and longer to process when exchanged.
- Click **Continue**.

## Step 8

In the **Advanced Options** step, you can configure the following:

In the **Revocation** tab, you can configure the following:

- **Enable Certificate Revocation Lists (CRL)** — Check to enable CRL checking.

By default the **Use CRL distribution point from the certificate** check box is selected to obtain the revocation lists distribution URL from the certificate.

**Cache Refresh Time (in minutes)** — Enter the number of minutes between cache refreshes. The default is 60 minutes. The range is 1 to 1440 minutes. To avoid having to retrieve the same CRL from a CA repeatedly, the ASA can store retrieved CRLs locally, which is called CRL caching. The CRL cache capacity varies by platform and is cumulative across all contexts. If an attempt to cache a newly retrieved CRL would exceed its storage limits, the ASA removes the least recently used CRL until more space becomes available.

- **Enable Online Certificate Status Protocol (OCSP)** — Check to enable OCSP checking.

**OCSP Server URL** — The URL of the OCSP server checking for revocation if you require OCSP checks. This URL must start with **http://**.

**Disable Nonce Extension** — Enable the check box which cryptographically binds requests with responses to avoid replay attacks. This process works by matching the extension in the request to that in the response, ensuring that they are the same. Uncheck the **Disable Nonce Extension** check box if the OCSP server you are using sends pregenerated responses that do not include this matching nonce extension.

**Evaluation Priority** — Specify whether to evaluate the revocation status of a certificate first in CRL or OCSP.

- **Consider the certificate valid if revocation information cannot be reached** — Select this check box to consider the certificate to be a valid certificate if revocation information is unreachable.

For more information on revocation check, see the "Digital Certificates" chapter in the ["Basic Settings" book of the Cisco ASA Series General Operations ASDM Configuration](#), X.Y document.

Click the **Others** tab:

- **Use CA Certificate for the Validation of** — Specify the type of connections that can be validated by this CA.
  - **IPSec Client** — Validates certificate presented by remote SSL servers.
  - **SSL Client** — Validates certificates presented by incoming SSL connections.
  - **SSL Server** — Validates certificates presented by incoming IPSec connections.
- **Use Identity Certificate for** — Specify how the enrolled ID certificate can be used.
  - **SSL & IPSec** — Use for authenticating SSL & IPSec connections
  - **Code Signer** — Code signer certificates are special certificates whose associated private keys are used to create digital signatures. The certificates used to sign code are obtained from a CA, with the signed code itself revealing the certificate origin.
- **Other Options:**
  - **Enable CA flag in basic constraints extension** — Select this option if this certificate should be able to sign other certificates. The basic constraints extension identifies whether the subject of the certificate is a Certificate Authority (CA), in which case the certificate can be used to sign other certificates. The CA flag is part of this extension. The presence of these items in a certificate i
  - **Accept certificates issued by this CA** — Select this option to indicate that the ASA should accept certificates from the specified CA.
  - **Ignore IPSec Key Usage** — Select this option if you do not want to validate values in the key usage and extended key usage extensions of IPsec remote client certificates. You can suppress key usage checking on IPsec client certificates. By default, this option is not enabled.

**Step 9** Click **Add**.

## Add an Identity Certificate Object for Certificate Signing Request (CSR)

The Certification Authority (CA) server information and enrollment parameters are required to generate Certificate Signing Requests (CSRs) and obtain Identity Certificates from the specified CA. You need to select either Rivest-Shamir-Adleman (RSA) or Elliptic Curve Digital Signature Algorithm (ECDSA) key type to generate the request.

Create a trustpoint object by providing identification information and optionally uploading a CA certificate obtained from a CA.

### Procedure

**Step 1** In the left pane, click **Manage > Objects**.

**Step 2** Click  and select **ASA > Trustpoints**.

**Step 3** Enter an **Object Name** for the certificate.

The name is used in the configuration as an object name only; it does not become part of the certificate itself.

**Step 4** In the **Identity Certificate** step, select **Identity Certificate**.

**Step 5** In the **Import Type** step, select **New** to upload the certificate file and click **Continue**.

**Step 6** In the **Enrollment** step, select **Manual**.

**Step 7** (optional) You can paste or upload the CA certificate obtained from your CA. You can leave the field empty.

**Step 8** Click **Continue**.

The Certificates Content step appears. Read [Self-Signed and CSR Certificate Generation Based on Certificate Contents](#) to understand the CN and SANS content in the Signed certificate that is being generated.

**Step 9** In the **Certificate Contents** step, configure the following:

- **Country (C)**— Select the country code from the drop-down list.
- **State or Province (ST)**—The state or province to include in the certificate.
- **Locality or City (L)**—The locality to include in the certificate, such as the name of the city.
- **Organization (O)**—The organization or company name to include in the certificate.
- **Organizational Unit (Department) (OU)**—The name of the organization unit (for example, a department name) to include in the certificate.
- **Common Name (CN)**—The X.500 common name to include in the certificate. This could be the name of the device, web site, or another text string. This element is usually required for successful connections. For example, you must include a CN in the internal certificate used for remote access VPN.
- **Email Address (EA)**— The e-mail address associated with the identity certificate.
- **IP Address**— The ASA IP address on the network in four-part dotted-decimal notation.
- **Subject Alternative Name (SAN)**— This field will be part of Certificate Subject DN as 'unstructuredName' as well. We recommend you use this field if the certificate is used for multiple domains or IP addresses.
  - **Use Device Host Name:** Host name of the device is used.
  - **Custom: Device's FQDN**— An unambiguous domain name, to indicate the position of the node in the DNS tree hierarchy.

**Note**

We recommend the values specified in CN and **Custom FQDN** are the same.

- **Include Device's Serial Number**— Select the check box if you want to include the serial number of ASA in the certificate. The CA uses the serial number to either authenticate certificates or to later associate a certificate with a particular device. If you are in doubt, include the serial number, as it is useful for debugging purposes.

a) Click the **Key** tab.

- Choose the **RSA** or **ECDSA** key type.
- **Key Size:** If the key pair does not exist, defines the desired key size (modulus), in bits. The recommended key size for RSA is 1024 and for ECDSA is 348. The larger the modulus size, the more secure the key. However, keys with larger modulus sizes take longer to generate (a minute or more when larger than 512 bits) and longer to process when exchanged.
- Click **Continue**.

**Step 10**

In the **Advanced Options** step, you can configure the following:

In the **Revocation** tab, you can configure the following:

- **Enable Certificate Revocation Lists (CRL)** — Check to enable CRL checking.

By default, the **Use CRL distribution point from the certificate** check box is selected to obtain the revocation lists distribution URL from the certificate.

**Cache Refresh Time (in minutes)** — Enter the number of minutes between cache refreshes. The default is 60 minutes. The range is 1 to 1440 minutes. To avoid having to retrieve the same CRL from a CA repeatedly, the ASA can store retrieved CRLs locally, which is called CRL caching. The CRL cache capacity varies by platform and is cumulative across all contexts. If an attempt to cache a newly retrieved CRL would exceed its storage limits, the ASA removes the least recently used CRL until more space becomes available.

- **Enable Online Certificate Status Protocol (OCSP)** — Check to enable OCSP checking.

**OCSP Server URL**—The URL of the OCSP server checking for revocation if you require OCSP checks. This URL must start with **http://**.

**Disable Nonce Extension** — Enable the check box which cryptographically binds requests with responses to avoid replay attacks. This process works by matching the extension in the request to that in the response, ensuring that they are the same. Uncheck the **Disable Nonce Extension** check box if the OCSP server you are using sends pregenerated responses that do not include this matching nonce extension.

**Evaluation Priority** — Specify whether to evaluate the revocation status of a certificate first in CRL or OCSP.

- **Consider the certificate valid if revocation information cannot be reached**— Select this check box to consider the certificate to be a valid certificate if revocation information is unreachable.

For more information on revocation check, see the "Digital Certificates" chapter in the "[Basic Settings](#)" book of the [Cisco ASA Series General Operations ASDM Configuration](#), X.Y document.

Click the **Others** tab:

- **Use CA Certificate for the Validation of** — Specify the type of connections that can be validated by this CA.
  - **IPSec Client** — Validates certificate presented by remote SSL servers.
  - **SSL Client** — Validates certificates presented by incoming SSL connections.
  - **SSL Server** — Validates certificates presented by incoming IPSec connections.
- **Use Identity Certificate for** — Specify how the enrolled ID certificate can be used.
  - **SSL & IPSec** — Use for authenticating SSL & IPSec connections
  - **Code Signer** — Code signer certificates are special certificates whose associated private keys are used to create digital signatures. The certificates used to sign code are obtained from a CA, with the signed code itself revealing the certificate origin.
- **Other Options:**
  - **Enable CA flag in basic constraints extension** — Select this option if this certificate should be able to sign other certificates. The basic constraints extension identifies whether the subject of the

certificate is a Certificate Authority (CA), in which case the certificate can be used to sign other certificates. The CA flag is part of this extension. The presence of these items in a certificate i

- **Accept certificates issued by this CA** — Select this option to indicate that the ASA should accept certificates from the specified CA.
- **Ignore IPSec Key Usage** — Select this option if you do not want to validate values in the key usage and extended key usage extensions of IPSec remote client certificates. You can suppress key usage checking on IPSec client certificates. By default, this option is not enabled.

#### Step 11 Click **Add**.

This creates a trustpoint certificate object.

## Add a Trusted CA Certificate Object

Obtain a trusted CA certificate from an external certificate authority, or create one using your own internal CA, for example, with OpenSSL tools. You can upload a file encoded in one of the following supported formats:

- Distinguished Encoding Rules (DER)
- Privacy-enhanced Electronic Mail (PEM)

### Procedure

**Step 1** In the left pane, click **Manage > Objects**.

**Step 2** Click  and select **ASA > Trustpoints**.

**Step 3** Enter an **Object Name** for the certificate.

The name is used in the configuration as an object name only; it does not become part of the certificate itself.

**Step 4** In the **Certificate Type** step, select **Trusted CA Certificate**.

**Step 5** In the **Certificate Contents** step, paste the certificate contents in the text box or upload the CA certificate file as explained in the wizard.

**Step 6** Click **Continue**. The wizard advances to step 4.

The certificate must follow these guidelines:

- The name of the server in the certificate must match the server Hostname / IP Address. For example, if you use 10.10.10.250 as the IP address but ad.example.com in the certificate, the connection fails.
- The certificate must be an X509 certificate in PEM or DER format.
- The certificate you paste must include the BEGIN CERTIFICATE and END CERTIFICATE lines. For example:

```
-----BEGIN CERTIFICATE-----
MIIFgtCCA2mgAwIBAgIJANvdcLnabFGYMA0GCSqGSIb3DQEBCwUAMFcxZzAJBgNV
BAYTA1VTMQswCQYDVQQIDAJUWDEFMA0GA1UEBwwGYXVzdGluMRQwEgYDVQQKDAsx
```

```

OTIuMTY4LjEuMTEUMBIGA1UEAwLMTkyLjE2OC4xLjEwHhcNMTYxMDI3MjIzNDE3
WhcNMTcxMDI3MjIzNDE3WjBXMQswCQYDVQGEwJVUzELMAkGA1UECAwCVFgxZDZAN
BgNVBACMBmF1c3RpbjEUMBIGA1UECgwLMTkyLjE2OC4xLjEwHhcNMTYxMDI3MjIzNDE3
Mi4xNjguMS4xMlICijANBgkqhkiG9w0BAQEFAAOCAg8AMIICgKCAgEA5NceYwtP
ES6Ve+S9z7WLKGX5JlF58AvH82GPkOQdrixn3FZeWLQapTpJZt/vgtAI2FZIK31h
(...20 lines removed...)
hbr6HOgK1OwXbRvOdkstTzTEzVUqbgxt5Lwupg3b2ebQhWJz4BZvMsZX9etveEXDh
PY184V3yeSeYjbSCF5rP71fObG9Iu6+u4EfHp/NQv9s9dN5PMffXKieqpuN20Ojv
2b1sfOydf4GMUKLBUMkhQnip6+3W
-----END CERTIFICATE-----

```

**Step 7** In the **Advanced Options** step, you can configure the following:

In the **Revocation** tab, you can configure the following:

- **Enable Certificate Revocation Lists (CRL)** — Check to enable CRL checking.

By default, the **Use CRL distribution point from the certificate** check box is selected to obtain the revocation lists distribution URL from the certificate.

**Cache Refresh Time (in minutes)** — Enter the number of minutes between cache refreshes. The default is 60 minutes. The range is 1 to 1440 minutes. To avoid having to retrieve the same CRL from a CA repeatedly, the ASA can store retrieved CRLs locally, which is called CRL caching. The CRL cache capacity varies by platform and is cumulative across all contexts. If an attempt to cache a newly retrieved CRL would exceed its storage limits, the ASA removes the least recently used CRL until more space becomes available.

- **Enable Online Certificate Status Protocol (OCSP)** — Check to enable OCSP checking.

**OCSP Server URL**—The URL of the OCSP server checking for revocation if you require OCSP checks. This URL must start with **http://**.

**Disable Nonce Extension** — Enable the check box which cryptographically binds requests with responses to avoid replay attacks. This process works by matching the extension in the request to that in the response, ensuring that they are the same. Uncheck the **Disable Nonce Extension** check box if the OCSP server you are using sends pregenerated responses that do not include this matching nonce extension.

**Evaluation Priority** — Specify whether to evaluate the revocation status of a certificate first in CRL or OSCP.

- **Consider the certificate valid if revocation information cannot be reached**— Select this check box to consider the certificate to be a valid certificate if revocation information is unreachable.

For more information on revocation check, see the "Digital Certificates" chapter in the "[Basic Settings](#)" book of the [Cisco ASA Series General Operations ASDM Configuration](#), X.Y document.

Click the **Others** tab:

- **Use CA Certificate for the Validation of** — Specify the type of connections that can be validated by this CA.
  - **IPSec Client** — Validates certificate presented by remote SSL servers.
  - **SSL Client** — Validates certificates presented by incoming SSL connections.
  - **SSL Server** — Validates certificates presented by incoming IPSec connections.
- **Other Options:**

- **Enable CA flag in basic constraints extension** — Select this option if you want to validate if the subject of the certificate is a CA using the basic constraints extension.
- **Accept certificates issued by this CA** — Select this option to indicate that the ASA should accept certificates from the specified CA.
- **Accept certificates issued by the subordinates CAs of this CA** — Select this option to indicate that the ASA should accept certificates from the subordinate CA.
- **Ignore IPsec Key Usage** — Select this option if you do not want to validate values in the key usage and extended key usage extensions of IPsec remote client certificates. You can suppress key usage checking on IPsec client certificates. By default, this option is not enabled.

#### Step 8 Click **Add**.

This creates a trustpoint certificate object.

## Self-Signed and CSR Certificate Generation Based on Certificate Contents

You need to have an idea of the CN and SANS content in the Self-Signed and CSR certificates. The content is based on the parameters you specify during their creation. You need to configure the parameters precisely for the AnyConnect clients to connect to the intended VPN headends of your organization.

This section provides different use cases with examples to give you an idea of the content of Self-Signed and CSR certificates based on the parameters specified.

### Usecase 1: Different CN and FQDN values

Example:

- Common Name (CN): mywebsite.com
- FQDN: mysan.com

**Table 27: Example: Different CN and FQDN values**

|             | Common Name   | unstructuredName | SANS      |
|-------------|---------------|------------------|-----------|
| Self-Signed | mywebsite.com | mysan.com        | mysan.com |
| CSR         | mywebsite.com | mysan.com        | -         |

### Usecase 2: FQDN field set to None

Example:

- Common Name (CN): mywebsite.com
- FQDN: None



**Table 28: Example: FQDN field set to None**

|             | Common Name   | SANS |
|-------------|---------------|------|
| Self-Signed | Host Name     | -    |
| CSR         | mywebsite.com | -    |

**Usecase 3: No FQDN (Default FQDN)**

Example:

- Common Name (CN): mywebsite.com

**Table 29: Example: No FQDN (Default FQDN)**

|             | Common Name   | unstructuredName | SANS      |
|-------------|---------------|------------------|-----------|
| Self-Signed | mywebsite.com | Host Name        | -         |
| CSR         | mywebsite.com | Host Name        | Host Name |

**Usecase 4: IP Address is specified in FQDN**

Example:

- Common Name (CN): mywebsite.com
- FQDN: 4.5.6.7

**Table 30: Example: IP Address is specified in FQDN**

|             | Common Name   | unstructuredName | SANS    |
|-------------|---------------|------------------|---------|
| Self-Signed | mywebsite.com | 4.5.6.7          | -       |
| CSR         | mywebsite.com | 4.5.6.7          | 4.5.6.7 |

**Usecase 5: IP Address is Specified**

Example:

- IP Address: 4.5.6.7
- Common Name (CN): mywebsite.com
- FQDN: fqdn.com

**Table 31: Example: IP Address is specified**

|             | Common Name   | unstructuredAddress | unstructuredName | SANS |
|-------------|---------------|---------------------|------------------|------|
| Self-Signed | mywebsite.com | 4.5.6.7             | fqdn.com         | -    |

|     | Common Name   | unstructuredAddress | unstructuredName | SANS     |
|-----|---------------|---------------------|------------------|----------|
| CSR | mywebsite.com | 4.5.6.7             | fqdn.com         | fqdn.com |

### Usecase 6: Serial Number Check box is Selected

Example:

- Serial Number: 9AQXMWOKDT9

**Table 32: Example: IP Serial Number Check box is Selected**

|             | serialNumber | SANS     |
|-------------|--------------|----------|
| Self-Signed | 9AQXMWOKDT9  | -        |
| CSR         | 9AQXMWOKDT9  | fqdn.com |

### Usecase 7: Email Address is Specified

Example:

- EA: abc@xyz.com

**Table 33: Example: Email Address is Specified**

|             | unstructuredName | emailAddress | SANS      |
|-------------|------------------|--------------|-----------|
| Self-Signed | Host Name        | abc@xyz.com  | Host Name |
| CSR         | Host Name        | abc@xyz.com  | -         |

## About IPsec Proposals

IPsec is one of the most secure methods for setting up a VPN. IPsec provides data encryption at the IP packet level, offering a robust security solution that is standards-based. With IPsec, data is transmitted over a public network through tunnels. A tunnel is a secure, logical communication path between two peers. Traffic that enters an IPsec tunnel is secured by a combination of security protocols and algorithms called a transform set. During the IPsec security association (SA) negotiation, peers search for a transform set that is the same at both peers.

There are separate IPsec proposal objects based on the IKE version, IKEv1, or IKEv2:

- When you create an IKEv1 IPsec proposal, you select the mode in which IPsec operates, and define the required encryption and authentication types. You can select single options for the algorithms. If you want to support multiple combinations in a VPN, create and select multiple IKEv1 IPsec Proposal objects.
- When you create an IKEv2 IPsec proposal, you can select all of the encryption and hash algorithms allowed in a VPN. The system orders the settings from the most secure to the least secure and negotiates with the peer until a match is found. This allows you to potentially send a single proposal to convey all the allowed combinations instead of the need to send each allowed combination individually as with IKEv1.

The Encapsulating Security Protocol (ESP) is used for both IKEv1 and IKEv2 IPsec proposals. It provides authentication, encryption, and antireplay services. ESP is IP protocol type 50.



**Note** We recommend using both encryption and authentication on IPsec tunnels.

## Managing an IKEv1 IPsec Proposal Object

IPsec Proposal objects configure the IPsec proposal used during IKE Phase 2 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel. There are separate objects for IKEv1 and IKEv2. Currently, Security Cloud Control supports IKEv1 IPsec proposal objects.

The Encapsulating Security Protocol (ESP) is used for both IKEv1 and IKEv2 IPsec proposals. It provides authentication, encryption, and anti-replay services. ESP is IP protocol type 50.



**Note** We recommend using both encryption and authentication on IPsec tunnels.

### Related Topics

[Create an IKEv1 IPsec Proposal Object](#), on page 444

### Create or Edit an IKEv1 IPsec Proposal Object

There are several pre-defined IKEv1 IPsec proposals. You can also create new proposals to implement other combinations of security settings. You cannot edit or delete system-defined objects.

This procedure explains how you can create and edit objects directly through the Objects page. You can also create IKEv1 IPsec Proposals objects while editing the IKEv1 IPsec settings in a Site-to-Site VPN connection by clicking the **Create New IKEv1 Proposal** link shown in the object list.

### Procedure

**Step 1** From the left pane, click **Manage > Objects**.

**Step 2** Do one of these things:

- Click , and select **FTD > IKEv1 IPsec Proposal** to create the new object.
- On the object page, select the IPsec proposal you want to edit and click **Edit** in the **Actions** pane at the right.

**Step 3** Enter an **object name** for the new object.

**Step 4** Select the Mode in which the IKEv1 IPsec Proposal object operates.

- **Tunnel mode** encapsulates the entire IP packet. The IPSec header is added between the original IP header and a new IP header. This is the default. Use tunnel mode when the firewall is protecting traffic to and from hosts positioned behind the firewall. Tunnel mode is the normal way regular IPSec is implemented

between two firewalls (or other security gateways) that are connected over an untrusted network, such as the Internet.

- **Transport mode** encapsulates only the upper-layer protocols of an IP packet. The IPsec header is inserted between the IP header and the upper-layer protocol header (such as TCP). Transport mode requires that both the source and destination hosts support IPsec, and can only be used when the destination peer of the tunnel is the final destination of the IP packet. Transport mode is generally used only when protecting a Layer 2 or Layer 3 tunneling protocol such as GRE, L2TP, and DLSW.

- Step 5** Select the **ESP Encryption** (Encapsulating Security Protocol encryption) algorithm for this proposal. For an explanation of the options, see [Deciding Which Encryption Algorithm to Use, on page 446](#).
- Step 6** Select the **ESP Hash** or integrity algorithm to use for authentication. For an explanation of the options, see [Deciding Which Hash Algorithms to Use, on page 447](#).
- Step 7** Click **Add**.

## Managing an IKEv2 IPsec Proposal Object

IPsec Proposal objects configure the IPsec proposal used during IKE Phase 2 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel.

When you create an IKEv2 IPsec proposal, you can select all of the encryption and hash algorithms allowed in a VPN. The system orders the settings from the most secure to the least secure and negotiates with the peer until a match is found. This allows you to potentially send a single proposal to convey all the allowed combinations instead of the need to send each allowed combination individually as with IKEv1.

### Related Topics

[Create or Edit an IKEv2 IPsec Proposal Object](#), on page 445

### Create or Edit an IKEv2 IPsec Proposal Object

There are several pre-defined IKEv2 IPsec proposals. You can also create new proposals to implement other combinations of security settings. You cannot edit or delete system-defined objects.

The following procedure explains how you can create and edit objects directly through the Objects page. You can also create IKEv2 IPsec Proposals objects while editing the IKEv2 IPsec settings in a VPN connection by clicking the Create New IPsec Proposal link shown in the object list.

### Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Do one of these things:
- Click  and select **FTD > IKEv2 IPsec Proposal** to create the new object.
  - In the object page, select the IPsec proposal you want to edit and click **Edit** in the Actions pane at the right.
- Step 3** Enter an **object name** for the new object.
- Step 4** Configure the IKE2 IPsec proposal objects:

- **Encryption**—The Encapsulating Security Protocol (ESP) encryption algorithm for this proposal. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Deciding Which Encryption Algorithm to Use, on page 446](#).
- **Integrity Hash**—The hash or integrity algorithm to use for authentication. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Deciding Which Hash Algorithms to Use, on page 447](#).

**Step 5** Click **Add**.

## About Global IKE Policies

Internet Key Exchange (IKE) is a key management protocol that is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

The IKE negotiation comprises two phases. Phase 1 negotiates a security association between two IKE peers, which enables the peers to communicate securely in Phase 2. During Phase 2 negotiation, IKE establishes SAs for other applications, such as IPsec. Both phases use proposals when they negotiate a connection. An IKE proposal is a set of algorithms that two peers use to secure the negotiation between them. IKE negotiation begins by each peer agreeing on a common (shared) IKE policy. This policy states which security parameters are used to protect subsequent IKE negotiations.

IKE policy objects define the IKE proposals for these negotiations. The objects that you enable are the ones used when the peers negotiate a VPN connection: you cannot specify different IKE policies per connection. The relative priority of each object determines which of these policies are tried first, with the lower number being a higher priority. The connection is not established if the negotiation fails to find a policy that both peers can support.

To define the global IKE policy, you select which objects to enable for each IKE version. If the pre-defined objects do not satisfy your requirements, create new policies to enforce your security policy.

## Managing IKEv1 Policies

### About IKEv1 Policy

Internet Key Exchange (IKE) version 1 policy objects contain the parameters required for IKEv1 policies when defining VPN connections. IKE is a key management protocol that facilitates the management of IPsec-based communications. It is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

There are several pre-defined IKEv1 policies. If any suit your needs, simply enable them by clicking the State toggle. You can also create new policies to implement other combinations of security settings. You cannot edit or delete system-defined objects.

### Create or Edit an IKEv1 Policy

The following procedure explains how you can create and edit objects directly through the Objects page. You can also create an IKEv1 policy while editing the IKE settings in a Site-to-Site VPN connection by clicking the **Create New IKEv1 Policy** link shown in the object list.

## Procedure

**Step 1** In the left pane, click **Manage > Objects**.

**Step 2** Do one of these things:

- Click  and select **FTD > IKEv1 Policy** to create a new IKEv1 policy.
- In the object page, select the IKEv1 policy you want to edit and click **Edit** in the Actions pane at the right.

**Step 3** Enter an **object name**, up to 128 characters.

**Step 4** Configure the IKEv1 properties.

- **Priority**—The relative priority of the IKE policy, from 1 to 65,535. The priority determines the order of the IKE policy compared by the two negotiating peers when attempting to find a common security association (SA). If the remote IPsec peer does not support the parameters selected in your highest priority policy, it tries to use the parameters defined in the next lowest priority. The lower the number, the higher the priority.
- **Encryption**—The encryption algorithm used to establish the Phase 1 security association (SA) for protecting Phase 2 negotiations. For an explanation of the options, see [Deciding Which Encryption Algorithm to Use](#).
- **Diffie-Hellman Group**—The Diffie-Hellman group to use for deriving a shared secret between the two IPsec peers without transmitting it to each other. A larger modulus provides higher security but requires more processing time. The two peers must have a matching modulus group. For an explanation of the options, see [Deciding Which Diffie-Hellman Modulus Group to Use](#).
- **Lifetime**—The lifetime of the security association (SA), in seconds, from 120 to 2147483647 or blank. When the lifetime is exceeded, the SA expires and must be renegotiated between the two peers. As a general rule, the shorter the lifetime (up to a point), the more secure your IKE negotiations will be. However, with longer lifetimes, future IPsec security associations can be set up more quickly than with shorter lifetimes. The default is 86400. To specify an unlimited lifetime, enter no value (leave the field blank).
- **Authentication**—The method of authentication to use between the two peers. For more information, see [Deciding Which Authentication Method to Use, on page 448](#).
  - **Preshared Key**—Use the preshared key that is defined on each device. These keys allow for a secret key to be shared between two peers and to be used by IKE during the authentication phase. If the peer is not configured with the same preshared key, the IKE SA cannot be established.
  - **Certificate**—Use the device identity certificates for the peers to identify each other. You must obtain these certificates by enrolling each peer in a Certificate Authority. You must also upload the trusted CA root and intermediate CA certificates used to sign the identity certificates in each peer. The peers can be enrolled in the same or a different CA. You cannot use self-signed certificates for either peer.
- **Hash**—The hash algorithm for creating a message digest, which is used to ensure message integrity. For an explanation of the options, see [Encryption and Hash Algorithms Used in VPN, on page 446](#).

**Step 5** Click **Add**.

---

## Managing IKEv2 Policies

### About IKEv2 Policy

Internet Key Exchange (IKE) version 2 policy objects contain the parameters required for IKEv2 policies when defining VPN connections. IKE is a key management protocol that facilitates the management of IPsec-based communications. It is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

There are several pre-defined IKEv2 policies. If any suit your needs, simply enable them by clicking the State toggle. You can also create new policies to implement other combinations of security settings. You cannot edit or delete system-defined objects.

### Create or Edit an IKEv2 Policy

The following procedure explains how you can create and edit objects directly through the Objects page. You can also create an IKEv2 policy while editing the IKE settings in a Site-to-Site VPN connection by clicking the **Create New IKEv2 Policy** link shown in the object list.

### Procedure

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**Step 1** In the Security Cloud Control navigation bar on the left, click **Manage > Objects**.

**Step 2** Do one of these things:

- Click  and select **FTD > IKEv2 Policy** to create a new IKEv2 policy.
- In the object page, select the IKEv2 policy you want to edit and click **Edit** in the Actions pane at the right.

**Step 3** Enter an **object name**, up to 128 characters.

**Step 4** Configure the IKEv2 properties.

- **Priority**—The relative priority of the IKE policy, from 1 to 65,535. The priority determines the order of the IKE policy compared by the two negotiating peers when attempting to find a common security association (SA). If the remote IPsec peer does not support the parameters selected in your highest priority policy, it tries to use the parameters defined in the next lowest priority. The lower the number, the higher the priority.
- **State**—Whether the IKE policy is enabled or disabled. Click the toggle to change the state. Only enabled policies are used during IKE negotiations.
- **Encryption**—The encryption algorithm used to establish the Phase 1 security association (SA) for protecting Phase 2 negotiations. Select all algorithms that you want to allow, although you cannot include both mixed-mode (AES-GCM) and normal mode options in the same policy. (Normal mode requires that you select an integrity hash, whereas mixed-mode prohibits a separate integrity hash selection.) The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is

agreed upon. For an explanation of the options, see [Deciding Which Encryption Algorithm to Use, on page 446](#).

- **Diffie-Hellman Group**—The Diffie-Hellman group to use for deriving a shared secret between the two IPsec peers without transmitting it to each other. A larger modulus provides higher security but requires more processing time. The two peers must have a matching modulus group. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest group until a match is agreed upon. For an explanation of the options, see [Deciding Which Diffie-Hellman Modulus Group to Use, on page 447](#).
- **Integrity Hash**—The integrity portion of the hash algorithm for creating a message digest, which is used to ensure message integrity. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. The integrity hash is not used with the AES-GCM encryption options. For an explanation of the options, see [Encryption and Hash Algorithms Used in VPN, on page 446](#).
- **Pseudo-Random Function (PRF) Hash**—The pseudo-random function (PRF) portion of the hash algorithm, which is used as the algorithm to derive keying material and hashing operations required for the IKEv2 tunnel encryption. In IKEv1, the Integrity and PRF algorithms are not separated, but in IKEv2, you can specify different algorithms for these elements. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Encryption and Hash Algorithms Used in VPN, on page 446](#).
- **Lifetime**—The lifetime of the security association (SA), in seconds, from 120 to 2147483647 or blank. When the lifetime is exceeded, the SA expires and must be renegotiated between the two peers. As a general rule, the shorter the lifetime (up to a point), the more secure your IKE negotiations will be. However, with longer lifetimes, future IPsec security associations can be set up more quickly than with shorter lifetimes. The default is 86400. To specify an unlimited lifetime, enter no value (leave the field blank).

**Step 5** Click **Add**.

## RA VPN Objects

### Configure Identity Sources for FDM-Managed Device

Identity Sources, such as Microsoft AD realms and RADIUS Servers, are AAA servers and databases that define user accounts for the people in your organization. You can use this information in a variety of ways, such as providing the user identity associated with an IP address, or authenticating remote access VPN connections or access to Security Cloud Control.

Click **Manage > Objects**, then click  and choose **> RA VPN Objects (ASA & FTD) > Identity Source** to create your sources. You would then use these objects when you configure the services that require an identity source. You can apply appropriate filters to search existing sources and manage them.



## Active Directory Realms

Active Directory provides user account and authentication information. When you deploy a configuration that includes an AD realm to an FDM-managed device, Security Cloud Control fetches users and groups from the AD server.

You can use this source for the following purposes:

- Remote Access VPN, as a primary identity source. You can use AD in conjunction with a RADIUS server.
- Identity policy, for active authentication and as the user identity source used with passive authentication.
- Identity rule, for active authentication for a user.

Security Cloud Control requests an updated list of user groups once every 24 hours. Because you can add a maximum of 50 users or groups to a rule, selecting groups usually makes more sense than selecting individual users. For example, you could create a rule allowing the Engineering group access to a development network, and create a subsequent rule that denies all other access to the network. Then, to make the rule apply to new engineers, you only need to add the engineer to the Engineering group in the directory server.

## Active Directory Realms In Security Cloud Control

You configure the AD realm when you create an AD Identity object. The identity source objects wizard assists in determining how to connect to the AD server and where the AD server is located in the network.



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**Note** If you create an AD realm in Security Cloud Control, Security Cloud Control remembers the AD password when you create affiliate identity source objects and when you add those objects to an identity rule.

---

## Active Directory Realms In FDM

You can point to AD realm objects that were created in FDM from the Security Cloud Control objects wizard. Note that Security Cloud Control does **not** read the AD password for AD realm objects that are created in FDM. You must manually enter the correct AD password in Security Cloud Control.

To configure an AD realm in Firewall Device Managers, see the **Configuring AD Identity Realms** section of the Reusable Objects chapters of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.

## Supported Directory Servers

You can use AD on Windows Server 2008 and 2012.

Note the following about your server configuration:

- If you want to perform user control on user groups or on users within groups, you must configure user groups on the directory server. The system cannot perform user group control if the server organizes the users in a basic object hierarchy.
- The directory server must use the field names listed in the following table in order for the system to retrieve user metadata from the servers for that field:

| Metadata         | Active Directory Field                                       |
|------------------|--------------------------------------------------------------|
| LDAP user name   | samaccountname                                               |
| First name       | givenname                                                    |
| Last Name        | sn                                                           |
| email address    | mail<br>userprincipalname (if mail has no value)             |
| Department       | department<br>distinguishedname (if department has no value) |
| Telephone number | telephonenumber                                              |

### Determining the Directory Base DN

When you configure directory properties, you need to specify the common base Distinguished Name (DN) for users and groups. The base is defined in your directory server and differs from network to network. You must enter the correct bases for identity policies to work. If the base is wrong, the system cannot determine user or group names, and thus identity-based policies will be inoperable.



**Note** To get the correct bases, consult the administrator who is responsible for the directory servers.

For an active directory, you can determine the correct bases by logging into the AD server as a domain administrator, and using the **dsquery** command at a command prompt as follows to determine the bases:

#### User search base

Enter the **dsquery user** command with known username (partial or complete) to determine the base distinguished name. For example, the following command uses the partial name "John\*" to return information for all users that start with "John."

```
C:\Users\Administrator>dsquery user -name "John*"
```

```
"CN=John Doe,CN=Users,DC=csc-lab,DC=example,DC=com"
```

The base DN would be "DC=csc-lab,DC=example,DC=com."

#### Group search base

Enter the **dsquery group** command with a known group name to determine the base DN. For example, the following command uses the group name Employees to return the distinguished name:

```
C:\>dsquery group -name "Employees"
```

```
"CN=Employees,CN=Users,DC=csc-lab,DC=example,DC=com"
```

The group base DN would be "DC=csc-lab,DC=example,DC=com."

You can also use the ADSI Edit program to browse the AD structure (**Start > Run > adsiedit.msc**). In ADSI Edit, right click any object, such as an organizational unit (OU), group, or user, and choose **Properties** to view the distinguished name. You can then copy the string of DC values as the base.

To verify that you have the correct base:

## Procedure

- 
- |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Click the <b>Test Connection</b> button in the directory properties to verify connectivity. Resolve any problems, and save the directory properties.                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Step 2</b> | Commit changes to the device.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Step 3</b> | Create an access rule, select the <b>Users</b> tab, and try to add known user and group names from the directory. You should see auto-complete suggestions as you type for matching users and groups in the realm that contains the directory. If these suggestions appear in a drop-down list, then the system was able to query the directory successfully. If you see no suggestions, and you are certain the string you typed should appear in a user or group name, you need to correct the corresponding search base. |
- 

## What to do next

See [Create and Edit a Firepower Threat Defense Active Directory Realm Object](#) for more information.

## RADIUS Servers and Groups

You can use RADIUS servers to authenticate and authorize administration users.

When you configure a feature to use RADIUS servers, you select a RADIUS group instead of individual servers. A RADIUS group is a collection of RADIUS servers that are copies of each other. If a group has more than one server, they form a chain of backup servers to provide redundancy in case one server becomes unavailable. But even if you have only one server, you must create a one-member group to configure RADIUS support for a feature.

You can use this source for the following purposes:

- Remote Access VPN, as an identity source for authentication, and for authorization and accounting. You can use AD in conjunction with a RADIUS server.
- Identity policy, as a passive identity source to collect user identity from remote access VPN logins.

See [Create and Edit a Firepower Threat Defense RADIUS Server Object or Group](#) for more information.

## Related Information:

- [Create an Active Directory Realm Object](#)
- [Create a RADIUS Server Object or Group](#)

## Create or Edit an Active Directory Realm Object

### About Active Directory Realm Objects

When you create or edit an identity source object such as an AD realm object, Security Cloud Control sends the configuration request to the FDM-managed devices through the SDC. The FDM-managed device then communicates with the configured AD realm.

Note that Security Cloud Control does not read the Directory Password for AD realms that are configured through the Firewall Device Manager console. If you use an AD realm object that was originally created in Firewall Device Manager, you must manually enter the Directory Password.

*Create an FTD Active Directory Realm Object*

Use the following procedure to create an object:

**Procedure**

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click , then click **RA VPN Objects (ASA & FTD) > Identity Source**.
- Step 3** Enter an **Object Name** for the object.
- Step 4** Select the **Device Type** is as **FTD**.
- Step 5** In the first part of the wizard, select **Active Directory Realm** as the **Identity Source Type**. Click **Continue**.
- Step 6** Configure the basic realm properties.
- **Directory Username, Directory Password** - The distinguished username and password for a user with appropriate rights to the user information you want to retrieve. For AD, the user does not need elevated privileges. You can specify any user in the domain. The username must be fully qualified; for example, [Administrator@example.com](#) (not simply Administrator).
- Note**  
The system generates ldap-login-dn and ldap-login-password from this information. For example, [Administrator@example.com](#) is translated as cn=admin, cn=users, dc=example, dc=com. Note that cn=users is always part of this translation, so you must configure the user you specify here under the common name "users" folder.
- **Base Distinguished Name** - The directory tree for searching or querying user and group information, that is, the common parent for users and groups. For example, cn=users, dc=example, dc=com.
  - **AD Primary Domain** - The fully qualified AD domain name that the device should join. For example, example.com.
- Step 7** Configure the directory server properties.
- **Hostname/IP Address** - The hostname or IP address of the directory server. If you use an encrypted connection to the server, you must enter the fully-qualified domain name, not the IP address.
  - **Port** - The port number used for communications with the server. The default is 389. Use port 636 if you select LDAPS as the encryption method.
  - **Encryption** - To use an encrypted connection for downloading user and group information, select the desired method, **STARTTLS** or **LDAPS**. The default is **None**, which means that user and group information is downloaded in clear text.
    - **STARTTLS** negotiates the encryption method and uses the strongest method supported by the directory server. Use port 389. This option is not supported if you use the realm for remote access VPN.
    - **LDAPS** requires LDAP over SSL. Use port 636.
  - **Trusted CA Certificate** - If you select an encryption method, upload a Certificate Authority (CA) certificate to enable a trusted connection between the system and the directory server. If you are using a certificate to authenticate, the name of the server in the certificate must match the server Hostname /

IP Address. For example, if you use 10.10.10.250 as the IP address but ad.example.com in the certificate, the connection fails.

- Step 8** (Optional) Use the **Test** button to validate the configuration.
- Step 9** (Optional) Click **Add another configuration** to add multiple AD servers to the AD realm. The AD servers need to be duplicates of each other and support the same AD domain. Therefore, the basic realm properties such as **Directory name**, **Directory Password**, and **Base Distinguished Name** must be the same across all AD servers associated with that AD realm.
- Step 10** Click **Add**.
- Step 11** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
- 

### *Edit an FTD Active Directory Realm Object*

Note that you cannot change the Identity Source Type when editing an Identity source object. You must create a new object with the correct type.

#### **Procedure**

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object you want to edit by using object filters and search field.
- Step 3** Select the object you want to edit.
- Step 4** Click the edit icon  in the **Actions** pane of the details panel.
- Step 5** Edit the values in the dialog box in the same fashion that you created in the procedures above. Expand the configuration bar listed below to edit or test the hostname/IP address or encryption information.
- Step 6** Click **Save**.
- Step 7** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- Step 8** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
- 

### **Create or Edit a RADIUS Server Object or Group**

#### **About RADIUS Server Objects or Groups**

When you create or edit an identity source object such as a RADIUS server object or a group of RADIUS server objects, Security Cloud Control sends the configuration request to the FDM-managed devices through the SDC. The FDM-managed device then communicates with the configured AD realm.

#### *Create a RADIUS Server Object*

RADIUS servers provide AAA (authentication, authorization, and accounting) services.

Use the following procedure to create an object:

## Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click , then click **RA VPN Objects (ASA & FTD) > Identity Source**.
- Step 3** Enter an **Object name** for the object.
- Step 4** For the **Device Type**, select **FTD**.
- Step 5** For the **Identity Source** type, select **RADIUS Server**. Click **Continue**.
- Step 6** Edit the Identity Source configuration with the following properties:
- **Server Name or IP Address** - The fully-qualified host name (FQDN) or IP address of the server.
  - **Authentication Port** (Optional) - The port on which RADIUS authentication and authorization are performed. The default is 1812.
  - **Timeout** - The length of time, 1-300 seconds, that the system waits for a response from the server before sending the request to the next server. The default is 10 seconds.
  - Enter the **Server Secret Key**(Optional) - The shared secret that is used to encrypt data between the Firepower Threat Defense device and the RADIUS server. The key is a case-sensitive, alphanumeric string of up to 64 characters, with no spaces. The key must start with an alphanumeric character or an underscore, and it can contain the special characters: \$ & - \_ . + @. The string must match the one configured on the RADIUS server. If you do not configure a secret key, the connection is not encrypted.
- Step 7** If you have Cisco Identity Services Engine (ISE) already configured for your network and are using the server for remote access VPN Change of Authorization configuration, click the **RA VPN Only** link and configure the following:
- **Redirect ACL** - Select the extended Access Control List (ACL) to use for the RA VPN redirect ACL. If you do not have an extended ACL you must create the required extended ACL object from a Smart CLI template in the FDM-managed device console. See the **Configuring Smart CLI Objects** section of the Advanced Configuration chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running. The purpose of the redirect ACL is to send initial traffic to ISE to assess the client posture. The ACL should send HTTPS traffic to ISE, but not traffic that is already destined for ISE, or traffic that is directed to a DNS server for name resolution. See the **Configure Change of Authorization** section of the Virtual Private Networks (VPN) chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.
  - **Diagnostic Interface** -Enabling this option allows the system to always use the "Diagnostic" interface to communicate with the server. If you leave this disabled, Security Cloud Control will default to using the routing table to determine the which interface to use.
- Step 8** Click **Add**.
- Step 9** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
-

### Create a RADIUS Server Group

A RADIUS server group contains one or more RADIUS server objects. The servers within a group must be copies of each other. These servers form a chain of backup servers, so that if the first server is unavailable, the system can try the next server in the list.

Use the following procedure to create an object group:

#### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click , then click **FTD > Identity Source**.
- Step 3** Enter an **Object name** for the object.
- Step 4** Select the **Device Type** as **FTD**.
- Step 5** Select **RADIUS Server Group** as the Identity Source Type. Click **Continue**.
- Step 6** Edit the Identity Source configuration with the following properties:
- **Dead Time** - Failed servers are reactivated only after all servers have failed. The dead time is how long to wait after the last server fails before reactivating all servers.
  - **Maximum Failed Attempts** - The number of failed requests (that is, requests that do not get a response) sent to a RADIUS server in the group before trying the next server. When the maximum number of failed attempts is exceeded, the system marks the server as Failed. For a given feature, if you configured a fallback method using the local database, and all the servers in the group fail to respond, then the group is considered to be unresponsive, and the fallback method is tried. The server group remains marked as unresponsive for the duration of the dead time, so that additional AAA requests within that period do not attempt to contact the server group, and the fallback method is used immediately.
  - **Dynamic Authorization/Port** (Optional) - If you enable RADIUS dynamic authorization or change of authorization (CoA) services for this RADIUS server group, the group will be registered for CoA notification and listen on the specified port for CoA policy updates from Cisco Identity Services Engine (ISE). Enable dynamic authorization only if you are using this server group in a remote access VPN in conjunction with ISE.
- Step 7** Select an AD realm that supported the RADIUS server from the drop-down menu. If you have not already created an AD realm, click **Create** from inside the drop-down menu.
- Step 8** Click the **Add** button  to add existing RADIUS server objects. Optionally, you can create a new RADIUS server object from this window is necessary.
- Note**  
Add these objects in priority, as the first server in the list is used until it is unresponsive. FDM-managed device then defaults to the next server in the list.
- Step 9** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
-

### Edit a Radius Server Object or Group

Use the following procedure to edit a Radius server object or Radius server group:

#### Procedure

- 
- |               |                                                                                                                                                                                                       |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, click <b>Manage &gt; Objects</b> .                                                                                                                                                  |
| <b>Step 2</b> | Locate the object you want to edit by using object filters and search field.                                                                                                                          |
| <b>Step 3</b> | Select the object you want to edit.                                                                                                                                                                   |
| <b>Step 4</b> | Click the edit icon  in the <b>Actions</b> pane of the details panel.                                                |
| <b>Step 5</b> | Edit the values in the dialog box in the same fashion that you created them in the procedures above. To edit or test the hostname/IP address or encryption information, expand the configuration bar. |
| <b>Step 6</b> | Click <b>Save</b> .                                                                                                                                                                                   |
| <b>Step 7</b> | Security Cloud Control displays the policies that will be affected by the change. Click <b>Confirm</b> to finalize the change to the object and any policy affected by it.                            |
| <b>Step 8</b> | <a href="#">Review and Deploy</a> now the changes you made, or wait and deploy multiple changes at once.                                                                                              |
- 

## Security Zone Object

A security zone is a grouping of interfaces. Zones divide the network into segments to help you manage and classify traffic. You can define multiple zones, but a given interface can be in one zone only.

The Firepower system creates the following zones during initial configuration and they are displayed in Security Cloud Control's object page. You can edit zones to add or remove interfaces, or you can delete the zones if you no longer use them.

- **inside\_zone**-Includes the inside interface. This zone is intended to represent internal networks.
- **outside\_zone**-Includes the outside interface. This zone is intended to represent networks external to your control, such as the internet.

Typically, you would group interfaces by the role they play in your network. For example, you would place the interface that connects to the internet in the **outside\_zone** security zone, and all of the interfaces for your internal networks in the **inside\_zone** security zone. Then, you could apply access control rules to traffic coming from the outside zone and going to the inside zone.

Before creating zones, consider the access rules and other policies you want to apply to your networks. For example, you do not need to put all internal interfaces into the same zone. If you have 4 internal networks, and you want to treat one differently than the other three, you can create two zones rather than one. If you have an interface that should allow outside access to a public web server, you might want to use a separate zone for the interface.

#### Related Information:

- [Create or Edit a Firepower Security Zone Object](#)



## Create or Edit a Firepower Security Zone Object

A security zone is a grouping of interfaces. Zones divide the network into segments to help you manage and classify traffic. You can define multiple zones, but a given interface can be in one zone only.

A security zone object is not associated with a device unless it is used in a rule for that device.

### Create a Security Zone Object

To create a security zone object, follow these instructions:

#### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
  - Step 2** Click  > **FTD > Security Zone** to create the object.
  - Step 3** Give the object a name and, optionally, a description.
  - Step 4** Select the interfaces to put in the security zone.
  - Step 5** Click **Add**.
- 

### Edit a Security Zone Object

After onboarding an FDM-managed device, you will find there are already at least two security zones, one is the `inside_zone` and the other is the `outside_zone`. These zones can be edited or deleted. To edit any security zone object, follow these instructions:

#### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
  - Step 2** Find the object you want to edit:
    - If you know the name of the object, you can search for it in the Objects page:
      - Filter the list by security zone.
      - Enter the name of the object in the search field.
      - Select the object.
    - If you know the object is associated with a device, you can search for it starting on the **Security Devices** page:
      - In the left pane, click **Security Devices**.
      - Click the **Devices** tab.
      - Click the appropriate tab.
      - Use the device [filter](#) and [search](#) bar to locate your device.

- Select the device.
- In the Management pane at the right, click  **Objects**.
- Use the object filter  and search bar to locate the object you are looking for.

**Note**

If the security zone object you created is not associated with a rule in a policy for your device, it is considered "unassociated" and you will not see it among the search results for a device.

- Step 3** Select the object.
- Step 4** Click the **Edit** icon  in the Actions pane at the right.
- Step 5** After editing any of the attributes of the object. Click **Save**.
- Step 6** After clicking Save you receive a message explaining how these changes will affect other devices. Click **Confirm** to save the changes or **Cancel**.
- 

## Service Objects

### ASA Service Objects

ASA service objects, service groups, and port groups are reusable components that contain protocols or ports considered part of the IP protocol suite. In a service object you can specify a single protocol and assign it to a source port, destination port, or both source and destination ports. A service group contains many service objects and can include a mix of protocols.

A port group is a kind of ASA service object. Port groups contain port objects that pair a service type, such as TCP or UDP, and a port number or a range of port numbers. You can then use the objects in security policies for the purposes of defining traffic matching criteria. For example, you can use them in access control rules to allow traffic to a specific range of TCP ports.

See [Create and Edit ASA Service Objects](#) for more information.

### Firepower Service Objects

FTD service objects, service groups, and port groups are reusable components that contain protocols or ports considered part of the IP protocol suite.

FTD service groups are collections of service objects. A service group may contain objects for one or more protocols. You can use the objects and groups in security policies for purposes of defining network traffic matching criteria, for example, to use access rules to allow traffic to specific TCP ports. The system includes several pre-defined objects for common services. You can use these objects in your policies; however, you cannot edit or delete system-defined objects.

Firepower Device Manager and Firepower Management Center refer to service objects as port objects and service groups and port groups.

See [Create and Edit Firepower Threat Defense Service Objects](#) for more information.

## Protocol Objects

Protocol objects are a type of service object that contain less-commonly used or legacy protocols. Protocol objects are identified by a name and [protocol number](#). Security Cloud Control recognizes these objects in ASA and Firepower (FDM-managed device) configurations and gives them their own filter of "Protocols" so you can find them easily.

See [Create and Edit Firepower Threat Defense Service Objects](#) for more information.

## ICMP Objects

An Internet Control Message Protocol (ICMP) object is a service object specifically for ICMP and IPv6-ICMP messages. Security Cloud Control recognizes these objects in ASA and Firepower configurations when those devices are onboarded and Security Cloud Control gives them their own filter of "ICMP" so you can find the objects easily.

Using Security Cloud Control, you can rename or remove ICMP objects from an ASA configuration. You can use Security Cloud Control to create, update, and delete ICMP and ICMPv6 objects in a Firepower configuration.



**Note** For the ICMPv6 protocol, AWS does not support choosing specific arguments. Only rules that allow all ICMPv6 messages are supported.

See [Create and Edit Firepower Threat Defense Service Objects](#) for more information.

Related Information:

- [Deleting Objects, on page 32](#)

## Create and Edit ASA Service Objects

In a service object, you can specify a single protocol and assign it to a source port, destination port, or both source and destination ports.

### Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click **Create Object > ASA > Service**.
- Step 3** Enter an object name.
- Step 4** Select **Create a service object**
- Step 5** Click the **Service Type** button and select the protocol for which you want to make an object.
  - **For TCP, UDP, and TCP-UDP service types**, enter a source port, destination port, or both:
    - The source port identifier allows you to match traffic originating from a particular numbered port. In the source port identifier, select an operator: equal to, range, less than, greater than, or not equal to and provide the appropriate port number or range.

- The destination port identifier allows you to match traffic arriving at a particular numbered port. In the destination port identifier, select an operator: equal to, range, less than, greater than, or not equal to and provide the appropriate port number or range.
- **For Protocol service types**, enter a [protocol number](#) between 0-255, or a well-known name, such as ip, tcp, udp, gre, and so forth.

**Step 6** Click **Add**.

---

#### Examples

- A service object that identifies incoming FTP traffic would be one with a TCP Service type and a destination port range of 21.
- A service object that identifies outgoing DNS and DNS over TCP traffic would be one with a tcp-udp service type and a source port equal to 53.

### Create an ASA Service Group

A service group can be made up of one or more service objects representing one or more protocols.

#### Procedure

---

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click **Create Object > ASA > Service**.
- Step 3** Enter an object name.
- Step 4** Select **Create a service group**.
- Step 5** Add an existing object by clicking **Add Object**, selecting an object, and clicking **Select**. Repeat this step to add more objects.
- Step 6** If needed, add an extra individual service type value to the service group
- **For TCP, UDP, and TCP-UDP service types**, enter a source port, destination port, or both:
    - The source port identifier allows you to match traffic originating from a particular numbered port. In the source port identifier, select an operator: equal to, range, less than, greater than, or not equal to and provide the appropriate port number or range.
    - The destination port identifier allows you to match traffic arriving at a particular numbered port. In the destination port identifier, select an operator: equal to, range, less than, greater than, or not equal to and provide the appropriate port number or range.
  - **For Protocol service types**, enter a [protocol number](#) between 0-255, or a well-known name, such as ip, tcp, udp, gre, and so forth.
- Step 7** To add more individual port values, click **Add Another Value** and repeat step 6.
- Step 8** Click **Add** when you are done adding service objects and service values to the service group.
-

## Edit an ASA Service Object or Service Group

### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Filter the objects to find the object you want to edit and then select the object in the object table.
- Step 3** In the details pane, click edit .
- Step 4** Edit the values in the dialog box in the same fashion that you created them in the procedures above.
- Step 5** Click **Save**.
- Step 6** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- 

## Create and Edit Firepower Service Objects

To create a firepower service object, follow these steps:

Firewall Device Manager (FDM-managed) service objects are reusable components that specify a TCP/IP protocol and a port. The Firewall Device Manager, On-Premises Firewall Management Center and Cloud-Delivered Firewall Management Center refer to these objects as "Port Objects."

### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  > **FTD > Service**.
- Step 3** Enter an object name and description.
- Step 4** Select **Create a service object**.
- Step 5** Click the **Service Type** button and select the protocol for which you want to create an object.
- Step 6** Configure the protocol as follows:
- **TCP, UDP**
    - Select **eq** and then enter either a port number or a protocol name. For example, you could enter 80 as a port number or HTTP as the protocol name.
    - You can also select **range** and then enter a range of port numbers, for example, **1 65535** (to cover all ports).
  - **ICMP, IPv6-ICMP**-Select the **ICMP Type**. Select **Any** for the type to apply to all ICMP messages. For information on the types and codes, see the following pages:
    - ICMP-<http://www.iana.org/assignments/icmp-parameters/icmp-parameters.xml>
    - ICMPv6-<http://www.iana.org/assignments/icmpv6-parameters/icmpv6-parameters.xml>
  - **Other**-Select the desired protocol.

**Step 7** Click **Add**.

**Step 8** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes at once.

---

## Create a Firepower Service Group

A service group can be made up of one or more service objects representing one or more protocols. The service objects need to be created before they can be added to the group. The Firepower Device Manager and Firepower Management Center refer to these objects as "Port Objects."

### Procedure

---

**Step 1** In the left pane, click **Manage > Objects**.

**Step 2** Click  > **FTD > Service**.

**Step 3** Enter an object name and description.

**Step 4** Select **Create a service group**.

**Step 5** Add an object to the group by clicking **Add Object**.

- Click **Create** to create a new object as you did above in [Create a Firepower Service Object](#) above.
- Click **Choose** to add an existing service object to the group. Repeat this step to add more objects.

**Step 6** Click **Add** when you are done adding service objects to the service group.

**Step 7** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes at once.

---

## Edit a Firepower Service Object or Service Group

### Procedure

---

**Step 1** In the left pane, click **Manage > Objects**.

**Step 2** Filter the objects to find the object you want to edit and then select the object in the object table.

**Step 3** In the Actions pane, click **Edit** .

**Step 4** Edit the values in the dialog box in the same fashion that you created them in the procedures above.

**Step 5** Click **Save**.

**Step 6** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.

**Step 7** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes at once.

---

# Security Group Tag Group

## Security Group Tags

### About Security Group Tags

If you use Cisco Identity Services Engine (ISE) to define and use **security group tag** (SGT) for classifying traffic in a Cisco TrustSec network, you can write access control rules that use SGT as matching criteria. Thus, you can block or allow access based on security group membership rather than IP addresses.

In ISE, you can create a SGT and assign host or network IP addresses to each tag. If you assign an SGT to a user's account, the SGT is assigned to the user's traffic. After you configure FDM-managed device to connect to an ISE server and create the SGT, you can create SGT groups in Security Cloud Control and build access control rules around them. Note that you must configure ISE's SGT Exchange Protocol (SXP) mapping before you can associate an SGT to an FDM-managed device. See **Security Group Tag Exchange Protocol** in the [Cisco Identity Services Engine Administrator Guide](#) of the version you are currently running for more information.

When an FDM-managed device evaluates SGT as a traffic matching criteria for an access control rule, it uses the following priority:

1. The source SGT defined in the packet, if any. No destination matching is done using this technique. For the SGT to be in the packet, the switches and routers in the network must be configured to add them. See the ISE documentation for information on how to implement this method.
2. The SGT assigned to the user session, as downloaded from the ISE session directory. You need to enable the option to listen to session directory information for this kind of SGT matching, but this option is on by default when you first create the ISE identity source. The SGT can be matched to source or destination. Although not required, you would also normally set up a passive authentication identity rule, using the ISE identity source along with an AD realm, to collect user identity information.
3. The SGT-to-IP address mapping downloaded using SXP. If the IP address is within the range for an SGT, then the traffic matches the access control rule that uses the SGT. The SGT can be matched to source or destination.



---

**Note** You cannot use the information retrieved from ISE directly in an access control rule. Instead, you need to create SGT groups, which refer to the downloaded SGT information. Your SGT groups can refer to more than one SGT, so you can apply policy based on a relevant collections of tags if that is appropriate.

---

### Version Support

Security Cloud Control currently supports SGT and SGT groups on FDM-managed devices running Version 6.5 and later. An FDM-managed device allows you to configure and connect to an ISE server in Version 6.5 and later but does not support SGT configuration in the UI until Version 6.7.

From the FDM-managed UI, this means that an FDM-managed device running Version 6.5 or later can download SXP mappings of SGTs but cannot be manually added to objects or access control rules. To make changes to the SGTs for devices running Version 6.5 or Version 6.6, you must use the ISE UI. If the device running Version 6.5 is onboarded to Security Cloud Control, however, you can see the current SGTs associated with the device and create SGT groups.

## SGT in Security Cloud Control

### Security Group Tags

SGTs are read-only in Security Cloud Control. You cannot create or edit an SGT in Security Cloud Control. To create an SGT, see the [Cisco Identity Services Engine Administrator Guide](#) of the version your are currently running.

### SGT Groups



**Note** An FDM-managed device refers to groups of SGTs as SGT dynamic objects. In Security Cloud Control, these lists of tags are currently called SGT groups. You can create an SGT group in Security Cloud Control without referring to the FDM-managed device or ISE UI.

Use SGT groups to identify source or destination addresses based on an SGT assigned by ISE. You can then use the objects in access control rules for purposes of defining traffic matching criteria. You cannot use the information retrieved from ISE directly in an access control rule. Instead, you need to create SGT groups, which refer to the downloaded SGT information.

Your SGT groups can refer to more than one SGT, so you can apply policy based on relevant collections of tags if that is appropriate.

In order to create an SGT group in Security Cloud Control, you must have at least one SGT already configured and SGT mappings from an ISE server configured for the FDM-managed console of the device you want to use. Note that if more than one FDM-managed device is associated with the same ISE server, an SGT or SGT group can be applied to more than one device. If a device is not associated with an ISE server, you cannot include SGT objects in your access control rule, or apply an SGT group to that device configuration.

### SGT Groups in Rules

SGT groups can be added to access control rules; they appear as source or destination network objects.

You can create an SGT group from the Objects page. See [Create an SGT Group, on page 97](#) for more information.

## Create an SGT Group

To create an SGT group that can be used for an access control rule, use the following procedure:

### Before you begin

You must have the following configurations or environments configured prior to creating a security group tag (SGT) group:

- FDM-managed device must be running at least Version 6.5.
- You must configure the ISE identity source to subscribe to SXP mappings and enable deploy changes. To manage SXP mappings, see [Configure Security Groups and SXP Publishing in ISE](#) of the [Firepower Device Manager Configuration Guide](#) for the version you're using, Version 6.7 and later.
- All SGTs must be created in ISE. To create an SGT, see the [Cisco Identity Services Engine Configuration Guide](#) of the version your are currently running.



## Edit an SGT Group

To edit an SGT group, use the following procedure:

### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
  - Step 2** Locate the SGT group you want to edit by using object filters and search field.
  - Step 3** Select the SGT group and click the edit icon  in the **Actions** pane.
  - Step 4** Modify the SGT group. Edit the name, description, or the SGTs associated with the group.
  - Step 5** Click **Save**.

#### Note

You cannot create or edit SGTs in Security Cloud Control, you can only add or remove them from an SGT group. To create or edit an SGT, see the [Cisco Identity Services Engine Configuration Guide](#) of the version you are currently running.

---

## Add an SGT Group to an Access Control Rule

To add an SGT group to an access control rule, use the following procedure:

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
  - Step 4** Click the **FTD** tab and select the device you want to add the SGT group to.
  - Step 5** In the **Management** pane, select **Policy**.
  - Step 6** Click the blue plus button  for either the **Source** or **Destination** objects and select **SGT Groups**.
  - Step 7** Locate the SGT group(s) you want to edit by using object filters and search field.
  - Step 8** Click **Save**.
  - Step 9** [Preview and Deploy Configuration Changes for All Devices](#).

#### Note

If you need to create an additional SGT group, click **Create New Object**. Fill in the required information mentioned in [Create an FTD SGT Group](#) and **Add** the SGT group to the rule.

---

## Syslog Server Objects

FDM-managed devices have a limited capacity to store events. To maximize storage for events, you can configure an external server. A system log (syslog) server object identifies a server that can receive connection-oriented or diagnostic syslog messages. If you have a syslog server set up for log collection and analysis, you can use the Security Cloud Control to create objects to define them and use the objects in the related policies.

### Create and Edit Syslog Server Objects

To create a new syslog server object, follow these steps:

#### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click the **Create Object** button .
- Step 3** Select **Syslog Server** under FDM-managed device object types
- Step 4** Configure the syslog server object properties:
- **IP Address**—Enter the IP address of the syslog server.
  - **Protocol Type**—Select the protocol that your syslog server uses to receive messages. If you select TCP, the system can recognize when the syslog server is not available, and stops sending events until the server is available again.
  - **Port Number**—Enter a valid port number to use for syslog. If your syslog server uses default ports, enter 514 as the default UDP port or 1470 as the default TCP port. If the server does not use default ports, enter the correct port number. The port must be in the range 1025 to 65535.
  - **Select an interface**—Select which interface should be used for sending diagnostic syslog messages. Connection and intrusion events always use the management interface. Your interface selection determines the IP address associated with syslog messages. Note that you can only select **one** of the options listed below. You cannot select both. Select one of the following options:
    - **Data Interface**—Use the data interface you select for diagnostic syslog messages. Select an interface from the generated list. If the server is accessible through a bridge group member interface, select the bridge group interface (BVI). If it is accessible through the Diagnostic interface (the physical management interface), we recommend that you select Management Interface instead of this option. You cannot select a passive interface. For connection and intrusion syslog messages, the source IP address will either be for the management interface, or for the gateway interface if you route through data interfaces.
    - **Management Interface**—Use the virtual management interface for all types of syslog messages. The source IP address will either be for the management interface, or for the gateway interface if you route through data interfaces.
- Step 5** Click **Add**.
- Step 6** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
-

## Edit Syslog Server Objects

To edit an existing syslog server object, follow these steps:

### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
  - Step 2** Locate the desired syslog server object and select it. You can **filter**  the object list by the syslog server object type.
  - Step 3** In the Actions pane, click **Edit**.
  - Step 4** Make the desired edits and click **Save**.
  - Step 5** Confirm the changes you made.
  - Step 6** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
- 

### Related Information:

- [Deleting Objects](#)

## Create a Syslog Server Object for Secure Logging Analytics (SaaS)

Create a syslog server object with the IP address, TCP port, or UDP port of the Secure Event Connector (SEC) you want to send events to. You would create one syslog object for every SEC that you have onboarded to your tenant but you would only send events from one rule to one syslog object representing one SEC.

### Procedure

#### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
  - Step 2** Click the **Create Object** button .
  - Step 3** Select **Syslog Server** under FDM-managed device object types.
  - Step 4** Configure the syslog server object properties. To find these properties of the SEC, from the navigation pane on the left, choose **Tools & Services > Secure Connectors**. Then select the Secure Event Connector you want to configure the syslog object for and look in the Details pane on the right.
    - **IP Address**—Enter the IP address of the SEC.
    - **Protocol Type**—Select TCP or UDP.
    - **Port Number**—Enter port 10125 if you selected TCP or 10025 if you selected UDP.
    - **Select an interface**—Select the interface configured to reach the SEC.

### Note

FDM-managed device supports one syslog object per IP address so you will have to choose between using TCP and UDP.

**Step 5** Click **Add**.

---

## ASA Time Range Objects

### What is a Time Range Object?

A time range object defines a specific time consisting of a start time, an end time, and optional recurring entries. You use these objects in network policies to provide time-based access to certain features or assets. For example, you could create an access rule that allows access to a particular server during working hours only. Creating a time range does not restrict access to the device. Note that the times configured for these objects are local to the device.

You can add an absolute or recurring time ranges to this object. Recurring ranges are considered to be periodic time ranges.



**Note** If a time range has both absolute and periodic values specified, then the periodic values are evaluated only after the absolute start time is reached and they are not further evaluated after the absolute end time is reached.

---

## Create an ASA Time Range Object

Use the following procedure to create a time range object for an ASA device:

### Procedure

---

**Step 1** In the left pane, click **Manage > Objects**.

**Step 2** Click  > **ASA > Time Range**.

**Step 3** Enter an object name.

**Step 4** Define a time range.

- **Absolute Time Range** - Enter a Start Time and an End Time for the desired time range; you can choose to execute this object over a matter of minutes, hours, days, or weeks. A time range object can only have one absolute time range.
- **Recurring Time Ranges** - click the  to add a periodic time range that will repeat throughout the week. Select the **Frequency** from the drop-down menu, the **Days** of the week the time range should go into effect, and the **Start** and **End** times. A time range object can have multiple periodic ranges.

### Note

The **start** and **end** times for a time range object are optional. If an object has no start time established, the time range goes into effect immediately. If an object has no end time established, the time range lasts indefinitely.

**Step 5** Click **Add** to create the object.

---

## Edit an ASA Time Range Object

Use the following procedure to edit a time range object for an ASA device:

### Procedure

---

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Filter the objects to find the object you want to edit and then select the object in the object table.
- Step 3** In the details pane, click edit .
- Step 4** Edit the values as needed and click **Save**.
- Step 5** If the object is currently used by any policies, Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- Step 6** If the object is used in a policy on a device, [review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
- 

### Related Information:

- [Deleting Objects](#)
- [ASA Access List](#)





## CHAPTER 9

# Configure Secure Firewall ASA Devices

- [Update ASA Connection Credentials in Security Cloud Control, on page 343](#)
- [ASA Interface Configuration, on page 344](#)
- [ASA System Settings Policy in Security Cloud Control, on page 357](#)
- [ASA Routing in Security Cloud Control, on page 368](#)
- [Manage Security Policies in Security Cloud Control, on page 371](#)
- [Manage ASA Network Security Policy, on page 372](#)
- [Compare ASA Network Policies, on page 382](#)
- [Hit Rates, on page 383](#)
- [Search and Filter ASA Network Rules in the Access List , on page 383](#)
- [Shadowed Rules, on page 385](#)
- [Network Address Translation, on page 387](#)
- [Order of Processing NAT Rules, on page 388](#)
- [Network Address Translation Wizard, on page 389](#)
- [Common Use Cases for NAT, on page 390](#)
- [API Tokens, on page 400](#)
- [Manage ASA Certificates, on page 401](#)
- [ASA File Management, on page 409](#)
- [Managing ASAs with Pre-existing High Availability Configuration, on page 413](#)
- [Manage ASA Configuration Files, on page 414](#)
- [Configure DNS on ASA, on page 415](#)
- [ASA Command Line Interface, on page 415](#)

## Update ASA Connection Credentials in Security Cloud Control

In the process of onboarding an ASA, you entered the username and password Security Cloud Control must use to connect to the device. If those credentials are changed on the device, use the **Update Credentials** device action to update those credentials on Security Cloud Control as well. This feature allows you to update the credentials on Security Cloud Control without having to re-onboard the device. The username and password combination you switch to must already exist on the ASA or Authentication, Authorization, and Accounting (AAA) server for that user. This process only affects the Security Cloud Control database; no changes to the ASA configuration are made when using the Update Credentials feature.

### Procedure

- 
- Step 1** In the left pane, click **Security Devices**.
  - Step 2** In the left pane, click **Inventory**.
  - Step 3** Click the **Devices** tab and then click **ASA**.
  - Step 4** Select the ASAs whose connection credentials it is you want to update. You can update the credentials on one or multiple ASAs at once.
  - Step 5** In the **Device Actions** pane, click **Update Credentials**.
  - Step 6** Select the Cloud Connector or the Secure Device Connector (SDC) you use to connect the ASA(s) to Security Cloud Control.
  - Step 7** Enter the new username and password you want to use to connect to the ASAs.
  - Step 8** After the credentials are changed, Security Cloud Control syncs the device.

#### Note

If Security Cloud Control fails to sync the device, the connectivity status in Security Cloud Control may show "Invalid Credentials." If that's the case, you may have tried to use an invalid username and password combination. Make sure the credentials you want to use are stored on your ASA or AAA server, and try again.

---

## Move an ASA from one SDC to Another

### Procedure

- 
- Step 1** In the left pane, click **Security Devices**
  - Step 2** In the left pane, click **Inventory**.
  - Step 3** Select the ASAs you want to move to the other SDC.
  - Step 4** In the Device Actions pane, click **Update Credentials**.
  - Step 5** Click the Secure Device Connector button and select the SDC you want to move the device to.
  - Step 6** Enter the administrator username and password you used to onboard the ASA, and click Update. You do not have to deploy these changes to the device.
- 

## ASA Interface Configuration

Security Cloud Control simplifies ASA interface configuration by providing a user-friendly interface that eliminates the need to use the command line interface. You have complete control over configuring the ASA's physical interfaces, subinterfaces, and EtherChannels. Moreover, you can also view Virtual Tunnel Interfaces that are created during route-based site-to-site VPN, but they are read-only. You can use Security Cloud Control to configure and edit data interfaces or the management/diagnostic interface on an ASA device.



When you attach a cable to an interface connection (physically or virtually), you need to configure the interface. At minimum, you need to name the interface and enable it for traffic to pass through it. If the interface is a member of a bridge group, naming the interface is sufficient. If the interface is a bridge virtual interface (BVI), you need to assign the BVI an IP address. If you intend to create VLAN subinterfaces rather than a single physical interface on a given port, you would typically configure the IP addresses on the subinterface, not on the physical interface. VLAN subinterfaces let you divide a physical interface into multiple logical interfaces that are tagged with different VLAN IDs.

The interface list shows the available interfaces, their names, addresses, and states. You can change the state of an interface, on or off, or edit an interface, by selecting the interface row and clicking **Edit** in the Actions pane. The list shows the interface characteristics based on your configuration. Expand an interface row to see subinterfaces or bridge group member.

### Management Interface

You can manage the ASA by connecting to:

- Any through-traffic interface
- A dedicated Management Slot/Port interface (if available for your model)

### Use MTU Settings

The MTU specifies the maximum frame payload size that the device can transmit on a given Ethernet interface. The MTU value is the frame size without Ethernet headers, VLAN tagging, or other overhead. For example, when you set the MTU to 1500, the expected frame size is 1518 bytes including the headers, or 1522 when using VLAN. Do not set the MTU value higher to accommodate these headers.

### Read-only Support for Virtual Tunnel Interface (VTI)

Configuring a route based site-to-site VPN tunnel between two ASA devices creates a Virtual Tunnel Interface (VTI) between the devices. Devices with configured VTI tunnels can be onboarded to Security Cloud Control, which discovers and lists them on the **ASA Interfaces** page but doesn't support their management.

## Configure an ASA Physical Interface

### Procedure

- 
- |               |                                                                                                                                             |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, click <b>Security Devices</b> .                                                                                           |
| <b>Step 2</b> | In the left pane, click <b>Inventory</b> .                                                                                                  |
| <b>Step 3</b> | Click the <b>ASA</b> tab.                                                                                                                   |
| <b>Step 4</b> | Select the device you want to modify, and in the <b>Management</b> pane on the right, click <b>Interfaces</b> .                             |
| <b>Step 5</b> | Click a physical interface that you want to configure, and click <b>Edit</b> .<br>The <b>Editing Physical Interface</b> dialog box appears. |
| <b>Step 6</b> | In the <b>Logical Name</b> field, enter a name for the interface.                                                                           |
| <b>Step 7</b> | Continue with one of the following procedures:                                                                                              |

- [Configure IPv4 Addressing for the Physical Interface](#) if you intend to assign an IPv4 address to this interface.
- [Configure IPv6 Addressing for ASA Physical Interface, on page 347](#) if you intend to assign an IPv6 address to this interface.
- [Configure Advanced ASA Physical Interface Options](#). The advanced settings have defaults that are appropriate for most networks. Edit them only if you are resolving network issues.
- If you saved the interface, and you don't want to continue advanced interface options, continue to [Enable the Physical Interface](#).

## Configure IPv4 Addressing for ASA Physical Interface

### Procedure

**Step 1** In the **Edit Physical Interface** dialog box, configure the following in the **IPv4 Address** tab:

- **Type:** You can use either static IP addressing or DHCP for the interface.
  - Static** - Choose this option if you want to assign an address that should not change.
    - **IP Address and Subnet Mask:** Enter the interface's IP address and the subnet mask for the network attached to the interface.
    - **Standby IP Address:** If you configured high availability and are monitoring this interface for HA, also configure a standby IP address on the same subnet. This interface on the standby device uses the standby address.

For each interface, set a standby IP address. Although recommended, the standby address is not required. Without a standby IP address, the active unit cannot perform network tests to check the standby interface health; it can only track the link state.
  - DHCP:** Choose this option if the address should be obtained from the DHCP server on the network.
- You can check the **Obtain Default Route** check box to get the default route from the DHCP server. You would normally check this option.

**Step 2** Click **Save** if you are done or continue with one of these procedures.

- [Configure IPv6 Addressing for ASA Physical Interface, on page 347](#) if you intend to assign an IPv6 address to this interface.
- [Configure Advanced ASA Physical Interface Options](#). The advanced settings have defaults that are appropriate for most networks. Edit them only if you are resolving network issues.
- If you saved the interface, and you don't want to continue advanced interface options, continue to [Enable the Physical Interface](#).

## Configure IPv6 Addressing for ASA Physical Interface

### Procedure

**Step 1** In the **Editing Physical Interface** dialog box, click the **IPv6 Address** tab.

**Step 2** Configure the following:

- **State:** To enable IPv6 processing and to automatically configure the link-local address when you do not configure the global address, click the **State** slider to enable it. The link-local address is generated based on the interface MAC addresses (Modified EUI-64 format).

#### Note

Disabling IPv6 does not disable IPv6 processing on an interface that is configured with an explicit IPv6 address or that is enabled for auto configuration.

- **Address Auto Configuration:**

Check this option to have the address automatically configured. IPv6 stateless autoconfiguration will generate a global IPv6 address only if the link on which the device resides has a router configured to provide IPv6 services, including the advertisement of an IPv6 global prefix for use on the link. If IPv6 routing services are not available on the link, you will get a link-local IPv6 address only, which you cannot access outside of the device's immediate network link. The link local address is based on the Modified EUI-64 interface ID.

Although RFC 4862 specifies that hosts configured for stateless autoconfiguration do not send Router Advertisement messages, the device does send Router Advertisement messages in this case. Select **Suppress RA** to suppress messages and conform to the RFC.

- **Suppress RA:** Check this box if you want to suppress router advertisements. The device can participate in router advertisements so that neighboring devices can dynamically learn a default router address. By default, router advertisement messages (ICMPv6 Type 134) are periodically sent out each IPv6 configured interface.

Router advertisements are also sent in response to router solicitation messages (ICMPv6 Type 133). Router solicitation messages are sent by hosts at system startup so that the host can immediately autoconfigure without needing to wait for the next scheduled router advertisement message.

You might want to suppress these messages on any interface for which you do not want the device to supply the IPv6 prefix (for example, the outside interface).

- **DAD Attempts:** How often the interface performs Duplicate Address Detection (DAD), from 0 - 600. The default is 1. During the stateless auto configuration process, DAD verifies the uniqueness of new unicast IPv6 addresses before the addresses are assigned to interfaces. If the duplicate address is the link-local address of the interface, the processing of IPv6 packets is disabled on the interface. If the duplicate address is a global address, the address is not used. The interface uses neighbor solicitation messages to perform Duplicate Address Detection. Set the value to 0 to disable duplicate address detection (DAD) processing.
- **Link-Local Address:** If you want to use the address as link local only, enter it in the Link-Local Address field. Link local addresses are not accessible outside the local network. You cannot configure a link-local address on a bridge group interface.

#### Note

A link-local address should start with FE8, FE9, FEA, or FEB, for example fe80::20d:88ff:feee:6a82. Note that we recommend automatically assigning the link-local address based on the Modified EUI-64 format. For example, if other devices enforce the use of the Modified EUI-64 format, then a manually-assigned link-local address may cause packets to be dropped.

- **Standby Link-Local Address:** Configure this address if the interface connects a high availability pair of devices. Enter the link-local address of the interface on the other device, to which this interface is connected.
- **Static Address/Prefix:** If you do not use stateless autoconfiguration, enter the full static global IPv6 address and network prefix. For example, 2001:0DB8::BA98:0:3210/48. You can add another static address.
- **Standby IP Address:** If you configure high availability, and you are monitoring this interface for HA, also configure a standby IPv6 address on the same subnet. The standby address is used by this interface on the standby device. If you do not set the standby IP address, the active unit cannot monitor the standby interface using network tests; it can only track the link state.

**Step 3** Click **Save** if you are done or continue with one of these procedures.

- [Configure Advanced ASA Physical Interface Options](#). The advanced settings have defaults that are appropriate for most networks. Edit them only if you are resolving network issues.
- If you saved the interface, and you don't want to continue advanced interface options, continue to [Enable the Physical Interface](#).

## Configure Advanced ASA Physical Interface Options

Advanced interface options have default settings that are appropriate for most networks. Configure them only if you are resolving networking problems.

The following procedure assumes the interface is already defined. You can also edit these settings while initially editing or creating the interface.

This procedure and all of the steps in it are optional.

### Procedure

**Step 1** In the **Editing Physical Interface** dialog box, click the **Advanced** tab.

**Step 2** Configure the following advanced settings:

- **HA Monitoring:** Enable to include the health of the interface as a factor when the HA pair decides whether to fail over to the peer unit in a high availability configuration. This option is ignored if you do not configure high availability. It is also ignored if you do not configure a name for the interface.
- **Management Only:** Enable to make a data interface management only.

A management only interface does not allow through traffic, so there is very little value in setting a data interface as a **management only** interface. You cannot change this setting for the Management/Diagnostic interface, which is always management only.

- **MTU:** The default MTU is 1500 bytes. You can specify a value from 64 - 9198. Set a high value if you typically see jumbo frames on your network.
- **Duplex and Speed (Mbps):** The default is that the interface negotiates the best duplex and speed with the interface at the other end of the wire, but you can force a specific duplex or speed if necessary. The options listed are only those supported by the interface. Before setting these options for interfaces on a network module, please read Limitations for Interface Configuration.
  - **Duplex:** Choose Auto, Half, or Full. Auto is the default when the interface supports it.
  - **Speed:** Choose Auto to have the interface negotiate the speed (this is the default), or pick a specific speed: 10, 100, 1000, 10000 Mbps. You can also select these special options:
- **DAD Attempts:** How often the interface performs Duplicate Address Detection (DAD), from 0 - 600. The default is 1. During the stateless auto configuration process, DAD verifies the uniqueness of new unicast IPv6 addresses before the addresses are assigned to interfaces. If the duplicate address is the link-local address of the interface, the processing of IPv6 packets is disabled on the interface. If the duplicate address is a global address, the address is not used. The interface uses neighbor solicitation messages to perform Duplicate Address Detection. Set the value to 0 to disable duplicate address detection (DAD) processing.
- **MAC Address:** The Media Access Control in H.H.H format, where H is a 16-bit hexadecimal digit. For example, you would enter the MAC address 00-0C-F1-42-4C-DE as 000C.F142.4CDE. The MAC address must not have the multicast bit set, that is, the second hexadecimal digit from the left cannot be an odd number.)
- **Standby MAC Address:** For use with high availability. If the active unit fails over and the standby unit becomes active, the new active unit starts using the active MAC addresses to minimize network disruption, while the old active unit uses the standby address.

**Step 3** If you saved the interface, and you don't want to continue advanced interface options, continue to [Enable the Interface](#).

**Step 4** Click **Save**.

## Enable the ASA Physical Interface

### Procedure

- Step 1** Select the physical interface you want to enable.
- Step 2** Move the **State** slider at the top right of the window associated with the interface's logical name.
- Step 3** [Review and deploy](#) the changes you made.

## Add an ASA VLAN Subinterface

VLAN subinterfaces let you divide a physical interface into multiple logical interfaces that are tagged with different VLAN IDs. An interface with one or more VLAN subinterfaces is automatically configured as an

802.1Q trunk. Because VLANs allow you to keep traffic separate on a given physical interface, you can increase the number of interfaces available to your network without adding additional physical interfaces or devices.

Create subinterfaces if you attach the physical interface to a trunk port on a switch. Create a subinterface for each VLAN that can appear on the switch trunk port. If you attach the physical interface to an access port on the switch, there is no point in creating a subinterface.

- [Configure ASA VLAN Subinterfaces](#)
  - [Configure IPv4 Addressing for ASA Subinterface, on page 351](#)
- [Configure IPv6 Addressing for ASA Subinterface, on page 351](#)
- [Configure Advanced ASA Subinterface Options, on page 353](#)
- [Enable the Subinterface, on page 354](#)

## Configure ASA VLAN Subinterfaces

### Procedure

- 
- Step 1** In the left pane, click **Security Devices**.
- Step 2** In the left pane, click **Inventory**.
- Step 3** Click the **ASA** tab.
- Step 4** Select the device you want to modify, and in the **Management** pane on the right, click **Interfaces**.
- Step 5** You can add a subinterface using one of the following methods:
- Choose  > **Subinterface**
  - Click a physical interface that you want to configure and in the **Actions** pane on the right, click **New Subinterface**.
- Step 6** In the **VLAN ID** field, enter the VLAN ID between 1 and 4094.
- Some VLAN IDs might be reserved on connected switches, so check the switch documentation for more information. For multiple context mode, you can only set the VLAN in the system configuration.
- Step 7** In the **Subinterface ID** field, enter the subinterface ID as an integer between 1 and 4294967293.
- The number of subinterfaces allowed depends on your platform. You cannot change the ID after you set it.
- Step 8** Continue with one of the following procedures:
- [Configure IPv4 Address for the subinterface](#) if you intend to assign an IPv4 address to this interface.
  - [Configure IPv6 Address for the subinterface](#) if you intend to assign an IPv6 address to this interface.
  - [Configure Advanced ASA subinterface](#). The advanced settings have defaults that are appropriate for most networks. Edit them only if you are resolving network issues.

- If you saved the subinterface, and you don't want to continue advanced subinterface options, continue to [Enable the Subinterface](#).

---

## Configure IPv4 Addressing for ASA Subinterface

### Procedure

---

- Step 1** In the **Creating Subinterface** dialog box, configure the following in the **IPv4 Address** tab:
- **Type:** You can use either static IP addressing or DHCP for the interface.
    - Static** - Choose this option if you want to assign an address that should not change.
      - **IP Address and Subnet Mask:** Enter the interface's IP address and the subnet mask for the network attached to the interface.
      - **Standby IP Address:** If you configured high availability and are monitoring this interface for HA, also configure a standby IP address on the same subnet. This interface on the standby device uses the standby address.

For each interface, set a standby IP address. Although recommended, the standby address is not required. Without a standby IP address, the active unit cannot perform network tests to check the standby interface health; it can only track the link state.
    - DHCP:** Choose this option if the address should be obtained from the DHCP server on the network.

You can check the **Obtain Default Route** check box to get the default route from the DHCP server. You would normally check this option.
- Step 2** Click **Save** if you are done or continue with one of these procedures.
- [Configure IPv6 Address for the subinterface](#) if you intend to assign an IPv6 address to this interface.
  - [Configure Advanced ASA subinterface](#). The advanced settings have defaults that are appropriate for most networks. Edit them only if you are resolving network issues.
  - If you saved the subinterface, and you don't want to continue advanced subinterface options, continue to [Enable the subinterface](#).
- 

## Configure IPv6 Addressing for ASA Subinterface

### Procedure

---

- Step 1** In the **Creating Subinterface** dialog box, click the **IPv6 Address** tab.
- Step 2** Configure the following:

- **State:** To enable IPv6 processing and to automatically configure the link-local address when you do not configure the global address, click the **State** slider to enable it. The link-local address is generated based on the interface MAC addresses (Modified EUI-64 format).

**Note**

Disabling IPv6 does not disable IPv6 processing on an interface that is configured with an explicit IPv6 address or that is enabled for auto configuration.

- **Address Auto Configuration:**

Check this option to have the address automatically configured. IPv6 stateless autoconfiguration will generate a global IPv6 address only if the link on which the device resides has a router configured to provide IPv6 services, including the advertisement of an IPv6 global prefix for use on the link. If IPv6 routing services are not available on the link, you will get a link-local IPv6 address only, which you cannot access outside of the device's immediate network link. The link local address is based on the Modified EUI-64 interface ID.

Although RFC 4862 specifies that hosts configured for stateless autoconfiguration do not send Router Advertisement messages, the device does send Router Advertisement messages in this case. Select **Suppress RA** to suppress messages and conform to the RFC.

- **Suppress RA:** Check this box if you want to suppress router advertisements. The device can participate in router advertisements so that neighboring devices can dynamically learn a default router address. By default, router advertisement messages (ICMPv6 Type 134) are periodically sent out each IPv6 configured interface.

Router advertisements are also sent in response to router solicitation messages (ICMPv6 Type 133). Router solicitation messages are sent by hosts at system startup so that the host can immediately autoconfigure without needing to wait for the next scheduled router advertisement message.

You might want to suppress these messages on any interface for which you do not want the device to supply the IPv6 prefix (for example, the outside interface).

- **DAD Attempts** How often the interface performs Duplicate Address Detection (DAD), from 0 - 600. The default is 1. During the stateless auto configuration process, DAD verifies the uniqueness of new unicast IPv6 addresses before the addresses are assigned to interfaces. If the duplicate address is the link-local address of the interface, the processing of IPv6 packets is disabled on the interface. If the duplicate address is a global address, the address is not used. The interface uses neighbor solicitation messages to perform Duplicate Address Detection. Set the value to 0 to disable duplicate address detection (DAD) processing.
- **Link-Local Address:** If you want to use the address as link local only, enter it in the Link-Local Address field. Link local addresses are not accessible outside the local network. You cannot configure a link-local address on a bridge group interface.

**Note**

A link-local address should start with FE8, FE9, FEA, or FEB, for example fe80::20d:88ff:feec:6a82. Note that we recommend automatically assigning the link-local address based on the Modified EUI-64 format. For example, if other devices enforce the use of the Modified EUI-64 format, then a manually-assigned link-local address may cause packets to be dropped.

- **Standby Link-Local Address:** Configure this address if the interface connects a high availability pair of devices. Enter the link-local address of the interface on the other device, to which this interface is connected.



- **Static Address/Prefix:** If you do not use stateless autoconfiguration, enter the full static global IPv6 address and network prefix. For example, 2001:0DB8::BA98:0:3210/48. You can add another static address.
- **Standby IP Address:** If you configure high availability, and you are monitoring this interface for HA, also configure a standby IPv6 address on the same subnet. The standby address is used by this interface on the standby device. If you do not set the standby IP address, the active unit cannot monitor the standby interface using network tests; it can only track the link state.

**Step 3** Click **Save** if you are done or continue with one of these procedures.

- [Configure Advanced ASA subinterface](#). The advanced settings have defaults that are appropriate for most networks. Edit them only if you are resolving network issues.
- If you saved the subinterface, and you don't want to continue advanced subinterface options, continue to [Enable the Subinterface](#).

---

## Configure Advanced ASA Subinterface Options

Advanced interface options have default settings that are appropriate for most networks. Configure them only if you are resolving networking problems.

The following procedure assumes the interface is already defined. You can also edit these settings while initially editing or creating the interface.

This procedure and all of the steps in it are optional.

### Procedure

---

**Step 1** In the **Creating Subinterface** dialog box, click the **Advanced** tab.

**Step 2** Configure the following advanced settings:

- **HA Monitoring:** Enable to include the health of the interface as a factor when the HA pair decides whether to fail over to the peer unit in a high availability configuration. This option is ignored if you do not configure high availability. It is also ignored if you do not configure a name for the interface.
- **Management Only:** Enable to make a data interface management only.  
  
A management only interface does not allow through traffic, so there is very little value in setting a data interface as a **management only** interface. You cannot change this setting for the Management/Diagnostic interface, which is always management only.
- **MTU:** The default MTU is 1500 bytes. You can specify a value from 64 - 9198. Set a high value if you typically see jumbo frames on your network.
- **DAD Attempts:** How often the interface performs Duplicate Address Detection (DAD), from 0 - 600. The default is 1. During the stateless auto configuration process, DAD verifies the uniqueness of new unicast IPv6 addresses before the addresses are assigned to interfaces. If the duplicate address is the link-local address of the interface, the processing of IPv6 packets is disabled on the interface. If the duplicate address is a global address, the address is not used. The interface uses neighbor solicitation

messages to perform Duplicate Address Detection. Set the value to 0 to disable duplicate address detection (DAD) processing.

- **MAC Address:** The Media Access Control in H.H.H format, where H is a 16-bit hexadecimal digit. For example, you would enter the MAC address 00-0C-F1-42-4C-DE as 000C.F142.4CDE. The MAC address must not have the multicast bit set, that is, the second hexadecimal digit from the left cannot be an odd number.)
- **Standby MAC Address:** For use with high availability. If the active unit fails over and the standby unit becomes active, the new active unit starts using the active MAC addresses to minimize network disruption, while the old active unit uses the standby address.

**Step 3** If you saved the interface, and you don't want to continue advanced interface options, continue to [Enable the Subinterface](#).

**Step 4** Click **Save**.

## Enable the Subinterface

### Procedure

- 
- Step 1** Select the subinterface you want to enable.
  - Step 2** Move the **State** slider at the top right of the window associated with the interface's logical name.
  - Step 3** Review and deploy the changes you made.
- 

## Remove ASA Subinterface

Use the following procedure to remove an subinterface from ASA.

### Procedure

- 
- Step 1** In the left pane, click **Security Devices**.
  - Step 2** In the left pane, click **Inventory**.
  - Step 3** Click the **ASA** tab.
  - Step 4** Select the device you want to modify, and in the **Management** pane on the right, click **Interfaces**.
  - Step 5** On the **Interfaces** page, expand the physical interface linked with the subinterface you want to delete and then select that specific subinterface.
  - Step 6** In the **Actions** pane located to the right, click **Remove**.
  - Step 7** Confirm you want to delete the EtherChannel interface and click **Delete**.
  - Step 8** [Review and deploy](#) the changes you made.
-

## About ASA EtherChannel Interfaces

An 802.3ad EtherChannel is a logical interface (called a port-channel interface) consisting of a bundle of individual Ethernet links (a channel group) so that you increase the bandwidth for a single network. A port channel interface is used in the same way as a physical interface when you configure interface-related features.

You can configure up to 48 EtherChannels, depending on how many interfaces your model supports.

### Link Aggregation Control Protocol

The Link Aggregation Control Protocol (LACP) aggregates interfaces by exchanging the Link Aggregation Control Protocol Data Units (LACPDU)s between two network devices.

LACP coordinates the automatic addition and deletion of links to the EtherChannel without user intervention. It also handles misconfigurations and checks that both ends of member interfaces are connected to the correct channel group. “On” mode cannot use standby interfaces in the channel group when an interface goes down, and the connectivity and configurations are not checked.

See the **EtherChannel and Redundant Interfaces** chapter of [ASDM Book 1: Cisco ASA Series General Operations ASDM Configuration Guide, X, Y](#) for more information on ASA EtherChannel interfaces.

## Configure ASA EtherChannel

Use this procedure to add a new EtherChannel interface to an ASA.

### Before you begin

To configure EtherChannel on ASA interface, the following prerequisites must be met:

- All interfaces in the channel group must be the same media type and capacity, and must be set to the same speed and duplex. The media type can be either RJ-45 or SFP; SFPs of different types (copper and fiber) can be mixed. You cannot mix interface capacities (for example 1GB and 10GB interfaces) by setting the speed to be lower on the larger-capacity interface, except for the Secure Firewall 3100, which supports different interface capacities as long as the speed is set to Detect SFP; in this case, the lowest common speed is used.
- You cannot add a physical interface to the channel group if you configured a name for it. You must first remove the name.
- You cannot add an interface part of another EtherChannel interface group, Switchport interfaces, and interfaces with subinterfaces.

### Procedure

- 
- |               |                                                                                                                              |
|---------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, click <b>Security Devices</b> .                                                                            |
| <b>Step 2</b> | In the left pane, click <b>Inventory</b> .                                                                                   |
| <b>Step 3</b> | Click the <b>ASA</b> tab.                                                                                                    |
| <b>Step 4</b> | Select the device you want to modify, and in the <b>Management</b> pane on the right, click <b>Interfaces</b> .              |
| <b>Step 5</b> | Choose  > <b>EtherChannel Interface</b> . |
| <b>Step 6</b> | In the <b>Logical Name</b> field, provide a name for the EtherChannel interface.                                             |

- Step 7** In the **EtherChannel ID**, enter an integer between 1 and 8.
- Step 8** Click the drop-down button for **Link Aggregation Control Protocol** and select one of the two options:
- **Active** —Sends and receives LACP updates. An active EtherChannel can establish connectivity with either an active or a passive EtherChannel. You should use the active mode unless you need to minimize the amount of LACP traffic.
  - **On**— The EtherChannel is always on, and LACP is not used. An **on** EtherChannel can only establish a connection with another EtherChannel that is also configured to be **on**.
- Step 9** Search for and select the interfaces you want to include in the EtherChannel as members. You **must** include at least one interface.
- Warning**  
If you add an EtherChannel interface as a member and it already has an IP address configured, Security Cloud Control removes the IP address of the member.
- Step 10** Select the **IPv4**, **IPv6**, or **Advanced** tab to configure the IP address of the subinterface.
- [Configure IPv4 Addressing for ASA EtherChannel Interface](#) if you intend to assign an IPv4 address to this interface.
  - [Configure IPv6 Addressing for ASA EtherChannel Interface](#) if you intend to assign an IPv6 address to this interface.
  - [Configure Advanced ASA EtherChannel Interface Options](#). The advanced settings have defaults that are appropriate for most networks. Edit them only if you are resolving network issues.
- Step 11** Move the **State** slider at the top right of the window to enable the EtherChannel interface.
- Step 12** Click **Save**.
- Step 13** [Review and deploy](#) the changes you made.

## Edit ASA EtherChannel

Use this procedure to edit an existing EtherChannel on ASA.

### Procedure

- Step 1** In the left pane, click **Security Devices**.
- Step 2** In the left pane, click **Inventory**.
- Step 3** Click the **ASA** tab.
- Step 4** Select the device you want to modify, and in the **Management** pane on the right, click **Interfaces**.
- Step 5** On the **Interfaces** page, select the EtherChannel interface you want to edit.
- Step 6** In the **Actions** pane located to the right, click **Edit**.
- Step 7** Modify the values you want and click **Save**.
- Step 8** [Review and deploy](#) the changes you made.

## Remove ASA EtherChannel Interface

Use the following procedure to remove an EtherChannel interface from ASA.

### Procedure

- 
- |               |                                                                                                                 |
|---------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, click <b>Security Devices</b> .                                                               |
| <b>Step 2</b> | In the left pane, click <b>Inventory</b> .                                                                      |
| <b>Step 3</b> | Click the <b>ASA</b> tab.                                                                                       |
| <b>Step 4</b> | Select the device you want to modify, and in the <b>Management</b> pane on the right, click <b>Interfaces</b> . |
| <b>Step 5</b> | On the <b>Interfaces</b> page, select the EtherChannel interface you want to delete.                            |
| <b>Step 6</b> | In the <b>Actions</b> pane located to the right, click <b>Remove</b> .                                          |
| <b>Step 7</b> | Confirm you want to delete the EtherChannel interface and click <b>Delete</b> .                                 |
| <b>Step 8</b> | <a href="#">Review and deploy</a> the changes you made.                                                         |
- 

# ASA System Settings Policy in Security Cloud Control

## Introduction to ASA System Settings Policy

Manage your ASA device's operations and functionalities using a System Settings policy. This policy includes essential configurations like domain name services, enabling the secure copy server, message logging, and permitting VPN traffic without checking ACLs. By setting up a policy, you can ensure that your device is properly configured to maintain a secure network environment.

When configuring an ASA device, it's important to note that you have the option to manage multiple devices' settings with a shared system settings policy, or you can individually edit the settings for any single device.

## Shared System Settings Policy

A shared system settings policy applies to multiple ASA devices in your network. It makes it possible to configure multiple managed devices at once, which provides consistency in your deployment and streamlines your management efforts. Any changes made to a parameter of a shared policy affect the other ASA devices that use the policy.

Choose **Policies > ASA System Settings** **Manage > Policies > ASA > System Settings**. See [Create an ASA Shared System Settings Policy, on page 357](#).

You can also modify the device-specific system settings specific to a single ASA device to override the shared system settings policy values. Choose **Inventory** **Security Devices > ASA device > Management > Settings**. See [Configure or Modify Device Specific System Settings, on page 365](#).

## Create an ASA Shared System Settings Policy

Use this section to create a new shared system settings policy for ASA devices.

## Procedure

- 
- Step 1** Choose **Policies > ASA System Settings**.
- Step 2** In the left pane, click **Manage > Policies > ASA > System Settings**.
- Step 3** Click .
- Step 4** In the **Name** field, enter a name for the policy and click **Save**.
- Step 5** In the edit ASA shared system settings page, configure the parameters you want:
- [Configure Basic DNS Settings, on page 358](#)
  - [Configure HTTP Settings, on page 359](#)
  - [Set the Date and Time Using an NTP Server, on page 360](#)
  - [Configure SSH Access, on page 361](#)
  - [Configure System Logging, on page 362](#)
  - [Enable Sysopt Settings, on page 364](#)

## Note

- An orange dot (  ) on the corresponding parameter highlights unsaved changes.
  - The denied symbol (  ) highlights parameters that use existing local values from the device.
- 

## Configure Basic DNS Settings

You need to configure a DNS server so that the ASA can resolve host names to IP addresses. You also must configure a DNS server to use fully qualified domain names (FQDN) network objects in access rules.

## Procedure

- 
- Step 1** In the edit ASA system settings page, click **DNS** in the left pane.
- Step 2** Uncheck the **Retain existing values** checkbox to configure the values for the shared ASA system settings policy.
- Important**  
If the **Retain existing values** check box is selected, you can't configure the values as the fields are hidden. Security Cloud Control uses the existing local values of the ASA device for this setting and doesn't inherit from the shared policy.
- Step 3** In the **DNS** section, click  to configure servers.

- **IP Version:** Select the IP address version you want to use.
- **IP Address:** Specify DNS server's IP address.
- **Interface Name:** Specify the interface where the DNS lookup should be enabled.

**Note**

Ensure the interface name specified here is the same on the ASA devices associated with this shared system settings policy.

**Step 4** Click **Save**.

**Step 5** In the **Domain name** field, specify the domain name for the ASA.

The ASA appends the domain name as a suffix to unqualified names. For example, if you set the domain name to “example.com” and specify a syslog server by the unqualified name of “jupiter,” then the ASA qualifies the name to “jupiter.example.com.”

**Step 6** In the **DNS Lookup** section, click  and specify the interface name.

If you do not enable DNS lookup on an interface, then the ASA will not communicate with the DNS server on that interface. Make sure to enable DNS lookup on all interfaces that will be used to access DNS servers.

**Note**

To remove a configured interface, you can click the delete icon under **Actions**.

**Step 7** Click **Save**.

## Configure HTTP Settings

To access the ASA interface for management access, you must specify the addresses of all hosts/networks which are allowed to access the ASA using HTTP. If you configure HTTP redirect to redirect HTTP connections to HTTPS automatically, you must enable an access rule to allow HTTP; otherwise, the interface cannot listen to the HTTP port.

### Procedure

**Step 1** In the edit ASA system settings page, click **HTTP** in the left pane.

**Step 2** Uncheck the **Retain existing values** checkbox to configure the values for the shared ASA system settings policy.

**Important**

If the **Retain existing values** check box is selected, you can't configure the values as the fields are hidden. Security Cloud Control uses the existing local values of the ASA device for this setting and doesn't inherit from the shared policy.

**Step 3** Check the **Enable HTTP Server** check box to enable the HTTP server.

**Step 4** In the **Port Number** field, set the port number. The port identifies the port from which the interface redirects HTTP connections.

**Warning**

If you change the HTTP port on your device, it may cause some problems with its connection to Security Cloud Control. It's important to remember this if you plan to alter any settings related to your device's network connection.

**Step 5**

Click  to add HTTP information.

- **Interface:** Ensure the interface name specified here is the same on the ASA devices associated with this shared system settings policy.
- **IP Version:** Select the IP address version you want to use.
- **IP Address:** Specify the addresses of all hosts/networks that can access the ASA using HTTP.
- **Netmask:** Specify the subnet mask for the network.

**Note**

To remove a host, you can click the delete icon under **Actions**.

**Step 6**

Click **Save**.

---

## Set the Date and Time Using an NTP Server

NTP is used to implement a hierarchical system of servers that provide a precisely synchronized time among network systems. This kind of accuracy is required for time-sensitive operations, such as validating CRLs, which include a precise time stamp. You can configure multiple NTP servers. The ASA chooses the server with the lowest stratum—a measure of how reliable the data is.

Time derived from an NTP server overrides any time set manually.

The ASA supports NTPv4.

**Procedure**

---

**Step 1**

In the edit ASA system settings page, click **NTP** in the left pane.

**Step 2**

Uncheck the **Retain existing values** checkbox to configure the values for the shared ASA system settings policy.

**Important**

If the **Retain existing values** check box is selected, you can't configure the values as the fields are hidden. Security Cloud Control uses the existing local values of the ASA device for this setting and doesn't inherit from the shared policy.

**Step 3**

Click  to add NTP server details.

- **IP Version:** Select the IP address version you want to use.
- **IP Address:** Specify the NTP server's IP address.

You cannot enter a hostname for the server; the ASA does not support DNS lookup for the NTP server.



- **Key Id:** Enter a number between 1 and 4294967295.

This setting specifies the key ID for this authentication key, which enables you to use authentication to communicate with the NTP server. The NTP server packets must also use this key ID.

- **Interface Name:** Specify the interface name. Ensure the interface name specified here is the same on the ASA devices associated with this shared system settings policy.

NTP uses an algorithm to determine which server is the most accurate and synchronizes to it. If servers are of similar accuracy, then the preferred server is used. However, if a server is significantly more accurate than the preferred one, the ASA uses the more accurate one.

- **Prefer:** (optional) Check the **Preferred** check box to set this server as a preferred server.

#### Note

To remove an NTP server, you can click the delete icon under **Actions**.

**Step 4** Click **Save**.

---

## Configure SSH Access

You can enable the secure copy (SCP) server on the ASA. Only clients that are allowed to access the ASA using SSH can establish a secure copy connection.

### Procedure

---

**Step 1** In the edit ASA settings policy page, click **SSH** in the left pane.

**Step 2** Uncheck the **Retain existing values** checkbox to configure the values for the shared ASA system settings policy.

#### Important

If the **Retain existing values** check box is selected, you can't configure the values as the fields are hidden. Security Cloud Control uses the existing local values of the ASA device for this setting and doesn't inherit from the shared policy.

**Step 3** Enable **Enable Scopy SSH** (secure copy SSH).

**Step 4** In the **Timeout in Minutes** field, set the timeout from 1 to 60 minutes. The default is 5 minutes. The default duration is too short in most cases, and should be increased until all pre-production testing and troubleshooting have been completed.

**Step 5** Click  and configure the following:

- **Interface:** Specify the interface name. Ensure the interface name specified here is the same on the ASA devices associated with this shared system settings policy.
- **IP Version:** Select the IP address version you want to use.
- **IP Address:** Specify the addresses of all hosts/networks that can access the ASA using SSH.
- **Netmask:** Specify the subnet mask for the network.

**Note**

To remove SSH details, you can click the delete icon under **Actions**.

**Step 6** Click **Save**.

## Configure System Logging

System logging is a method of collecting messages from devices to a server running a syslog daemon. Logging to a central syslog server helps in aggregation of logs and alerts. Cisco devices can send their log messages to a UNIX-style syslog service. A syslog service accepts messages and stores them in files, or prints them according to a simple configuration file. This form of logging provides protected long-term storage for logs. Logs are useful both in routine troubleshooting and in incident handling.

### Security Levels

The following table lists the syslog message severity levels.

*Table 34: Syslog Message Severity Levels*

| Level Number | Security Level       | Description                                                                                                                                                                                  |
|--------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0            | <b>emergencies</b>   | System is unusable                                                                                                                                                                           |
| 1            | <b>alert</b>         | Immediate action is needed.                                                                                                                                                                  |
| 2            | <b>critical</b>      | Critical conditions.                                                                                                                                                                         |
| 3            | <b>error</b>         | Error conditions.                                                                                                                                                                            |
| 4            | <b>warning</b>       | Warning conditions.                                                                                                                                                                          |
| 5            | <b>notification</b>  | Normal but significant conditions.                                                                                                                                                           |
| 6            | <b>informational</b> | Informational messages only.                                                                                                                                                                 |
| 7            | <b>debugging</b>     | Debugging messages only.<br><br>Log at this level only temporarily, when debugging issues. This log level can potentially generate so many messages that system performance can be affected. |



**Note** ASA does not generate syslog messages with a severity level of zero (emergencies).

### Procedure

**Step 1** In the edit ASA system settings page, click **Syslog** in the left pane.

**Step 2** Uncheck the **Retain existing values** checkbox to configure the values for the shared ASA system settings policy.

**Important**

If the **Retain existing values** check box is selected, you can't configure the values as the fields are hidden. Security Cloud Control uses the existing local values of the ASA device for this setting and doesn't inherit from the shared policy.

**Step 3** Configure the following:

- **Logging Enabled:** Enable secure logging.
- **Timestamp Enabled:** Enable to include the date and time in syslog messages.
- **Permit host down:** (Optional) Disable the feature to block new connections when a TCP-connected syslog server is down.
- **Buffer Size:** Specify the size of the internal log buffer. The allowed range is 4096 to 1048576 bytes.
- **Buffered Logging Level:** Specify which syslog messages should be sent to the internal log buffer, which serves as a temporary storage location.
- **Console Logging Level:** Specify which syslog messages should be sent to the console port.
- **Trap Logging Level:** Specify which syslog messages should be sent to the syslog server.

**Step 4** Click  to add Syslog server details.

- **Interface Name:** Specify the interface name on which the syslog server resides. Ensure the interface name specified here is the same on the ASA devices associated with this shared system settings policy.
- **IP Version:** Select the IP address version you want to use.
- **IP Address:** Specify the IP address of the syslog server.
- **Protocol:** Choose the protocol (**TCP** or **UDP**) the ASA should use to send syslog messages to the syslog server.
  - **Port:** Specify the port that the syslog server listens to for syslog messages. The allowed TCP port range is 1 to 65535, and the UDP port range is 1025 to 65535.
  - **Log messages in Cisco EMBLEM format (UDP only):** Enables EMBLEM format logging for the syslog server with UDP only.
  - **Enable secure syslog using SSL?:** Specifies that the connection to the remote logging host should use SSL/TLS for TCP only.
- **Reference Identity:** Specify the reference identity type to enable RFC 6125 reference identity checks on the certificate based on the previously configured reference identity object. See [Configure Reference Identities](#) for details on the reference identity object.

**Note**

To remove a Syslog server, you can click the delete icon under **Actions**.

**Step 5** Click **Save**.

## Enable Sysopt Settings

The crypto map ACL bound to the outgoing interface either permits or denies IPsec packets through the VPN tunnel. IPsec authenticates and deciphers packets that arrive from an IPsec tunnel, and subjects them to evaluation against the ACL associated with the tunnel.

ACLs define which IP traffic to protect. For example, you can create ACLs to protect all IP traffic between two subnets or two hosts.

### Procedure

- 
- Step 1** In the edit ASA system settings page, click **Sysopt** in the left pane.
- Step 2** Uncheck the **Retain existing values** checkbox to configure the values for the shared ASA system settings policy.
- Important**  
If the **Retain existing values** check box is selected, you can't configure the values as the fields are hidden. Security Cloud Control uses the existing local values of the ASA device for this setting and doesn't inherit from the shared policy.
- Step 3** Enable **Allow VPN traffic to bypass interface access lists** bypasses the ACL inspection.
- Step 4** Click **Save**.
- 

## Assign a Policy from the Shared System Settings Page

After configuring a shared system settings policy, assign onboarded ASA devices and deploy the settings to the devices for the changes to take effect. Any change made to the policy affects the devices that are associated with the policy.

You can also [assign a policy from the device-specific settings](#) page.




---

**Note** You can associate an ASA device to only one shared system settings policy.

---

### Procedure

- 
- Step 1** Choose **Policies > ASA System Settings**.
- Step 2** In the left pane, click **Manage > Policies > ASA > System Settings**.
- Step 3** Select a shared policy and click **Edit**.
- Step 4** Click the filter appearing beside the policy name to assign devices.
- Step 5** Select the ASA devices you want to associate with the selected policy and click **OK**.

#### Note

The checkboxes are ticked for devices that are already associated with the selected policy.

If you see a red icon , it means that an error has occurred while applying the shared system settings policy to your devices. To troubleshoot the issue, click the policy on the **ASA System Settings** page and in the **Error Detected** pane, click the **Device Workflows** to get more information.

---

## Configure or Modify Device Specific System Settings

A device-specific system settings are existing values specific to an ASA device that can be modified using Security Cloud Control. You can override the shared system settings policy values with existing device-specific values for parameters you want.

This topic describes configuring an onboarded ASA device's system settings.

### Procedure

---

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab.
- Step 4** Select the ASA device you want and in the **Management** pane on the right, click **Settings**.

You will see the device-specific system settings of the selected ASA device.

#### Note

If the selected device is assigned with a shared system settings policy, the **Parent Policy** provides a link to open the policy. You can also assign a policy from the device-specific settings page. Select the ASA devices you want to associate with the selected policy and click **OK**.

- Step 5** Configure or modify the values of the system settings you want and click **Save**.

#### Note

The field descriptions for a shared and device-specific system settings remain the same. You can click the corresponding link below for more information.

- [Configure Basic DNS Settings, on page 358](#)
- [Configure HTTP Settings, on page 359](#)
- [Set the Date and Time Using an NTP Server, on page 360](#)
- [Configure SSH Access, on page 361](#)
- [Configure System Logging, on page 362](#)
- [Enable Sysopt Settings, on page 364](#)

You can click **Return to Security Devices** to navigate to the **Security Devices** page.

- Step 6** Click **Save** after making the changes.

#### Note

An orange dot () on the corresponding parameter highlights unsaved changes.

## Assign a Policy from Device-Specific Settings Page

You can also assign a policy from the device-specific settings page of an onboarded ASA device.

### Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab.
- Step 4** Select the ASA device you want and in the **Management** pane on the right, click **Settings**.

You will see the device-specific settings of the selected ASA device.

#### Note

If the selected device is assigned with a shared system settings policy, the **Parent Policy** provides a link to open the policy. Select the ASA devices you want to associate with the selected policy and click **OK**

- Step 5** Click the **Parent Policy** button to assign a shared system settings policy.
- Step 6** Select a policy and click **Apply**.

## Auto Assignment of ASA Devices to a Shared System Settings Policy

When onboarding a new ASA device, or checking for changes or handing out-of-band changes for existing devices, Security Cloud Control verifies whether:

- The device-specific settings match a pre-existing shared system settings policy. If there is a match, the device gets assigned to the shared system settings policy.
- The device-specific settings of the onboarded devices match each other. If they do, a new shared system settings policy gets created automatically, and devices with the same local settings are assigned to this shared policy.



**Note** You can rename the Shared Settings policy whether it was created by the user or the system.

## Filter ASA Shared System Settings Policy

If you're searching for specific shared system settings policies on the ASA System Setting page, you can use filters based on issues and usage to narrow down your search and find what you're looking for more easily.

Choose **Policies > ASA System Settings** Click **Manage > Policies > ASA > System Settings >**  .

- **Issues:**

- **Issue Detected:** Displays only the policies that have issues when applying devices to them.
- **No issue:** Displays only the policies that are successfully applied to devices.

- **Usage:**

- **In Use:** Displays policies that have are assigned to devices.
- **Unused:** Displays policies that have not been assigned to any devices yet.

## Disassociate Devices from Shared System Settings Policy

If an ASA device is no longer needed in the shared system settings policy, you can easily dissociate it. The device detaches from the policy when:

- Changes are made to the device-specific settings, where the corresponding setting on the shared policy is not configured to retain existing values from the device.
- Devices are detached manually from the shared system settings policy.
- Shared system settings policy is deleted from Security Cloud Control. However, this doesn't delete the device. See [Delete Shared Settings Policy, on page 367](#).

### Procedure

- 
- Step 1** Choose **Policies > ASA System Settings**.
  - Step 2** In the left pane, click **Manage > Policies > ASA > System Settings**.
  - Step 3** Select a shared policy and click **Edit**.
  - Step 4** Click the filter appearing beside the policy name to detach devices.
  - Step 5** Uncheck the devices you want to detach from the selected shared system settings policy and click **OK**.

**Note**

The changes are saved automatically and don't require any manual deployment.

---

## Delete Shared Settings Policy

If you want to remove some shared settings policies, you have the option to select one or more of them and delete them. However, it's important to note that you can only delete them if they haven't been applied or committed to any devices yet.

**Before you begin**

Ensure the devices are dissociated from the shared settings policy you wish to delete. See [Disassociate Devices from Shared System Settings Policy](#) for more information.

**Procedure**

- 
- Step 1** In the left pane, choose **Policies > ASA System Settings**.
  - Step 2** In the left pane, click **Manage > Policies > ASA > System Settings**.
  - Step 3** Select a shared policy and click **Delete**.
  - Step 4** Click **OK** to confirm your action.

**Note**

If you delete an ASA from Security Cloud Control, the device-specific settings and configurations will also be deleted, and the device references will be removed from the shared settings policy.

---

## ASA Routing in Security Cloud Control

Routing protocols use metrics to evaluate what path will be the best for a packet to travel. A metric is a standard of measurement, such as path bandwidth that is used by routing algorithms to determine the optimal path to a destination. To aid the process of path determination, routing algorithms initialize and maintain routing tables, which include route information. Route information varies depending on the routing algorithm used.

Routing algorithms fill routing tables with various information. Destination or next hop associations tell a router that a particular destination can be reached optimally by sending the packet to a particular router representing the next hop on the way to the final destination. When a router receives an incoming packet, it checks the destination address and attempts to associate this address with a next hop.

Routing tables can also include other information, such as data about the desirability of a path. Routers compare metrics to determine optimal routes, and these metrics differ depending on the design of the routing algorithm used.

Routers communicate with one another and maintain their routing tables through the transmission of various messages. The routing update message is one such message that generally consists of all or a portion of a routing table. By analyzing routing updates from all other routers, a router can build a detailed picture of network topology. A link-state advertisement, another example of a message that is sent between routers, informs other routers of the state of the sender links. Link information can be used to build a complete picture of network topology to enable routers to determine optimal routes to network destinations.

## About ASA Static Route

To route traffic to a non-connected host or network, you must define a route to the host or network, either using static or dynamic routing. Generally, you must configure at least one static route: a default route for all traffic that is not routed by other means to a default network gateway, typically the next hop router.

For general information on how ASA routing concepts and CLI commands, see the following documents:



- *Static and Default Routes* chapter from [ASDM Book 1: Cisco ASA Series General Operations ASDM Configuration Guide, X,Y](#).
- *Static and Default Routes* chapter from [CLI Book 1: Cisco ASA Series General Operations CLI Configuration Guide, X,Y](#).

## Default Route

The simplest option is to configure a default static route to send all traffic to an upstream router, relying on the router to route the traffic for you. A default route identifies the gateway IP address to which the ASA sends all IP packets for which it does not have a learned or static route. A default static route is simply a static route with 0.0.0.0/0 (IPv4) or ::/0 (IPv6) as the destination IP address.

You should always define a default route.

## Static Route

You might want to use static routes in the following cases:

- Your networks use an unsupported router discovery protocol.
- Your network is small and you can easily manage static routes.
- You do not want the traffic or CPU overhead associated with routing protocols.
- In some cases, a default route is not enough. The default gateway might not be able to reach the destination network, so you must also configure more specific static routes. For example, if the default gateway is outside, then the default route cannot direct traffic to any inside networks that are not directly connected to the ASA.
- You are using a feature that does not support dynamic routing protocols.

## Static Route Tracking

One of the problems with static routes is that there is no inherent mechanism for determining if the route is up or down. They remain in the routing table even if the next hop gateway becomes unavailable. Static routes are only removed from the routing table if the associated interface on the ASA goes down.

The static route tracking feature provides a method for tracking the availability of a static route and installing a backup route if the primary route should fail. For example, you can define a default route to an ISP gateway and a backup default route to a secondary ISP in case the primary ISP becomes unavailable.

The ASA implements static route tracking by associating a static route with a monitoring target host on the destination network that the ASA monitors using ICMP echo requests. If an echo reply is not received within a specified time period, the host is considered down, and the associated route is removed from the routing table. An untracked backup route with a higher metric is used in place of the removed route.

When selecting a monitoring target, you need to make sure that it can respond to ICMP echo requests. The target can be any network object that you choose, but you should consider using the following:

- The ISP gateway (for dual ISP support) address.
- The next hop gateway address (if you are concerned about the availability of the gateway).
- A server on the target network, such as a syslog server, that the ASA needs to communicate with.
- A persistent network object on the destination network.

## Configure ASA Static Route

A static route defines where to send traffic for specific destination networks.

This section describes the steps to add a static route to an ASA device.

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab.
- Step 4** Select a device you want to configure a static route.
- Step 5** In the **Management** pane on the right, click **Routing**.
- Step 6** Click  to add a static route.
- Step 7** You can enter a **Description** for the route.
- Step 8** Select whether the route is for an **IPv4** or **IPv6** address.
- Step 9** Configure the route properties:
- **Interface:** Select the interface through which you want to send traffic. The gateway address needs to be accessible through this interface.  
  
You can use a **Null0** route to forward unwanted or undesirable traffic so the traffic is dropped. Static Null0 routes have a favorable performance profile. You can also use static null0 routes to prevent routing loops.  
  
The ASA CLI accepts both Null0 or null0 strings.
  - **Gateway IP:** (Not applicable to a **Null0** route) Select the network object that identifies the IP address for the gateway to the destination network. Traffic is sent to this address.
  - **Metric:** The administrative distance for the route, between 1 and 254. The default for static routes is 1. If there are additional routers between the interface and the gateway, enter the number of hops as the administrative distance.  
  
Administrative distance is a parameter used to compare routes. The lower the number, the higher precedence the route is given. Connected routes (networks directly connected to an interface on the device) always take precedence over static routes.
  - **Destination IP:** Select the network object(s), that identifies the destination network, that contains the host(s), that uses the gateway in this route.
  - **Destination Mask** (only for IPv4 addressing): Enter the subnet mask for the destination IP.
  - **Tracking** (only for IPv4 addressing): Enter a unique identifier for the route tracking process.
- Step 10** Click **Save**.
- 

## Edit ASA Static Route

You can edit the static route parameters associated with an ASA device.



**Note** However, you cannot select a different IP version while modifying the static route. Alternatively, you can create a new static route based on your requirement.

### Procedure

- 
- Step 1** Select an ASA device you want to edit the static route.
  - Step 2** In the **Management** pane on the right, click **Routing**.
  - Step 3** In the routing listing page, select a route you want to modify and in the **Actions** pane on the right, click **Edit**.
  - Step 4** Modify the values you want and click **Save**. See [Configure ASA Static Route, on page 370](#) for information on the routing parameters.
- 

## Delete a Static Route

### Before you begin

Deleting a static route may impact the connectivity to your device's local SDC or Security Cloud Control. Ensure a proper disaster recovery procedure is in place for any connectivity loss.

### Procedure

- 
- Step 1** Select an ASA device you want to delete.
  - Step 2** In the **Management** pane on the right, click **Routing**.
  - Step 3** In the routing listing page, select a route you want to modify and in the **Actions** pane on the right, click **Delete**.
  - Step 4** Click OK to confirm the changes.
- 

## Manage Security Policies in Security Cloud Control

Security policies examine network traffic with the ultimate goal of allowing the traffic to its intended destination or dropping it if a security threat is identified. You can use Security Cloud Control to configure security policies on many different types of devices.

- [ASA Access List](#)
- [Network Address Translation, on page 102](#)

# Manage ASA Network Security Policy

The ASA network security policy includes access control lists (ACLs) that determine whether to permit or deny traffic from accessing another network through the ASA firewall. This section outlines the steps to create an ASA access list and configure access rules within it. It also details the steps to assign an interface to an access control list and share it among other ASA devices managed by Security Cloud Control.

## About ASA Access Control Lists and Access Groups

### ASA Access Control Lists

Access control lists (ACLs) are used to identify traffic flows based on various characteristics such as source and destination IP address, IP protocol, ports, source, and other parameters.

The following is an access list sample:

```
access-list ACL extended permit ip any any
```

ACL is the name of the access list.

You can avoid the creation of the same access list on multiple devices individually, and instead create a single access list and share it across multiple ASA devices. Changes made to the shared access list automatically apply to all the devices to which the ACL is assigned. You also have the option to copy the access list to other ASA devices as needed.

### Access Rules

An access list includes access rules that permit or deny traffic flow to a network based on specific characteristics such as source and destination IP addresses, IP protocol, port number, and security group tags.

### ASA Access Groups

An access group is a specific association that is established when an access list is assigned to a device interface configured for traffic flow in any direction. The access list contains specific rules that either permit or deny traffic passing through the device interface.

The following is an access group sample that is created when a device interface is assigned to an access list.

```
access-group ACL out interface giginterface0
```

ACL is the name of the access list and giginterface0 is the logical name of the device interface that is assigned to the access list.



---

**Note** To use API endpoints to manage your ASA access groups, see [Get Access Groups](#) on the Cisco DevNet website.

---

## Create an ASA Access List

When configuring an access list on an ASA firewall, a rule is automatically created to allow traffic from a source to a destination outside your network. You can create additional rules and assign the access list to an interface to regulate the traffic network.

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab and select an ASA device by checking the corresponding check box.
- Step 4** In the **Management** pane on the right, click **Policy**.
- Step 5** Click **Create Access List**.
- Step 6** In the **Name** field, enter a name for the access list and click **Save**.

#### Note

You cannot have two access lists with the same name on a device.

- Step 7** Click **Save**.
- Security Cloud Control creates an access group and a default rule that permits all traffic.
- You can now add new rules to the access list. See [Add a Rule to an ASA Access List, on page 373](#).
- 

### What to do next

- To add new rules to the access list, see [Add a Rule to an ASA Access List, on page 373](#).
- To assign interfaces and traffic directions to the access list, see [Assign Interfaces to ASA Access Control List, on page 376](#).

## Add a Rule to an ASA Access List

You can add rules in ascending order by rule number. Packets will be verified against the rules in the sequence in which the rules were created, with the first rule taking precedence, followed by subsequent rules. You can adjust the position of any rule, if required.

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab and select an ASA device by checking the corresponding check box.
- Step 4** In the **Management** pane on the right, click **Policy**.
- Step 5** From the **Selected Access List** drop-down list, select an access list that you want.

**Step 6** Click the **Add Rule** () icon that is displayed on the right.

**Note**

In the ordered list, hover over the desired position and click **Add Rule Here**.

**Step 7** In the **New Access Rule** window, provide the following information:

- **Order:** Select where you want to insert the rule in the ordered list of rules. Rules are applied on a first-match basis and prioritized by position in the list of rules from 1 to last.
- **Action:** Specify whether you are allowing (permitting) the described traffic or are blocking (dropping) it.
- **Protocol:** Specify the protocol of the traffic, such as IP, TCP, UDP, ICMP, or ICMPv6. The default is IP, but you can select a more specific protocol to target traffic with more granularity.
- **Source/Destination:** Define the source (originating address) and destination (target address of the traffic flow). You typically configure the IPv4 address of hosts or subnets, which you can represent with network object groups. You can assign only one object to the source or destination.
- **Port:** Select the port object that pairs a service type, such as TCP or UDP, and a port number or a range of port numbers.
- **SGT Group:** Assign the security group you want from the list. By default, the value is **Any**. See [Security Group Tags in ASA Policies](#).
- **Time Range:** Define a time range for ASA network policies to allow access to networks and resources based on time of day.
- **Logging:** Activity resulting from a network policy rule is not logged by default. You can activate logging for individual rules. See [Log Rule Activity](#).

**Step 8** Click **Save**.

The rule is added to the access list and set to **Active** state.

**Step 9** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes.

## About System Log Activity

When you set up a new rule, you can specify how often and at what severity level you want to collect its activity. To do this, you can select the corresponding severity levels and then choose the frequency of data collection. This will ensure that you have the necessary information to monitor and analyze the activity generated by your rules.



**Note** ASA does not generate syslog messages with a severity level of zero (emergencies).

You have the option to adjust the logging interval, which indicates how frequently the log records are updated. This interval is measured in seconds and can be set from 1 to 600. By default, the interval is set to 300 seconds. This interval value is also utilized as a timeout period for removing an inactive flow from the cache that collects drop statistics.

Table 35: Log Rule Activity

| Security Level | Description                        |
|----------------|------------------------------------|
| emergencies    | System is unusable.                |
| alert          | Immediate action is needed.        |
| critical       | Critical conditions.               |
| error          | Error conditions.                  |
| warning        | Warning conditions.                |
| notification   | Normal but significant conditions. |
| informational  | Informational messages only.       |
| debugging      | Debugging messages only.           |

## Deactivate Rules in an Access Control List

When you create a new rule in an access control list, it is activated by default. However, you can temporarily deactivate individual rules to optimize traffic flow, resolve conflicts, or isolate issues.

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **ASA** tab and select an ASA device by checking the corresponding check box.
  - Step 4** In the **Management** pane on the right, click **Policy**.
  - Step 5** From the **Selected Access List** drop-down list, choose the access control list you want.
  - Step 6** In the rule list, check the corresponding rule check box that you want.
  - Step 7** In the selected row, slide the **Active** setting off.
  - Step 8** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes.
- 

## About Security Group Tags in ASA Policies

If you onboard an ASA that uses security group tags (SGT) in its access control rules, Security Cloud Control allows you to edit the rules that use SGT groups and manage the policies that have these rules. However, you cannot create SGT groups or edit them using the Security Cloud Control GUI. To create or edit SGT groups, you must use ASA's Adaptive Security Device Manager (ASDM) or the CLI available in Security Cloud Control.

In Security Cloud Control's object page, when looking at the details of SGT groups, you'll see that those objects are identified as noneditable, system-provided objects.

Security Cloud Control administrators can perform these tasks on ACLs and ASA policies that contain SGT groups:

- Edit all aspects of ACLs except the source and destination security groups.
- Copy a policy containing SGT groups from one ASA to another.

For detailed instruction, on configuring Cisco TrustSec using the command line interface, see the "ASA and Cisco TrustSec" chapter of the [ASA CLI Book 2: Cisco ASA Series Firewall CLI Configuration Guide](#) pertaining to your ASA release.

## Assign Interfaces to ASA Access Control List

When you assign ASA interfaces to access control list, the device establishes a specific association between the list and interfaces. The rules that are associated with access control list are applied only to the interfaces through which the traffic flows in the specified directions.

You can only assign one access list per interface for a single traffic flow direction.

### Procedure

- 
- |               |                                                                                                        |
|---------------|--------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, click <b>Inventory</b> .                                                             |
| <b>Step 2</b> | In the left pane, click <b>Security Devices</b> .                                                      |
| <b>Step 3</b> | Click the <b>ASA</b> tab and select an ASA device by checking the corresponding check box.             |
| <b>Step 4</b> | In the <b>Management</b> pane on the right, click <b>Policy</b> .                                      |
| <b>Step 5</b> | From the <b>Selected Access List</b> drop-down list, choose an access list.                            |
| <b>Step 6</b> | In the <b>Actions</b> pane displayed on the right, click <b>Assign Interfaces</b> .                    |
| <b>Step 7</b> | From the <b>Interface</b> drop-down list, choose an interface.                                         |
| <b>Step 8</b> | From the <b>Direction</b> drop-down list, specify the direction for applying the selected access list. |
- The designated access list is applied to the interface through which traffic flows in the specified direction. This access list can be applied to multiple interfaces and directions.
- To apply the access list to all the interfaces on the ASA device, see [Create an ASA Global Access List, on page 376](#).
- |                |                                                                                                  |
|----------------|--------------------------------------------------------------------------------------------------|
| <b>Step 9</b>  | Click <b>Save</b> .                                                                              |
| <b>Step 10</b> | <a href="#">Review and deploy</a> the changes you made now, or wait and deploy multiple changes. |
- 

## Create an ASA Global Access List

Global access policies are network policies that are applied to all the interfaces on an ASA. These policies are only applied to inbound network traffic. You can create a global access policy to ensure that a set of rules is applied uniformly to all the interfaces on an ASA.

Only one global access policy can be configured on an ASA. However, a global access policy can have more than one rule assigned to it, just like any other policy.

This is the order of rule-processing on the ASA:

1. Interface access rules



2. Bridge Virtual Interface (BVI) access rules
3. Global access rules
4. Implicit deny rules

### Procedure

- 
- |               |                                                                                                  |
|---------------|--------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, click <b>Inventory</b> .                                                       |
| <b>Step 2</b> | In the left pane, click <b>Security Devices</b> .                                                |
| <b>Step 3</b> | Click the <b>ASA</b> tab and select an ASA device by checking the corresponding check box.       |
| <b>Step 4</b> | In the <b>Management</b> pane on the right, click <b>Policy</b> .                                |
| <b>Step 5</b> | From the <b>Selected Access List</b> drop-down list, choose an access list.                      |
| <b>Step 6</b> | In the <b>Actions</b> pane displayed on the right, click <b>Assign Interfaces</b> .              |
| <b>Step 7</b> | Check the <b>Create as a global access list</b> check box.                                       |
| <b>Step 8</b> | Click <b>Save</b> .                                                                              |
| <b>Step 9</b> | <a href="#">Review and deploy</a> the changes you made now, or wait and deploy multiple changes. |
- 

## Share an ASA Access Control List with Multiple ASA Devices

Sharing access policies in network security effectively improves efficiency, consistency, and centralized management, leading to an overall improved security posture. To share an access control list across ASA devices, create an access control list and define access rules on a single ASA device and then share it with the desired ASA devices rather than configuring them separately. This ensures consistency in the network and reduces the risk of misconfigurations. Additionally, shared access control lists provide scalability because networks grow and evolve by allowing you to manage access control lists for increasing users and ASA devices.

Keep the following points in mind:

- Access control list rules are shared, but the interfaces are not included.
- Sharing an access control list with other ASA devices will overwrite any existing access control lists with the same name.

### Procedure

- 
- |               |                                                                                            |
|---------------|--------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, click <b>Inventory</b> .                                                 |
| <b>Step 2</b> | In the left pane, click <b>Security Devices</b> .                                          |
| <b>Step 3</b> | Click the <b>ASA</b> tab and select an ASA device by checking the corresponding check box. |
| <b>Step 4</b> | In the <b>Management</b> pane on the right, click <b>Policy</b> .                          |
| <b>Step 5</b> | From the <b>Selected Access List</b> drop-down list, choose an access control list.        |
| <b>Step 6</b> | In the <b>Actions</b> pane that is displayed on the right, click <b>Share</b> .            |

- Step 7** Select the ASA devices by checking the corresponding check box and click **Save**.
- In the **Device Relationships** pane displayed on the right, the ASA devices that share the selected access control list are displayed.
- Step 8** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes.
- 

## Copy an ASA Access Control List to Another ASA

An ASA access control list can be easily copied to another Security Cloud Control-managed device in the same tenant. After copying an access list file to a target ASA device, any further changes made to the access list won't be automatically applied to the target device. This is different from access control list sharing feature, where changes are automatically applied.

Keep the following points in mind:

- You cannot copy an access list to a target device if that device already has another access list with the same name.
- You cannot copy an access list if another access list on the target device is associated with the same interface and direction.
- You cannot only copy an access list to a disabled interface on the target device.

### Procedure

---

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab and select an ASA device by checking the corresponding check box.
- Step 4** In the **Management** pane on the right, click **Policy**.
- Step 5** From the **Selected Access List** drop-down list, choose an access list.
- Step 6** In the **Actions** pane on the right, click **Copy**.
- Step 7** Select the target device to which you want to copy the access list.
- Step 8** Choose an interface and specify the direction for applying the selected access list.
- The designated access list is applied to the interface through which traffic flows in the specified direction. This access list can be applied to multiple interfaces and directions.
- To apply the access list to all the interfaces on the selected target, see [Create an ASA Global Access List, on page 376](#).
- Step 9** Click **Copy**.
- A message appears at the bottom right corner on the Security Cloud Control screen on a successful copy.
- Step 10** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes.
-

## Copy a Rule Within or Across ASA Access Lists and Devices

You can copy an access control rule in the following ways:

- Within the same access list.
- From one access list to another, either within the same ASA device or across different ASA devices.



**Note** The paste operation fails if you attempt to add a rule that already exists in the access list.

### Procedure

- Step 1** In the left pane, click **Security Devices**.
  - Step 2** Click the **ASA** tab and select an ASA device by checking the corresponding check box.
  - Step 3** In the **Management** pane on the right, click **Policy**.
  - Step 4** From the **Selected Access List** drop-down list, select an access list that you want.
  - Step 5** Select a rule by clicking the corresponding check box and in the **Actions** pane on the right, click **Copy**.
  - Step 6** Perform the following:
    - To paste the rule within the same access list, hover the mouse pointer in the desired position until you see the **Paste Rule Here** option and click it. The Add/Edit rule dialog box is displayed, allowing you to modify the copied rule, as identical rules are not permitted in the same access list.
    - To paste the rule within the same ASA device, from the **Selected Access List** drop-down list, select an access list you want.
    - To paste the rule to a different ASA device, in the left pane, go to **Security Devices** > select an ASA device > **Policy** > **Selected Access List**.
  - Step 7** To paste the copied rule in the desired position, select a rule that comes after where you want the new rule to be. In the **Actions** pane on the right, click **Paste**. The copied rule will be inserted before the selected rule.
- You can use the **Move Up** and **Move Down** buttons to position the rule as needed.

#### Note

Alternatively, you can hover over a desired position in the rule listing table until you see **Paste Rule Here**, and then click it.

## Unshare a Shared ASA Access Control List

If the rules governing the interface handling your network become outdated, you can unshare the access control list from the devices currently linked. Unsharing an ASA device from the shared access control list will not have any impact on other ASA devices currently sharing this list.

## Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab and select an ASA device by checking the corresponding check box.
- Step 4** In the **Management** pane on the right, click **Policy**.
- Step 5** From the **Selected Access List** drop-down list, choose an access list.
- Step 6** In the **Actions** pane on the right, click **Share**.
- Step 7** Uncheck the ASA devices that share the selected access list and click **Save**.
- Step 8** [Review and Deploy](#) the changes you made now, or wait and deploy multiple changes.
- 

## View ASA Access Policies Listing Page

The ASA access policy listing page shows a comprehensive overview of all access lists associated with the ASA devices that have been onboarded to the Security Cloud Control tenant.



### Note

Click the filter (  ) button, then click **Filter by Device** to search for policies that are either shared across multiple ASA devices or specific to a single ASA device.

---

## Procedure

- 
- Step 1** In the left pane, choose **Policies > ASA Access Policies** click **Manage > Policies > ASA > Access Policies**.

The page provides the following information:

- **Name:** The name of the access list.
- **Device:** The corresponding ASA devices associated with each access list. Additionally, for access lists that are shared across multiple devices, it displays a list of all ASA devices that use the shared access list.

Click the button to view the ASA devices associated with the selected access list.

To navigate to the policy page of the selected device, click **View Policies**. You can create or edit an access list.

To return to this page, click **ASA Access Policies**.

- **Interfaces:** The network interfaces to which each access list is assigned.

- Step 2** To view the ASA devices associated with an access list, click the corresponding button in the **Device** column.

- Step 3** To navigate to the policy page of the selected device, click **View Policies**. You can create or edit an access list.
- Step 4** To return to the policy listing page, in the top-left corner, click ← **ASA Access Policies**.
- 

## Global Search of ASA Access Lists

Use the global search functionality to search the following in your Security Cloud Control tenant:

- ASA devices and all their associated access lists.
- Access lists or shared access lists and their occurrences across all onboarded ASA devices.

## Rename an ASA Access Control List

It is possible to modify the name of an access list to suit your specific needs. Whether you want to rename a global access list or a shared access control list, it is a straightforward process. If the access list is shared, changing its name updates the name on all the other devices where the shared access control list is used. Remember that the updated name will only reflect after the configuration is deployed to those devices.

### Procedure

---

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab and select an ASA device by checking the corresponding check box.
- Step 4** In the **Management** pane on the right, click **Policy**.
- Step 5** From the **Selected Access List** drop-down list, choose an access list that you want to rename.
- Step 6** Click the **Rename** () icon in the right pane.
- Step 7** Click the **Save** () button.
- Step 8** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes.
- 

## Delete a Rule from an ASA Access Control List

You can remove access rules from the access list, but at least one rule must remain for the list to exist.

### Procedure

---

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab and select an ASA device by checking the corresponding check box.

- Step 4** In the **Management** pane on the right, click **Policy**.
  - Step 5** Click an access list and select the rules to be deleted.
  - Step 6** In the **Actions** pane on the right, click **Remove**.
  - Step 7** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes at once.
- 

## Delete an ASA Access Control List

This procedure can be used to delete the access control list, shared access list, or a global access list. Deleting a shared access list from one device does not impact other devices where the access list is in use. On those devices, the access list persists as a local access list.

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **ASA** tab and select an ASA device by checking the corresponding check box.
  - Step 4** In the **Management** pane displayed on the right, click **Policy**.
  - Step 5** From the **Selected Access List** drop-down list, choose an access list you want to delete.
  - Step 6** In the **Actions** pane on the right, click **Delete**.
  - Step 7** [Review and deploy](#) the changes you made now, or wait and deploy multiple changes at once.
- 

## Compare ASA Network Policies

### Procedure

- 
- Step 1** In the navigation pane, select **Policies > ASA Policies**.
  - Step 2** In the left pane, click **Manage > Policies > ASA > Access Policies**.
  - Step 3** Click **Compare** in the top right corner of the viewer.
  - Step 4** Select up to two policies to compare.
  - Step 5** Click **View Comparison** at the bottom of the viewer. This will bring up the comparison viewer. When you are finished, click **Done** and then **Done Comparing**.
-

# Hit Rates

Security Cloud Control enables you to evaluate the outcome of policy rules, on top of secure and scalable orchestration of policies, providing a simple visualization for more accurate policy analysis and an immediate, actionable pivot to root cause, all in a single pane from the cloud. The Hit Rates feature enables you to:

- Eliminate obsolete and never-matched policy rules, increasing security posture.
- Optimize firewall performance by instantly identifying bottlenecks as well as ensuring correct and efficient prioritization is enforced (for example, most triggered policy rule is prioritized higher).
- Maintain a history of Hit Rates information, even upon device or policy rule reset, for a configured data retention period (1 year).
- Strengthen validation of suspected shadow and unused rules based on actionable information. Removing doubt about update or delete.
- Visualize policy rule usage in the context of the entire policy, leveraging predefined time intervals (day, week, month, year) and scale of actual hits (zero, >100, >100k, etc.) to evaluate impact on packets traversing the network.

## View Hit Rates of ASA Policies

### Procedure

- 
- |               |                                                                                                                               |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Select <b>Policies &gt; ASA Access Policies</b> from the Security Cloud Control menu bar.                                     |
| <b>Step 2</b> | In the left pane, click <b>Manage &gt; Policies &gt; ASA &gt; System Settings</b> .                                           |
| <b>Step 3</b> | Click the filter icon and pin it open.                                                                                        |
| <b>Step 4</b> | In the Hits area, click the various hit count filters to display which policies are being hit more or less often than others. |
- 

## Search and Filter ASA Network Rules in the Access List

### Search

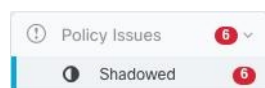
Use the search bar to search for names, keywords, or phrases in the names of the rules within the access list. Search is not case-sensitive.

### Filter

Use the filter sidebar to find network policy issues. Filtering is not additive, each filter setting acts independently of the other.

## Policy Issues

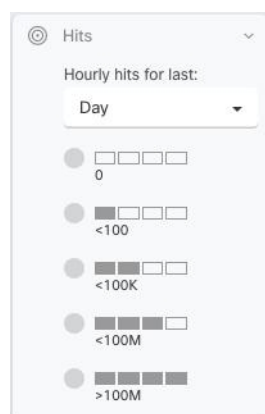
Security Cloud Control identifies network policies that contain shadow rules. The number of policies that contain shadow rules is indicated in the **Policy Issues** filter:



Security Cloud Control marks shadowed rules and network policies that contain them with the shadow badge `shadow_badge.png` on the network policies page. Click Shadowed to view all the policies containing shadow rules. See Shadow Rules for more information.

## Hits

Use this filter to find rules across the access lists that have been triggered a number of times over a specified period.



## Filter Use Cases

### Find all rules that have zero hits

If you have rules without any hits, you can edit them to make them more effective or simply delete them.

1. Select an ASA device and in the **Management** pane on the right, click **Policy**.
2. Above the rule table, click **Clear** to clear any existing filters.
3. Click the filter icon and expand the **Hits** filter.
4. Select a time period.
5. Select 0 hits.

### Find out how often rules in a network policy are being hit

1. Select an ASA device and in the **Management** pane on the right, click **Policy**.
2. Above the rule table, click **Clear** to clear any existing filters.
3. Click the filter icon and expand the **Hits** filter.
4. Select a time period.



5. Select the different hits filters to see what category the different rules fall into.

#### Filter network policies by hit rate

1. Select an ASA device and in the **Management** pane on the right, click **Policy**.
2. Above the rule table, click **Clear** to clear any existing filters.
3. Click the filter icon and expand the **Hits** filter.
4. Select a time period.
5. Select the different hit rate categories. Security Cloud Control displays the rules that are getting hit at the rate you specify.

## Shadowed Rules

A network policy with shadowed rules is one in which at least one rule in the policy will never trigger because a rule that precedes it prevents the packet from being evaluated by the shadowed rule.

For example, consider these network objects and network rules in the "example" network policy:

```
object network 02-50
range 10.10.10.2 10.10.10.50
object network 02-100
range 10.10.10.2 10.10.10.100

access-list example extended deny ip any4 object 02-50
access-list example extended permit ip host 10.10.10.35 object 02-50
access-list example extended permit ip any4 object 02-100
```

**No traffic is evaluated by this rule,**

```
access-list example extended permit ip host 10.10.10.35 object 02-50
```

**because the previous rule,**

```
access-list example extended deny ip any4 object 02-50
```

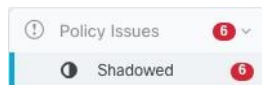
**denies any ipv4 address from reaching any address in the range 10.10.10.2 - 10.10.10.50.**

## Find Network Policies with Shadowed Rules

To find network policies with shadowed rules, use the network policies filter:

#### Procedure

- 
- Step 1** In the navigation pane, click **Policies > ASA Policies**.
  - Step 2** In the left pane, click **Manage > Policies > ASA > Access Policies**.
  - Step 3** Click the filter icon at the top of the ASA Access Policies table.
  - Step 4** In the Policy Issues filter, check **Shadowed** to view all the policies with shadowed rules.



## Resolve Issues with Shadowed Rules

This is how Security Cloud Control displays the rules described in the "example" network policy above:

| LINE                                                                                | ACTION                                                                                   | PROTOCOL | SOURCE      | PORT | DESTINATION | PORT | HITS (DAY) |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------|-------------|------|-------------|------|------------|
| 1                                                                                   |  Deny   | ip       | any4        | any  | 02-50       | any  | 0000       |
|  2 |  Permit | ip       | 10.10.10.35 | any  | 02-50       | any  | 0000       |
| 3                                                                                   |  Permit | ip       | any4        | any  | 02-100      | any  | 0000       |

The rule on line 1 is marked with a shadow warning badge  because it's shadowing another rule in the policy. The rule on line 2 is marked as being shadowed  by another rule in the policy. The action for the rule on line 2 is grayed-out because it's entirely shadowed by another rule in the policy. Security Cloud Control is able to tell you which rule in the policy shadows the rule in line 2.

The rule on line 3 can only be triggered some of the time. This is a partially shadowed rule. Network traffic from any IPv4 address trying to reach an IP address in the range 10.10.10.2-10.10.10.50 would never be evaluated because it would have already been denied by the first rule. However, any IPv4 address attempting to reach an address in the range 10.10.10.51-10.10.10.100 would be evaluated by the last rule and would be permitted.

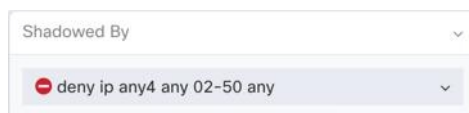


**Caution** Security Cloud Control does not apply a shadow warning badge  to partially shadowed rules.

### Procedure

**Step 1** Select the shadowed rule in the policy. In the example above, that means clicking on line 2.

**Step 2** In the rule details pane, look for the **Shadowed By** area. In this example, the **Shadowed By** area for the rule in line 2 shows that it is being shadowed by the rule in line 1:



**Step 3** Review the shadowing rule. Is it too broad? Review the shadowed rule. Do you really need it? Edit the shadowing rule or delete the shadowed rule.

#### Note

By deleting shadowed rules, you reduce the number of access control entries (ACEs) on your ASA. This frees up space for the creation of other rules with other ACEs. Security Cloud Control calculates the number of

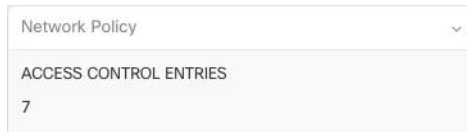
ACEs derived from all the rules in a network policy and displays that total at the top of the network policy details pane. If any of the rules in the network policy are shadowed, it also lists that number.

#### Example

22 Access Control Entries (7 Shadowed)

7 Shadowed

Security Cloud Control also displays the number of ACEs derived from a single rule in a network policy and displays that information in the network policy details pane. Here is an example of that listing:



- Step 4** Determine which devices use the policy by looking in the Devices area of the network policy details pane.
- Step 5** Open the **Security Devices** page and **Deploy Changes** back to the devices affected by the policy change.

## Network Address Translation

Each computer and device within an IP network is assigned a unique IP address that identifies the host. Because of a shortage of public IPv4 addresses, most of these IP addresses are private and not routable anywhere outside of the private company network. RFC 1918 defines the private IP addresses you can use internally that should not be advertised:

- 10.0.0.0 through 10.255.255.255
- 172.16.0.0 through 172.31.255.255
- 192.168.0.0 through 192.168.255.255

One of the main functions of Network Address Translation (NAT) is to enable private IP networks to connect to the Internet. NAT replaces a private IP address with a public IP address, translating the private addresses in the internal private network into legal, routable addresses that can be used on the public Internet. In this way, NAT conserves public addresses because it can be configured to advertise at a minimum only one public address for the entire network to the outside world.

Other functions of NAT include:

- Security-Keeping internal IP addresses hidden discourages direct attacks.
- IP routing solutions-Overlapping IP addresses are not a problem when you use NAT.
- Flexibility-You can change internal IP addressing schemes without affecting the public addresses available externally; for example, for a server accessible to the Internet, you can maintain a fixed IP address for Internet use, but internally, you can change the server address.
- Translating between IPv4 and IPv6 (Routed mode only)-If you want to connect an IPv6 network to an IPv4 network, NAT lets you translate between the two types of addresses.

You can use Security Cloud Control to create NAT rules for many different use cases. Use the NAT rule wizard or these topics to create different NAT rules:

## Order of Processing NAT Rules

Network Object NAT and twice NAT rules are stored in a single table that is divided into three sections. Section 1 rules are applied first, then section 2, and finally section 3, until a match is found. For example, if a match is found in section 1, sections 2 and 3 are not evaluated. The following table shows the order of rules within each section.

**Table 36: NAT Rule Table**

| Table Section | Rule Type                                  | Order of Rules within the Section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section 1     | Twice NAT (ASA)<br>Manual NAT (FTD)        | Applied on a first match basis, in the order they appear in the configuration. Because the first match is applied, you must ensure that specific rules come before more general rules, or the specific rules might not be applied as desired. By default, twice NAT rules are added to section 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Section 2     | Network Object NAT (ASA)<br>Auto NAT (FTD) | <p>If a match in section 1 is not found, section 2 rules are applied in the following order:</p> <ol style="list-style-type: none"> <li>1. Static rules.</li> <li>2. Dynamic rules.</li> </ol> <p><b>Within each rule type, the following ordering guidelines are used:</b></p> <ol style="list-style-type: none"> <li>1. Quantity of real IP addresses—From smallest to largest. For example, an object with one address will be assessed before an object with 10 addresses.</li> <li>2. For quantities that are the same, then the IP address number is used, from lowest to highest. For example, 10.1.1.0 is assessed before 11.1.1.0.</li> <li>3. If the same IP address is used, then the name of the network object is used, in alphabetical order. For example, object "Arlington" is assessed before object "Detroit."</li> </ol> |
| Section 3     | Twice NAT (ASA)<br>Manual NAT (FTD)        | If a match is still not found, section 3 rules are applied on a first match basis, in the order they appear in the configuration. This section should contain your most general rules. You must also ensure that any specific rules in this section come before general rules that would otherwise apply.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

For section 2 rules, for example, you have the following IP addresses defined within network objects:

- 192.168.1.0/24 (static)
- 192.168.1.0/24 (dynamic)
- 10.1.1.0/24 (static)
- 192.168.1.1/32 (static)
- 172.16.1.0/24 (dynamic) (object Detroit)
- 172.16.1.0/24 (dynamic) (object Arlington)

The resultant ordering would be:

- 192.168.1.1/32 (static)
- 10.1.1.0/24 (static)
- 192.168.1.0/24 (static)
- 172.16.1.0/24 (dynamic) (object Arlington)
- 172.16.1.0/24 (dynamic) (object Detroit)
- 192.168.1.0/24 (dynamic)

## Network Address Translation Wizard

The Network Address Translation (NAT) wizard helps you create NAT rules on your devices for these types of access:

- **Enable Internet Access for Internal Users.** You may use this NAT rule to allow users on an internal network to reach the internet.
- **Expose an Internal Server to the Internet.** You may use this NAT rule to allow people outside your network to reach an internal web or email server.

### Prerequisites to "Enable Internet Access for Internal Users"

Before you create your NAT rule, gather this information:

- The interface that is closest to your users; this is usually called the "inside" interface.
- The interface closest to your Internet connection; this is usually called the "outside" interface.
- If you want to allow only specific users to reach the internet, you need the subnet addresses for those users.

### Prerequisites to "Expose an Internal Server to the Internet"

Before you create your NAT rule, gather this information:

- The interface that is closest to your users; this is usually called the "inside" interface.
- The interface closest to your Internet connection; this is usually called the "outside" interface.

- The IP address of the server inside your network that you would like to translate to an internet-facing IP address.
- The public IP address you want the server to use.

### What to do Next

See [Create a NAT Rule by using the NAT Wizard, on page 105](#).

## Create a NAT Rule by using the NAT Wizard

### Before you begin

See [Network Address Translation Wizard, on page 105](#) for the prerequisites needed to create NAT rules using the NAT wizard.

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Use the filter and search fields to find the device for which you want to create the NAT rule.
- Step 6** In the **Management** area of the details panel, click **NAT**  **NAT**.
- Step 7** Click  **> NAT Wizard**.
- Step 8** Respond to the NAT Wizard questions and follow the on-screen instructions.
- Before you can save the NAT rule, all IP addresses need to be defined as network objects.
- Step 9** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
- 

## Common Use Cases for NAT

### Twice NAT and Manual NAT

Here are some common tasks that can be achieved using "Network Object NAT", also known as "Auto NAT":

- [Enable a Server on the Inside Network to Reach the Internet Using a Public IP address, on page 106](#)
- [Enable Users on the Inside Network to Access the Internet Using the Outside Interface's Public IP Address, on page 108](#)
- [Make a Server on the Inside Network Available on a Specific Port of a Public IP Address, on page 109](#)
- [Translate a Range of Private IP Addresses to a Range of Public IP Addresses, on page 113](#)

### Network Object NAT and Auto NAT

Here is a common task that can be achieved using "Twice NAT", also know as "Manual NAT":

- [Prevent a Range of IP Addresses from Being Translated When Traversing the Outside Interface, on page 114](#)

## Enable a Server on the Inside Network to Reach the Internet Using a Public IP address

### Use Case

Use this NAT strategy when you have a server with a private IP address that needs to be accessed from the internet and you have enough public IP addresses to NAT one public IP address to the private IP address. If you have a limited number of public IP addresses, see [Make a server on the inside network available to users on a specific port of a public IP address](#) (that solution may be more suitable).

### Strategy

Your server has a static, private IP address, and users outside your network have to be able to reach your server. Create a network object NAT rule that translates the static private IP address to a static public IP address. After that, create an access policy that allows traffic from that public IP address to reach the private IP address. Finally, deploy these changes to your device.

### Before you begin

Before you begin, create two network objects. Name one object *servername\_inside* and the other object *servername\_outside*. The *servername\_inside* network object should contain the private IP address of your server. The *servername\_outside* network object should contain the public IP address of your server.

### Procedure

- 
- |                |                                                                                                                                                                                                                                                                                                                                      |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b>  | In the left pane, click <b>Inventory</b> .                                                                                                                                                                                                                                                                                           |
| <b>Step 2</b>  | In the left pane, click <b>Security Devices</b> .                                                                                                                                                                                                                                                                                    |
| <b>Step 3</b>  | Click the <b>Devices</b> tab to locate the device or the <b>Templates</b> tab to locate the model device.                                                                                                                                                                                                                            |
| <b>Step 4</b>  | Click the appropriate device type tab.                                                                                                                                                                                                                                                                                               |
| <b>Step 5</b>  | Select the device you want to create the NAT rule for.                                                                                                                                                                                                                                                                               |
| <b>Step 6</b>  | Click <b>NAT</b> in the <b>Management</b> pane at the right.                                                                                                                                                                                                                                                                         |
| <b>Step 7</b>  | Click  > <b>Network Object NAT</b> .                                                                                                                                                                                                              |
| <b>Step 8</b>  | In section 1, <b>Type</b> , select <b>Static</b> . Click <b>Continue</b> .                                                                                                                                                                                                                                                           |
| <b>Step 9</b>  | In section 2, <b>Interfaces</b> , choose <b>inside</b> for the source interface and <b>outside</b> for the destination interface. Click <b>Continue</b> .                                                                                                                                                                            |
| <b>Step 10</b> | In section 3, <b>Packets</b> , perform these actions: <ul style="list-style-type: none"><li>a. Expand the Original Address menu, click <b>Choose</b>, and select the <b>servername_inside</b> object.</li><li>b. Expand the Translated Address menu, click <b>Choose</b>, and select the <b>servername_outside</b> object.</li></ul> |

- Step 11** Skip section 4, **Advanced**.
- Step 12** For an FDM-managed device, in section 5, **Name**, give the NAT rule a name.
- Step 13** Click **Save**.
- Step 14** For ASA, deploy a Network Policy rule or for FDM-managed device, deploy an access control policy rule to allow the traffic to flow from *servername\_inside* to *servername\_outside*.
- Step 15** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

---

### Entries in the ASA's Saved Configuration File

Here are the entries that are created and appear in an ASA's saved configuration file as a result of this procedure.




---

**Note** This does not apply to FDM-managed devices.

---

#### *Objects created by this procedure:*

```
object network servername_outside
host 209.165.1.29
object network servername_inside
host 10.1.2.29
```

#### *NAT rules created by this procedure:*

```
object network servername_inside
nat (inside,outside) static servername_outside
```

## Enable Users on the Inside Network to Access the Internet Using the Outside Interface's Public IP Address

### Use Case

Allow users and computers in your private network to connect to the internet by sharing the public address of your outside interface.

### Strategy

Create a port address translation (PAT) rule that allows all the users on your private network to share the outside interface public IP address of your device.

After the private address is mapped to the public address and port number, the device records that mapping. When incoming traffic bound for that public IP address and port is received, the device sends it back to the private IP address that requested it.

### Procedure

---

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.



- Step 5** Select the device you want to create the NAT rule for.
- Step 6** Click **NAT** in the **Management** pane at the right.
- Step 7** Click  **Network Object NAT**.
- Step 8** In section 1, **Type**, select **Dynamic**. Click **Continue**.
- Step 9** In section 2, **Interfaces**, choose **any** for the source interface and **outside** for the destination interface. Click **Continue**.
- Step 10** In section 3, **Packets**, perform these actions :
- Expand the Original Address menu, click **Choose** and select the **any-ipv4** or **any-ipv6** object depending on your network configuration.
  - Expand the Translated Address menu, and select **interface** from the available list. Interface indicates to use the public address of the outside interface.
- Step 11** For an FDM-managed device, in section 5, **Name**, enter a name for the NAT rule.
- Step 12** Click **Save**.
- Step 13** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

### Entries in the ASA's Saved Configuration File

Here are the entries that are created and appear in an ASA's saved configuration file as a result of this procedure.



**Note** This does not apply to FDM-managed devices.

#### *Objects created by this procedure:*

```
object network any_network
subnet 0.0.0.0 0.0.0.0
```

#### *NAT rules created by this procedure:*

```
object network any_network
nat (any,outside) dynamic interface
```

## Make a Server on the Inside Network Available on a Specific Port of a Public IP Address

### Use Case

If you only have one public IP address, or a very limited number, you can create a network object NAT rule that translates inbound traffic, bound for a static IP address and port, to an internal address. We have provided procedures for specific cases, but you can use them as a model for other supported applications.

### Prerequisites

Before you begin, create three separate network objects, one each for an FTP, HTTP, and SMTP server. For the sake of the following procedures, we call these objects **ftp-server-object**, **http-server-object**, and **smtp-server-object**.

## NAT Incoming FTP Traffic to an FTP Server

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device you want to create the NAT rule for.
- Step 6** Click **NAT** in the **Management** pane at the right.
- Step 7** Click  > **Network Object NAT**.
- Step 8** In section 1, **Type**, select **Static**. Click **Continue**.
- Step 9** In section 2, **Interfaces**, choose **inside** for the source interface and **outside** for the destination interface. Click **Continue**.
- Step 10** In section 3, **Packets**, perform these actions:
- Expand the Original Address menu, click **Choose**, and select the **ftp-server-object**.
  - Expand the Translated Address menu, click **Choose**, and select the **Interface**.
  - Check **Use Port Translation**.
  - Select **tcp**, **ftp**, **ftp**.
- 
- Step 11** Skip section 4, **Advanced**.
- Step 12** For an FDM-managed device, in section 5, **Name**, give the NAT rule a name.
- Step 13** Click **Save**. The new rule is created in [section 2](#) of the NAT table.
- Step 14** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
- 

### Entries in the ASA's Saved Configuration File

Here is the entry that is created and appears in the ASA's saved configuration file as a result of this procedure.



**Note** This does not apply to FDM-managed devices.

---

#### *Object created by this procedure*

```
object network ftp-object
host 10.1.1.2.27
```

#### *NAT rule created by this procedure*

```
object network ftp-object
nat (inside,outside) static interface service tcp ftp ftp
```

## NAT Incoming HTTP Traffic to an HTTP Server

If you only have one public IP address, or a very limited number, you can create a network object NAT rule that translates inbound traffic, bound for a static IP address and port, to an internal address. We have provided procedures for specific cases, but you can use them as a model for other supported applications.

### Before you begin

Before you begin, create a network object for the http server. For the sake of this procedure, we will call the object, **http-object**.

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device you want to create the NAT rule for.
- Step 6** Click **NAT** in the **Management** pane at the right.
- Step 7** Click  > **Network Object NAT**.
- Step 8** In section 1, **Type**, select **Static**. Click **Continue**.
- Step 9** In section 2, **Interfaces**, choose **inside** for the source interface and **outside** for the destination interface. Click **Continue**.
- Step 10** In section 3, **Packets**, perform these actions:
- Expand the Original Address menu, click **Choose**, and select the **http-object**.
  - Expand the Translated Address menu, click **Choose**, and select the **Interface**.
  - Check **Use Port Translation**.
  - Select **tcp**, **http**, **http**.
- 
- Step 11** Skip section 4, **Advanced**.
- Step 12** For an FDM-managed device, in section 5, **Name**, give the NAT rule a name.
- Step 13** Click **Save**. The new rule is created in [section 2](#) of the NAT table.
- Step 14** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
- 

### Entries in the ASA's Saved Configuration File

Here are the entries that are created and appear in an ASA's saved configuration file as a result of this procedure.



**Note** This does not apply to FDM-managed devices.

#### *Object created by this procedure*

```
object network http-object
host 10.1.2.28
```

#### *NAT rule created by this procedure*

```
object network http-object
nat (inside,outside) static interface service tcp www www
```

## NAT Incoming SMTP Traffic to an SMTP Server

If you only have one public IP address, or a very limited number, you can create a network object NAT rule that translates inbound traffic, bound for a static IP address and port, to an internal address. We have provided procedures for specific cases, but you can use them as a model for other supported applications.

### Before you begin

Before you begin, create a network object for the smtp server. For the sake of this procedure, we will call the object, **smtp-object**.

### Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device you want to create the NAT rule for.
- Step 6** Click **NAT** in the **Management** pane at the right.
- Step 7** Click  > **Network Object NAT**.
- Step 8** In section 1, **Type**, select **Static**. Click **Continue**.
- Step 9** In section 2, **Interfaces**, choose **inside** for the source interface and **outside** for the destination interface. Click **Continue**.
- Step 10** In section 3, **Packets**, perform these actions:
  - Expand the Original Address menu, click **Choose**, and select the smtp-server-object.
  - Expand the Translated Address menu, click **Choose**, and select the **Interface**.
  - Check **Use Port Translation**.
  - Select **tcp**, **smtp**, **smtp**.

Use Port Translation ☒

tcp smtp ⇄ smtp

- Step 11** Skip section 4, **Advanced**.
- Step 12** For an FDM-managed device, in section 5, **Name**, give the NAT rule a name.
- Step 13** Click **Save**. The new rule is created in [section 2](#) of the NAT table.
- Step 14** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

#### Entries in the ASA's Saved Configuration File

Here are the entries that are created and appear in an ASA's saved configuration file as a result of this procedure.



**Note** This does not apply to FDM-managed devices.

#### *Object created by this procedure*

```
object network smtp-object
host 10.1.2.29
```

#### *NAT rule created by this procedure*

```
object network smtp-object
nat (inside,outside) static interface service tcp smtp smtp
```

## Translate a Range of Private IP Addresses to a Range of Public IP Addresses

### Use Case

Use this approach if you have a group of specific device types, or user types, that need to have their IP addresses translated to a specific range so that the receiving devices (the devices on the other end of the transaction) allow the traffic in.

## Translate a Pool of Inside Addresses to a Pool of Outside Addresses

### Before you begin

Create a network object for the pool of private IP addresses you want to translate and create a network object for the pool of public addresses you want to translate those private IP addresses into.

For the ASA, the "original address" pool, (the pool of private IP addresses you want to translate) can be a network object with a range of addresses, a network object that defines a subnet, or a network group that includes all the addresses in the pool. For the FTD, the "original address" pool can be a network object that defines a subnet or a network group that includes all the addresses in the pool.



**Note** For the ASA FTD, the network group that defines the pool of "translated address" cannot be a network object that defines a subnet.

For the sake of the following procedure, we named the pool of private addresses, **inside\_pool** and name the pool of public addresses, **outside\_pool**.

## Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device you want to create the NAT rule for.
- Step 6** Click **NAT** in the **Management** pane at the right.
- Step 7** Click  > **Network Object NAT**.
- Step 8** In section 1, **Type**, select **Dynamic** and click **Continue**.
- Step 9** In section 2, **Interfaces**, set the source interface to **inside** and the destination interface to **outside**. Click **Continue**.
- Step 10** In section 3, **Packets**, perform these tasks:
- For the Original Address, click **Choose** and then select the **inside\_pool** network object (or network group) you made in the prerequisites section above.
  - For the Translated Address, click **Choose** and then select the **outside\_pool** network object (or network group) you made in the prerequisites section above.
- Step 11** Skip section 4, **Advanced**.
- Step 12** For an FDM-managed device, in section 5, **Name**, give the NAT rule a name.
- Step 13** Click **Save**.
- Step 14** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
- 

### Entries in the ASA's Saved Configuration File

These are the entries that would appear in an ASA's saved configuration file as a result of these procedures.




---

**Note** This does not apply to FDM-managed devices.

---

#### *Objects created by this procedure*

```
object network outside_pool
 range 209.165.1.1 209.165.1.255
object network inside_pool
 range 10.1.1.1 10.1.1.255
```

#### *NAT rules created by this procedure*

```
object network inside_pool
nat (inside,outside) dynamic outside_pool
```

# Prevent a Range of IP Addresses from Being Translated When Traversing the Outside Interface

## Use Case

Use this Twice NAT use case to enable site-to-site VPN.

## Strategy

You are translating a pool of IP addresses to itself so that the IP addresses in one location on the network arrives unchanged in another.

## Create a Twice NAT Rule

### Before you begin

Create a network object or network group that defines the pool of IP addresses you are going to translate to itself. For the ASA, the range of addresses can be defined by a network object that uses an IP address range, a network object that defines a subnet, or a network group object that includes all the addresses in the range. For the FTD, the range of addresses can be defined by a network object that defines a subnet or a network group object that includes all the addresses in the range.

For the sake of the following procedure, we are going call the network object or network group, Site-to-Site-PC-Pool.

### Procedure

- 
- |                |                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b>  | In the left pane, click <b>Inventory</b> .                                                                                                                                                                                                                                                                                                                                                               |
| <b>Step 2</b>  | In the left pane, click <b>Security Devices</b> .                                                                                                                                                                                                                                                                                                                                                        |
| <b>Step 3</b>  | Click the <b>Devices</b> tab to locate the device or the <b>Templates</b> tab to locate the model device.                                                                                                                                                                                                                                                                                                |
| <b>Step 4</b>  | Click the appropriate device type tab.                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Step 5</b>  | Select the device you want to create the NAT rule for.                                                                                                                                                                                                                                                                                                                                                   |
| <b>Step 6</b>  | Click <b>NAT</b> in the <b>Management</b> pane at the right.                                                                                                                                                                                                                                                                                                                                             |
| <b>Step 7</b>  | Click  > <b>Twice NAT</b> .                                                                                                                                                                                                                                                                                           |
| <b>Step 8</b>  | In section 1, <b>Type</b> , select <b>Static</b> . Click <b>Continue</b> .                                                                                                                                                                                                                                                                                                                               |
| <b>Step 9</b>  | In section 2, <b>Interfaces</b> , choose <b>inside</b> for the source interface and <b>outside</b> for the destination interface. Click <b>Continue</b> .                                                                                                                                                                                                                                                |
| <b>Step 10</b> | In section 3, <b>Packets</b> , make these changes: <ul style="list-style-type: none"><li>• Expand the Original Address menu, click <b>Choose</b>, and select the Site-to-Site-PC-Pool object you created in the prerequisites section.</li><li>• Expand the Translated Address menu, click <b>Choose</b>, and select the Site-to-Site-PC-Pool object you created in the prerequisites section.</li></ul> |
| <b>Step 11</b> | Skip section 4, <b>Advanced</b> .                                                                                                                                                                                                                                                                                                                                                                        |

- Step 12** For an FDM-managed device, in section 5, **Name**, give the NAT rule a name.
- Step 13** Click **Save**.
- Step 14** For an ASA, create a crypto map. See [CLI Book 3: Cisco ASA Series VPN CLI Configuration Guide](#) and review the chapter on LAN-to-LAN IPsec VPNs for more information on creating a crypto map.
- Step 15** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

### Entries in the ASA's Saved Configuration File

These are the entries that would appear in an ASA's saved configuration file as a result of these procedures.



**Note** This does not apply to FDM-managed devices.

#### *Objects created by this procedure*

```
object network Site-to-Site-PC-Pool
range 10.10.2.0 10.10.2.255
```

#### *NAT rules created by this procedure*

```
nat (inside,outside) source static Site-to-Site-PC-Pool Site-to-Site-PC-Pool
```

## API Tokens

Developers use Security Cloud Control API tokens when making Security Cloud Control REST API calls. The API token must be inserted in the REST API authorization header for a call to succeed. API tokens are "long-lived" access tokens which do not expire; however, you can renew and revoke them.

You can generate API tokens from within Security Cloud Control. These tokens are only visible immediately after they're generated and for as long as the General Settings page is open. If you open a different page in Security Cloud Control and return to the General Settings page, the token is no longer visible, although it is clear that a token has been issued.

Individual users can create their own tokens for a particular tenant. One user cannot generate a token on behalf of another. Tokens are specific to an account-tenant pair and cannot be used for other user-tenant combinations.

### API Token Format and Claims

The API token is a JSON Web Token (JWT). To learn more about the JWT token format, read the [Introduction to JSON Web Tokens](#).

The Security Cloud Control API token provides the following set of claims:

- **id** - user/device uid
- **parentId** - tenant uid
- **ver** - the version of the public key (initial version is 0, for example, **cdo\_jwt\_sig\_pub\_key.0**)
- **subscriptions** - Security Services Exchange subscriptions (optional)
- **client\_id** - "api-client"
- **jti** - token id



# Manage ASA Certificates

Digital certificates provide digital identification for authenticating devices and individual users. A digital certificate includes information that identifies a device or user, such as the name, serial number, company, department, or IP address. A digital certificate also includes a copy of the public key for the user or device. For more information on digital certificates, see the "Digital Certificates" chapter in the "Basic Settings" book of the [Cisco ASA Series General Operations ASDM Configuration, X.Y](#) document.

Certificate Authorities (CAs) are trusted authorities that “sign” certificates to verify their authenticity, thereby guaranteeing the identity of the device or user. CAs also issue identity certificates.

- **Identity Certificate** — Identity certificates are certificates for specific systems or hosts. You can generate these yourself using the OpenSSL toolkit or get them from a Certificate Authority. You can also generate a self-signed certificate. CAs issue identity certificates, which are certificates for specific systems or hosts.
- **Trusted CA Certificate** — Trusted CA certificates are certificates that the system can use to sign other certificates. These certificates differ from internal identity certificates with respect to the basic constraints extension and the CA flag, which are enabled for CA certificates but disabled for identity certificates. A trusted CA certificate is self-signed and called a root certificate.

The Remote Access VPN uses digital certificates for authenticating secure gateways and AnyConnect clients (endpoints) to establish a secure VPN connection. For more information, see [Remote Access VPN Certificate-Based Authentication](#).

## Guidelines for Certificate Installation

Read the following guidelines for certificate installation on ASA:

- Certificate can be installed on a single or multiple ASA devices simultaneously.
- Only one certificate can be installed at a time.
- Certificate can be installed only on a live ASA device and not on a modal device.

# Install ASA Certificates



---

**Note** Ensure that the ASA device has no out-of-band changes, and all staged changes have been deployed.

---

The following lists the digital certificates and formats supported by Security Cloud Control:

- Identity Certificate can be installed using the following methods:
  - PKCS12 file import.
  - Self-Signed certificate
  - Certificate Signing Request (CSR) import.
- Trusted CA Certificate can be installed using PEM or DER format.

Watch the [screencast](#) demonstrates the steps for installing certificates on ASA using Security Cloud Control. It also shows steps for modifying, exporting, and deleting installed certificates.

### Supported Certificate Formats

- PKCS12: PKCS#12, P12, or PFX format is a binary format for storing the server certificate, any intermediate certificates, and the private key in one encryptable file. PFX files usually have extensions such as **.pfx** and **.p12**.
- PEM: PEM (originally “Privacy Enhanced Mail”) files contain ASCII (or Base64) encoding data and the certificate files can be in .pem, .crt, .cer, or .key formats. They are Base64 encoded ASCII files and contain "-----BEGIN CERTIFICATE-----" and "-----END CERTIFICATE-----" statements.
- DER: DER (Distinguished Encoding Rules) format is simply a binary form of a certificate instead of the ASCII PEM format. It sometimes has a file extension of **.der**, but it often has a file extension of **.cer**, so the only way to tell the difference between a DER .cer file and a PEM .cer file is to open it in a text editor and look for the BEGIN/END statements. Unlike PEM, DER-encoded files do not contain plain text statements such as -----BEGIN CERTIFICATE-----.

### Trustpoints Screen

After onboarding the ASA device into Security Cloud Control, on the **Security Devices** tab, select the ASA device and in the **Management** pane on the left, click **Trustpoints**.

In the **Trustpoints** tab, you'll see the certificates that are already installed on the device.

- The "Installed" status indicates that the corresponding certificate is installed successfully on the device.
- The "Unknown" status indicates that the corresponding certificate doesn't contain any information. You need to remove and upload it again with the correct details. Security Cloud Control discovers all the unknown certificates as trusted CA certificates.
- Click the row that shows "Installed" to view certificate details on the right pane. Click **more** to see additional details of the selected certificate.
- An installed Identity Certificate can be exported in PKCS12 or PEM format and imported into other ASA devices. See [Exporting an Identity Certificate](#).
- Only the advanced settings can be modified on an installed certificate.
  - Click **Edit** to modify the advanced settings.
  - After making the changes, click **Send** to install the updated certificate.

## Install an Identity Certificate Using PKCS12

You can select an existing trustpoint object created for PKCS12 format and install it on the ASA device. You can also create a new trustpoint object from the installation wizard and install the certificate on the ASA device.

### Before you begin

- Read the [guidelines for certificate installation](#).

- ASA must be “Synced” state and “Online”.

## Procedure

- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the navigation bar, click **Security Devices**.
- Step 3** To install an identity certificate on a single ASA device, do the following:
- a) Click the **Devices** tab.
  - b) Click the **ASA** tab and select an ASA device.
  - c) In the **Management** pane on the right, click **Trustpoints**.
  - d) Click **Install**.

### Note

You can also install a certificate on multiple ASA devices. Select multiple ASA devices and in the **Devices Action** on the right, click **Install Certificate**.

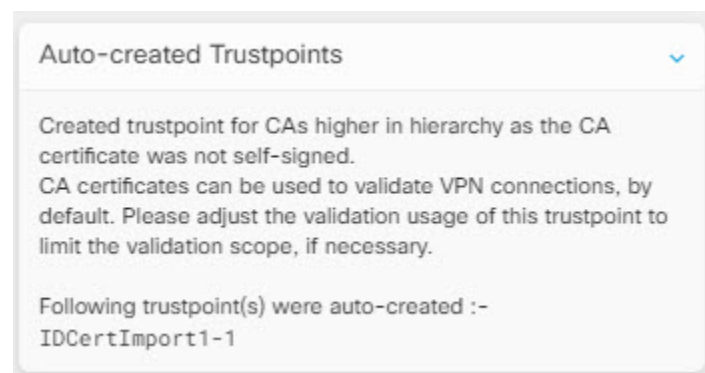
- Step 4** From **Select Trustpoint Certificate to Install**, click one of the following:
- **Create** to add a new trustpoint object.
  - **Choose** to select Certificate Enrollment Object of the PKCS type.

- Step 5** Click **Send**.

This installs the certificate on the ASA device

### Note

If you are importing a PKCS12 certificate that has intermediate CAs installed on it, ASA automatically creates and installs trustpoint objects on the device for every intermediate CA certificate that is not installed already. When you click on the identity certificate, you'll see a message on the right pane, as shown in the following example.



## Install a Certificate Using Self-Signed Enrollment

You can select an existing trustpoint object created for a self-signed certificate and install it on the ASA device. You can also create a new trustpoint object from the installation wizard and install the certificate on the ASA device.

### Before you begin

- Read the [guidelines for certificate installation](#).
- ASA must be “Synced” state and “Online”.

### Procedure

- 
- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the navigation bar, click **Security Devices**.
- Step 3** To install an identity certificate on a single ASA device, do the following:
- a) Click the **Devices** tab.
  - b) Click the **ASA** tab and select an ASA device.
  - c) In the **Management** pane on the right, click **Trustpoints**.
  - d) Click **Install**.

### Note

You can also install a signed certificate on multiple ASA devices. Select multiple ASA devices and in the **Devices Action** on the right, click **Install Certificate**.

- Step 4** From **Select Trustpoint Certificate to Install**, click one of the following:
- **Create** to add a new trustpoint object.
  - **Choose** to select a Certificate Enrollment Object of the type Self-Signed..
- Step 5** Click **Send**.

For self signed enrollment type trustpoints, the Issuer Common Name status will always be the ASA device since the managed device is acting as its own CA and does not need a CA certificate to generate its own Identity Certificate.

---

## Manage a Certificate Signing Request (CSR)

You must first generate a CSR request and then get this request signed by a trusted Certificate Authority (CA). Then, you can install the signed identity certificate issued by the CA on the ASA device.

- Read the [guidelines for certificate installation](#).
- ASA must be “Synced” state and “Online”.

The following diagram depicts the workflow for generating CSR and installing a certified issued certificate in ASA:

## Generate a CSR Request

### Procedure

---

- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the navigation bar, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the **ASA** tab and select an ASA device.
- Step 5** To install an identity certificate on a single ASA device, do the following:
- Step 6** Click **Install**.
- Step 7** From **Select Trustpoint Certificate to Install**, click one of the following:
- **Create** to add a new trustpoint CSR object.
  - **Choose** to select the CSR request trustpoint that is already created..
- Step 8** Click **Send**.
- This generates an unsigned Certificate Signing Request (CSR).
- Step 9** Click the copy icon `copy_icon.png` to copy the CSR details. You can also download the CSR request in ".csr" file format.
- Step 10** Click **OK**.
- Step 11** Submit the certificate signing request (CSR) to the Certificate Authority to sign the certificate.
- 

## Install a Signed Identity Certificate Issued by a Certificate Authority

Once the CA issues the signed certificate, install it on the ASA device

### Procedure

---

- Step 1** In the **Trustpoint** screen, click the CSR request with the **Status** as "Awaiting Signed Certificate Install" and in the **Actions** pane on the right, click **Install Certified ID Certificate**.
- Step 2** Upload the signed certificate received from the CA. You can drag and drop the file or paste its contents in the provided field. The trustpoint commands are generated based on the trustpoint you selected.
- Step 3** Click **Send**.

This installs the signed identity certificate to the ASA device. Installing certificates will immediately deploy changes to the device.

#### Note

You can also install a certificate on multiple ASA devices. Select multiple ASA devices and in the **Devices Action** on the right, click **Install Certificate**.

---

## Install a Trusted CA Certificate in ASA

### Before you begin

- Read the [guidelines for certificate installation](#).
- ASA must be “Synced” state and “Online”.

### Procedure

- 
- Step 1** In the navigation menu, click **Inventory**.
- Step 2** In the navigation menu, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the **ASA** tab and select an ASA device.
- Step 5** To install an identity certificate on a single ASA device, do the following:
- a) Select an ASA device and in the **Management** pane on the right, click **Trustpoints**.
  - b) Click **Install**.

### Note

You can also install a certificate on multiple ASA devices. Select multiple ASA devices and in the **Devices Action** on the right, click **Install Certificate**.

- Step 6** From **Select Trustpoint Certificate to Install**, click one of the following:
- **Create** to add a new trustpoint object.
  - **Chooseselect** a Trusted Certificate Authority Object.
- Step 7** Click **Send**.
- This installs the trusted CA file on the ASA device.
- 

## Export an Identity Certificate

You can export and import the keypair and issued certificates associated with a trustpoint in PKCS12 or PEM format. This format is useful to manually duplicate a trustpoint configuration on a different ASA.

### Procedure

- 
- Step 1** In the navigation menu, click **Inventory**.
- Step 2** In the navigation menu, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the **ASA**.

- Step 5** Select the ASA device and in the **Management** on the right, click **Trustpoints**.
  - Step 6** Click the identity certificate to export the certificate configuration. Alternatively, you can search for the certificate by entering its name in the search field.
  - Step 7** In the **Actions** pane on the right, click **Export Certificate**.
  - Step 8** Choose the certificate format by clicking the **PKCS12 Format** or the **PEM Format**.
  - Step 9** Enter the encryption passphrase used to encrypt the PKCS12 file for export.
  - Step 10** Confirm the encryption passphrase.
  - Step 11** Click **Export** to export the certificate configuration.
- An information dialog box appears, informing you that the certificate configuration file has been successfully exported to the location that you specified.

---

### What to do next

If you want to view the downloaded identity certificate, execute the following commands in the directory where the certificate was downloaded:

1. To decode certificate in base64 format:

```
openssl base64 -d -in <file_name>.p12 -out <file_name>_b64.p12
```

2. To view certificate:

```
openssl pkcs12 -in <file_name>_b64.p12 -passin pass:<password>
```

## Edit an Installed Certificate

You can modify only the advanced options of the installed certificate.

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **Devices** tab.
  - Step 4** Click the **ASA** tab.
  - Step 5** Select the ASA device and in the **Management** on the right, click **Trustpoints**.
  - Step 6** Click the certificate to modify and in the **Actions** pane on the right, click **Edit**.
  - Step 7** Modify the required parameters and click **Save**.
- 

## Delete an Existing Certificate from ASA

You can delete a certificate one after another. After deleting a certificate, it cannot be restored.



## Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Select the ASA device and in the **Management** on the right, click **Trustpoints**.
- Step 4** Click the certificate to be deleted and in the **Actions** pane on the right, click **Remove**.
- Step 5** Click **OK** to remove the selected certificate.

# ASA File Management

Security Cloud Control provides the file management tool to help you perform basic file management tasks such as viewing, uploading, or deleting files present on the ASA device's flash (disk0) space.



**Note** You cannot manage files present on disk1.

The File Management screen lists all the files present on the device's flash (disk0). On a successful file upload, you can click the refresh icon to see the file. By default, this screen refreshes automatically every 10 minutes. The **Disk Space** field shows the amount of disk space on the disk0

| Name                                                       | Size      | Path                 | Last Modified Date   |
|------------------------------------------------------------|-----------|----------------------|----------------------|
| <input checked="" type="checkbox"/> data-sources.html      | 8.58 KB   | disk0:/              | 03:59:18 Nov 23 2020 |
| <input type="checkbox"/> agentlog                          | 26.45 KB  | disk0:/smart-log/    | 05:13:49 Nov 20 2020 |
| <input type="checkbox"/> anyconnect-linux-3.1.14018-k9.pkg | 11.77 MB  | disk0:/              | 05:18:29 Oct 28 2020 |
| <input type="checkbox"/> data-sources.html                 | 8.58 KB   | disk0:/log/          | 08:14:24 Oct 27 2020 |
| <input type="checkbox"/> asdm-7141-48.bin                  | 34.09 MB  | disk0:/              | 05:26:50 Sep 29 2020 |
| <input type="checkbox"/> asa9-14-1-10-smp-k8.bin           | 100.34 MB | disk0:/              | 05:26:36 Sep 29 2020 |
| <input type="checkbox"/> coredump.cfg                      | 58 Bytes  | disk0:/coredumpinfo/ | 06:25:12 May 29 2020 |

You can upload the AnyConnect image to single or multiple ASA devices. After a successful upload, the AnyConnect image is associated with the RA VPN configuration on the selected ASA devices. This helps you to upload the newly released AnyConnect package to multiple ASA devices simultaneously.

## Upload File to the Flash System

Security Cloud Control supports only URL based file upload from the remote server. The supported protocols for uploading the file are HTTP, HTTPS, TFTP, FTP, SMB, or SCP. You can upload any files such as the AnyConnect software images, DAP.xml, data.xml, and host scan image files to a single or multiple ASA device.



**Note** Security Cloud Control doesn't upload the file to selected ASA devices if the remote server's URL path is invalid or for any issues that may occur. You can navigate to the device **Workflows** for more details.

Suppose the device is configured for High Availability, Security Cloud Control uploads the file to the standby device first, and only after a successful upload, the file is uploaded to the active device. The same behavior applies during the file removal process.

The syntax of supported protocols for uploading the file:

| Protocol | Syntax                                                    | Example                                       |
|----------|-----------------------------------------------------------|-----------------------------------------------|
| HTTP     | http://[[path/ ]filename]                                 | http://www.geonames.org/data-sources.html     |
| HTTPS    | https://[[path/ ]filename]                                | https://docs.amazonaws.com/amazow/egging.html |
| TFTP     | tftp://[[path/ ]filename]                                 | tftp://10.10.16.6/ftd/components.html         |
| FTP      | ftp://[[user[:password]]@]server[:port]/[path/ ]filename] | ftp://KTYX9ZRRWCH@pilot.mg00g                 |
| SMB      | smb://[[path/ ]filename]                                  | smb://10.10.32.145/sambashare/hello.txt       |
| SCP      | scp://[[user[:password]]@]server[/path/ ]filename]        | scp://root@10.10.166/rootevents_sendpy        |

### Before You Begin

- Make sure that the remote server is accessible from the ASA device.
- Make sure that the file is already uploaded to the remote server.
- Make sure that there is a network route from the ASA device to that server.
- If FQDN is used in the URL, make sure that DNS is configured.
- The remote server's URL must be a direct link without prompting for authentication.
- If the remote server IP address is NATed, you have to provide the NATed public IP address of the remote server location.



**Note** If you upload a file to an ASA that is configured as a peer in a failover, Security Cloud Control does not acknowledge the new file for the other peer in the failover pair and the device status changes to **Not Synced**. You must manually deploy changes to **both** devices for Security Cloud Control to recognize the file in both devices.

## Upload File to a Single ASA Device

Use this procedure to upload a file to a single ASA device.

### Procedure

- 
- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the navigation bar, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the **ASA** tab and select an ASA device.
- Step 5** In the **Management** pane on the right, click **File Management**. You can view available disk space and the files present on the ASA device.
- Step 6** Click the **Upload** button on the right.
- Step 7** In the **URL link**, specify the server's path where the file is pre-uploaded. The **Destination Path** field shows the name of the file that is being uploaded to the **disk0** directory. If you want to upload the file to a specific directory within disk0, specify its name in this field. For example, if you're going to upload a dap.xml file to the "DAPFiles" directory, specify "**disk0:/DAPFiles/dap.xml**" in the field.
- Note**  
You can view the directories present in the disk0 folder by executing the **dir** command in the Security Cloud Control ASA CLI interface.
- Step 8** If the specified server path points to an AnyConnect file, the **Associate file with RA VPN Configuration** check box is enabled. **Note:** This check box is enabled only for an AnyConnect file name that follows the right naming convention, which is 'anyconnect-win-xxx.pkg', 'anyconnect-linux-xxx.pkg', or 'anyconnect-mac-xxx.pkg' format. On selecting this check box, Security Cloud Control associates the AnyConnect file to the RA VPN configuration on the selected ASA device after a successful upload.
- Step 9** Click **Upload**. Security Cloud Control uploads the file to the device.
- Step 10** If you have chosen to associate the AnyConnect package with the RA VPN configuration in step 5, [deploy the new RA VPN configuration to the ASA device](#).
- 

### What to do next

You don't have to deploy the configuration changes on the device.'

## Upload File to Multiple ASA Devices

Use this procedure to upload a file to multiple ASA devices at the same time.

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the **ASA** tab and select multiple ASA devices to perform a bulk upload.

- Step 5** In the **Device Actions** pane on the right, click **Upload File**. Note: The **Upload File** link appears if ASA devices are online.
- Step 6** In the **URL link**, specify the server's paths where the file is pre-uploaded. The **Destination Path** field shows the name of the file that is being uploaded to the **disk0** directory. If you want to upload the file to a specific directory within disk0, specify its name in this field. For example, if you're going to upload a dap.xml file to the "DAPFiles" directory, specify "**disk0:/DAPFiles/dap.xml**" in the field.
- Note**  
You can view the directories present in the disk0 folder by executing the **dir** command in the Security Cloud Control ASA CLI interface.
- Step 7** If the specified server path points to an AnyConnect file, the **Associate file with RA VPN Configuration** check box is enabled.
- Note**  
This check box is enabled only for an AnyConnect file name that follows the right naming convention, which is 'anyconnect-win-xxx.pkg', 'anyconnect-linux-xxx.pkg', or 'anyconnect-mac-xxx.pkg' format. On selecting this check box, Security Cloud Control associates the AnyConnect file to the RA VPN configuration on the selected ASA devices after a successful upload.
- Step 8** Click **Upload**.
- Step 9** If you have chosen to associate the AnyConnect package with the RA VPN configuration in step 4, [deploy the new RA VPN configuration to ASA devices](#).

---

### What to do next

You can view the progress of uploading the file on individual devices. Select the ASA device, and in the **Management** pane on the right, click **File Management**. If the file upload is in progress, wait for the operation to complete.

You don't have to deploy the configuration changes on the device.'

## Remove Files from ASA

You are not allowed to remove AnyConnect files associated with the RA VPN configuration. You have to disassociate the AnyConnect file from the corresponding RA VPN configuration and then remove the file from the File Management tool.



- 
- Note** If you upload a file to an ASA that is configured as a peer in a failover, Security Cloud Control does not acknowledge the new file for the other peer in the failover pair and the device status changes to **Not Synced**. You must manually deploy changes to **both** devices for Security Cloud Control to recognize the file in both devices.
- 

The remove operation deletes the selected files permanently from the flash memory. A message appears when deleting files asking for confirmation. Use the following procedure to remove files from a selected ASA device:

## Procedure

- 
- |               |                                                                                                                                                                                                                                                                                     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the navigation bar, click <b>Inventory</b> .                                                                                                                                                                                                                                     |
| <b>Step 2</b> | In the navigation bar, click <b>Security Devices</b> .                                                                                                                                                                                                                              |
| <b>Step 3</b> | Click the <b>Devices</b> tab.                                                                                                                                                                                                                                                       |
| <b>Step 4</b> | Click the <b>ASA</b> tab and select an ASA device.                                                                                                                                                                                                                                  |
| <b>Step 5</b> | In the <b>Management</b> pane on the right, click <b>File Management</b> .                                                                                                                                                                                                          |
| <b>Step 6</b> | Select the files you want to remove, and under <b>Actions</b> on the right, click <b>Remove</b> . A maximum of 25 files can be selected. If Security Cloud Control fails to remove some files, you can see the device <b>Workflows</b> to determine the removed and retained files. |
| <b>Step 7</b> | If you have chosen to remove the AnyConnect package, <a href="#">deploy the new RA VPN configuration to the ASA device</a> .                                                                                                                                                        |
- 

# Managing ASAs with Pre-existing High Availability Configuration

## Configuration Changes Made to ASAs in Active-Active Failover Mode

When Security Cloud Control changes an ASA's running configuration with the one staged on Security Cloud Control, or when it changes the configuration on Security Cloud Control with the one stored on the ASA, it attempts to change only the relevant lines of the configuration file if that aspect of the configuration can be managed by the Security Cloud Control GUI. If the desired configuration change cannot be made using the Security Cloud Control GUI, Security Cloud Control attempts to overwrite the entire configuration file to make the change.

Here are two examples:

- You *can* create or change a network object using the Security Cloud Control GUI. If Security Cloud Control needs to deploy that change to an ASA's configuration, it overwrites the relevant lines of the running configuration file on the ASA when the change occurs.
- You *cannot* create a new ASA user using the Security Cloud Control GUI. If a new user is added to the ASA using the ASA's ASDM or CLI, when that out-of-band change is accepted and Security Cloud Control updates the stored configuration file, Security Cloud Control attempts to overwrite that ASA's entire configuration file staged on Security Cloud Control.

These rules are not followed when the ASA is configured in active-active failover mode. When Security Cloud Control manages an ASA configured in active-active failover mode, Security Cloud Control cannot always deploy all configuration changes from itself to the ASA or read all configuration changes from the ASA into itself. Here are two instances in which this is the case:

- **Changes to an ASA's configuration file made in Security Cloud Control, that Security Cloud Control does not otherwise support in the Security Cloud Control GUI, cannot be deployed to the ASA.** Also, a combination of changes made to the configuration file that Security Cloud Control does

not support, along with changes made to the configuration file that Security Cloud Control does support, cannot be deployed to the ASA. In both cases, you receive the error message, "Security Cloud Control does not support replacing full configurations for devices in failover mode at this time. Please click Cancel and apply changes to the device manually." Along with the message in the Security Cloud Control interface, you see a Replace Configuration button that is disabled.

- **Out-of-band changes made to an ASA configured in active-active failover mode will not be rejected by Security Cloud Control.** If you make an out-of-band change to an ASA's running configuration, the ASA gets marked with "Conflict Detected" on the **Security Devices** page. If you review the conflict and try to reject it, Security Cloud Control blocks that action. You receive the message, "Security Cloud Control does not support rejecting out-of-band changes for this device. Either this device is running an unsupported software version or is a member of a active/active failover pair. Please proceed to accept the out-of-band changes by clicking Continue."

**Caution**

If you find yourself having to accept out-of-band changes from the ASA, any configuration changes staged on Security Cloud Control, but not yet deployed to the ASA, will be overwritten and lost.

Security Cloud Control does support configuration changes made to an ASA in failover mode when those changes are supported by the Security Cloud Control GUI.

**Related Information:**

## Manage ASA Configuration Files

ASA stores their configurations in a single configuration file. You can view the device configuration file on Security Cloud Control and perform a variety of operations on it depending on the device.

### View a Device's Configuration File

The ASA stores the entire configuration in a single configuration file. You can view the configuration file using Security Cloud Control.

**Procedure**

- 
- Step 1** In the left pane, click **Security Devices**.
  - Step 2** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
  - Step 3** Click the ASA device type tab.
  - Step 4** Select the device or model whose configuration it is you want to view.
  - Step 5** In the **Management** pane on the right, click **Configuration**.  
The full configuration file is displayed.
-

# Configure DNS on ASA

Use this procedure to configure a domain name server (DNS) on each of your ASAs.

## Prerequisites

- The ASA must be able to reach the internet.
- Before you begin, gather this information:
  - The name of the ASA interface that can reach the DNS server; for example, inside, outside, or dmz.
  - The IP address of the DNS server your organization uses. If you don't maintain your own DNS server, you can use Cisco Umbrella. The IP address for Cisco Umbrella is 208.67.220.220.

## Procedure

### Procedure

- 
- |               |                                                                                                                                                                                                                                                                                                                 |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, click <b>Inventory</b> .                                                                                                                                                                                                                                                                      |
| <b>Step 2</b> | In the left pane, click <b>Security Devices</b> .                                                                                                                                                                                                                                                               |
| <b>Step 3</b> | Click the <b>Devices</b> tab.                                                                                                                                                                                                                                                                                   |
| <b>Step 4</b> | Click the <b>ASA</b> tab and select all the ASAs on which you want to configure DNS.                                                                                                                                                                                                                            |
| <b>Step 5</b> | In the Actions pane to the right, select <b>Command Line Interface</b> .                                                                                                                                                                                                                                        |
| <b>Step 6</b> | Click the CLI macro favorites star.                                                                                                                                                                                                                                                                             |
| <b>Step 7</b> | Select the <b>Configure DNS</b> macro in the Macros panel.                                                                                                                                                                                                                                                      |
| <b>Step 8</b> | Select <b>&gt;_View Parameters</b> and in the parameters column, fill in the values for these parameters: <ul style="list-style-type: none"><li>• IF_Name - The name of the ASA interface that can reach the DNS server.</li><li>• IP_ADDR - The IP address of the DNS server your organization uses.</li></ul> |
| <b>Step 9</b> | Click <b>Send to devices</b> .                                                                                                                                                                                                                                                                                  |
- 

## ASA Command Line Interface

You can use the Security Cloud Control command line interface (CLI) for managing or troubleshooting the ASA and other device types.

For more information, see [Security Cloud Control configuration guide](#).

## Configure ASA Using Security Cloud Control CLI

You can configure an ASA device by running the CLI commands in the CLI interface provided in Security Cloud Control. See [ASA Command Line Interface](#), on page 415.

### Add a New Logging Server

System logging is a method of collecting messages from devices to a server running a syslog daemon. Logging to a central syslog server helps in aggregation of logs and alerts.

For more information, see the 'Monitoring' section of the 'Logging' chapter in the [CLI Book1: Cisco ASA Series General Operations CLI Configuration Guide](#) of the ASA version you are running.

### Configure the DNS Server

You need to configure DNS servers so that the ASA can resolve host names to IP addresses. You also must configure DNS servers to use fully qualified domain names (FQDN) network objects in access rules.

For more information, see the 'Basic Settings' chapter of the 'Configure the DNS Server' section in [CLI Book1: Cisco ASA Series General Operations CLI Configuration Guide](#) of the ASA version you are running.

### Add Static and Default Routes

To route traffic to a non-connected host or network, you must define a route to the host or network, either using static or dynamic routing.

For more information, see the 'Static and Default Routes' chapter of [CLI Book1: Cisco ASA Series General Operations CLI Configuration Guide](#).

### Configure Interfaces

You can configure the management and data interfaces using CLI commands. For more information, see the 'Basic Interface Configuration' chapter of [CLI Book1: Cisco ASA Series General Operations CLI Configuration Guide](#).

## ASA Bulk CLI Use Cases

The following cases are possible workflows you may experience when using Security Cloud Control's bulk CLI function for ASA devices.

### Show all users in the running configuration of an ASA and then delete one of the users

#### Procedure

- 
- |               |                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, click <b>Inventory</b> .                                                                       |
| <b>Step 2</b> | In the left pane, click <b>Security Devices</b> .                                                                |
| <b>Step 3</b> | Click the <b>Devices</b> tab to locate the device.                                                               |
| <b>Step 4</b> | Click the <b>ASA</b> tab.                                                                                        |
| <b>Step 5</b> | Search and filter the device list for the devices from which you want to delete the user and <b>select</b> them. |



**Note**

Make sure that the devices you choose are synced. Only the following commands are allowed when the device is not synced: `show`, `ping`, `traceroute`, `vpn-sessiondb`, `changeto`, `dir`, `copy`, and `write`.

- Step 6** Click **>\_Command Line Interface** in the details pane. Security Cloud Control lists the devices you chose in the My List pane. If you decide to send the command to fewer devices, uncheck devices in that list.
- Step 7** In the command pane, enter `show run | grep user` and click **Send**. All the lines in the running configuration file that contain the string `user` will be displayed in the response pane. The Execution tab opens to display the devices on which the command was executed.
- Step 8** Click the By Response tab and review the responses to determine which devices have the user that you want to delete.
- Step 9** Click the My List tab and select the list of devices from which you want to delete the user.
- Step 10** In the command pane, enter the no form of the user command to delete `user2` and then click **Send**. For the sake of this example, you are going to delete `user2`:
- ```
no user user2 password reallyhardpassword privilege 10
```
- Step 11** Look in the history panel for the instance of the `show run | grep user` command, you used to search for the user name. Select that command, look at the list of devices in the Execution list and select **Send**. You should see that the username has been deleted from the devices you specified.
- Step 12** If you are satisfied that you have deleted the correct users from the running configuration and that the correct users remain in the running configuration:
- Select the `no user user2 password reallyhardpassword privilege 10` command from the history pane.
 - Click the **By Device** tab and click **Execute a command on these devices**.
 - In the command pane, click **Clear** to clear the command pane.
 - Enter the command `deploy memory` and click **Send**.

Find all SNMP configurations on selected ASAs

This procedure shows you all the SNMP configuration entries in the running configuration of the ASA.

Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device.
- Step 4** Click the **ASA** tab.
- Step 5** Filter and search for the devices on which you want to analyze the SNMP configuration in the running configuration and **select** them.

Note

Make sure that the devices you choose are synced. Only the following commands are allowed when the device is not synced: `show`, `ping`, `traceroute`, `vpn-sessiondb`, `changeto`, and `dir`.

- Step 6** Click **Command Line Interface** in the details pane. The devices you chose are in the My List pane. If you decide to send the command to fewer devices, uncheck devices in the list.
- Step 7** In the command pane, enter `show run | grep snmp` and click **Send**. All the lines in the running configuration file that contain the string `snmp` will be displayed in the response pane. The Execution tab opens to display the devices on which the command was executed.
- Step 8** Review the command output in the response pane.
-

ASA Command Line Interface Documentation

Security Cloud Control fully supports the ASA command line interface. We provide a terminal-like interface within Security Cloud Control for users to send ASA commands to single devices and multiple devices simultaneously. The ASA command line interface documentation is extensive. Rather than recreating parts of it in the Security Cloud Control documentation, here are pointers to the ASA CLI documentation on Cisco.com.

ASA Command Line Interface Configuration Guides

Starting with ASA version 9.1, the ASA CLI Configuration Guide is broken into three separate books:

- CLI Book 1: Cisco ASA Series General Operations CLI Configuration Guide
- CLI Book 2: Cisco ASA Series Firewall CLI Configuration Guide
- CLI Book 3: Cisco ASA Series VPN CLI Configuration Guide

You can reach the ASA CLI Configuration Guides on Cisco.com by navigating, [Support > Products by Category > Security > Firewalls > ASA 5500 > Configure > Configuration Guides](#).

A Few Specific ASA Command Line Interface Configuration Guide Sections

Filtering show and more Command Output. You can learn about filtering show command output by using regular expressions in CLI Book 1: Cisco ASA Series General Operations CLI Configuration Guide under [Filter show and more Command Output](#).

ASA Command Reference

The ASA Command Reference Guide is an alphabetical listing of all the ASA commands and their options. The ASA command reference is not version specific. It is published in four books:

- Cisco ASA Series Command Reference, A - H Commands
- Cisco ASA Series Command Reference, I - R Commands
- Cisco ASA Series Command Reference, S Commands
- Cisco ASA Series Command Reference, T - Z Commands and IOS Commands for the ASASM

You can reach the ASA Command Reference Guides on Cisco.com by navigating, [Support > Products by Category > Security > Firewalls > ASA 5500 > Reference Guides > Command References > ASA Command References](#).

Manage the Device Configuration

The ASA stores its configuration in a single configuration file. You can view the configuration file on Security Cloud Control and perform a variety of operations on it.

Compare ASA Configurations Using Security Cloud Control

Use this procedure to compare the configurations of two ASAs.

Procedure

-
Step 1	In the left pane, click Inventory .
Step 2	In the left pane, click Security Devices .
Step 3	Click the Devices tab to locate the ASA device or the Templates tab to locate the ASA model device.
Step 4	Click the ASA tab.
Step 5	Filter your device list for the devices you want to compare.
Step 6	Select two of your ASAs. Their status does not matter. You are comparing the configurations of the ASAs stored on Security Cloud Control.
Step 7	In the Device Actions pane on the right, click ☐ Compare .
Step 8	In the Comparing Configurations dialog, click Next and Previous to skip through the differences, highlighted in blue, in the configuration files.
-

Restore an ASA Configuration

If you make a change to an ASA's configuration, and you want to revert that change, you can restore an ASA's past configuration. This is a convenient way to remove a configuration change that had unexpected or undesired results.

About Restoring an ASA Configuration

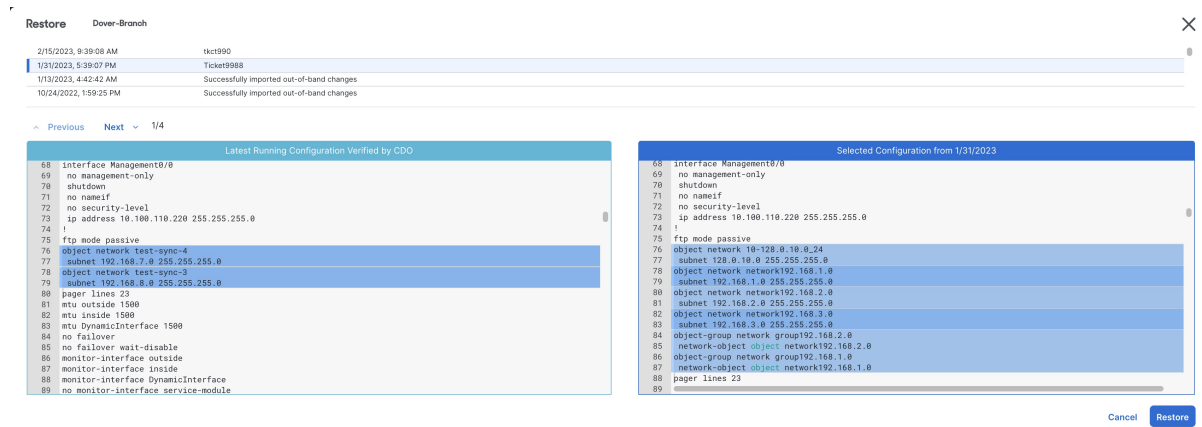
Review these notes before restoring a configuration:

- Security Cloud Control compares the configuration you choose to restore with the last known configuration deployed to the ASA, it does not compare the configuration you choose to restore with a configuration that is staged but not deployed to the ASA. If you have any undeployed changes on your ASA and you restore a past configuration, the restore process will overwrite your undeployed changes and you will lose them.
- Before you can restore a past configuration, the ASA can be in a Synced or Not Synced state but if the device is in a Conflict Detected state, the conflict must be resolved before you restore a past configuration.
- Restoring a past configuration overwrites all intermediate deployed configurations changes. For example, restoring the configuration from 1/31/2023 in the list below overwrites the configuration changes made on 2/15/2023.
- Clicking the Next and Previous buttons will move you through the configuration file and highlight the configuration file changes

Restore an ASA Configuration

- If you originally applied a change request label to your configuration changes, that label appears in the Restore Configuration list.

Figure 12: ASA Restore Configuration Screen



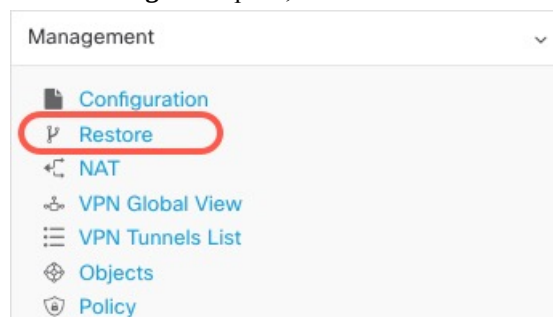
How Long are Configuration Changes Kept?

You can restore an ASA configuration that is 1 year old or less. Security Cloud Control restores configuration changes logged in its changelog. The change log records changes every time a configuration change is written to or read from an ASA. Security Cloud Control stores 1 year's worth of changelogs and there is no limitation on the number of the backups made within the previous year.

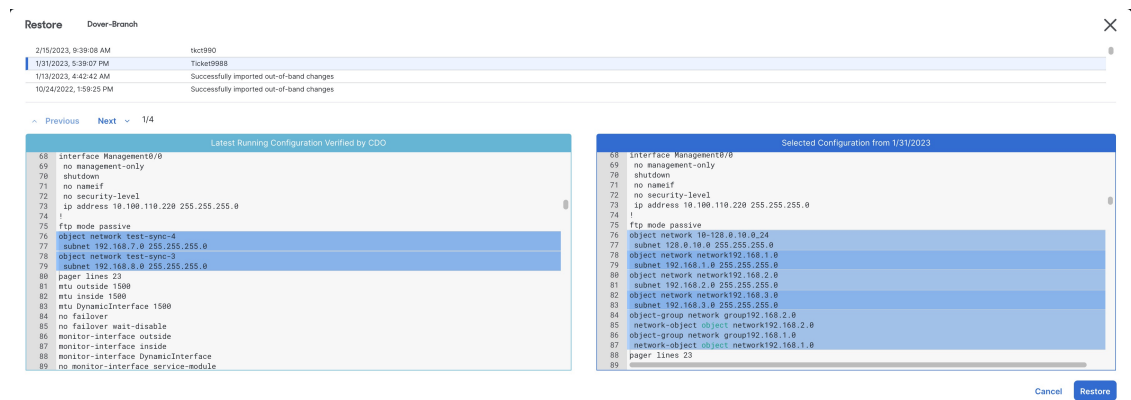
Restore an ASA Configuration

Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the ASA tab.
- Step 4** Select the ASA whose configuration it is you want to restore.
- Step 5** In the **Management** pane, click **Restore**.



- Step 6** In the **Restore** page, select the configuration you want to revert to.



For example, in the picture above, the configuration from 1/31/2023 is selected.

- Step 7** Compare the "Latest Running Configuration Verified by Security Cloud Control" and the "Selected Configuration from <date>" to ensure you want to restore the configuration displayed in the Selected Configuration from <date> window. Use the Previous and Next to compare all the changes.
- Step 8** Click **Restore**, this stages the configuration in Security Cloud Control. In the **Security Devices** page, you see that the configuration status of the device is now "Not Synced."
- Step 9** Click **Deploy Changes...** in the right-hand pane to deploy the changes and sync the ASA.

Troubleshooting

How do I recover changes I lost but wanted to keep?

Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the ASA tab.
- Step 5** Select the required device.
- Step 6** Click **Change Log** in the right pane.
- Step 7** Review the changes in the change log. You may be able to reconstruct your lost configurations from those records.

View a Device's Configuration File

The ASA stores the entire configuration in a single configuration file. You can view the configuration file using Security Cloud Control.

Procedure

-
- Step 1** In the left pane, click **Security Devices**.
 - Step 2** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
 - Step 3** Click the ASA device type tab.
 - Step 4** Select the device or model whose configuration it is you want to view.
 - Step 5** In the **Management** pane on the right, click **Configuration**.
The full configuration file is displayed.
-

Edit a Complete Device Configuration File

For these devices, you can view the device configuration file on Security Cloud Control and perform a variety of operations on it depending on the device.

Currently, only ASA configuration files can be edited directly using Security Cloud Control.



Caution This procedure is for advanced users who are familiar with the syntax of the device's configuration file. This method makes changes directly to copy of the configuration file stored on Security Cloud Control.

Procedure

-
- Step 1** In the left pane, click **Inventory**.
 - Step 2** In the left pane, click **Security Devices**.
 - Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
 - Step 4** Click the **ASA** tab.
 - Step 5** Select the device whose configuration it is you want to edit.
 - Step 6** In the **Management** pane on the right, click **Configuration**.
 - Step 7** In the **Device Configuration** page, click **Edit**.
 - Step 8** Click the editor button on the right and select the **Default** text editor, **Vim**, or **Emacs** text editors.
 - Step 9** Edit the file and save the changes.
 - Step 10** Return to the **Security Devices** page and preview and deploy the change.
-



CHAPTER 10

Configure Cloud-Delivered Firewall Management Center-Managed Secure Firewall Threat Defense

This chapter provides information on how to manage the cloud-delivered Firewall Management Center-managed Firewall Threat Defense onboarded to Security Cloud Control.

- [Security Cloud Control Integrations Page, on page 423](#)
- [Navigate to the Cloud-Delivered Firewall Management Center in your Security Cloud Control Tenant, on page 427](#)
- [Enable Cloud-Delivered Firewall Management Center on Your Security Cloud Control Tenant, on page 427](#)

Security Cloud Control Integrations Page

The **Integrations** page displays a list of FMCs that Security Cloud Control manages. Selecting the **FMC** tab lists the Cloud-Delivered Firewall Management Center that is linked to the Security Cloud Control account and all the on-premises management centers onboarded to Security Cloud Control. The devices that are managed by these on-prem management centers are listed in the **Security Devices** page. The **Integrations** page also lists the secure connectors under the **Secure Connectors** tab.

You can click the **FMC** tab and onboard an on-premises management center by clicking the blue plus icon

() , and perform device actions using the options in the right pane. You can also see device information such as version, number of devices being managed by the management center, device type, and the synchronization status of the device. Clicking on the managed devices icon takes you to the **Security Devices** page, where devices managed by the selected on-premises management center are filtered automatically and displayed. The **Integrations** page also allows you to select more than one on-premises management center at a time for you to perform actions on a group of management centers all at once. You cannot select any on-premises management center while the Cloud-Delivered Firewall Management Center is selected. To add a new secure connector or perform actions on existing secure connectors, choose the **Secure Connectors** tab and click .

In the left pane, click **Administration > Firewall Management Center**.

The screenshot shows the 'Cloud-Delivered FMC' section of the Security Cloud Control Integrations page. It features a search bar at the top, a table of FMCs, and a sidebar with navigation links.

Name	Version	Devices	Type	Status	Last Heartbeat
☒ Cloud-Delivered FMC	20240822	0	Cloud-Delivered FMC	Active	11/25/2024, 19:17:40
☐ FMC-Securex-Onboarding-1675266108901	N/A	0	On-Prem FMC	Read Error	-
☐ Responder_30.10.0.5	7.6.0-build 1511	2	On-Prem FMC	Read Error	-
☐ on-prem-fmc-1.mpg.com_30.12.48.52	N/A	0	On-Prem FMC	Read Error	-
☐ FMCOne_30.10.2.160	N/A	0	On-Prem FMC	Read Error	-
☐ Responder_30.12.80.12	N/A	0	On-Prem FMC	Read Error	-
☐ Responder_30.10.13.11	N/A	0	On-Prem FMC	Read Error	-

The sidebar on the right contains the following sections:

- Cloud-Delivered FMC**
 - Hostname: 20240822
- Actions**
 - Check For Changes
 - Deployment
 - Updates
 - Workflows
 - API Explorer
- Management**
 - Devices
 - Policies
 - Objects
 - NAT
 - Site to Site VPN
 - Remote Access VPN
 - Platform Settings
- System**
 - Configuration
 - Smart Licenses
 - AMP Management
 - Device Health
 - Audit
 - Cisco Cloud Events
 - Policy Analyzer and Optimizer

For your Cloud-Delivered Firewall Management Center, the Integrations page displays the following information:

- If you do not have a Cloud-Delivered Firewall Management Center deployed on your tenant, click **Enable Cloud-Delivered FMC**. See [Enable Cloud-Delivered Firewall Management Center on Your Security Cloud Control Tenant](#) for more information.
- The number of Secure Firewall Threat Defense devices deployed on the Cloud-Delivered Firewall Management Center.
- Status of the connection between Security Cloud Control and the Cloud-Delivered Firewall Management Center page.
- The last heartbeat of the Cloud-Delivered Firewall Management Center. This represents the last time the status of the Cloud-Delivered Firewall Management Center itself and the number of devices that it manages were synchronized with the table on this page.
- The hostname of the selected Cloud-Delivered Firewall Management Center.

Choose **Cloud-Delivered FMC** and using the links in the **Actions**, **Management**, or **Settings** pane, you open the Cloud-Delivered Firewall Management Center user interface to perform the configuration tasks that are associated with the link you clicked.

Actions:

- **Check For Changes:** The Device Count and Status information in the table will be updated with the information available the last time this page and the Cloud-Delivered Firewall Management Center were synchronized. Synchronization happens every 10 minutes.
- **Deployment:** Takes you to the device configuration deployment page on Cloud-Delivered Firewall Management Center. See [Deploy Configuration Changes](#).
- **Workflows:** Takes you to the **Workflows** page to monitor every process that Security Cloud Control runs when communicating with devices. See [Workflows](#) page.
- **API Explorer:** Takes you to the page that lists the Cloud-Delivered Firewall Management Center REST APIs. See [Secure Firewall Management Center REST API Guide](#).

- **Unified Events:** Takes you to the **Unified Events** page on the Cloud-delivered Firewall Management Center portal, which provides a single-screen view of various firewall events, including connection, intrusion, file, malware, and security-related connection events. For more information, see [Unified Events](#).



Note The Unified Events feature requires activation. If you have not yet activated this feature, contact your Cisco sales representative to enable it.

Management:

- **Devices:** Takes you to the Firewall Threat Defense device listing page on the Cloud-Delivered Firewall Management Center portal. See [Configure Devices](#).
- **Policies:** Takes you to the policies page on the Cloud-Delivered Firewall Management Center portal to edit system-provided access control policies and create custom access control policies. See [Manage Access Control Policies](#).
- **Objects:** Takes you to the policies page on the Cloud-Delivered Firewall Management Center portal to manage reusable objects. See [Object Management](#).
- **NAT:** Takes you to the policies page on the Cloud-Delivered Firewall Management Center portal to configure Network Address Translation policies on the Firewall Threat Defense devices. See [Manage NAT policies](#).
- **Site to Site VPN:** Takes you to the site-to-site VPN dashboard page on the Cloud-Delivered Firewall Management Center portal to configure site-to-site VPN policy between two sites. See [Site-to-Site VPNs](#).
- **Remote Access VPN:** Takes you to the remote access VPN dashboard page on the Cloud-Delivered Firewall Management Center portal to configure a remote access VPN configuration. See [Remote Access VPN](#).
- **Platform Settings:** Takes you to the platform settings page on the Cloud-Delivered Firewall Management Center portal to configure a range of unrelated features whose values you might want to share among several devices. See [Platform Settings](#).

System:

- **Configuration:** Takes you to the system configuration settings page on the Cloud-Delivered Firewall Management Center portal to configure system configuration settings. See [System Configuration](#).
- **Smart Licenses:** Takes you to the smart licenses page on the Cloud-Delivered Firewall Management Center portal to assign licenses to devices. See [Assign Licenses to Devices](#).
- **AMP Management:** Takes you to the AMP management page on the Cloud-Delivered Firewall Management Center portal that provides intelligence that the system uses to detect and block malware on your network. See [Cloud Connections for Malware Protection](#).
- **Device Health:** Takes you to the health monitoring page on the Cloud-Delivered Firewall Management Center portal that tracks various health indicators to ensure that the hardware and software in the system are working correctly. See [About Health Monitoring](#).
- **Audit:** Takes you to the audit log page on the Cloud-Delivered Firewall Management Center portal to show the generated audit record for each user interaction with the web interface.

- **Cisco Cloud Events:** Takes you to the configure Cisco Cloud events page on the Security Cloud Control portal to configure Cloud-Delivered Firewall Management Center to send events directly to SAL (SaaS). See [Send Events to SAL \(SaaS\)](#).

After opening the Cloud-Delivered Firewall Management Center page, click the blue question mark button and select **Page-level Help** to learn more about the page you are on and what further action you can take.

Support to Open Security Cloud Control and Cloud-Delivered Firewall Management Center Applications in Separate Tabs

As you configure Firewall Threat Defense devices or objects in Cloud-Delivered Firewall Management Center, you can open the appropriate configuration pages in additional browser tabs to work simultaneously in the Security Cloud Control and the Cloud-Delivered Firewall Management Center portals without logging off.

For example, you can create an object on Cloud-Delivered Firewall Management Center and simultaneously monitor event logs on Security Cloud Control that are generated from the security policies.

This feature is available for all Security Cloud Control links that navigate to the Cloud-Delivered Firewall Management Center portal. To open the Cloud-Delivered Firewall Management Center portal in a new tab:

On the Security Cloud Control portal, press and hold the Ctrl (Windows) or Command (Mac) button, then click the corresponding link.



Note A single click opens the Cloud-Delivered Firewall Management Center page in the same tab.

Here are some examples of opening the Cloud-Delivered Firewall Management Center portal page in a new tab:

- Choose **Administration > Firewall Management Center** and select **Cloud-Delivered FMC**. In the right pane, press and hold the Ctrl (Windows) or Command (Mac) button, and then click the page that you want to access.
- Choose **Objects > Other FTD Objects**.
- Click the search icon in the top-right corner of the Security Cloud Control page and enter the search strings in the search field that appears.

From the search result, press and hold the Ctrl (Windows) or Command (Mac) button, and then click the arrow icon.

- Choose **Dashboard > Quick Actions**. Press and hold the Ctrl (Windows) or Command (Mac) button, and then click **Manage FTD Policies** or **Manage FTD Objects**.



Note When you switch to a new Security Cloud Control tenant, the corresponding Cloud-Delivered Firewall Management Center portal already opened in a new tab logs out.

Related Topics

- [Managing On-Prem Firewall Management Center with Security Cloud Control](#)
- [Onboard an On-Prem Firewall Management Center](#)

- [Request a cloud-delivered Firewall Management Center for your Security Cloud Control tenant](#)
- [Secure Device Connector](#)
- [Secure Event Connectors](#)

Navigate to the Cloud-Delivered Firewall Management Center in your Security Cloud Control Tenant

Procedure

-
- Step 1** In the left pane, click **Administration > Integrations > Firewall Management Center** to view the **Services** page.
- The **Services** page displays the information about the Cloud-Delivered Firewall Management Center provisioned for the Security Cloud Control tenant.
- Step 2** Choose **Cloud-Delivered FMC** and click the links in the **Actions**, **Management**, or **Settings** pane to navigate to Cloud-Delivered Firewall Management Center to perform various actions. See [Security Cloud Control Integrations Page, on page 11](#).
- Once in the Cloud-Delivered Firewall Management Center, click the blue question mark button and select **Page-level Help** to learn more about the page you are on and further action you can take.
-

Enable Cloud-Delivered Firewall Management Center on Your Security Cloud Control Tenant

If you want to manage your Firepower Threat Defense devices, you can enable the Cloud-Delivered Firewall Management Center on your tenant. You need to have an admin or a super admin user role to perform this task.

Procedure

-
- Step 1** From the Security Cloud Control menu, click **Tools & Services > Firewall Management Center**  **FMC > Enable Cloud-Delivered FMC** **Administration > Integrations > Firewall Management Center** and click **Enable Cloud-Delivered FMC**.
- Step 2** Security Cloud Control starts provisioning a Cloud-Delivered Firewall Management Center instance in the background; it typically takes 15 to 30 minutes for this to be complete. You can track the provisioning progress on the **Status** column of **Cloud-Delivered FMC**.

After the provisioning is complete, the status changes to **Active**. In addition, you get a **Cloud-Delivered Firewall Management Center is Ready** notification on the Security Cloud Control notifications panel and on the applications on which you have configured incoming webhooks. See [Notification Settings](#) for more information.

Note

After you receive the **Cloud-Delivered Firewall Management Center is Ready** notification, ensure that you log out of and log in back to your tenant once, to see the **Cloud-Delivered FMC** right pane options, such as **Actions**, **Management**, and **System**.

You can then onboard your Firewall Threat Defense devices to the Cloud-Delivered Firewall Management Center and manage them.



CHAPTER 11

Configure On-Premises Firewall Management Center-Managed Secure Firewall Threat Defense Devices

- [View Onboarded On-Premises Management Center, on page 429](#)
- [Discover and Manage On-Prem Firewall Management Center Network Objects, on page 430](#)
- [Preview and Deploy On-Premises Firewall Management Center Configurations, on page 431](#)
- [Discard On-Premises Firewall Management Center Configuration Changes, on page 432](#)
- [Remove an On-Premises Firewall Management Center from Security Cloud Control, on page 432](#)

View Onboarded On-Premises Management Center

To view onboarded on-premises management centers follow these steps:

1. In the left pane, click **Administration** > **Integrations** > **Firewall Management Center**.
2. Click the **FMC** tab.

View On-Premises Management Center High Availability Pair

The high availability pair is displayed in the **Services** page. On expanding the pair, you can see the primary and secondary on-premises management center nodes along with their current statuses.

To cross-launch the active on-premises management center, perform these steps:

1. In the **Services** page, check the corresponding high availability pair.
2. In the right pane, click the functionality you want to open in the on-premises management center.

The **Verify FMC Cross Launch URL** window is displayed. By default, the public IP address or FQDN of the currently active on-premises management center is shown and will be used to open the on-premises management center. If needed, you can specify the URL of the standby on-premises management center to cross-launch it.

You can add cross-launch URLs to each on-premises management center node. When cross-launching from the pair, the active node is cross-launched and you need not verify which node is currently active.

To cross-launch to a specific on-premises management center node, perform these steps:

1. Expand the high availability pair and click primary or secondary on-premises management center node you want to launch.
2. In the **External Links** pane on the right, click **FMC Cross Launch URL** to cross-launch the selected on-premises management center.

To update the public IP address or the FQDN and the port number of your on-premises management center, hover over the **FMC Cross Launch URL** and click the edit icon.



Note If you either break high availability or switch roles on the on-premises management center (version 7.4.x or earlier), you must disable the SecureX integration and then enable it again on the secondary on-premises management center. To do this, navigate to the secondary on-premises management center, choose .

Breaking a high-availability on-premises management center pair converts the participating management centers into two standalone on-premises management centers.

Discover and Manage On-Prem Firewall Management Center Network Objects

If you have an On-Premises Firewall Management Center that you manage using Security Cloud Control and you want to share and manage its objects, do the following:

Procedure

Step 1 In the left pane, choose **Tools & Services > Firewall Management Center Administration > Integrations > Firewall Management Center** to view the **Services** page.

Step 2 If you already have onboarded an on-premises management center to Security Cloud Control, select it.

If you want to onboard a new on-premises management center, see [Onboard an On-Prem Firewall Management Center](#).

Step 3 Choose **Settings** from the **Actions** pane on the right. Note that you do not get to see the **Actions** pane when you select more than one on-premises management center.

Note

You must be an admin or a super admin to be able to use **Settings**.

Step 4 Enable the **Discover & Manage Network Objects** toggle button. If you want your changes to be automatically synchronized with on-premises management center and not staged for review, turn the **Enable automatic sync of network objects** toggle on.

Note

- You cannot turn the **Discover & Manage Network Objects** toggle on if the on-premises management center that you have selected has one or more child domains or has the Change Management workflow enabled on it.
- You cannot turn the **Enable automatic sync of network objects** toggle on if the **Discover & Manage Network Objects** toggle is turned off.

For every new on-premises management center onboarded to Security Cloud Control, this toggle button needs to be enabled manually. Once you enable this option, Security Cloud Control starts to discover objects from your on-premises management center, which you can share, manage, and use to set consistent object definitions across other platforms managed by Security Cloud Control.

In Security Cloud Control, when you add overrides to objects that are discovered from an on-premises management center and push the changes back to the on-premises management center, these objects start accepting overrides in the on-premises management center even if they were not accepting overrides before—the **Allow Overrides** checkbox in **View Network Object** window is checked automatically when an override is added from Security Cloud Control.

Note

If you want to assign already-existing objects in Security Cloud Control to your on-premises management center, choose the on-premises management center and click **Assign Objects** from the **Actions** pane.

Related Information

- [Network Objects](#)
- [Preview and Deploy On-Prem Firewall Management Center Configurations](#)

Preview and Deploy On-Premises Firewall Management Center Configurations

If you have made configuration changes to an object, for instance, changing a value or adding an override to an object, you can deploy all of those changes at once to your on-premises management center:

**Note**

Note that this task only pushes the configuration changes to the on-premises management center. Ensure you manually deploy these changes to your Firewall Threat Defense devices on your on-premises management center. See [Configuration Deployment](#) in the *Cisco Secure Firewall Management Center Device Configuration Guide* for more information.

Procedure

-
- Step 1** In the navigation pane, click **Tools & Services > Firewall Management Center Administration > Integrations > Firewall Management Center** and select the On-Premises Firewall Management Center, to which you want to preview and deploy changes.

Note

Security Cloud Control detects that your on-premises management center is out of sync and displays the status as **Not Synced**.

- Step 2** Click **Preview and Deploy** on the details pane on the right.

- Step 3** Review any warnings and click **Deploy Now**. The deployment starts immediately without a review of the changes. Click **Discard All** if you do not want to proceed with the deploy after previewing.
- Step 4** Alternatively, you can also click the  button at the top-right of the screen to view the **Devices with Pending Changes** window. Select the devices you want and review the pending changes on the devices that you selected before you deploy them.
- Step 5** Click **Deploy Now** to deploy the changes.
-

Discard On-Premises Firewall Management Center Configuration Changes

If you want to undo all the configuration changes you made in Security Cloud Control, for instance to the objects that are shared between your Security Cloud Control and on-premises management center, use this procedure. Note that when you do this, Security Cloud Control *completely overwrites* its local copy of the configuration with the configuration stored on the device.

Procedure

- Step 1** In the left pane, click **Tools & Services > Firewall Management CenterAdministration > Integrations > Firewall Management Center**.
- Step 2** Select the On-Premises Firewall Management Center, for which you want to discard changes.
- Step 3** Click **Discard Changes** in the **Not Synced** pane on the right.

When you click **Discard Changes**, your on-premises management center's configuration status is in a **Not Synced** state. After you discard your changes, the copy of the configuration on Security Cloud Control will be the same as the copy of the configuration on the on-premises management center and the configuration status in Security Cloud Control returns to **Synced**.

Remove an On-Premises Firewall Management Center from Security Cloud Control

If you choose to remove an on-premises management center from Security Cloud Control, all devices by that on-premises management center will also be removed.

Before you begin

Disable the auto-onboarding option to remove one or more on-premises management centers onboarded using auto-onboarding functionality.

1. In the left pane, choose **Settings > General Settings**.

2. In the **Tenant Settings** section, disable **Auto onboard On-Prem FMCs integrated to Cisco Security Cloud**.

Procedure

-
Step 1	In the left pane, click Tools & Services > Firewall Management Center .
Step 2	In the left pane, click Administration > Integrations > Firewall Management Center .
Step 3	Ensure the FMC tab is selected and choose the on-premises management center you want to remove.
Step 4	In the Device Actions pane located to the right, click Remove On-Prem FMC and its managed devices .
Step 5	Click OK to confirm that you want to remove the on-premises management center and its managed devices from your tenant.
Step 6	Refresh your browser to see an updated list of available devices.
-



PART **IV**

Establish Secure Connections

- [Virtual Private Network Management, on page 437](#)



CHAPTER 12

Virtual Private Network Management

- [Configure Virtual Private Network Management, on page 437](#)

Configure Virtual Private Network Management

A virtual private network (VPN) connection establishes a secure tunnel between endpoints over a public network such as the Internet.

This section applies to Remote Access and Site-to-site VPNs on Adaptive Security Appliances (ASA) FDM-managed device. It describes the Internet Protocol Security (IPsec) standards to build site-to-site VPNs connection on FTD. It also describes the SSL standards that are used to build and remote access VPN connections on ASA/FTD.

For additional information about Virtual Private Networks, refer to the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#).

Security Cloud Control supports the following types of VPN connections:

Introduction to Site-to-Site Virtual Private Network

A site-to-site VPN tunnel connects networks in different geographic locations. You can create site-to-site IPsec connections between managed devices and between managed devices and other Cisco or third-party peers that comply with all relevant standards. These peers can have any mix of inside and outside IPv4 and IPv6 addresses. Site-to-site tunnels are built using the Internet Protocol Security (IPsec) protocol suite and Internet Key Exchange version 2 (IKEv2). After the VPN connection is established, the hosts behind the local gateway can connect to the hosts behind the remote gateway through the secure VPN tunnel.

Simplifying Site-to-Site VPNs with Security Cloud Control

Site-to-Site VPNs are a reliable solution for securely connecting multiple networks over the internet. To make this process easier and more efficient, Security Cloud Control provides a **consolidated Site-to-Site VPN wizard**. This intuitive tool is designed to simplify the creation and management of secure VPN tunnels while reducing the complexity involved in traditional VPN configurations.

The Site-to-Site VPN wizard provides a single, unified interface for configuring VPN tunnels across a variety of managed devices. This consistency ensures a streamlined experience for administrators, regardless of the specific device or network environment. By offering a centralized and intuitive configuration process, the wizard helps organizations enhance operational efficiency, reduce errors, and maintain a high level of security in their network infrastructure.

The table below specifies the permitted site-to-site VPN configurations for the managed devices.

	FDM-managed	Cloud-delivered Firewall Management Center-managed Firewall Threat Defense	Secure Firewall ASA	Multicloud Defense
FDM-managed	Yes	No	No	No
Cloud-delivered Firewall Management Center-managed Firewall Threat Defense	No	Yes	Yes	Yes
Secure Firewall ASA	No	Yes	Yes	Yes
Multicloud Defense	No	Yes	Yes	No

Site-to-Site VPN Concepts

VPN Topology

To create a new site-to-site VPN topology you must provide a unique name, specify a topology type, choose the IKE version that is used for IPsec IKEv1 or IKEv2, or both and authentication method. Once configured, you deploy the topology to ASAFTD.

IPsec and IKE Protocols

In Security Cloud Control, site-to-site VPNs are configured based on IKE policies and IPsec proposals that are assigned to VPN topologies. Policies and proposals are sets of parameters that define the characteristics of a site-to-site VPN, such as the security protocols and algorithms that are used to secure traffic in an IPsec tunnel. Several policy types may be required to define a full configuration image that can be assigned to a VPN topology.

Authentication VPN Tunnels

For authentication of VPN connections, configure a pre-shared key in the topology on each device. Pre-shared keys allow a secret key, used during the IKE authentication phase, to be shared between two peers.

Virtual Tunnel Interface (VTI)

Security Cloud Control does not currently support the management, monitoring, or use of Virtual Tunnel Interface (VTI) tunnels on FTD. Devices with configured VTI tunnels can be onboarded to Security Cloud Control but it ignores the VTI interfaces. If a security zone or static route references a VTI, Security Cloud Control reads the security zone and static route without the VTI reference.

VPN Encryption Domain

There are two methods to define the VPN's encryption domain: route-based or policy-based traffic selectors.

- **Policy-Based:** The encryption domain is set to allow any traffic which enters the IPsec tunnel. IPsec Local and remote traffic selectors are set to 0.0.0.0. This means that any traffic routed into the IPsec tunnel is encrypted regardless of the source/destination subnet. ASA supports policy-based VPN with crypto maps.
- **Route-Based:** The encryption domain is set to encrypt only specific IP ranges for both source and destination. It creates a virtual IPsec interface, and whatever traffic enters that interface is encrypted and decrypted. ASA supports route-based VPN with the use of Virtual Tunnel Interfaces (VTIs).

About Extranet Devices

You can add non-Cisco or unmanaged Cisco devices to a VPN topology as "Extranet" devices with either static or dynamic IP addresses.

- **Non-Cisco Device:** You cannot use Security Cloud Control to create and deploy configurations to non-Cisco devices.
- **Unmanaged Cisco Device:** Cisco device not managed by your organization, such as spokes in networks managed by other organizations within your company, or a connection to a service provider or partner's network.

About Global IKE Policies

Internet Key Exchange (IKE) is a key management protocol that is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

The IKE negotiation comprises two phases. Phase 1 negotiates a security association between two IKE peers, which enables the peers to communicate securely in Phase 2. During Phase 2 negotiation, IKE establishes SAs for other applications, such as IPsec. Both phases use proposals when they negotiate a connection. An IKE proposal is a set of algorithms that two peers use to secure the negotiation between them. IKE negotiation begins by each peer agreeing on a common (shared) IKE policy. This policy states which security parameters are used to protect subsequent IKE negotiations.

IKE policy objects define the IKE proposals for these negotiations. The objects that you enable are the ones used when the peers negotiate a VPN connection: you cannot specify different IKE policies per connection. The relative priority of each object determines which of these policies are tried first, with the lower number being a higher priority. The connection is not established if the negotiation fails to find a policy that both peers can support.

To define the global IKE policy, you select which objects to enable for each IKE version. If the pre-defined objects do not satisfy your requirements, create new policies to enforce your security policy.

Managing IKEv1 Policies

About IKEv1 Policy

Internet Key Exchange (IKE) version 1 policy objects contain the parameters required for IKEv1 policies when defining VPN connections. IKE is a key management protocol that facilitates the management of IPsec-based communications. It is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

There are several pre-defined IKEv1 policies. If any suit your needs, simply enable them by clicking the State toggle. You can also create new policies to implement other combinations of security settings. You cannot edit or delete system-defined objects.

Create an IKEv1 Policy

Internet Key Exchange (IKE) version 1 policy objects contain the parameters required for IKEv1 policies when defining VPN connections. IKE is a key management protocol that facilitates the management of IPsec-based communications. It is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

There are several pre-defined IKEv1 policies. If any suit your needs, simply enable them by clicking the State toggle. You can also create new policies to implement other combinations of security settings. You cannot edit or delete system-defined objects.

The following procedure explains how you can create and edit objects directly through the Objects page. You can also create an IKEv1 policy while editing the IKE settings in a Site-to-Site VPN connection by clicking the **Create New IKEv1 Policy** link shown in the object list.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 In the left pane, click **Objects**.

Step 3 Do one of these things:

- Click the blue plus button  and select **FDM > IKEv1 Policy** to create a new IKEv1 policy.
- In the object page, select the IKEv1 policy you want to edit and click **Edit** in the Actions pane at the right.

Step 4 Enter an **object name**, up to 128 characters.

Step 5 Configure the IKEv1 properties.

- **Priority** - The relative priority of the IKE policy, from 1 to 65,535. The priority determines the order of the IKE policy compared by the two negotiating peers when attempting to find a common security association (SA). If the remote IPsec peer does not support the parameters selected in your highest priority policy, it tries to use the parameters defined in the next lowest priority. The lower the number, the higher the priority.
- **Encryption** - The encryption algorithm used to establish the Phase 1 security association (SA) for protecting Phase 2 negotiations. For an explanation of the options, see *Deciding Which Encryption Algorithm to Use*.
- **Diffie-Hellman Group** - The Diffie-Hellman group to use for deriving a shared secret between the two IPsec peers without transmitting it to each other. A larger modulus provides higher security but requires more processing time. The two peers must have a matching modulus group. For an explanation of the options, see *Deciding Which Diffie-Hellman Modulus Group to Use*.
- **Lifetime** - The lifetime of the security association (SA), in seconds, from 120 to 2147483647 or blank. When the lifetime is exceeded, the SA expires and must be renegotiated between the two peers. As a general rule, the shorter the lifetime (up to a point), the more secure your IKE negotiations will be. However, with longer lifetimes, future IPsec security associations can be set up more quickly than with

shorter lifetimes. The default is 86400. To specify an unlimited lifetime, enter no value (leave the field blank).

- **Authentication** - The method of authentication to use between the two peers. For more information, see [Deciding Which Authentication Method to Use](#).
 - **Preshared Key** - Use the preshared key that is defined on each device. These keys allow for a secret key to be shared between two peers and to be used by IKE during the authentication phase. If the peer is not configured with the same preshared key, the IKE SA cannot be established.
 - **Certificate** - Use the device identity certificates for the peers to identify each other. You must obtain these certificates by enrolling each peer in a Certificate Authority. You must also upload the trusted CA root and intermediate CA certificates used to sign the identity certificates in each peer. The peers can be enrolled in the same or a different CA. You cannot use self-signed certificates for either peer.
- **Hash** - The hash algorithm for creating a message digest, which is used to ensure message integrity. For an explanation of the options, see [Deciding Which Hash Algorithms to Use](#).

Step 6 Click **Add**.

Managing IKEv2 Policies

About IKEv2 Policy

Internet Key Exchange (IKE) version 2 policy objects contain the parameters required for IKEv2 policies when defining VPN connections. IKE is a key management protocol that facilitates the management of IPsec-based communications. It is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

There are several pre-defined IKEv2 policies. If any suit your needs, simply enable them by clicking the State toggle. You can also create new policies to implement other combinations of security settings. You cannot edit or delete system-defined objects.

Create an IKEv2 Policy

Internet Key Exchange (IKE) version 2 policy objects contain the parameters required for IKEv2 policies when defining VPN connections. IKE is a key management protocol that facilitates the management of IPsec-based communications. It is used to authenticate IPsec peers, negotiate and distribute IPsec encryption keys, and automatically establish IPsec security associations (SAs).

There are several pre-defined IKEv2 policies. If any suit your needs, simply enable them by clicking the State toggle. You can also create new policies to implement other combinations of security settings. You cannot edit or delete system-defined objects.

The following procedure explains how you can create and edit objects directly through the Objects page. You can also create an IKEv2 policy while editing the IKE settings in a Site-to-Site VPN connection by clicking the **Create New IKEv2 Policy** link shown in the object list.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 In the left pane, click **Objects**.

Step 3 Do one of these things:

- Click the blue plus button  and select **FDM > IKEv2 Policy** to create a new IKEv2 policy.
- In the object page, select the IKEv2 policy you want to edit and click **Edit** in the Actions pane at the right.

Step 4 Enter an **object name**, up to 128 characters.

Step 5 Configure the IKEv2 properties.

- **Priority** - The relative priority of the IKE policy, from 1 to 65,535. The priority determines the order of the IKE policy compared by the two negotiating peers when attempting to find a common security association (SA). If the remote IPsec peer does not support the parameters selected in your highest priority policy, it tries to use the parameters defined in the next lowest priority. The lower the number, the higher the priority.
- **State** - Whether the IKE policy is enabled or disabled. Click the toggle to change the state. Only enabled policies are used during IKE negotiations.
- **Encryption** - The encryption algorithm used to establish the Phase 1 security association (SA) for protecting Phase 2 negotiations. Select all algorithms that you want to allow, although you cannot include both mixed-mode (AES-GCM) and normal mode options in the same policy. (Normal mode requires that you select an integrity hash, whereas mixed-mode prohibits a separate integrity hash selection.) The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Deciding Which Encryption Algorithm to Use](#).
- **Diffie-Hellman Group** - The Diffie-Hellman group to use for deriving a shared secret between the two IPsec peers without transmitting it to each other. A larger modulus provides higher security but requires more processing time. The two peers must have a matching modulus group. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest group until a match is agreed upon. For an explanation of the options, see [Deciding Which Diffie-Hellman Modulus Group to Use](#).
- **Integrity Hash** - The integrity portion of the hash algorithm for creating a message digest, which is used to ensure message integrity. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. The integrity hash is not used with the AES-GCM encryption options. For an explanation of the options, see [Deciding Which Hash Algorithms to Use](#).
- **Pseudo-Random Function (PRF) Hash** - The pseudo-random function (PRF) portion of the hash algorithm, which is used as the algorithm to derive keying material and hashing operations required for the IKEv2 tunnel encryption. In IKEv1, the Integrity and PRF algorithms are not separated, but in IKEv2, you can specify different algorithms for these elements. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Deciding Which Hash Algorithms to Use](#).

- **Lifetime** - The lifetime of the security association (SA), in seconds, from 120 to 2147483647 or blank. When the lifetime is exceeded, the SA expires and must be renegotiated between the two peers. As a general rule, the shorter the lifetime (up to a point), the more secure your IKE negotiations will be. However, with longer lifetimes, future IPsec security associations can be set up more quickly than with shorter lifetimes. The default is 86400. To specify an unlimited lifetime, enter no value (leave the field blank).

Step 6 Click **Add**.

About IPsec Proposals

IPsec is one of the most secure methods for setting up a VPN. IPsec provides data encryption at the IP packet level, offering a robust security solution that is standards-based. With IPsec, data is transmitted over a public network through tunnels. A tunnel is a secure, logical communication path between two peers. Traffic that enters an IPsec tunnel is secured by a combination of security protocols and algorithms called a transform set. During the IPsec security association (SA) negotiation, peers search for a transform set that is the same at both peers.

There are separate IPsec proposal objects based on the IKE version, IKEv1, or IKEv2:

- When you create an IKEv1 IPsec proposal, you select the mode in which IPsec operates, and define the required encryption and authentication types. You can select single options for the algorithms. If you want to support multiple combinations in a VPN, create and select multiple IKEv1 IPsec Proposal objects.
- When you create an IKEv2 IPsec proposal, you can select all of the encryption and hash algorithms allowed in a VPN. The system orders the settings from the most secure to the least secure and negotiates with the peer until a match is found. This allows you to potentially send a single proposal to convey all the allowed combinations instead of the need to send each allowed combination individually as with IKEv1.

The Encapsulating Security Protocol (ESP) is used for both IKEv1 and IKEv2 IPsec proposals. It provides authentication, encryption, and antireplay services. ESP is IP protocol type 50.



Note We recommend using both encryption and authentication on IPsec tunnels.

Managing an IKEv1 IPsec Proposal Object

IPsec Proposal objects configure the IPsec proposal used during IKE Phase 2 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel. There are separate objects for IKEv1 and IKEv2. Currently, Security Cloud Control supports IKEv1 IPsec proposal objects.

The Encapsulating Security Protocol (ESP) is used for both IKEv1 and IKEv2 IPsec proposals. It provides authentication, encryption, and anti-replay services. ESP is IP protocol type 50.



Note We recommend using both encryption and authentication on IPsec tunnels.

Related Topics

[Create an IKEv1 IPsec Proposal Object](#), on page 444

Create an IKEv1 IPsec Proposal Object

IPsec Proposal objects configure the IPsec proposal used during IKE Phase 2 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel. There are separate objects for IKEv1 and IKEv2. Currently, Security Cloud Control supports IKEv1 IPsec proposal objects.

The Encapsulating Security Protocol (ESP) is used for both IKEv1 and IKEv2 IPsec proposals. It provides authentication, encryption, and anti-replay services. ESP is IP protocol type 50.



Note We recommend using both encryption and authentication on IPsec tunnels.

There are several pre-defined IKEv1 IPsec proposals. You can also create new proposals to implement other combinations of security settings. You cannot edit or delete system-defined objects.

The following procedure explains how you can create and edit objects directly through the Objects page. You can also create IKEv1 IPsec Proposals objects while editing the IKEv1 IPsec settings in a Site-to-Site VPN connection by clicking the **Create New IKEv1 Proposal** link shown in the object list.

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Do one of these things:

- Click the blue plus button  and select **FDM > IKEv1 IPsec Proposal** to create the new object.
- In the object page, select the IPsec proposal you want to edit and click **Edit** in the Actions pane at the right.

Step 3 Enter an **object name** for the new object.

Step 4 Select the Mode in which the IKEv1 IPsec Proposal object operates.

- **Tunnel mode** encapsulates the entire IP packet. The IPsec header is added between the original IP header and a new IP header. This is the default. Use tunnel mode when the firewall is protecting traffic to and from hosts positioned behind the firewall. Tunnel mode is the normal way regular IPsec is implemented between two firewalls (or other security gateways) that are connected over an untrusted network, such as the Internet.
- **Transport mode** encapsulates only the upper-layer protocols of an IP packet. The IPsec header is inserted between the IP header and the upper-layer protocol header (such as TCP). Transport mode requires that both the source and destination hosts support IPsec, and can only be used when the destination peer of the tunnel is the final destination of the IP packet. Transport mode is generally used only when protecting a Layer 2 or Layer 3 tunneling protocol such as GRE, L2TP, and DSLW.

Step 5 Select the **ESP Encryption** (Encapsulating Security Protocol encryption) algorithm for this proposal. For more information, see [Deciding Which Encryption Algorithm to Use](#).

- Step 6** Select the **ESP Hash** or integrity algorithm to use for authentication. For more information, see [Deciding Which Hash Algorithms to Use](#).
- Step 7** Click **Add**.
-

Managing an IKEv2 IPsec Proposal Object

IPsec Proposal objects configure the IPsec proposal used during IKE Phase 2 negotiations. The IPsec proposal defines the combination of security protocols and algorithms that secure traffic in an IPsec tunnel.

When you create an IKEv2 IPsec proposal, you can select all of the encryption and hash algorithms allowed in a VPN. The system orders the settings from the most secure to the least secure and negotiates with the peer until a match is found. This allows you to potentially send a single proposal to convey all the allowed combinations instead of the need to send each allowed combination individually as with IKEv1.

Related Topics

[Create or Edit an IKEv2 IPsec Proposal Object](#), on page 445

Create or Edit an IKEv2 IPsec Proposal Object

There are several pre-defined IKEv2 IPsec proposals. You can also create new proposals to implement other combinations of security settings. You cannot edit or delete system-defined objects.

The following procedure explains how you can create and edit objects directly through the Objects page. You can also create IKEv2 IPsec Proposals objects while editing the IKEv2 IPsec settings in a VPN connection by clicking the Create New IPsec Proposal link shown in the object list.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Do one of these things:
- Click the blue plus button  and select **FDM > IKEv2 IPsec Proposal** to create the new object.
 - In the object page, select the IPsec proposal you want to edit and click **Edit** in the Actions pane at the right.
- Step 3** Enter an **object name** for the new object.
- Step 4** Configure the IKE2 IPsec proposal objects:
- **Encryption** - The Encapsulating Security Protocol (ESP) encryption algorithm for this proposal. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Deciding Which Encryption Algorithm to Use](#).
 - **Integrity Hash** - The hash or integrity algorithm to use for authentication. Select all the algorithms that you want to allow. The system negotiates with the peer, starting from the strongest to the weakest algorithm until a match is agreed upon. For an explanation of the options, see [Deciding Which Hash Algorithms to Use](#).

Step 5 Click **Add**.**Encryption and Hash Algorithms Used in VPN**

Because a VPN tunnel typically traverses a public network, most likely the Internet, you need to encrypt the connection to protect the traffic. You define the encryption and other security techniques to apply using IKE policies and IPsec proposals.

If your device license allows you to apply strong encryption, there is a wide range of encryption and hash algorithms, and Diffie-Hellman groups, from which to choose. However, as a general rule, the stronger the encryption that you apply to the tunnel, the worse the system performance. Find a balance between security and performance that provides sufficient protection without compromising efficiency.

We cannot provide specific guidance on which options to choose. If you operate within a larger corporation or other organization, there might already be defined standards that you need to meet. If not, take the time to research the options.

The following topics explain the available options:

Deciding Which Encryption Algorithm to Use

When determining which encryption algorithms to use for the IKE policy or IPsec proposal, your choice is limited to algorithms supported by the devices in the VPN.

For IKEv2, you can configure multiple encryption algorithms. The system orders the settings from the most secure to the least secure and negotiates with the peer using that order. For IKEv1, you can select a single option only.

For IPsec proposals, the algorithm is used by the Encapsulating Security Protocol (ESP), which provides authentication, encryption, and anti-replay services. ESP is IP protocol type 50. In IKEv1 IPsec proposals, the algorithm name is prefixed with ESP.

If your device license qualifies for strong encryption, you can choose from the following encryption algorithms. If you are not qualified for strong encryption, you can select DES only.

- **AES-GCM - (IKEv2 only.)** Advanced Encryption Standard in Galois/Counter Mode is a block cipher mode of operation providing confidentiality and data-origin authentication and provides greater security than AES. AES-GCM offers three different key strengths: 128-, 192-, and 256-bit keys. A longer key provides higher security but a reduction in performance. GCM is a mode of AES that is required to support NSA Suite B. NSA Suite B is a set of cryptographic algorithms that devices must support to meet federal standards for cryptographic strength.
- **AES-GMAC - (IKEv2 IPsec proposals only.)** Advanced Encryption Standard Galois Message Authentication Code is a block cipher mode of operation providing only data-origin authentication. It is a variant of AES-GCM that allows data authentication without encrypting the data. AES-GMAC offers three different key strengths: 128-, 192-, and 256-bit keys.
- **AES -** Advanced Encryption Standard is a symmetric cipher algorithm that provides greater security than DES and is computationally more efficient than 3DES. AES offers three different key strengths: 128-, 192-, and 256-bit keys. A longer key provides higher security but a reduction in performance.
- **DES -** Data Encryption Standard, which encrypts using 56-bit keys, is a symmetric secret-key block algorithm. If your license account does not meet the requirements for export controls, this is your only option. It is faster than 3DES and uses fewer system resources, but it is also less secure. If you do not need strong data confidentiality, and if system resources or speed is a concern, choose DES.

- 3DES - Triple DES, which encrypts three times using 56-bit keys, is more secure than DES because it processes each block of data three times with a different key. However, it uses more system resources and is slower than DES.
- NULL - A null encryption algorithm provides authentication without encryption. This is typically used for testing purposes only.

Deciding Which Hash Algorithms to Use

In IKE policies, the hash algorithm creates a message digest, which is used to ensure message integrity. In IKEv2, the hash algorithm is separated into two options, one for the integrity algorithm, and one for the pseudo-random function (PRF).

In IPsec proposals, the hash algorithm is used by the Encapsulating Security Protocol (ESP) for authentication. In IKEv2 IPsec Proposals, this is called the integrity hash. In IKEv1 IPsec proposals, the algorithm name is prefixed with ESP-, and there is also an -HMAC suffix (which stands for "hash method authentication code").

For IKEv2, you can configure multiple hash algorithms. The system orders the settings from the most secure to the least secure and negotiates with the peer using that order. For IKEv1, you can select a single option only.

You can choose from the following hash algorithms:

- SHA (Secure Hash Algorithm) - Standard SHA (SHA-1) produces a 160-bit digest. SHA is more resistant to brute-force attacks than MD5. However, it is also more resource-intensive than MD5. For implementations that require the highest level of security, use the SHA hash algorithm.
- The following SHA-2 options, which are even more secure, are available for IKEv2 configurations. Choose one of these if you want to implement the NSA Suite B cryptography specification.
 - SHA-256 - Specifies the Secure Hash Algorithm SHA-2 with the 256-bit digest.
 - SHA-384 - Specifies the Secure Hash Algorithm SHA-2 with the 384-bit digest.
 - SHA-512 - Specifies the Secure Hash Algorithm SHA-2 with the 512-bit digest.
- MD5 (Message Digest 5) - Produces a 128-bit digest. MD5 uses less processing time for overall faster performance than SHA, but it is considered to be weaker than SHA.
- Null or None (NULL, ESP-NONE) - (IPsec Proposals only.) A null Hash Algorithm; this is typically used for testing purposes only. However, you should choose the null integrity algorithm if you select one of the AES-GCM/GMAC options as the encryption algorithm. Even if you choose a non-null option, the integrity hash is ignored for these encryption standards.

Deciding Which Diffie-Hellman Modulus Group to Use

You can use the following Diffie-Hellman key derivation algorithms to generate IPsec security association (SA) keys. Each group has different size modules. A larger modulus provides higher security but requires more processing time. You must have a matching modulus group on both peers.

If you select AES encryption, to support the large key sizes required by AES, you should use Diffie-Hellman (DH) Group 5 or higher. IKEv1 policies do not support all of the groups listed below.

To implement the NSA Suite B cryptography specification, use IKEv2 and select one of the elliptic curves Diffie-Hellman (ECDH) options: 19, 20, or 21. Elliptic curve options and groups that use 2048-bit modulus are less exposed to attacks such as Logjam.

For IKEv2, you can configure multiple groups. The system orders the settings from the most secure to the least secure and negotiates with the peer using that order. For IKEv1, you can select a single option only.

- 2 - Diffie-Hellman Group 2: 1024-bit modular exponential (MODP) group. This option is no longer considered good protection.
- 5 - Diffie-Hellman Group 5: 1536-bit MODP group. Formerly considered good protection for 128-bit keys, this option is no longer considered good protection.
- 14 - Diffie-Hellman Group 14: 2048-bit modular exponential (MODP) group. Considered good protection for 192-bit keys.
- 19 - Diffie-Hellman Group 19: National Institute of Standards and Technology (NIST) 256-bit elliptic curve modulo a prime (ECP) group.
- 20 - Diffie-Hellman Group 20: NIST 384-bit ECP group.
- 21 - Diffie-Hellman Group 21: NIST 521-bit ECP group.
- 24 - Diffie-Hellman Group 24: 2048-bit MODP group with 256-bit prime order subgroup. This option is no longer recommended.

Deciding Which Authentication Method to Use

You can use the following methods to authenticate the peers in a site-to-site VPN connection.

Preshared Keys

Preshared keys are secret key strings configured on each peer in the connection. These keys are used by IKE during the authentication phase. For IKEv1, you must configure the same preshared key on each peer. For IKEv2, you can configure unique keys on each peer.

Preshared keys do not scale well compared to certificates. If you need to configure a large number of site-to-site VPN connections, use the certificate method instead of the preshared key method.

Site-to-Site VPN Configuration for FDM-Managed

Security Cloud Control supports these aspects of site-to-site VPN functionality on FDM-managed devices:

- Both IPsec IKEv1 & IKEv2 protocols are supported.
- Automatic or manual pre-shared keys for authentication.
- IPv4 and IPv6. All combinations of inside and outside are supported.
- IPsec IKEv2 site-to-site VPN topologies provide configuration settings to comply with Security Certifications.
- Static and dynamic interfaces.
- Support for the dynamic IP address for the extranet device as an endpoint.

Configure Site-to-Site VPN Connections with Dynamically Addressed Peers

Security Cloud Control allows you to create a site-to-site VPN connection between peers when one of the peers' VPN interface IP address is not known or when the interface obtains its address from a DHCP server.

Any dynamic peer whose preshared key, IKE settings, and IPsec configurations match with another peer can establish a site-to-site VPN connection.

Consider two peers, A and B. The static peer is a device whose IP address of its VPN interface is fixed and a dynamic peer is a device whose IP address of the VPN interface is not known or has a temporary IP address.

The following use cases describe different scenarios for establishing a secure site-to-site VPN connection with dynamically-addressed peers:

- A is a static peer, and B is a dynamic peer or conversely.
- A is a static peer, and B is a dynamic peer with a resolved IP address from the DHCP server or conversely. You can select **Bind VPN to the assigned IP** to establish the VPN connection between the IP address of the static peer and the DHCP assigned IP address of the dynamic peer.
- A and B are dynamic with resolved IP addresses from the DHCP server. In such a case, you must select **Bind VPN to the assigned IP** for at least one peer to establish the VPN connection between the IP address of the static peer and the DHCP assigned IP address of the dynamic peer.
- A is a dynamic peer, and B is an extranet device with a static or dynamic IP address.
- A is a dynamic peer with a resolved IP address from the DHCP server, and B is an Extranet device with a static or dynamic IP address. You can select **Bind VPN to the assigned IP** to establish the VPN connection between the IP address of the static peer and the DHCP assigned IP address of the dynamic peer.

**Important**

If you select **Bind VPN to the assigned IP**, the VPN binds statically to the DHCP assigned IP address. However, this dynamic interface can receive many new IP addresses after the peer restarts. Although the VPN tunnel updates the new IP address, the other peer is not updated with the new configuration. You must deploy the site-to-site configuration again for out-of-band changes on the other peer.

**Note**

If the IP address of the interface is changed by using a local manager like Firewall Device Manager, the **Configuration Status** of that peer in Security Cloud Control shows "Conflict Detected". When you [resolve this out-of-band change](#), the **Configuration Status** of the other peer changes to the "Not Synced" state. You must deploy the Security Cloud Control configuration to the device which is in "Not Synced" state.

Typically, the dynamic peer must be the one that initiates the connection as the other peer would not know the IP address of the dynamic peer. When the remote peer attempts to establish the connection, the other peer validates the connection using the preshared key, IKE settings, and IPsec configurations.

Because the VPN connection is established only after the remote peer initiates the connection, any outbound traffic that matches access control rules that allow traffic in the VPN tunnel will be dropped until that connection is established. This ensures that data does not leave your network without the appropriate encryption and VPN protection.

**Note**

A site-to-site VPN connection cannot be configured in the following scenarios:

- If both peers have DHCP assigned IP addresses.

- **Workaround:** You can configure a site-to-site VPN, if one of the peers has a resolved IP address from the DHCP server. In such a case, you must select **Bind VPN to the assigned IP** to configure site-to-site VPN.
- If a device has more than one dynamic peer connection.
 - **Workaround:** You can configure a site-to-site VPN by performing the following steps:
 - Consider three devices A, B, and C.
 - Configure site-to-site VPN connection between A (static peer) and B (dynamic peer).
 - Configure site-to-site VPN connection between A and C (dynamic peer) by creating an Extranet device. Assign the static VPN interface IP address of A to the Extranet device and establish a connection with C.

FDM-Managed Device Site-to-Site VPN Guidelines and Limitations

- Security Cloud Control does not support a crypto-acl to design the interesting traffic for S2S VPN. It only supports protected networks.
- Security Cloud Control does not currently support the management, monitoring, or use of Virtual Tunnel Interface (VTI) tunnels on ASA or FDM-managed devices. Devices with configured VTI tunnels can be onboarded to Security Cloud Control but it ignores the VTI interfaces. If a security zone or static route references a VTI, Security Cloud Control reads the security zone and static route without the VTI reference. Security Cloud Control support for VTI tunnels is coming soon.
- Whenever IKE ports 500/4500 are in use or when there are some PAT translations that are active, the site-to-site VPN cannot be configured on the same ports as it fails to start the service on those ports.
- Transport mode is not supported only tunnel mode. IPsec tunnel mode encrypts the entire original IP datagram which becomes the payload in a new IP packet. Use tunnel mode when the firewall is protecting traffic to and from hosts positioned behind a firewall. Tunnel mode is the normal way regular IPsec is implemented between two firewalls (or other security gateways) that are connected over an untrusted network, such as the Internet.
- For this release, only PTP topology is supported, containing one or more VPN tunnels. Point-to-point (PTP) deployments establish a VPN tunnel between two endpoints.

Create a Site-To-Site VPN Tunnel Between FDM-managed Devices

Note that an FDM-managed device has the capability to establish a secure VPN tunnel either with another FDM-managed device or with an extranet device.

Procedure

-
- Step 1** In the left pane, choose **Manage > Secure Connections > Network Connections > Site to Site VPN**.
- Step 2** Click the **Create Tunnel** () icon and then click **Site-to-Site VPN**.
- Step 3** In the **Peer Selection** area, provide the following information:

- **Configuration Name:** Enter a unique topology name.

We recommend naming your topology to indicate that it is an FDM-managed device VPN, and its topology type.

- **Peer 1:** Click the **FDM** tab and select an FDM-managed device.
- **Peer 2:** Click the **FDM** tab and select an FDM-managed device.

If you choose an extranet device, select **Static** and specify an IP address or select **Dynamic** for extranet devices with DHCP assigned IP. The **IP Address** displays the IP address for static interface or **DHCP Assigned** for the dynamic interface.

Note

If one or both endpoint devices have dynamic IP addresses, see [Configure Site-to-Site VPN Connections with Dynamically-Addressed Peers](#) for additional instructions.

Step 4 Click **Next**.

Step 5 In the **Peer Details** area, provide the following information:

- **VPN Access Interface:** Select the interface to establish a connection between peer 1 and peer 2.
- **Routing:** Click **Add Networks** and select one or more protected networks to establish a site-to-site tunnel between the protected networks of peer 1 and peer 2
- (Optional) **NAT Exempt Interface:** Select **NAT Exempt** for peer 1 and peer 2 to exempt the VPN traffic from NAT policies on the local VPN access interface. It must be configured manually for individual peers. If you do not want NAT rules to apply to the local network, select the interface that hosts the local network. This option works only if the local network resides behind a single routed interface (not a bridge group member). If the local network is behind more than one routed interface or one or more bridge group members, you must manually create the NAT exempt rules.

Step 6 Click **Next**.

Step 7 In the **IKE Settings** area, choose the IKE versions to use during Internet Key Exchange (IKE) negotiations and specify the privacy configurations: For more information on the IKE policies, see [Configuring the Global IKE Policy](#).

Note

IKE policies are global to a device and apply to all VPN tunnels associated with it. Therefore, adding or deleting policies affect all VPN tunnels in which this device is participating.

- a. Select either or both options as appropriate.

Note

By default, **IKEV Version 2** is enabled.

- b. Click **Add IKEv2 Policies** to select the IKEv2 policies for peer 1 and peer 2.
- c. The **Local Pre-Shared Key** and **Remote Pre-Shared Key** for the participating devices are auto-generated. Preshared keys are secret key strings configured on each peer in the connection. These keys are used by IKE during the authentication phase.
- d. Click **IKE Version 1** to enable it.
- e. Click **Add IKEv1 Policies** to select the IKEv1 policies for peer 1 and peer 2.

- f. The **IPEv1 Pre-Shared Key** is auto-generated.

Step 8 Click **Next**.

Step 9 In the **IPSec Settings** area, specify the IPSec configurations for peer 1 and peer 2. The corresponding IKEV proposals are available depending on the selection that is made in the **IKE Settings** step.

For more information on the IPSec settings, see the [About IPsec Proposals, on page 75](#).

- a. Click **Add IKEv2 IPSec Proposals** and select the IKEv2 proposals you want for peer 1 and peer 2.
- b. Choose the **Diffie-Hellman Group for Perfect Forward Secrecy**. For more information, see [Deciding Which Diffie-Hellman Modulus Group to Use](#).
- c. Click **Next**.

Step 10 In the **Finish** area, you will find a summary of the configurations you have completed. Read the configuration and then click **Submit** if you're satisfied.

Configure Networking for Protected Traffic Between the Site-To-Site Peers

After completing the configuring of the Site-To-Site connection, make sure that you perform the following configuration for VPN to function on all targeted devices.

Procedure

Step 1 Configure AC policies:

Configure AC policies for permitting bidirectional traffic between the protected networks behind both peers. These policies help the packets to traverse to the intended destination without being dropped.

Note

You must create AC policies for incoming and outgoing traffic on both peers.

- a. In the Security Cloud Control navigation bar at the left, click **Policies** and select the option that you want.
- b. Create policies for incoming and outgoing traffic on both peers.

The following example shows steps for creating AC policies on both peers.

Consider two FDM-managed devices 'FTD_BGL_972' and 'FTD_BGL_973' with Site-To-Site VPN connection between two protected networks 'boulder-network' and 'sanjose-network' respectively.

Creating the AC policy for permitting incoming traffic:

The policy 'Permit_incoming_VPN_traffic_from_973' is created on the 'FTD_BGL_972' device for allowing incoming traffic from the peer ('FTD_BGL_973').

New Access Rule

Order: 1 Name: Permit_incoming_VPN_traffic_from_973 Action: Allow

Source/Destination | URLs | Applications | Users | Intrusion Policy | File Policy | Logging

Source

+ ZONES | + NETS | + PORTS

outside_zone | sanjose-net... | Any

Destination

+ ZONES | + NETS | + PORTS

Any | boulder-net... | Any

- **Source Zone:** Set the zone of the peer device from which the network traffic originates. In this example, the traffic is originating from FTD_BGL_973 and reaching FTD_BGL_972.
- **Source Network:** Set the protected network of the peer device from which the network traffic originates. In this example, traffic is originating from 'sanjose-network' which is the protected network behind the peer device (FTD_BGL_973).
- **Destination Network:** Set the protected network of the device on which the network traffic arrives. In this example, traffic is arriving at 'boulder-network' which is the protected network behind the peer device (FTD_BGL_972). **Note:** The remaining fields can have the default value ("Any").
- Set **Action** to **Allow** for allowing the traffic subject to the intrusion and other inspection settings in the policy.

Creating the AC policy for permitting outgoing traffic:

The policy 'Permit_outgoing_VPN_traffic_to_973' is created on the 'FTD_BGL_972' device for permitting outgoing traffic to the peer ('FTD_BGL_973').

New Access Rule

Order: 2 Name: Permit_outgoing_VPN_traffic_to_973 Action: Allow

Source/Destination | URLs | Applications | Users | Intrusion Policy | File Policy | Logging

Source

+ ZONES | + NETS | + PORTS

Any | boulder-net... | Any

Destination

+ ZONES | + NETS | + PORTS

outside_zone | sanjose-net... | Any

- **Source Network:** Set the protected network of the peer device from which the network traffic originates. In this example, traffic is originating from 'boulder-network' which is the protected network behind the peer device (FTD_BGL_972).
- **Destination Zone:** Set the zone of the peer device on which the network traffic arrives. In this example, the traffic is arriving from FTD_BGL_972 and reaching FTD_BGL_973.

- **Destination Network:** Set the protected network of the peer on which the network traffic arrives. In this example, traffic is arriving on 'sanjose-network' which is the protected network behind the peer device (FTD_BGL_972). **Note:** The remaining fields can have the default value ("Any").
- Set **Action** to **Allow** for allowing the traffic subject to the intrusion and other inspection settings in the policy.

After creating AC policies on one device, you must create similar policies on its peer.

- Step 2** If NAT is configured on either of the peer devices, you need to configure the NAT exempt rules manually. See [Exempting Site-to-Site VPN Traffic from NAT](#).
- Step 3** Configure routing for receiving the return VPN traffic on each peer.
- Gateway**-Select the network object that identifies the IP address for the gateway to the destination network. Traffic is sent to this address.
 - Interface**-Select the interface through which you want to send traffic. In this example, the traffic is sent through 'outside' interface.
 - Destination Networks**-Select one or network objects, that identify the destination network. In this example, the destination is 'sanjose-network' which is behind peer (FTD_BGL_973).

After configuring routing settings on one device, you must configure similar settings on its peer.

Edit an Existing Security Cloud Control Site-To-Site VPN

The advanced configuration wizard is used by default to modify an existing site-to-site VPN configuration.

Procedure

- Step 1** In the navigation pane, choose **VPN > Site-to-Site VPN**.
- Step 2** In the left pane, choose **Manage > Secure Connections > Network Connections > Site to Site VPN**.
- Step 3** Select the desired site-to-site VPN tunnel that you want to edit.
- Step 4** In the **Actions** pane, click **Edit**.

Note

Alternatively, you can perform the following to edit the configuration:

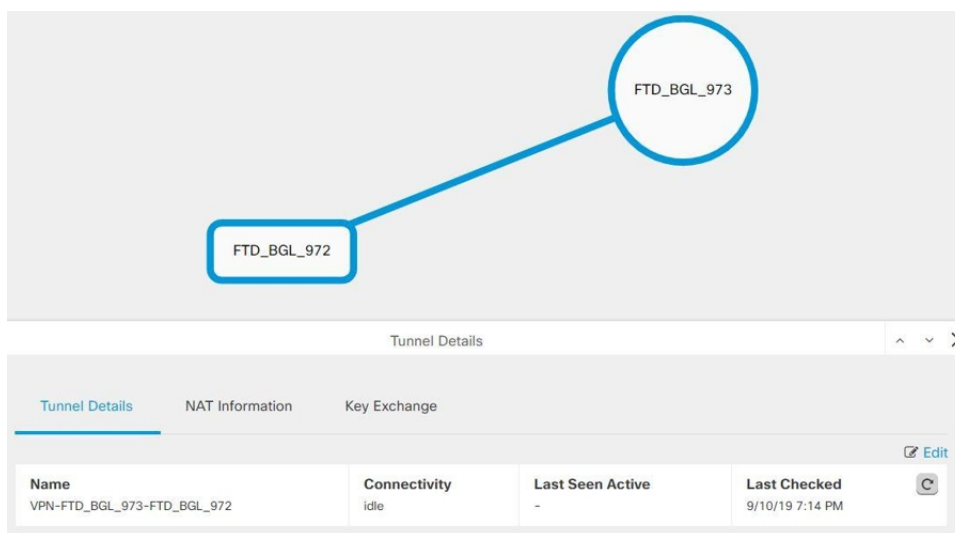
- Open the VPN page and click **Global View** button in the filter panel (for more information, see [Global View](#)).

The illustration of all site-to-site VPN tunnels available across all devices appears.

To edit the configuration, one of the peers must be FDM-managed device.

- Select a device by clicking the box.
- Click **View details** to view its peers.
- Click the peer device to view the tunnel details.

You can view the tunnel details, NAT information, and key exchange information pertaining to the device.



e. Click **Edit** in **Tunnel Details**.

Step 5 In the **Peer Devices** section, you can modify the following device configurations: Configuration Name, VPN Access Interface, and Protected Networks.

Note

You cannot change the participating devices.

Step 6 In the **IKE Settings** section, you can modify the following IKEv2 policies configurations:

- a. Click the blue plus  button for the respective device and select new IKEv2 policies. To delete an existing IKEv2 Policy, hover-over the selected policy and click the **x** icon.
- b. Modify the **Pre-Shared Key** for the participating devices. If the pre-shared keys are different for endpoint devices, click the blue settings  button and enter the appropriate pre-shared keys for the devices.
- c. Click **Next**.

Step 7 In the **IPSec Settings** section, you can modify the following IPSec configurations:

- a. Click the blue plus  button to select new IKEv2 proposals. To delete an existing IKEv2 Proposal, hover-over the selected proposal and click the **x** icon.
- b. Choose the **Diffie-Hellman Group for Perfect Forward Secrecy**.
- c. Click **Edit VPN**, and then **Finish**.

The Point to point VPN is modified and updated with all the changes you have made.

*Delete a Security Cloud Control Site-To-Site VPN Tunnel***Procedure**

-
Step 1	In the left pane, choose VPN > Site-to-Site VPN .
Step 2	In the left pane, click Manage > Secure Connections > Network Connections > Site to Site VPN to open the VPN page.
Step 3	Select the desired site-to-site VPN tunnel that you want to delete.
Step 4	In the Actions pane on the right, click Delete .
-

The selected site-to-site VPN tunnel is deleted.

Exempt Site-to-Site VPN Traffic from NAT

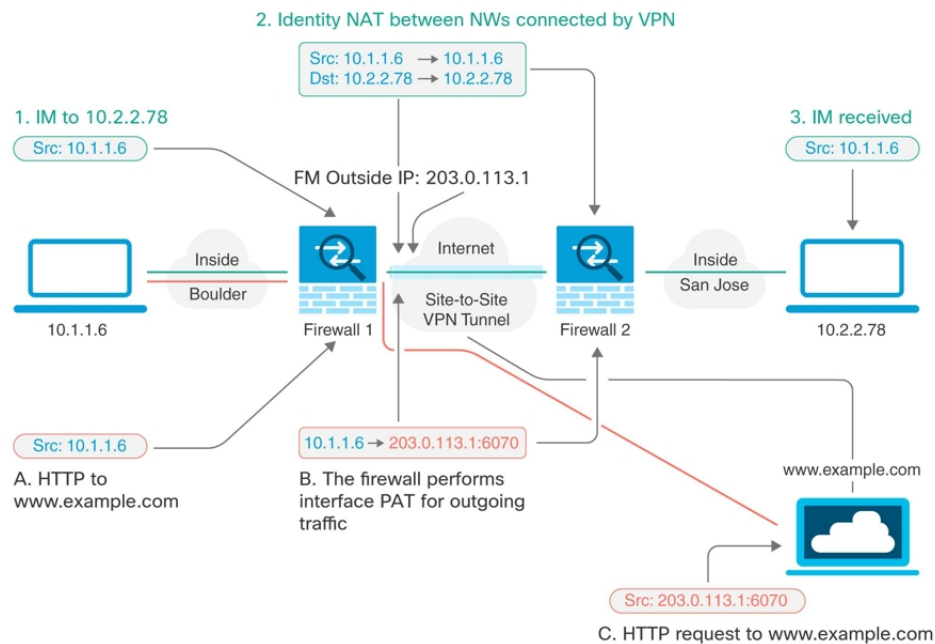
When you have a site-to-site VPN connection defined on an interface, and you also have NAT rules for that interface, you can optionally exempt the traffic on the VPN from the NAT rules. You might want to do this if the remote end of the VPN connection can handle your internal addresses.

When you create the VPN connection, you can select the **NAT Exempt** option to create the rules automatically. However, this works only if your local protected network is connected through a single routed interface (not a bridge group member). If instead, the local networks in the connection reside behind two or more routed interfaces or one or more bridge group members, you need to configure the NAT exempt rules manually.

To exempt VPN traffic from NAT rules, you create an identity manual NAT rule for the local traffic when the destination is the remote network. Then, apply NAT to the traffic when the destination is anything else (for example, the Internet). If you have more than one interface for the local network, create rules for each interface. Also, consider the following suggestions:

- If there is more than one local network in the connection, create a network object group to hold the objects that define the networks.
- If you are including both IPv4 and IPv6 networks in the VPN, create separate identity NAT rules for each.

Consider the following example, which shows a site-to-site tunnel connecting the Boulder and San Jose offices. For traffic that you want to go to the Internet (for example from 10.1.1.6 in Boulder to www.example.com), you need a public IP address provided by NAT to access the Internet. The below example uses interface Port Address Translation (PAT) rules. However, for traffic that you want to go over the VPN tunnel (for example from 10.1.1.6 in Boulder to 10.2.2.78 in San Jose), you do not want to perform NAT; you need to exempt that traffic by creating an identity NAT rule. Identity NAT translates an address to the same address.



The following example explains the configuration for Firewall1 (Boulder). The example assumes that the inside interface is a bridge group, so you need to write the rules for each member interface. The process is the same if you have a single or multiple routed inside interfaces.



Note This example assumes IPv4 only. If the VPN also includes IPv6 networks, create parallel rules for IPv6. Note that you cannot implement IPv6 interface PAT, so you need to create a host object with a unique IPv6 address to use for PAT.

Procedure

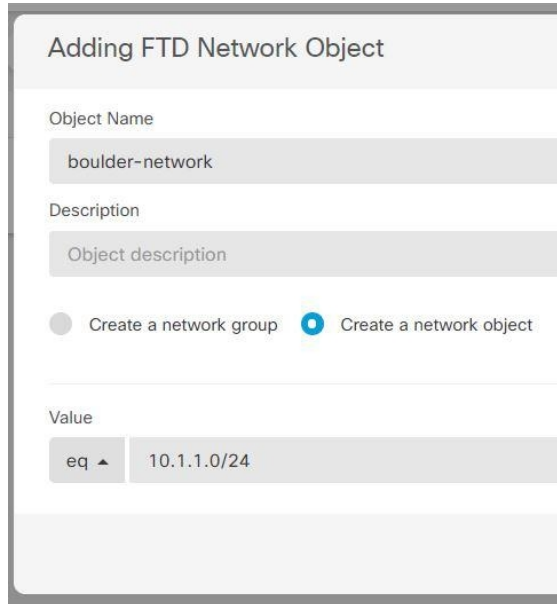
Step 1

Create objects to define the various networks.

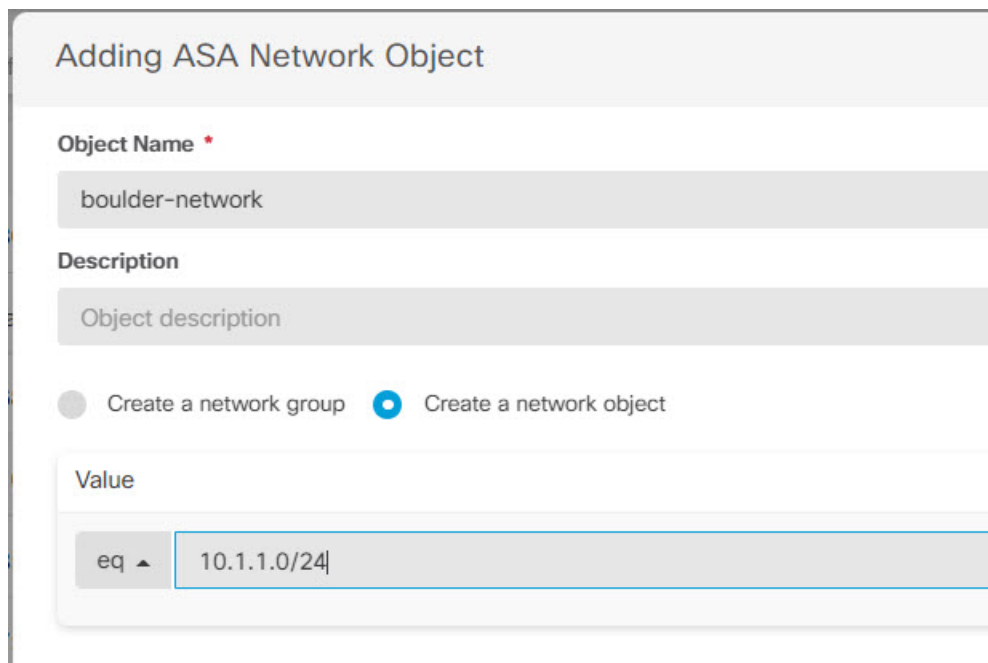
- In the left pane, click **Manage > Objects**.
- In the left pane, click **Objects**.
- Click the blue plus button  to create an object.
- Click **FTD > Network**.
- Click **ASA > Network**.
- Identify the Boulder inside network.
- Enter an object name (for example, boulder-network).
- Select **Create a network object**.

i. In the Value section:

- Select **eq** and enter a single IP address or a subnet address expressed in CIDR notation.
- Select **range** and enter an IP address range. For example, enter the network address as 10.1.1.0/24.



The screenshot shows the 'Adding FTD Network Object' form. It has a title bar 'Adding FTD Network Object'. Below it are two text input fields: 'Object Name' with the value 'boulder-network' and 'Description' with the value 'Object description'. There are two radio buttons: 'Create a network group' (unselected) and 'Create a network object' (selected). Below the radio buttons is a 'Value' section. It contains a dropdown menu with 'eq' selected and a text input field with the value '10.1.1.0/24'.



The screenshot shows the 'Adding ASA Network Object' form. It has a title bar 'Adding ASA Network Object'. Below it are two text input fields: 'Object Name' with the value 'boulder-network' and 'Description' with the value 'Object description'. There are two radio buttons: 'Create a network group' (unselected) and 'Create a network object' (selected). Below the radio buttons is a 'Value' section. It contains a dropdown menu with 'eq' selected and a text input field with the value '10.1.1.0/24'.

j. Click **Add**.

k. Click the blue plus button  to create an object.

l. Define the inside San Jose network.

- m. Enter the object name (for example, san-jose).
- n. Select **Create a network object**.
- o. In the Value section:
 - Select **eq** and enter a single IP address or a subnet address expressed in CIDR notation.
 - Select **range** and enter an IP address range. For example, enter the network address as 10.1.1.0/24.

Adding FTD Network Object

Object Name

sanjose-network

Description

Object description

☐ Create a network group ☒ Create a network object

Value

eq ▲ 10.2.2.0/24

Adding ASA Network Object

Object Name *

sanjose-network

Description

Object description

☐ Create a network group ☒ Create a network object

Value

eq ▲ 10.2.2.0/24

p. Click **Add**.

Step 2 Configure manual identity NAT for the Boulder network when going over the VPN to San Jose on Firewall1 (Boulder).

- a. In the left pane, click **Inventory**.
- b. In the left pane, click **Security Devices > All Devices**.
- c. Use the filter to find the device for which you want to create the NAT rule.
- d. In the Management area of the details panel, click **NAT**  **NAT**.
- e. Click  **> Twice NAT**.
 - In section 1, select **Static**. Click **Continue**.
 - In section 2, select **Source Interface = inside** and **Destination Interface = outside**. Click **Continue**.
 - In section 3, select **Source Original Address = 'boulder-network'** and **Source Translated Address = 'boulder-network'**.
 - Select **Use Destination**.
 - Select **Destination Original Address = 'sanjose-network'** and **Source Translated Address = 'sanjose-network'**. **Note:** Because you do not want to translate the destination address, you need to configure identity NAT for it by specifying the same address for the original and translated destination addresses. Leave all of the port fields blank. This rule configures identity NAT for both source and destination.

FTD: FTD_BGL_972 / NAT Rules

Type **Static**

Interfaces

Source Interface

inside

Destination Interface

outside

i Select the source interface and destination interface for packets going through this rule.

Packets

Source

Original Address

boulder-network

Translated Address

boulder-network

i Select the original address and translated address for packets going through this rule.

☒ Use Destination**Destination**

Original Address

sanjose-network

Translated Address

sanjose-network

☐ Use Service Objects

Advanced

☒ Disable proxy ARP for incoming packets☐ Use route lookup to determine the egress interface

ASA: ASA_BGL_972 / NAT Rules



- Type** ☒ Static
- Interfaces** ☒ inside ☒ outside
- Packets**

Source
Original Address
boulder-network

Translated Address
boulder-network

☒ Use Destination

Destination
Original Address
sanjose-network

Translated Address
sanjose-network

☐ Use Service Objects
- Advanced**

☐ Include after-auto (place in Section 3)

☒ Disable proxy ARP for incoming packets

☐ Use net-to-net translation (for NAT 46)

☐ Use route lookup to determine the egress interface

3 Select the original address and the translated address for the packets going through this NAT rule.

- Select **Disable proxy ARP for incoming packets**.
- Click **Save**.
- Repeat the process to create equivalent rules for each of the other inside interfaces.

Step 3

Configure manual dynamic interface PAT when going to the Internet for the inside Boulder network on Firewall1 (Boulder). **Note:** There might already be dynamic interface PAT rules for the inside interfaces, covering any IPv4 traffic, as these are created by default during initial configuration. However, the configuration is shown here for completeness. Before completing these steps, check whether a rule already exists that covers the inside interface and network, and skip this step if it does.

- Click  > **Twice NAT**.
- In section 1, select **Dynamic**. Click **Continue**.
- In section 2, select **Source Interface = inside** and **Destination Interface = outside**. Click **Continue**.

- d. In section 3, select **Source Original Address** = 'boulder-network' and **Source Translated Address** = 'interface'.

FTD: FTD_BGL_972 / NAT Rules

Cancel Save



Type **Dynamic**

Interfaces

Source Interface: inside

Destination Interface: outside

ⓘ Select the source interface and the destination interface for packets going through this NAT rule.

Packets

Source

Original Address: boulder-network

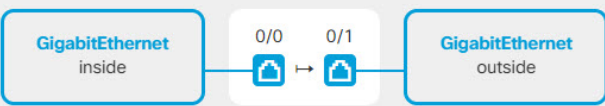
Translated Address: interface

ⓘ Select the original address and the translated address for packets going through this NAT rule.

☐ Use Destination

☐ Use Service Objects

ASA: ASA_BGL_972 / NAT Rules



1 Type **Dynamic**

2 Interfaces **inside** **outside**

3 Packets

Source

Original Address: boulder-network

Translated Address: interface

ⓘ Select the original address and the translated address for packets going through this NAT rule.

☐ Use Destination

☐ Use Service Objects

- e. Click **Save**.
- f. Repeat the process to create equivalent rules for each of the other inside interfaces.

- Step 4** Deploy configuration changes to Security Cloud Control. For more information, see [Deploy Configuration Changes from Security Cloud Control to FTD](#).
- Step 5** Deploy configuration changes to Security Cloud Control. For more information, see [Deploy Configuration Changes Made Using the Security Cloud Control GUI, on page 617](#).
- Step 6** If you are also managing Firewall2 (San Jose), you can configure similar rules for that device.
- The manual identity NAT rule would be for 'sanjose-network' when the destination is boulder-network. Create new interface objects for the Firewall2 inside and outside networks.

- The manual dynamic interface PAT rule would be for 'sanjose-network' when the destination is "any."

Configure Static and Default Routes for FDM-Managed Devices

Define static routes on an FDM-managed device so it knows where to send packets bound for networks not directly connected to the interfaces on the system.

Consider creating a default route. This is the route for network 0.0.0.0/0. This route defines where to send packets whose egress interface cannot be determined by existing NAT translations, static NAT rules, or other static routes.

You might need other static routes if the default gateway cannot be used to get to all networks. For example, the default route is usually an upstream router on the outside interface. If there are additional inside networks that are not directly connected to the device, and they cannot be accessed through the default gateway, you need static routes for each of those inside networks.

You cannot define static routes for the networks that are directly connected to system interfaces. The system automatically creates these routes.

Site-to-Site VPN Configuration for Cloud-Delivered Firewall Management Center-managed Firewall Threat Defense

You can create site-to-site IPsec connections between a Cloud-Delivered Firewall Management Center-managed Firewall Threat Defense device and the following devices:

- Firewall Threat Defense
- Secure Firewall ASA
- Multicloud Defense

Create a Site-to-Site VPN Tunnel Between Cloud-Delivered Firewall Management Center-managed Firewall Threat Defense Devices

Use the following procedure to create a site-to-site VPN tunnel between two Firewall Threat Defense devices managed by Cloud-Delivered Firewall Management Center.

Before you begin

There should not be any pending deployments on the Firewall Threat Defense device.

Procedure

Step 1 In the left pane, choose **Manage > Secure Connections > Network Connections > Site to Site VPN**.

Step 2 Click the **Create Tunnel** () icon and then click **Site-to-Site VPN**.

Step 3 In the **Peer Selection** area, provide the following information:

- **Configuration Name:** Enter a unique topology name.

We recommend naming your topology to indicate that it is a Firewall Threat Defense device VPN, and its topology type.

- **Peer 1:** Click the **FTD** tab and select a Firewall Threat Defense device.
- **Peer 2:** Click the **FTD** tab and select a Firewall Threat Defense device.

If you choose an extranet device, select **Static** and specify an IP address or select **Dynamic** for extranet devices with DHCP assigned IP. The **IP Address** displays the IP address for static interface or **DHCP Assigned** for the dynamic interface.

Step 4 Click **Next**.

Step 5 In the **Peer Details** area, provide the following information:

- **VPN Access Interface:** Select the interface for both peer 1 and peer 2 to establish a connection between them.
- **LAN Interfaces:** Select the interface for both peer 1 and peer 2 that controls the LAN subnet. You can select multiple interfaces
- **Routing:** Click **Add Networks** and select one or more protected networks for peer 1 and peer 2 to establish a site-to-site tunnel between between them.

Step 6 Click **Next**.

Step 7 In the **IKE Settings** area, choose the IKE versions to use during Internet Key Exchange (IKE) negotiations and specify the privacy configurations: For more information on the IKE policies, see [Configuring the Global IKE Policy](#).

Note

IKE policies are global to a device and apply to all VPN tunnels associated with it. Therefore, adding or deleting policies affect all VPN tunnels in which this device is participating.

- a. Select either or both options as appropriate.

Note

By default, **IKEV Version 2** is enabled.

- b. Click **Add IKEv2 Policies** to select the IKEv2 policies for peer 1 and peer 2.
- c. The **Local Pre-Shared Key** and **Remote Pre-Shared Key** for the participating devices are auto-generated. Preshared keys are secret key strings configured on each peer in the connection. These keys are used by IKE during the authentication phase.
- d. Click **IKE Version 1** to enable it.
- e. Click **Add IKEv1 Policies** to select the IKEv1 policies for peer 1 and peer 2.
- f. The **IPEv1 Pre-Shared Key** is auto-generated.

Step 8 Click **Next**.

Step 9 In the **IPSec Settings** area, specify the IPSec configurations for peer 1 and peer 2. The corresponding IKEV proposals are available depending on the selection that is made in the **IKE Settings** step.

For more information on the IPSec settings, see the [About IPSec Proposals](#).

- a. Click **Add IKEv2 IPSec Proposals** and select the IKEv2 proposals you want for peer 1 and peer 2.
- b. Choose the **Diffie-Hellman Group for Perfect Forward Secrecy**. For more information, see [Encryption and Hash Algorithms Used in VPN](#), on page 446.

- c. Click **Next**.

Step 10 In the **Finish** area, you will find a summary of the configurations you have completed. Read the configuration and then click **Submit** if you're satisfied.

Step 11

Step 12 Perform the following steps to deploy the configuration to a Cloud-Delivered Firewall Management Center-managed Firewall Threat Defense device:

- Choose **Administration > Integrations > Firewall Management Center**.
- Ensure the check box corresponding to **Cloud-Delivered FMC** is checked and in the **Actions** pane on the right, click **Deployment**.
- Select the device participating in the site-to-site VPN configuration and click **Deploy**.
- Choose **Devices > VPN > Site To Site**. You can see the same VPN topology that was configured in Security Cloud Control.

Create a Site-to-Site VPN Tunnel Between Cloud-delivered Firewall Management Center-Managed Firewall Threat Defense and Multicloud Defense

You can create site-to-site IPsec connections between a Cloud-Delivered Firewall Management Center-managed Firewall Threat Defense and Multicloud Defense from the Security Cloud Control dashboard that complies with all relevant standards. After the VPN connection is established, the hosts behind the firewall can connect to the hosts behind the gateway through the secure VPN tunnel.

Multicloud Defense currently supports Amazon Web Services (AWS), Azure, Google Cloud Platform (GCP), and Oracle OCI cloud accounts.

Use the following procedure to create a VPN tunnel between a cloud-delivered Firewall Management Center-managed Firewall Threat Defense device and Multicloud Defense from the Security Cloud Control dashboard:

Before you begin

Ensure that the following prerequisites are met:

- The cloud-delivered Firewall Management Center-managed Firewall Threat Defense device must not have any pending changes.
- The Multicloud Defense must be onboarded to Security Cloud Control. See [Connect Cloud Account](#).
- The Multicloud Defense Gateway must be in the **Active** state.
- The Multicloud Defense Gateway must be VPN enabled. See [Enable VPN within the gateway](#).
- Read the [Multicloud Defense Gateway prerequisites and limitations](#) for more information.

Procedure

Step 1 In the navigation pane, choose **Manage > Secure Connections > Network Connections > Site to Site VPN**.

- Step 2** Click the **Create Tunnel** () icon and then click **Site-to-Site VPN**.
- Step 3** In the **Peer Selection** area, provide the following information:
- **Configuration Name:** Enter a unique topology name.
 - **Peer 1:** Click the **FTD** tab and select a Firewall Threat Defense device.
 - **Peer 2:** Click the Multicloud Defense tab and select the gateway you want.
- If you choose an extranet device, select **Static** and specify an IP address or select **Dynamic** for extranet devices with DHCP assigned IP. The **IP Address** displays the IP address for static interface or **DHCP Assigned** for the dynamic interface.
- Step 4** Click **Next**.
- Step 5** In the **Peer Details** area, provide the following information:
- **VPN Access Interface:** Select the interface for Firewall Threat Defense to establish a connection with the gateway.
 - **Public IP (optional):** Specify the public IP address of the NAT that maps to the outside interface of the selected Firewall Threat Defense.
 - **Routing:** Click **Add Networks** and select one or more protected networks from Firewall Threat Defense to create a site-to-site tunnel between the selected networks and the Multicloud Defense Gateway
- Step 6** Click **Next**.
- Step 7** In the **Tunnel Details** area, provide the following information:
- **Virtual Tunnel Interface IP:** Specify the addresses for the new **Virtual Tunnel Interfaces** on the peer. You can assign any unused IP address that is currently not used on this device.
 - **Autonomous System Number:** Specify the autonomous system number of the network.
- Step 8** Click **Next**.
- Step 9** In the **IKE Settings** area, click **Add IKEv2** and add the IKE version for the Internet Key Exchange (IKE) negotiations and specify the privacy configurations.
- Security Cloud Control generates a default **Local Pre-Shared Key**. This is a secret key string that is configured on the peers. IKE uses this key during the authentication phase. It is used to verify each other when establishing a tunnel between the peers.
- Step 10** Click **Next**.
- Step 11** In the **IPSec Settings** area, click **Add IKEv2 IPSec Proposals** and select the IKE IPSec configuration. The proposals are available depending on the selection that is made in the **IKE Settings** step. See [Configuring IPSec Proposals](#).
- Step 12** Click **Next**.
- Step 13** In the **Finish** area, review the configuration and continue further only if you're satisfied with the configuration.
- Step 14** Click **Submit**.
- The configurations are pushed to the Multicloud Defense Gateway.
- Step 15** Perform the following steps to deploy the configuration to a cloud-delivered Firewall Management Center-managed Firewall Threat Defense device:

- a) Choose **Administration > Integrations > Firewall Management Center**.
- b) Ensure the check box corresponding to **Cloud-Delivered FMC** is checked and in the **Actions** pane on the right, click **Deployment**.
- c) Select the device participating in the site-to-site VPN configuration and click **Deploy**.
- d) Choose **Devices > VPN > Site To Site**. You can see the same VPN topology that was configured in Security Cloud Control.

Create a Site-to-Site VPN Between Cloud-Delivered Firewall Management Center-managed Firewall Threat Defense and Secure Firewall ASA

Before you begin

There should not be any pending deployments on the Firewall Threat Defense device.

Procedure

- Step 1** In the navigation pane, choose **Manage > Secure Connections > Network Connections > Site to Site VPN**.
- Step 2** Click the **Create Tunnel** () icon and then click **Site-to-Site VPN**.
- Step 3** In the **Peer Selection** area, provide the following information:
 - **Configuration Name:** Enter a unique topology name.
We recommend naming your topology to indicate that it is a Firewall Threat Defense device VPN, and its topology type.
 - **Peer 1:** Click the **FTD** tab and select a Firewall Threat Defense device.
 - **Peer 2:** Click the **ASA** tab and select a Secure Firewall ASA device.

If you choose an extranet device, select **Static** and specify an IP address or select **Dynamic** for extranet devices with DHCP assigned IP. The **IP Address** displays the IP address for static interface or **DHCP Assigned** for the dynamic interface.
- Step 4** Click **Next**.
- Step 5** In the **Peer Details** area, provide the following information:
 - **VPN Access Interface:** Select the interface for both peer 1 and peer 2 to establish a connection between them.
 - **LAN Interfaces:** Select the interface for both peer 1 and peer 2 that controls the LAN subnet. You can select multiple interfaces
 - **Routing:** Click **Add Networks** and select one or more protected networks for peer 1 and peer 2 to establish a site-to-site tunnel between between them.
- Step 6** Click **Next**.
- Step 7** In the **Tunnel Details** area, provide the following information:

- **Virtual Tunnel Interface IP:** Specify the address for the new **Virtual Tunnel Interfaces** for Secure Firewall ASA. Security Cloud Control provides a sample address for Secure Firewall ASA which you can change if it causes conflict. You can assign any unused IP address that is currently not used on this device.

Step 8 Click **Next**.

Step 9 In the **IKE Settings** area, choose the IKE versions to use during Internet Key Exchange (IKE) negotiations and specify the privacy configurations: For more information on the IKE policies, see [Configuring the Global IKE Policy](#).

Note

IKE policies are global to a device and apply to all VPN tunnels associated with it. Therefore, adding or deleting policies affect all VPN tunnels in which this device is participating.

- a. Select either or both options as appropriate.

Note

By default, **IKEV Version 2** is enabled.

- b. Click **Add IKEv2 Policies** to select the IKEv2 policies for peer 1 and peer 2.
- c. The **Local Pre-Shared Key** and **Remote Pre-Shared Key** for the participating devices are auto-generated. Preshared keys are secret key strings configured on each peer in the connection. These keys are used by IKE during the authentication phase.
- d. Click **IKE Version 1** to enable it.
- e. Click **Add IKEv1 Policies** to select the IKEv1 policies for peer 1 and peer 2.
- f. The **IPEv1 Pre-Shared Key** is auto-generated.

Step 10 Click **Next**.

Step 11 In the **IPSec Settings** area, specify the IPSec configurations for peer 1 and peer 2. The corresponding IKEV proposals are available depending on the selection that is made in the **IKE Settings** step.

For more information on the IPSec settings, see the [About IPSec Proposals](#).

- a. Click **Add IKEv2 IPSec Proposals** and select the IKEv2 proposals you want for peer 1 and peer 2.
- b. Choose the **Diffie-Hellman Group for Perfect Forward Secrecy**. For more information, see [Deciding Which Diffie-Hellman Modulus Group to Use](#).

Step 12 Click **Next**.

Step 13 In the **Finish** area, you will find a summary of the configurations you have completed.

Read the configuration and then click **Submit** if you're satisfied.

Step 14 Perform the following steps to deploy the configuration to a Cloud-Delivered Firewall Management Center-managed Firewall Threat Defense device:

- a) Choose **Administration > Integrations > Firewall Management Center**.
- b) Ensure the check box corresponding to **Cloud-Delivered FMC** is checked and in the **Actions** pane on the right, click **Deployment**.
- c) Select the device participating in the site-to-site VPN configuration and click **Deploy**.

- d) Choose **Devices > VPN > Site To Site**. You can see the same VPN topology that was configured in Security Cloud Control.

Site-to-Site VPN for Secure Firewall ASA

Security Cloud Control supports these aspects of site-to-site VPN functionality on Secure Firewall ASA devices:

- Both IPsec IKEv1 & IKEv2 protocols are supported.
- Automatic or manual pre-shared keys for authentication.
- IPv4 and IPv6. All combinations of inside and outside are supported.
- IPsec IKEv2 site-to-site VPN topologies provide configuration settings to comply with Security Certifications.
- Static and dynamic interfaces.
- Support the static or dynamic IP address for the extranet device as an endpoint.

Configure Site-to-Site VPN Connections with Dynamically Addressed Peers

Security Cloud Control allows you to create a site-to-site VPN connection between peers when one of the peers' VPN interface IP address is not known or when the interface obtains its address from a DHCP server. Any dynamic peer whose preshared key, IKE settings, and IPsec configurations match with another peer can establish a site-to-site VPN connection.

Consider two peers, A and B. The static peer is a device whose IP address of its VPN interface is fixed and a dynamic peer is a device whose IP address of the VPN interface is not known or has a temporary IP address.

The following use cases describe different scenarios for establishing a secure site-to-site VPN connection with dynamically-addressed peers:

- A is a static peer, and B is a dynamic peer or conversely.
- A is a static peer, and B is a dynamic peer with a resolved IP address from the DHCP server or conversely.
- A is a dynamic peer, and B is an extranet device with a static or dynamic IP address.
- A is a dynamic peer with a resolved IP address from the DHCP server, and B is an Extranet device with a static or dynamic IP address.



Note If the IP address of the interface is changed by using a local manager like Adaptive Security Device Manager (ASDM), the **Configuration Status** of that peer in Security Cloud Control shows "Conflict Detected". When you [resolve this out-of-band change](#), the **Configuration Status** of the other peer changes to the "Not Synced" state. You must deploy the Security Cloud Control configuration to the device which is in "Not Synced" state.

Typically, the dynamic peer must be the one that initiates the connection as the other peer would not know the IP address of the dynamic peer. When the remote peer attempts to establish the connection, the other peer validates the connection using the preshared key, IKE settings, and IPsec configurations.

Because the VPN connection is established only after the remote peer initiates the connection, any outbound traffic that matches access control rules that allow traffic in the VPN tunnel will be dropped until that connection is established. This ensures that data does not leave your network without the appropriate encryption and VPN protection.



Note A site-to-site VPN connection cannot be configured in the following scenario:

If a device has more than one dynamic peer connection.

- Consider three devices A, B, and C.
- Configure site-to-site VPN connection between A (static peer) and B (dynamic peer).
- Configure site-to-site VPN connection between A and C (dynamic peer) by creating an Extranet device. Assign the static VPN interface IP address of A to the Extranet device and establish a connection with C.

Secure Firewall ASA Site-to-Site VPN Guidelines and Limitations

- Security Cloud Control does not support a crypto-acl to design the interesting traffic for S2S VPN. It only supports protected networks.
- Whenever IKE ports 500/4500 are in use or when there are some PAT translations that are active, the site-to-site VPN cannot be configured on the same ports as it fails to start the service on those ports.
- Transport mode is not supported only tunnel mode. IPsec tunnel mode encrypts the entire original IP datagram which becomes the payload in a new IP packet. Use tunnel mode when the firewall is protecting traffic to and from hosts positioned behind a firewall. Tunnel mode is the normal way regular IPsec is implemented between two firewalls (or other security gateways) that are connected over an untrusted network, such as the Internet.
- For this release, only PTP topology is supported, containing one or more VPN tunnels. Point-to-point (PTP) deployments establish a VPN tunnel between two endpoints.

Guidelines for Virtual Tunnel Interfaces

- VTIs are only configurable in IPsec mode. To terminate GRE tunnels on an Secure Firewall ASA is unsupported.
- You can use dynamic or static routes for traffic using the tunnel interface.
- The MTU for VTIs is automatically set, according to the underlying physical interface. However, if you change the physical interface MTU after the VTI is enabled, you must disable and reenble the VTI to use the new MTU setting.
- If Network Address Translation has to be applied, the IKE and ESP packets will be encapsulated in the UDP header.
- IKE and IPsec security associations will be re-keyed continuously regardless of data traffic in the tunnel. This ensures that VTI tunnels are always up.
- Tunnel group name must match what the peer will send as its IKEv1 or IKEv2 identity.

- For IKEv1 in LAN-to-LAN tunnel groups, you can use names which are not IP addresses, if the tunnel authentication method is digital certificates and/or the peer is configured to use aggressive mode.
- VTI and crypto map configurations can co-exist on the same physical interface, provided the peer address configured in the crypto map and the tunnel destination for the VTI are different.
- By default, all traffic through VTI is encrypted.
- By default, the security level for VTI interfaces is 0.
- Access list can be applied on a VTI interface to control traffic through VTI.
- Only BGP is supported over VTI.
- If Secure Firewall ASA is terminating IOS IKEv2 VTI clients, disable the config-exchange request on IOS, because Secure Firewall ASA cannot retrieve the mode-CFG attributes for this L2L session initiated by an IOS VTI client.
- IPv6 is not supported.

Related Information:

- [Create a Site-to-Site VPN Tunnel Between Secure Firewall ASA, on page 472](#)

Create a Site-to-Site VPN Tunnel Between Secure Firewall ASA

Use the following procedure to create a site-to-site VPN tunnel between two ASAs or an ASA with an Extranet device:

Procedure

-
- Step 1** In the left pane, click **Secure Connections > Site to Site VPN > ASA & FDM**.
- Step 2** Click the **Create Tunnel** () icon and then click **Site-to-Site VPN**.
- Step 3**
- Step 4** In the **Peer Selection** area, provide the following information:
- **Configuration Name:** Enter a unique topology name.
 - **Peer 1:** Click the **ASA** tab and select a Secure Firewall ASA device.
 - **Peer 2:** Click the **ASA** tab and select a Secure Firewall ASA device.
- If you choose an extranet device, select **Static** and specify an IP address or select **Dynamic** for extranet devices with DHCP assigned IP. The **IP Address** displays the IP address for static interface or **DHCP Assigned** for the dynamic interface.
- Step 5** Click **Next**.
- Step 6** In the **Peer Details** area, provide the following information:
- Select one of the options to create a new **Policy Based** or **Route Based** site-to-site VPN.
 - **VPN Access Interface:** Select the interface for both peer 1 and peer 2 to establish a connection between them.

- (Applicable to Route Based) **LAN Interfaces**: Select the interface for both peer 1 and peer 2 that controls the LAN subnet. You can select multiple interfaces
- **Routing**: Click **Add Networks** and select one or more protected networks for peer 1 and peer 2 to establish a site-to-site tunnel between them.
- (Applicable to Policy Based) **NAT Exempt**: Select to exempt the VPN traffic from NAT policies on the local VPN access interface. It must be configured manually for individual peers. If you do not want NAT rules to apply to the local network, select the interface that hosts the local network. This option works only if the local network resides behind a single routed interface (not a bridge group member). If the local network is behind more than one routed interface or one or more bridge group members, you must manually create the NAT exempt rules. For information on manually creating the required rules, see [Exempt ASA Site-to-Site VPN Traffic from NAT](#).

Step 7 Click **Next**.

Step 8 (Applicable to Route Based) In the **Tunnel Details**, the **VTI Address** fields are automatically filled once the peer devices are configured in the previous step. If necessary, you can manually enter an IP address that will be used as the new VTI.

Step 9 In the **IKE Settings** area, choose the IKE versions to use during Internet Key Exchange (IKE) negotiations and specify the privacy configurations: For more information on the IKE policies, see [About Global IKE Policies, on page 78](#).

Note

IKE policies are global to a device and apply to all VPN tunnels associated with it. Therefore, adding or deleting policies affect all VPN tunnels in which this device is participating.

- a. Select either or both options as appropriate.

Note

By default, **IKEV Version 2** is enabled.

- b. Click **Add IKEv2 Policies** to select the IKEv2 policies for peer 1 and peer 2.
- c. The **Local Pre-Shared Key** and **Remote Pre-Shared Key** for the participating devices are auto-generated. Preshared keys are secret key strings configured on each peer in the connection. These keys are used by IKE during the authentication phase.
- d. Click **IKE Version 1** to enable it.
- e. Click **Add IKEv1 Policies** to select the IKEv1 policies for peer 1 and peer 2.
- f. The **IKEv1 Pre-Shared Key** is auto-generated.

Step 10 Click **Next**.

Step 11 In the **IPSec Settings** area, specify the IPSec configurations for peer 1 and peer 2. The corresponding IKEV proposals are available depending on the selection that is made in the **IKE Settings** step.

For more information on the IPSec settings, see the [About Global IKE Policies, on page 78](#).

- a. Click **Add IKEv2 IPSec Proposals** and select the IKEv2 proposals you want for peer 1 and peer 2.
- b. Choose the **Diffie-Hellman Group for Perfect Forward Secrecy**. For more information, see [Encryption and Hash Algorithms Used in VPN, on page 446](#).

- Step 12** In the **Finish** area, review the configuration and continue further only if you're satisfied with the configuration. By default, the **Deploy changes to ASA immediately** check box is checked to deploy the configurations immediately to the ASA device after clicking **Submit**.
- If you want to review and deploy the configurations manually later, then uncheck this check box.

You are directed to the VPN Tunnels page that shows the newly configured site-to-site VPN tunnel. The changes are staged and must be deployed manually. A routing policy is created to route the VTI traffic automatically between the devices over the VTI tunnel. To see this policy, select the device from the **Security Devices** page and choose **Configuration > Diff**.

Create a Site-to-Site VPN Between ASA and Multicloud Defense Gateway

You can create site-to-site IPsec connections between an ASA and a Multicloud Defense Gateway that complies with all relevant standards. After the VPN connection is established, the hosts behind the firewall can connect to the hosts behind the gateway through the secure VPN tunnel.

Multicloud Defense currently supports Amazon Web Services (AWS), Azure, Google Cloud Platform (GCP), and Oracle OCI cloud accounts.

Use the following procedure to create a VPN tunnel between an ASA device that is managed by Security Cloud Control and Multicloud Defense Gateway from the Security Cloud Control dashboard:

Before you begin

Ensure that the following prerequisites are met:

- The ASA device must not have any pending changes.
- Create a BGP profile in the ASA console prior to creating a VPN tunnel. See [Configure ASA Border Gateway Protocol](#) for more information.
- The Multicloud Defense Gateway must be in the **Active** state.
- The Multicloud Defense Gateway must be VPN enabled. See [Enable VPN within the gateway](#).
- Read the [ASA site-to-site VPN limitations and guidelines](#) for more information.
- Read the [Multicloud Defense Gateway prerequisites and limitations](#) for more information.

Procedure

-
- Step 1** In the left pane, choose **Manage > Secure Connections > Network Connections > Site to Site VPN**.
- Step 2** In the left pane, choose **VPN > Site-to-Site VPN**.
- Step 3** Click the **Create Tunnel** () icon and then click **Site-to-Site VPN**.
- Step 4** In the **Peer Selection** area, provide the following information:
- **Configuration Name:** Enter a unique topology name.
 - **Peer 1:** Click the **ASA** tab and select a Secure Firewall ASA device.

- **Peer 2:** Click the **Multicloud Defense** tab and select a multicloud gateway.

If you choose an extranet device, select **Static** and specify an IP address or select **Dynamic** for extranet devices with DHCP assigned IP. The **IP Address** displays the IP address for static interface or **DHCP Assigned** for the dynamic interface.

Step 5 Click **Next**.

Step 6 In the **Peer Details** area, provide the following information:

- **VPN Access Interface:** Select the interface for Secure Firewall ASA to establish a connection with Multicloud Defense Gateway.
- **LAN Interfaces:** Select the interface for Secure Firewall ASA that controls the LAN subnet. You can select multiple interfaces
- **Public IP (optional):** Specify the public IP address of the NAT that maps to the outside interface of the selected Secure Firewall ASA.
- **Routing:** Click **Add Networks** and select one or more protected networks for Secure Firewall ASA to establish a site-to-site tunnel with Multicloud Defense Gateway.

Step 7 Click **Next**.

Step 8 In the **Tunnel Details** area, provide the following information:

- **Virtual Tunnel Interface IP:** Specify the addresses for the new **Virtual Tunnel Interfaces** on the peers. Security Cloud Control provides a sample address for Secure Firewall ASA which you can change if it causes conflict. You can assign any unused IP address that is currently not used on this device.
- **Autonomous System Number (Peer 1):** If the Secure Firewall ASA device does not have an autonomous system number configured, Security Cloud Control will suggest one for the device, which can be modified. If the device already has an autonomous system number configured, the current value will be displayed and cannot be modified.
- **Autonomous System Number (Peer 2):** If a BGP profile is assigned to the Multicloud Defense Gateway, the autonomous number associated with the profile is displayed, which cannot be modified. See [Add a Multicloud Defense Gateway](#).

Step 9 Click **Next**.

Step 10 In the **IKE Settings** area, Security Cloud Control generates a default **Local Pre-Shared Key**. This is a secret key string that is configured on the peers. IKE uses this key during the authentication phase. It is used to verify each other when establishing a tunnel between the peers.

Step 11 In the **Finish** area, review the configuration and continue further only if you're satisfied with the configuration.

By default, the **Deploy changes to ASA immediately** check box is checked to deploy the configurations immediately to the ASA device after clicking **Submit**.

If you want to review and deploy the configurations manually later, then uncheck this check box.

Step 12 Click **Submit**.

The configurations are pushed to the Multicloud Defense Gateway.

Exempt Site-to-Site VPN Traffic from NAT

To exempt VPN traffic from NAT rules, you create an identity manual NAT rule for the local traffic when the destination is the remote network. Then, apply NAT to the traffic when the destination is anything else (for example, the Internet). If you have more than one interface for the local network, create rules for each interface. Also, consider the following suggestions:

- Consider the following example, which shows a site-to-site tunnel connecting the Boulder and San Jose offices. For traffic that you want to go to the Internet (for example from 10.1.1.6 in Boulder to www.example.com), you need a public IP address provided by NAT to access the Internet. The below example uses interface Port Address Translation (PAT) rules. However, for traffic that you want to go over the VPN tunnel (for example from 10.1.1.6 in Boulder to 10.2.2.78 in San Jose), you do not want to perform NAT; you need to exempt that traffic by creating an identity NAT rule. Identity NAT translates an address to the same address.



The following example explains the configuration for Firewall1 (Boulder). The example assumes that the inside interface is a bridge group, so you need to write the rules for each member interface. The process is the same if you have a single or multiple routed inside interfaces.

**Note**

This example assumes IPv4 only. If the VPN also includes IPv6 networks, create parallel rules for IPv6. Note that you cannot implement IPv6 interface PAT, so you need to create a host object with a unique IPv6 address to use for PAT.

Procedure

Step 1

Create objects to define the various networks.

- a. In the left pane, click **Manage > Objects**.
- b. In the left pane, click **Objects**.
- c. Click the blue plus button  to create an object.
- d. Click **FTD > Network**.
- e. Click **ASA > Network**.
- f. Identify the Boulder inside network.
- g. Enter an object name (for example, boulder-network).
- h. Select **Create a network object**.
- i. In the Value section:
 - Select **eq** and enter a single IP address or a subnet address expressed in CIDR notation.

- Select **range** and enter an IP address range. For example, enter the network address as 10.1.1.0/24.

The screenshot shows the 'Adding FTD Network Object' configuration window. It has a title bar at the top. Below the title, there are two input fields: 'Object Name' with the text 'boulder-network' and 'Description' with the text 'Object description'. Below these fields are two radio buttons: 'Create a network group' (which is unselected) and 'Create a network object' (which is selected). Below the radio buttons is a 'Value' section containing a dropdown menu set to 'eq' and a text input field containing '10.1.1.0/24'.

The screenshot shows the 'Adding ASA Network Object' configuration window. It has a title bar at the top. Below the title, there are two input fields: 'Object Name' with the text 'boulder-network' and 'Description' with the text 'Object description'. Below these fields are two radio buttons: 'Create a network group' (which is unselected) and 'Create a network object' (which is selected). Below the radio buttons is a 'Value' section containing a dropdown menu set to 'eq' and a text input field containing '10.1.1.0/24'.

- Click **Add**.
- Click the blue plus button  to create an object.
- Define the inside San Jose network.
- Enter the object name (for example, san-jose).
- Select **Create a network object**.

o. In the Value section:

- Select **eq** and enter a single IP address or a subnet address expressed in CIDR notation.
- Select **range** and enter an IP address range. For example, enter the network address as 10.1.1.0/24.

The screenshot shows the 'Adding FTD Network Object' form. It has a title bar 'Adding FTD Network Object'. Below it are two text input fields: 'Object Name' with the value 'sanjose-network' and 'Description' with the value 'Object description'. There are two radio buttons: 'Create a network group' (unselected) and 'Create a network object' (selected). Below these is a 'Value' section with a dropdown menu set to 'eq' and a text input field containing '10.2.2.0/24'.

The screenshot shows the 'Adding ASA Network Object' form. It has a title bar 'Adding ASA Network Object'. Below it are two text input fields: 'Object Name' with the value 'sanjose-network' and 'Description' with the value 'Object description'. There are two radio buttons: 'Create a network group' (unselected) and 'Create a network object' (selected). Below these is a 'Value' section with a dropdown menu set to 'eq' and a text input field containing '10.2.2.0/24'.

p. Click **Add**.

- Step 2** Configure manual identity NAT for the Boulder network when going over the VPN to San Jose on Firewall1 (Boulder).
- a. In the left pane, click **Inventory**.
 - b. In the left pane, click **Security Devices > All Devices**.
 - c. Use the filter to find the device for which you want to create the NAT rule.
 - d. In the Management area of the details panel, click **NAT**  **NAT**.
 - e. Click  **> Twice NAT**.
 - In section 1, select **Static**. Click **Continue**.
 - In section 2, select **Source Interface = inside** and **Destination Interface = outside**. Click **Continue**.
 - In section 3, select **Source Original Address = 'boulder-network'** and **Source Translated Address = 'boulder-network'**.
 - Select **Use Destination**.
 - Select **Destination Original Address = 'sanjose-network'** and **Source Translated Address = 'sanjose-network'**. **Note:** Because you do not want to translate the destination address, you need to configure identity NAT for it by specifying the same address for the original and translated destination addresses. Leave all of the port fields blank. This rule configures identity NAT for both source and destination.

FTD: FTD_BGL_972 / NAT Rules

Type **Static**

Interfaces

Source Interface

inside

Destination Interface

outside

i Select the source interface and destination interface for packets going through this rule.

Packets

Source

Original Address

boulder-network

Translated Address

boulder-network

i Select the original address and translated address for packets going through this rule.☒ Use Destination**Destination**

Original Address

sanjose-network

Translated Address

sanjose-network

☐ Use Service Objects

Advanced

☒ Disable proxy ARP for incoming packets☐ Use route lookup to determine the egress interface

ASA: ASA_BGL_972 / NAT Rules



- Type**: Static
- Interfaces**: inside, outside
- Packets**

Source

Original Address: boulder-network Translated Address: boulder-network

☒ Use Destination

Destination

Original Address: sanjose-network Translated Address: sanjose-network

☐ Use Service Objects

Info: Select the original address and the translated address for the packets going through this NAT rule.
- Advanced**

☐ Include after-auto (place in Section 3)

☒ Disable proxy ARP for incoming packets

☐ Use net-to-net translation (for NAT 46)

☐ Use route lookup to determine the egress interface

- Select **Disable proxy ARP for incoming packets**.
- Click **Save**.
- Repeat the process to create equivalent rules for each of the other inside interfaces.

Step 3

Configure manual dynamic interface PAT when going to the Internet for the inside Boulder network on Firewall1 (Boulder). **Note:** There might already be dynamic interface PAT rules for the inside interfaces, covering any IPv4 traffic, as these are created by default during initial configuration. However, the configuration is shown here for completeness. Before completing these steps, check whether a rule already exists that covers the inside interface and network, and skip this step if it does.

- Click  > **Twice NAT**.
- In section 1, select **Dynamic**. Click **Continue**.
- In section 2, select **Source Interface = inside** and **Destination Interface = outside**. Click **Continue**.

- d. In section 3, select **Source Original Address** = 'boulder-network' and **Source Translated Address** = 'interface'.

FTD: FTD_BGL_972 / NAT Rules

Cancel Save



Type **Dynamic**

Interfaces

Source Interface: inside

Destination Interface: outside

Select the source interface and the destination interface for packets going through this NAT rule.

Packets

Source

Original Address: boulder-network

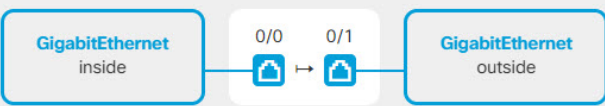
Translated Address: interface

Select the original address and the translated address for packets going through this NAT rule.

☐ Use Destination

☐ Use Service Objects

ASA: ASA_BGL_972 / NAT Rules



1 Type **Dynamic**

2 Interfaces **inside** **outside**

3 Packets

Source

Original Address: boulder-network

Translated Address: interface

Select the original address and the translated address for packets going through this NAT rule.

☐ Use Destination

☐ Use Service Objects

- e. Click **Save**.
- f. Repeat the process to create equivalent rules for each of the other inside interfaces.

- Step 4** Deploy configuration changes to Security Cloud Control. For more information, see [Deploy Configuration Changes from Security Cloud Control to FTD](#).
- Step 5** Deploy configuration changes to Security Cloud Control. For more information, see [Deploy Configuration Changes Made Using the Security Cloud Control GUI, on page 617](#).
- Step 6** If you are also managing Firewall2 (San Jose), you can configure similar rules for that device.
- The manual identity NAT rule would be for 'sanjose-network' when the destination is boulder-network. Create new interface objects for the Firewall2 inside and outside networks.

- The manual dynamic interface PAT rule would be for 'sanjose-network' when the destination is "any."

Monitor ASA Site-to-Site Virtual Private Networks

Security Cloud Control allows you to monitor already existing site-to-site VPN configurations on onboarded ASA devices. It doesn't allow you to modify or delete the site-to-site configuration.

Security Cloud Control allows you to monitor, modify, and delete existing or newly created site-to-site VPN configurations on onboarded FDM-managed devices.

Check Site-to-Site VPN Tunnel Connectivity

Use the **Check Connectivity** button to trigger a real-time connectivity check against the tunnel to identify whether the tunnel is currently [active](#) or [idle](#). Unless you click the on-demand connectivity check button, a check across all tunnels, available across all onboarded devices, occurs once an hour.



Note

- Security Cloud Control runs this connectivity check command on the ASAFTD to determine if a tunnel is active or idle:

```
show vpn-sessiondb 121 sort ipaddress
```

- Model ASA device(s) tunnels will always show as **Idle**.

To check tunnel connectivity from the VPN page:

Procedure

- Step 1** In the left pane, choose VPN > ASA/FDM Site-to-Site VPNManage > **Secure Connections** > **Network Connections** > **Site to Site VPN**.
- Step 2** [Search and filter](#) the list of tunnels for your site-to-site VPN tunnel and select it.
- Step 3** In the Actions pane at the right, click **Check Connectivity**.

Site-To-Site VPN Dashboard

Security Cloud Control provides a consolidated information about site-to-site VPN connections created in the tenant.

1. In the left pane, click **Secure Connections** > **Site to Site VPN**. The **Site-to-Site VPN** provides the information in the following widgets:
 - **Sessions & Insights**: Displays a bar graph representing Active VPN Tunnels and Idle VPN Tunnels, each in appropriate colors.
 - **Issues**: Shows the total number of tunnels detected with issues.
 - **Pending Deploy**: Shows the total number of tunnels with pending deployment.

By clicking on a value in the pie chart or any link in the widget, the site-to-site VPN listing page is displayed with a filter based on the selected value. For instance, in the **VPN Tunnel Status** widget, on clicking the **Active VPN Tunnels**, you will be directed to the site-to-site VPN listing page with the **Active** status filter applied, showing only the active tunnels.

Identify VPN Issues

Security Cloud Control can identify VPN issues on ASA/FTD. (This feature is not yet available for AWS VPC site-to-site VPN tunnels.) This article describes:

- [Find VPN Tunnels with Missing Peers](#)
- [Find VPN Peers with Encryption Key Issues](#)
- [Find Incomplete or Misconfigured Access Lists Defined for a Tunnel](#)
- [Find Issues in Tunnel Configuration](#)
[Resolve Tunnel Configuration Issues, on page 487](#)

Find VPN Tunnels with Missing Peers

The "Missing IP Peer" condition is more likely to occur on ASA devices than FDM-managed devices.

Procedure

-
Step 1	In the left pane, click VPN > ASA/FDM Site-to-Site VPNManage > Secure Connections > Network Connections > Site to Site VPN to open the VPN page.
Step 2	Select Table View .
Step 3	Open the Filter panel by clicking the filter icon  .
Step 4	Check Detected Issues .
Step 5	Select each device reporting an issue  and look in the Peers pane at the right. One peer name will be listed. Security Cloud Control reports the other peer name as, "[Missing peer IP.]"
-

Find VPN Peers with Encryption Key Issues

Use this approach to locate VPN Peers with encryption key issues such as:

- IKEv1 or IKEv2 keys are invalid, missing, or mismatched
- Obsolete or low encryption tunnels

Procedure

-
Step 1	In the left pane, click VPN > ASA/FDM Site-to-Site VPNManage > Secure Connections > Network Connections > Site to Site VPN to open the VPN page.
Step 2	Select Table View .

- Step 3** Open the Filter panel by clicking the filter icon .
- Step 4** Select each device reporting an issue  and look in the Peers pane at the right. The peer information will show you both peers.
- Step 5** Click on **View Peers** for one of the devices.
- Step 6** Double-click the device reporting the issue in the Diagram View.
- Step 7** Click **Key Exchange** in the Tunnel Details panel at the bottom. You will be able to view both devices and diagnose the key issue from that point.
-

Find Incomplete or Misconfigured Access Lists Defined for a Tunnel

The "incomplete or misconfigured access-list" condition could only occur on ASA devices.

Procedure

- Step 1** In the left pane, click **VPN > ASA/FDM Site-to-Site VPNManage > Secure Connections > Network Connections > Site to Site VPN** to open the VPN page.
- Step 2** Select **Table View**.
- Step 3** Open the Filter panel by clicking the filter icon .
- Step 4** Select each device reporting an issue  and look in the Peers pane at the right. The peer information shows you both peers.
- Step 5** Click on **View Peers** for one of the devices.
- Step 6** Double-click the device reporting the issue in the Diagram View.
- Step 7** Click **Tunnel Details** in the Tunnel Details panel at the bottom. You will see the message, "Network Policy: Incomplete"
-

Find Issues in Tunnel Configuration

The tunnel configuration error can occur in the following scenarios:

- When the IP address of a site-to-site VPN interface changes, the "Peer IP Address Value has changed".
- When the IKE value of a VPN tunnel doesn't match the other VPN tunnel, the "IKE value Mismatch" message appears.

Procedure

- Step 1** In the left pane, click **VPN > ASA/FDM Site-to-Site VPNManage > Secure Connections > Network Connections > Site to Site VPN** to open the VPN page.
- Step 2** Select **Table View**.

- Step 3** Open the Filter panel by clicking the filter icon .
- Step 4** In the **Tunnel Issues**, click **Detected Issues** to view the VPN configuration reporting errors. You can view the configuration reporting issues .
- Step 5** Select the VPN configuration reporting issues.
- Step 6** In the **Peers** pane on the right, the  icon appears for the peer having the issue. Hover over the  icon to see the issue and resolution.
- Next Step: [Resolve Tunnel Configuration Issues](#).
-

Resolve Tunnel Configuration Issues

This procedure attempts to resolve these tunnel configuration issues:

- When the IP address of a site-to-site VPN interface changes, the "Peer IP Address Value has changed".
- When the IKE value of a VPN tunnel doesn't match the other VPN tunnel, the "IKE value Mismatch" message appears.

See [Find Issues in Tunnel Configuration](#) for more information.

Procedure

- Step 1** In the left pane, click **InventorySecurity Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** Click the appropriate device type tab and select the device associated with the VPN configuration reporting an issue.
- Step 4** [Accept the device changes](#).
- Step 5** In the left pane, click **VPN > ASA/FDM Site-to-Site VPN** to open the VPN page.
- Step 6** Select the VPN configuration reporting this issue.
- Step 7** In the **Actions** pane, click the **Edit** icon.
- Step 8** Click **Next** in each step until you click the **Finish** button in step 4.
- Step 9** [Preview and Deploy Configuration Changes for All Devices, on page 615](#).
-

Search and Filter Site-to-Site VPN Tunnels

Use the filter sidebar  in combination with the search field to focus your search of VPN tunnels presented in the VPN tunnel diagram.

Procedure

-
- Step 1** In the left pane, click **VPN > ASA/FDM Site-to-Site VPNManage > Secure Connections > Network Connections > Site to Site VPN** to open the VPN page.
- Step 2** Click the filter icon  to open the filter pane.
- Step 3** Use these filters to refine your search:
- **Filter by Device**—Click **Filter by Device**, select the device type tab, and check the devices you want to find by filtering.
 - **Tunnel Issues**—Whether or not we have detected either side of the tunnel has issues. Some examples of a device having issues may be but not limited to is: missing associated interface or peer IP address or access list, IKEv1 proposal mismatches, etc. (Detecting tunnel issues is not yet available for AWS VPC VPN tunnels.)
 - **Devices/Services**—Filter by type of device.
 - **Status**—Tunnel status can be active or idle.
 - **Active**—There is an open session where network packets are traversing the VPN tunnel or a successful session was established and hasn't been timed-out yet. Active can assist to indicate that tunnel is active and relevant.
 - **Idle** - Security Cloud Control is unable to discover an open session for this tunnel. The tunnel may either be not in use or there is an issue with this tunnel.
 - **Onboarded** - Devices could be managed by Security Cloud Control or not managed (unmanaged) by Security Cloud Control.
 - **Managed** – Filter by devices that Security Cloud Control manages.
 - **Unmanaged** – Filter by devices that Security Cloud Control does not manage.
 - **Device Types** - Whether or not either side of the tunnel is a live (connected device) or model device.
- Step 4** You can also search the filtered results by device name or IP address by entering that information in the search bar. The search is case-insensitive.
-

Onboard an Unmanaged Site-to-Site VPN Peer

Security Cloud Control will discover a site-to-site VPN tunnel when one of the peers is onboarded. If the second peer is not managed by Security Cloud Control, you can filter the list of VPN tunnels to find the unmanaged device and onboard it:

Procedure

-
- Step 1** In the left pane, click **VPN > ASA/FDM Site-to-Site VPNManage > Secure Connections > Network Connections > Site to Site VPN** to open the VPN page.
- Step 2** Select **Table View**.
- Step 3** Open the filter panel by clicking .
- Step 4** Check **Unmanaged**.
- Step 5** Select a tunnel from the table from the results.
- Step 6** In the **Peers** pane on the right, click **Onboard Device** and follow the instructions on the screen.
-

Related Information:

- [Onboard Devices and Services, on page 165](#)
- [Onboard ASA Device to Security Cloud Control, on page 217](#)

View IKE Object Details of Site-To-Site VPN Tunnels

You can view the details of the IKE objects configured on the peers/devices of the selected tunnel. These details appear in a tree structure in a hierarchy based on the priority of the IKE policy object.



Note Extranet devices don't show the IKE Objects details.

Procedure

-
- Step 1** In the left pane, click **VPN > ASA/FDM Site-to-Site VPNManage > Secure Connections > Network Connections > Site to Site VPN** to open the VPN page.
- Step 2** In the **VPN Tunnels** page, click the name of the VPN tunnel that connects the peers.
- Step 3** Under **Relationships** on the right, expand the object that you want to see its details.
-

View Last Successful Site-to-Site VPN Tunnel Establishment Date

This information typically provides the date and time when the VPN tunnel was last successfully established, ensuring connectivity between the two sites. Accessing this data can help you monitor VPN health and troubleshoot any connectivity issues that might arise.

Procedure

-
- Step 1** In the left pane, click **VPN > ASA/FDM Site-to-Site VPNManage > Secure Connections > Network Connections > Site to Site VPN** to open the VPN page.
- Step 2** The **VPN Tunnels** page displays all the site-to-site VPN tunnels configured across your managed devices. You can click a tunnel to view more details in the right pane.

Note

Use [Search and Filter Site-to-Site VPN Tunnels](#) to find a specific tunnel.

The **Last Active** field shows the date and time the VPN tunnel was successfully established.

View Site-to-Site VPN Tunnel Information

The site-to-site VPN table view is a complete listing of all site-to-site VPN tunnels available across all devices onboarded to Security Cloud Control. A tunnel only exists once in this list. Clicking on a tunnel listed in the table provides an option in the right side bar to navigate directly to a tunnel's peers for further investigation.

In cases where Security Cloud Control does not manage both sides of a tunnel, you can click [Onboard Device](#) to open the main onboarding page and onboard the unmanaged peer. In cases where Security Cloud Control manages both sides of a tunnel, the Peer 2 column contains the name of the managed device. However, in the case of an AWS VPC, the Peer 2 column contains the IP address of the VPN gateway.

To view site-to-site VPN connections in the table view:

Procedure

-
- Step 1** In the left pane, click **VPN > ASA/FDM Site-to-Site VPNManage > Secure Connections > Network Connections > Site to Site VPN** to open the VPN page.
- Step 2** The **VPN Tunnels** page displays all the site-to-site VPN tunnels configured across your managed devices. You can click on a tunnel to view more details in the right pane.

Note

Use [Search and Filter Site-to-Site VPN Tunnels](#) to find a specific tunnel.

Site-to-Site VPN Global View

Procedure

-
- Step 1** In the left pane, click **VPN > ASA/FDM Site-to-Site VPN**.
- Step 2** In the left pane, click **Manage > Secure Connections > Network Connections > Site to Site VPN**.
- Step 3** Click the **Global view** button.

- Step 4** Use [Search and Filter Site-to-Site VPN Tunnels](#) to find a specific tunnel, or zoom into the Global View graphic to find the VPN gateway and its peers that you are looking for.
- Step 5** Select one of the peers represented in the Global View.
- Step 6** Click **View Details**.
- Step 7** Click the other end of the VPN tunnel and Security Cloud Control displays Tunnel Details, NAT Information, and Key Exchange information for that connection:
- **Tunnel Details**-Displays the name and connectivity information about the tunnel. Clicking the Refresh icon updates the connectivity information for the tunnels.
 - **Tunnel Details specific to AWS connections**-Tunnel details for AWS site-to-site connections are slightly different than for other connections. For each connection from the AWS VPC to your VPN gateway, AWS creates two VPN tunnels. This is for high availability.
 - The name of the tunnel represents the name of the VPC your VPN gateway is connected to. The IP address named in the tunnel is the IP address that your VPN gateway knows as the VPC.
 - If the Security Cloud Control Connectivity status shows **active**, the AWS tunnel state is **Up**. If the Security Cloud Control Connectivity state is **inactive**, the AWS tunnel state is **Down**.
 - **NAT Information**-Displays the type of NAT rule being used, original and translated packet information, and provides links to the NAT table to view the NAT rule for that tunnel. (Not yet available for AWS VPC site-to-site VPN.)
 - **Key Exchange**-Displays the cryptographic keys in use by the tunnel and key-exchange issues. (Not yet available for AWS VPC site-to-site VPN.)

Site-to-Site VPN Tunnels Pane

The Tunnels pane displays a list of all the tunnels associated with a particular VPN gateway. For site-to-site VPN connections between your VPN gateway and an AWS VPC, the tunnels pane shows all the tunnels from your VPN gateway to the VPC. Since each site-to-site VPN connection between your VPN gateway and an AWS VPC has two tunnels, you will see double the number of tunnels you normally would for other devices.

VPN Gateway Details

Displays the number of peers connected to the VPN gateway and the IP address of the VPN gateway. This is only visible in the VPN Tunnels page.

View Peer

After you select a site-to-site VPN peer pair, the peers pane lists the two devices in the pair and allows you to click **View Peer** for one of the devices. By clicking **View Peer**, you see any other site-to-site peer that device is associated with. This is visible in the Table view and in the Global view.

Delete a Security Cloud Control Site-To-Site VPN Tunnel

Procedure

-
Step 1	In the left pane, choose VPN> Site-to-Site VPN .
Step 2	In the left pane, click Manage > Secure Connections > Network Connections > Site to Site VPN to open the VPN page.
Step 3	Select the desired site-to-site VPN tunnel that you want to delete.
Step 4	In the Actions pane on the right, click Delete .
-

The selected site-to-site VPN tunnel is deleted.

Introduction to Remote Access Virtual Private Network

Remote Access virtual Private Network (RA VPN) capability enables users to connect to your network from a location outside the physical office premises. This means that they can use a computer or a supported iOS/Android device that is connected to the internet and access your network resources securely. This feature is particularly useful for mobile workers who need to connect from their home network or a public Wi-Fi network while ensuring that their data remains safe and protected.

Related Information:

- [Configure Remote Access Virtual Private Network for ASA, on page 492](#)
- [Configuring Remote Access VPN for an FTD](#)

Introduction to Remote Access Virtual Private Network

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Related Information:

- [Configure Remote Access Virtual Private Network for ASA, on page 492](#)
- [Configuring Remote Access VPN for an FTD](#)

Configure Remote Access Virtual Private Network for ASA

The ASA creates a remote access virtual private network (VPN) by creating a secure connection across a TCP/IP network (such as the Internet) that users see as a private connection. It can create single-user-to-LAN connections and LAN-to-LAN connections.

The secure connection is called a tunnel, and the ASA uses tunneling protocols to negotiate security parameters, create and manage tunnels, encapsulate packets, transmit or receive them through the tunnel, and unencapsulate them. The ASA functions as a bidirectional tunnel endpoint: it can receive plain packets, encapsulate them,

and send them to the other end of the tunnel where they are unencapsulated and sent to their final destination. It can also receive encapsulated packets, unencapsulate them, and send them to their final destination.

Security Cloud Control provides an intuitive user interface for configuring a new remote access Virtual Private Network. It also allows you to quickly and easily configure remote access VPN connection for multiple Adaptive Security Appliance (ASA) devices onboarded in Security Cloud Control.

Security Cloud Control allows you to configure the remote access VPN configuration on ASA devices from scratch. It also allows you to manage the remote access VPN settings that have already been configured using another ASA management tool, such as the Adaptive Security Defense Manager (ASDM) or Cisco Security Manager (CSM). When you onboard an ASA device that already has remote access VPN settings, Security Cloud Control automatically creates a "Default remote access VPN Configuration" and associates the ASA device with this configuration. This default configuration can contain all the connection profile objects that are defined on the device. If you want to understand the RAVPN attributes that are read into Security Cloud Control, see the [Read RA VPN Configuration of an Onboarded ASA Device](#) section. Otherwise, you can start performing steps described in the "End-to-End Remote Access VPN Configuration Process for ASA" section.

Related Information:

- [End-to-End Remote Access VPN Configuration Process for ASA](#)
 - [Create ASA Remote Access VPN Configuration, on page 506](#)
 - [Configure ASA Remote Access VPN Connection Profile, on page 510](#)
- [Read RA VPN Configuration of an Onboarded ASA Device](#)
- [Exempt Remote Access VPN Traffic from NAT, on page 524](#)
- [Verify Remote Access VPN Configuration of ASA](#)
- [View Remote Access VPN Configuration Details of ASA](#)

End-to-End Remote Access VPN Configuration Process for ASA

This section provides the end-to-end procedure for configuring remote access VPN on an ASA device onboarded to Security Cloud Control.

To enable remote access VPN for your clients, you need to configure several separate items. The following procedure provides the end-to-end process.

Procedure

Step 1 Configure the identity source used for authenticating remote users.

You can use the following sources to authenticate users attempting to connect to your network using remote access VPN. Additionally, you can use client certificates for authentication, either alone or in conjunction with an identity source.

- **Local Identity Source** (the local user database): As a primary or fallback source. You can define users directly on the device and not use an external server. If you use the local database as a fallback source, ensure that you define the same usernames/passwords as the ones described in the external server. **Note:** You can create user accounts directly on the ASA device only from the Adaptive Security Device Manager (ASDM). See the "Configure Local User Groups" section in the Objects for Access Control" chapter of the [Cisco ASA Series Firewall ASDM Configuration Guide, X.Y.](#)

- Step 2** [Create ASA Remote Access VPN Configuration, on page 506.](#)
- Step 3** [Configure ASA Remote Access VPN Connection Profile, on page 510.](#)
- Step 4** (optional) [Exempt Remote Access VPN Traffic from NAT, on page 524.](#)
- Step 5** [Review and deploy configuration changes to the devices.](#)

Important

If you change the Remote Access VPN configuration by using a local manager like Adaptive Security Device Manager (ASDM), the **Configuration Status** of that device in Security Cloud Control shows "Conflict Detected". See [Out-of-Band Changes on an ASA Device](#). You can [Resolve Configuration Conflicts](#) on this ASA.

What to do next**Next Steps**

Once the remote access VPN configuration is downloaded to the ASA devices, the users can connect to your network from a remote location using a computer or other supported iOS or Android device connected to the Internet. You can monitor live AnyConnect remote access VPN sessions from all onboarded ASA remote access VPN head-ends in your tenant.

Configure Identity Sources for ASA

Identity sources, such as Microsoft Active Directory (AD) realms and RADIUS Servers, are AAA servers and databases that define user accounts for the people in your organization. You can use this information in a variety of ways, such as providing the user identity associated with an IP address or authenticating remote access VPN connections or access to Security Cloud Control.

Click **Manage > Objects**, then click ()>**Identity Source** to create your sources. You would then use these objects when you configure the services that require an identity source. You can apply appropriate filters to search existing sources and manage them.

Determining the Directory Base DN

When you configure directory properties, you need to specify the common base distinguished name (DN) for users and groups. The base is defined in your directory server and differs from network to network. You must enter the correct bases for identity policies to work. If the base is wrong, the system cannot determine user or group names, and thus identity-based policies will be inoperable.



Note To get the correct bases, consult the administrator who is responsible for the directory servers.

For an active directory, you can determine the correct bases by logging into the Active Directory server as a domain administrator, and using the **dsquery** command at a command prompt as follows to determine the bases:

User search base

Enter the **dsquery user** command with known username (partial or complete) to determine the base distinguished name. For example, the following command uses the partial name "John*" to return information for all users that start with "John."

```
C:\Users\Administrator>dsquery user -name "John*"
```

```
"CN=John Doe,CN=Users,DC=csc-lab,DC=example,DC=com"
```

The base DN would be "DC=csc-lab,DC=example,DC=com."

Group search base

Enter the **dsquery group** command with a known group name to determine the base distinguished name. For example, the following command uses the group name Employees to return the distinguished name:

```
C:\>dsquery group -name "Employees"
```

```
"CN=Employees,CN=Users,DC=csc-lab,DC=example,DC=com"
```

The group base DN would be "DC=csc-lab,DC=example,DC=com."

You can also use the ADSI Edit program to browse the Active Directory structure (**Start > Run > adsiedit.msc**). In ADSI Edit, right-click any object, such as an organizational unit (OU), group, or user, and choose **Properties** to view the distinguished name. You can then copy the string of DC values as the base.

To verify that you have the correct base:

Procedure

-
Step 1	Click the Test Connection button in the directory properties to verify connectivity. Resolve any problems, and save the directory properties.
Step 2	Commit changes to the device.
Step 3	Create an access rule, select the Users tab, and try to add known user and group names from the directory. You should see auto-complete suggestions as you type for matching users and groups in the realm that contains the directory. If these suggestions appear in a drop-down list, then the system was able to query the directory successfully. If you see no suggestions, and you are certain the string you typed should appear in a user or group name, you need to correct the corresponding search base.
-

What to do next

See [Create or Edit an ASA Active Directory Realm Object](#) for more information.

RADIUS Servers and Groups

You can use RADIUS servers to authenticate and authorize administration users. When you configure a feature to use RADIUS servers, you select a RADIUS group instead of individual servers. A RADIUS group is a collection of RADIUS servers that are copies of each other. If a group has more than one server, they form a chain of backup servers to provide redundancy in case one server becomes unavailable. But even if you have only one server, you must create a one-member group to configure RADIUS support for a feature.

You can use this source for the following purposes:

- Remote Access VPN, as an identity source for authentication, and for authorization and accounting. You can use AD in conjunction with a RADIUS server.
- Identity policy, as a passive identity source to collect user identity from remote access VPN logins.

See [Create and Edit an Adaptive Security Appliance RADIUS Server Object or Group](#) for more information.

Create an ASA Active Directory Realm Object

When you create or edit an identity source object such as an AD realm object, Security Cloud Control sends the configuration request to the ASA devices through the SDC. The ASA then communicates with the configured AD realm.

Use the following procedure to create an object:

Procedure

Step 1 In the left pane, click **Manage > Objects**.



Step 2 Click **Create Object** () **RA VPN Objects (ASA & FDM) > Identity Source**.

Step 3 Enter an **Object Name** for the object.

Step 4 Select the **Device Type** as **ASA**.

Step 5 In the first part of the wizard, select **Active Directory Realm** as the **Identity Source Type**. Click **Continue**.

Step 6 Configure the basic realm properties.

- **Directory Username, Directory Password** - The distinguished username and password for a user with appropriate rights to the user information you want to retrieve. For Active Directory, the user does not need elevated privileges. You can specify any user in the domain. The username must be fully qualified; for example, Administrator@example.com (not simply Administrator).

Note

The system generates ldap-login-dn and ldap-login-password from this information. For example, Administrator@example.com is translated as cn=admin, cn=users, dc=example, dc=com. Note that cn=users is always part of this translation, so you must configure the user you specify here under the common name “users” folder.

- **Base Distinguished Name** - The directory tree for searching or querying user and group information, that is, the common parent for users and groups. For example, cn=users, dc=example, dc=com.

Step 7 Configure the directory server properties.

- **Hostname/IP Address**—The hostname or IP address of the directory server. If you use an encrypted connection to the server, you must enter the fully-qualified domain name, not the IP address.
- **Port**—The port number used for communications with the server. The default is 389. Use port 636 if you select LDAPS as the encryption method.
- **Encryption**—To use an encrypted connection for downloading user and group information, select **LDAPS** to use SSL to secure communications between the ASA and the LDAP server. It requires LDAP over SSL. Use port 636.

The default is **None**, which means that user and group information is downloaded in clear text.

Step 8 (Optional) Use the **Test** button to validate the configuration.

Step 9 (Optional) Click **Add another configuration** to add multiple Active Directory (AD) servers to the AD realm. The AD servers need to be duplicates of each other and support the same AD domain. Therefore, the basic

realm properties such as **Directory name**, **Directory Password**, and **Base Distinguished Name** must be the same across all AD servers associated with that AD realm.

Step 10 Click **Add**.

Edit an ASA Active Directory Realm Object

Note that you cannot change the Identity Source Type when editing an Identity source object. You must create a new object with the correct type.

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object you want to edit by using object filters and search field.
- Step 3** Select the object you want to edit.
- Step 4** Click the edit icon  in the **Actions** pane of the details panel.
- Step 5** Edit the values in the dialog box in the same fashion that you created in the procedures above. Expand the configuration bar listed below to edit or test the hostname/IP address or encryption information.
- Step 6** Click **Save**.
- Step 7** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- Step 8** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Create an ASA RADIUS Server Object or Group

When you create or edit an identity source object such as a RADIUS server object or a group of RADIUS server objects, Security Cloud Control sends the configuration request to ASA devices through the SDC.

Create an ASA RADIUS Server Object

RADIUS servers provide AAA (authentication, authorization, and accounting) services.

Use the following procedure to create an object:

Procedure

- Step 1** In the Security Cloud Control platform menu, choose **Products > Firewall**.
- Step 2** In the left pane, click **Manage > Objects**.
- Step 3** Click **Create Object** () > **RA VPN Objects (ASA & FDM) > Identity Source**.
- Step 4** Enter an **Object name** for the object.
- Step 5** Select the **Device Type** as **ASA**.
- Step 6** Select **RADIUS Server** as the **Identity Source Type**. Click **Continue**.
- Step 7** Edit the Identity Source configuration with the following properties:

- **Server Name or IP Address** - The fully-qualified host name (FQDN) or IP address of the server.
- **Authentication Port** (Optional) - The port on which RADIUS authentication and authorization are performed. The default is 1812.
- **Timeout** - The length of time, 1-300 seconds, that the system waits for a response from the server before sending the request to the next server. The default is 10 seconds.
- Enter the **Server Secret Key**(Optional) - The shared secret that is used to encrypt data between the ASA device and the RADIUS server. The key is a case-sensitive, alphanumeric string of up to 64 characters, with no spaces. The key must start with an alphanumeric character or an underscore, and it can contain the special characters: \$ & - _ . + @. The string must match the one configured on the RADIUS server. If you do not configure a secret key, the connection is not encrypted.

Step 8 Click **Add**.

Step 9 [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Create an ASA RADIUS Server Group

A RADIUS server group contains one or more RADIUS server objects. The servers within a group must be copies of each other. These servers form a chain of backup servers, so that if the first server is unavailable, the system can try the next server in the list.

Use the following procedure to create an object group:

Procedure

Step 1 In the left pane, click **Manage > Objects**.

Step 2 Click **Create Object** () **RA VPN Objects (ASA & FDM) Identity Source**.

Step 3 Enter an **Object name** for the object.

Step 4 Select the **Device Type** as **ASA**.

Step 5 Select **RADIUS Server Group** as the Identity Source Type. Click **Continue**.

Step 6 Edit the Identity Source configuration with the following properties:

- **Dead Time** - Failed servers are reactivated only after all servers have failed. The dead time is how long to wait after the last server fails before reactivating all servers.
- **Maximum Failed Attempts** - The number of failed requests (that is, requests that do not get a response) sent to a RADIUS server in the group before trying the next server. When the maximum number of failed attempts is exceeded, the system marks the server as Failed. For a given feature, if you configured a fallback method using the local database, and all the servers in the group fail to respond, then the group is considered to be unresponsive, and the fallback method is tried. The server group remains marked as unresponsive for the duration of the dead time so that additional AAA requests within that period do not attempt to contact the server group, and the fallback method is used immediately.
- **Dynamic Authorization/Port** (Optional) - If you enable RADIUS dynamic authorization or change of authorization (CoA) services for this RADIUS server group, the group will be registered for CoA notification and listen on the specified port for CoA policy updates from Cisco Identity Services Engine

(ISE). Enable dynamic authorization only if you are using this server group in a remote access VPN in conjunction with ISE.

- Step 7** Select an AD realm that supported the RADIUS server from the drop-down menu. If you have not already created an AD realm, click **Create** from inside the drop-down menu.
- Step 8** Click the **RADIUS SERVER Add** button  to add existing RADIUS server objects. Optionally, you can create a new RADIUS server object from this window if necessary.
- Note**
Add these objects in priority, as the first server in the list is used until it is unresponsive. ASA then defaults to the next server in the list.
- Step 9** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Edit an ASA Radius Server Object or Group

Use the following procedure to edit a Radius server object or Radius server group:

Procedure

- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object you want to edit by using object filters and search field.
- Step 3** Select the object you want to edit.
- Step 4** Click the edit icon  in the **Actions** pane of the details panel.
- Step 5** Edit the values in the dialog box in the same fashion that you created them in the procedures above. To edit or test the hostname/IP address or encryption information, expand the configuration bar.
- Step 6** Click **Save**.
- Step 7** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- Step 8** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Create ASA Remote Access VPN Group Policies

A group policy is a set of user-oriented attribute/value pairs for remote access VPN connections. The connection profile uses a group policy that sets terms for user connections after the tunnel is established. Group policies let you apply whole sets of attributes to a user or a group of users, rather than having to specify each attribute individually for each user.

The system includes a default group policy named "DfltGrpPolicy". You can create additional group policies to provide the services you require.



Note You cannot add inconsistent group policy objects to remote access VPN configuration. Resolve all inconsistencies before adding the group policy to the remote access VPN Configuration.

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  > **RA VPN Objects (ASA & FDM) > RA VPN Group Policy**.
- Step 3** Enter a name for the group policy. The name can be up to 64 characters and spaces are allowed.
- Step 4** In the **Device Type** drop-down, select **ASA**.
- Step 5** Do any of the following:
- Click the required tabs and configure the attributes on the page:
 - [General Attributes](#)
 - [AnyConnect Client Profiles](#), on page 500
 - [Session Setting Attributes](#), on page 501
 - [Address Assignment Attributes](#), on page 502
 - [Split Tunneling Attributes](#), on page 502
 - [AnyConnect Attributes](#), on page 503
 - [Traffic Filters Attributes](#), on page 505
 - [Windows Browser Proxy Attributes](#), on page 505
- Step 6** Click **Save** to create the group policy.
-

ASA Remote Access VPN Group Policy Attributes

The section describes the attributes associated with the ASA remote access VPN group policy.

General Attributes

The general attributes of a group policy define the name of the group and some other basic settings.

- **DNS Server:** Enter the IP address(s) of DNS servers for domain name resolution when connected to the VPN. You can separate the addresses using a comma.
- **Banner:** The banner text, or welcome message, to present to users at login. The default is no banner. The length can be up to 496 characters. The AnyConnect client supports partial HTML. To ensure that the banner displays properly to remote users, use the
 tag to indicate line breaks.
- **Default Domain:** The default domain name for users in the remote access VPN. For example, example.com. This domain is added to hostnames that are not fully-qualified, for example, serverA instead of serverA.example.com.

AnyConnect Client Profiles

This feature is supported on FTD running software version 6.7 or later versions.

Cisco AnyConnect VPN client offers enhanced security through various built-in modules. These modules provide services such as web security, network visibility into endpoint flows, and off-network roaming protection. Each client module includes a client profile that includes a group of custom configurations as per your requirement.

You can select the AnyConnect VPN profile object and AnyConnect modules to be downloaded to clients when the VPN user downloads the VPN AnyConnect client software.

1. Choose or create an AnyConnect VPN profile object. See [Upload RA VPN AnyConnect Client Profile, on page 527](#). Except for DART and Start Before Login modules, the AnyConnect VPN profile object must be selected.
2. Click **Add Any Connect Client Module**.

The following AnyConnect modules are optional and you can configure these modules to be downloaded with VPN AnyConnect client software:

- **AMP Enabler** — Deploys advanced malware protection (AMP) for endpoints.
- **DART** — Captures a snapshot of system logs and other diagnostic information and creates a .zip file on your desktop so you can conveniently send troubleshooting information to Cisco TAC.
- **Feedback** — Provides information about the features and modules customers have enabled and used.
- **ISE Posture** — Uses the OPSWAT library to perform posture checks to assess an endpoint's compliance.
- **Network Access Manager** — Provides 802.1X (Layer 2) and device authentication to access both wired and wireless networks.
- **Network Visibility** — Enhances the enterprise administrator's ability to do capacity and service planning, auditing, compliance, and security analytics.
- **Start Before Login** — Forces the user to connect to the enterprise infrastructure over a VPN connection before logging on to Windows by starting AnyConnect before the Windows login dialog box appears.
- **Umbrella Roaming Security** — Provides DNS-layer security when no VPN is active.
- **Web Security** — Analyzes the elements of a web page, allows acceptable content, and blocks malicious or unacceptable content based on a defined security policy.

3. In the **Client Module** list, select an **AnyConnect module**.
4. In the **Profile** list, choose or create a profile object containing an AnyConnect Client Profile.
5. Select **Enable Module Download** to enable endpoints to download the client module along with the profile. If not selected, the endpoints can download only the client profile.

Session Setting Attributes

The session settings of a group policy control how long users can connect through the VPN and how many separate connections they can establish.

- **Maximum Connection Time**: The maximum length of time, in minutes, that users can stay connected to the VPN without logging out and reconnecting, from 1- 4473924 or blank. The default is unlimited (blank), but the idle timeout still applies.

- **Connection Time Alert Interval:** If you specify a maximum connection time, the alert interval defines the amount of time before the maximum time is reached to display a warning to the user about the upcoming automatic disconnect. The user can choose to end the connection and reconnect to restart the timer. The default is 1 minute. You can specify 1 to 30 minutes.
- **Idle Time:** The length of time, in minutes, that the VPN connection can be idle before it is automatically closed, from 1-35791394. If there is no communication activity on the connection for this consecutive number of minutes, the system stops the connection. The default is 30 minutes.
- **Idle Time Alert Interval:** The amount of time before the idle time is reached to display a warning to the user about the upcoming automatic disconnect due to an idle session. Any activity resets the timer. The default is 1 minute. You can specify 1 to 30 minutes.
- **Simultaneous Login Per User:** The maximum number of simultaneous connections allowed for a user. The default is 3. You can specify 1 to 2147483647 connections. Allowing many simultaneous connections might compromise security and affect performance.

Address Assignment Attributes

The address assignment attributes of a group policy define the IP address pool for the group. The pool defined here overrides the pool defined in any connection profile that uses this group. Leave these settings blank if you want to use the pool defined in the connection profile.

- **IPv4 Address Pool, IPv6 Address Pool:** These options define the address pools for the remote endpoints. Clients are assigned an address from these pools based on the IP version they use to make the VPN connection. Select the IP address pool that defines a subnet for each IP type you want to support. Leave the list empty if you do not want to support that IP version. For example, you could define an IPv4 pool as 10.100.10.0/24. The address pool cannot be on the same subnet as the IP address for the outside interface.
- **DHCP Scope:** If you configure DHCP servers for the address pool in the connection profile, the DHCP scope identifies the subnets to use for the pool for this group. The DHCP server must also have addresses in the same pool identified by the scope. The scope allows you to select a subset of the address pools defined in the DHCP server to use for this specific group. If you do not define a network scope, the DHCP server assigns IP addresses in the order of the address pools configured. It goes through the pools until it identifies an unassigned address. To specify a scope, enter the network object that contains the network number host address. For example, to tell the DHCP server to use addresses from the 192.168.5.0/24 subnet pool, enter a network object that specifies 192.168.5.0 as a host address. You can use DHCP for IPv4 addressing only.

Split Tunneling Attributes

The split tunneling attributes of a group policy define how the system should handle traffic meant for the internal network vs. externally-directed traffic. Split tunneling directs some network traffic through the VPN tunnel (encrypted) and the remaining network traffic outside the VPN tunnel (unencrypted or in clear text).

Typically, in remote access VPN, you might want the VPN users to access the Internet through your device. However, you can allow your VPN users to access an outside network while they are connected to an remote access VPN. This technique is called split tunneling or hair pinning. The split tunnel allows VPN connectivity to a remote network across a secure tunnel, and it also allows connectivity to a network outside the VPN tunnel. Split tunneling reduces the network load on the FTD devices and increases the bandwidth on the outside interface.

Before you begin

For creating a split tunnel policy for IPv4 networks and another for IPv6 networks, the access-list you specify is used for both protocols. So, the access-list should contain access control entries (ACEs) for both IPv4 and IPv6 traffic.

When an ASA device is onboarded to Security Cloud Control, it reads the extended ACLs associated with the device. See [Split Tunnel Configuration](#) for more information. If you want to create new ACLs, see [ASA Lists](#) to create them.



Note Ensure that you specify the network intended for split tunneling as the source network in the ACL you are creating.

- **IPv4 Split Tunneling, IPv6 Split Tunneling:** You can specify different options based on whether the traffic uses IPv4 or IPv6 addresses, but the options for each are the same. If you want to enable split tunneling, specify one of the options that require you to select network objects.
 - **Allow all traffic over tunnel:** Do no split tunneling. Once the user makes an remote access VPN connection, all the user's traffic goes through the protected tunnel. This is the default. It is also considered the most secure option.
 - **Allow specified traffic over the tunnel:** Select the extended access list that defines the source network. Any traffic from these sources goes through the protected tunnel. The client routes traffic from any other source to connections outside the tunnel (such as a local Wi-Fi or network connection).
 - **Exclude networks specified below:** Select the network objects that define the source network. The client routes any traffic from these sources to connections outside the tunnel. Traffic from any other source goes through the tunnel.
 - **Network List:** Select the extended ACL network that can have both IPv4 and IPv6 networks.
- **Split DNS:** You can configure the system to send some DNS requests through the secure connection while allowing the client to send other DNS requests to the DNS servers configured on the client. You can configure the following DNS behavior:
 - **Send DNS Request as per split tunnel policy:** With this option, DNS requests are handled the same way as the split tunnel options are defined. If you enable split tunneling, DNS requests are sent based on the destination addresses. If you do not enable split tunneling, all DNS requests go over the protected connection.
 - **Always send DNS requests over tunnel:** Select this option if you enable split tunneling, but you want all DNS requests sent through the protected connection to the DNS servers defined for the group.
 - **Send only specified domains over tunnel:** Select this option if you want your protected DNS servers to resolve addresses for certain domains only. Then, specify those domains, separating domain names with commas. For example, example.com, example1.com. Use this option if you want your internal DNS servers to resolve names for internal domains, while external DNS servers handle all other Internet traffic.

AnyConnect Attributes

The AnyConnect attributes of a group policy define some SSL and connection settings used by the AnyConnect client for a remote access VPN connection.

- **SSL Settings**

- **Enable Datagram Transport Layer Security (DTLS):** Whether to allow the AnyConnect client to use two simultaneous tunnels: an SSL tunnel and a DTLS tunnel. Using DTLS avoids latency and bandwidth problems associated with some SSL connections and improves the performance of real-time applications that are sensitive to packet delays. If you do not enable DTLS, AnyConnect client users establishing SSL VPN connections connect with an SSL tunnel only.
- **DTLS Compression:** Whether to compress Datagram Transport Layer Security (DTLS) connections for this group using LZS. DTLS Compression is disabled by default.
- **SSL Compression:** Whether to enable data compression, and if so, the method of data compression to use, **Deflate**, or **LZS**. SSL Compression is **Disabled** by default. Data compression speeds up transmission rates but also increases the memory requirement and CPU usage for each user session. Therefore, SSL compression decreases the overall throughput of the device.
- **SSL Rekey Method, SSL Rekey Interval:** The client can rekey the VPN connection, renegotiating the crypto keys and initialization vectors, to increase the security of the connection. Disable rekeying by selecting **None**. To enable rekey, select **New Tunnel** to create a new tunnel each time. (The **Existing Tunnel** option results in the same action as **New Tunnel**.) If you enable rekeying, also set the rekey interval, which is 4 minutes by default. You can set the interval to 4-10080 minutes (1 week).

- **Connection Settings**

- **Ignore the DF (Don't Fragment) bit:** Whether to ignore the Don't Fragment (DF) bit in packets that need fragmentation. Select this option to allow the forced fragmentation of packets that have the DF bit set, so that these packets can pass through the tunnel.
- **Client Bypass Protocol:** Allows you to configure how the secure gateway manages IPv4 traffic (when it is expecting only IPv6 traffic), or how it manages IPv6 traffic (when it is expecting only IPv4 traffic).

When the AnyConnect client makes a VPN connection to the headend, the headend assigns it an IPv4, IPv6, or both an IPv4 and IPv6 address. If the headend assigns the AnyConnect connection only an IPv4 address or only an IPv6 address, you can configure the Client Bypass Protocol to drop network traffic for which the headend did not assign an IP address (default, disabled, not checked), or allow that traffic to bypass the headend and be sent from the client unencrypted or "in the clear" (enabled, checked).

For example, assume that the secure gateway assigns only an IPv4 address to an AnyConnect connection and the endpoint is dual-stacked. When the endpoint attempts to reach an IPv6 address, if Client Bypass Protocol is disabled, the IPv6 traffic is dropped; however, if Client Bypass Protocol is enabled, the IPv6 traffic is sent from the client in the clear.

- **MTU:** The maximum transmission unit (MTU) size for SSL VPN connections established by the Cisco AnyConnect VPN Client. The default is 1406 bytes. The range is 576 to 1462 bytes.
 - **Keepalive Messages Between AnyConnect and VPN Gateway:** Whether to exchange keepalive messages between peers to demonstrate that they are available to send and receive data in the tunnel. Keepalive messages transmit at set intervals. The default interval is 20 seconds, and the valid range is 15 to 600 seconds.
 - **DPD on Gateway Side Interval, DPD on Client Side Interval:** Enable Dead Peer Detection (DPD) to ensure that the VPN gateway or VPN client quickly detects when the peer is no longer

responding. You can separately enable gateway or client DPD. The default interval is 30 seconds for sending DPD messages. The interval can be 5-3600 seconds.

Traffic Filters Attributes

The traffic filter attributes of a group policy define restrictions you want to place on users assigned to the group. You can use these attributes instead of creating access control policy rules to restrict remote access VPN users to specific resources, based on host or subnet address and protocol, or VLAN. By default, remote access VPN users are not restricted by the group policy from accessing any destination on your protected network.

- **Access List Filter:** Restrict access using an extended access control list (ACL). Select the Smart CLI Extended ACL object. The extended ACL lets you filter based on source address, a destination address, and protocol (such as IP or TCP). ACLs are evaluated on a top-down, first-match basis, so ensure that you place specific rules before more general rules. There is an implicit "deny any" at the end of the ACL, so if you intend to deny access to a few subnets while allowing all other access, ensure that you include a "permit any" rule at the end of the ACL. Because you cannot create network objects while editing an extended ACL Smart CLI object, you should create the ACL before editing the group policy. Otherwise, you might need to simply create the object, then go back later to create the network objects and then all the access control entries that you need. To create the ACL, log in to FDM, go to **Device > Advanced Configuration > Smart CLI > Objects**, create an object, and select **Extended Access List** as the object type.
- **Restrict VPN to VLAN:** Also called "VLAN mapping," this attribute specifies the egress VLAN interface for sessions to which this group policy applies. The system forwards all traffic from this group to the selected VLAN. Use this attribute to assign a VLAN to the group policy to simplify access control. Assigning a value to this attribute is an alternative to using an ACL to filter traffic on a session. Ensure that you specify a VLAN number that is defined on a subinterface on the device. Values range from 1 to 4094.

Windows Browser Proxy Attributes

The Windows browser proxy attributes of a group policy determine how, and whether, a proxy defined on the user's browser operates.

You can select one of the following values for **Browser Proxy During VPN Session**:

- **No change in endpoint settings:** Allow the user to configure (or not configure) a browser proxy for HTTP and use the proxy if it is configured.
- **Disable browser proxy:** Do not use the proxy defined for the browser, if any. No browser connections will go through the proxy.
- **Auto detect settings:** Enable the use of automatic proxy server detection in the browser for the client device.
- **Use custom settings:** Define a proxy that should be used by all client devices for HTTP traffic. Configure the following settings:
 - **Proxy Server IP or Hostname, Port:** The IP address, or hostname, of the proxy server, and the port used for proxy connections by the proxy server. The host and port combined cannot exceed 100 characters.

- **Browser Proxy Exemption List:** Connections to the hosts/ports in the exemption list do not go through the proxy. Add all the host/port values for destinations that should not use the proxy. For example, www.example.com port 80. Click **Add proxy exemption** to add items to the list. Click the trash can icon to delete items. The entire proxy exception list, combining all addresses and ports, cannot be longer than 255 characters.

Create ASA Remote Access VPN Configuration

Security Cloud Control allows you to add one or more Adaptive Security Appliance (ASA) devices to the remote access VPN configuration wizard and configure the VPN interfaces, access control, and NAT exemption settings associated with the devices. Therefore, each remote access VPN configuration can have connection profiles and group policies shared across multiple ASA devices that are associated with the remote access VPN configuration. Further, you can enhance the configuration by creating connection profiles and group policies.

You can either onboard an ASA device that has already been configured with remote access VPN settings or a new device without remote access VPN settings. See [Onboard ASA Device to Security Cloud Control, on page 217](#). When you onboard an ASA device that already has remote access VPN settings, Security Cloud Control automatically creates a "Default remote access VPN Configuration" and associates the ASA device with this configuration. Also, this default configuration can contain all the connection profile objects that are defined on the device. See [Read RA VPN Configuration of an Onboarded ASA Device](#) for more information. Security Cloud Control allows you to delete the default configuration.



Important

- You are not allowed to add ASA and FTD in the same Remote Access VPN Configuration.
- An ASA device cannot have more than one remote access VPN Configuration.

Before you begin

Before adding the ASA device to the remote access VPN configuration, the following prerequisites must be met on the ASA device:

- License requirements.

Device must be enabled for export-controlled functionality.

To view the license summary of your ASA device, execute the `show license summary` command in the ASA command-line interface. To use the Security Cloud Control ASA CLI interface, see [Use the command line interface](#).

- Example of export-controlled functionality enabled in the license summary :

```
Registration: Status: REGISTERED Smart Account: Cisco SVS temp-request access
licensing@cisco.com Export-Controlled Functionality: ALLOWED
```

```
Last Renewal Attempt: None
```

```
Next Renewal Attempt: Jun 08 2021 09:46:22 UTC
```

The 'Export-Controlled Functionality' property must be in the 'Allowed' state for creating or editing the VPN configuration.

If this property is in the 'Not Allowed' state, Security Cloud Control displays an error message ('remote access VPN cannot be configured for devices which are not export compliant.') when you are creating or modifying the VPN configuration and doesn't allow remote access VPN configuration on the device.

- Device Identity Certificates.

Certificates are required to authenticate connections between the clients and the ASA device. Before starting the VPN configuration, ensure that the identity certificate is already present on the ASA device.

To determine whether or not the certificate is present on the device, execute the **show crypto CA Certificates** command in the ASA command-line interface. To use the Security Cloud Control ASA CLI interface, see [ASA Command Line Interface, on page 415](#).

If the identity certificate is not present or you want to enroll in a new certificate, install them on ASA using Security Cloud Control. See [ASA Certificate Management](#).

The usage of digital certificates in remote access VPN context is explained in [Remote Access VPN Certificate-Based Authentication, on page 524](#).

- Outside interfaces.

The outside interfaces must be configured already on the ASA device. **You need to use either ASDM or ASA CLI to configure interfaces.** To know configure interfaces using ASDM, see the "Interfaces" book of the [Cisco ASA Series General Operations CLI Configuration Guide, X.Y.](#)

- Download the AnyConnect packages and upload them to a remote server. Later, use the remote access VPN wizard or ASA File Management wizard to upload the AnyConnect software packages from the server to ASAs. See [Manage AnyConnect Software Packages on an ASA Device](#) for instructions.

- There are no configuration deployments pending.

- If you are using the local database for authentication Add user accounts to the local database using ASDM or ASA CLI.

To add user accounts using ASDM, see the "Add a User Account to the Local Database" section in the "AAA Servers and the Local Database" book of the [Cisco ASA Series VPN CLI Configuration Guide, X.Y.](#)

To add user accounts using ASA CLI, execute **username[username] password [password] privilege [priv_level]** command.

- ASA changes are synchronized to Security Cloud Control.

1. In the left pane, click **Security Devices** and search for one or more ASA devices to be synchronized.
2. Select one or more devices and then click **Check for changes**. Security Cloud Control communicates with one or more FTD devices to synchronize the changes.

- Remote access VPN configuration group policy objects are consistent.

- Ensure that all inconsistent group policy objects are resolved as they cannot be added to the remote access VPN configuration. Either address the issue or remove inconsistent group policy objects from the **Objects** page. For more information see, [Resolve Duplicate Object Issues](#) and [Resolve Inconsistent Object Issues](#).

Procedure

- Step 1** [Onboard ASA Device to Security Cloud Control, on page 217.](#)
- Step 2** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- Step 3** Click the blue plus  button to create a new remote access VPN configuration.
- Step 4** Enter a name for the Remote Access VPN configuration.
- Step 5** Click the blue plus  button to add ASA devices to the configuration.
- You can add the device details and configure network traffic-related permissions that are associated with the device.

a. Provide the following device details:

- **Device:** Select an ASA device that you want to add and click **Select**. **Important:** You are not allowed to add ASA and FTD in the same Remote Access VPN Configuration.
- **Certificate of Device Identity:** Select the internal certificate used for establishing the identity of the device. This establishes the device identity for AnyConnect clients when they make a connection to the device. Clients must accept this certificate to complete a secure VPN connection.
- **Outside Interface:** Select the interface to which users connect when making the remote access VPN connection. Although this is normally the outside (internet-facing) interface, choose whichever interface is between the device and the end-users you are supporting with this connection profile.

Attention

You cannot create or modify remote access VPN configuration for devices that are not export compliant. You must license the ASA device with export-controlled functionality enabled and try again.

b. Click **Continue** to configure the traffic permissions.

- **Bypass Access Control policy for decrypted traffic (sysopt permit-vpn):** Decrypted traffic is subjected to Access Control Policy inspection by default. Enabling this option bypasses the decrypted traffic option bypasses the access control policy inspection, but the VPN Filter ACL and the authorization ACL downloaded from the AAA server are still applied to VPN traffic.

Note that if you select this option, the system configures the sysopt connection permit-vpn command, which is a global setting. This will also impact the behavior of site-to-site VPN connections.

If you do not select this option, it might be possible for external users to spoof IP addresses in your remote access VPN address pool, and thus gain access to your network. This can happen because you will need to create access control rules that allow your address pool to have access to internal resources. If you use access control rules, consider using user specifications to control access, rather than source IP address alone.

The downside of selecting this option is that the VPN traffic will not be inspected, which means that intrusion and file protection, URL filtering, or other advanced features will not be applied to the traffic. This also means that no connection events will be generated for the traffic, and thus statistical dashboards will not reflect VPN connections.

- **NAT Exempt:** NAT exemption exempts addresses from translation and allows both translated and remote hosts to initiate connections with your protected hosts. Configure NAT Exempt to exempt traffic to and from the remote access VPN endpoints from NAT translation. See [Exempt Remote Access VPN Traffic from NAT, on page 524](#).

c. Click **OK**.

The **AnyConnect Packages Detected** shows the AnyConnect packages that are already available on the device.

There are two options to upload AnyConnect package to ASA from remote access VPN wizard:

- (Option 1): Select a package from Security Cloud Control's repository. The ASA must have access to the internet.
- (Option 2): Specify the ftp/http/https/scp/smb/tftp URL location where the AnyConnect package is preloaded.

See [Upload new AnyConnect Software Packages](#) for instructions.

Note

Note: If you want to replace an existing package, see [Replace an Existing AnyConnect Package](#).

Step 6 Click **OK**.

The ASA VPN configuration is created.

Modify ASA Remote Access VPN Configuration

You can modify the name and the device details of an existing remote access VPN configuration.

Procedure

Step 1 Select the configuration to be modified and under **Actions**, click **Edit**.

- Modify the name if required.
- Click the blue plus  button to add a new device
- Click  to perform the following on the ASA device.
 - Click **Edit** to modify the existing remote access VPN configuration.
 - Click **Remove** to remove the ASA device from the remote access VPN configuration. All connection profiles and remote access VPN settings associated with that device except the group policies are deleted. You can remove the group policies explicitly from the objects page.

Note

You cannot remove the ASA if that is the only device using the configuration. Alternatively, you can remove the remote access VPN configuration.

Step 2 [Deploy Configuration Changes.](#)**What to do next**

You can also search for remote access VPN configuration by typing the name of the configuration or device.

Related Information:

- [Configure ASA Remote Access VPN Connection Profile, on page 510.](#)

Configure ASA Remote Access VPN Connection Profile

A Remote Access VPN connection profile defines the characteristics that allow external users to create a VPN connection to the system using the AnyConnect client. Each profile defines the AAA servers and certificates used for authenticating users, the address pools for assigning users IP addresses, and the group policies that define various user-oriented attributes.

You can create multiple profiles within the remote access VPN configuration if you need to provide variable services to different user groups, or if you have various authentication sources. For example, if your organization merges with a different organization that uses different authentication servers, you can create a profile for the new group that uses those authentication servers.

A remote access VPN connection profile allows your users to connect to your inside networks when they are on external networks, such as their home network. Create separate profiles to accommodate different authentication methods.

Before you begin

[Create ASA Remote Access VPN Configuration, on page 506.](#)

Procedure

- Step 1** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**. You can click a VPN configuration to view the summary information on how many connection profiles and group policies are currently configured.

Note

To know the group policies assigned to the device, in **Actions**, click **Group Policies**. Group Policies assigned to connection profiles are automatically added to the list and cannot be removed.

- Step 2** Click the connection profile and under **Actions** in the sidebar at the right, click **Add Connection Profile**.

- Step 3** Configure the basic connection attributes.

- **Connection Profile Name:** The name for this connection, up to 50 characters without spaces. For example, MainOffice.

Note

The name you enter here is what users will see in the connection list in the AnyConnect client. Choose a name that will make sense to your users.

- **Group Alias, Group URL:** Aliases contain alternate names or URLs for a specific connection profile. VPN users can choose an alias name in the AnyConnect client in the list of connections when they connect

to the ASA device. The connection profile name is automatically added as a group alias. You can also configure the list of group URLs, which your endpoints can select while initiating the Remote Access VPN connection. If users connect using the group URL, the system will automatically use the connection profile that matches the URL. This URL would be used by clients who do not yet have the AnyConnect client installed. Add as many group aliases and URLs as required. These aliases and URLs must be unique across all connection profiles defined on the device. Group URLs must start with **https://**.

- For example, you might have the alias Contractor and the group URL <https://ravpn.example.com/contractor>. Once the AnyConnect client is installed, the user would simply select the group alias in the AnyConnect VPN drop-down list of connections.

- Step 4** Configure the primary and optionally, secondary identity sources. These options determine how remote users authenticate to the device to enable the remote access VPN connection. The simplest approach is to use AAA only and then select an AD realm or use the LocalIdentitySource. You can use the following approaches for **Authentication Type**:
- **AAA Only**: Authenticate and authorize users based on username and password. For details, see [Configure AAA for a Connection Profile](#), on page 511.
 - **Client Certificate Only**: Authenticate users based on client device identity certificate. For details, see [Configure Certificate Authentication for a Connection Profile](#).
 - **AAA and ClientCertificate**: Use both username/password and client device identity certificate.
- Step 5** Configure the address pool for clients. The address pool defines the IP addresses that the system can assign to remote clients when they establish a VPN connection. For more information, see [Configure Client Address Pool Assignment](#).
- Step 6** Click **Continue**.
- Step 7** Select the **Group Policy** to use for this profile from the list and click **Select**.
- Step 8** Click **Continue**.
- Step 9** Review the summary. First, verify that the summary is correct. You can see what end-users need to do to initially install the AnyConnect software and test that they can complete a VPN connection. Click  to copy the instructions to the clipboard, and then distribute them to your users.
- Step 10** Click **Done**.
- Step 11** Perform step 5 of [End-to-End Remote Access VPN Configuration Process for ASA](#).

Configure AAA for a Connection Profile

Authentication, Authorization, and Accounting (AAA) servers use username and password to determine if a user is allowed access to the remote access VPN. If you use RADIUS servers, you can distinguish authorization levels among authenticated users, to provide differential access to protected resources. You can also use RADIUS accounting services to keep track of usage.

When configuring AAA, you must configure a primary identity source. Secondary and fallback sources are optional. Use a secondary source if you want to implement dual authentication, for example, using RSA tokens or DUO.

Primary Identity Source Options

- **Primary Identity Source for User Authentication:** Authentication provides a way to identify a user, typically by having the user enter a valid username and valid password before access is granted. The primary identity source used for authenticating remote users. End-users must be defined in this source or the optional fallback source to complete a VPN connection. Select one of the following:
 - An Active Directory (AD) identity realm.
 - A RADIUS server group.
 - LocalIdentitySource (the local user database): You can define users directly on the device and not use an external server.
- **Fallback Local Identity Source:** If the primary source is an external server, you can select the LocalIdentitySource as a fallback in case the primary server is unavailable. If you use the local database as a fallback source, ensure that you define the same local usernames/passwords as the ones defined in the external server.
- **Strip options:** A realm is an administrative domain. Enabling the following options allows the authentication to be based on the username alone. You can enable any combination of these options. However, you must select both check boxes if your server cannot parse delimiters.
 - **Strip Identity Source Server from Username:** Whether to remove the identity source name from the username before passing the username on to the AAA server. For example, if you select this option and the user enters domain\username as the username, the domain is stripped off from the username and sent to the AAA server for authentication. By default, this option is unchecked.
 - **Strip Group from Username:** Whether to remove the group name from the username before passing the username on to the AAA server. This option applies to names given in the username@domain format; the option strips the domain and @ sign. By default, this option is unchecked.

Secondary Identity Source

- **Secondary Identity Source for User Authorization:** The optional second identity source. If the user successfully authenticates with the primary source, the user is prompted to authenticate with the secondary source. You can select an AD realm, RADIUS server group, or the local identity source.
- **Advanced options:** Click the **Advanced** link and configure the following options:
 - **Fallback Local Identity Source for Secondary:** If the secondary source is an external server, you can select the LocalIdentitySource as a fallback in case the secondary server is unavailable. If you use the local database as a fallback source, ensure that you define the same local usernames/passwords as the ones defined in the secondary external server.
 - **Use Primary Username for Secondary Login:** By default, when using a secondary identity source, the system will prompt for both username and password for the secondary source. If you select this option, the system prompts for the secondary password only and uses the same username for the secondary source that was authenticated against the primary identity source. Select this option if you configure the same usernames in both the primary and secondary identity sources.
 - **Username for Session Server:** After successful authentication, the username is shown in events and statistical dashboards, is used for determining matches for a user- or group-based SSL decryption and access control rules and is used for accounting. Because you are using two

authentication sources, you need to tell the system whether to use the Primary or Secondary username as the user identity. By default, the primary name is used.

- **Password Type:** How to obtain the password for the secondary server. The default is **Prompt**, which means the user is asked to enter the password. Select **Primary Identity Source Password** to automatically use the password entered when the user authenticated to the primary server. Select **Common Password** to use the same password for every user, then enter that password in the **Common Password** field.
- **Authorization Server:** The RADIUS server group that has been configured to authorize remote access, VPN users. After authentication is complete, authorization controls the services and commands available to each authenticated user. Authorization works by assembling a set of attributes that describe what the user is authorized to perform, their actual capabilities, and restrictions. Were you not to use authorization, authentication alone would provide the same access to all authenticated users.

Note that if the system obtains authorization attributes from the RADIUS server that overlap those defined in the group policy, the RADIUS attributes override the group policy attributes.
- **Accounting Server:** (Optional.) The RADIUS server group to use to account for the remote access VPN session. Accounting tracks the services users are accessing as well as the number of network resources they are consuming. The ASA device reports user activity to the RADIUS server. Accounting information includes when sessions start and stop, usernames, the number of bytes that pass through the device for each session, the service used, and the duration of each session. You can then analyze the data for network management, client billing, or auditing. You can use accounting alone or together with authentication and authorization.

Configure Certificate Authentication for a Connection Profile



Note This section is not applicable for **Authentication Type as AAA Only**.

You can use certificates installed on the client device to authenticate remote access VPN connections.

When using client certificates, you can still configure a secondary identity source, fallback source, and authorization and accounting servers. These are AAA options; for details, see [Configure ASA Remote Access VPN Connection Profile, on page 510](#).

The following are the certificate-specific attributes. You can configure these attributes separately for primary and secondary identity sources. Configuring a secondary source is optional.

- **Username from Certificate:** Select one of the following:
 - **Map Specific Field:** Use the certificate elements in the order of **Primary Field** and **Secondary Field**. The defaults are CN (Common Name) and OU (Organizational Unit). Select the options that work for your organization. The fields are combined to provide the username, and this is the name used in events, dashboards, and for matching purposes in SSL decryption and access control rules.
 - **Use entire DN (distinguished name) as username:** The system automatically derives the username from the DN fields.
- **Advanced options** (not applicable for **Authentication Type as Client Certificate Only**): Click the **Advanced** link and configure the following options:

- **Prefill username from certificate on user login window:** Whether to fill in the username field with the retrieved username when prompting the user to authenticate.
- **Hide username in login window:** If you select the **Prefill** option, you can hide the username, which means the user cannot edit the username in the password prompt.

Configure Client Address Pool Assignment

There must be a way for the system to provide an IP address to endpoints that connect to the remote access VPN. The AAA server can provide these addresses, a DHCP server, an IP address pool configured in the group policy, or an IP address pool configured in the connection profile. The system tries these resources in that order and stops when it obtains an available address, which it then assigns to the client. Thus, you can configure multiple options to create a failsafe in case of an unusual number of concurrent connections.

Use one or more of the following methods to configure the address pool for a connection profile.

- **IPv4 Address Pool and IPv6 Address Pool:** First, create up to six network objects that specify subnets. You can configure separate pools for IPv4 and IPv6. Then, select these objects in the **IPv4 Address Pool** and **IPv6 Address Pool** options, either in the group policy or in the connection profile. You do not need to configure both IPv4 and IPv6, configure the addressing scheme you want to support. You also do not need to configure the pool in both the group policy and the connection profile. The group policy overrides the connection profile settings, so if you configure the pools in the group policy, leave the options empty in the connection profile. Note that the pools are used in the order in which you list them.
- **DHCP Servers:** First, configure a DHCP server with one or more IPv4 address ranges for the remote access VPN (you cannot configure IPv6 pools using DHCP). Then, create a host network object with the IP address of the DHCP server. You can then select this object in the **DHCP Servers** attribute of the connection profile.

Related Information:

[End-to-End Remote Access VPN Configuration Process for ASA](#)

Manage AnyConnect Software Packages on ASA Devices

You can perform one of the following steps to upload an AnyConnect package using the remote access VPN wizard:

- Upload the package from the Security Cloud Control repository.
- Upload the package from the server using HTTP, HTTPS, TFTP, FTP, SMB, or SCP protocols.

Upload an AnyConnect Package from Security Cloud Control Repository

The remote access VPN Configuration wizard presents AnyConnect packages per operating system from the Security Cloud Control repository, which you can select and upload to device. Make sure that the device has access to the internet and proper DNS configuration.



Note

If the desired package is unavailable in the presented list or the device has no access to the internet, you can upload the package using the server where the AnyConnect packages are preloaded.

Procedure

- Step 1** Click on the field that corresponds to an operating system and select an AnyConnect package.
- Step 2** Click  to upload the package. If the checksum doesn't match, the AnyConnect package upload fails. You can see the device's workflow tab for more details about the failure.

Upload an AnyConnect Package to ASA from Server

Download the AnyConnect client software packages to your computer and upload them to a remote server accessible from ASAs. Later, use the RA VPN wizard or ASA File Management wizard to upload the AnyConnect software packages from that server to ASAs. DNS must be configured correctly on the device for URLs that use a domain name.

The ASA RA VPN wizard supports uploading packages using HTTP, HTTPS, TFTP, FTP, SMB, or SCP protocols.

The syntax of supported protocols for uploading the file:

Protocol	Syntax	Example
HTTP	http://[[path/]filename]	http://www.geonames.org/data-sources.html
HTTPS	https://[[path/]filename]	https://docs.amazonaws.com/amazon-tagging.html
TFTP	tftp://[[path/]filename]	tftp://10.10.16.6/ftd/components.html
FTP	ftp://[[user[:password]@]server[:port]/[path/]filename]	ftp://10.10.16.6/ftd/components.html
SMB	smb://[[path/]filename]	smb://10.10.32.145/sambashare/hello.txt
SCP	scp://[[user[:password]@]server[:port]/[path/]filename]	scp://root@10.10.16.6/ftd/components.html

Before you begin

Make sure that you download the "AnyConnect Headend Deployment Package" for your desired operating systems. Always download the latest AnyConnect version to ensure that you have the latest features, bug fixes, and security patches. Regularly update the packages on the device.



Important

If you choose to upload the package using the ASA File Management wizard, do not modify the package's name after downloading them.



Note

You can upload one AnyConnect package per Operating System (OS): Windows, Mac, and Linux. You cannot upload multiple versions for a given OS type.

Procedure

-
- Step 1** Download the AnyConnect packages from <https://software.cisco.com/download/home/283000185>.
- Make sure you accept the EULA and have K9 (encrypted image) privileges.
 - Select the "AnyConnect Headend Deployment Package" package for your operating system. The package name will be similar to "anyconnect-win-4.7.04056-webdeploy-k9.pkg." There are separate headend packages for Windows, macOS, and Linux.
- Step 2** Upload the AnyConnect packages to a remote server. Ensure that there is a network route from the ASA device and the server.
- The ASA RA VPN wizard supports uploading packages HTTP, HTTPS, TFTP, FTP, SMB, or SCP protocols.
- Important**
If you are uploading the AnyConnect package to an HTTPS server, ensure that the following steps are performed:
- Upload the trusted CA certificate of that server on the ASA device.
 - Install the trusted CA certificate on the HTTPS server.
- Step 3** The remote server's URL must be a direct link without prompting for authentication. If the URL is pre-authenticated, you can download the file by specifying the RA VPN wizard's URL.
- Step 4** If the remote server IP address is NATed, you have to provide the NATed public IP address of the remote server location.
-

Upload new AnyConnect Packages to ASA

You can either use the remote access VPN wizard or ASA File Management wizard to upload the AnyConnect software packages to ASAs.

Use the following procedure to upload new AnyConnect packages to an ASA device from an HTTP or HTTPS server:

Procedure

-
- Step 1** In the **AnyConnect Package Detected**, you can upload separate packages for Windows, Mac, and Linux endpoints.
- Step 2** In the corresponding platform field, specify the server's paths where the AnyConnect packages compatible for Windows, Mac, and Linux are pre-uploaded. Examples of server paths:
'http://<ip_address>:port_number/<folder_name>/anyconnect-win-4.8.01090-webdeploy-k9.pkg',
'https://<ip_address>:port_number/<folder_name>/anyconnect-linux64-4.7.03052-webdeploy-k9.pkg'.
- Step 3** Click  to upload the package. Security Cloud Control validates if the path is reachable and the specified filename is a valid package. When the validation is successful, the names of the AnyConnect packages appear.

As you add more ASA devices to the remote access VPN configuration, you can upload the AnyConnect packages to them.

Step 4 Click **OK**. The AnyConnect packages are added to the remote access VPN configuration.

Step 5 Continue to [Create an ASA RA VPN Configuration](#) from step 5 onwards.

What to do next

To complete a VPN connection, your users must install the AnyConnect client software on their workstation. For more information, see [How Users Can Install the AnyConnect Client Software on ASA](#).

Upload AnyConnect Packages using File Management Wizard

Use the File Management wizard to upload AnyConnect packages to a single or multiple ASA devices from an HTTP, HTTPS, TFTP, FTP, SMB, or SCP server. When you want to push AnyConnect packages to multiple ASA devices simultaneously, the bulk upload comes in handy. For more information, see [ASA File Management](#).



Important If you choose to upload the package using the ASA File Management wizard, do not modify the package's name after downloading them.

Once the upload is complete, open the ASA RA VPN Configuration wizard and notice that the packages are auto-detected. If you upload multiple packages for an OS version, the wizard lists them in a drop-down allowing you to select one among them. Then, you can create the RA VPN configuration and deploy them to the devices.

Replace an AnyConnect Package

If the AnyConnect packages are already present on the devices, you can see them in the remote access VPN wizard. You can see all the available AnyConnect packages for an operating system in a drop-down list. You can select an existing package from the list and replace it with a new one but can't add a new package to the list.



Note If you want to replace an existing package with a new one, ensure that the new AnyConnect package is uploaded already to a server on the network that the ASA can reach.

Procedure

- Step 1** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- Step 2** Select the remote access VPN configuration to be modified, and under **Actions**, click **Edit**.
- Step 3** In **AnyConnect Packages Detected**, click  icon appearing beside the existing AnyConnect package. If there are multiple versions of AnyConnect package for an operating system, select the package you want to replace from the list and click **Edit**. The existing package disappears from the corresponding field.
- Step 4** Specify the server's path where the new AnyConnect package is preloaded and click  to upload the package.

- Step 5** Click **OK**. The new AnyConnect package is added to the remote access VPN configuration.
- Step 6** Continue to [Create ASA Remote Access VPN Configuration, on page 506](#) from step 6 onwards.

Delete an AnyConnect Package

Procedure

- Step 1** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- Step 2** Select the remote access VPN configuration to be modified, and under **Actions**, click **Edit**.
- Step 3** In **AnyConnect Packages Detected**, click  icon appearing beside the AnyConnect package that you want to delete. If there are multiple versions of AnyConnect package for an operating system, select the package you want to delete from the list. The existing package disappears from the corresponding field.
- Note**
Click **Cancel** to stop the delete operation and retain the existing package,
- Step 4** Click **OK**. The device's **Configuration Status** is in 'Not Synced' state.
- Note**
If you want to undo the delete action at this stage, go to **Security Devices** page and click **Discard Changes** to retain the existing AnyConnect package.
- Step 5** [Review and deploy configuration changes to the devices.](#)

Manage and Deploy Pre-existing ASA Remote Access VPN Configuration

When you onboard an ASDM managed ASA device that already has remote access VPN settings, it discovers and displays the existing remote access VPN configurations. Security Cloud Control automatically creates a "Default remote access VPN Configuration" and associates the ASA device with this configuration. There are some remote access VPN configurations that aren't read or supported in the Security Cloud Control but can be configured in the Security Cloud Control command-line interface.



Note This section doesn't cover every supported or unsupported configuration in Security Cloud Control. Instead, it only describes the most commonly used ones.

To see the remote access VPN configurations from an onboarded ASA, perform the following steps:

Procedure

- Step 1** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.

Step 2 Click the remote access VPN configuration corresponding to the onboarded ASA device. Security Cloud Control automatically creates a "**Default_RA_VPN_Configuration**" and associates the ASA device with this configuration. You can delete the default configuration. The ASA remote access VPN configurations that are read in Security Cloud Control are classified as follows:

- Device settings
- Connection profiles
- Group policies

Device Settings

The RA VPN configurations associated with the onboarded ASA device appear in **Default_RA_VPN_Configuration**. You need to click on this configuration to see the name of the ASA device (in the **Devices** pane on the right) associated with that configuration. You can also see the AnyConnect packages present in the ASA devices by clicking the edit button.

Connection Profile

Security Cloud Control supports and reads the connection profiles defined in "AnyConnect Client VPN Access" of the ASA device. It does not support the "Clientless SSL VPN Access" configuration.

To see the connection profile attributes, perform the following:

Procedure

Step 1 Expand **Default_RA_VPN_Configuration**.

Step 2 Click one of the connection profiles that you want and click **Edit**.

All the basic and advanced ASA RA VPN attributes can be seen in the **Connection Profile name and details** of the Security Cloud Control RA VPN configuration page.



Note You can delete the default configuration (Select the default RA VPN configuration and in the **Actions** pane on the right, click **Remove**).

Primary Identity Source

- Security Cloud Control reads the **Connection Aliases** and **Group URLs** attributes as **Group Alias** and **Group URL**.



Note

- The connection profiles configured with SAML, Multiple certificates and AAA, and Multiple certificates aren't read.
- The authentication server group with the interface and server group is not supported.

- Security Cloud Control supports the AnyConnect connection profiles configured with "AAA", "AAA and certificate", and "Certificate only" authentication methods in **Primary Identity Source**.
 - The **AAA Server Group** is read in Security Cloud Control as **Primary Identity Source for User Authentication in Primary Identity Source** (You can see this attribute by selecting AAA or AAA and Client Certificate as the **Authentication Type**).
 - If the **AAA Server Group** has been configured something other than LOCAL, Security Cloud Control reads and displays this attribute in the **Fallback Local Identity Source** field under **Primary Identity Source**. (You can see this attribute by selecting AAA as the authentication type).
- To learn more about the server group attributes read in Security Cloud Control, see [AAA Server Groups](#).

Secondary Identity Source

The **Secondary Identity Source** displays the secondary authentication attributes of the ASA device. To see these attributes, select AAA or AAA and Client Certificate as the authentication type, and click **View Secondary Identity Source**.

- The **Secondary Identity Source for User Authentication** displays the secondary authentication **Server Group** attribute.
 - If the **Server Group** has been configured something other than LOCAL, Security Cloud Control reads and displays this attribute in the **Fallback Local Identity Source for Secondary** field under **Secondary Identity Source**.
- Security Cloud Control doesn't support the **Attribute Server** and **Interface-Specific Authorization Server Groups** attributes.

To learn more about the server group attributes read in Security Cloud Control, see [AAA Server Groups](#).

Authorization Server

- The **Authorization Server** displays the authorization **Server Group** attribute.
- Security Cloud Control doesn't support the authorization server group with interface and server group.

To learn more about the RADIUS server group attributes read in Security Cloud Control, see [RADIUS Server Groups](#).

Accounting Server

The **Accounting Server** displays the accounting **Server Group** attribute. To learn more about the server group attributes read in Security Cloud Control, see [RADIUS Server Groups](#).

Client Address Pool Assignment

Security Cloud Control reads the **Client Address Assignment attributes (DHCP Servers, Client Address Pools, and Client IPv6 Address Pools)** as objects. (You can see these attributes in **Client Address Pool Assignment**). The DHCP server details are read as literals.



Note Security Cloud Control doesn't support the IP address pools assigned on specific interfaces. However, these attributes can be seen in the ASA command-line interface (CLI).

AAA Server Groups

Security Cloud Control represents an LDAP Server Group and its associated LDAP Servers as an **Active Directory Realm** object. For Active Directory (AD), a realm is equivalent to an Active Directory domain. Note that Security Cloud Control does read the AD password for AD realm objects that are already present.

Procedure

-
- Step 1** In the navigation bar on the left, choose **Objects**.
- Step 2** Apply the **Active Directory Realms** filter to see this object.
- Step 3** Select the **Active Directory Realm** object that you want and click **Edit** to see its details.
-

What to do next

You can see that the AD realm contains the associated AD server and its configuration. If there are multiple Active Directory (AD) servers for the AD realm, the AD servers need to be duplicates of each other and support the same AD domain. Therefore, the basic realm properties such as **Directory name**, **Directory Password**, and **Base Distinguished Name** must be the same across all AD servers associated with that AD realm. Security Cloud Control displays a warning message in the Active Directory Realm object if these properties aren't the same. You have to correct these properties to make them consistent across the AD servers. If you continue without addressing this warning, Security Cloud Control uses one of the AD server properties and applies it to other servers in that realm object.

RADIUS Server Group

The AAA RADIUS Server Group attributes of the ASA device are read in Security Cloud Control as RADIUS Server Group objects.

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Apply the **RADIUS Server Group** filter to see this object.
- Step 3** Select the object that you want and then click **Edit** to see its details.
- The **Enable dynamic authorization** in ASA is read in Security Cloud Control as **Dynamic Authorization (for RA VPN only)**.
 - The **Depletion** option in **Reactivation Mode** is read in Security Cloud Control, and therefore the **Dead Time** value associated with depletion time is read in Security Cloud Control. However, the **Timed** attribute is not read in Security Cloud Control.

- Security Cloud Control doesn't support **Accounting Mode**, **Timed**, **Enable interim accounting update**, **Enable interim accounting update**, and **Use authorization only mode**.

RADIUS Server

When Security Cloud Control reads the Radius Servers from ASA, it creates a Radius server object specifies the name as "Name of the Radius server group_server name or IP address".

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
 - Step 2** Apply the **RADIUS Server** filter to see this object.
 - Step 3** Select the object that you want and then click **Edit** to see its details.
-

Group Policy

In the **Group Policy** section, click the drop-down to view the group policies associated with the device.



Attention Security Cloud Control reads the group policies configured with tunneling protocol as **SSL VPN Client**.

Security Cloud Control reads most of the group policy attributes configured in ASA. The information is displayed across the tabs in the RA VPN Group policy wizard. To see the details of group policies read from the ASA device, you need to perform the following:

Procedure

-
- Step 1** In the left pane, click **Manage > Objects**.
 - Step 2** Filter for **RA VPN Group Policy**.
 - Step 3** Select the group policy associated with that device and click **Edit**.
-

What to do next



Note Security Cloud Control doesn't support the Standard Access Control Lists (ACL) defined in the split tunneling in the ASA device. It supports the Extended Access Control Lists (ACL) and reads them as ACLs in the ASA policies.

To see the policies, on the navigation bar, you can click **Policies > ASA Access Policies**.

To select the extended ACLs, perform the following:

- Click the **Split Tunneling** tab.
- Based on whether the traffic in ASA uses IPv4 or IPv6 addresses, select "Allow specified traffic over tunnel" or "Exclude networks specified below" from the corresponding drop-down list. Select the extended ACLs that are imported from ASA.

Create IP Address Pool

You can configure IPv4 and IPv6 IP address pools for ASAs to assign them to clients connecting remotely to your network using a VPN connection. The order in which you specify the pools is important. If you configure more than one address pool for a connection profile or group policy, the ASA uses them in the order in which you added them to the ASA.

To define the IPv4 address pool, provide the IP address range. An example of an IPv4 address pool is 10.10.147.100 - 10.10.147.177.

To define the IPv6 address pool, provide a starting IP address range, the address prefix, and the number of addresses configurable in the pool. An example of an IPv6 address pool is 2001:DB8:1::1.

If you assign addresses from a non-local subnet, we suggest that you add pools that fall on subnet boundaries to make adding routes for these networks easier.

Perform the following to create an IP address pool:

Procedure

-
Step 1	In the left pane, click Manage > Objects .
Step 2	In the left pane, click Objects .
Step 3	Click the blue plus button  and select ASA > Address Pool .
Step 4	In the Create IP Address Pool dialog box, enter this information: • Object Name: Enter the name of the address pool. It can be up to 64 characters • IPv4 address pool: Select this radio button to configure IPv4 address pools. • IPv4 Address Range: Enter the first IP address and the last IP address available in each configured pool. For example, 10.10.147.100 - 10.10.147.177. • Mask: Identifies the subnet on which this IP address pool resides. • IPv6 address pool: Select this radio button to configure IPv6 address pools. • IPv6 Address: Enter the first IP address available in the configured pool and prefix length in bits in <address>/<prefix> format. For example, 2001:DB8:1::1/3. • Number of Addresses: Identifies the number of IPv6 addresses, starting at the IP Address, that are in the pool.
Step 5	Click Save .
-

Remote Access VPN Certificate-Based Authentication

The remote access VPN uses digital certificates for authenticating secure gateways and AnyConnect clients (endpoints) in the following scenarios:



Important Security Cloud Control handles the installation of digital certificates on the VPN headends (ASA FTD). It does not handle the installation of certificates on the AnyConnect client device. The administrator of your organization must handle it.

- Identify and authenticate the VPN headend device (ASA FTD):

VPN headends require an identity certificate to identify and authenticate themselves when the AnyConnect client requests a VPN connection. Using Security Cloud Control, you must install the identity certificate on the device. See *Installing an Identity Certificate Using PKCS12 or Certificate And Key*. It is not mandatory to install the issuer's CA certificate on the AnyConnect client.

While creating the Remote Access VPN configuration from Security Cloud Control, assign the enrolled identity certificate to the outside interface of the device and download the configuration to the device. The identity certificate becomes fully operational on the outside interface of the device.

When the AnyConnect client attempts to connect to VPN, the device authenticates itself by presenting its identity certificate to the AnyConnect client. The AnyConnect client verifies this identity certificate with its trusted CA certificate and trusts the certificate and thereby the device. If the CA certificate isn't installed on the AnyConnect client, the user must manually trust the device when prompted.

- Identify and authenticate the AnyConnect client:



Note This applies when you use "Client Certificate Only" or "AAA and Client Certificate" as the authentication method in the connection profile of remote access VPN configuration. It does not apply for "AAA Only".

Once the device is trusted, the AnyConnect client needs to authenticate itself to complete the VPN connection. You must install an identity certificate on the AnyConnect client and using Security Cloud Control, install a trusted CA certificate on the device. These certificates must be issued from the same certificate authority. See *Installing Trusted CA Certificate in ASA*.

The AnyConnect client presents its identity certificate and the device verifies this certificate with its trusted CA certificate and establishes the VPN connection.

Exempt Remote Access VPN Traffic from NAT

Configure NAT Exempt to exempt traffic to and from the remote access VPN endpoints from NAT translation. If you do not exempt VPN traffic from NAT, ensure that the existing NAT rules for the outside and inside interfaces do not apply to the remote access VPN pool of addresses. NAT exempt rules are manual static identity NAT rules for a given source/destination interface and network combination, but they are not reflected in the NAT policy, they are hidden. If you enable NAT Exempt, you must also configure the following.

- **Inside Interfaces:** Select the interfaces for the internal networks remote users will be accessing. NAT rules are created for these interfaces.

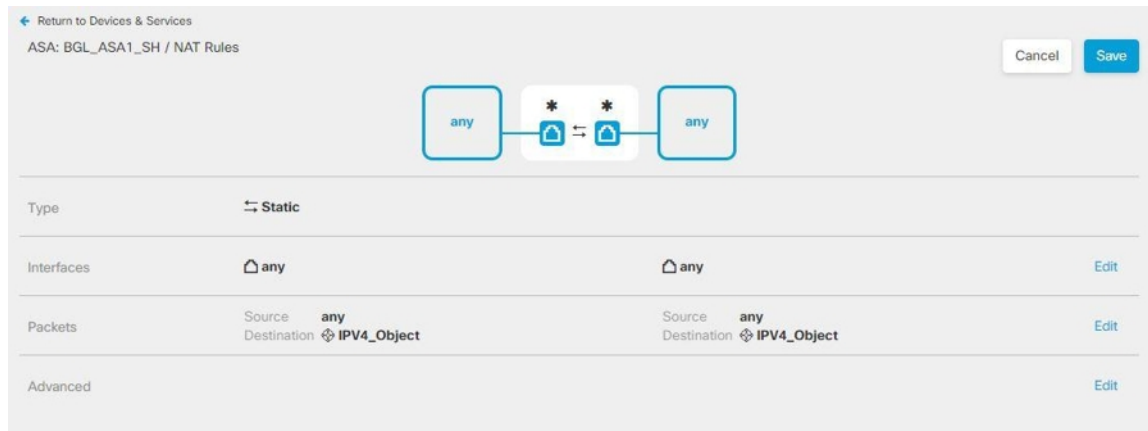
- **Inside Networks:** Select the network objects that represent internal networks remote users will be accessing. The networks list must contain the same IP types as the address pools you are supporting.

Before you begin

Create ASA network objects that match the configuration of the local IP address pools used in the connection profile and group policy of that device. These network objects must be assigned as the destination address and translated address when configuring the NAT rule.

Procedure

- Step 1** In the left pane, click **Security Devices**.
- Step 2** Use the filter and search field to find the ASA device for which you want to create the NAT rule.
- Step 3** In the **Management** area of the details panel, click **NAT** .
- Step 4** Click  > **Twice NAT**.
 - a. In section 1, select **Static**. Click **Continue**.
 - b. In section 2, select **Source Interface** = 'any' and **Destination Interface** = 'any'. Click **Continue**.
 - c. In section 3, select **Source Original Address** = 'any' and **Source Translated Address** = 'any'.
 - d. Select **Use Destination**.
 1. **Destination Original Address** and **Source Translated Address:** Click **Choose** in the drop-down and select the network objects that match the configuration of the local IP address pools. In the below example, 'IPV4_Object' is the network object with the same configuration as the IPv4 address pool object used in the connection profile and group policy settings of the ASA (BGL_ASA1_SH) device.



Return to Devices & Services

ASA: BGL_ASA1_SH / NAT Rules

Cancel Save

Type	Static		
Interfaces	any	any	Edit
Packets	Source any Destination IPV4_Object	Source any Destination IPV4_Object	Edit
Advanced			Edit

Step 5 Review and deploy configuration changes to the devices.*Install the AnyConnect Client Software on ASA*

To complete a VPN connection, your users must install the AnyConnect client software. You can use your existing software distribution methods to install the software directly. Or, you can have users install the AnyConnect client directly from the ASA device.



Note Users must have Administrator rights on their workstations to install the software.

If you decide to have users initially install the software from the ASA device, inform users to perform the following steps:



Note Android and iOS users should download AnyConnect from the appropriate App Store.

Procedure

-
- Step 1** Using a web browser, open **https://ravpn-address**, where *ravpn-address* is the IP address or hostname of the outside interface on which you are allowing VPN connections. You identify this interface when you configure the remote access VPN. The system prompts the user to log in.
- Step 2** Log into the site. Users are authenticated using the directory server configured for the remote access VPN. Log in must be successful to continue. If the login is successful, the system determines if the user already has the required version of the AnyConnect client. If the AnyConnect client is absent from the user's computer or is down-level, the system automatically starts installing the AnyConnect software. When the installation is finished, AnyConnect completes the remote access VPN connection.
-

Modify ASA Remote Access VPN Configuration

When ASA devices are onboarded to Security Cloud Control, it discovers and displays the pre-existing remote access VPN configurations from onboarded ASA devices. For more information, see [Manage and Deploy Pre-existing ASA Remote Access VPN Configuration](#).

You can modify these configurations and download the new configuration to the device.

Procedure

-
- Step 1** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- Step 2** If you want to add or remove group policies to the VPN configuration, click the VPN configuration associated with the onboarded ASA device. In the Actions pane on the left, click **Group Policies**.
- a) Click the blue + icon and configure the selections and click **Select**.

- Step 3** Click the VPN configuration, and in the **Actions** pane, click **Edit**.
The wizard lists the ASA device associated with the configuration.
- a) You can modify the following details in the same fashion as it was created:
- Change the name of the remote access VPN configuration.
 - Click the three dots appearing in the row that shows the device details and click **Edit**.
- For more information, see [Create ASA Remote Access VPN Configuration, on page 506](#)
- Step 4** Click **OK**.
- Step 5** [Preview and Deploy Configuration Changes for All Devices, on page 615](#)
-

Modify ASA Connection Profile

Procedure

-
- Step 1** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- Step 2** Expand the VPN configuration associated with the onboarded ASA device, and select a connection profile.
- Step 3** Under **Actions**, click **Edit**.
- Step 4** Edit the values in the same fashion as it was created and click **Done**.
For more information, see [Configure ASA Remote Access VPN Connection Profile, on page 510](#)
- Step 5** [Preview and Deploy Configuration Changes for All Devices, on page 615](#)
-

Upload RA VPN AnyConnect Client Profile

The Remote Access VPN AnyConnect Client Profile is a group of configuration parameters stored in a file. There are different AnyConnect client profiles containing configuration settings for the core client VPN functionality and for the optional client modules Network Access Manager, AMP Enabler, ISE posture, Network Visibility, Customer Feedback Experience profiles, Umbrella roaming security, and Web Security.

Security Cloud Control allows uploading of these profiles as objects which can be used in the group policy later.

- **AnyConnect VPN Profile** — AnyConnect client profiles are downloaded to clients along with the VPN AnyConnect client software. These profiles define many client-related options, such as auto-connect on startup and auto-reconnect, and whether the end-user can change the option from the AnyConnect client preferences and advanced settings. Security Cloud Control supports the XML file format.
- **AMP Enabler Service Profile** — The profile is used for the AnyConnect AMP Enabler. The AMP Enabler and this profile are pushed to the endpoints from FDM-managed device when a remote access VPN user connects to the VPN. Security Cloud Control supports XML and ASP file formats.
- **Feedback Profile** — You can add a Customer Experience Feedback profile and select this type to receive information about the features and modules customers have enabled and used. Security Cloud Control supports the FSP file format.

- **ISE Posture Profile** — Choose this option if you add a profile file for the AnyConnect ISE Posture module. Security Cloud Control supports XML and ISP file formats.
- **Network Access Manager Service Profile** — Configure and add the NAM profile file using the Network Access Manager profile editor. Security Cloud Control supports XML and NSP file formats.
- **Network Visibility Service Profile** — Profile file for AnyConnect Network Visibility module. You can create the profile using the NVM profile editor. Security Cloud Control supports XML and NVMSP file formats.
- **Umbrella Roaming Security Profile** — You must select this file type if you deploy the Umbrella Roaming Security module. Security Cloud Control supports XML and JSON file formats.
- **Web Security Service Profile** — Select this file type when you add a profile file for the Web security module. Security Cloud Control supports XML, WSO, and WSP file formats.

Before you begin

Use the suitable GUI-based AnyConnect profile editors to create the profiles you need. You can download the profile editors from [Cisco Software Download Center](#) in the AnyConnect Secure Mobility Client category and install the AnyConnect “Profile Editor - Windows / Standalone installer (MSI).” The profile editor installer contains stand-alone versions of the profile editors. The installation file is for Windows only and has the file name anyconnect-profileeditor-win-<version>-k9.msi, where <version> is the AnyConnect version. For example, anyconnect-profileeditor-win-4.3.04027-k9.msi. You must also install Java JRE 1.6 (or higher) before installing the profile editor.

Except for the Umbrella Roaming Security profile editor, this package contains all the profile editors required for creating the modules. For detailed information, see the *AnyConnect Profile Editor* chapter in the appropriate release of the [Cisco AnyConnect Secure Mobility Client Administrator Guide](#) for details. Download the Umbrella Roaming Security profile separately from the Umbrella dashboard. For detailed information, see the “Download the AnyConnect Roaming Security Profile from the Umbrella Dashboard” section of the “Umbrella Roaming Security” chapter in the [Cisco Umbrella User Guide](#).

Procedure

-
Step 1	In the left pane, choose Manage > Objects .
Step 2	Click the blue plus  button.
Step 3	Click RA VPN Objects (ASA & FDM) > AnyConnect Client Profile .
Step 4	In the Object Name field, enter a name for the AnyConnect client profile.
Step 5	Click Browse and select the file you created using the Profile Editor.
Step 6	Click Open to upload the profile.
Step 7	Click Add to add the object.
-

Verify ASA Remote Access VPN Configuration

After you configure the remote access VPN and deploy the configuration to the device, verify that you can make remote connections.

Procedure

- Step 1** From an external network, establish a VPN connection using the AnyConnect client. Using a web browser, open **https://ravpn-address**, where *ravpn-address* is the IP address or hostname of the outside interface on which you are allowing VPN connections. If necessary, install the client software and complete the connection. See [How Users Can Install the AnyConnect Client Software](#). If you configured group URLs, also try those URLs.
- Step 2** In the **Security Devices** page, select the device (FTD or ASA) you want to verify and click **Command Line Interface** under **Device Actions**.
- Step 3** Use the **show vpn-sessiondb** command to view summary information about current VPN sessions.
- Step 4** The statistics should show your active AnyConnect Client session, and information on cumulative sessions, the peak concurrent number of sessions, and inactive sessions. Following is sample output from the command.

```
> show vpn-sessiondb
-----
VPN Session Summary
-----
Active : Cumulative : Peak Concur : Inactive
-----
AnyConnect Client      :    1 :    49 :    3 :    0
SSL/TLS/DTLS          :    1 :    49 :    3 :    0
Clientless VPN         :    0 :    1 :    1 :
Browser                :    0 :    1 :    1 :
-----

Total Active and Inactive :    1          Total Cumulative :    50
Device Total VPN Capacity : 10000
Device Load               :    0%
-----

Tunnels Summary
-----
Active : Cumulative : Peak Concurrent
-----
Clientless          :    0 :    1 :    1
AnyConnect-Parent   :    1 :    49 :    3
SSL-Tunnel          :    1 :    46 :    3
DTLS-Tunnel         :    1 :    46 :    3
-----
Totals              :    3 :   142
-----

IPv6 Usage Summary
-----
Active : Cumulative : Peak Concurrent
-----
AnyConnect SSL/TLS/DTLS :    :    :
Tunneled IPv6          :    1 :   20 :    2
-----
```

- Step 5** Use the **show vpn-sessiondb anyconnect** command to view detailed information about current AnyConnect VPN sessions. Detailed information includes encryption used, bytes transmitted and received, and other statistics. If you use your VPN connection, you should see the bytes transmitted/received numbers change as you re-issue this command.
- Step 6** Use the **show vpn-sessiondb anyconnect** command to view detailed information about current AnyConnect VPN sessions. Detailed information includes encryption used, bytes transmitted and received, and other statistics. If you use your VPN connection, you should see the bytes transmitted/received numbers change as

you re-issue this command.

```
> show vpn-sessiondb anyconnect
```

```
Session Type: AnyConnect
```

```
Username      : User1|                               Index      : 4820
Assigned IP   : 172.18.0.1                           Public IP    : 192.168.2.20
Assigned IPv6 : 2009::1
Protocol      : AnyConnect-Parent SSL-Tunnel DTLS-Tunnel
License       : AnyConnect Premium
Encryption    : AnyConnect-Parent: (1)none SSL-Tunnel: (1)AES-GCM-256 DTLS-Tunnel: (1)AES256
Hashing       : AnyConnect-Parent: (1)none SSL-Tunnel: (1)SHA384 DTLS-Tunnel: (1)SHA1
Bytes Tx      : 27731                               Bytes Rx    : 14427
Group Policy  : MyRaVpn|Policy                       Tunnel Group : MyRaVpn
Login Time    : 21:58:10 UTC Mon Apr 10 2017
Duration      : 0h:51m:13s
Inactivity    : 0h:00m:00s
VLAN Mapping  : N/A                                VLAN        : none
Audit Sess ID : c0a800fd012d400058ebfff2
Security Grp  : none                               Tunnel Zone  : 0
```

View ASA Remote Access VPN Configuration Details

Procedure

- Step 1** In the left pane, choose **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**
- Step 2** In the left pane, click **VPN > ASA/FDM Remote Access VPN Configuration**.
- Step 3** Click on a VPN configuration object present. The group shows summary information on how many connection profiles and group policies are currently configured.
 - Expand the remote access VPN configuration to view all connection profiles associated with them.
 - Click the add + button to add a new connection profile.
 - Click the view button () to open a summary of the connection profile and connection instructions. Under **Actions**, you can click **Edit** to modify the changes.
 - You can click one of the following options under **Actions** to perform additional tasks:
 - Click **Group Policies** to assign/add group policies.
 - Click a configuration object or connection profile that you no longer need and click **Remove** to delete.

Configuring Remote Access VPN for an FDM-Managed Device

Security Cloud Control provides an intuitive user interface for configuring a new Remote Access Virtual Private Network (RA VPN). It also allows you to quickly and easily configure RA VPN connection for multiple FDM-managed devices that are on board in Security Cloud Control. AnyConnect is the only client that is supported on endpoint devices for an RA VPN connectivity to FDM-managed devices.

When the AnyConnect client negotiates an SSL VPN connection with the FDM-managed device, it connects using Transport Layer Security (TLS) or Datagram Transport Layer Security (DTLS). DTLS avoids latency and bandwidth problems associated with some SSL connections and improves the performance of real-time applications that are sensitive to packet delays. The client and the FDM-managed device negotiate the TLS/DTLS version to use. DTLS is used if the client supports it.

Security Cloud Control supports the following aspects of RA VPN functionality on FDM-managed devices:

- SSL client-based remote access
- IPv4 and IPv6 addressing
- Shared RA VPN configuration across multiple FDM-managed devices

**Important**

If an onboarded FDM-managed device (running on software version 6.7 or later) contains RA VPN configuration with SAML server as the authentication source, Security Cloud Control doesn't populate the AAA details in the connection profile as it doesn't manage SAML server objects in the current release. Thus you can't manage such RA VPN configuration from Security Cloud Control. However, Security Cloud Control reads the RA VPN connection profile and associated trusted CA certificate and SAML server objects.

Related Information:

- [Control User Permissions and Attributes Using RADIUS and Group Policies, on page 532](#)
- [End-to-End Remote Access VPN Configuration Process for an FDM-Managed Device, on page 546](#)
 - [Download AnyConnect Client Software Packages, on page 547](#)
 - [Upload AnyConnect Software Packages to an FDM-Managed Device Running Version 6.4.0, on page 547](#)
 - [Upload AnyConnect Software Packages to an FDM-Managed Device Running Version 6.5 or Later, on page 550](#)
 - [Upload RA VPN AnyConnect Client Profile, on page 527](#)
 - [Create an RA VPN Configuration, on page 567](#)
 - [Configure an RA VPN Connection Profile, on page 570](#)
 - [Allow Traffic Through the Remote Access VPN, on page 575](#)
 - [Upgrade AnyConnect Package on an FDM-Managed Device Running Version 6.4.0, on page 575](#)
- [Guidelines and Limitations of Remote Access VPN for FDM-Managed Device, on page 579](#)
- [How Users Can Install the AnyConnect Client Software on FDM-Managed Device, on page 579](#)
- [Licensing Requirements for Remote Access VPN, on page 582](#)
- [Maximum Concurrent VPN Sessions By Device Model, on page 582](#)
- [RADIUS Change of Authorization, on page 583](#)
 - [Configure Change of Authorization on the FDM-Managed Device, on page 583](#)
- [Split Tunneling for RA VPN Users \(Hair Pinning\), on page 532](#)

- [Verify Remote Access VPN Configuration of FDM-Managed Device, on page 585](#)
- [View Remote Access VPN Configuration Details of FDM-Managed Device, on page 587](#)

Split Tunneling for RA VPN Users (Hair Pinning)

This article describes the split tunneling for RA VPN.

Typically, in remote access VPN, you might want the VPN users to access the Internet through your device. However, you can allow your VPN users to access an outside network while they are connected to an RA VPN. This technique is called split tunneling or hair pinning. The split tunnel allows VPN connectivity to a remote network across a secure tunnel, and it also allows connectivity to a network outside the VPN tunnel. Split tunneling reduces the network load on the FDM-managed devices and increases the bandwidth on the outside interface.

To configure a split-tunnel list, you must create a Standard Access List or Extended Access List. Follow the instructions explained in the **How to Provide Internet Access on the Outside Interface for Remote Access VPN Users (Hair Pinning)** section of Virtual Private Networks (VPN) chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.

Control User Permissions and Attributes Using RADIUS and Group Policies

This article provides information on applying attributes to RA VPN connections from an external RADIUS server or a group policy.

You can apply user authorization attributes (also called user entitlements or permissions) to RA VPN connections from an external RADIUS server or from a group policy defined on the FDM-managed device. If the FDM-managed device receives attributes from the external AAA server that conflict with those configured on the group policy, then attributes from the AAA server always take precedence.

The FDM-managed device applies attributes in the following order:

Procedure

-
Step 1	User attributes defined on the external AAA server - The server returns these attributes after successful user authentication or authorization.
Step 2	Group policy configured on the FDM-managed device - If a RADIUS server returns the value of the RADIUS CLASS attribute IETF-Class-25 (OU= group-policy) for the user, the FDM-managed device places the user in the group policy of the same name and enforces any attributes in the group policy that are not returned by the server.
Step 3	Group policy assigned by the connection profile - The connection profile has the preliminary settings for the connection and includes a default group policy applied to the user before authentication. All users connecting to the FDM-managed device initially belong to this group, which provides any attributes that are missing from the user attributes returned by the AAA server, or the group policy assigned to the user.
-

FDM-managed devices support RADIUS attributes with vendor ID 3076. If the RADIUS server you use does not have these attributes defined, you must manually define them. To define an attribute, use the attribute name or number, type, value, and vendor code (3076).

The following topics explain the supported attributes based on whether the values are defined in the RADIUS server, or whether they are values the system sends to the RADIUS server.

Attributes Sent to the RADIUS Server

RADIUS attributes 146 and 150 are sent from the FDM-managed device to the RADIUS server for authentication and authorization requests. All the following attributes are sent from the FDM-managed device to the RADIUS server for accounting start, interim-update, and stop requests.

Table 37: Attributes Secure Firewall Threat Defense Sends to RADIUS

Attribute	Attribute	Syntax, Type	Single or Multi-valued	Description or Value
Client Type	150	Integer	Single	The type of client this is connecting to the VPN: 2= AnyConnect Client SSL VPN
Session Type	151	Integer	Single	The type of connection: 1 = AnyConnect Client SSL VPN
Tunnel Group Name	146	String	Single	The name of the connection profile that was used for establishing the session, as defined on the FDM-managed device. The name can be 1 - 253 characters.

Attributes Received from the RADIUS Server

The following user authorization attributes are sent to the FDM-managed device from the RADIUS server.

Attribute	Attribute Number	Syntax, Type	Single or Multi-valued	Description or Value
Access-List-Inbound	86	String	Single	Both Access-List attributes take the name of an ACL that is configured on the FDM-managed device. Create these ACLs in Firewall Device Manager using the Smart CLI Extended Access List object type (Log in to Firewall Device Manager and select Device > Advanced Configuration > Smart CLI > Objects). These ACLs control traffic flow in the inbound (traffic entering the FDM-managed device) or outbound (traffic leaving the FDM-managed device) direction.
Access-List-Outbound	87	String	Single	
Address-Pools	217	String	Single	The name of a network object defined on the FDM-managed device that identifies a subnet, which will be used as the address pool for clients connecting to the RA VPN. Define the network object on the Objects page.
Banner1	15	String	Single	The banner to display when the user logs in.
Banner2	36	String	Single	The second part of the banner to display when the user logs in. Banner2 is appended to Banner1.

Attribute	Attribute Number	Syntax, Type	Single or Multi-valued	Description or Value
Group-Policy	25	String	Single	The group policy to use in the connection. You must create the group policy on the RA VPN Group Policy page. You can use one of the following formats: • <i>group policy name</i> • <i>OU=group policy name</i> • <i>OU=group policy name;</i>
Simultaneous-Logins	2	Integer	Single	The number of separate simultaneous connections the user can establish, 0 - 2147483647.
VLAN	140	Integer	Single	The VLAN on which to confine the user's connection, 0 - 4094. You must also configure this VLAN on a subinterface on the FDM-managed device.

Two-Factor Authentication

You can configure two-factor authentication for the RA VPN. With two-factor authentication, the user must supply a username and static password, plus an additional item such as a Duo passcode. Two-factor authentication differs from using a second authentication source in that two-factor is configured on a single authentication source, with the relationship to the Duo server tied to the primary authentication source. The exception is Duo LDAP, where you configure the Duo LDAP server as the secondary authentication source.

- [Duo Two-Factor Authentication Using RADIUS, on page 535](#)
- [Duo Two-Factor Authentication using LDAP, on page 540](#)

Duo Two-Factor Authentication Using RADIUS

You can configure the Duo RADIUS server as the primary authentication source. This approach uses the Duo RADIUS Authentication Proxy.

For the detailed steps to configure Duo, please see <https://duo.com/docs/cisco-firepower>.

You would then configure Duo to forward authentication requests directed to the proxy server to use another RADIUS server, or a Microsoft Active Directory(AD) server, as the first authentication factor, and the Duo Cloud Service as the second factor.

When using this approach, the user must authenticate using a username that is configured on both the Duo Authentication Proxy and the associated RADIUS/AD server, and the password for the username configured in the RADIUS/AD server, followed by one of the following Duo codes:

Duo-passcode. For example, *my-password,12345*.

push. For example, *my-password,push*. Use **push** to tell Duo to send a push authentication to the Duo Mobile app, which the user must have already installed and registered.

sms. For example, *my-password,sms*. Use **sms** to tell Duo to send an SMS message with a new batch of passcodes to the user's mobile device. The user's authentication attempt will fail when using **sms**. The user must then re-authenticate and enter the new passcode as the secondary factor.

phone. For example, *my-password,phone*. Use **phone** to tell Duo to perform phone callback authentication.

If the username and password are authenticated, the Duo Authentication Proxy contacts the Duo Cloud Service, which validates that the request is from a valid configured proxy device and then pushes a temporary passcode to the mobile device of the user as directed. When the user accepts this passcode, the session is marked authenticated by Duo and the RA VPN is established.

For a detailed explanation, see [How to Configure Two-Factor Authentication using Duo RADIUS, on page 536](#)

How to Configure Two-Factor Authentication using Duo RADIUS

You can configure the Duo RADIUS server as the primary authentication source. This approach uses the Duo RADIUS Authentication Proxy.

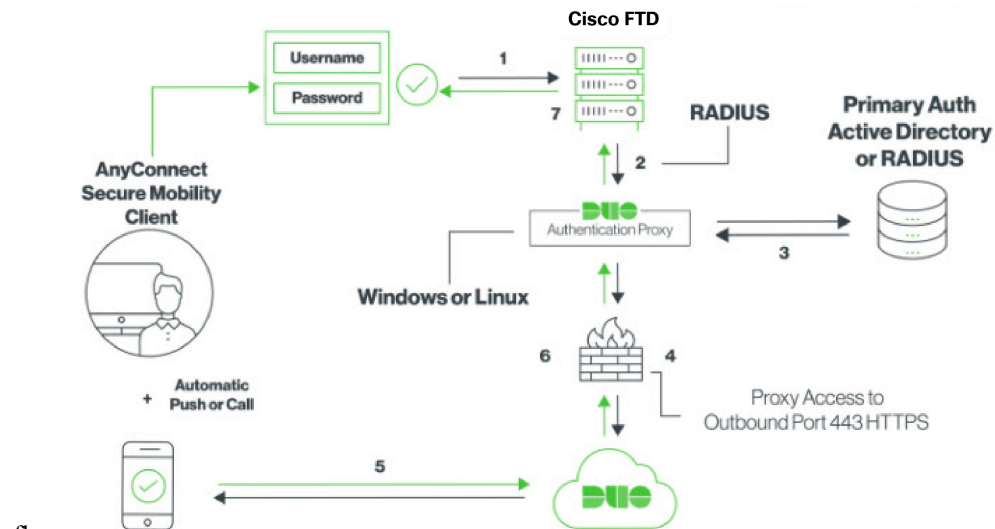
You would then configure Duo to forward authentication requests directed to the proxy server to use another RADIUS server, or an AD server, as the first authentication factor, and the Duo Cloud Service as the second factor.

The following topics explain the configuration in more detail:

- [System Flow for Duo RADIUS Secondary Authentication, on page 536](#)
- [Configure Device for Duo RADIUS Using Security Cloud Control, on page 538](#)

System Flow for Duo RADIUS Secondary Authentication

Following is an explanation of the system



flow:

1. The user makes a remote access VPN connection to the FDM-managed device and provides username associated with RADIUS/AD server, the password for the username configured in the RADIUS/AD server, followed by one of the DUO codes, Duo-password, push, SMS, or phone. For more information, [Duo Two-Factor Authentication Using RADIUS, on page 535](#)
2. FDM-managed device sends the authentication request to the Duo Authentication proxy.
3. Duo Authentication proxy authenticates this primary authentication attempt with the primary authentication server, which might be Active Directory or RADIUS.
4. If the credentials are authenticated, the Duo Authentication Proxy connection is established to Duo Security over TCP port 443.
5. Duo then authenticates the user separately through push notification, text message with a passcode, or a telephone call. The user must complete this authentication successfully.
6. Duo authentication proxy receives the authentication response.
7. If the secondary authentication was successful, the FDM-managed device establishes a remote access VPN connection with the user's AnyConnect client.

Configure Duo RADIUS Secondary Authentication

Duo Authentication proxy authenticates this primary authentication attempt with the primary authentication server, which might be Active Directory or RADIUS.

Create a Duo Account

Create a Duo account and obtain the integration key, secret key, and API hostname.

Following is an overview of the process. For details, please see the Duo web site,

Procedure

-
- Step 1** [Sign up for a Duo account.](#)
- Step 2** Log in to the [Duo Admin Panel](#) and navigate to **Applications**.
- Step 3** Click **Protect an Application** and locate **Cisco Firepower Threat Defense VPN** in the applications list.
- Step 4** Click **Protect this Application** to get your integration key, secret key, and API hostname. You'll need this information when configuring the proxy. For help, see the *Duo Getting Started* guide, <https://duo.com/docs/getting-started>.
- Step 5** Install and configure the Duo Authentication Proxy. For instructions, see the "Install the Duo Authentication Proxy" section in <https://duo.com/docs/cisco-firepower>.
- Step 6** Start the Authentication Proxy. For instructions, see the "Start the Proxy" section in <https://duo.com/docs/cisco-firepower>.
- For enrolling new users in Duo, see <https://duo.com/docs/enrolling-users>.
-

Configure Device for Duo RADIUS Using Security Cloud Control

Procedure

-
- Step 1** Configure FTD Radius Server Object.
- In the left pane, click **Manage > Objects**.
- 
- Click **RA VPN Objects (ASA & FTD) > Identity Source**.
 - Provide a name and set the **Device Type** as **FTD**.
 - Select **Radius Server Group** and click **Continue**.
 - In the **Radius Server** section, click the **Add** button and click **Create New Radius Server**.
- In the **Server Name or IP Address** field, enter your Duo Authentication Proxy server's fully-qualified hostname or IP address.

Adding FTD RADIUS Server

Object Name

DuoRadiusServerObject

Device Type

FTD

Description

Object description

1 Identity Source Type

RADIUS Server

2 Edit Identity Source

Server Name or IP Address

10.1.10.101

Authentication Port

1812

Timeout (seconds) ⓘ

10

1 - 300

Server Secret Key

☐ RA VPN Only (if this object is used in RA VPN Configuration)

Cancel

Add

- f) Once you have added the Duo RADIUS server to the group, click **Add** to create the new Duo RADIUS server

Adding FTD RADIUS Server Group

Object Name

DuoRadius

Device Type

FTD

Description

Duo Radius Authentication Proxy

1 Identity Source Type

RADIUS Server Group

2 Edit Identity Source

Dead Time ⓘ

10

0-1440 minutes

Maximum Failed Attempts

3

1-5

☐ Dynamic Authorization (for RA VPN only)

Port

1700

1024-65535

Realm that Supports the RADIUS Server

Relam_Active_Directory

RADIUS Server ⓘ

+ RADIUS SERVERS

DuoRadiusServerObject

Step 2 Change the Remote Access VPN Authentication Method to Duo RADIUS.

- a) In the left pane, click **VPN > Remote Access VPN Configuration**.
- b) In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- c) Expand the VPN configuration and click on the connection profile to which you want to add Duo.
- d) In the **Actions** pane on the right, click **Edit**.
- e) Select the **Authentication Type** can be **AAA** or **AAA and Client Certificate**.
- f) In the **Primary Identity Source for User Authentication** list, select the server group you created

- g) You typically do not need to select an "Authorization Server" or "Accounting Server".
- h) Click **Continue**.
- i) In the **Summary and Instructions** step, click **Done** to save the configuration.

Step 3 [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

Duo Two-Factor Authentication using LDAP

You can use the Duo LDAP server as the secondary authentication source along with a Microsoft Active Directory (AD) or RADIUS server as the primary source. With Duo LDAP, the secondary authentication validates the primary authentication with a Duo passcode, push notification, or phone call.



Note The Duo two-factor authentication feature is available in Security Cloud Control for devices running Firepower Threat [version 6.5 or later](#).

The FDM-managed device communicates with Duo LDAP using LDAPS over port TCP/636.

When using this approach, the user must authenticate using a username that is configured on both the AD/RADIUS server and the Duo LDAP server. When prompted to log in by AnyConnect, the user provides the AD/RADIUS password in the primary Password field, and for the Secondary Password, provides one of the following to authenticate with Duo. For more details, see the "Second Password for Factor Selection" section in <https://guide.duo.com/anyconnect>.

- **Duo passcode**—Authenticate using a passcode, either generated with Duo Mobile, sent via SMS, generated by your hardware token, or provided by an administrator. For example, 1234567.
- **push**—Push a login request to your phone, if you have installed and activated the Duo Mobile app. Review the request and tap **Approve** to log in.
- **phone**—Authenticate using a phone callback.

- **sms**—Request a Duo passcode in a text message. The login attempt will fail. Log in again using the new passcode.

For a detailed explanation, see [How to Configure Two-Factor Authentication using Duo LDAP, on page 541](#).

How to Configure Two-Factor Authentication using Duo LDAP

You can use the Duo LDAP server as the secondary authentication source along with a Microsoft Active Directory (AD) or RADIUS server as the primary source. With Duo LDAP, the secondary authentication validates the primary authentication with a Duo passcode, push notification, or phone call..

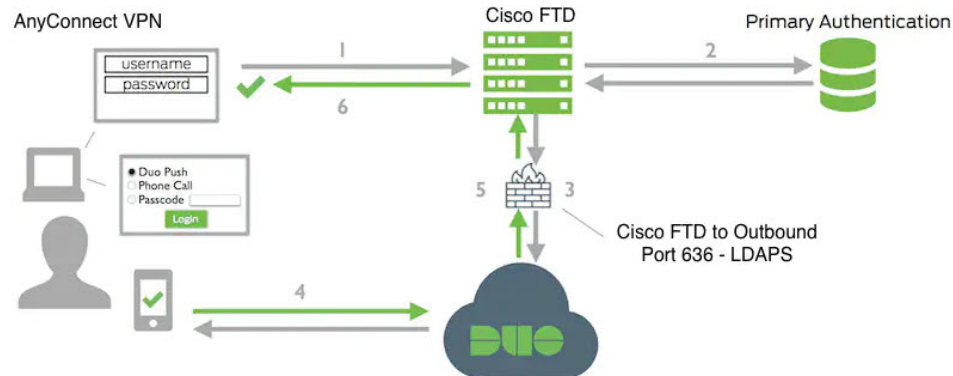
The following topics explain the configuration in more detail:

- [System Flow for Duo LDAP Secondary Authentication, on page 541](#)
- [Configure Duo LDAP Secondary Authentication, on page 541](#)

System Flow for Duo LDAP Secondary Authentication

The following graphic shows how Firewall Threat Defense and Duo work together to provide two-factor authentication using LDAP.

Following is an explanation of the system flow:



1. The user makes a remote access VPN connection to the FDM-managed device and provides username and password.
2. FDM-managed device authenticates this primary authentication attempt with the primary authentication server, which might be Active Directory or RADIUS.
3. If the primary authentication works, FDM-managed device sends a request for secondary authentication to the Duo LDAP server.
4. Duo then authenticates the user separately, through push notification, text message with a passcode, or a telephone call. The user must complete this authentication successfully.
5. Duo responds to the FDM-managed device to indicate whether the user authenticated successfully.
6. If the secondary authentication was successful, the FDM-managed device establishes a remote access VPN connection with the user's AnyConnect client.

Configure Duo LDAP Secondary Authentication

The following procedure explains the end-to-end process of configuring two-factor authentication, using Duo LDAP as the secondary authentication source, for remote access VPN. You must have an account with Duo, and obtain some information from Duo, to complete this configuration.

Create a Duo Account

Create a Duo account and obtain the integration key, secret key, and API hostname.

Following is an overview of the process. For details, please see the Duo web site,

Procedure

- Step 1** [Sign up for a Duo account.](#)
 - Step 2** Log in to the [Duo Admin Panel](#) and navigate to **Applications**.
 - Step 3** Click **Protect an Application** and locate **Cisco Firepower Threat Defense VPN** in the applications list.
 - Step 4** Click **Protect this Application** to get your **Integration key**, **Secret key**, and **API hostname**. For help, see the *Duo Getting Started* guide, <https://duo.com/docs/getting-started>.
- For enrolling new users in Duo, see <https://duo.com/docs/enrolling-users>.
-

Upload a Trusted CA Certificate to an FDM-Managed Device

The FDM-managed device must have the trusted CA certificate needed to validate the connection to the Duo LDAP server. You can go directly to <https://www.digicert.com/digicert-root-certificates.htm> and download either **DigiCertSHA2HighAssuranceServerCA** or **DigiCert High Assurance EV Root CA** and upload it using Firewall Device Manager (FDM).

Procedure

- Step 1** Access the Firewall Device Manager page of the FDM-managed device, choose **Objects > Certificates**.
 - Step 2** Click + > **Add Trusted CA Certificate**.
 - Step 3** Enter a name for the certificate, for example, `DigiCert_High_Assurance_EV_Root_CA`. (Spaces are not allowed.)
 - Step 4** Click **Upload Certificate** and select the file that you downloaded.
 - Step 5** Click **OK**.
 - Step 6** Onboard the device to Security Cloud Control if you haven't onboarded it already.
 - Step 7** [Read Configuration Changes from FTD to Security Cloud Control](#).
-

Configure FTD for Duo LDAP in Security Cloud Control

Procedure

- Step 1** Create a Duo LDAP identity source object for the Duo LDAP server.

- a) In the Security Cloud Control navigation bar on the left, click **Manage > Objects**.



- b) Click the  to create an object > **RA VPN Objects (ASA & FTD) > Identity Source**.
 c) Enter a name for the object, for example, Duo-LDAP-server.
 d) Select the **Device Type** as **FTD**.
 e) Click **Duo Ldap Identity Source** and click

Adding FTD Duo Ldap Identity Source

Object Name
Enter an object name

Description
Object description

1 Identity Source Type **Duo Ldap Identity Source**

2 Edit Identity Source

API Hostname e.g. api-XXXXXX.duosecurity.com
Enter API Hostname
Obtain hostname URL from your duo account.

Port 1 to 65535
636

Timeout 1 to 300 seconds
120

Integration Key
Enter Key
Obtain integration key from your duo account.

Secret Key
Obtain secret key from your duo account.

Interface used to connect to Duo Server
☒ **Resolve via route lookup**
 Select Routing to have the system use the routing table to find the right path.
☐ **Manually choose interface**
 Select an interface, and the system will always use that interface. The default interface is the diagnostic interface, but this will work only if you configure an IP address on the interface.

Continue. Cancel Add

- f) In the **Edit Identity Source** area, provide the following details:

- **API Hostname:** Enter the API Hostname that you obtained from your Duo account. The hostname should look like the following, with the X's replaced with your unique value:
API-XXXXXXXXX.DUOSEcurity.COM. Uppercase is not required.
- **Port:** Enter the TCP port to use for LDAPS. This should be 636 unless you have been told by Duo to use a different port. Note that you must ensure that your access control list allows traffic to the Duo LDAP server through this port.
- **Timeout:** Enter the timeout, in seconds, to connect to the Duo server. The value can be 1-300 seconds. The default is 120. To use the default, either enter 120 or delete the attribute line.
- **Integration Key:** Enter the integration key that you obtained from your Duo account.
- **Secret Key:** Enter the secret key that you obtained from your Duo account. This key will subsequently be masked.
- **Interface used to connect to Duo Server:** Select the interface that is used for connecting to Duo Server.
 - **Resolve via route lookup:** Select this option to use the routing table to find the right path. For creating a routing table, see Routing.

- **Manually choose interface:** Select this option and choose one of the interfaces from the list. The default interface is the diagnostic interface, but this will work only if you configure an IP address on the interface. Note: Ensure that the selected interface is present on the same device you want to connect to Duo Server.
- Click **Add**.

Step 2 (optional) Use the AnyConnect Profile Editor to create a profile that specifies 60 seconds or more for authentication timeout.

You need to give users extra time to obtain the Duo passcode and complete the secondary authentication. We recommend at least 60 seconds. The following procedure explains how to configure the authentication timeout only and then upload the profile to FDM-managed device. If you want to change other settings, you can do so now.

- If you have not already done so, download and install the AnyConnect profile editor package. You can find this in the Cisco Software center (software.cisco.com) in the folder for your AnyConnect version. The base path at the time of this writing is **Downloads Home > Security > VPN and Endpoint Security Clients > Cisco VPN Clients > AnyConnect Secure Mobility Client**.
- Open the AnyConnect **VPN Profile Editor**.
- Select **Preferences (Part 2)** in the table of contents, scroll to the end of the page, and change **Authentication Timeout** to 60 (or more). The following image is from the AnyConnect 4.7 VPN Profile Editor; previous or subsequent versions might be different.
- Choose **File > Save**, and save the profile XML file to your workstation with an appropriate name, for example, duo-ldap-profile.xml.
- You can now close the **VPN Profile Editor** application.
- In Security Cloud Control, [upload RA VPN AnyConnect Client Profile](#).

Step 3 Create a group policy and select the AnyConnect profile in the policy.

- In the Security Cloud Control navigation bar on the left, click **Manage > Objects**.
- To edit an existing group policy, use the **RA VPN Group Policy** filter to view only the existing group policies and modify the policy that you want and save it.
- To create a new group policy, click **RA VPN Objects (ASA & FTD) > RA VPN Group Policy**.
- On the **General** page, configure the following properties:
 - **Name** — For a new profile, enter a name. For example, Duo-LDAP-group.
 - **AnyConnect Client Profiles** — Select the AnyConnect client profile object that you created.
- Click **Add** to save the object.
- Click **VPN > Remote Access VPN Configuration**.
- Click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- Click the remote access VPN configuration that you want to update.
- In the **Actions** pane on the right, click **Group Policies**.
- Click + to select the group policies that you want to associate with the VPN configuration.
- Click **Save** to save the group policy.

Step 4 Create or edit the remote access VPN connection profile to use for Duo-LDAP secondary authentication.

The following procedure just mentions the key changes to enable Duo-LDAP as the secondary authentication source and apply the AnyConnect client profile. For new connection profiles, you must configure the rest of

the required fields. For this procedure, we assume you are editing an existing connection profile, and you simply must change these two settings.

- a) On the Security Cloud Control navigation page, click **VPN > Remote Access VPN Configuration**.
- b) Expand the remote access VPN configuration and click the connection profile that you want to update.
- c) In the **Actions** pane on the right, click **Edit**.
- d) Under **Primary Identity Source**, configure the following:
 - **Authentication Type** — Choose either AAA Only or AAA and Client Certificate. You cannot configure two-factor authentication unless you use AAA.
 - **Primary Identity Source for User Authentication** — Select your primary Active Directory or RADIUS server. Note that you can select a Duo-LDAP identity source as the primary source. However, Duo-LDAP provides authentication services only, not identity services, so if you use it as a primary authentication source, you will not see usernames associated with RA VPN connections in any dashboards, and you will not be able to write access control rules for these users. (You can configure fallback to the local identity source if you want to.)
 - **Secondary Identity Source** — Select the Duo-LDAP identity source.

Note

If username in **Primary Identity Source** and **Secondary Identity Source** are the same, we recommend enabling **Use Primary username for Secondary login** in the **Advanced** options in the Connection Profile. Configuring this way allows the end-user to use a single username for both primary and secondary identity sources.

- e) Click **Continue**.
- f) On the **Group Policy** page, select the group policy that you created or

- g) Click **Continue**.
- h) Click **Done** to save your changes to the connection profile.

Step 5 [Preview and Deploy Configuration Changes for All Devices, on page 615.](#)

End-to-End Remote Access VPN Configuration Process for an FDM-Managed Device

This section provides the end-to-end procedure for configuring Remote Access Virtual Private Network (RA VPN) on an FDM-managed device onboarded to Security Cloud Control.

To enable remote access VPN for your clients, you need to configure several separate items. The following procedure provides the end-to-end process.

Procedure

Step 1 Enable two licenses.

- When you register the device, you must do so with a Smart Software Manager account that is enabled for export-controlled features. The license must meet export control requirements before you can configure remote access VPN. You also cannot configure the feature using the evaluation license. Your purchase of an FDM-managed device automatically includes an license. The license covers all features not covered by the optional licenses. It is a perpetual license. The device must be registered to Firepower Device Manager. See the **Registering the Device** section in the Licensing the System chapter of the [Cisco Firepower Threat Defense Configuration Guide](#) for the version your device is running.
- A license. For details, see [Licensing Requirements for Remote Access VPN](#).
 - To enable the license, see the **Enabling or Disabling Optional Licenses** section in the Licensing the System chapter of the [Configuration Guide](#) for the version your device is running.

Step 2 Configure Certificates.

Certificates are required to authenticate SSL connections between the clients and the device. You can use the pre-defined DefaultInternalCertificate for the VPN or create your own.

Step 3 Configure the identity source used for authenticating remote users.

You can use the following sources to authenticate users attempting to connect to your network using RA VPN. Additionally, you can use client certificates for authentication, either alone or in conjunction with an identity source.

- Local Identity Source (the local user database): As a primary or fallback source. You can define users directly on the device and not use an external server. If you use the local database as a fallback source, ensure that you define the same usernames/passwords as the ones described in the external server.

Note

You can create user accounts directly on the FDM-managed device only from Firepower Device Manager. See [Configure Local Users](#).

Step 4 Create an RA VPN Configuration.

Step 5 Configure an RA VPN Connection Profile.

Step 6 Review and deploy configuration changes to the devices.

Step 7 Allow Traffic Through the Remote Access VPN.

**Important**

If you change the Remote Access VPN configuration by using a local manager like Firepower Device Manager, the **Configuration Status** of that device in Security Cloud Control shows "Conflict Detected". See [Out-of-Band Changes on an FDM-Managed Device](#). You can [Resolve Configuration Conflicts](#) on this FDM-managed device.

What to do next

Once the RA VPN configuration is downloaded to the FDM-managed devices, the users can connect to your network from a remote location using a computer or other supported iOS or Android device connected to the Internet. You can monitor live AnyConnect Remote Access Virtual Private Network (RA VPN) sessions from all onboarded RA VPN head-ends in your tenant.

Download AnyConnect Client Software Packages

Before configuring a remote access VPN, you must download the AnyConnect software packages from <https://software.cisco.com/download/home/283000185> to your workstation. Ensure that you download the "AnyConnect Headend Deployment Package" for your desired operating systems. Later, you can upload these packages to FDM-managed devices when defining the VPN.

Always download the latest AnyConnect version, to ensure that you have the latest features, bug fixes, and security patches. Regularly update the packages on the device.

**Note**

You can upload one AnyConnect package per Operating System (OS): Windows, Mac, and Linux. You cannot upload multiple versions for a given OS type.

Upload AnyConnect Software Packages to an FDM-Managed Device Running Version 6.4.0

You can upload the AnyConnect software packages to the FDM-managed devices version 6.4.0 using Firewall Device Manager API explorer. A minimum of one AnyConnect software package must be present on the device to create an RA VPN connection.

**Important**

The procedure applies only to Firewall Device Manager Version 6.4. If you are using Firewall Device Manager Version 6.5 or later, use the Security Cloud Control interface to [upload the AnyConnect package](#).

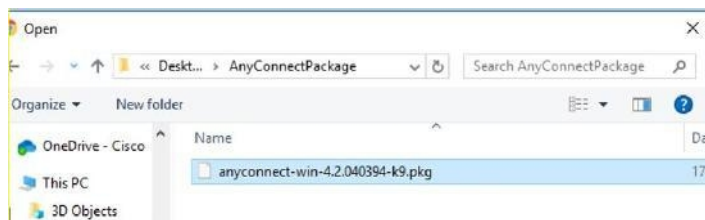
Use the following procedure to upload the AnyConnect package to Firewall Device Manager Version 6.4.0:

Procedure**Step 1**

Download the AnyConnect packages from <https://software.cisco.com/download/home/283000185>.

- Make sure you accept the EULA and have K9 (encrypted image) privileges.
- Select the "AnyConnect Headend Deployment Package" package for your operating system. The package name will be similar to, "anyconnect-win-4.7.04056-webdeploy-k9.pkg". There are separate headend Webs Deploy packages for Windows, macOS, and Linux.

- Step 2** Using a browser, open the home page of the system. For example, <https://ftd.example.com>.
- Step 3** Log into Firewall Device Manager.
- Step 4** Edit the URL to point to `/#/api-explorer`, for example, <https://ftd.example.com/#/api-explorer>.
- Step 5** Scroll down and click **Upload** > **/action/uploaddiskfile**.
- Step 6** In **fileToUpload** field, click **Choose File** and select the required AnyConnect package. You can upload the packages one at a time.



- Step 7** Click **Open**.
- Step 8** Scroll down and click **TRY IT OUT!**. Wait until the package uploads completely. In the **Response Body**, the API response appears in the following format.

```
{ "version": null, "name": "691f47e1-90c7-11e9-a361-79e2452f0c57.pkg",
  "fileName": "691f47e1-90c7-11e9-a361-79e2452f0c57.pkg",
  "id": "691f47e1-90c7-11e9-a361-79e2452f0c57.pkg",
  "type": "fileuploadstatus",
  "links": {
    "self":
      https://ftd.example.com:972/api/fdm/...90d111e9-a361- cf32937ce0df.pkg
  } }
```

Record the **fileName** of the package from the response as you must enter the same string when performing the POST operation. In this example, the fileName is **691f47e1-90c7-11e9-a361-79e2452f0c57.pkg**.

- Step 9** Scroll up near the top of Firewall Threat Defense REST API page and click **AnyConnectPackageFile** > **POST /object/anyconnectpackagefiles**. Perform a POST operation to the API providing the temp staged diskFilename and the OS type of the package file in the payload. This action creates the AnyConnect package file.
- Step 10** In the **body** field, enter the package details in the following format only:
- ```
{ "platformType": "WINDOWS",
 "diskFileName": "691f47e1-90c7-11e9-a361-79e2452f0c57.pkg",
 "type": "anyconnectpackagefile",
 "name": "AnyConnectWindowsBGL" }
```
- In the **platformType** field, enter the OS platform as WINDOWS, MACOS, or LINUX.
  - In the **diskFileName** field, enter the **fileName** that you have recorded after uploading disk file.
  - In the **name** field, enter a name that you want for the package.
  - Click **TRY IT OUT!**.

In the **Response Body** field, the API response appears in the following format after a successful POST operation.

```
{ "version": "ni7xeneslft3p",
 "name": "AnyConnectWindowsBGL",
 "description": null,
 "diskFileName": "41d592e3-90ca-11e9-a361-6d05320a165d.pkg",
 "md5Checksum": "9bbe53dcf92e515d3ce5423048212488",
 "platformType": "WINDOWS",
 "id": "c9c9dfe3-9cd8-11e9-a361-23534f081c43",
 "type": "anyconnectpackagefile",
 "links": { "self":
 "https://ftd.example.com:972...1-cf32937ce0df"
 }
}
```

The AnyConnect package is created on Firewall Device Manager.

**Step 11** Click **AnyConnectPackageFile** > **GET /object/anyconnectpackagefiles** > **TRY IT OUT!**.

The **Response Body** shows all AnyConnect package files.

A sample response is shown below.

```
{
 "items": [
 {
 "version": "la4nwceqk2sg4",
 "name": "AnyConnectWindowsBGL",
 "description": null,
 "diskFileName": "82f1e362-9cd8-11e9-a361-9758ba07962d.pkg",
 "md5Checksum": "9bbe53dcf92e515d3ce5423048212488",
 "platformType": "WINDOWS",
 "id": "c9c9dfe3-9cd8-11e9-a361-23534f081c43",
 "type": "anyconnectpackagefile",
 "links": {
 "self":
 "https://ftd.example.com:972...1-23534f081c43"
 }
 }
],
}
```

**Step 12** Upload other AnyConnect packages for each OS type. Repeat steps from 4 to 10.

**Step 13** Edit the URL to point to the web page, for example, <https://ftd.example.com>

**Step 14** Click the **Deploy Changes** icon in the upper right of the web page. The icon is highlighted with a dot when there are undeployed changes.

- Step 15** If you are satisfied with the changes, you can click **Deploy Now** to start the job immediately. The window will show that the deployment is in progress. You can close the window or wait for the deployment to complete.



**Note** To delete a package from the FDM-managed device, click **AnyConnectPackageFile > Delete**. In the **objID** field, type the package id and click **TRY IT OUT!**.

To complete a VPN connection, your users must install the AnyConnect client software on their workstation. For more information, see [How Users Can Install the AnyConnect Client Software on FDM-Managed Device, on page 579](#).

#### Upload AnyConnect Software Packages to an FDM-Managed Device Running Version 6.5 or Later

If you're using an FDM-managed device, running [version 6.5 or later](#), for configuring RA VPN, you can use the RA VPN wizard in Security Cloud Control to upload AnyConnect software packages to the device. In the RA VPN wizard, you must provide the URL of the remote HTTP or HTTPS server where the AnyConnect packages are preloaded.



**Note** You can upload the AnyConnect package using the [FDM API procedure](#) as well.

#### Upload an AnyConnect Package from Security Cloud Control Repository

The remote access VPN Configuration wizard presents AnyConnect packages per operating system from the Security Cloud Control repository, which you can select and upload to device. Make sure that the device has access to the internet and proper DNS configuration.



**Note** If the desired package is unavailable in the presented list or the device has no access to the internet, you can upload the package using the server where the AnyConnect packages are preloaded.

### Procedure

- Step 1** Click on the field that corresponds to an operating system and select an AnyConnect package.
- Step 2** Click  to upload the package. If the checksum doesn't match, the AnyConnect package upload fails. You can see the device's workflow tab for more details about the failure.

#### Before you Begin

Make sure that you download the "AnyConnect Headend Deployment Package" for your desired operating systems. Always download the latest AnyConnect version, to ensure that you have the latest features, bug fixes, and security patches. Regularly update the packages on the device.



**Note** You can upload one AnyConnect package per Operating System (OS): Windows, Mac, and Linux. You cannot upload multiple versions for a given OS type.

### Procedure

- 
- Step 1** Download the AnyConnect packages from <https://software.cisco.com/download/home/283000185>.
- Make sure you accept the EULA and have K9 (encrypted image) privileges.
  - Select the "AnyConnect Headend Deployment Package" package for your operating system. The package name will be similar to "anyconnect-win-4.7.04056-webdeploy-k9.pkg." There are separate headend packages for Windows, macOS, and Linux.
- Step 2** Upload the AnyConnect packages to a remote HTTP or HTTPS server. Ensure that there is a network route from the FDM-managed device to the HTTP or HTTPS server.
- Note**  
If you are uploading the AnyConnect package to an HTTPS server, ensure that the following steps are performed:
- Upload the trusted CA certificate of that server on the FDM-managed device from Firewall Device Manager. To upload the certificate, see the "Uploading Trusted CA Certificates" section in the "Certificates" chapter of [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager, Version X.Y.](#)
  - Install the trusted CA certificate on the HTTPS server.
- Step 3** The remote server's URL must be a direct link without prompting for authentication. If the URL is pre-authenticated, the file can be downloaded by specifying the RA VPN wizard's URL.
- Step 4** If the remote server IP address is NATed, you have to provide the NATed public IP address of the remote server location.
- 

### Upload new AnyConnect Packages

Use the following procedure to upload a new AnyConnect packages to an FDM-managed device running Version 6.5.0:

### Procedure

- 
- Step 1** [Create an RA VPN Configuration from steps 1-4.](#)
- Step 2** In the **AnyConnect Package Detected**, you can upload separate packages for Windows, Mac, and Linux endpoints.
- Step 3** In the corresponding platform field, specify the server's paths where the AnyConnect packages compatible for Windows, Mac, and Linux are pre-uploaded. Examples of server paths:

```
'http://<ip_address>:port_number/<folder_name>/anyconnect-win-4.8.01090-webdeploy-k9.pkg',
'https://<ip_address>:port_number/<folder_name>/anyconnect-linux64-4.7.03052-webdeploy-k9.pkg'.
```

- Step 4** Click  to upload the package. Security Cloud Control validates if the path is reachable, and the specified filename is a valid package. When the validation is successful, the names of the AnyConnect packages appear. As you add more FDM-managed devices to the RA VPN configuration, you can upload the AnyConnect packages to them.
- Step 5** Click **OK**. The AnyConnect packages are added to the RA VPN configuration.
- Step 6** Continue to perform procedure in [Create an RA VPN Configuration](#) from here onwards.

### What to do next

To complete a VPN connection, users must install the AnyConnect client software on their workstation. For more information, see [How Users Can Install the AnyConnect Client Software on FTD](#).

### Replace an Existing AnyConnect Package

If the AnyConnect packages are already present on the devices, you can see them in the RA VPN wizard. You can see all the available AnyConnect packages for an operating system in a drop-down list. You can select an existing package from the list and replace it with a new one but can't add a new package to the list.



**Note** If you want to replace an existing package with a new one, ensure that the new AnyConnect package is uploaded already to a server on the network that the FDM-managed device can reach.

### Procedure

- Step 1** In the left pane, click **VPN > Remote Access VPN**.
- Step 2** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- Step 3** Select the RA VPN configuration to be modified, and under **Actions**, click **Edit**.
- Step 4** In **AnyConnect Packages Detected**, click  icon appearing beside the existing AnyConnect package. If there are multiple versions of AnyConnect package for an operating system, select the package you want to replace from the list and click **Edit**. The existing package disappears from the corresponding field.
- Step 5** Specify the server's path where the new AnyConnect package is preloaded and click  to upload the package.
- Step 6** Click **OK**. The new AnyConnect package is added to the RA VPN configuration.
- Step 7** Continue to [Create an RA VPN Configuration](#) from step 6 onwards.

### Delete the AnyConnect Package

#### Procedure

- Step 1** In the left pane, click **VPN > Remote Access VPN**.



- Step 2** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- Step 3** Select the RA VPN configuration to be modified, and under **Actions**, click **Edit**.
- Step 4** In **AnyConnect Packages Detected**, click  icon appearing beside the AnyConnect package that you want to delete. If there are multiple versions of AnyConnect package for an operating system, select the package you want to delete from the list. The existing package disappears from the corresponding field.
- Note**  
Click **Cancel** to stop the delete operation and retain the existing package.
- Step 5** Click **OK**. The device's **Configuration Status** is in 'Not Synced' state.
- Note**  
If you want to undo the delete action at this stage, click **Security Devices** page and click **Discard Changes** to retain the existing AnyConnect package.
- Step 6** [Review and deploy configuration changes to the devices.](#)
- 

## Configure Identity Sources for FDM-Managed Device

Identity Sources, such as Microsoft AD realms and RADIUS Servers, are AAA servers and databases that define user accounts for the people in your organization. You can use this information in a variety of ways, such as providing the user identity associated with an IP address, or authenticating remote access VPN connections or access to Security Cloud Control.

Click **Manage > Objects**, then click  and choose **> RA VPN Objects (ASA & FTD) > Identity Source** to create your sources. You would then use these objects when you configure the services that require an identity source. You can apply appropriate filters to search existing sources and manage them.

### Active Directory Realms

Active Directory provides user account and authentication information. When you deploy a configuration that includes an AD realm to an FDM-managed device, Security Cloud Control fetches users and groups from the AD server.

You can use this source for the following purposes:

- Remote Access VPN, as a primary identity source. You can use AD in conjunction with a RADIUS server.
- Identity policy, for active authentication and as the user identity source used with passive authentication.
- Identity rule, for active authentication for a user.

Security Cloud Control requests an updated list of user groups once every 24 hours. Because you can add a maximum of 50 users or groups to a rule, selecting groups usually makes more sense than selecting individual users. For example, you could create a rule allowing the Engineering group access to a development network, and create a subsequent rule that denies all other access to the network. Then, to make the rule apply to new engineers, you only need to add the engineer to the Engineering group in the directory server.

### Active Directory Realms In Security Cloud Control

You configure the AD realm when you create an AD Identity object. The identity source objects wizard assists in determining how to connect to the AD server and where the AD server is located in the network.



**Note** If you create an AD realm in Security Cloud Control, Security Cloud Control remembers the AD password when you create affiliate identity source objects and when you add those objects to an identity rule.

### Active Directory Realms In FDM

You can point to AD realm objects that were created in FDM from the Security Cloud Control objects wizard. Note that Security Cloud Control does **not** read the AD password for AD realm objects that are created in FDM. You must manually enter the correct AD password in Security Cloud Control.

To configure an AD realm in Firewall Device Managers, see the **Configuring AD Identity Realms** section of the Reusable Objects chapters of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.

### Supported Directory Servers

You can use AD on Windows Server 2008 and 2012.

Note the following about your server configuration:

- If you want to perform user control on user groups or on users within groups, you must configure user groups on the directory server. The system cannot perform user group control if the server organizes the users in a basic object hierarchy.
- The directory server must use the field names listed in the following table in order for the system to retrieve user metadata from the servers for that field:

| Metadata         | Active Directory Field                                       |
|------------------|--------------------------------------------------------------|
| LDAP user name   | samaccountname                                               |
| First name       | givenname                                                    |
| Last Name        | sn                                                           |
| email address    | mail<br>userprincipalname (if mail has no value)             |
| Department       | department<br>distinguishedname (if department has no value) |
| Telephone number | telephonenumber                                              |

### Determining the Directory Base DN

When you configure directory properties, you need to specify the common base Distinguished Name (DN) for users and groups. The base is defined in your directory server and differs from network to network. You must enter the correct bases for identity policies to work. If the base is wrong, the system cannot determine user or group names, and thus identity-based policies will be inoperable.



---

**Note** To get the correct bases, consult the administrator who is responsible for the directory servers.

---

For an active directory, you can determine the correct bases by logging into the AD server as a domain administrator, and using the **dsquery** command at a command prompt as follows to determine the bases:

#### User search base

Enter the **dsquery user** command with known username (partial or complete) to determine the base distinguished name. For example, the following command uses the partial name "John\*" to return information for all users that start with "John."

```
C:\Users\Administrator>dsquery user -name "John*"
```

```
"CN=John Doe,CN=Users,DC=csc-lab,DC=example,DC=com"
```

The base DN would be "DC=csc-lab,DC=example,DC=com."

#### Group search base

Enter the **dsquery group** command with a known group name to determine the base DN. For example, the following command uses the group name Employees to return the distinguished name:

```
C:\>dsquery group -name "Employees"
```

```
"CN=Employees,CN=Users,DC=csc-lab,DC=example,DC=com"
```

The group base DN would be "DC=csc-lab,DC=example,DC=com."

You can also use the ADSI Edit program to browse the AD structure (**Start > Run > adsiedit.msc**). In ADSI Edit, right click any object, such as an organizational unit (OU), group, or user, and choose **Properties** to view the distinguished name. You can then copy the string of DC values as the base.

To verify that you have the correct base:

### Procedure

- 
- |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Click the <b>Test Connection</b> button in the directory properties to verify connectivity. Resolve any problems, and save the directory properties.                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Step 2</b> | Commit changes to the device.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Step 3</b> | Create an access rule, select the <b>Users</b> tab, and try to add known user and group names from the directory. You should see auto-complete suggestions as you type for matching users and groups in the realm that contains the directory. If these suggestions appear in a drop-down list, then the system was able to query the directory successfully. If you see no suggestions, and you are certain the string you typed should appear in a user or group name, you need to correct the corresponding search base. |
- 

#### What to do next

See [Create and Edit a Firepower Threat Defense Active Directory Realm Object](#) for more information.

### RADIUS Servers and Groups

You can use RADIUS servers to authenticate and authorize administration users.

When you configure a feature to use RADIUS servers, you select a RADIUS group instead of individual servers. A RADIUS group is a collection of RADIUS servers that are copies of each other. If a group has more than one server, they form a chain of backup servers to provide redundancy in case one server becomes unavailable. But even if you have only one server, you must create a one-member group to configure RADIUS support for a feature.

You can use this source for the following purposes:

- Remote Access VPN, as an identity source for authentication, and for authorization and accounting. You can use AD in conjunction with a RADIUS server.
- Identity policy, as a passive identity source to collect user identity from remote access VPN logins.

See [Create and Edit a Firepower Threat Defense RADIUS Server Object or Group](#) for more information.

#### Related Information:

- [Create an Active Directory Realm Object](#)
- [Create a RADIUS Server Object or Group](#)

## Create or Edit an Active Directory Realm Object

### About Active Directory Realm Objects

When you create or edit an identity source object such as an AD realm object, Security Cloud Control sends the configuration request to the FDM-managed devices through the SDC. The FDM-managed device then communicates with the configured AD realm.

Note that Security Cloud Control does not read the Directory Password for AD realms that are configured through the Firewall Device Manager console. If you use an AD realm object that was originally created in Firewall Device Manager, you must manually enter the Directory Password.

## Create an FTD Active Directory Realm Object

Use the following procedure to create an object:

### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click , then click **RA VPN Objects (ASA & FTD) > Identity Source**.
- Step 3** Enter an **Object Name** for the object.
- Step 4** Select the **Device Type** is as **FTD**.
- Step 5** In the first part of the wizard, select **Active Directory Realm** as the **Identity Source Type**. Click **Continue**.
- Step 6** Configure the basic realm properties.
- **Directory Username, Directory Password** - The distinguished username and password for a user with appropriate rights to the user information you want to retrieve. For AD, the user does not need elevated privileges. You can specify any user in the domain. The username must be fully qualified; for example, [Administrator@example.com](#) (not simply Administrator).

#### Note

The system generates ldap-login-dn and ldap-login-password from this information. For example, [Administrator@example.com](mailto:Administrator@example.com) is translated as cn=administrator,cn=users,dc=example,dc=com. Note that cn=users is always part of this translation, so you must configure the user you specify here under the common name "users" folder.

- **Base Distinguished Name** - The directory tree for searching or querying user and group information, that is, the common parent for users and groups. For example, cn=users,dc=example,dc=com.
- **AD Primary Domain** - The fully qualified AD domain name that the device should join. For example, example.com.

**Step 7** Configure the directory server properties.

- **Hostname/IP Address** - The hostname or IP address of the directory server. If you use an encrypted connection to the server, you must enter the fully-qualified domain name, not the IP address.
- **Port** - The port number used for communications with the server. The default is 389. Use port 636 if you select LDAPS as the encryption method.
- **Encryption** - To use an encrypted connection for downloading user and group information, select the desired method, **STARTTLS** or **LDAPS**. The default is **None**, which means that user and group information is downloaded in clear text.
  - **STARTTLS** negotiates the encryption method and uses the strongest method supported by the directory server. Use port 389. This option is not supported if you use the realm for remote access VPN.
  - **LDAPS** requires LDAP over SSL. Use port 636.
- **Trusted CA Certificate** - If you select an encryption method, upload a Certificate Authority (CA) certificate to enable a trusted connection between the system and the directory server. If you are using a certificate to authenticate, the name of the server in the certificate must match the server Hostname / IP Address. For example, if you use 10.10.10.250 as the IP address but ad.example.com in the certificate, the connection fails.

**Step 8** (Optional) Use the **Test** button to validate the configuration.

**Step 9** (Optional) Click **Add another configuration** to add multiple AD servers to the AD realm. The AD servers need to be duplicates of each other and support the same AD domain. Therefore, the basic realm properties such as **Directory name**, **Directory Password**, and **Base Distinguished Name** must be the same across all AD servers associated with that AD realm.

**Step 10** Click **Add**.

**Step 11** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

---

## Edit an FTD Active Directory Realm Object

Note that you cannot change the Identity Source Type when editing an Identity source object. You must create a new object with the correct type.

## Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object you want to edit by using object filters and search field.
- Step 3** Select the object you want to edit.
- Step 4** Click the edit icon  in the **Actions** pane of the details panel.
- Step 5** Edit the values in the dialog box in the same fashion that you created in the procedures above. Expand the configuration bar listed below to edit or test the hostname/IP address or encryption information.
- Step 6** Click **Save**.
- Step 7** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- Step 8** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.
- 

## Create or Edit a RADIUS Server Object or Group

### About RADIUS Server Objects or Groups

When you create or edit an identity source object such as a RADIUS server object or a group of RADIUS server objects, Security Cloud Control sends the configuration request to the FDM-managed devices through the SDC. The FDM-managed device then communicates with the configured AD realm.

## Create a RADIUS Server Object

RADIUS servers provide AAA (authentication, authorization, and accounting) services.

Use the following procedure to create an object:

## Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click , then click **RA VPN Objects (ASA & FTD) > Identity Source**.
- Step 3** Enter an **Object name** for the object.
- Step 4** For the **Device Type**, select **FTD**.
- Step 5** For the **Identity Source** type, select **RADIUS Server**. Click **Continue**.
- Step 6** Edit the Identity Source configuration with the following properties:
- **Server Name or IP Address** - The fully-qualified host name (FQDN) or IP address of the server.
  - **Authentication Port** (Optional) - The port on which RADIUS authentication and authorization are performed. The default is 1812.
  - **Timeout** - The length of time, 1-300 seconds, that the system waits for a response from the server before sending the request to the next server. The default is 10 seconds.

- Enter the **Server Secret Key**(Optional) - The shared secret that is used to encrypt data between the Firepower Threat Defense device and the RADIUS server. The key is a case-sensitive, alphanumeric string of up to 64 characters, with no spaces. The key must start with an alphanumeric character or an underscore, and it can contain the special characters: \$ & - \_ . + @. The string must match the one configured on the RADIUS server. If you do not configure a secret key, the connection is not encrypted.

**Step 7** If you have Cisco Identity Services Engine (ISE) already configured for your network and are using the server for remote access VPN Change of Authorization configuration, click the **RA VPN Only** link and configure the following:

- **Redirect ACL** - Select the extended Access Control List (ACL) to use for the RA VPN redirect ACL. If you do not have an extended ACL you must create the required extended ACL object from a Smart CLI template in the FDM-managed device console. See the **Configuring Smart CLI Objects** section of the Advanced Configuration chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running. The purpose of the redirect ACL is to send initial traffic to ISE to assess the client posture. The ACL should send HTTPS traffic to ISE, but not traffic that is already destined for ISE, or traffic that is directed to a DNS server for name resolution. See the **Configure Change of Authorization** section of the Virtual Private Networks (VPN) chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.
- **Diagnostic Interface** -Enabling this option allows the system to always use the "Diagnostic" interface to communicate with the server. If you leave this disabled, Security Cloud Control will default to using the routing table to determine the which interface to use.

**Step 8** Click **Add**.

**Step 9** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

## Create a RADIUS Server Group

A RADIUS server group contains one or more RADIUS server objects. The servers within a group must be copies of each other. These servers form a chain of backup servers, so that if the first server is unavailable, the system can try the next server in the list.

Use the following procedure to create an object group:

### Procedure

**Step 1** In the left pane, click **Manage > Objects**.

**Step 2** Click , then click **FTD > Identity Source**.

**Step 3** Enter an **Object name** for the object.

**Step 4** Select the **Device Type** as **FTD**.

**Step 5** Select **RADIUS Server Group** as the Identity Source Type. Click **Continue**.

**Step 6** Edit the Identity Source configuration with the following properties:

- **Dead Time** - Failed servers are reactivated only after all servers have failed. The dead time is how long to wait after the last server fails before reactivating all servers.

- **Maximum Failed Attempts** - The number of failed requests (that is, requests that do not get a response) sent to a RADIUS server in the group before trying the next server. When the maximum number of failed attempts is exceeded, the system marks the server as Failed. For a given feature, if you configured a fallback method using the local database, and all the servers in the group fail to respond, then the group is considered to be unresponsive, and the fallback method is tried. The server group remains marked as unresponsive for the duration of the dead time, so that additional AAA requests within that period do not attempt to contact the server group, and the fallback method is used immediately.
- **Dynamic Authorization/Port** (Optional) - If you enable RADIUS dynamic authorization or change of authorization (CoA) services for this RADIUS server group, the group will be registered for CoA notification and listen on the specified port for CoA policy updates from Cisco Identity Services Engine (ISE). Enable dynamic authorization only if you are using this server group in a remote access VPN in conjunction with ISE.

**Step 7** Select an AD realm that supported the RADIUS server from the drop-down menu. If you have not already created an AD realm, click **Create** from inside the drop-down menu.

**Step 8** Click the **Add** button  to add existing RADIUS server objects. Optionally, you can create a new RADIUS server object from this window is necessary.

**Note**

Add these objects in priority, as the first server in the list is used until it is unresponsive. FDM-managed device then defaults to the next server in the list.

**Step 9** [Review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

## Edit a Radius Server Object or Group

Use the following procedure to edit a Radius server object or Radius server group:

### Procedure

- 
- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Locate the object you want to edit by using object filters and search field.
- Step 3** Select the object you want to edit.
- Step 4** Click the edit icon  in the **Actions** pane of the details panel.
- Step 5** Edit the values in the dialog box in the same fashion that you created them in the procedures above. To edit or test the hostname/IP address or encryption information, expand the configuration bar.
- Step 6** Click **Save**.
- Step 7** Security Cloud Control displays the policies that will be affected by the change. Click **Confirm** to finalize the change to the object and any policy affected by it.
- Step 8** [Review and Deploy](#) now the changes you made, or wait and deploy multiple changes at once.
- 

## Create New RA VPN Group Policies



A group policy is a set of user-oriented attribute/value pairs for remote access VPN connections. The connection profile uses a group policy that sets terms for user connections after the tunnel is established. Group policies let you apply whole sets of attributes to a user or a group of users, rather than having to specify each attribute individually for each user.

The system includes a default group policy named "DfltGrpPolicy". You can create additional group policies to provide the services you require.



**Note** You cannot add inconsistent group policy objects to RA VPN configuration. Resolve all inconsistencies before adding the group policy to the RA VPN Configuration.

## Procedure

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- Step 1** In the left pane, click **Manage > Objects**.
- Step 2** Click  > **RA VPN Objects (ASA & FTD) > RA VPN Group Policy**.
- Step 3** Enter a name for the group policy. The name can be up to 64 characters and spaces are allowed.
- Step 4** In the **Device Type** drop-down, select **FTD**.
- Step 5** Do any of the following:
- Click the required tabs and configure the attributes on the page:
    - [General Attributes](#)
    - [AnyConnect Client Profiles](#), on page 562
    - [Session Setting Attributes](#), on page 563
    - [Address Assignment Attributes](#), on page 563
    - [Split Tunneling Attributes](#), on page 564
    - [AnyConnect Attributes](#), on page 565
    - [Traffic Filters Attributes](#), on page 566
    - [Windows Browser Proxy Attributes](#), on page 566
- Step 6** Click **Save** to create the group policy.
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## RA VPN Group Policy Attributes

The general attributes of a group policy define the name of the group and some other basic settings. The Name attribute is the only required attribute.

- **DNS Server:** Select the DNS server group that defines the DNS servers clients should use for domain name resolution when connected to the VPN. If the group you need is not yet defined, click **Create DNS Group** and create it now.

- **Banner:** The banner text, or welcome message, to present to users at login. The default is no banner. The length can be up to 496 characters. The AnyConnect client supports partial HTML. To ensure that the banner displays properly to remote users, use the <BR> tag to indicate line breaks.
- **Default Domain:** The default domain name for users in the RA VPN. For example, example.com. This domain is added to hostnames that are not fully-qualified, for example, serverA instead of serverA.example.com.
- **AnyConnect Client Profiles:** Click + and select the AnyConnect Client Profiles to use for this group. See [Configure and Upload AnyConnect Client Profiles](#). If you configure a fully-qualified domain name for the outside interface (in the connection profile), a default profile will be created for you. Alternatively, you can upload your client profile. Create these profiles using the Standalone AnyConnect Profile Editor, which you can download and install from software.cisco.com. If you do not select a client profile, the AnyConnect client uses default values for all options. The items in this list are AnyConnect Client Profile objects rather than the profiles themselves. You can create (and upload) new profiles by clicking **Create New AnyConnect Client Profile** in the drop-down list.

### AnyConnect Client Profiles

This feature is supported on Firewall Device Manager running software version 6.7 or later versions.

Cisco AnyConnect VPN client offers enhanced security through various built-in modules. These modules provide services such as web security, network visibility into endpoint flows, and off-network roaming protection. Each client module includes a client profile that includes a group of custom configurations as per your requirement.

You can select the AnyConnect VPN profile object and AnyConnect modules to be downloaded to clients when the VPN user downloads the VPN AnyConnect client software.

1. Choose or create an AnyConnect VPN profile object. See [Upload RA VPN AnyConnect Client Profile, on page 527](#). Except for DART and Start Before Login modules, the AnyConnect VPN profile object must be selected.
2. Click **Add Any Connect Client Module**.

The following AnyConnect modules are optional and you can configure these modules to be downloaded with VPN AnyConnect client software:

- **AMP Enabler** — Deploys advanced malware protection (AMP) for endpoints.
- **DART** — Captures a snapshot of system logs and other diagnostic information and creates a .zip file on your desktop so you can conveniently send troubleshooting information to Cisco TAC.
- **Feedback** — Provides information about the features and modules customers have enabled and used.
- **ISE Posture** — Uses the OPSWAT library to perform posture checks to assess an endpoint's compliance.
- **Network Access Manager** — Provides 802.1X (Layer 2) and device authentication to access both wired and wireless networks.
- **Network Visibility** — Enhances the enterprise administrator's ability to do capacity and service planning, auditing, compliance, and security analytics.
- **Start Before Login** — Forces the user to connect to the enterprise infrastructure over a VPN connection before logging on to Windows by starting AnyConnect before the Windows login dialog box appears.

- **Umbrella Roaming Security** — Provides DNS-layer security when no VPN is active.
- **Web Security** — Analyzes the elements of a web page, allows acceptable content, and blocks malicious or unacceptable content based on a defined security policy.

3. In the **Client Module** list, select an **AnyConnect module**.
4. In the **Profile** list, choose or create a profile object containing an AnyConnect Client Profile.
5. Select **Enable Module Download** to enable endpoints to download the client module along with the profile. If not selected, the endpoints can download only the client profile.

### Session Setting Attributes

The session settings of a group policy control how long users can connect through the VPN and how many separate connections they can establish.

- **Maximum Connection Time:** The maximum length of time, in minutes, that users can stay connected to the VPN without logging out and reconnecting, from 1- 4473924 or blank. The default is unlimited (blank), but the idle timeout still applies.
- **Connection Time Alert Interval:** If you specify a maximum connection time, the alert interval defines the amount of time before the maximum time is reached to display a warning to the user about the upcoming automatic disconnect. The user can choose to end the connection and reconnect to restart the timer. The default is 1 minute. You can specify 1 to 30 minutes.
- **Idle Time:** The length of time, in minutes, that the VPN connection can be idle before it is automatically closed, from 1-35791394. If there is no communication activity on the connection for this consecutive number of minutes, the system stops the connection. The default is 30 minutes.
- **Idle Time Alert Interval:** The amount of time before the idle time is reached to display a warning to the user about the upcoming automatic disconnect due to an idle session. Any activity resets the timer. The default is 1 minute. You can specify 1 to 30 minutes.
- **Simultaneous Login Per User:** The maximum number of simultaneous connections allowed for a user. The default is 3. You can specify 1 to 2147483647 connections. Allowing many simultaneous connections might compromise security and affect performance.

### Address Assignment Attributes

The address assignment attributes of a group policy define the IP address pool for the group. The pool defined here overrides the pool defined in any connection profile that uses this group. Leave these settings blank if you want to use the pool defined in the connection profile.

- **IPv4 Address Pool, IPv6 Address Pool:** These options define the address pools for the remote endpoints. Clients are assigned an address from these pools based on the IP version they use to make the VPN connection. Select a network object that defines a subnet for each IP type you want to support. Leave the list empty if you do not want to support that IP version. For example, you could define an IPv4 pool as 10.100.10.0/24. The address pool cannot be on the same subnet as the IP address for the outside interface. You can specify a list of up to six address pools to use for local address allocation. The order in which you specify the pools is significant. The system allocates addresses from these pools in the order in which the pools appear.
- **DHCP Scope:** If you configure DHCP servers for the address pool in the connection profile, the DHCP scope identifies the subnets to use for the pool for this group. The DHCP server must also have addresses

in the same pool identified by the scope. The scope allows you to select a subset of the address pools defined in the DHCP server to use for this specific group. If you do not define a network scope, the DHCP server assigns IP addresses in the order of the address pools configured. It goes through the pools until it identifies an unassigned address. To specify a scope, select the network object that contains the network number host address. Click **Create New Network** if the object does not yet exist. For example, to tell the DHCP server to use addresses from the 192.168.5.0/24 subnet pool, select a network object that specifies 192.168.5.0 as a host address. You can use DHCP for IPv4 addressing only.

### Split Tunneling Attributes

The split tunneling attributes of a group policy define how the system should handle traffic meant for the internal network vs. externally-directed traffic. Split tunneling directs some network traffic through the VPN tunnel (encrypted) and the remaining network traffic outside the VPN tunnel (unencrypted or in clear text).

- **IPv4 Split Tunneling, IPv6 Split Tunneling:** You can specify different options based on whether the traffic uses IPv4 or IPv6 addresses, but the options for each are the same. If you want to enable split tunneling, specify one of the options that require you to select network objects.
  - **Allow all traffic over tunnel:** Do no split tunneling. Once the user makes an RA VPN connection, all the user's traffic goes through the protected tunnel. This is the default. It is also considered the most secure option.
  - **Allow specified traffic over the tunnel:** Select the network objects that define destination network and host addresses. Any traffic to these destinations goes through the protected tunnel. The client routes traffic to any other destination to connections outside the tunnel (such as a local Wi-Fi or network connection).
  - **Exclude networks specified below:** Select the network objects that define destination network or host addresses. The client routes any traffic to these destinations to connections outside the tunnel. Traffic to any other destination goes through the tunnel.
- **Split DNS** - You can configure the system to send some DNS requests through the secure connection while allowing the client to send other DNS requests to the DNS servers configured on the client. You can configure the following DNS behavior:
  - **Send DNS Request as per split tunnel policy:** With this option, DNS requests are handled the same way as the split tunnel options are defined. If you enable split tunneling, DNS requests are sent based on the destination addresses. If you do not enable split tunneling, all DNS requests go over the protected connection.
  - **Always send DNS requests over tunnel:** Select this option if you enable split tunneling, but you want all DNS requests sent through the protected connection to the DNS servers defined for the group.
  - **Send only specified domains over tunnel:** Select this option if you want your protected DNS servers to resolve addresses for certain domains only. Then, specify those domains, separating domain names with commas. For example, example.com, example1.com. Use this option if you want your internal DNS servers to resolve names for internal domains, while external DNS servers handle all other Internet traffic.

## AnyConnect Attributes

The AnyConnect attributes of a group policy define some SSL and connection settings used by the AnyConnect client for a remote access VPN connection.

### • SSL Settings

- **Enable Datagram Transport Layer Security (DTLS):** Whether to allow the AnyConnect client to use two simultaneous tunnels: an SSL tunnel and a DTLS tunnel. Using DTLS avoids latency and bandwidth problems associated with some SSL connections and improves the performance of real-time applications that are sensitive to packet delays. If you do not enable DTLS, AnyConnect client users establishing SSL VPN connections connect with an SSL tunnel only.
- **DTLS Compression:** Whether to compress Datagram Transport Layer Security (DTLS) connections for this group using LZS. DTLS Compression is disabled by default.
- **SSL Compression:** Whether to enable data compression, and if so, the method of data compression to use, **Deflate**, or **LZS**. SSL Compression is **Disabled** by default. Data compression speeds up transmission rates but also increases the memory requirement and CPU usage for each user session. Therefore, SSL compression decreases the overall throughput of the device.
- **SSL Rekey Method, SSL Rekey Interval:** The client can rekey the VPN connection, renegotiating the crypto keys and initialization vectors, to increase the security of the connection. Disable rekeying by selecting **None**. To enable rekey, select **New Tunnel** to create a new tunnel each time. (The **Existing Tunnel** option results in the same action as **New Tunnel**.) If you enable rekeying, also set the rekey interval, which is 4 minutes by default. You can set the interval to 4-10080 minutes (1 week).

### • Connection Settings

- **Ignore the DF (Don't Fragment) bit:** Whether to ignore the Don't Fragment (DF) bit in packets that need fragmentation. Select this option to allow the forced fragmentation of packets that have the DF bit set, so that these packets can pass through the tunnel.
- **Client Bypass Protocol** - Allows you to configure how the secure gateway manages IPv4 traffic (when it is expecting only IPv6 traffic), or how it manages IPv6 traffic (when it is expecting only IPv4 traffic).

When the AnyConnect client makes a VPN connection to the headend, the headend assigns it an IPv4, IPv6, or both an IPv4 and IPv6 address. If the headend assigns the AnyConnect connection only an IPv4 address or only an IPv6 address, you can configure the Client Bypass Protocol to drop network traffic for which the headend did not assign an IP address (default, disabled, not checked), or allow that traffic to bypass the headend and be sent from the client unencrypted or "in the clear" (enabled, checked).

For example, assume that the secure gateway assigns only an IPv4 address to an AnyConnect connection and the endpoint is dual-stacked. When the endpoint attempts to reach an IPv6 address, if Client Bypass Protocol is disabled, the IPv6 traffic is dropped; however, if Client Bypass Protocol is enabled, the IPv6 traffic is sent from the client in the clear.

- **MTU:** The maximum transmission unit (MTU) size for SSL VPN connections established by the Cisco AnyConnect VPN Client. The default is 1406 bytes. The range is 576 to 1462 bytes.
- **Keepalive Messages Between AnyConnect and VPN Gateway:** Whether to exchange keepalive messages between peers to demonstrate that they are available to send and receive data in the tunnel. Keepalive messages transmit at set intervals. The default interval is 20 seconds, and the valid range is 15 to 600 seconds.

- **DPD on Gateway Side Interval, DPD on Client Side Interval:** Enable Dead Peer Detection (DPD) to ensure that the VPN gateway or VPN client quickly detects when the peer is no longer responding. You can separately enable gateway or client DPD. The default interval is 30 seconds for sending DPD messages. The interval can be 5-3600 seconds.

### Traffic Filters Attributes

The traffic filter attributes of a group policy define restrictions you want to place on users assigned to the group. You can use these attributes instead of creating access control policy rules to restrict RA VPN users to specific resources, based on host or subnet address and protocol, or VLAN. By default, RA VPN users are not restricted by the group policy from accessing any destination on your protected network.

- **Access List Filter:** Restrict access using an extended access control list (ACL). Select the Smart CLI Extended ACL object. The extended ACL lets you filter based on source address, a destination address, and protocol (such as IP or TCP). ACLs are evaluated on a top-down, first-match basis, so ensure that you place specific rules before more general rules. There is an implicit "deny any" at the end of the ACL, so if you intend to deny access to a few subnets while allowing all other access, ensure that you include a "permit any" rule at the end of the ACL. Because you cannot create network objects while editing an extended ACL Smart CLI object, you should create the ACL before editing the group policy. Otherwise, you might need to simply create the object, then go back later to create the network objects and then all the access control entries that you need. To create the ACL, log in to Firewall Device Manager, go to **Device > Advanced Configuration > Smart CLI > Objects**, create an object, and select **Extended Access List** as the object type.
- **Restrict VPN to VLAN:** Also called "VLAN mapping," this attribute specifies the egress VLAN interface for sessions to which this group policy applies. The system forwards all traffic from this group to the selected VLAN. Use this attribute to assign a VLAN to the group policy to simplify access control. Assigning a value to this attribute is an alternative to using an ACL to filter traffic on a session. Ensure that you specify a VLAN number that is defined on a subinterface on the device. Values range from 1 to 4094.

### Windows Browser Proxy Attributes

The Windows browser proxy attributes of a group policy determine how, and whether, a proxy defined on the user's browser operates.

You can select one of the following values for **Browser Proxy During VPN Session**:

- **No change in endpoint settings:** Allow the user to configure (or not configure) a browser proxy for HTTP and use the proxy if it is configured.
- **Disable browser proxy:** Do not use the proxy defined for the browser, if any. No browser connections will go through the proxy.
- **Auto detect settings:** Enable the use of automatic proxy server detection in the browser for the client device.
- **Use custom settings:** Define a proxy that should be used by all client devices for HTTP traffic. Configure the following settings:
  - **Proxy Server IP or Hostname, Port:** The IP address, or hostname, of the proxy server, and the port used for proxy connections by the proxy server. The host and port combined cannot exceed 100 characters.

- **Browser Proxy Exemption List:** Connections to the hosts/ports in the exemption list do not go through the proxy. Add all the host/port values for destinations that should not use the proxy. For example, [www.example.com](http://www.example.com) port 80. Click **Add proxy exemption** to add items to the list. Click the trash can icon to delete items. The entire proxy exception list, combining all addresses and ports, cannot be longer than 255 characters.

## Create an RA VPN Configuration

Security Cloud Control allows you to add one or more FDM-managed devices to the RA VPN configuration wizard and configure the VPN interfaces, access control, and NAT exemption settings associated with the devices. Therefore, each RA VPN configuration can have connection profiles and group policies shared across multiple FDM-managed devices that are associated with the RA VPN configuration. Further, you can enhance the configuration by creating connection profiles and group policies.

You can either onboard an FDM-managed device that has already been configured with RA VPN settings or a new device without RA VPN settings. When you onboard an FDM-managed device that already has RA VPN settings, Security Cloud Control automatically creates a "Default RA VPN Configuration" and associates the FDM-managed device with this configuration. Also, this default configuration can contain all the connection profile objects that are defined on the device.



### Important

- You are not allowed to add ASA and FDM-managed device in the same Remote Access VPN Configuration.
- An FDM-managed device can't have more than one RA VPN Configuration.

## Prerequisites

Before adding the FDM-managed devices to RA VPN configuration, the following prerequisites must be met:

- Make sure that the FDM-managed devices have the following:
  - A valid license. For more information, see [Licensing Requirements for Remote Access VPN](#).
  - For FDM Version 6.4.0, ensure that a minimum of one AnyConnect software package pre-uploaded to the device. For more information, see [Upload AnyConnect Software Packages to Firepower Threat Defense Devices version 6.4.0](#).
  - For FDM Version 6.5.0 and later, you can upload AnyConnect package using Security Cloud Control. For more information, see [Upload AnyConnect Software Packages to Firepower Threat Defense Devices version 6.5.0](#).
  - There are no configuration deployments pending.
- FDM changes are synchronized to Security Cloud Control.
  1. In the left pane, click **Security Devices** and search for one or more FDM-managed devices to be synchronized.
  2. Select one or more devices and then click **Check for changes**. Security Cloud Control communicates with one or more FDM-managed devices to synchronize the changes.
- RA VPN configuration group policy objects are consistent.

- Ensure that all inconsistent group policy objects are resolved as they cannot be added to the RA VPN configuration. Either address the issue or remove inconsistent group policy objects from the **Objects** page. For more information see, [Resolve Duplicate Object Issues](#) and [Resolve Inconsistent Object Issues](#).
- RA VPN group policies of the FDM-managed device match RA VPN configuration group policies.

## Procedure

## Procedure

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- Step 1** In the left pane, click **VPN > Remote Access VPN Configuration**.
- Step 2** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- Step 3** Click the blue plus  button to create a new RA VPN configuration.
- Step 4** Enter a name for the Remote Access VPN configuration.
- Step 5** Click the blue plus  button to add FDM-managed devices to the configuration. You can add the device details and configure network traffic-related permissions that are associated with the device.
- Provide the following device details:
    - **Device:** Select an FDM-managed device that you want to add and click **Select**.

**Important**  
You are not allowed to add ASA and FDM-managed device in the same Remote Access VPN Configuration.

    - **Outside Interface:** The interface to which users connect when making the remote access VPN connection. Although this is normally the outside (internet-facing) interface, choose whichever interface is between the device and the end-users you are supporting with this connection profile.
    - **Fully Qualified Domain Name or IP for the Outside Interface:** The name of the interface, for example, ravpn.example.com or the IP address must be provided. If you specify a name, the system can create a client profile for you. **Note:** You are responsible for ensuring that the DNS servers used in the VPN and by clients can resolve this name to the outside interface's IP address. Add the FQDN to the relevant DNS servers.
  - Click **Continue** to configure the traffic permissions.
    - **Bypass Access Control policy for decrypted traffic (sysopt permit-vpn):** Decrypted traffic is subjected to Access Control Policy inspection by default. Enabling this option bypasses the decrypted traffic option bypasses the access control policy inspection, but the VPN Filter ACL and the authorization ACL downloaded from the AAA server are still applied to VPN traffic. Note that if you select this option, the system configures the sysopt connection permit-vpn command, which is a global setting. This will also impact the behavior of site-to-site VPN connections. If you do not select this option, it might be possible for external users to spoof IP addresses in your remote access VPN address pool, and thus gain access to your network. This can happen because you will need to create access control rules that allow your address pool to have access to internal resources. If you use access control rules, consider using user specifications to control access, rather than source IP



address alone. The downside of selecting this option is that the VPN traffic will not be inspected, which means that intrusion and file protection, URL filtering, or other advanced features will not be applied to the traffic. This also means that no connection events will be generated for the traffic, and thus statistical dashboards will not reflect VPN connections.

- **NAT Exempt:** Enable NAT Exempt to exempt traffic to and from the remote access VPN endpoints from NAT translation. If you do not exempt VPN traffic from NAT, ensure that the existing NAT rules for the outside and inside interfaces do not apply to the RA VPN pool of addresses. NAT exempt rules are manual static identity NAT rules for a given source/destination interface and network combination, but they are not reflected in the NAT policy, they are hidden. If you enable NAT Exempt, you must also configure the following.
  - **Inside Interfaces:** Select the interfaces for the internal networks remote users will be accessing. NAT rules are created for these interfaces.
  - **Inside Networks:** Select the network objects that represent internal networks remote users will be accessing. The networks list must contain the same IP types as the address pools you are supporting.

**Step 6** Click **OK**.

- If you have onboarded an Firewall Device Manager Version 6.4.0 device, the **AnyConnect Packages Detected** shows the AnyConnect packages available in the device.
- If you have onboarded an Firewall Device Manager Version 6.5.0 or later device, you must add the AnyConnect packages from the server where the AnyConnect packages are pre-uploaded. See [Upload AnyConnect Software Packages to an FDM-Managed Device Running Version 6.5.0](#) for instructions.

**Step 7** Click **OK**. The device is added to the configuration.

### What to do next



**Note** Select a configuration and under **Actions**, click the appropriate action:

- **Group Policies** to add or remove group policies.
- **Remove** to delete the selected RA VPN configuration.

## Modify RA VPN Configuration

You can modify the name and the device details of an existing RA VPN configuration.

### Procedure

Select the configuration to be modified and under **Actions**, click **Edit**.

- Modify the name if required.

- Click the blue plus  button to add a new device
- Click  to perform the following on the FDM-managed device.
  - Click **Edit** to modify the existing RA VPN configuration.
  - Click **Remove** to remove the FDM-managed device from the RA VPN configuration. All connection profiles and RA VPN settings associated with that device except the group policies are deleted. You can remove the group policies explicitly from the objects page. **Note:** You cannot remove the FDM-managed device if that is the only device using the configuration. Alternatively, you can remove the RA VPN configuration.

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You can also search for remote access VPN configuration by typing the name of the configuration or device.

**Related Information:**

- [Configure an FTD RA VPN Connection Profile.](#)
- [Review and deploy configuration changes to the devices.](#)
- [Allow Traffic Through the Remote Access VPN.](#)

## Configure an RA VPN Connection Profile

An RA VPN connection profile defines the characteristics that allow external users to create a VPN connection to the system using the AnyConnect client. Each profile defines the AAA servers and certificates used for authenticating users, the address pool for assigning users IP addresses, and the group policies that define various user-oriented attributes.

You can create multiple profiles within the RA VPN configuration if you need to provide variable services to different user groups, or if you have various authentication sources. For example, if your organization merges with a different organization that uses different authentication servers, you can create a profile for the new group that uses those authentication servers.

An RA VPN connection profile allows your users to connect to your inside networks when they are on external networks, such as their home network. Create separate profiles to accommodate different authentication methods.

**Before you begin**

Before configuring the remote access (RA) VPN connection:

- The outside interface, the one that terminates remote access VPN connections, cannot also have a management access list that allows HTTPS connections. Delete any HTTPS rules from the outside interface before configuring RA VPN. See the "Configuring the Management Access List" section in the "System Settings" chapter of [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager, Version X.Y.](#)
- Create an RA VPN configuration. See [Create an RA VPN Configuration.](#)

## Procedure

## Procedure

### Step 1

### Step 2

In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**. You can click a VPN configuration to view the summary information on how many connection profiles and group policies are currently configured.

### Step 3

Click the connection profile and under **Actions** in the sidebar at the right, click **Add Connection Profile**.

### Step 4

Configure the basic connection attributes.

- **Connection Profile Name:** The name for this connection, up to 50 characters without spaces. For example, MainOffice.

#### Note

The name you enter here is what users will see in the connection list in the AnyConnect client. Choose a name that will make sense to your users.

- **Group Alias, Group URL:** Aliases contain alternate names or URLs for a specific connection profile. VPN users can choose an alias name in the AnyConnect client in the list of connections when they connect to the FDM-managed device. The connection profile name is automatically added as a group alias. You can also configure the list of group URLs, which your endpoints can select while initiating the Remote Access VPN connection. If users connect using the group URL, the system will automatically use the connection profile that matches the URL. This URL would be used by clients who do not yet have the AnyConnect client installed. Add as many group aliases and URLs as required. These aliases and URLs must be unique across all connection profiles defined on the device. Group URLs must start with **https://**.
- For example, you might have the alias Contractor and the group URL `https://ravpn.example.com/contractor`. Once the AnyConnect client is installed, the user would simply select the group alias in the AnyConnect VPN drop-down list of connections.

### Step 5

Configure the primary and optionally, secondary identity sources. These options determine how remote users authenticate to the device to enable the remote access VPN connection. The simplest approach is to use AAA only and then select an AD realm or use the LocalIdentitySource. You can use the following approaches for **Authentication Type**:

- **AAA Only:** Authenticate and authorize users based on username and password. For details, see [Configure AAA for a Connection Profile](#).
- **Client Certificate Only:** Authenticate users based on client device identity certificate. For details, see [Configure Certificate Authentication for a Connection Profile](#).
- **AAA and ClientCertificate:** Use both username/password and client device identity certificate.

### Step 6

Configure the address pool for clients. The address pool defines the IP addresses that the system can assign to remote clients when they establish a VPN connection. For more information, see [Configure Client Address Pool Assignment](#).

### Step 7

Click **Continue**.

### Step 8

Select the **Group Policy** to use for this profile from the list and click **Select**. The group policy sets terms for user connections after the tunnel is established. The system includes a default group policy named DfltGrpPolicy. You can create additional group policies to provide the services you require.

**Step 9** Click **Continue**.

**Step 10** Review the summary. First, verify that the summary is correct. You can see what end-users need to do to



initially install the AnyConnect software and test that they can complete a VPN connection. Click to copy the instructions to the clipboard, and then distribute them to your users.

**Step 11** Click **Done**.

### What to do next

Ensure that traffic is allowed in the VPN tunnel, as explained in [Allow Traffic Through the Remote Access VPN](#).

## Configure AAA for a Connection Profile

Authentication, Authorization, and Accounting (AAA) servers use username and password to determine if a user is allowed access to the remote access VPN. If you use RADIUS servers, you can distinguish authorization levels among authenticated users, to provide differential access to protected resources. You can also use RADIUS accounting services to keep track of usage.

When configuring AAA, you must configure a primary identity source. Secondary and fallback sources are optional. Use a secondary source if you want to implement dual authentication, for example, using RSA tokens or DUO.

### Primary Identity Source Options

- **Primary Identity Source for User Authentication:** The primary identity source used for authenticating remote users. End users must be defined in this source or the optional fallback source to complete a VPN connection. Select one of the following:
  - An Active Directory (AD) identity realm. If the realm you need does not yet exist, click **Create New Identity Realm**.
  - A RADIUS server group.
  - LocalIdentitySource (the local user database): You can define users directly on the device and not use an external server.
- **Fallback Local Identity Source:** If the primary source is an external server, you can select the LocalIdentitySource as a fallback in case the primary server is unavailable. If you use the local database as a fallback source, ensure that you define the same local usernames/passwords as the ones defined in the external server.
- **Strip options:** A realm is an administrative domain. Enabling the following options allows the authentication to be based on the username alone. You can enable any combination of these options. However, you must select both check boxes if your server cannot parse delimiters.
  - **Strip Identity Source Server from Username:** Whether to remove the identity source name from the username before passing the username on to the AAA server. For example, if you select this option and the user enters domain\username as the username, the domain is stripped off from the username and sent to AAA server for authentication. By default, this option is unchecked.

- **Strip Group from Username:** Whether to remove the group name from the username before passing the username on to the AAA server. This option applies to names given in the username@domain format; the option strips the domain and @ sign. By default, this option is unchecked.

### Secondary Identity Source

- **Secondary Identity Source for User Authorization:** The optional second identity source. If the user successfully authenticates with the primary source, the user is prompted to authenticate with the secondary source. You can select an AD realm, RADIUS server group, or the local identity source.
- **Advanced options:** Click the **Advanced** link and configure the following options:
  - **Fallback Local Identity Source for Secondary:** If the secondary source is an external server, you can select the LocalIdentitySource as a fallback in case the secondary server is unavailable. If you use the local database as a fallback source, ensure that you define the same local usernames/passwords as the ones defined in the secondary external server.
  - **Use Primary Username for Secondary Login:** By default, when using a secondary identity source, the system will prompt for both username and password for the secondary source. If you select this option, the system prompts for the secondary password only and uses the same username for the secondary source that was authenticated against the primary identity source. Select this option if you configure the same usernames in both the primary and secondary identity sources.
    - **Username for Session Server:** After successful authentication, the username is shown in events and statistical dashboards, is used for determining matches for a user- or group-based SSL decryption and access control rules and is used for accounting. Because you are using two authentication sources, you need to tell the system whether to use the Primary or Secondary username as the user identity. By default, the primary name is used.
    - **Password Type:** How to obtain the password for the secondary server. The default is **Prompt**, which means the user is asked to enter the password. Select **Primary Identity Source Password** to automatically use the password entered when the user authenticated to the primary server. Select **Common Password** to use the same password for every user, then enter that password in the **Common Password** field.
  - **Authorization Server:** The RADIUS server group that has been configured to authorize remote access, VPN users. After authentication is complete, authorization controls the services and commands available to each authenticated user. Authorization works by assembling a set of attributes that describe what the user is authorized to perform, their actual capabilities, and restrictions. Were you not to use authorization, authentication alone would provide the same access to all authenticated users. For information on configuring RADIUS for authorization, see [Control User Permissions and Attributes Using RADIUS and Group Policies](#). Note that if the system obtains authorization attributes from the RADIUS server that overlap those defined in the group policy, the RADIUS attributes override the group policy attributes.
  - **Accounting Server:** (Optional.) The RADIUS server group to use to account for the remote access VPN session. Accounting tracks the services users are accessing as well as the number of network resources they are consuming. The FDM-managed device reports user activity to the RADIUS server. Accounting information includes when sessions start and stop, usernames, the number of bytes that pass through the device for each session, the service used, and the duration of each session. You can then analyze the data for network management, client billing, or auditing. You can use accounting alone or together with authentication and authorization.

## Configure Certificate Authentication for a Connection Profile



**Note** This section is not applicable for **Authentication Type** as **AAA Only**.

You can use certificates installed on the client device to authenticate remote access VPN connections.

When using client certificates, you can still configure a secondary identity source, fallback source, and authorization and accounting servers. These are AAA options; for details, see [Configure an RA VPN Connection Profile](#).

Following are the certificate-specific attributes. You can configure these attributes separately for primary and secondary identity sources. Configuring a secondary source is optional.

- **Username from Certificate:** Select one of the following:
  - **Map Specific Field:** Use the certificate elements in the order of **Primary Field** and **Secondary Field**. The defaults are CN (Common Name) and OU (Organizational Unit). Select the options that work for your organization. The fields are combined to provide the username, and this is the name used in events, dashboards, and for matching purposes in SSL decryption and access control rules.
  - **Use entire DN (distinguished name) as username:** The system automatically derives the username from the DN fields.
- **Advanced options** (not applicable for **Authentication Type** as **Client Certificate Only**): Click the **Advanced** link and configure the following options:
  - **Prefill username from certificate on user login window:** Whether to fill in the username field with the retrieved username when prompting the user to authenticate.
  - **Hide username in login window:** If you select the **Prefill** option, you can hide the username, which means the user cannot edit the username in the password prompt.

## Configure Client Address Pool Assignment

There must be a way for the system to provide an IP address to endpoints that connect to the remote access VPN. The AAA server can provide these addresses, a DHCP server, an IP address pool configured in the group policy, or an IP address pool configured in the connection profile. The system tries these resources in that order and stops when it obtains an available address, which it then assigns to the client. Thus, you can configure multiple options to create a failsafe in case of an unusual number of concurrent connections.

Use one or more of the following methods to configure the address pool for a connection profile.

- **IPv4 Address Pool and IPv6 Address Pool:** First, create up to six network objects that specify subnets. You can configure separate pools for IPv4 and IPv6. Then, select these objects in the **IPv4 Address Pool** and **IPv6 Address Pool** options, either in the group policy or in the connection profile. You do not need to configure both IPv4 and IPv6, configure the addressing scheme you want to support. You also do not need to configure the pool in both the group policy and the connection profile. The group policy overrides the connection profile settings, so if you configure the pools in the group policy, leave the options empty in the connection profile. Note that the pools are used in the order in which you list them.
- **DHCP Servers:** First, configure a DHCP server with one or more IPv4 address ranges for the RA VPN (you cannot configure IPv6 pools using DHCP). Then, create a host network object with the IP address of the DHCP server. You can then select this object in the **DHCP Servers** attribute of the connection

profile. You can configure more than one DHCP server. If the DHCP server has multiple address pools, you can use the **DHCP Scope** attribute in the group policy that you attach to the connection profile to select which pool to use. Create a host network object with the network address of the pool. For example, if the DHCP pool contains 192.168.15.0/24 and 192.168.16.0/24, setting the DHCP scope to 192.168.16.0 will ensure that an address from the 192.168.16.0/24 subnet will be selected.

## Allow Traffic Through the Remote Access VPN

You can use one of the following techniques to enable traffic flow in the remote access VPN tunnel.

- Configure the **sysopt connection permit-vpn** command, which exempts traffic that matches the VPN connection from the access control policy. The default for this command is **no sysopt connection permit-vpn**, which means VPN traffic must also be allowed by the access control policy. This is the more secure method to allow traffic in the VPN because external users cannot spoof IP addresses in the remote access VPN address pool. The downside is that the VPN traffic will not be inspected, which means that intrusion and file protection, URL filtering, or other advanced features will not be applied to the traffic. This also means that no connection events will be generated for the traffic, and thus statistical dashboards will not reflect VPN connections. To configure this command, select the **Bypass Access Control policy for decrypted traffic** option in your RA VPN Configuration. See [Create an RA VPN Configuration](#).
- Create access control rules to allow connections from the remote access VPN address pool. This method ensures that VPN traffic is inspected, and advanced services can be applied to the connections. The downside is that it opens the possibility for external users to spoof IP addresses and thus gain access to your internal network.

## Upgrade AnyConnect Package on an FDM-Managed Device Running Version 6.4.0

You can use Security Cloud Control to upgrade the AnyConnect package available on an FDM-managed device so that it can be distributed to RA VPN users.

The following are the major steps that are involved in upgrading the AnyConnect package:

### Procedure

- 
- |               |                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Use Firewall Device Manager to remove the AnyConnect package and upload a later version of the package. Use one of these methods to accomplish this task. <ul style="list-style-type: none"><li>• Remove the old package and upload the new package from the Firewall Device Manager UI.</li><li>• Remove the old package and upload the new package from the Firewall Device Manager API explorer.</li></ul> |
| <b>Step 2</b> | Deploy Firewall Device Manager changes to device.                                                                                                                                                                                                                                                                                                                                                             |
| <b>Step 3</b> | Read the new configuration information into Security Cloud Control.                                                                                                                                                                                                                                                                                                                                           |
| <b>Step 4</b> | Verify the new package in the RA VPN connection profile.                                                                                                                                                                                                                                                                                                                                                      |
- 

### Prerequisites

- A minimum of one RA VPN configuration with connection profile is already deployed to FDM-managed device.

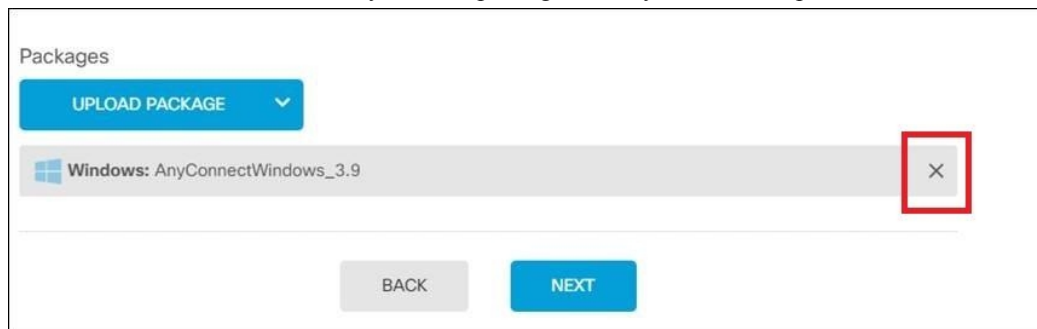


- Download the AnyConnect package that you want from <https://software.cisco.com/download/home/283000185>. Cisco recommends upgrading to the latest available package.

Upload your desired AnyConnect Package to Secure Firewall Threat Defense using Firewall Device Manager

## Procedure

- Step 1** Using a browser, open the home page of the system. For example, `https://ftd.example.com`.
- Step 2** Log into Firewall Device Manager.
- Step 3** Click **View Configuration** in the **Device > Remote Access VPN** group. The group shows summary information on how many connection profiles and group policies are currently configured.
- Step 4** Click the view () button (**View** configuration button.) to open a summary of the connection profile and connection instructions.
- Note**  
You can edit any one of the connection profiles to upload the AnyConnect package to the FDM-managed device.
- Step 5** Click the **Edit** button to make changes.
- Step 6** Click **Next** until the **Global Settings** screen appears. The **AnyConnect Package** shows AnyConnect packages available on the FDM-managed device.
- Step 7** Click 'X' button to remove the AnyConnect package which you want to replace.



- Step 8** Click **Upload Package** and then click the OS that you want for uploading the compatible package.
- Step 9** Select the package and click **Open**. You can see the package being uploaded on the Firewall Device Manager UI.
- Step 10** Click **Finish**. The configuration is saved.

### Note

Alternatively, you can use the Firewall Device Manager API explorer to remove and upload a new AnyConnect package.

- Edit the URL to point to `/#/api-explorer`, for example, `https://ftd.example.com/#/api-explorer`.
- Delete a package from the FDM-managed device, click **AnyConnectPackageFile > Delete**. In the **objID** field, type the package id and click **TRY IT OUT!**.



- c. Upload a new package by performing the steps that are described in the [Upload AnyConnect Software Packages to Firepower Threat Defense Devices](#) section.

- Step 11** Click the **Deploy Changes** icon in the upper right of the web page. The icon is highlighted with a dot when there are undeployed changes.
- Step 12** If you are satisfied with the changes, you can click **Deploy Now** to start the job immediately. The window shows that the deployment is in progress. You can close the window, or wait for the deployment to complete.

---

Verify the new package is referenced in the RA VPN connection profile

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the **FTD** tab and select the FDM-managed device which has the upgraded AnyConnect package. This device would be reporting conflict.
- Step 5** Accept the Out-of-band changes to overwrite the configuration **and any pending changes stored on** Security Cloud Control with the device's running configuration. For more information, see [Resolve "Conflict Detected Status."](#)
- Step 6** View the new AnyConnect package by performing the following:
- Click **VPN > Remote Access VPN**.
  - Click the RA VPN configuration that is associated with this FDM-managed device.
  - Click **Edit** under **Actions**. The new package is displayed under **Devices**.
- 

### Upload RA VPN AnyConnect Client Profile

The Remote Access VPN AnyConnect Client Profile is a group of configuration parameters stored in a file. There are different AnyConnect client profiles containing configuration settings for the core client VPN functionality and for the optional client modules Network Access Manager, AMP Enabler, ISE posture, Network Visibility, Customer Feedback Experience profiles, Umbrella roaming security, and Web Security.

Security Cloud Control allows uploading of these profiles as objects which can be used in the group policy later.

- **AnyConnect VPN Profile** — AnyConnect client profiles are downloaded to clients along with the VPN AnyConnect client software. These profiles define many client-related options, such as auto-connect on startup and auto-reconnect, and whether the end-user can change the option from the AnyConnect client preferences and advanced settings. Security Cloud Control supports the XML file format.
- **AMP Enabler Service Profile** — The profile is used for the AnyConnect AMP Enabler. The AMP Enabler and this profile are pushed to the endpoints from FDM-managed device when a remote access VPN user connects to the VPN. Security Cloud Control supports XML and ASP file formats.

- **Feedback Profile** — You can add a Customer Experience Feedback profile and select this type to receive information about the features and modules customers have enabled and used. Security Cloud Control supports the FSP file format.
- **ISE Posture Profile** — Choose this option if you add a profile file for the AnyConnect ISE Posture module. Security Cloud Control supports XML and ISP file formats.
- **Network Access Manager Service Profile** — Configure and add the NAM profile file using the Network Access Manager profile editor. Security Cloud Control supports XML and NSP file formats.
- **Network Visibility Service Profile** — Profile file for AnyConnect Network Visibility module. You can create the profile using the NVM profile editor. Security Cloud Control supports XML and NVMSPP file formats.
- **Umbrella Roaming Security Profile** — You must select this file type if you deploy the Umbrella Roaming Security module. Security Cloud Control supports XML and JSON file formats.
- **Web Security Service Profile** — Select this file type when you add a profile file for the Web security module. Security Cloud Control supports XML, WSO, and WSP file formats.

### Before you begin

Use the suitable GUI-based AnyConnect profile editors to create the profiles you need. You can download the profile editors from [Cisco Software Download Center](#) in the AnyConnect Secure Mobility Client category and install the AnyConnect “Profile Editor - Windows / Standalone installer (MSI).” The profile editor installer contains stand-alone versions of the profile editors. The installation file is for Windows only and has the file name anyconnect-profileeditor-win-<version>-k9.msi, where <version> is the AnyConnect version. For example, anyconnect-profileeditor-win-4.3.04027-k9.msi. You must also install Java JRE 1.6 (or higher) before installing the profile editor.

Except for the Umbrella Roaming Security profile editor, this package contains all the profile editors required for creating the modules. For detailed information, see the *AnyConnect Profile Editor* chapter in the appropriate release of the [Cisco AnyConnect Secure Mobility Client Administrator Guide](#) for details. Download the Umbrella Roaming Security profile separately from the Umbrella dashboard. For detailed information, see the “Download the AnyConnect Roaming Security Profile from the Umbrella Dashboard” section of the “Umbrella Roaming Security” chapter in the [Cisco Umbrella User Guide](#).

### Procedure

- 
- |               |                                                                                                                 |
|---------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, choose <b>Manage &gt; Objects</b> .                                                           |
| <b>Step 2</b> | Click the blue plus  button. |
| <b>Step 3</b> | Click <b>RA VPN Objects (ASA &amp; FDM) &gt; AnyConnect Client Profile</b> .                                    |
| <b>Step 4</b> | In the <b>Object Name</b> field, enter a name for the AnyConnect client profile.                                |
| <b>Step 5</b> | Click <b>Browse</b> and select the file you created using the Profile Editor.                                   |
| <b>Step 6</b> | Click <b>Open</b> to upload the profile.                                                                        |
| <b>Step 7</b> | Click <b>Add</b> to add the object.                                                                             |
-

### Guidelines and Limitations of Remote Access VPN for FDM-Managed Device

Keep the following guidelines and limitations in mind when configuring RA VPN.

- AnyConnect packages must be pre-loaded to FDM-Managed devices running Version 6.4.0 using Firewall Device Manager.



---

**Note** Upload AnyConnect package separately to the FDM-Managed device running Version 6.5.0 using the Remote Access VPN Configuration wizard in Security Cloud Control.

---

- Before configuring RA VPN from Security Cloud Control:
  - Register the license for the FDM-managed devices from Firewall Device Manager.
  - Enable the license from Firewall Device Manager with export-control.
- Security Cloud Control does not support the Extended Access List object. Configure the object using the Smart CLI in Firewall Device Manager and then use in VPN filter and Change of Authorization (CoA) redirect ACL.
- The template you create from an FDM-managed device will not contain the RA VPN configuration.
- Device-specific overrides are required for IP pool objects and RADIUS identity sources.
- You cannot configure both Firewall Device Manager access (HTTPS access in the management access-list) and AnyConnect remote access SSL VPN on the same interface for the same TCP port. For example, if you configure remote access SSL VPN on the outside interface, you cannot also open the outside interface for HTTPS connections on port 443. Because you cannot configure the port used by these features in Firewall Device Manager, you cannot configure both features on the same interface.
- If you configure two-factor authentication using RADIUS and RSA tokens, the default authentication timeout of 12 seconds is too quick to allow successful authentication in most cases. Increase the authentication timeout value by creating a custom AnyConnect client profile and applying it to the RA VPN connection profile, as described in [Upload RA VPN AnyConnect Client Profile, on page 527](#). We recommend an authentication timeout of at least 60 seconds so that users have enough time to authenticate and then paste the RSA token and for the round-trip verification of the token.

### How Users Can Install the AnyConnect Client Software on FDM-Managed Device

Use Firewall Device Manager APIs to upload the AnyConnect Client Software package to FDM-managed device to distribute to your users. See [Upload AnyConnect Software Packages to Firepower Threat Defense Devices](#).

To complete a VPN connection, your users must install the AnyConnect client software. You can use your existing software distribution methods to install the software directly. Or, you can have users install the AnyConnect client directly from the FDM-managed device.



---

**Note** Users must have Administrator rights on their workstations to install the software.

---

If you decide to have users initially install the software from the FDM-managed device, inform users to perform the following steps:



**Note** Android and iOS users should download AnyConnect from the appropriate App Store.

## Procedure

- Step 1** Using a web browser, open **https://ravpn-address**, where *ravpn-address* is the IP address or hostname of the outside interface on which you are allowing VPN connections. You identify this interface when you configure the remote access VPN. The system prompts the user to log in.
- Step 2** Log into the site. Users are authenticated using the directory server configured for the remote access VPN. Log in must be successful to continue. If the login is successful, the system determines if the user already has the required version of the AnyConnect client. If the AnyConnect client is absent from the user's computer or is down-level, the system automatically starts installing the AnyConnect software. When the installation is finished, AnyConnect completes the remote access VPN connection.

## Distribute new AnyConnect Client Software version

You can distribute the new version of AnyConnect client software to your users by uploading them to FDM-managed device without removing the old version. Once the AnyConnect client is uploaded successfully, you can remove the old version.

The AnyConnect client detects the new version on the next VPN connection the user makes. The system will automatically prompt the user to download and install the updated client software. This automation simplifies software distribution for you and your clients.

The following figure shows an example of an FDM-managed device with two versions of AnyConnect client software (**AnyConnectWindows\_3.2\_BGL** and **AnyConnectWindows\_4.2\_BGL**) for Windows OS.



## Upload RA VPN AnyConnect Client Profile

The Remote Access VPN AnyConnect Client Profile is a group of configuration parameters stored in a file. There are different AnyConnect client profiles containing configuration settings for the core client VPN

functionality and for the optional client modules Network Access Manager, AMP Enabler, ISE posture, Network Visibility, Customer Feedback Experience profiles, Umbrella roaming security, and Web Security.

Security Cloud Control allows uploading of these profiles as objects which can be used in the group policy later.

- **AnyConnect VPN Profile** — AnyConnect client profiles are downloaded to clients along with the VPN AnyConnect client software. These profiles define many client-related options, such as auto-connect on startup and auto-reconnect, and whether the end-user can change the option from the AnyConnect client preferences and advanced settings. Security Cloud Control supports the XML file format.
- **AMP Enabler Service Profile** — The profile is used for the AnyConnect AMP Enabler. The AMP Enabler and this profile are pushed to the endpoints from FDM-managed device when a remote access VPN user connects to the VPN. Security Cloud Control supports XML and ASP file formats.
- **Feedback Profile** — You can add a Customer Experience Feedback profile and select this type to receive information about the features and modules customers have enabled and used. Security Cloud Control supports the FSP file format.
- **ISE Posture Profile** — Choose this option if you add a profile file for the AnyConnect ISE Posture module. Security Cloud Control supports XML and ISP file formats.
- **Network Access Manager Service Profile** — Configure and add the NAM profile file using the Network Access Manager profile editor. Security Cloud Control supports XML and NSP file formats.
- **Network Visibility Service Profile** — Profile file for AnyConnect Network Visibility module. You can create the profile using the NVM profile editor. Security Cloud Control supports XML and NVMSPP file formats.
- **Umbrella Roaming Security Profile** — You must select this file type if you deploy the Umbrella Roaming Security module. Security Cloud Control supports XML and JSON file formats.
- **Web Security Service Profile** — Select this file type when you add a profile file for the Web security module. Security Cloud Control supports XML, WSO, and WSP file formats.

### Before you begin

Use the suitable GUI-based AnyConnect profile editors to create the profiles you need. You can download the profile editors from [Cisco Software Download Center](#) in the AnyConnect Secure Mobility Client category and install the AnyConnect “Profile Editor - Windows / Standalone installer (MSI).” The profile editor installer contains stand-alone versions of the profile editors. The installation file is for Windows only and has the file name anyconnect-profileeditor-win-<version>-k9.msi, where <version> is the AnyConnect version. For example, anyconnect-profileeditor-win-4.3.04027-k9.msi. You must also install Java JRE 1.6 (or higher) before installing the profile editor.

Except for the Umbrella Roaming Security profile editor, this package contains all the profile editors required for creating the modules. For detailed information, see the *AnyConnect Profile Editor* chapter in the appropriate release of the [Cisco AnyConnect Secure Mobility Client Administrator Guide](#) for details. Download the Umbrella Roaming Security profile separately from the Umbrella dashboard. For detailed information, see the “Download the AnyConnect Roaming Security Profile from the Umbrella Dashboard” section of the “Umbrella Roaming Security” chapter in the [Cisco Umbrella User Guide](#).

## Procedure

- 
- Step 1** In the left pane, choose **Manage > Objects**.
  - Step 2** Click the blue plus  button.
  - Step 3** Click **RA VPN Objects (ASA & FDM) > AnyConnect Client Profile**.
  - Step 4** In the **Object Name** field, enter a name for the AnyConnect client profile.
  - Step 5** Click **Browse** and select the file you created using the Profile Editor.
  - Step 6** Click **Open** to upload the profile.
  - Step 7** Click **Add** to add the object.
- 

### Licensing Requirements for Remote Access VPN

Enable (register) the license for the FDM-managed devices from Firewall Device Manager to configure RA VPN connection. When you register the device, you must do so with a Smart Software Manager (SSM) account that is enabled for export-controlled features. You also cannot configure the feature using the evaluation license.

Also, you must purchase and enable a license; it can be any of the following: . These licenses are treated the same for FDM-managed devices, although they are designed to allow different feature sets when used with ASA Software-based headends.

For more information about enabling license from Firewall Device Manager, see the **Licensing Requirements for Remote Access VPN** section of the Remote Access VPN chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running.

For more information, see the [Cisco AnyConnect Ordering Guide](#). There are also other data sheets available on <http://www.cisco.com/c/en/us/product...t-listing.html>.

To view the license status, perform the following:

## Procedure

- 
- Step 1** In the left pane, click **Inventory**.
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **Devices** device.
  - Step 4** Click the **FTD** tab and select a device that you want.
  - Step 5** In the **Device Actions** pane on the right, click **Manage Licenses**. If the license is valid, the **Status** shows **Enabled**.
- 

### Maximum Concurrent VPN Sessions By Device Model

There is a maximum limit to the number of concurrent remote access VPN sessions allowed on a device based on the device model. This limit is designed, so that system performance does not degrade to unacceptable levels. Use these limits for capacity planning.

| Device Model                     | Maximum Concurrent Remote Access VPN Sessions |
|----------------------------------|-----------------------------------------------|
| Firepower 2110                   | 1,500                                         |
| Firepower 2120                   | 3,500                                         |
| Firepower 2130                   | 7,500                                         |
| Firepower 2140                   | 10,000                                        |
| Firepower Threat Defense Virtual | 250                                           |

### *RADIUS Change of Authorization*

The RADIUS Change of Authorization (CoA) feature provides a mechanism to change the attributes of authentication, authorization, and accounting (AAA) session after it is authenticated. A key challenge for RA VPNs is to secure the internal network against compromised endpoints and to secure the endpoint itself when it is affected by viruses or malware, by remediating the attack on the endpoint. There is a need to secure the endpoint and the internal network in all phases, that is, before, during, and after the RA VPN session. The RADIUS CoA feature helps in achieving this goal.

If you use Cisco Identity Services Engine (ISE) RADIUS servers, you can configure Change of Authorization policy enforcement. When a policy changes for a user or user group in AAA, ISE sends CoA messages to the FDM-managed device to reinitialize authentication and apply the new policy. An Inline Posture Enforcement Point (IPEP) is not required to apply access control lists (ACLs) for each VPN session established with the FDM-managed device.

#### **Related Information:**

- [Configure Change of Authorization on the FDM-Managed Device](#)

### Configure Change of Authorization on the FDM-Managed Device

Most of the Change of Authorization policy is configured in the ISE server. However, you must configure the FDM-managed device to connect to ISE correctly.

#### **Before you begin**

If you use hostnames in any object, ensure that you configure DNS servers for use with the data interfaces, as explained in **Configuring DNS for Data and Management Interfaces** section of the System Settings chapter of the [Cisco Firepower Threat Defense Configuration Guide for Firepower Device Manager](#) for the version your device is running. You typically need to configure DNS anyway to have a fully-functional system.

### Procedure

#### **Procedure**

- 
- Step 1** Log in to the Firewall Device Manager for your FDM-managed device.
- Step 2** Configure the extended access control list (ACL) for redirecting initial connections to ISE. The purpose of the redirect ACL is to send initial traffic to ISE so that ISE can assess the client posture. The ACL should send HTTPS traffic to ISE, but not traffic that is already destined for ISE, or traffic that is directed to a DNS server for name resolution. A sample redirect ACL might look like the following:
- ```
access-list redirect extended deny ip any host <ISE server IP>
```


access-list redirect extended deny ip any host <DNS server IP>

access-list redirect extended deny icmp any any

access-list redirect extended permit tcp any any eq www

However, note that ACLs have an implicit "deny any any" as the last access control entry (ACE). In this example, the last ACE, which matches TCP port www (that is, port 80), will not match any traffic that matches the first 3 ACEs, so those are redundant. You could simply create an ACL with the last ACE and get the same results. Note that in a redirect ACL, the permit and deny actions simply determine which traffic matches the ACL, with permit matching and deny not matching. No traffic is actually dropped, denied traffic is simply not redirected to ISE. To create the redirect ACL, you need to configure a Smart CLI object.

- a. Choose **Device > Advanced Configuration > Smart CLI > Objects**.
- b. Click + to create a new object.
- c. Enter a name for the ACL. For example, **redirect**.
- d. For **CLI Template**, select **Extended Access List**.
- e. Configure the following in the **Template** body:

- configure access-list-entry action = permit
- source-network = any-ipv4
- destination-network = any-ipv4
- configure permit port = any-source
- destination-port = HTTP
- configure logging = disabled

The ACE should look like the following:

The screenshot shows the configuration interface for a new Smart CLI object. The **Name** field is set to "redirect". The **CLI Template** dropdown is set to "Extended Access List". The **Template** body contains the following configuration:

```

1 access-list redirect extended
2 configure access-list-entry permit
3 permit network source [any-ipv4] destination [any-ipv4]
4 configure permit port any-source
5 permit port source ANY destination [HTTP]
6 configure logging disabled
7 disabled log set log-level INFORMATIONAL log-interval 300
  
```

At the bottom right, there are **CANCEL** and **OK** buttons.

- f. Click **OK**.

This ACL will be configured the next time you deploy changes. You do not need to use the object in any other policy to force deployment.

Note

This ACL applies to IPv4 only. If you also want to support IPv6, simply add a second ACE with all the same attributes, except select any-ipv6 for the source and destination networks. You can also add the other ACEs to ensure traffic to the ISE or DNS server is not redirected. You will first need to create host network objects to hold the IP addresses of those servers.

- Step 3** Configure a RADIUS server group for dynamic authorization.
 - Step 4** Create a connection profile that uses this RADIUS server group. See [Configure an RA VPN Connection Profile](#). Use **AAA Authentication** (either only or with certificates), and select the server group in the **Primary Identity Source for User Authentication, Authorization, and Accounting** options.
-

Verify Remote Access VPN Configuration of FDM-Managed Device

After you configure the remote access VPN and deploy the configuration to the device, verify that you can make remote connections.

Procedure

- Step 1** From an external network, establish a VPN connection using the AnyConnect client. Using a web browser, open **https://ravpn-address**, where *ravpn-address* is the IP address or hostname of the outside interface on which you are allowing VPN connections. If necessary, install the client software and complete the connection. See [How Users Can Install the AnyConnect Client Software on FTD](#). If you configured group URLs, also try those URLs.
- Step 2** In the **Security Devices** page, select the device you want to verify and click **Command Line Interface** under **Device Actions**.
- Step 3** Use the **show vpn-sessiondb** command to view summary information about current VPN sessions.
- Step 4** The statistics should show your active AnyConnect Client session, and information on cumulative sessions, the peak concurrent number of sessions, and inactive sessions. Following is sample output from the command.

```
> show vpn-sessiondb
```

```
-----
VPN Session Summary
-----
```

	Active	Cumulative	Peak Concur	Inactive
AnyConnect Client	: 1	: 49	: 3	: 0
SSL/TLS/DTLS	: 1	: 49	: 3	: 0
Clientless VPN	: 0	: 1	: 1	
Browser	: 0	: 1	: 1	

Total Active and Inactive	: 1		Total Cumulative	: 50
Device Total VPN Capacity	: 10000			
Device Load	: 0%			

```
-----
```

```
-----
Tunnels Summary
-----
```

	Active	Cumulative	Peak Concurrent
Clientless	: 0	: 1	: 1
AnyConnect-Parent	: 1	: 49	: 3
SSL-Tunnel	: 1	: 46	: 3
DTLS-Tunnel	: 1	: 46	: 3

Totals	: 3	: 142	

```
-----
```

```
-----
IPv6 Usage Summary
-----
```

	Active	Cumulative	Peak Concurrent
AnyConnect SSL/TLS/DTLS	: :	: :	
Tunneled IPv6	: 1	: 20	: 2

```
-----
```

Step 5

Use the **show vpn-sessiondb anyconnect** command to view detailed information about current AnyConnect VPN sessions. Detailed information includes encryption used, bytes transmitted and received, and other statistics. If you use your VPN connection, you should see the bytes transmitted/received numbers change as you re-issue this command.

```
> show vpn-sessiondb anyconnect
```

```
Session Type: AnyConnect
```

```

Username      : User1|                               Index      : 4820
Assigned IP   : 172.18.0.1                           Public IP     : 192.168.2.20
Assigned IPv6 : 2009::1
Protocol      : AnyConnect-Parent SSL-Tunnel DTLS-Tunnel
License       : AnyConnect Premium
Encryption    : AnyConnect-Parent: (1)none SSL-Tunnel: (1)AES-GCM-256 DTLS-Tunnel: (1)AES256
Hashing       : AnyConnect-Parent: (1)none SSL-Tunnel: (1)SHA384 DTLS-Tunnel: (1)SHA1
Bytes Tx      : 27731                                Bytes Rx     : 14427
Group Policy  : MyRaVpn|Policy                        Tunnel Group : MyRaVpn
Login Time    : 21:58:10 UTC Mon Apr 10 2017
Duration      : 0h:51m:13s
Inactivity    : 0h:00m:00s
VLAN Mapping  : N/A                                  VLAN          : none
Audit Sess ID : c0a800fd012d400058ebffff2
Security Grp  : none                                Tunnel Zone   : 0

```

*View Remote Access VPN Configuration Details of FDM-Managed Device***Procedure**

Step 1 In the left pane, choose **Manage > Secure Connections > End User Connections > Remote Access VPN > ASA & FDM**

Step 2 In the left pane, click **VPN > Remote Access VPN Configuration**.

Step 3 Click on a VPN configuration object present.

The group shows summary information on how many connection profiles and group policies are currently configured.

- Expand the RA VPN configuration to view all connection profiles associated with them.
 - Click the add + button to add a new connection profile.
 - Click the view button () to open a summary of the connection profile and connection instructions. Under **Actions**, you can click **Edit** to modify the changes.
 - You can click one of the following options under **Actions** to perform additional tasks:
 - Click **Group Policies** to assign/add group policies.
 - Click a configuration object or connection profile that you no longer need and click **Remove** to delete.
-



PART **V**

Device Operations

- [Manage Onboarded Device Settings, on page 591](#)
- [Manage Device Configuration, on page 609](#)
- [Use the Security Cloud Control Command Line Interface Tool, on page 637](#)



CHAPTER 13

Manage Onboarded Device Settings

- [Changing a Device's IP Address in Security Cloud Control, on page 591](#)
- [Changing a Device's Name in Security Cloud Control, on page 592](#)
- [Export a List of Devices and Services, on page 592](#)
- [Export Device Configuration, on page 593](#)
- [External Links for Devices, on page 594](#)
- [Bulk Reconnect Devices to Security Cloud Control, on page 597](#)
- [Moving Devices Between Tenants, on page 597](#)
- [Device Certificate Expiry Detection, on page 598](#)
- [Write a Device Note, on page 598](#)
- [Delete a Device from Security Cloud Control, on page 599](#)
- [Manage Security Devices, on page 599](#)
- [Back Up Firewall Threat Defense Devices Managed by Security Cloud Control, on page 600](#)
- [Manage Firewall Threat Defense Devices Through Security Cloud Control, on page 601](#)
- [Security Devices Overview, on page 601](#)
- [Security Cloud Control Labels and Filtering, on page 602](#)
- [Use Security Cloud Control Search Functionality, on page 605](#)

Changing a Device's IP Address in Security Cloud Control

When you onboard an device to Security Cloud Control using an IP address, Security Cloud Control stores that IP address in its database and communicates with the device using that IP address. If the IP address of the device changes, you can update the IP address stored in Security Cloud Control to match the new address. Changing the device's IP address on Security Cloud Control does not change device's configuration.

To change the IP address, Security Cloud Control uses to communicate with a device, follow this procedure:

Procedure

Step 1	In the left pane, click Inventory .
Step 2	In the left pane, click Security Devices
Step 3	Click the Devices tab to locate the device.
Step 4	Click the appropriate device type tab.

You can use the [filter](#) and [search](#) functionalities to find the required device.

Step 5 Select the device whose IP address it is you want to change.

Step 6 Above the **Device Details** pane, click the edit button next to the device's IP address.

Nashua Building 1 

ASA 10.86.118.4:443 

Step 7 Enter the new IP address in the field and click the blue check button.

No change is made to the device itself, so the device's Configuration Status will continue to show that it is Synced.

Related Information:

- [Moving Devices Between Tenants, on page 597](#)
- [Bulk Reconnect Devices to Security Cloud Control, on page 597](#)

Changing a Device's Name in Security Cloud Control

All devices, models, templates, and services are given a name when they are onboarded or created in Security Cloud Control. You can change that name without changing the configuration of the device itself.

Procedure

Step 1 In the left pane, click **Inventory**.

Step 2 In the left pane, click **Security Devices**.

Step 3 Click the **Device** tab to locate the device.

Step 4 Select the device whose name it is you want to change.

Step 5 Above the **Device Details** pane, click the edit button next to the device's name.

Nashua Building 1 

Step 6 Enter the new name in the field and click the blue check button.

No change is made to the device itself, so the device's Configuration Status will continue to show that it is Synced.

Export a List of Devices and Services

This article explains how to export your list of devices and services to a comma-separated value (.csv) file. Once in that format, you can open the file in a spreadsheet application such as Microsoft Excel to sort and filter the items in your list.

The export button is available in the devices and the templates tab. You are also allowed to export details from devices under the selected device type tab.

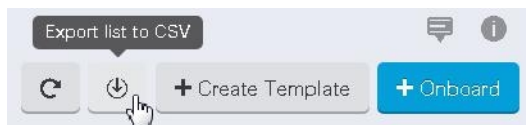
Before you export your list of devices and services, look at the filter pane and determine if the **Security Devices** page is displaying the information you want to export. Clear all your filters to see all of your managed devices and services, or filter the information to display a subset of all your devices and services. The export function exports what you can see in the **Security Devices** page.

Procedure

-
- Step 1** In the left pane, click **Inventory**.
 - Step 2** In the left pane, click **Security Devices**.
 - Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
 - Step 4** Click the appropriate device type tab to export details from devices under that tab or click **All** to export details from all devices.

You can use the [filter](#) and [search](#) functionalities to find the required device.

- Step 5** Click **Export list to CSV**:



- Step 6** If prompted, save the .csv file.
 - Step 7** Open the .csv file in a spreadsheet application to sort and filter the results.
-

Export Device Configuration

You can only export one device configuration at a time. Use the following procedure to export a device's configuration to a JSON file:

Procedure

-
- Step 1** In the navigation bar, click **Inventory**.
 - Step 2** In the left pane, click **Security Devices**.
 - Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
 - Step 4** Click the appropriate device type tab.
- You can use the [filter](#) and [search](#) functionalities to find the required device.
- Step 5** Select the device you want so it is highlighted.
 - Step 6** In the **Actions** pane, select **Export Configuration**.

Step 7 Select **Confirm** to save the configuration as a JSON file.

External Links for Devices

You can create a hyperlink to an external resource and associate it with a device you manage with Security Cloud Control. You could use this feature to create a convenient link to the local manager of one of your devices (Adaptive Security Device Manager (ASDM) for ASA Firepower Device Manager (FDM) for an FTD). You could also use it to link to a search engine, documentation resource, a corporate wiki, or any other URL that you choose. You can associate as many external links with a device as you want. You can also associate the same link with multiple devices at the same time.

The links you create can reach anywhere, but your company's security requirements do not change. For example, if you ordinarily need to be connected to your corporate network, by being on-premises or through a VPN connection to reach a particular URL, those requirements remain. If your company blocks specific URLs, those URLs continue to be blocked. URLs that are not restricted continue to not be restricted.

Location Variable

We have created the {location} variable that you can incorporate in your URLs. This variable will be populated with the IP address of your device. For example,

```
https://{location}
```

should reach the ASDM for your ASA or the FDM of your FDM-managed device.

Related Information:

- [Write a Device Note, on page 598](#)
- [Export a List of Devices and Services, on page 592](#)

Create an External Link from your Device

Procedure

- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.

- Step 4** Click the appropriate device type tab.
- Step 5** Select a device or model.
- You can use the [filter](#) and [search](#) functionalities to find the required device.
- Step 6** In the details pane, on the right, go to the **External Links** section.
- Step 7** Enter a name for the link.
- Step 8** Enter the URL for the link in the URL field. You need to specify the full URL, for example, for Cisco enter <http://www.cisco.com>.
- Step 9** Click + to associate the link with the device.
-

Create an External Link to ASDM FDM

Here is a convenient way to open the Adaptive Security Device Manager (ASDM) of your ASA the Firepower Device Manager (FDM) of your FDM-managed device, directly from Security Cloud Control.

Procedure

- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- You can use the [filter](#) and [search](#) functionalities to find the required device.
- Step 5** Select a device or model.
- Step 6** In the details pane, on the right, go to the **External Links** section.
- Step 7** Enter a name for the link such as ASDM FDM.
- Step 8** Enter `https://{location}` in the URL field. The `{location}` variable will be populated with the IP address of your device.
- Step 9** Click the + box.
-

Create an External Link for Multiple Devices

Procedure

- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.

You can use the [filter](#) and [search](#) functionalities to find the required devices.

Step 5 Select multiple devices or models.

Step 6 In the details pane, on the right, go to the **External Links** section.

Step 7 Enter a name for the link.

Step 8 Enter the URL you want to reach using one of these methods:

- Enter

```
https://{location}
```

in the URL field. The {location} variable will be populated with the IP address of your device. This creates an automatic link to the ASDM for your device.

- Enter the URL for the link in the URL field. You need to specify the full URL, for example, for Cisco enter <http://www.cisco.com>.

Step 9 Click + to associate the link with the device.

Edit or Delete External Links

Procedure

Step 1 In the navigation bar, click **Inventory**.

Step 2 In the left pane, click **Security Devices**.

Step 3 Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.

Step 4 Click the appropriate device type tab.

You can use the [filter](#) and [search](#) functionalities to find the required device.

Step 5 Select a device or model.

Step 6 In the details pane, on the right, go to the **External Links** section.

Step 7 Mouse-over the name of the link to reveal the edit and delete icons.

Step 8 Click the appropriate icon to edit or delete the external link and confirm your action.

Edit or Delete External Links for Multiple Devices

Procedure

Step 1 In the navigation bar, click **Inventory**.

Step 2 In the left pane, click **Security Devices**.

Step 3 Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.

- Step 4** Click the appropriate device type tab.
- You can use the [filter](#) and [search](#) functionalities to find the required devices.
- Step 5** Select multiple devices or models.
- Step 6** In the details pane, on the right, go to the **External Links** section.
- Step 7** Mouse-over the name of the link to reveal the edit and delete icons.
- Step 8** Click the appropriate icon to edit or delete the external link and confirm your action.
-

Bulk Reconnect Devices to Security Cloud Control

Security Cloud Control allows an administrator to attempt to reconnect more than one managed device to Security Cloud Control at the same time. When a device Security Cloud Control manages is marked "unreachable," Security Cloud Control can no longer detect out of band configuration changes or manage the device. There could be many different reasons for the disconnect. Attempting to reconnect the devices is a simple first step in restoring Security Cloud Control's management of the device.



Note If you are reconnecting devices having new certificates, Security Cloud Control automatically reviews and accepts the new certificates on the devices and continues to reconnect with them. However, if you are reconnecting with only one device, Security Cloud Control prompts you to review and accept the certificate manually to continue to reconnect with it.

Procedure

- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate devices.
- Step 4** Click the appropriate device type tab.
- Use the [filter](#) to look for devices whose connectivity status is "unreachable."
- Step 5** From the filtered results, select the devices you want to attempt to reconnect.
- Step 6** Click **Reconnect** . Notice that Security Cloud Control only provides command buttons for actions that can be applied to all the selected devices.
-

Moving Devices Between Tenants

Once you have onboarded devices to a Security Cloud Control tenant, you cannot migrate the devices from one Security Cloud Control tenant to another. If you want to move your devices to a new tenant, you need to remove the devices from the old tenant and re-onboard them to the new tenant.

Device Certificate Expiry Detection

The management certificate is used for accessing FDM-managed and ASA devices from Security Cloud Control, while the Cisco Secure Client (formerly AnyConnect) is necessary for using virtual private network features on ASA, FDM-managed, and FTD devices from Security Cloud Control.

Security Cloud Control actively monitors the expiration status of these certificates and notifies the user when these certificates are nearing their expiration date or have expired. This prevents any disruptions in device operations due to certificate expiry. You should renew the corresponding certificate to address this issue.

The management certificate expiry check applies to ASA and FDM-managed devices, while the Secure Client certificate expiry check applies to ASA, FDM-managed, and FTD devices.

View Certificate Expiry Notification

In the top right corner, click the **Notifications** () icon to view the most recent alerts that have occurred or affected the devices you have onboarded to your tenant. The **High Priority** section displays the certificate expiration notifications.

These notifications are sent 30, 14, and 7 days before the certificate expiration date and then every day thereafter until the certificate either expires or is renewed with a valid certificate. You can also subscribe to receive these notifications by email on the **Notification Settings** section of the user preferences page. For more information, see [User Notification Preferences](#).

Write a Device Note

Use this procedure to create a single, plain-text, note file for a device.

Procedure

-
Step 1	In the navigation bar, click Inventory .
Step 2	In the left pane, click Security Devices .
Step 3	Click the Devices tab to locate the device or the Templates tab to locate the model device.
Step 4	Click the appropriate device type tab.
Step 5	Select the device or model you want to create a note for.
Step 6	In the Management pane on the right, click Notes .  Notes .
Step 7	Click the editor button on the right and select the Default text editor, Vim, or Emacs text editors.
Step 8	Edit the Notes page.
Step 9	Click Save .
- The note is saved in the tab.
-

Delete a Device from Security Cloud Control

Use the following procedure to delete a device from Security Cloud Control:

Procedure

-
Step 1	Log into Security Cloud Control.
Step 2	Navigate to the Inventory page.
Step 3	In the left pane, click Security Devices .
Step 4	Locate the device you want to delete and check the device in the device row to select it.
Step 5	In the Device Actions panel located to the right, select Remove .
Step 6	When prompted, select OK to confirm the removal of the selected device. Select Cancel to keep the device onboarded.

Note that both devices in an FDM-managed HA pair must be deleted simultaneously. Click the FDM-managed HA pair name and not the individual peers.

Manage Security Devices

Security Cloud Control provides the ability to view, manage, filter, and evaluate your onboarded devices on the **Security Devices** page. From the **Security Devices** page you can:

- [Onboard devices and services for Security Cloud Control management.](#)
- View the configuration state and connectivity state of managed devices and services.
- View onboarded devices and templates categorized in separate tabs. See [Security Devices Overview, on page 601](#).
- Evaluate and take action on individual devices and services.
- View device and service specific information and resolve issues.
- View device health status for threat defense devices managed by:
 - [Cloud-Delivered Firewall Management Center](#)
 - [on-premises management center](#)

For threat defense devices managed by the cloud-delivered Firewall Management Center, you can also see the node status for devices in a cluster.

- Search for a device or template by name, type, IP address, model name, serial number, or labels. Search is not case-sensitive. Providing multiple search terms brings up devices and services that match at least one of the terms. See [Page Level Search, on page 605](#).

- Filter for a device or template filter by device type, hardware and software versions, snort version, configuration status, connection states, conflict detection, and secure device connectors, and labels. See [Filters](#).
- Delete a device

Back Up Firewall Threat Defense Devices Managed by Security Cloud Control

To know how to back up Security Cloud Control-managed Firewall Threat Defense device types, use the following references:

Back Up Firewall Threat Defense Devices Managed by Cloud-Delivered Firewall Management Center

- In the Security Cloud Control left pane, choose **Administration > Firewall Management Center**.
- Choose **Cloud-delivered FMC** under the **FMC** tab.
- Click **Devices** on the right pane to navigate to the Cloud-Delivered Firewall Management Center.
- Continue to follow the steps in [Back Up a Threat Defense Device from Cloud-delivered Firewall Management Center](#).

Back Up Firewall Threat Defense Devices Managed by On-Premises Firewall Management Center Onboarded to Security Cloud Control

- In the Security Cloud Control left pane, choose **Administration > Firewall Management Center**.
- Choose the On-Premises Firewall Management Center whose Firewall Threat Defense devices you want to back up.
- Click **FMC Cross Launch URL** on the right pane to navigate to the on-premises management center or manually log in to the on-premises management center.
- Continue to follow the steps in *Back up a Device from the Management Center* in the [Cisco Secure Firewall Management Center Administration Guide](#).

Back Up Firewall Threat Defense Devices Managed by Firewall Device Managers Onboarded to Security Cloud Control

Follow the steps in [Back up an FDM-managed Device](#).

Manage Firewall Threat Defense Devices Through Security Cloud Control

Before you begin

Security Cloud Control provides a unified interface to manage Firewall Threat Defense devices, both in hardware and virtual formats.

Firewall Threat Defense devices associated with these three management applications can be managed on the Security Cloud Control platform:

- Secure Firewall Device Manager
- Firepower Management Center
- Secure Cloud-Delivered Firewall Management Center

Procedure

Step 1 Log in to the Security Cloud Control platform.

Step 2 In the left pane, click **Security Devices**.

Step 3 Click the **FTD** tab.

Step 4 Click  at the top-left corner.

Under **Devices/Services**, the filter pane provides filters that display Firewall Threat Defense devices based on the management application through which they are accessed from Security Cloud Control.

- **FDM**: Firewall Threat Defense device managed by Firewall Device Manager
- **FMC-FTD**: Firewall Threat Defense devices managed by Firewall Management Center
- **FTD**: Firewall Threat Defense devices managed by Cloud-Delivered Firewall Management Center

Step 5 To view the Firewall Threat Defense devices under a management application, check the corresponding check box.

Security Devices Overview

The **Security Devices** page displays all the physical and virtual onboarded devices and the templates created from the onboarded devices. The page classifies devices and templates based on their type and displays them in the corresponding tabs dedicated to each device type.

You can view the following details on the **Security Devices** page:

- The **Devices** tab displays all the live devices that are onboarded to Security Cloud Control.

- The **Templates** tab displays all the template devices created from live devices or configuration files imported to Security Cloud Control.

Filters in Security Devices

The **Filter** panel on the **Security Devices** page provides multiple options to narrow down results and find devices based on specific attributes, including **Devices/Services**, **Hardware Versions**, **Device End-of-Life**, **Software Versions**, **Snort Version**, **Configuration Status**, **Connectivity States**, **Conflict Detection**, **Health Status**, **Secure Device Connectors**, and **Labels**.

The Hardware End-of-Life (EoL) Filter

The **Hardware End-of-Life (EoL) filter** allows you to identify devices that are nearing or have reached their last day of hardware support. Running unsupported hardware may pose operational and security risks because Cisco no longer provides software updates, security patches, or technical support after the EoL date.



Note The Hardware EoL filter currently supports Firewall Threat Defense devices managed by on-premises management center and cloud-delivered Firewall Management Center, and ASA devices.

Procedure

1. In the **Devices** tab, click the filter icon.
2. From the list of available filters, under **Device End-of-Life**, select **Hardware End-of-Life**.
The list now displays all devices that are approaching or have reached their hardware end-of-life.
3. Select a device to view more information on the right pane.
4. Scroll down to the **Device End of Life** section to view the following details:
 - The exact end-of-life date.
 - Remaining time until the last day of support.

5. Click **Know more**.

You can view a detailed page that provides the following information:

- Cisco's recommended replacement devices with product specifications, along with links to view the official data sheets.
- Guidance on submitting a request through the [Contact Cisco page](#) and options to connect directly with Cisco experts.
- Information on Cisco's [product recycling program](#).

6. Click **Export** to download the device report in CSV format for offline analysis.

Security Cloud Control Labels and Filtering

Labels are used for grouping devices or objects. You can apply labels to one or more devices during onboarding or any time after onboarding. You can apply labels to objects after creating them. Once you apply labels to

devices and objects, you can filter the contents of the device table or objects table using the corresponding label.



Note A label that is applied to a device is not extended to its associated objects, and a label applied to a shared object is not extended to its associated objects.

You can create a label group by using the syntax group name:label, for example, Region:East or Region:West. If you create these two labels, the group label would be Region and you could choose from East or West in that group.

Apply Labels to Devices and Objects

To apply a label to devices, perform these steps:

Procedure

- Step 1** To add a label to a device, click **Inventory** in the navigation pane on the left.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** To add a label to an object, click **Objects** in the navigation pane on the left.
- Step 4** In the left pane, click **Objects**.
- Step 5** Click the **Devices** tab to locate a device or the **Templates** tab to locate the model device.
- Step 6** Click the appropriate device type tab.
- Step 7** Select one or more devices.
- Step 8** In the **Add Groups and Labels** field on the right, specify a label for the devices.
- Step 9** Click the  icon.

Filters

You can use many different filters on the **Security Devices** and **Objects** pages to find the devices and objects you are looking for.

To filter, click  in the left-hand pane of the Security Devices, Policies, and Objects tabs:

The Security Devices filter allows you to filter by device type, hardware and software versions, snort version, configuration status, connection states, conflict detection, and secure device connectors, and labels. You can apply filters to find devices within a selected device type tab. You can use filters to find devices within the selected device type tab.



Note When the **FTD** tab is opened, the filter pane provides filters to show FDM-managed devices based on the management application through which the devices are accessed from Security Cloud Control.

- FDM: Devices managed using FTD API or FDM.
 - FMC-FTD: Devices managed using Firepower Management Center.
 - FTD: Devices managed using FTD Management.
-

The object filter allows you to filter by device, issue type, shared objects, unassociated objects, and object type. You can include system objects in your results or not. You can also use the search field to search for objects in the filter results that contain a certain name, IP address, or port number.

The object type filter allows you to filter objects by type, such as network object, network group, URL object, URL group, service object, and service group. The shared objects filter allows filtering objects having default values or override values.

When filtering devices and objects, you can combine your search terms to create several potential search strategies to find relevant results.

In the following example, filters are applied to search for objects that are "Issues (Unused OR Inconsistent) AND Shared Objects (with Default Values OR Additional Values) AND Unassociated Objects."

Filter

Filter by Device

Show System-Defined Objects

Issues

Unused

Duplicate

Inconsistent

Ignored Issues

Ignored

Shared Objects

Default Values

Override Values

Additional Values

Unassociated Objects

Unassociated

Object Type

Network

Protocol

Service

Use Security Cloud Control Search Functionality

The Security Cloud Control platform has a highly efficient search function that makes it easy to find anything you need. The search bar on each page is tailored to the content of that page, while the global search allows for a comprehensive search across the entire tenant. This saves time and effort, as you can quickly locate the necessary information.

Page Level Search

The page-level search enables you to search specific items on the Security Devices, Policies, Objects, VPN, Change Log, and Jobs pages.

- In the **Security Devices** space, you can simply start typing in the search bar, and devices that fit the search criteria will be displayed. You can type any partial part name of the device, IP address, or the serial number of the physical device to find the device.
- In the **Policies** space, you can search policies by their name, components or objects used in them.

- In the **Objects** space, you can search for an object by typing any partial part of the name of the object, or partial IP Address, port, or protocols.
- In the **VPN** space, you can search by tunnel name, device name, and IP address used in the VPN policies.
- In the **Change log** space, you can search logs based on events, device names, or actions.

Procedure

-
- Step 1** Navigate to the search bar near the top of the interface.
- Step 2** Type the search criteria into the Search Bar and the corresponding results will be displayed.
-

Global Search

The global search feature allows you to quickly locate and navigate to devices managed by Security Cloud Control.

All search results are based on the indexing option you choose. The indexing options are as follows:

- **Full Indexing**—Requires that you invoke the full indexing process. This process scans all the devices and objects in the system and displays them in the search index only after you invoke the indexing. To invoke full indexing, you must have administrative privileges.

For more information, see [Initiate Full Indexing, on page 607](#).

- **Incremental Indexing**—An event-based indexing process where the search index automatically updates each time that a device or an object is added, modified, or deleted.

The information that you enter in the search field is not case-sensitive. You can perform a global search using the following entities:

- **Device Name**—Supports partial device names, URL, IP address or range.
- **Object Types**—Supports object name, object descriptions, and configured values.
- **Policy Types**—Supports policy name, policy description, rule name, and rule comments.

Cloud-delivered Firewall Management Center and On-Prem FMC managed in Security Cloud Control support the following policy types:

- Access Control Policy
- Prefilter Policy
- Threat Defense NAT Policy

When you type a search expression, the interface begins to display search results and you do not need to press *Enter* to execute a search.

The search results display all devices and objects that match your search strings. If your search string matches more than device or object, the results appear under categories (devices, objects, and `connected_fmc`).

By default, the first item in the search result is highlighted and the related information for that item appears in the right pane. You can scroll through the search results and click any item to view the corresponding information. You can click the arrow icon besides the item to navigate to the corresponding page.

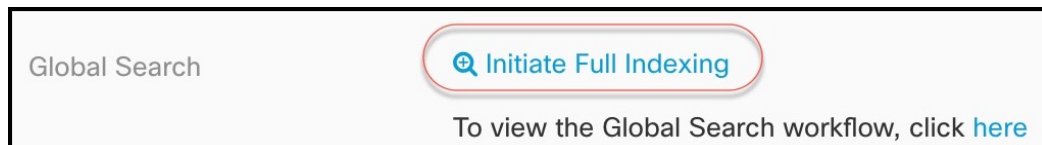
**Note**

- Global search does not display duplicate search results. For objects, the UID of the shared object is used to navigate to the Object view.
- If you delete a device from Security Cloud Control, all associated objects are removed from the global search index.
- If you delete an object from the policy and retain the device before you initiate full indexing, the object remains in the global search index because it is associated with the device.

Initiate Full Indexing

Procedure

- Step 1** In the left pane, choose **Settings > General Settings**.
- Step 2** In the left pane, click **Administration > General Settings**.
- Step 3** In Global Search, click **Initiate Full Indexing** to trigger indexing.

**Note**

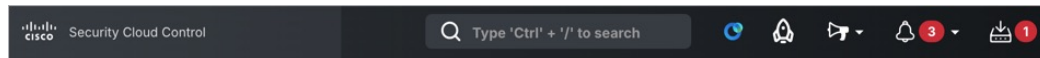
Initiating full indexing clears existing indexing of the Security Cloud Control tenant.

- Step 4** Click **here** to view the global search workflow.

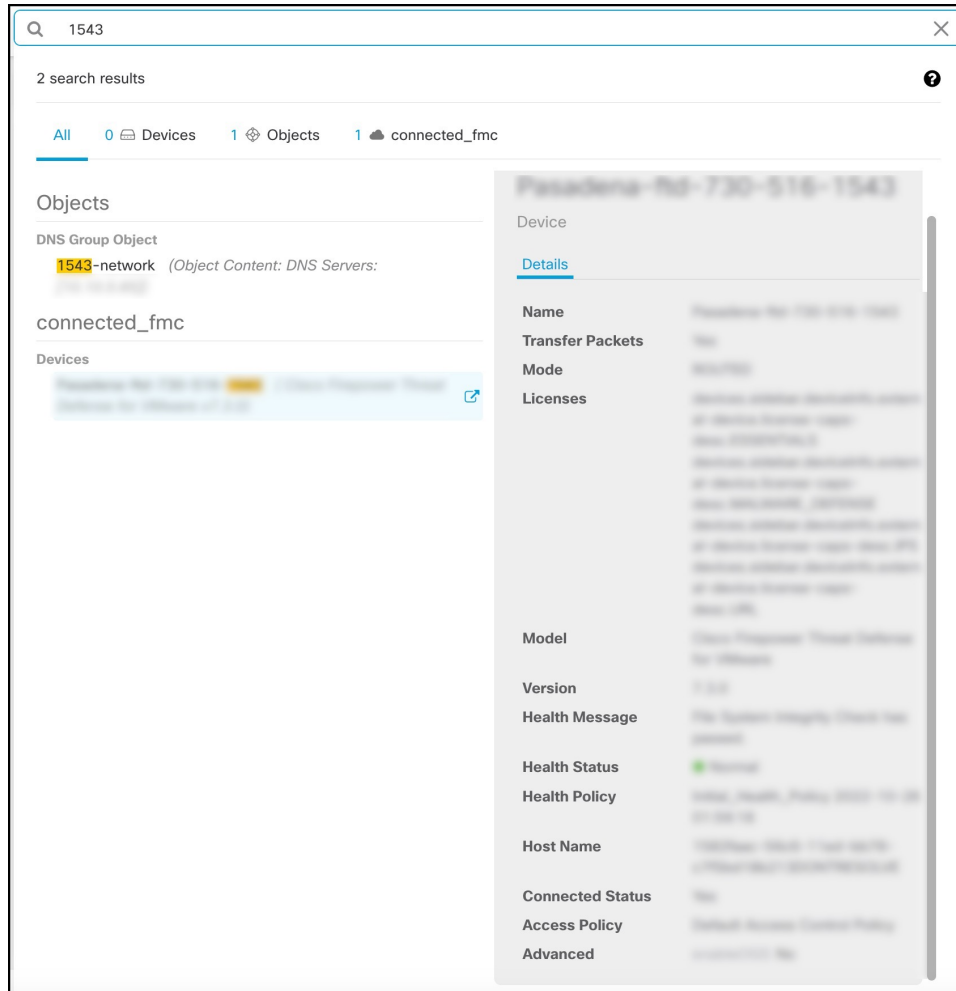
Perform a Global Search

Procedure

- Step 1** Log into Security Cloud Control.
- Step 2** Click the search icon in the Security Cloud Control page and enter the search strings in the search field that appears.
- Alternatively, you can press and hold the **Ctrl** key and the **/** key simultaneously on Windows, or the **Command** key and **/** key on Mac, to open the search bar.



The search results display a list of possible items as you begin entering the search strings. The search results appear under four categories: All, Devices, Objects, Policies, and Cloud-Delivered Firewall Management Center. The right pane displays information for a selected search result.



Step 3 From the search result, select a device or an object, and click the arrow icon to navigate from the search results to the corresponding device and object page. From the search result, select an item, and click the arrow icon to navigate from the search results to the corresponding page.

Note

Selecting a search result for devices in the Cloud-Delivered Firewall Management Center, allows you to navigate to the Cloud-Delivered Firewall Management Center user interface within Security Cloud Control.

For information on Cloud-Delivered Firewall Management Center, see [Managing Firewall Threat Defense with Cloud-Delivered Firewall Management Center in Security Cloud Control](#).

Step 4 Click X to close the search bar.



CHAPTER 14

Manage Device Configuration

In order to manage a device, Security Cloud Control must have its own copy of the device's configuration stored in its local database. When Security Cloud Control "reads" a configuration from a device it manages, it takes a copy of the device's configuration and saves it. The first time Security Cloud Control reads and saves a copy of a device's configuration is when the device is onboarded. These choices describe reading a configuration for different purposes:

- **Discard Changes:** This action is available when a device's configuration status is "Not Synced." In the Not Synced state, there are changes to the device's configuration pending on Security Cloud Control. This option allows you to undo all pending changes. The pending changes are deleted and Security Cloud Control overwrites its copy of the configuration with copy of the configuration stored on the device.
- **Check for Changes:** This action is available if the device's configuration status is Synced. Clicking Checking for Changes directs Security Cloud Control to compare its copy of the device's configuration with the copy of the configuration stored on the device. If there is a difference, Security Cloud Control immediately overwrites its copy of the device's configuration with the copy stored on the device.
- **Review Conflict and Accept Without Review:** If you have enabled [Conflict Detection](#) on a device, Security Cloud Control checks for configuration changes made on the device every 10 minutes. If the copy of the configuration stored on the device has changed, Security Cloud Control notifies you by displaying the "Conflict Detected" configuration status.
 - **Review Conflict:** Click Review Conflict allows you to review changes made directly on a device and accept or reject them.
 - **Accept Without Review:** This action overwrites Security Cloud Control's copy of a device's configuration with the latest copy of the configuration stored on the device. Security Cloud Control does not prompt you to confirm the differences in the two copies of the configuration before taking the overwriting action.

Read All: This is a bulk operation. You can select more than one device, in any state, and click **Read All** to overwrite all the devices' configurations stored on Security Cloud Control with the configurations stored on the devices.

- **Deploy Changes:** As you make changes to a device's configuration, Security Cloud Control saves the changes you make to its own copy of the configuration. Those changes are "pending" on Security Cloud Control until they are deployed to the device. When there are changes to a device's configuration that have not been deployed to the device, the device is in the Not Synced configuration state.

Pending configuration changes have no effect on the network traffic running through the device. Only after Security Cloud Control deploys the changes to the device do they have an effect. When Security

Cloud Control deploys changes to the device's configuration, it only overwrites those elements of the configuration that were changed. It does not overwrite the entire configuration file stored on the device. Deployments can be initiated for a single device or on more than one device simultaneously.

- **Discard All** is an option that is only available after you click **Preview and Deploy...** After clicking Preview and Deploy, Security Cloud Control shows you a preview of the pending changes in Security Cloud Control. Clicking **Discard All** deletes all pending changes from Security Cloud Control and does not deploy anything to the selected device(s). Unlike "Discard Changes" above, deleting the pending changes is the end of the operation.



Note You can schedule deployments or recurring deployments. See [Schedule an Automatic Deployment, on page 623](#) for more information.

- [Reading, Discarding, and Deploying Configuration Changes, on page 610](#)
- [Synchronizing Configurations Between Security Cloud Control and Device, on page 627](#)

Reading, Discarding, and Deploying Configuration Changes

Read All Device Configurations

If a configuration change is made to a device outside of Security Cloud Control, the device's configuration stored on Security Cloud Control and the device's local copy of its configuration are no longer the same. You may want to overwrite Security Cloud Control's copy of the device's configuration with the configuration stored on the device to make the configurations the same again. You can perform this task on many devices simultaneously using the **Read All** link.

See [Reading, Discarding, Checking for, and Deploying Configuration Changes](#) for more information about how Security Cloud Control manages the two copies of the device's configuration.

Here are three configuration statuses where clicking **Read All** will overwrite Security Cloud Control's copy of the device's configuration with the device's copy of the configuration.

- **Conflict Detected**-If conflict detection is enabled, Security Cloud Control polls the devices it manages every 10 minutes for changes made to their configurations. If Security Cloud Control finds that the configuration on the device has changed, Security Cloud Control displays a "Conflict detected" configuration status for the device.
- **Synced**-If the device is in a synced state, and you click **Read All**, Security Cloud Control immediately checks the devices to determine if there have been any changes made to its configurations directly. After clicking **Read All**, Security Cloud Control confirms your intent to overwrite its copy of the device's configuration and then Security Cloud Control performs the overwrite.
- **Not Synced**-If the device is in the Not Synced state, and you click **Read All**, Security Cloud Control warns you that there are pending changes made to the device's configuration using Security Cloud Control and that proceeding with the Read All operation will delete those changes and then overwrite Security Cloud Control's copy of the configuration with the configuration on the device. This Read All functions like [Discard Changes](#).

Procedure

-
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the devices whose configurations you want to save Security Cloud Control. Notice that Security Cloud Control only provides command buttons for actions that can be applied to all the selected devices.
- Step 6** Click **Read All**.
- Step 7** Security Cloud Control warns you if there are configuration changes staged on Security Cloud Control, for any of the devices you selected, and asks if you want to continue with the bulk reading configurations action. Click **Read All** to continue.
- Step 8** If you created and activated a change request label, remember to clear it so that you don't inadvertently associate other configuration changes with this event.
-

Related Information

- [Reading, Discarding, Checking for, and Deploying Configuration Changes](#)
- [Discard Changes](#)

Read Configuration Changes from an ASA to Security Cloud Control

Why Does Security Cloud Control "Read" ASA Configurations?

In order to manage an ASA, Security Cloud Control must have its own stored copy of the ASA's running configuration file. The first time Security Cloud Control reads and saves a copy of the device's configuration file is when the device is onboarded. Subsequently, when Security Cloud Control reads a configuration from an ASA, you are opting to either **Check for Changes**, **Accept without Review**, or **Read Configuration**. See [Reading, Discarding, Checking for, and Deploying Configuration Changes](#) for more information.

Security Cloud Control also needs to read an ASA configuration in these circumstances:

- Deploying configuration changes to the ASA has failed and the device state is not listed or **Not Synced**.
- Onboarding a device has failed and the device state is **No Config**.
- You have made changes to the device configuration outside of Security Cloud Control and the changes have not been polled or detected. The device state would be either **Synced** or **Conflict Detected**.

In these cases, Security Cloud Control needs a copy of the last known configuration stored on the device.

Read Configuration Changes on ASA

When prompted to Read Configuration changes on an ASA:

Procedure

-
- Step 1** In the left pane, click **Inventory**.
 - Step 2** In the left pane, click **Security Devices**.
 - Step 3** Click the **Devices** tab.
 - Step 4** Click the appropriate device type tab.
 - Step 5** Select the device that Security Cloud Control has recently failed to onboard or the device that Security Cloud Control has failed to deploy a change to.
 - Step 6** Click **Read Configuration** in the Synced pane at the right. This option overwrites the configuration currently saved to Security Cloud Control.
-

Read Configuration Changes from FDM-Managed Device to Security Cloud Control

Why Does Security Cloud Control Read FDM-managed device Configurations?

In order to manage an FDM-managed device, Security Cloud Control must have its own stored copy of the FDM-managed device's configuration. When Security Cloud Control reads a configuration from an FDM-managed device, it takes a copy of the FDM-managed device's deployed configuration and saves it to its own database. The first time Security Cloud Control reads and saves a copy of the device's configuration file is when the device is onboarded. See [Reading, Discarding, Checking for, and Deploying Configuration Changes](#) for more information.

Pending and Deployed Changes

Configuration changes made to the FDM-managed device directly through the Firepower Device Manager (FDM) or its CLI are referred to as staged changes on the FDM-managed device until they are deployed. A staged, or pending, change can be edited or deleted without having any affect on traffic running through the FDM-managed device. Once the pending changes are deployed, however, they are enforced by the FDM-managed device and affect traffic running through the device.

Conflict Detected

If you enable [Conflict Detection](#) on the device, Security Cloud Control checks for configuration changes every 10 minutes. If the copy of the configuration stored on the device has changed, Security Cloud Control notifies you by displaying the "Conflict Detected" configuration status. If you do **not** have Conflict Detection enabled, or a change has been made to the device's configuration within the 10 minute interval between automatic polling, clicking **Check for Changes** prompts Security Cloud Control to immediately compare the copy of the configuration on the device with the copy of the configuration stored on Security Cloud Control. You can choose to **Review Conflict** to examine the differences between the device configuration and the configuration saved to Security Cloud Control, then select **Discard Changes** to remove the staged changes and revert to the saved configuration or confirm the changes. You can also choose to **Accept without Review**; this option takes the configuration and overwrites what is currently saved to Security Cloud Control.

Discard Changes Procedure

To discard configuration changes from the FDM-managed device, follow this procedure:

Procedure

-
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device whose configuration is set to Conflict Detected and gives you the link to Revert Pending Changes. The message explains that you can click the link to revert pending changes or you can log on to the device using the local manager FDM and deploy the changes first.

Caution

Clicking the Revert Pending Changes link deletes pending changes on FDM-managed device immediately. You are not given an opportunity to review the changes first.

- Step 6** Review the changes on FDM before clicking Revert Pending Changes:
- Open a browser window and enter `https://<IP_address_of_the_FTD>`.
 - Look for the deployment icon in FDM. It will have an orange circle indicating that there are changes ready to deploy .
 - Click the icon and review the pending changes:
 - If the changes can be deleted, return to Security Cloud Control and click "Revert Pending Changes." At this point, the configuration on the FDM-managed device and the copy of the configuration on Security Cloud Control should be the same. You are done.
 - If you want to deploy the changes to the device, click **Deploy Now**. Now the deployed configuration on the FDM-managed device and the configuration on stored on Security Cloud Control are different. You can then return to Security Cloud Control and [poll the device for changes](#). Security Cloud Control identifies identifies that there has been a change on the FDM-managed device, and gives you an opportunity to review the conflict. See [Conflict Detected-Review Conflict](#) to resolve that state.

If Reverting Pending Changes Fails

Changes to the system databases and security feeds can't be reverted by Security Cloud Control. Security Cloud Control recognizes that there are pending changes, attempts to revert them and then fails. To determine if the revert failure is due to pending database updates or security feed updates, log into the device's FDM

console. It will have an orange circle indicating that there are changes ready to deploy . Click the deploy button to review the pending changes and deploy them or discard them as is appropriate.

Review Conflict Procedure

To review configuration changes from the FDM-managed device, follow this procedure:

Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device whose configuration is marked Conflict Detected and gives you a link to **Review Conflict** in the Conflict Detected pane on the right.
- Step 6** Click **Review Conflict**.
- Step 7** Compare the two configurations presented to you.
- Step 8** Take one of these actions:
 - Click **Accept** to overwrite the last known configuration on Security Cloud Control with the one found on the device. **Note:** The entire configuration stored on Security Cloud Control will be completely overwritten by the configuration found on the device.
 - Click **Reject** to reject the changes made on the device and replace them with the last known configuration on Security Cloud Control.
 - Click **Cancel** to stop the action.

Note

You can prompt Security Cloud Control to immediately check a device for an out-of-band change by clicking [Check for Changes](#) while the device is in the Synced state.

Accept Without Review Procedure

To accept configuration changes from the FDM-managed device without reviewing, follow this procedure:

Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click the **Security Devices** tab.
- Step 3** Click the appropriate device type tab.
- Step 4** Select the device whose configuration is marked Conflict Detected and gives you a link to **Accept Without Review** in the Conflict Detected pane on the right.
- Step 5** Click **Accept Without Review**. Security Cloud Control accepts and overwrites the current configuration.

Related Information:

- [Reading, Discarding, Checking for, and Deploying Configuration Changes](#)
- [Check for Changes](#)
- [Discard Changes](#)

Preview and Deploy Configuration Changes for All Devices

Security Cloud Control informs you when you have made a configuration change to a device in your tenant, but you have not deployed that change, by displaying an orange dot on the Deploy icon . The devices affected by these changes show the status "Not Synced" in the **Security Devices** page. By clicking **Deploy**, you can review which devices have pending changes and deploy the changes to those devices.

This deployment method is available for all supported devices.

You can use this deployment method for single configuration changes or wait and deploy multiple changes at once.

Procedure

-
Step 1	In the menu bar of Security Cloud Control click the Deploy button  .
Step 2	Select the devices with changes you want to deploy. If a device has a yellow caution triangle, you can not deploy changes to that device. Hover your mouse over the yellow caution triangle to find out why you can't deploy changes to that device.
Step 3	(Optional) If you want to see more information about a pending change, click the View Detailed Changelog link to open the change log associated with that change. Click the Deploy icon to return to the Devices with Pending Changes page.
Step 4	Click Deploy Now to deploy the changes immediately to the devices you selected. You'll see the progress in the Active jobs indicator in the Jobs tray.
Step 5	(Optional) After the deployment has finished, click Jobs in the Security Cloud Control navigation bar. You will see a recent "Deploy Changes" job showing the results of the deployment.
Step 6	If you created a change request label, and you have no more configuration changes to associate with it, clear it.
-

Deploy Configuration Changes from Security Cloud Control to ASA

Why Does Security Cloud Control Deploy Changes to an ASA?

As you manage and make changes to a device's configuration with Security Cloud Control, Security Cloud Control saves the changes you make to its own copy of the configuration file. Those changes are considered "staged" on Security Cloud Control until they are "deployed" to the device. Staged configuration changes have no effect on the network traffic running through the device. Only after Security Cloud Control "deploys" the changes to the device do they have an effect on the traffic running through the device. When Security Cloud Control deploys changes to the device's configuration, it only overwrites those elements of the configuration that were changed. It does not overwrite the entire configuration file stored on the device.

The ASA has a "running" configuration file, sometimes called the "running config" and a "startup" configuration file that is sometimes called the "startup config." The configuration stored in the running config file is enforced on traffic passing through the ASA. After you make changes to the running config and you are happy with the behavior those changes produce, you can deploy them to the startup config. If the ASA is ever rebooted, it uses the startup config as its configuration starting point. Any changes you make to the running config that are not saved to the startup config are lost after an ASA is rebooted.

When you deploy changes from Security Cloud Control to an ASA, you are writing those changes into the running configuration file. After you are satisfied with the behavior those changes produce, you can deploy those changes to the startup configuration file.

Deployments can be initiated for a single device or on more than one device simultaneously. You can schedule individual deployments or recurring deployments for a single device.

Some Changes are Deployed Directly to the ASA

If you use the [command line interface](#) interface on Security Cloud Control to make a change to an ASA, those changes are not "staged" on Security Cloud Control. They are deployed directly to the running configuration of the ASA. When you make changes that way, your device remains "synced" with Security Cloud Control.

About Deploying Configuration Changes

This section assumes you are using Security Cloud Control's GUI or editing the Device Configuration page, *not* using Security Cloud Control's CLI interface or CLI macro interface, to make changes to an ASA configuration file.

Updating an ASA configuration is a two-step process.

Procedure

-
Step 1	Make changes on Security Cloud Control using one of these methods: • The Security Cloud Control GUI • The device configuration on the Device Configuration page
Step 2	After you make your changes, return to the Security Devices page and then Preview and Deploy... the change to the device.
-

What to do next

When Security Cloud Control updates an ASA's running configuration with the one staged on Security Cloud Control, or when it changes the configuration on Security Cloud Control with the running configuration stored on the ASA, it attempts to change only the relevant lines of the configuration file if that aspect of the configuration can be managed by the Security Cloud Control GUI. If the desired configuration change **cannot** be made using the Security Cloud Control GUI, Security Cloud Control attempts to overwrite the entire configuration file to make the change.

Here are two examples:

- You **can** create or change a network object using the Security Cloud Control GUI. If Security Cloud Control needs to deploy that change to an ASA's configuration, it would overwrite the relevant lines of the running configuration file on the ASA when the change occurs.
- You **cannot** create a new local ASA user using the Security Cloud Control GUI but you can create one by editing the ASA's configuration on the Device Configuration page. If you add a user on the Device Configuration page, and you deploy that change to the ASA, Security Cloud Control will try to save that change to the ASA's running configuration file by overwriting the entire running configuration file.

Deploy Configuration Changes Made Using the Security Cloud Control GUI

Procedure

-
- Step 1** After you make a configuration change using the Security Cloud Control GUI and save your change, that change is saved in Security Cloud Control's stored version of the ASA's running configuration file.
- Step 2** Return to the device on the **Security Devices** page.
- Step 3** Click the Devices tab. You should see that the device is now "Not synced."
- Step 4** Deploy the changes using one of these methods:

- Click the **Deploy** icon  at the top-right of the screen. This gives you a chance to review the changes you made to the device before you deploy them. Check the device you made changes to, expand the device to review the changes, click **Deploy Now** to deploy the changes.

Note

If you see a yellow warning triangle next to your device on the Devices with Pending Changes screen, you cannot deploy a change to it. Hover your mouse over the warning triangle to learn why you can't deploy changes to the device.

- In the Not Synced pane, click **Preview and Deploy...**
 - a. Review the commands that will change the ASA configuration file.
 - b. If you are satisfied with the commands, choose a Configuration Recovery Preference.

Note

If you choose "Let me know and I will restore the configuration manually," click **View Manual Synchronization Instructions** before continuing.

- c. Click **Apply Changes to Device**.
 - d. Click **OK** to acknowledge the success message.
-

Schedule Automatic Deployments

You can also configure your tenant to schedule deployments to a single device or all devices with pending changes by [scheduling automatic deployments](#).

Deploy Configuration Changes Using Security Cloud Control's CLI Interface

Procedure

-
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device whose configuration you want to change.
- Step 6** Click **>_Command Line Interface** in the **Actions** pane.
- Step 7** If there are any commands in the command line interface table, click **Clear** to remove them.
- Step 8** In the top box of the command line interface table, enter your commands at the command prompt. You can run a single command, several commands in a batch by entering each command on its own line, or entering a section of configuration file as a command. Here are some examples of commands you can enter in the command line interface table:
- A single command creating the network object "albany"
- ```
object network albany
host 209.165.30.2
```
- Multiple commands sent together:
- ```
object network albany
host 209.165.30.2
object network boston
host 209.165.40.2
object network cambridge
host 209.165.50.2
```
- A section of a running configuration file entered as a command:
- ```
interface GigabitEthernet0/5
 nameif guest
 security-level 0
 no ip address
```
- Note**  
Security Cloud Control does not require you to move between EXEC mode, Privileged EXEC mode, and Global Configuration mode. It interprets the command you enter in the proper context.
- Step 9** After you have entered your commands, click **Send**. After Security Cloud Control has successfully deployed the changes to the ASA's running config file, you receive the message, Done!
- Step 10** After you send the command you may see the message, "Some commands may have made changes to the running config" along with two links.
- Clicking **Deploy to Disk** saves the changes made by this command, and any other change in the running config, to the ASA's startup config.
  - Clicking **Dismiss**, dismisses the message.
-

## Deploy Configuration Changes by Editing the Device Configuration

**Caution**

This procedure is for advanced users who are familiar with the syntax of an ASA configuration file. This method makes changes directly to the running configuration file stored on Security Cloud Control.

**Procedure**

- 
- Step 1** In the left pane, choose **Security Devices**
  - Step 2** In the left pane, click **Inventory**.
  - Step 3** Click the appropriate device type tab.
  - Step 4** Select the device whose configuration you want to change.
  - Step 5** Click **View Configuration** in the **Actions** pane.
  - Step 6** Click **Edit**.
  - Step 7** Make your changes to the running configuration and **Save** them.
  - Step 8** Return to the **Security Devices** page. In the Not Synced pane, click **Preview and Deploy...**
  - Step 9** In the Device Sync pane review the changes.
  - Step 10** Click **Replace Configuration** or **Apply Changes to Device** depending on the kind of change it is.
- 

## Deploy Configuration Changes for a Shared Object on Multiple Devices

Use this procedure when you are making changes to a policy or object shared by two or more devices. You can change a common policy on however many devices use it.

**Procedure**

- 
- Step 1** Open and edit the Policies page or the Objects page containing the shared object you want to edit.
  - Step 2** Review the shared device list and confirm that you want to make the changes on all the devices mentioned.
  - Step 3** Click **Confirm**.
  - Step 4** Click **Save**.
  - Step 5** Click the **Deploy** icon  and [deploy your changes to the affected devices](#).
-

# Deploy Configuration Changes from Security Cloud Control to FDM-Managed Device

## Why Does Security Cloud Control Deploy Changes to an FDM-Managed Device?

As you manage and make changes to a device's configuration with Security Cloud Control, Security Cloud Control saves the changes you make to its own copy of the configuration file. Those changes are considered staged on Security Cloud Control until they are deployed to the device. Staged configuration changes have no effect on the network traffic running through the device. Only after Security Cloud Control deploys the changes to the device do they have an effect on the traffic running through the device. When Security Cloud Control deploys changes to the device's configuration, it only overwrites those elements of the configuration that were changed. It does not overwrite the entire configuration file stored on the device.

Like Security Cloud Control, FDM-managed device has the concept of pending changes and deployed changes. Pending changes on FDM-managed device are the equivalent of staged changes on Security Cloud Control. A pending change can be edited or deleted without having any affect on traffic running through the FDM-managed device. Once the pending changes are deployed, however, they are enforced by the FDM-managed device and affect traffic running through the device.

Because of FDM-managed devices two step process for editing configuration files, Security Cloud Control deploys changes to an FDM-managed device slightly differently than it does to other devices it manages. Security Cloud Control first deploys the changes to FDM-managed device and the changes are in the pending state. Then, Security Cloud Control deploys the changes on the devices and they become live. Now that the changes have been deployed, they are enforced and affect traffic running through the FDM-managed device. This applies to both standalone and high availability (HA) devices.

Deployments can be initiated for a single device or on more than one device simultaneously. You can schedule individual deployments or recurring deployments for a single device.

Two things will prevent Security Cloud Control from deploying changes to an FDM-managed device:

- If there are staged changes on the FDM-managed device. See [Conflict Detected](#) for more information on how to resolve this state.
- Security Cloud Control does not deploy changes if there are changes in the process of being deployed to the FDM-managed device.

## Scheduling Automatic Deployments

You can also configure your tenant to schedule deployments to a single device with pending changes [scheduling automatic deployments](#).

# Deploy Changes to a Device

## Procedure

- 
- |               |                                                                                                                                                                                     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | After you make a configuration change for a device using Security Cloud Control and save it, that change is saved in Security Cloud Control instance of the device's configuration. |
| <b>Step 2</b> | In the navigation bar, click <b>Inventory</b> .                                                                                                                                     |

- Step 3** In the navigation bar, click **Security Devices**.
- Step 4** Click the **Devices** tab.
- Step 5** Click the appropriate device type tab. You should see that the configuration status of the device you made changes to is now "Not synced."
- Step 6** Deploy the changes using one of these methods:
- Select the device and in the Not Synced pane on the right, click **Preview and Deploy**. On the Pending Changes screen, review the changes. If you are satisfied with the pending version, click **Deploy Now**.
  - Click the **Deploy** icon  at the top-right of the screen. See [Preview and Deploy Configuration Changes for All Devices, on page 615](#) for more information.

---

## Cancelling Changes

If, when deploying a change from Security Cloud Control to a device, you click **Cancel**, the changes you made are not deployed to the device. The process is canceled. The changes you made are still pending on Security Cloud Control and can be edited further before you finally deploy them to FDM-managed device.

## Discarding Changes

If, when previewing changes, you click **Discard all**, the changes you made, and any other changes any other user made but did not deploy to the device, are deleted. Security Cloud Control reverts its pending configuration to the last read or deployed configuration before any changes were made.

## Bulk Deploy Device Configurations

If you have made changes to multiple devices, for instance by editing a shared object, you can apply those change to all of the affected devices at once:

### Procedure

---

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the appropriate device type tab.
- Step 5** Select all of the devices for which you have made configuration changes on Security Cloud Control. These devices should show "Not Synced" status.
- Step 6** Deploy the changes using one of these methods:
- Click the  button at the top-right of the screen to view the **Devices with Pending Changes** window. This gives you a chance to review the pending changes on the devices you selected before you deploy them. Click **Deploy Now** to deploy the changes.

### Note

If you see a yellow warning triangle next to a device on the **Devices with Pending Changes** screen, you cannot deploy a change to that device. Hover your mouse over the warning triangle for information about why changes cannot be deployed to that device.

- Click **Deploy All**  on the details pane. Review any warnings and click **OK**. The bulk deployment starts immediately without a review of the changes.

**Step 7** (Optional) Click the Jobs icon  in the navigation bar to view the results of the bulk deploy.

---

#### Related Information:

- [Schedule an Automatic Deployment, on page 623](#)

## Preview and Deploy On-Premises Firewall Management Center Configurations

If you have made configuration changes to an object, for instance, changing a value or adding an override to an object, you can deploy all of those changes at once to your on-premises management center:



**Note** Note that this task only pushes the configuration changes to the on-premises management center. Ensure you manually deploy these changes to your Firewall Threat Defense devices on your on-premises management center. See [Configuration Deployment](#) in the *Cisco Secure Firewall Management Center Device Configuration Guide* for more information.

---

### Procedure

**Step 1** In the navigation pane, click **Tools & Services > Firewall Management Center Administration > Integrations > Firewall Management Center** and select the On-Premises Firewall Management Center, to which you want to preview and deploy changes.

**Note**

Security Cloud Control detects that your on-premises management center is out of sync and displays the status as **Not Synced**.

**Step 2** Click **Preview and Deploy** on the details pane on the right.

**Step 3** Review any warnings and click **Deploy Now**. The deployment starts immediately without a review of the changes. Click **Discard All** if you do not want to proceed with the deploy after previewing.

**Step 4** Alternatively, you can also click the  button at the top-right of the screen to view the **Devices with Pending Changes** window. Select the devices you want and review the pending changes on the devices that you selected before you deploy them.

**Step 5** Click **Deploy Now** to deploy the changes.

---

## About Scheduled Automatic Deployments

Using Security Cloud Control, you can make configuration changes to one or more of the devices it manages and then schedule the changes to be deployed to those devices at a time that is convenient for you.

If there were changes made directly to the device that have not been [read](#) to Security Cloud Control, the scheduled deployment will be skipped until that conflict is resolved. The Jobs page will list any instance where a scheduled deployment fails. If **Enable the Option to Schedule Automatic Deployments** is turned off, all scheduled deployments are deleted.

**Caution**

If you schedule a new deployment for multiple devices, and some of those devices already have deployments scheduled, the new scheduled deployment overwrites the existing scheduled deployments.

**Note**

When you create a scheduled deployment, the schedule is created in your local time, not in the time zone of the device. Scheduled deployments *do not* automatically adjust for daylight savings time.

## Schedule an Automatic Deployment

The deployment schedule can be a single event or a recurring event. You may find recurring automatic deployments a convenient way to line up recurring deployments with your maintenance window. Follow this procedure to schedule a one-time or a recurring deployment for a single device:

**Note**

If you schedule a deployment for a device that has an existing deployment scheduled, the new scheduled deployment overwrites the existing deployment.

### Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the appropriate device type tab.
- Step 5** Select one or more devices.
- Step 6** In the Device Details pane, locate the Scheduled Deployments tab and click **Schedule**.
- Step 7** Select when the deployment should occur.
  - For a one-time deployment, click the **Once on** option to select a date and time from the calendar.
  - For a recurring deployment, click the **Every** option. You can choose either a daily or once a week deployment. Select the **Day** and **Time** the deployment should occur.
- Step 8** Click **Save**.

## Edit a Scheduled Deployment

Follow this procedure to edit a scheduled deployment:

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **Devices** tab.
  - Step 4** Click the appropriate device type tab.
  - Step 5** Select one or more devices.
  - Step 6** In the **Device Details** pane, locate the Scheduled Deployments tab and click **Edit**.



- Step 7** Edit the recurrence, date, or time of a scheduled deployment.
  - Step 8** Click **Save**.
- 

## Delete a Scheduled Deployment

Follow this procedure to delete a scheduled deployment:



- 
- Note** If you schedule a deployment for multiple devices, and then change or delete the schedule for some of the devices, the original scheduled deployment for the remaining devices will be preserved.
- 

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **Devices** tab.
  - Step 4** Click the appropriate device type tab.
  - Step 5** Select one or more devices.
  - Step 6** In the **Device Details** pane, locate the Scheduled Deployments tab and click **Delete** .
- 

### What to do next

- [Reading, Discarding, Checking for, and Deploying Configuration Changes](#)
- [Read All Device Configurations](#), on page 610
- [Deploy Configuration Changes from Security Cloud Control to ASA](#), on page 615



- [Deploy Configuration Changes from Security Cloud Control to FDM-Managed Device, on page 620](#)
- [Preview and Deploy Configuration Changes for All Devices, on page 615](#)

## Check for Configuration Changes

**Check for Changes** to determine if the device's configuration has been changed directly on the device and it is no longer the same as the copy of the configuration stored on Security Cloud Control. You will see the this option when the device is in the "Synced" state.

To check changes:

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device, whose configuration you suspect may have been changed directly on the device.
- Step 6** Click **Check for Changes** in the Synced pane on the right.
- Step 7** The behavior that follows is slightly different depending on the device:
- For FTD device if there has been a change to the device's configuration, you will receive the message:  

```
Reading the policy from the device. If there are active deployments on the device,
reading will start after they are finished.
```

    - Click **OK** to continue. The configuration on the device will overwrite the stored configuration on Security Cloud Control.
    - Click **Cancel** to cancel the action.
  - For ASA device:
    - a. Compare the two configurations presented to you. Click **Continue**. The configuration labeled **Last Known Device Configuration** is the configuration stored on Security Cloud Control. The configuration labeled **Found on Device** is the configuration saved on the ASA.
    - b. Select either:
      1. **Reject** the out-of-band changes to keep the "Last Known Device Configuration."
      2. **Accept** the out-of-band changes to overwrite the device's configuration stored in Security Cloud Control with the configuration found on the device.
    - c. Click **Continue**.
-

## Discard Configuration Changes

Click **Discard Changes** when you want to "undo" all the *undeployed* configuration changes you made to a device's configuration using Security Cloud Control. When you click **Discard Changes**, Security Cloud Control *completely overwrites* its local copy of a device's configuration with the configuration stored on the device.

When you click **Discard Changes**, your device's configuration status is in a **Not Synced** state. After you discard your changes, the copy of the configuration on Security Cloud Control will be the same as the copy of the configuration on the device and the configuration status in Security Cloud Control will return to Synced.

To discard, or "undo," all of your undeployed configuration changes for a device:

### Procedure

---

- Step 1** In the left pane, click **Inventory**.
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **Devices** tab.
  - Step 4** Click the appropriate device type tab.
  - Step 5** Select the device you have been making configuration changes to.
  - Step 6** Click **Discard Changes** in the **Not Synced** pane on the right.
    - For FDM-managed devices-Security Cloud Control warns you that "Pending changes on Security Cloud Control will be discarded and the Security Cloud Control configuration for this device will be replaced with the configuration currently running on the device." Click **Continue** to discard your changes.
- 

## Discard On-Premises Firewall Management Center Configuration Changes

If you want to undo all the configuration changes you made in Security Cloud Control, for instance to the objects that are shared between your Security Cloud Control and on-premises management center, use this procedure. Note that when you do this, Security Cloud Control *completely overwrites* its local copy of the configuration with the configuration stored on the device.

### Procedure

---

- Step 1** In the left pane, click **Tools & Services > Firewall Management CenterAdministration > Integrations > Firewall Management Center**.
- Step 2** Select the On-Premises Firewall Management Center, for which you want to discard changes.
- Step 3** Click **Discard Changes** in the **Not Synced** pane on the right.

When you click **Discard Changes**, your on-premises management center's configuration status is in a **Not Synced** state. After you discard your changes, the copy of the configuration on Security Cloud Control will

be the same as the copy of the configuration on the on-premises management center and the configuration status in Security Cloud Control returns to **Synced**.

---

## Out-of-Band Changes on Devices

Out-of-band changes refer to changes made directly on the device without using Security Cloud Control. These changes may be made using the device's command-line interface over an SSH connection or by using a local manager like the Adaptive Security Device Manager (ASDM) for the ASA, the FDM for the FDM-managed device, or for an On-Premises Firewall Management Center on the On-Premises Firewall Management Center user interface. An out-of-band change causes a conflict between the device's configuration stored on Security Cloud Control and the configuration stored on the device itself.

### Detecting Out-of-Band Changes on Devices

If Conflict Detection is enabled for an ASA, or an FDM-managed device, a Cisco IOS device, or an On-Premises Firewall Management Center, Security Cloud Control checks the device every 10 minutes searching for any new changes made directly to the device's configuration outside of Security Cloud Control.

If Security Cloud Control finds that there are changes to the device's configuration that are not stored on Security Cloud Control, it changes the **Configuration Status** of that device to the "Conflict Detected" state.

When Security Cloud Control detects a conflict, one of two conditions is likely:

- There have been configuration changes made to the device directly that have not been saved to Security Cloud Control's database.
- In the case of an FDM-managed device, there may be "pending" configuration changes on the FDM-managed device that have not been deployed.
- In the case of an On-Premises Firewall Management Center, there may be changes made, for instance, to objects outside Security Cloud Control, which are pending to be synchronized with Security Cloud Control or changes made in Security Cloud Control which are pending to be deployed to the On-Premises Firewall Management Center.

## Synchronizing Configurations Between Security Cloud Control and Device

### About Configuration Conflicts

In the **Security Devices** page, you may see devices or services have the status "Synced," "Not Synced," or "Conflict Detected." To know the status of an On-Premises Firewall Management Center that you manage using Security Cloud Control, navigate **Administration > Integrations > Firewall Management Center**.

- When a device is **Synced**, the configuration on Security Cloud Control and the configuration stored locally on the device are the same.
- When a device is **Not Synced**, the configuration stored in Security Cloud Control was changed and it is now different than the configuration stored locally on the device. Deploying your changes from Security

Cloud Control to the device changes the configuration on the device to match Security Cloud Control's version.

- Changes made to devices outside of Security Cloud Control are called **out-of-band changes**. When out-of-band changes are made, you'll see the device state change to "Conflict Detected," if conflict detection is enabled for the device. Accepting the out-of-band changes, changes the configuration on Security Cloud Control to match the configuration on the device.

## Conflict Detection

When conflict detection is enabled, Security Cloud Control polls the device for the default interval to determine if a change has been made to the device's configuration outside of Security Cloud Control. If Security Cloud Control detects that a change was made, it changes the configuration status for the device to **Conflict Detected**. Changes made to a device outside of Security Cloud Control are called "out-of-band" changes.

In the case of an On-Premises Firewall Management Center that is managed by Security Cloud Control, if there are changes that are staged and the device is in **Not Synced** state, Security Cloud Control stops polling the device to check for changes. When there are changes made outside Security Cloud Control which are pending to be synchronized with Security Cloud Control and changes made in Security Cloud Control which are pending to be deployed to the on-premises management center, Security Cloud Control declares the on-premises management center to be in the **Conflict Detected** state.

Once this option is enabled, you can configure how often conflicts or OOB changes are detected per device. See [Schedule Polling for Device Changes, on page 632](#) for more information.

## Enable Conflict Detection

Enabling conflict detection alerts you to instances where changes have been made to a device outside of Security Cloud Control.

### Procedure

- Step 1** In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** Select the appropriate device type tab.
- Step 4** Select the device or devices for which you want to enable conflict detection.
- Step 5** In the **Conflict Detection** box at the right of the device table, select **Enabled** from the list.

| Conflict Detection  |         |
|---------------------|---------|
| Enabled             | Enabled |
| Disabled            |         |
| Enabled             |         |
| Auto-Accept Changes |         |

## Enable Conflict Detection for an On-Premises Management Center

Enabling conflict detection for an on-premises management center keeps you informed when there are changes made outside Security Cloud Control which are pending to be synchronized with Security Cloud Control and changes made in Security Cloud Control which are pending to be deployed to the on-prem management center.

### Procedure

- 
- Step 1** In the navigation bar, click **Tools & Services > Firewall Management CenterAdministration > Integrations > Firewall Management Center**.
- Step 2** From the list, select the on-prem management center for which you want to enable conflict detection.
- Step 3** In the **Conflict Detection** box on the right pane, select **Enabled** from the list.

### Note

Unlike other devices managed by Security Cloud Control, for an on-premises management center, you can either enable or disable conflict detection; you cannot opt to auto-accept changes.

---

## Automatically Accept Out-of-Band Changes from your Device

You can configure Security Cloud Control to automatically accept any change made directly to a managed device by enabling auto-accept changes. Changes made directly to a device without using Security Cloud Control are referred to as out-of-band changes. An out-of-band change creates a *conflict* between the device's configuration stored on Security Cloud Control and the configuration stored on the device itself.

The auto-accept changes feature is an enhancement to conflict detection. If you have auto-accept changes enabled on your device, Security Cloud Control checks for changes every 10 minutes to determine if there have been any out-of-band changes made to the device's configuration. If there have been configuration changes, Security Cloud Control automatically updates its local version of the device's configuration without prompting you.

Security Cloud Control will **not** automatically accept a configuration change if there are configuration changes made on Security Cloud Control that have not yet been deployed to the device. Follow the prompts on the screen to determine your next action.

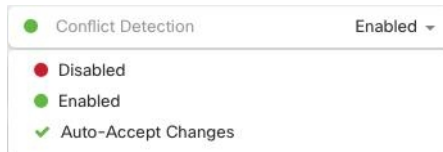
To use auto-accept changes, you first enable the tenant to display the auto-accept option in the Conflict Detection menu on the **Security Devices** page; then, you enable auto-accept changes for individual devices. For on-premises management center, you can do this from the **Services** page by navigating **Administration > Integrations > Firewall Management Center** and selecting the FMC.

If you want Security Cloud Control to detect out-of-band changes but give you the option to accept or reject them manually, enable [Conflict Detection, on page 628](#) instead.

## Configure Auto-Accept Changes

### Procedure

- 
- Step 1** Log in to Security Cloud Control using an account with Admin or Super Admin privileges.
  - Step 2** In the left pane, click **Settings > General SettingsAdministration > General Settings**.
  - Step 3** In the **Tenant Settings** area, click the toggle to **Enable the option to auto-accept device changes**. This enables the Auto-Accept Changes menu option to appear in the Conflict Detection menu on the **Security Devices** page.
  - Step 4** In the left pane, click **Security Devices** and select the device for which you want to automatically accept out-of-band changes.
  - Step 5** In the **Conflict Detection** menu, select **Auto-Accept Changes** in the drop-down menu.



## Disabling Auto-Accept Changes for All Devices on the Tenant

### Procedure

- 
- Step 1** Log-in to Security Cloud Control using an account with Admin or Super Admin privileges.
  - Step 2** In left pane, click **Settings > General SettingsAdministration > General Settings**.
  - Step 3** In the **Tenant Settings** area, disable the "Enable the option to auto-accept device changes" by sliding the toggle to the left so it shows a grey X. This disables Auto-Accept Changes option in the Conflict Detection menu and disables the feature for every device on your tenant.

#### Note

Disabling "Auto-Accept" will require you to review each device conflict before you can accept it into Security Cloud Control. This includes devices previously configured to auto-accept changes.

---

## Resolve Configuration Conflicts

This section provides information about resolving configuration conflicts that occur on the device.

### Resolve the Not Synced Status

Use the following procedure to resolve a device with a "Not Synced" Configuration Status:

## Procedure

**Step 1** In the navigation bar, click **Inventory**.

**Note**

For an On-Premises Firewall Management Center, navigate **Tools & Services > Firewall Management Center** and select the FMC that is in **Not Synced** state and continue from Step 5.

**Step 2** In the navigation bar, click **Security Devices**.

**Note**

For an On-Premises Firewall Management Center, click **Administration > Integrations > Firewall Management Center** and select the FMC that is in **Not Synced** state and continue from Step 5.

**Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.

**Step 4** Click the appropriate device type tab.

**Step 5** Select the device reported as Not Synced.

**Step 6** In the **Not synced** panel to the right, select either of the following:

- **Preview and Deploy...** -If you want to push the configuration change from Security Cloud Control to the device, [preview and deploy](#) the changes you made now, or wait and deploy multiple changes at once.
- **Discard Changes** -If you do **not** want to push the configuration change from Security Cloud Control to the device, or you want to "undo" the configuration changes you started making on Security Cloud Control. This option overwrites the configuration stored in Security Cloud Control with the running configuration stored on the device.

## Resolve the Conflict Detected Status

Security Cloud Control allows you to enable or disable conflict detection on each live device. If [Conflict Detection, on page 628](#) is enabled and there was a change made to the device's configuration without using Security Cloud Control, the device's configuration status will show **Conflict Detected**.

To resolve a "Conflict Detected" status, follow this procedure:

## Procedure

**Step 1** In the navigation bar, click **Inventory**.

**Note**

For an On-Premises Firewall Management Center, navigate **Tools & Services > Firewall Management Center** and select the FMC that is in **Not Synced** state and continue from Step 5.

**Step 2** In the navigation bar, click **Security Devices**.

**Note**

For an On-Premises Firewall Management Center, click **Administration > Integrations > Firewall Management Center** and select the FMC that is in **Not Synced** state and continue from Step 5.

- Step 3** Click the **Devices** tab to locate your device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device reporting the conflict and click **Review Conflict** in the details pane on the right.
- Step 6** In the **Device Sync** page, compare the two configurations by reviewing the highlighted differences.
- The panel labeled "Last Known Device Configuration" is the device configuration stored on Security Cloud Control.
  - The panel labeled "Found on Device" is the configuration stored in the running configuration on the ASA.
- Step 7** Resolve the conflict by selecting one of the following:
- **Accept Device changes:** This will overwrite the configuration **and any pending changes stored on** Security Cloud Control with the device's running configuration.
- Note**  
As Security Cloud Control does not support deploying changes to the Cisco IOS devices outside of the command line interface, your only choice for a Cisco IOS device will be to select **Accept Without Review** when resolving the conflict.
- **Reject Device Changes:** This will overwrite the configuration stored on the device with the configuration stored on Security Cloud Control.
- Note**  
All configuration changes, rejected or accepted, are recorded in the change log.

## Schedule Polling for Device Changes

If you have [Conflict Detection, on page 628](#) enabled, or if you **Enable the option to auto-accept device changes** from the Settings page, Security Cloud Control polls the device for the default interval to determine if a change has been made to the device's configuration outside of Security Cloud Control. You can customize how often Security Cloud Control polls for changes per device. These changes can be applied to more than one device.

If there is no selection configured for a device, the interval is automatically configured for "tenant default".

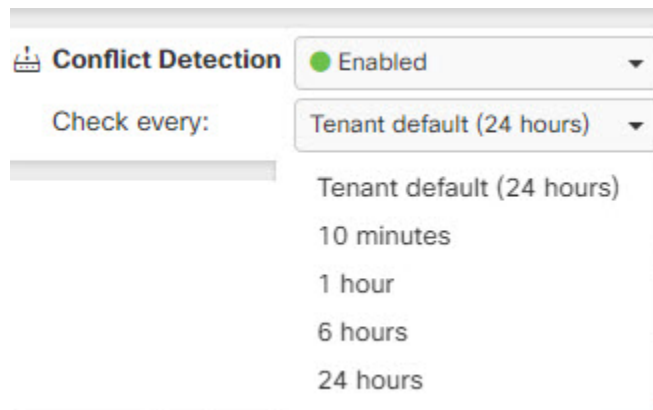
After you enable **Conflict Detection** from the **Security Devices** page or **Enable the option to auto-accept device changes** from the Settings page, use the following procedure to schedule how often you want Security Cloud Control to poll your devices:

### Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.



- Step 3** Click the **Devices** tab to locate your device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device or devices for which you want to enable conflict detection.
- Step 6** In the same area as **Conflict Detection**, click the drop-down menu for **Check every** and select the desired polling interval:



## Schedule a Security Database Update

This section provides information about scheduling a security database update on the device.

### Create a Scheduled Security Database Update

Use the following procedure to create a scheduled task to check and update the security databases for an FDM-managed device:

#### Procedure

- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the navigation bar, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate your device.
- Step 4** Click the **FTD** tab.
- Step 5** Select a device.
- Step 6** In the **Actions** pane, locate the **Security Database Updates** section and click the **add +** button.

#### Note

If there is an existing scheduled task for the selected device, click the edit icon  to create a new task. Creating a new task will overwrite the existing one.

- Step 7** Configure the scheduled task with the following:
- **Frequency** . Choose for the update to occur daily, weekly, or monthly.

- **Time.** Choose the time of day. Note that the time displayed is UTC.
- **Select Days.** Choose which day(s) of the week you want the update to occur.

**Step 8** Click **Save**.

---

The device's Configuration Status will change to "Updating Databases".

## Edit a Scheduled Security Database Update

Use the following procedure to edit an existing scheduled task to check and update the security databases for an FDM-managed device.

### Procedure

- 
- Step 1** In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab to locate your device.
- Step 3** Click the **FTD** tab.
- Step 4** Select a device.
- Step 5** In the **Actions** pane, locate the **Security Database Updates** section and click the edit icon .
- Step 6** Edit the scheduled task with the following:
- **Frequency** . Choose for the update to occur daily, weekly, or monthly.
  - **Time.** Choose the time of day. Note that the time displayed is UTC.
  - **Select Days.** Choose which day(s) of the week you want the update to occur.
- Step 7** Click **Save**.
- Step 8** The device's Configuration Status will change to "Updating Databases".
- 

## Update FDM-Managed Device Security Databases

By updating the security databases on an FDM-managed device, you are updating the following: SRUs (intrusion rules), security intelligence (SI), vulnerability databases (VDB), and geolocation databases. If you opt into updating the security databases through the Security Cloud Control UI, note that **all** of the mentioned databases are updated; you cannot select which databases you want to update.

Please note that security database updates cannot be reverted.




---

**Note** When you update the security databases, some packets may be dropped or pass uninspected. We recommend you schedule your security database updates during a maintenance window.

---

### Update FDM-Managed Device Security Database While Onboarding

When you onboard an FDM-managed device to Security Cloud Control, part of the onboarding process allows you to **Enable scheduled recurring updates for databases**. This option is checked by default. When enabled, Security Cloud Control immediately checks for and applies any security updates as well as automatically schedules the device to check for additional updates. You are able to modify the date and time of the scheduled task after the device is onboarded.

### Update FDM-Managed Device Security Database After Onboarding

After an FDM-managed device is onboarded to Security Cloud Control, you can configure a device to check for security database updates by scheduling an update. You can modify this scheduled task at any time by selecting the device the update is scheduled for. See [Schedule a Security Database Update](#) for more information.

## Workflows

### Device licenses

Security Cloud Control cannot update the security databases if there is no license. We recommend that your FDM-managed device has at least an license.

If you are onboarding a device that has no license, this does not inhibit Security Cloud Control from onboarding the device. Instead, the device will experience a **Connectivity** status of "insufficient licenses". To resolve this issue, you must apply the correct licenses through the FDM-managed device UI.



---

**Note** If you onboard an FDM-managed device and opt in to schedule future security database updates and the device does **not** have a registered license, Security Cloud Control still creates the scheduled task but does not trigger the task until the appropriate licenses have been applied and the device is successfully synchronized.

---

### Security database updates are pending in FDM

If you update the security databases through the FDM-managed device UI, and you have **conflict detection** enabled on your device, Security Cloud Control detects the pending update as a conflict.



---

**Note** If you onboard your FDM-managed device and opt to schedule the updates, Security Cloud Control automatically updates the security databases as well as any other pending changes to the stored configuration during the next deploy. **does not have to be a configuration deploy**

---

### Device has OOB changes, or staged changes, during a security database update

If you schedule a security database update for an FDM-managed device that has out of band (OOB) changes, or staged changes that have not been deployed, Security Cloud Control only checks and updates the security databases. Security Cloud Control does **not** deploy OOB or staged changes.

**Device already has a scheduled task to update the security databases**

Each device can only have one scheduled task. If the device already has a scheduled task to update the security databases, creating a new one overwrites it. This applies to tasks that are created in either Security Cloud Control or an FDM-managed device.

**No security database updates available**

If there are no updates available, Security Cloud Control does not deploy anything to the device.

**Security database updates for FDM-managed High Availability (HA) pair**

Security database updates are applied only to the primary device of an HA pair.

**Related Information:**

- [Schedule a Security Database Update](#)



## CHAPTER 15

# Use the Security Cloud Control Command Line Interface Tool

---

You can use the Command Line Interface tool for managing or troubleshooting devices. The commands supported with this tool depend on the type of device. For the ASA, for example, you can use the full CLI. But for the Firewall Threat Defense, command support is limited to select **show** commands.

You can send commands to a single device or to multiple devices simultaneously.

See the following supported device types:

- ASA

Commands are entered directly in global configuration mode. For detailed ASA CLI documentation, see [ASA Command Line Interface Documentation, on page 418](#).

- Cisco IOS

Commands are entered in user EXEC mode. You need to enter **enable** followed by **configure terminal** to execute them in Global Configuration mode. For Cisco IOS CLI documentation, see [Networking Software \(IOS & NX-OS\)](#) for your IOS version.

- SSH

- [Use the Command Line Interface on a Single Device, on page 637](#)
- [Use the Bulk Command Line Interface, on page 640](#)
- [Run a CLI Macro, on page 643](#)
- [Export Command Line Interface Results, on page 646](#)

## Use the Command Line Interface on a Single Device

When you select a single device, you can enter one or more commands. You can also view and use command history to re-run a set of commands. To enter commands on multiple devices, see .

### Procedure

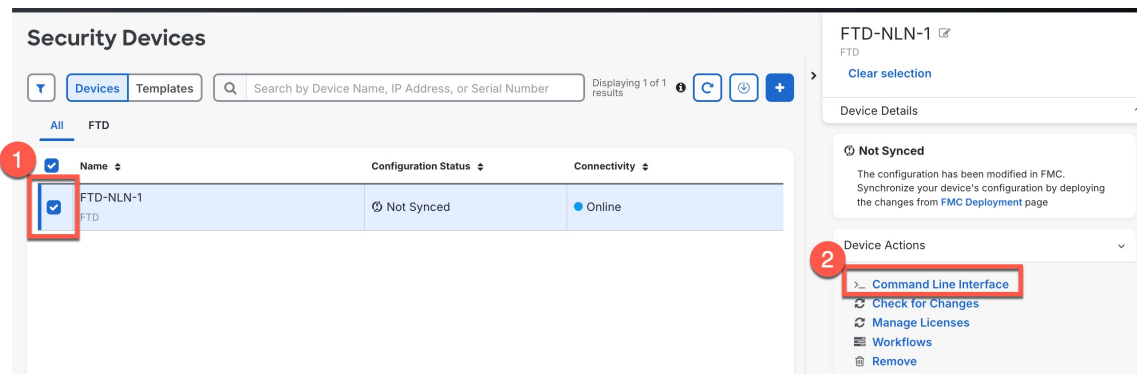
---

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.

**Step 3** Click the **Devices** tab.

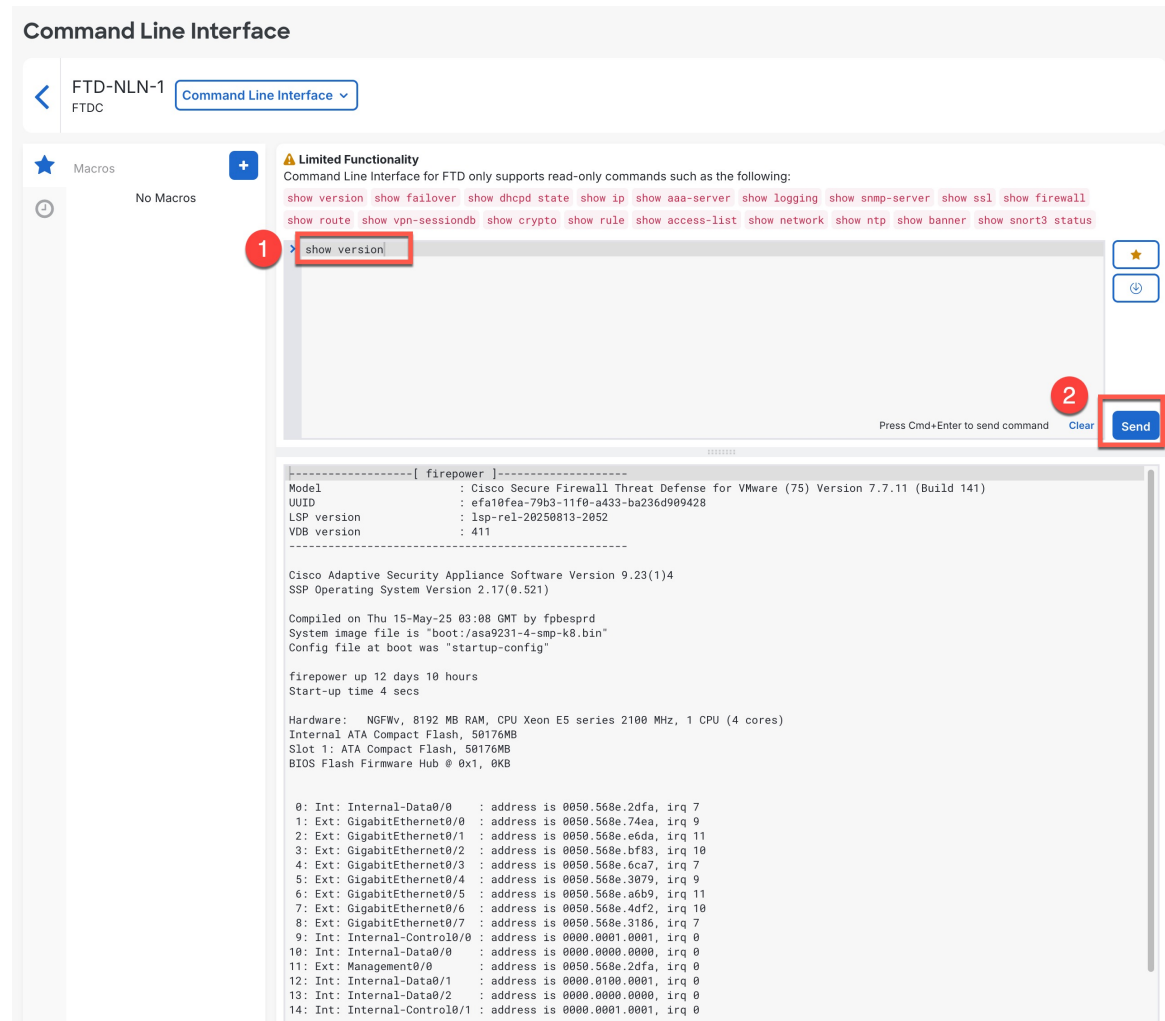
**Step 4** Select the device, and in the **Device Actions** pane on the right, click **>\_Command Line Interface**.

**Figure 13: Open the Command Line Interface**



**Step 5** Enter one or more commands in the command pane, and click **Send**.

Figure 14: Command Line Interface



If there are limitations on the commands you can run, those limitations are listed above the command pane.

The device's response to the command(s) are displayed below in the response pane. If there is no output for a command (either it was executed successfully, or there was no output to show), you will see `Done!` in the results pane.

#### Note

If you enter a very long list of commands, you may exceed the limitations of Security Cloud Control's interface with the device. If you see an error, you can add extra blank lines between groups of commands so Security Cloud Control can send the commands in batches.

#### Example:

The following ASA example sends a batch of commands that creates three network objects and a network object group that contains those network objects.

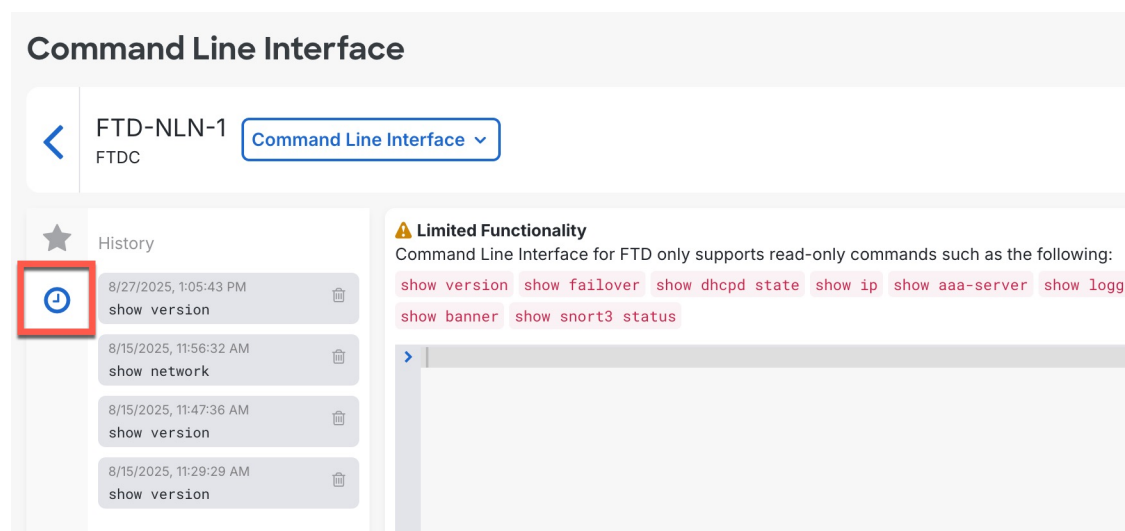
```
> object network email_server_north
host 192.168.10.2
object network email_server_south
host 192.168.20.2
object network email_server_headquarters
host 192.168.30.2
object-group network email_servers_all
network-object object email_server_north
network-object object email_server_south
network-object object email_server_headquarters
```

Press Cmd+Enter to send command

**Step 6** After you send commands, Security Cloud Control records that command in the **History** pane. You can rerun the commands saved in the **History** pane or use the commands as a macro.

- a) Click the clock icon  to open the **History** pane.

**Figure 15: History Pane**



- b) Select the command in the **History** pane that you want to modify or resend.  
c) Reuse the command as it is or edit it in the command pane and click **Send**.

## Use the Bulk Command Line Interface

Send CLI commands to multiple devices of the same type at once.

### Procedure

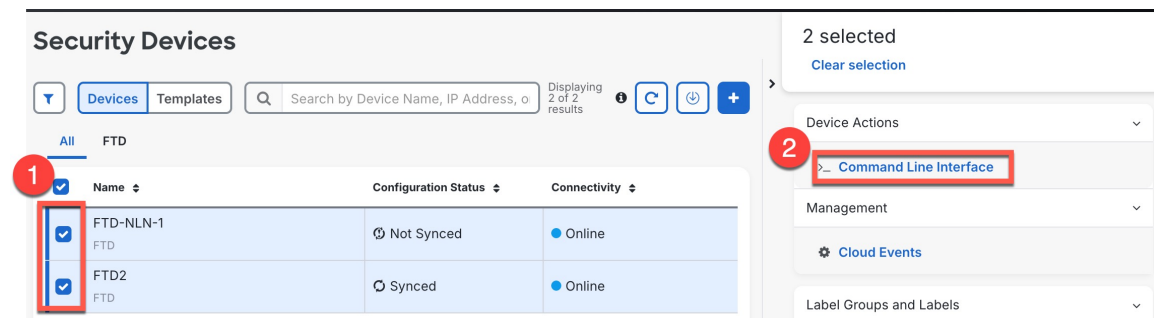
- Step 1** In the left pane, click **Inventory**.  
**Step 2** In the left pane, click **Security Devices**.



**Step 3** Click the **Devices** tab.

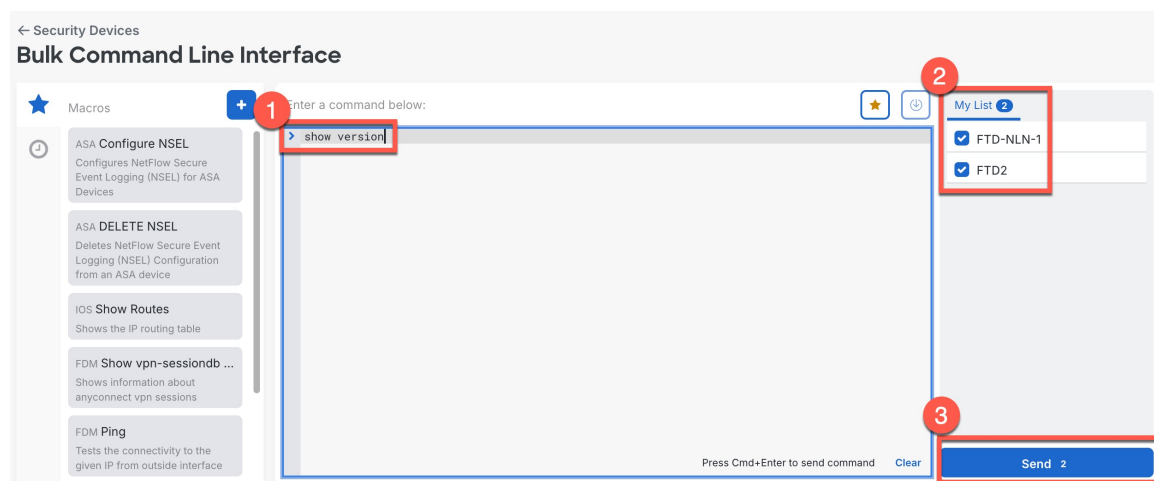
**Step 4** Select multiple devices of the same type, and in the **Device Actions** pane on the right, click **>\_Command Line Interface**.

**Figure 16: Open the Command Line Interface**



**Step 5** Enter one or more commands in the command pane, check or uncheck devices you want to send the commands to in the **My List** field, and click **Send**.

**Figure 17: Command Line Interface**



#### Note

If you enter a very long list of commands, you may exceed the limitations of Security Cloud Control's interface with the device. If you see an error, you can add extra blank lines between groups of commands so Security Cloud Control can send the commands in batches.

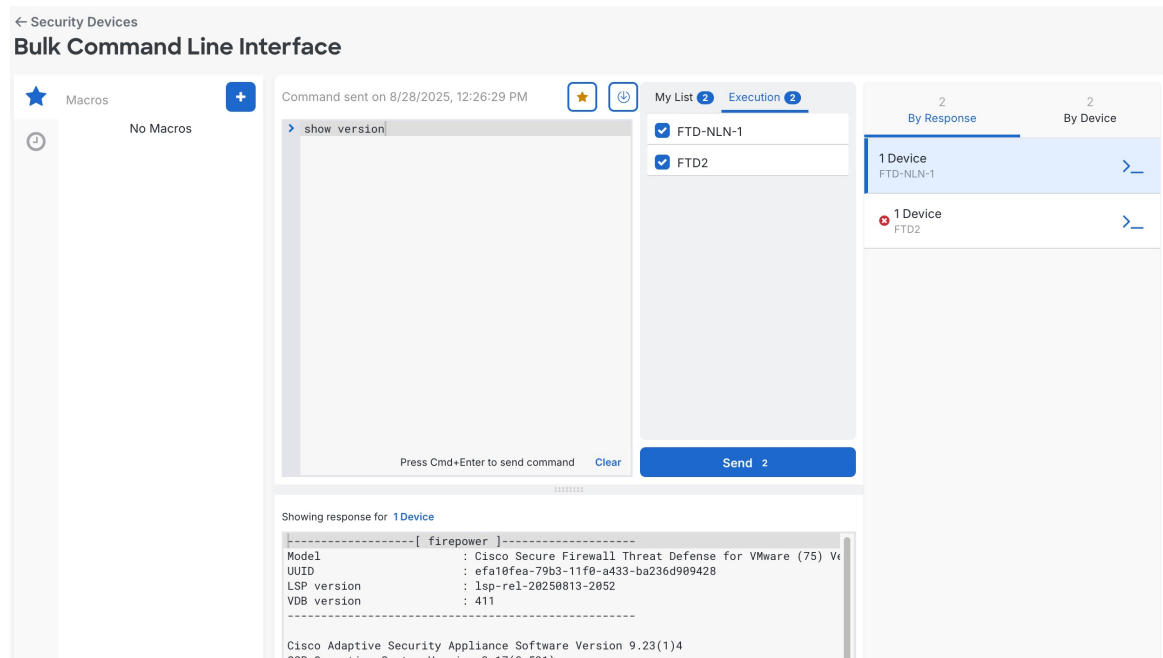
#### Note

For the ASA, if any of the selected devices are not synced, only the following commands are allowed: **show**, **ping**, **traceroute**, **vpn-sessiondb**, **changeto**, **dir**, **write**, and **copy**.

**Step 6** View the device output.

The **Execution** tab shows the devices where the commands were sent; this list should match the selected devices in **My List**.

Figure 18: Command Line Interface



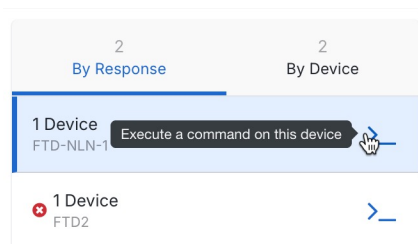
If there is no output for a command (either it was executed successfully, or there was no output to show), you will see **Done!** in the results pane.

The devices' response to the commands are displayed below in the response pane. If the response was the same for more than one device, the response pane displays the message "Showing Responses for X devices." Click **X Devices** to show all the devices that returned the same response in a pane to the right. Click **View Device** to go to that device in **Inventory**.

On the **By Response** tab, devices with identical responses are consolidated in a single row. Click a different row to show the response from other devices.

To re-run the command on the selected devices, click the prompt symbol to the right of the device row, and then click **Send**. You can change the commands you want to send or check and uncheck devices in the **My List** tab.

Figure 19: Execute a Command



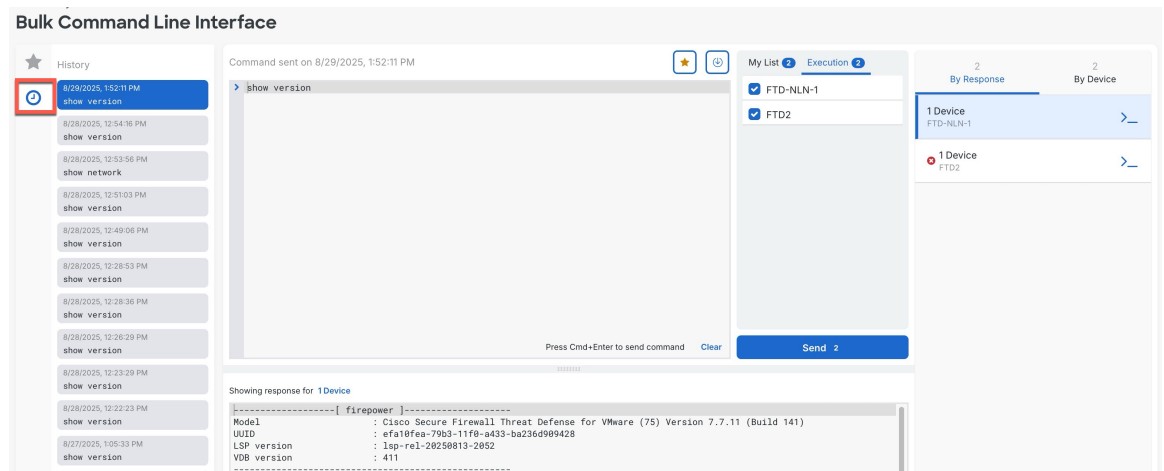
Click the **By Device** tab, and select a device to show only that device's command response.

## Step 7

After you send commands, Security Cloud Control records that command in the **History** pane. You can rerun the commands saved in the history pane or use the commands as a macro. The commands in the history pane are associated with the original devices on which they were run.

- a) Click the clock icon  to open the **History** pane.

**Figure 20: History Pane**



- b) Select the command in the **History** pane that you want to modify or resend.
- Note that the command you pick is associated with specific devices (shown on the **Execution** tab) and not necessarily the ones you chose in the first step.
- c) Click the **My List** tab to check or uncheck additional devices.
- d) Reuse the command as it is or edit it in the command pane, and click **Send**.

## Run a CLI Macro

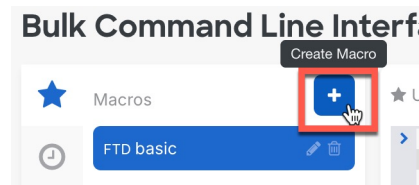
A CLI macro is a fully-formed CLI command ready to use on one or more devices of the matching type. For some device types, Security Cloud Control provides system-defined macros. System-defined macros cannot be edited or deleted.

### Procedure

- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**
- Step 3** Click the **Devices** tab.
- Step 4** Select one or more devices of the same type, and in the **Device Actions** pane on the right, click **>\_Command Line Interface**.
- You cannot create macros without first choosing a device.
- Step 5** Create a macro for this device type if one does not already exist.
- a) Add a macro in one of the following ways:

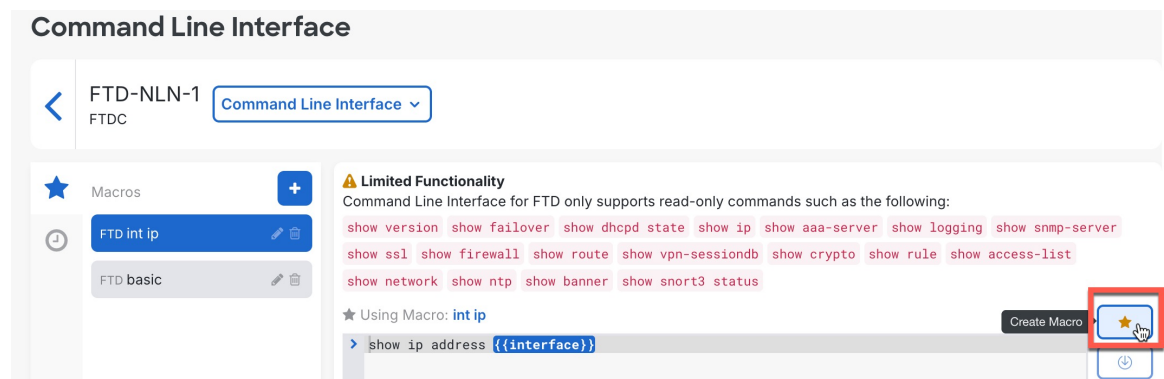
- New macro—On the **Macros** tab (★), create a new macro by clicking the **Create Macro** (+) button.

**Figure 21: Create New Macro**



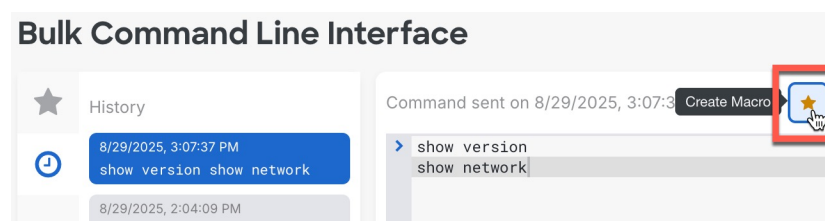
- From an existing macro—On the **Macros** tab (★), create a macro starting with the same commands by selecting a macro and then clicking the **Create Macro** (★) button.

**Figure 22: Create Macro from Existing**



- From history—On the **History** tab (🕒), select a command you already ran, and then click **Create Macro** (★) button.

**Figure 23: Create Macro from History**



- Give the macro a unique name and provide an optional description and notes.

Figure 24: Create Macro

**Create Macro**

Name\*  Device Type FTD

Description

Notes

Command\*

Macros can be parameterized by adding {{ }} tags around the parameter names. e.g. object network {{object\_name}} When using this macro you will be able to fill in the parameters.

Note: Only alphanumeric characters and underscores are allowed for parameter names

Parameters

- interface 1

\*Indicates required field

Create

- c) Enter the commands in the **Command** field. For variables, enter the parameter surrounded by double curly brackets: `{{parameter}}`.

You will define the parameter before you run the macro.

```
> show running-config | grep {{username}}
```

You can name your parameters anything you want.

- d) Click **Create**.

**Step 6** Click the star ★ to open the **Macros** tab, and select a macro from the list.

You can edit or delete a macro using the icons next to the macro name.

**Step 7** Run the macro one of two ways:

- If the macro has no parameters to define, click **Send**. The response to the command appears in the response pane. You're done.
- If the macro contains parameters, such as the Configure DNS macro below, click **> View Parameters**.

★ Using Macro: **Configure DNS**

```
> dns domain-lookup {{IF_NAME}}
dns server-group DefaultDNS
name-server {{IP_ADDR}}
```

- a) In the **Parameters** pane, fill in the values for the parameters in the **Parameters** fields.

Parameters ✕

|                                                                                                           |                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Parameters                                                                                                | Payload                                                                                                                     |
| IF_NAME<br><input type="text" value="outside"/><br>IP_ADDR<br><input type="text" value="208.67.220.220"/> | <pre>dns domain-lookup <a href="#">outside</a> dns server-group DefaultDNS name-server <a href="#">208.67.220.220</a></pre> |

Review Send

b) Click **Send**.

**Step 8** Save configuration changes if you made any.

After you send the command you may see the message, "Some commands may have made changes to the running config" along with two links.

⚠ Some commands may have made changes to the running config [Write to Disk](#) [Dismiss](#)

- Clicking **Write to Disk** saves the changes made by this command, and any other change that in the running config, to the device's startup config.
- Clicking **Dismiss**, dismisses the message and does not save the configuration. You may lose the configuration changes if you reboot the device.

## Export Command Line Interface Results

You can export the results of CLI commands to a comma separated value (.csv) file, so you can filter and sort the information in it. The exported information contains the following categories:

- Device
- Date
- User
- Command
- Output

### Procedure

**Step 1** Run your commands according to [Use the Command Line Interface on a Single Device, on page 637](#), [Use the Bulk Command Line Interface, on page 640](#), or [Run a CLI Macro, on page 643](#), or choose a command from the **History** pane (🕒).

**Step 2** Click the **Export results** () button.

**Step 3** Give the .csv file a descriptive name and save the file to your local file system.

When reading the command output in the .csv file, expand all the cells to see all the results of the command.

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## PART VI

# Monitor and Analyze

- [Events in Security Cloud Control, on page 651](#)
- [Secure Event Connectors, on page 663](#)
- [Secure Logging Analytics \(SaaS\) for ASA Devices, on page 685](#)
- [Security Analytics and Logging \(SaaS\) for Cloud-Delivered Firewall Management Center-Managed Devices, on page 715](#)
- [View Events in Security Cloud Control, on page 725](#)





## CHAPTER 16

# Events in Security Cloud Control

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- [About Security Analytics and Logging \(SaaS\) in Security Cloud Control, on page 651](#)
- [Event Types in Security Cloud Control, on page 651](#)
- [Security Analytics and Logging license and Data Storage Plans, on page 658](#)
- [Deprovisioning Cisco Security Analytics and Logging \(SaaS\), on page 661](#)

## About Security Analytics and Logging (SaaS) in Security Cloud Control

**Terminology Note:** In this documentation, when Cisco Security Analytics and Logging is used with the Secure Cloud Analytics portal (a software as a service product) you will see this integration referred to as Cisco Security Analytics and Logging (SaaS) or SAL (SaaS).

Cisco Security Analytics and Logging (SAL) allows you to capture connection, intrusion, file, malware, security intelligence, syslog, and Netflow Secure Event Logging (NSEL) events from all of your ASA and Secure Firewall Threat Defense devices and view them in one place in Security Cloud Control. The events are stored in the Cisco cloud and viewable from the **Event Logging** page in Security Cloud Control, where you can filter and review them to gain a clear understanding of what security rules are triggering in your network.

With additional licensing, after you capture these events, you can cross-launch from Security Cloud Control to a Secure Cloud Analytics portal provisioned for you. Secure Cloud Analytics is a software as a service (SaaS) solution that tracks the state of your network by performing a behavioral analysis on events and network flow data. By gathering information about your network traffic from sources including firewall events and network flow data, it creates observations about the traffic and automatically identifies roles for network entities based on their traffic patterns. Using this information combined with other sources of threat intelligence, such as Talos, Secure Cloud Analytics generates alerts, which constitute a warning that there is behavior that may be malicious in nature. Along with the alerts, Secure Cloud Analytics provides network and host visibility, and contextual information it has gathered to provide you with a better basis to research the alert and locate sources of malicious behavior.

## Event Types in Security Cloud Control

When filtering the security events logged in Secure Logging Analytics (SaaS), you can choose from a list of ASA, FTD, and event types that Security Cloud Control supports. From the Security Cloud Control menu,

navigate **Analytics > Event Logging** and click the filter icon to choose events. These event types represent groups of syslog IDs. The table that follows shows which syslog IDs are included in which event type. To learn more about a specific syslog ID, you can search for it in the [Cisco ASA Series Syslog Messages](#) or the [Cisco Secure Firewall Threat Defense Syslog Messages](#) guides.

Some syslog events have the additional attribute "EventName." You can filter the events table to find events using the EventName attribute by filtering by attribute:value pairs. See [Event Name Attributes for Syslog Events](#).

Some syslog events will have the additional attributes "EventGroup" and "EventGroupDefinition". You will be able to filter the events table to find events using these additional attributes by filtering by attribute:value pairs. See [EventGroup and EventGroupDefinition Attributes for Some Syslog Messages](#).

The NetFlow events are different from syslog events. The **NetFlow** filter searches for all NetFlow event IDs that resulted in an NSEL record. Those NetFlow event IDs are defined in the [Cisco ASA NetFlow Implementation Guide](#).

The following table describes the event types that Security Cloud Control supports and lists the syslog or NetFlow event numbers that correspond to the event types:

| Filter Name | Description                                                                                                                                                                                                                                           | Corresponding Syslog Event or Netflow Event                                                                                 |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| AAA         | These are events that the system generates when failed or invalid attempts happen to authenticate, authorize, or use up resources in the network, when AAA is configured.                                                                             | 109001-109035<br>113001-113027                                                                                              |
| BotNet      | These events get logged when a user attempts to access a malicious network, which might contain a malware-infected host, possibly a BotNet, or when the system detects traffic to or from a domain or an IP address in the dynamic filter block list. | 338001-338310                                                                                                               |
| Failover    | These events get logged when the system detects errors in stateful and stateless failover configurations or errors in the secondary firewall unit when a failover occurs.                                                                             | 101001-101005, 102001,<br>103001-103007, 104001-104004,<br>105001-105048<br>210001-210022<br>311001-311004<br>709001-709007 |

| Filter Name      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Corresponding Syslog Event or Netflow Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Firewall Denied  | <p>These events get generated when the firewall system denies traffic of a network packet for various reasons, ranging from a packet drop because of the security policy to a drop because the system received a packet with the same source IP and destination IP, which could potentially mean an attack on the network.</p> <p>Firewall Denied events may be contained in a NetFlow and may be reported with NetFlow event IDs as well as syslog IDs.</p> | 106001, 106007, 106012, 106013, 106015, 106016, 106017, 106020, 106021, 106022, 106023, 106025, 106027                                                                                                                                                                                                                                                                                                                                                                                                                |
| Firewall Traffic | <p>These are events that get logged depending on the various connection attempts in the network, user identities, time stamps, terminated sessions, and so on.</p> <p>Firewall Traffic events may be contained in a NetFlow and may be reported with NetFlow event IDs as well as syslog IDs.</p>                                                                                                                                                            | <p>106001-106100, 108001-108007, 110002-110003</p> <p>201002-201013, 209003-209005, 215001</p> <p>302002-302304, 302022-302027, 303002-303005, 313001-313008, 317001-317006, 324000-324301, 337001-337009</p> <p>400001-400050, 401001-401005, 406001-406003, 407001-407003, 408001-408003, 415001-415020, 416001, 418001-418002, 419001-419003, 424001-424002, 431001-431002, 450001</p> <p>500001-500005, 508001-508002</p> <p>607001-607003, 608001-608005, 609001-609002, 616001</p> <p>703001-703003, 726001</p> |
| IPsec VPN        | <p>These events are logged in an IPsec VPN-configured firewall when mismatches occur in IPsec security associations or when the system detects an error in the IPsec packets it receives.</p>                                                                                                                                                                                                                                                                | 402001-402148, 602102-602305, 702304-702307                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Filter Name | Description                                                                                                                                                              | Corresponding Syslog Event or Netflow Event                               |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| NAT         | These events are logged in a NAT-configured firewall when NAT entries are created or deleted and when all the addresses in a NAT pool are used up and exhausted.         | 201002-201013, 202001-202011, 305005-305012                               |
| SSL VPN     | These events are logged in an SSL VPN-configured firewall when WebVPN sessions get created or terminated, user access errors, and user activities.                       | 716001-716060, 722001-722053, 723001-723014, 724001-724004, 725001-725015 |
| NetFlow     | These events are logged around the IP network traffic as network packets enter and exit the interfaces, timestamps, user identities, and the amount of data transferred. | 0, 1, 2, 3, 5                                                             |

| Filter Name | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Corresponding Syslog Event or Netflow Event |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Connection  | <p>You can generate events for connections as users generate traffic that passes through the system. Enable connection logging on access rules to generate these events. You can also enable logging on Security Intelligence policies and SSL decryption rules to generate connection events.</p> <p>Connection events contain data about the detected sessions. The information available for any individual connection event depends on several factors, but in general includes:</p> <ul style="list-style-type: none"><li>• Basic connection properties: timestamp, source and destination IP address, ingress and egress zones, the device that handled the connection, and so on.</li><li>• Additional connection properties discovered or inferred by the system: applications, requested URLs, or users associated with the connection, and so on.</li><li>• Metadata about why the connection was logged: which configuration handled the traffic, whether the connection was allowed or blocked, details about encrypted and decrypted connections, and so on.</li></ul> | 430002, 430003                              |

| Filter Name | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Corresponding Syslog Event or Netflow Event |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Intrusion   | The system examines the packets that traverse your network for malicious activity that could affect the availability, integrity, and confidentiality of a host and its data. When the system identifies a possible intrusion, it generates an intrusion event, which is a record of the date, time, type of exploit, and contextual information about the source of the attack and its target. Intrusion events are generated for any intrusion rule set to block or alert, regardless of the logging configuration of the invoking access control rule. | 430001                                      |
| File        | <p>File events represent files that the system detected, and optionally blocked, in network traffic based on your file policies. You must enable file logging on the access rule that applies the file policy to generate these events.</p> <p>When the system generates a file event, the system also logs the end of the associated connection regardless of the logging configuration of the invoking access control rule.</p>                                                                                                                        | 430004                                      |



| Filter Name           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Corresponding Syslog Event or Netflow Event |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Malware               | <p>The system can detect malware in network traffic as part of your overall access control configuration. AMP for Firepower can generate a malware event, containing the disposition of the resulting event, and contextual data about how, where, and when the malware was detected. You must enable file logging on the access rule that applies the file policy to generate these events.</p> <p>The disposition of a file can change, for example, from clean to malware or from malware to clean. If AMP for Firepower queries the AMP cloud about a file, and the cloud determines the disposition has changed within a week of the query, the system generates retrospective malware events.</p> | 430005                                      |
| Security Intelligence | <p>Security Intelligence events are a type of connection event generated by the Security Intelligence policy for each connection that is blocked or monitored by the policy. All Security Intelligence events have a populated Security Intelligence Category field.</p> <p>For each of these events, there is a corresponding "regular" connection event. Because the Security Intelligence policy is evaluated before many other security policies, including access control, when a connection is blocked by Security Intelligence, the resulting event does not contain the information that the system would have gathered from subsequent evaluation, for example, user identity.</p>             | 430002, 430003                              |

# Security Analytics and Logging license and Data Storage Plans

To obtain Security Analytics and Logging entitlement, you can purchase one of the following licenses:

- **Security Cloud Control Device License Subscription with Unlimited Logging:** This license combines Cisco Defense Orchestrator management license for managing Cisco firewalls device with unlimited volume of event logging. By default, 90 days of storage retention is available with this license. You have the option to extend log retention period to 1, 2, or 3 years by purchasing additional data retention extension licenses.
- **Cisco Logging and Troubleshooting License Subscription:** This license supports logging 1 GB volume per day with 90 days of storage retention. You can extend log retention to 1, 2, or 3 years by purchasing additional data retention extension licenses.

You need to purchase a data storage plan that corresponds to the volume of events the Cisco cloud receives from your onboarded security devices on a daily basis. This volume is referred to as your daily ingest rate. Data plans are available in whole number amounts of GB/day and in 1-, 3-, or 5-year terms. The most effective method to determine your ingest rate is to participate in a free trial of Secure Logging Analytics (SaaS) before making a purchase. This trial will provide an accurate estimate of your event volume.

With Security Cloud Control device license subscription, you receive 90 days of rolling data storage. This policy ensures that the most recent 90 days of events are stored in the Cisco cloud, and data older than 90 days is deleted.

You have the option to upgrade to additional event retention beyond the default 90 days or to increase daily volume (GB/day) through a change order to an existing subscription. Billing for these upgrades will be prorated for the remainder of the subscription term.

See the [Subscriptions](#) section of *Guidelines for Quoting Security Cloud Control Products* for more information about the storage and subscription plans.



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**Note** If you have a Security Analytics and Logging license and data plan, then obtain a different Security Analytics and Logging license, you are not required change your data plan. Similarly, if your network traffic throughput changes and you obtain a different data plan, this change alone does not require you to obtain a different Security Analytics and Logging license.

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## What data gets counted against my allotment?

All events sent to the Secure Event Connector accumulate in the Secure Logging Analytics (SaaS) cloud and count against your data allotment.

Filtering what you see in the events viewer does not decrease the number of events stored in the Secure Logging Analytics (SaaS) cloud, it reduces the number of events you can see in the events viewer.

## We're using up our storage allotment quickly, what can we do?

Here are two approaches to address that problem:

- [Request more storage.](#)

- Consider reducing the number of rules that log events. You can log events from SSL policy rules, security intelligence rules, access control rules, intrusion policies, and file and malware policies. Review what you are currently logging to determine if it is necessary to log events from as many rules and policies.

## View Security Analytics and Logging License Information

View your Security Analytics and Logging license information such as the entitled monthly storage limit and the event storage retention period. If you do not have a separate Security Analytics and Logging license and data plan, the 90-day rolling data storage details appear in the licensing information.

### Procedure

**Step 1** From the left navigation bar, click **Settings > Logging SettingsAdministration > Logging Settings**.

**Step 2** Click the **View Logging Storage Usage** button.

#### Tip

Alternatively, navigate to **Events & Logs > Events > Event Logging** from the left navigation bar, and then click the **Storage Utilization** button to view the Security Analytics and Logging license information.

## Extend Event Storage Duration and Increase Event Storage Capacity

To extend your rolling event storage or increase the amount of event cloud storage, do the following steps:

### Procedure

**Step 1** Log in to your account on [Cisco Commerce](#).

**Step 2** Select your Security Cloud Control PID.

**Step 3** Follow the prompts to upgrade the length or capacity of your storage capacity.

The increased cost will be pro-rated based for the term remaining on your existing license. See the [Guidelines for Quoting Cisco Defense Orchestrator Products](#) for detailed instructions.

## View Security Analytics and Logging Alerts

View alerts and notifications for the Security Analytics and Logging configurations and event settings for the managed firewall devices.

## Procedure

**Step 1** From the left navigation bar, click **Settings > Logging SettingsAdministration > Logging Settings**.

**Step 2** Click the **View Logging Storage Usage** button.

### Tip

Alternatively, navigate to **Events & Logs > Events > Event Logging** from the left navigation bar, and then click the **Storage Utilization** button to view the Security Analytics and Logging license information.

The **Alerts and Notifications** section displays alerts about the settings that impact event logging, enabling you to take action to resolve any issues. Some of these settings include:

- Sending events to cloud setting is disabled.
- Sending events to the cloud setting is disabled at device level.
- Secure Event Connector becomes unavailable.
- Increase in events ingestion rate.

## View Security Analytics and Logging Storage Usage and Event Ingest Rate

View the current Security Analytics and Logging storage utilization and analyze event logging trends. You can analyze the storage utilization trends by event type, device type, and individual devices to gain deeper insights into storage utilization patterns. Use the data visualizations for quick and easy analysis, enabling you to assess the current storage capacity and take measures to reduce the logging rate if the storage utilization approaches the limits that are specified in your Security Analytics and Logging license.

## Procedure

**Step 1** From the left navigation bar, click **Administration > Logging Settings**.

**Step 2** Click **View Logging Storage Usage**.

### Tip

Alternatively, navigate to **Events & Logs > Events > Event Logging** from the left navigation bar, and then click the **Storage Utilization** button to view the Security Analytics and Logging storage usage and event ingestion trends.

**Step 3** Use the following dashboards to customize and analyze the storage utilization and gain more insights into the event logging trends in your firewall deployment:

- **Usage Trends:** Displays the event logging storage usage for the last 12 months. Hover over a bar to see the data usage for the corresponding month.
- **Events per second (EPS) trends:** Displays the event ingest rate for the onboarded devices. Customize your events per second trends view for a specific time period or for a specific device to get more granular data. You can filter the data for the last 1 week, 2 weeks, 3 weeks, or 1 month.

**Note**

The device drop-down list displays the managed firewall devices that are sending events to the Cisco Security Cloud.

- **Utilization by event type trends:** Displays event data storage used, in bytes per day, for different event types. Use this widget to monitor storage use by event types and identify surges, if any, or unusual changes in storage use for specific event types. This insight enables you to adjust logging settings for a specific event type and manage storage use.
- **Utilization by device type trends:** Displays event data storage used, in bytes per day, for each managed device type. Use this widget to monitor storage use by the device type and identify surges, if any, or unusual changes in storage use for a specific type of device.
- **Utilization by device trends:** Displays event data storage used, in bytes per day, for each security device that sends events to Security Cloud Control. This widget focuses on devices with storage use exceeding the average bytes per second value, showing only the top five devices to improve usability. Use this widget to monitor storage use for each device and identify surges or unusual changes. This insight allows you to adjust logging settings for specific devices and manage storage use effectively.

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## Deprovisioning Cisco Security Analytics and Logging (SaaS)

If you allow your Cisco Security Analytics and Logging (SaaS) paid license to lapse, you have a grace period of 90 days. If you renew your paid license during this grace period, there is no interruption in your service.

Otherwise, if you allow the 90-day grace period to elapse, the system purges all of your customer data. You can no longer view ASA, FTD, or events from the **Event Logging** page, nor have dynamic entity modeling behavioral analytics applied to your ASA, FTD, or events and network flow data.





## CHAPTER 17

# Secure Event Connectors

- [About Secure Event Connectors, on page 663](#)
- [Installing Secure Event Connectors, on page 664](#)
- [Remove the Secure Event Connector, on page 681](#)
- [Finding Your Device's TCP, UDP, and NSEL Port Used for Secure Logging Analytics \(SaaS\), on page 683](#)

## About Secure Event Connectors

The Secure Event Connector (SEC) is a component of the Security Analytics and Logging SaaS solution. It receives events from ASA, and FDM-managed devices and forwards them to the Cisco cloud. Security Cloud Control displays the events on the Event Logging page so that administrators can analyze them there or by using Cisco Secure Cloud analytics.

The SEC is installed on a Secure Device Connector deployed in your network, on its own Security Cloud Control Connector virtual machine deployed in your network, or on an AWS Virtual Private Cloud (VPC).

### Secure Event Connector ID

You may need the ID of the SEC when working with Cisco Technical Assistance Center (TAC) or other Security Cloud Control Support. That ID is found on the Secure Connectors page in Security Cloud Control. To find the SEC ID:

1. From the Security Cloud Control menu on the left, choose **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
2. Click the SEC you wish to identify.
3. The SEC ID is the ID listed above the Tenant ID in the Details pane.

### Related Information:

- [Cisco Security Analytics and Logging for ASA Devices](#)
- [Install a Secure Event Connector on an SDC Virtual Machine, on page 664](#)
- [Install Multiple SECs for Your Tenant Using a Security Cloud Control VM Image](#)
- [Install Multiple SECs for Your Tenant Using a VM Image you Create](#)
- [Install a Secure Event Connector on an AWS VPC Using a Terraform Module, on page 680](#)

- [Remove the Secure Event Connector](#)
- [Deprovisioning Cisco Security Analytics and Logging \(SaaS\)](#)

## Installing Secure Event Connectors

Secure Event Connectors (SECs) can be installed on a tenant with or without an SDC.

You can install one SEC on the same virtual machine as a Secure Device Connector, if you have one; or you can install the SEC on its own Security Cloud Control Connector virtual machine that you maintain in your network.

### Install a Secure Event Connector on an SDC Virtual Machine

The Secure Event Connector (SEC) receives events from ASA and FDM-managed devices and forwards them to the Cisco cloud. Security Cloud Control displays the events on the Event Logging page so that administrators can analyze them there or by using Cisco Secure Cloud Analytics.

You can install one SEC on the same virtual machine as a Secure Device Connector, if you have one; or you can install the SEC on its own Security Cloud Control Connector virtual machine that you maintain in your network.

This article describes installing an SEC on the same virtual machine as an SDC. If you want to install more SECs see [Installing an SEC Using a Security Cloud Control Image, on page 666](#) or [Install an SEC Using Your VM Image, on page 672](#).

#### Before you begin

- Purchase the Cisco Security and Analytics Logging, **Logging and Troubleshooting** license. Or, If you want to try Cisco Security and Analytics Logging out first, log in to Security Cloud Control, and on the main navigation bar, choose **Events & Logs > Events > Event Logging** and click **Request Trial**. You may also purchase the Logging **Analytics and Detection** and **Total Network Analytics and Monitoring** licenses to apply Secure Cloud Analytics to the events.
- Make sure the SDC is communicating with Security Cloud Control:
  1. In the left pane, click **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
  2. Make sure that the SDC's last heartbeat was less than 10 minutes prior to the installation of the SEC and that the SDC's status is active.
- System Requirements - Assign additional CPUs and memory to the virtual machine running the SDC:
  - CPU: Assign an **additional** 4 CPUs to accommodate the SEC to make a total of 6 CPU.
  - Memory: Assign an **additional** 8 GB of memory for the SEC to make a total of 10 GB of memory.

After you have updated the CPU and memory on the VM to accommodate the SEC, power on the VM and ensure that the Secure Connectors page indicates that the SDC is in the "Active" state.



## Procedure

- Step 1** Log in to Security Cloud Control.
- Step 2** In the left pane, click **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
- Step 3** Click the  icon and then click **Secure Event Connector**.
- Step 4** Skip Step 1 of the wizard and go to Step 2. In step 2 of the wizard, click the link to **Copy SEC Bootstrap**

### Deploy an On-Premises Secure Event Connector



```
dRaU9pSmhNM1UxWTJVMFppMDNNakZrTFRSaFpUVXRPV013TkMweU5UZG10VE5oTWpnMU9HVVW1MQ0pq
YkdsbGJuUmZhV1FpT2lKaGNHa3RZMnhwW1c1ME1uMC5tTzh0bTZMZlN6cjI4b1ZGZERqYjJNRzVqUE
ZmYTZQYzVsRjRITTLteVVEVzh2Qk5FWW44c3V0Z3NTQUo0TH15N0xzVGsydEx4N05nbS00STB6SmZ6
aWdQTKRiV1RsRW1tcjI5SkFVZ2NBWEhySkdzckTMREszUnJUM0hZU3JkZ21Hd1dGb3FwWUdZnkJHRU
VacmI0YVFLSjFTdnJ5RjVFZ2FqajZFZkNvaERNMUE3Q3c1Q0p1Sn1JMnFZbGpNUzBXeVg3Nm9KeTQ2
ZX1MT09qcjRicEN0UnhYaEVNMUFzVl9qQW1PNXM3Tm02Sn1rMXRlQTFsYmE3VkxNOUp4bk9RS1pqaW
1rdDNsYnRRbDNRTHMxeWduaXdVU1RuWkQxM0c5T2FJWExCQ093T3NESGdNeH16UU13ZWJVNUdGT2RS
NfN6c2ZBb1VXRDNwZ2V2V0gzUzBNT2ciCkNET19ET01BSU49InN0YWdpbmcuZGV2LmxxvY2toYXJ0Lm
1vIgpDRE9fVEV0QU5UPSJDRE9fY2lZy28tYW1hbGxpbyIKQ0RXPX0JPT1RTVFJBUB9VUk9Imh0dHBz
O18vc3RhZ21uZy5kZXUyubG9ja2hhcnQuaW8vc2RjL2Jvb3RzdHJhcC9DRE9fY2lZy28tYW1hbGxpby
IKT05MWV9FVKV0VE10Rz0idHJ1ZSIK
```

 Copy CDO Bootstrap Data

### Step 2

Read the [instructions](#) about deploying the Secure Event Connector on vSphere.  
Copy the bootstrap data below and paste it when prompted for "SEC bootstrap Data".

 The SEC bootstrap data is valid until 10/13/2021, 10:44:14 AM

```
U1NFX0RFVklDRV9JRD0iZTBhZTJkNmMtMDdhYy00Y2JkLWEzNWQ0OGYzZDJKMjQ1ZmU3IapTU0VfRE
U0VfT1RQPSI5Y2IzNTI4ZWZlMzg0TQ2NjViMDFkZmEyYjUyMGUxNSIKVEVOQU5UX05BTUU9IkNET1
9jaXNjby1hbWFSbG1vIg==
```

 Copy SEC Bootstrap Data

### Step 3

Verify the connection status of the new SEC by exiting this dialog and checking the "Last Heartbeat" information.

Data.

Cancel

OK

- Step 5** Open a terminal window and log into the SDC as the "cdo" user.

- Step 6** Once logged in, switch to the "sdc" user. When prompted for a password, enter the password for the "cdo" user. Here is an example of those commands:

```
[cdo@sdc-vm ~]$ sudo su sdc
[sudo] password for cdo: <type password for cdo user>
[sdc@sdc-vm ~]$
```

**Step 7** At the prompt, run the **sec.sh setup** script:

```
[sdc@sdc-vm ~]$ /usr/local/cdo/toolkit/sec.sh setup
```

**Step 8** At the end of the prompt, paste the bootstrap data you copied in step 4 and press **Enter**.

```
Please copy the bootstrap data from Setup Secure Event Connector page of Security
Cloud Control: KJHYFuYTFuIGhiJKlKnJHvHfgxTewrtwE
RtyFUiyIOHKNkJbKhvhgyRStwterTyufGUIhoJpojP9UOoiUY8VHHGFXREWRtygfhVjkhOuihIuyftyXtfcghvjbkhB=
```

After the SEC is onboarded, the sec.sh runs a script to check on the health of the SEC. If all the health checks are "green," the health check sends a sample event to the Event Log. The sample event shows up in the Event Log as a policy named "sec-health-check."

```
=====
Running SEC health check for tenant [REDACTED]
=====
SEC cloud URL [REDACTED] is: Reachable
=====
SEC Connector status: Active
=====
SEC Events Plugin is: Running
SEC UDP syslog server is: Running
SEC TCP syslog server is: Running
=====
SEC send sample event: Success. Please search with filter "sensorID:127.0.0.1" to locate the
=====
```

**Step 9** Determine if the VM on which the SDC and SEC are running needs additional configuration:

- If you installed your SDC on your own virtual machine, continue with [Additional Configuration for SDCs and Security Cloud Control Connectors Installed on a VM You Created, on page 677](#).
- If you installed your SDC using a Security Cloud Control image, continue to "What to do Next."

### What to do next

Return to [Implementing Secure Logging Analytics \(SaaS\) for ASA Devices, on page 689](#).

## Installing an SEC Using a Security Cloud Control Image

The Secure Event Connector (SEC) forwards events from ASA and FTD to the Cisco cloud so that you can view them in the Event Logging page and investigate them with Secure Cloud Analytics, depending on your licensing.

You can install more than one Secure Event Connector (SEC) on your tenant and direct events from your ASAs and FDM-managed devices to any of the SECs you install. Having multiple SECs allows you to have SECs installed in different locations and distribute the work of sending events to the Cisco cloud.

Installing an SEC is a two part process:

1. [Install a Security Cloud Control Connector, to Support a Secure Event Connector, Using a Security Cloud Control VM Image, on page 667](#) You need one Security Cloud Control Connector for every SEC you install. The Security Cloud Control Connector is different than a Secure Device Connector (SDC).

2. [Install the Secure Event Connector on your Security Cloud Control Connector Virtual Machine, on page 678.](#)



**Note** If you want to create a Security Cloud Control Connector by creating your own VM, see [Install Multiple SECs for Your Tenant Using a VM Image you Create](#).

#### What to do next:

Continue with [Install a Security Cloud Control Connector, to Support a Secure Event Connector, Using a Security Cloud Control VM Image, on page 667](#)

## Install a Security Cloud Control Connector, to Support a Secure Event Connector, Using a Security Cloud Control VM Image

### Before you begin

- Purchase the Cisco Security and Analytics Logging, **Logging and Troubleshooting** license, you may also purchase the **Logging Analytics and Detection** and **Total Network Analytics and Monitoring** licenses to apply Secure Cloud Analytics to the events.  
  
If you would rather, you can request a trial version of Security Analytics and Logging by logging in to Security Cloud Control, and on the main navigation bar, choose **Events & Logs > Events > Event Logging** and click **Request Trial**.
- Security Cloud Control requires strict certificate checking and does not support Web/Content Proxy inspection between the Security Cloud Control Connector and the Internet. If using a proxy server, disable inspection for traffic between the Security Cloud Control Connector and Security Cloud Control.
- **The Security Cloud Control Connector installed in this process must have full outbound access to the Internet on TCP port 443.**
- Security Cloud Control supports installing its Security Cloud Control Connector VM OVF image using the vSphere web client or the ESXi web client.
- Security Cloud Control does not support installing the Security Cloud Control Connector VM OVF image using the VM vSphere desktop client.
- ESXi 5.1 hypervisor.
- System requirements for a VM intended to host only a Security Cloud Control Connector and an SEC:
  - VMware ESXi host needs 4 vCPU.
  - VMware ESXi host needs a minimum of 8 GB of memory.
  - VMware ESXi requires 64GB disk space to support the virtual machine depending on your provisioning choice.
- Gather this information before you begin the installation:
  - Static IP address you want to use for your Security Cloud Control Connector VM.
  - Passwords for the **root** and Security Cloud Control users that you create during the installation process.

- The IP address of the DNS server your organization uses.
- The gateway IP address of the network the SDC address is on.
- The FQDN or IP address of your time server.
- The Security Cloud Control Connector virtual machine is configured to install security patches on a regular basis and in order to do this, opening port 80 outbound is required.

## Procedure

- Step 1** Log on to the Security Cloud Control tenant you are creating the Security Cloud Control Connector for.
- Step 2** In the left pane, click **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
- Step 3** Click the  icon and then click **Secure Event Connector**.
- Step 4** In Step 1, click **Download the Security Cloud Control Connector VM image**. This is a special image that you install the SEC on. Always download the Security Cloud Control Connector VM to ensure that you are using the latest image.

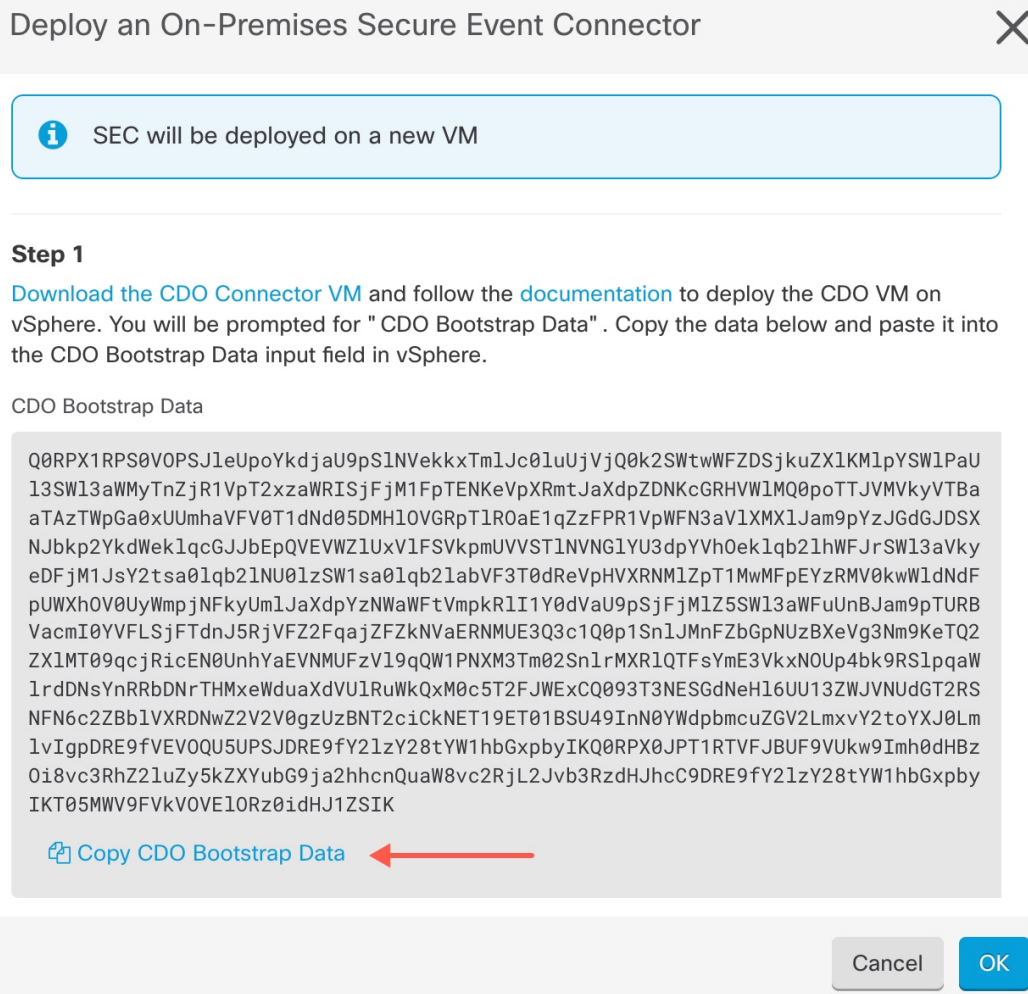


- Step 5** Extract all the files from the .zip file. They will look similar to these:
- Security Cloud Control-SDC-VM-ddd50fa.ovf
  - Security Cloud Control-SDC-VM-ddd50fa.mf
  - Security Cloud Control-SDC-VM-ddd50fa-disk1.vmdk
- Step 6** Log on to your VMware server as an administrator using the vSphere Web Client.
- Note**  
Do not use the VM vSphere desktop client.
- Step 7** Deploy the on-premises Security Cloud Control Connector virtual machine from the OVF template by following the prompts. (You will need the .ovf, .mf, and .vdk files to deploy the template.)
- Step 8** When the setup is complete, power on the VM.
- Step 9** Open the console for your new Security Cloud Control Connector VM.
- Step 10** Login as the Security Cloud Control user. The default password is adm123.
- Step 11** At the prompt type `sudo sdc-onboard setup`

```
[cdo@localhost ~]$ sudo sdc-onboard setup
```

- Step 12** When prompted, enter the default password for the Security Cloud Control user: `adm123`.
- Step 13** Follow the prompts to create a new password for the **root** user.
- Step 14** Follow the prompts to create a new password for the Security Cloud Control user.
- Step 15** Follow the prompts to enter your Security Cloud Control domain information.
- Step 16** Enter the static IP address you want to use for the Security Cloud Control Connector VM.
- Step 17** Enter the gateway IP address for the network on which the Security Cloud Control Connector VM is installed.
- Step 18** Enter the NTP server address or FQDN for the Security Cloud Control Connector.
- Step 19** When prompted, enter the information for the Docker bridge or leave it blank if it is not applicable and press <Enter>.
- Step 20** Confirm your entries.
- Step 21** When prompted "Would you like to setup the SDC now?" enter **n**.
- Step 22** Create an SSH connection to the Security Cloud Control Connector by logging in as the Security Cloud Control user.
- Step 23** At the prompt type `sudo sdc-onboard bootstrap`
- ```
[cdo@localhost ~]$ sudo sdc-onboard bootstrap
```
- Step 24** When prompted, enter the Security Cloud Control user's password.
- Step 25** When prompted, return to Security Cloud Control and copy the Security Cloud Control bootstrap data, then paste it into your SSH session. To copy the Security Cloud Control bootstrap data:
- Log into Security Cloud Control.
 - In the left pane, click **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
 - Select the Secure Event Connector which you started to onboard. The status should show, "Onboarding."
 - In the **Actions** pane, click **Deploy an On-Premises Secure Event Connector**.

- e. Copy the Security Cloud Control Bootstrap Data in step 1 of the dialog



box.

Step 26 When prompted, **Would you like to update these settings?** enter **n**.

Step 27 Return to the **Deploy an On-Premises Secure Event Connector** dialog in Security Cloud Control and click **OK**. In the **Secure Connectors** page, you will see your Secure Event Connector is in the yellow Onboarding state.

What to do next

Continue to [Install the Secure Event Connector on the Security Cloud Control Connector VM](#), on page 671.

Install the Secure Event Connector on the Security Cloud Control Connector VM

Before you begin

You should have installed Security Cloud Control Connector VM as described in [Install a Security Cloud Control Connector, to Support a Secure Event Connector, Using a Security Cloud Control VM Image](#), on page 667.

Procedure

- Step 1** Log in to Security Cloud Control.
- Step 2** In the left pane, choose **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
- Step 3** Select the Security Cloud Control Connector that you onboarded above. In the Secure Connectors table, it will be called a Secure Event Connector and it should still be in the "Onboarding" status.
- Step 4** Click **Deploy an On-Premises Secure Event Connector** in the Actions pane on the right.
- Step 5** In **step 2** of the wizard, click the link to **Copy SEC bootstrap data**.
- Step 6** Create an SSH connection to the Security Cloud Control Connector and log in as the `cdo` user.
- Step 7** Once logged in, switch to the `sdcc` user. When prompted for a password, enter the password for the "Security Cloud Control" user. Here is an example of those commands:

```
[cdo@sdcc-vm ~]$ sudo su sdcc
[sudo] password for cdo: <type password for cdo user>
[sdccc@sdcc-vm ~]$
```

- Step 8** At the prompt, run the `sec.sh` setup script:

```
[sdccc@sdcc-vm ~]$ /usr/local/cdo/toolkit/sec.sh setup
```

- Step 9** At the end of the prompt, paste the bootstrap data you copied in step 4 and press **Enter**.

Please copy the bootstrap data from Setup Secure Event Connector page of CDO:

```
KJHYFuYTFuIGhiJKlKnJHvHfgxTewrtwE
RtyFuYiYIOHKNkjbKhvhgyRStwterTyufGUIhoJpojP9UOoiUY8VHHGFXREWRtygfhVjkhOuihIuyftyXtfcghvjbkhB=
```

After the SEC is onboarded, the `sec.sh` runs a script to check on the health of the SEC. If all the health checks are "green," the health check sends a sample event to the Event Log. The sample event shows up in the Event Log as a policy named "sec-health-check."

```
=====
Running SEC health check for tenant [redacted]
=====
SEC cloud URL [redacted] is: Reachable
SEC Connector status: Active
=====
SEC Events Plugin is: Running
SEC UDP syslog server is: Running
SEC TCP syslog server is: Running
=====
SEC send sample event: Success. Please search with filter "sensorID:127.0.0.1" to locate the event in CDO events viewer page.
=====
```

If you receive the success message return to Security Cloud Control and click **Done on the Deploy an ON-Premise Secure Event Connector** dialog box.

What to do next

Return to [Implementing Secure Logging Analytics \(SaaS\) for ASA Devices, on page 689](#).

Deploy Secure Event Connector on Ubuntu Virtual Machine

Procedure

-
- Step 1** Log on to Security Cloud Control.
- Step 2** From the left pane, **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
- Step 3** Click the  icon and then click **Secure Event Connector**.
- Step 4** Copy the SEC bootstrap data in step 2 on the window to a notepad.
- Step 5** Execute the following commands:

```
[sdc@vm]:~$sudo su sdc
```

```
sdc@vm:/home/user$ cd /usr/local/cdo/toolkit
```

When prompted, enter the SEC bootstrap data that you have copied..

```
sdc@vm:~/toolkit$ ./sec.sh setup
```

```
Please input the bootstrap data from Setup Secure Event Connector page of CDO:
Successfully on-boarded SEC
```

It may take a few minutes for the Secure Event Connector to become "Active" in Security Cloud Control.

Install an SEC Using Your VM Image

The Secure Event Connector (SEC) forwards events from ASA and FTD to the Cisco cloud so that you can view them in the Event Logging page and investigate them with Secure Cloud Analytics, depending on your licensing.

You can install more than one Secure Event Connector (SEC) on your tenant and direct events from your ASAs and FDM-managed devices to any of the SECs you install. Having multiple SECs allows you to have SECs installed in different regions and distribute the work of sending events to the Cisco cloud.

Installing multiple SECs using your own VM image is a three part process. You must perform each of these steps:

1. [Install a Security Cloud Control Connector to Support an SEC Using Your VM Image, on page 673](#)
2. [Additional Configuration for SDCs and Security Cloud Control Connectors Installed on a VM You Created, on page 677](#)
3. [Install the Secure Event Connector](#)



Note Using a Security Cloud Control VM image for the Security Cloud Control Connector is the easiest, most accurate, and preferred method of installing a Security Cloud Control connector. If you want to use that method, see [Installing an SEC Using a Security Cloud Control Image, on page 666](#).

What to do next:

Continue to [Install a Security Cloud Control Connector to Support an SEC Using Your VM Image, on page 673](#)

Install a Security Cloud Control Connector to Support an SEC Using Your VM Image

The Security Cloud Control Connector VM is a virtual machine on which you install an SEC. The purpose of the Security Cloud Control Connector is solely to support an SEC for Cisco Security Analytics and Logging (SaaS) customers.

This is the first of three steps you need to complete in order install and configure your Secure Event Connector (SEC). After this procedure, you need to complete the following procedures:

- [Additional Configuration for SDCs and Security Cloud Control Connectors Installed on a VM You Created, on page 677](#)
- [Install the Secure Event Connector](#)

Before you begin

- Purchase the Cisco Security and Analytics Logging, **Logging and Troubleshooting** license, you may also purchase the **Logging Analytics and Detection** and **Total Network Analytics and Monitoring** licenses to apply Secure Cloud Analytics to the events.

If you would rather, you can request a trial version of Security Analytics and Logging by logging in to Security Cloud Control, and on the main navigation bar, choose **Events & Logs > Events > Event Logging** and click **Request Trial**.

- Security Cloud Control requires strict certificate checking and does not support a Web/Content Proxy between the Security Cloud Control Connector and the Internet.
- **The Security Cloud Control Connector must have full outbound access to the Internet on TCP port 443.**
- VMware ESXi host installed with vCenter web client or ESXi web client.



Note We do not support installation using the vSphere desktop client.

- ESXi 5.1 hypervisor.
- Ubuntu 22.04 and Ubuntu 24.04.
- System requirements for a VM to host only a Security Cloud Control Connector and an SEC:
 - CPU: Assign 4 CPUs to accommodate the SEC.

- Memory: Assign 8 GB of memory for the SEC.
- Disk Space: 64 GB
- Users performing this procedure should be comfortable working in a Linux environment and using the **vi** visual editor for editing files.
- Gather this information before you begin the installation:
 - Static IP address you want to use for your Security Cloud Control Connector.
 - Passwords for the **root** and **Security Cloud Control** users that you create during the installation process.
 - The IP address of the DNS server your organization uses.
 - The gateway IP address of the network the Security Cloud Control Connector address is on.
 - The FQDN or IP address of your time server.
- The Security Cloud Control Connector virtual machine is configured to install security patches on a regular basis and in order to do this, opening port 80 outbound is required.
- **Before you get started:** Do not copy and paste the commands in this procedure into your terminal window, type them instead. Some commands include an "n-dash" and in the cut and paste process, these commands can be applied as an "m-dash" and that may cause the command to fail.

Procedure

-
- Step 1** Log on to Security Cloud Control.
- Step 2** From the left pane, **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
- Step 3** Click the  icon and then click **Secure Event Connector**.
- Step 4** Using the link provided, copy the SEC Bootstrap Data in step 2 of the "Deploy an On-Premises Secure Event Connector" window.
- Step 5** Once installed, configure basic networking such as specifying the IP address for the Security Cloud Control Connector, the subnet mask, and gateway.
- Step 6** Configure a DNS (Domain Name Server) server.
- Step 7** Configure a NTP (Network Time Protocol) server.
- Step 8** Install an SSH server for easy interaction with Security Cloud Control Connector's CLI.
- Step 9** Install the **AWS CLI package** (<https://docs.aws.amazon.com/cli/latest/userguide/awscli-install-linux.html>)
- Note**
Do not use the `--user` flag.
- Step 10** Install the **Docker CE packages** (<https://docs.docker.com/install/linux/docker-ce/centos/#install-docker-ce>)
- Note**
Use the "Install using the repository" method.
- Step 11** Start the Docker service and enable it to start on boot:

```
[root@sdc-vm ~]# systemctl start docker
[root@sdc-vm ~]# systemctl enable docker
Created symlink from /etc/systemd/system/multiuser.target.wants/docker.service to
/usr/lib/systemd/system/docker.service.
```

- Step 12** Create two users: **Security Cloud Control** and **sdcc**. The Security Cloud Control user will be the one you log-into to run administrative functions (so you don't need to use the root user directly), and the sdc user will be the user to run the Security Cloud Control Connector docker container.

```
[root@sdc-vm ~]# useraddSecurity
Cloud Control
[root@sdc-vm ~]# useradd sdc -d /usr/local/Security
Cloud Control
```

- Step 13** Configure the sdc user to use crontab:

```
[root@sdc-vm ~]# touch /etc/cron.allow
[root@sdc-vm ~]# echo "sdc" >> /etc/cron.allow
```

- Step 14** Set a password for the Security Cloud Control user.

```
[root@sdc-vm ~]# passwd Security
Cloud Control
Changing password for user Security
Cloud Control.
New password: <type password>
Retype new password: <type password>
passwd: all authentication tokens updated successfully.
```

- Step 15** Add the Security Cloud Control user to the "wheel" group to give it administrative (sudo) privileges.

```
[root@sdc-vm ~]# usermod -aG wheelSecurity
Cloud Control
[root@sdc-vm ~]#
```

- Step 16** When Docker is installed, there is a user group created. Depending on the version of CentOS/Docker, this may be called either "docker" or "dockerroot". Check the /etc/group file to see which group was created, and then add the sdc user to this group.

```
[root@sdc-vm ~]# grep docker /etc/group
docker:x:993:
[root@sdc-vm ~]#
[root@sdc-vm ~]# usermod -aG docker sdc
[root@sdc-vm ~]#
```

- Step 17** If the /etc/docker/daemon.json file does not exist, create it, and populate with the contents below. Once created, restart the docker daemon.

Note

Make sure that the group name entered in the "group" key matches the [group you found in the /etc/group file](#).

```
[root@sdc-vm ~]# cat /etc/docker/daemon.json
{
  "live-restore": true,
  "group": "docker"
}
[root@sdc-vm ~]# systemctl restart docker
[root@sdc-vm ~]#
```

- Step 18** If you are currently using a vSphere console session, switch over to SSH and log in as the **Security Cloud Control** user. Once logged in, change to the **sdcc** user. When prompted for a password, enter the password for the **Security Cloud Control** user.

```
[Security
Cloud Control@sdcc-vm ~]$ sudo su sdcc
[sudo] password for Security
Cloud Control: <type password for Security
Cloud Control user >

[sdccc@sdcc-vm ~]$
```

- Step 19** Change directories to **/usr/local/Security Cloud Control**.

- Step 20** Create a new file called **bootstrapdata** and paste the bootstrap data from Step 1 of the deployment wizard into this file. **Save** the file. You can use **vi** or **nano** to create the file.

- Step 21** The bootstrap data comes encoded in base64. Decode it and export it to a file called **extractedbootstrapdata**

```
[sdccc@sdcc-vm ~]$ base64 -d /usr/local/Security
Cloud Control/bootstrapdata > /usr/local/Security
Cloud Control/extractedbootstrapdata

[sdccc@sdcc-vm ~]$
```

Run the **cat** command to view the decoded data. The command and decoded data should look similar to this:

```
[sdccc@sdcc-vm ~]$ cat /usr/local/Security
Security
Security
Security
<Security
Control_acm="https://www.defenseorchestrator.com/sdccc/bootstrap/tenant-name/<tenant-name-SDCC>"
ONLY_EVENTING="true"

Cloud Control/extractedbootstrapdata
Cloud Control_TOKEN="<token string>"
Cloud Control_DOMAIN="www.defenseorchestrator.com"
Cloud Control_TENANT="<tenant-name>"
Cloud Control_URL>/sdccc/bootstrap/Security
Cloud
Control_acm="https://www.defenseorchestrator.com/sdccc/bootstrap/tenant-name/<tenant-name-SDCC>"
ONLY_EVENTING="true"
```

- Step 22** Run the following command to export the sections of the decoded bootstrap data to environment variables.

```
[sdccc@sdcc-vm ~]$ sed -e 's/^/export /g' extractedbootstrapdata > secenv && source secenv
[sdccc@sdcc-vm ~]$
```

- Step 23** Download the bootstrap bundle from Security Cloud Control.

```
[sdccc@sdcc-vm ~]$ curl -H "Authorization: Bearer $Security
Cloud Control_TOKEN" "$Security
Cloud Control_BOOTSTRAP_URL" -o $Security
Cloud Control_TENANT.tar.gz
100 10314 100 10314 0 0 10656 0 --:--:-- --:--:-- --:--:-- 10654
[sdccc@sdcc-vm ~]$ ls -l /usr/local/Security
-rw-rw-r--. 1 sdccc sdccc 10314 Jul 23 13:48 /usr/local/Security
Cloud Control/*SDCC
Cloud Control/Security
Cloud Control_<tenant_name>
```

- Step 24** Extract the Security Cloud Control Connector tarball, and run the **bootstrap_sec_only.sh** file to install the Security Cloud Control Connector package.

```

[sdc@sdc-vm ~]$ tar xzvf /usr/local/Security
Cloud Control/tenant-name-SDC
<snipped - extracted files>
[sdc@sdc-vm ~]$
[sdc@sdc-vm ~]$ /usr/local/Security
Cloud Control/bootstrap/bootstrap_sec_only.sh
[2018-07-23 13:54:02] environment properly configured
download: s3://onprem-sdc/toolkit/prod/toolkit.tar to toolkit/toolkit.tar
 toolkit.sh
 common.sh
 es_toolkit.sh
 sec.sh
 healthcheck.sh
 troubleshoot.sh
no crontab for sdc
-bash-4.2$ crontab -l
*/5 * * * * /usr/local/Security
Cloud Control/toolkit/es_toolkit.sh
upgradeEventing 2>&1 >> /usr/local/Security
Cloud Control/toolkit/toolkit.log
0 2 * * * sleep 30 && /usr/local/Security
Cloud Control/toolkit/es_toolkit.sh es_maintenance
2>&1 >> /usr/local/Security
Cloud Control/toolkit/toolkit.log
You have new mail in /var/spool/mail/sdc

```

What to do next

Continue to [Additional Configuration for SDCs and Security Cloud Control Connectors Installed on a VM You Created](#), on page 677 .

Additional Configuration for SDCs and Security Cloud Control Connectors Installed on a VM You Created

If you installed your Security Cloud Control Connector on your own CentOS 7 virtual machine, perform one of the following additional configuration procedures to allow events to reach the SEC:

- [Disable the firewalld service on the CentOS 7 VM](#): This matches the configuration of the Cisco-provided SDC VM.
- [Allow the firewalld service to run and add firewall rules to allow event traffic to reach the SEC](#), on page 678: This is a more granular approach to allowing inbound event traffic.

Before you begin:

This is the second of three steps you need to complete in order to install and configure your SEC. If you have not already, complete [Install a Security Cloud Control Connector to Support an SEC Using Your VM Image](#), on page 673 before making these configuration changes.

After you complete one of the additional configuration changes described here, complete [Install the Secure Event Connector](#)

Disable the firewalld service on the CentOS 7 VM

1. Log into the CLI of the SDC VM as the "Security Cloud Control" user.

2. Stop the firewalld service, and then ensure that it will remain disabled upon subsequent reboots of the VM. If you are prompted, enter the password for the **Security Cloud Control** user:

```
[Security Cloud Control@SDC-VM ~]$ sudo systemctl stop
firewalld
Security Cloud Control@SDC-VM ~]$ sudo systemctl
disable firewalld
```

3. Restart the Docker service to re-insert Docker-specific entries into the local firewall:

```
[Security Cloud Control@SDC-VM ~]$ sudo systemctl restart docker
```

4. Continue to [Install the Secure Event Connector](#).

Allow the firewalld service to run and add firewall rules to allow event traffic to reach the SEC

1. Log into the CLI of the SDC VM as the "Security Cloud Control" user.
2. Add local firewall rules to allow incoming traffic to the SEC from the TCP, UDP, or NSEL ports you configured. See [Finding Your Device's TCP, UDP, and NSEL Port Used for Cisco Security Analytics and Logging](#) for the ports used by your SEC. If prompted, enter the password for the **Security Cloud Control** user. Here is an example of the commands. You may need to specify different port values.

```
[Security Cloud Control@SDC-VM ~]$ sudo firewall-cmd
--zone=public --permanent --add-port=10125/tcp
Security Cloud Control@SDC-VM ~]$ sudo firewall-cmd
--zone=public --permanent --add-port=10025/udp
[Security Cloud Control@SDC-VM ~]$ sudo firewall-cmd
--zone=public --permanent --add-port=10425/udp
```

3. Restart the firewalld service to make the new local firewall rules both active and persistent:

```
[Security Cloud Control@SDC-VM ~]$ sudo systemctl restart firewalld
```

4. Continue to [Install the Secure Event Connector](#).

Install the Secure Event Connector on your Security Cloud Control Connector Virtual Machine

Before you begin

This is the third of three steps you need to complete in order to install and configure your Secure Event Connector (SEC). If you have not already, complete the following tasks before continuing with this procedure:

- [Install a Security Cloud Control Connector to Support an SEC Using Your VM Image, on page 673.](#)
- [Additional Configuration for SDCs and Security Cloud Control Connectors Installed on a VM You Created, on page 677.](#)

Procedure

- Step 1** Log in to Security Cloud Control.

- Step 2** In the left pane, **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
- Step 3** Select the Security Cloud Control Connector that you installed using the procedure in the prerequisites above. In the Secure Connectors table, it will be displayed as Secure Event Connector.
- Step 4** Click **Deploy an On-Premises Secure Event Connector** in the **Actions** pane on the right.
- Step 5** In **step 2** of the wizard, click the link to **Copy SEC Bootstrap**

Deploy an On-Premises Secure Event Connector



```
dRaU9pSmhNM1UxWTJVMFppMDNNakZrTFRSaFpUVXRPV013TkMweU5UZG10VE5oTWpnMU9HVVW1MQ0pq
YkdsbGJuUmZhV1FpT21KaGNHa3RZMnhwW1c1ME1uMC5tTzh0bTZMZ1N6cjI4b1ZGZERqYjJNRzVqUE
ZmYTZQYzVsRjRITTL1teVVEVzh2Qk5FWW44c3V0Z3NTQUo0TH15N0xzVGsydEx4N05nbS00STB6SmZ6
aWdQTkRiV1RsRW1tcjI5SkFVZ2NBWEhySkdzcktmREszUnJUM0hZU3JkZ21Hd1dGb3FwWUdzNkJHRU
VacmI0YVFLSjFTdnJ5RjVFZ2FqajZFZkNVaERNMUE3Q3c1Q0p1Sn1JMnFZbGpNUzBXeVg3Nm9KeTQ2
ZX1MT09qcjRicEN0UnhYaEVNMUFzV19qQW1PNXM3Tm02Sn1rMXR1QTFsYmE3VkxNOUp4bk9RS1pqaW
1rdDNsYnRRbDNrTHMxeWduaXdVU1RuWkQxM0c5T2FJWExCQ093T3NESGdNeH16UU13ZWJVNUdGT2RS
NfN6c2ZBb1VXRDNwZ2V2V0gzUzBNT2ciCkNET19ET01BSU49InN0YWdpbmZGV2LmxvY2toYXJ0Lm
1vIgpDRE9fVEVOQU5UPSJDRE9fY2lZy28tYW1hbGxpbyIKQ0RXPX0JPT1RTVFJBUf9VUkw9Imh0dHBz
Oi8vc3RhZ21uZy5kZXlYubG9ja2hhcnQuaW8vc2RjL2Jvb3RzdHJhcC9DRE9fY2lZy28tYW1hbGxpby
IKT05MWV9FVKV0VE10Rz0idHJ1ZSIK
```

[Copy CDO Bootstrap Data](#)

Step 2

Read the [instructions](#) about deploying the Secure Event Connector on vSphere.
Copy the bootstrap data below and paste it when prompted for "SEC bootstrap Data".

⚠ The SEC bootstrap data is valid until 10/13/2021, 10:44:14 AM

```
U1NFX0RFVklDRV9JRD0iZTBhZTJkNmMtMDdhYy00Y2JkLWEzNWQ0OGYzZDJKMjQ1ZmU3IqpTU0VfRE
U0VFT1RQPSI5Y2IzNTI4ZWZlMzg0OTQ2NjViMDFkZmEyYjUyMGUxNSIKVEVOQU5UX05BTUU9IkNET1
9jaXNjby1hbWFSbG1vIg==
```

[Copy SEC Bootstrap Data](#)

Step 3

Verify the connection status of the new SEC by exiting this dialog and checking the "Last Heartbeat" information.

Data.

Cancel

OK

- Step 6** Connect to the Secure Connector using SSH and log in as the Security Cloud Control user.
- Step 7** Once logged in, switch to the **sdcc** user. When prompted for a password, enter the password for the "Security Cloud Control" user. Here is an example of those commands:

```
[cdo@sdcc-vm ~]$ sudo su sdcc
[sudo] password for cdo: <type password for cdo user>
[sdc@sdcc-vm ~]$
```

- Step 8** At the prompt, run the sec.sh setup script:

```
[sdc@sdcc-vm ~]$ /usr/local/cdo/toolkit/sec.sh setup
```

- Step 9** At the end of the prompt, paste the bootstrap data you copied in step 4 and press **Enter**.

Please copy the bootstrap data from Setup Secure Event Connector page of CDO:

KJHYFuYTFuIGhiJKlKnJHvHfgxTewrtwE
RtyFUiyIOHKNkJbKhvhgyRStwterTyufGuihoJpojP9UOoiUY8VHHGFXREWRtygfhVjkhOuihIuyftyXtfcghvjbkB=

After the SEC is onboarded, the sec.sh runs a script to check on the health of the SEC. If all the health checks are "green," the health check sends a sample event to the Event Log. The sample event shows up in the Event Log as a policy named "sec-health-check."

```
=====
Running SEC health check for tenant [REDACTED]
=====
SEC cloud URL [REDACTED] is: Reachable
=====
SEC Connector status: Active
=====
SEC Events Plugin is: Running
SEC UDP syslog server is: Running
SEC TCP syslog server is: Running
=====
SEC send sample event: Success. Please search with filter "sensorID:127.0.0.1" to locate the event in CDO events viewer page.
=====
```

If you receive the success message, click **Done** in the **Deploy an ON-Premise Secure Event Connector** dialog box. You have finished installing an SEC on a your VM image.

What to do next

Return to this procedure to continue your implementation of SAL SaaS: [Implementing Secure Logging Analytics \(SaaS\) for ASA Devices, on page 689](#).

Install a Secure Event Connector on an AWS VPC Using a Terraform Module

Before you begin

- To perform this task, you must enable SAL on your Security Cloud Control tenant. This section presumes that you have a SAL license. If you do not have one, purchase the Cisco Security and Analytics Logging, Logging and Troubleshooting license.
- Ensure you have a new SEC installed. To create a new SEC, see [Install a Secure Event Connector on an SDC Virtual Machine, on page 664](#).
- When installing the SEC, make sure you take a note of the Security Cloud Control bootstrap data and SEC bootstrap data.

Procedure

- Step 1** Go to [Secure Event Connector Terraform Module](#) on the Terraform Registry and follow the instructions to add the SEC Terraform module to your Terraform code.
- Step 2** Apply the Terraform code.
- Step 3** Ensure that you print the `instance_id` and `sec_fqdn` outputs, because you will need them later in the procedure.

Note

To troubleshoot your SEC, you must connect to your SEC instance using the AWS Systems Manager Session Manager (SSM). See the [AWS Systems Manager Session Manager](#) documentation to know more about connecting to an instance using SSM.

Ports to connect to the SDC instance using SSH are not exposed for security reasons.

- Step 4** To enable sending of logs from your ASA to the SEC, obtain the certificate chain of the SEC you created and remove the leaf certificate by running the following command with the output from [Step 3](#):

```
rm -f /tmp/cert_chain.pem && openssl s_client -showcerts -verify 5 -connect <FQDN>:10125 <
/dev/null | awk '/BEGIN CERTIFICATE/,/END CERTIFICATE/{ if (/BEGIN CERTIFICATE/) {a++};
out="/tmp/cert_chain.pem"; if (a > 1) print >>out}'
```

- Step 5** Copy the contents of /tmp/cert_chain.pem to your clipboard.

- Step 6** Take a note of the IP address of the SEC using the following command:

```
nslookup <FQDN>
```

- Step 7** Log in to Security Cloud Control and start adding a new trustpoint object. See [Adding a Trusted CA Certificate Object](#) for more information. Ensure you uncheck the **Enable CA flag in basic constraints extension** checkbox in **Other Options** before clicking **Add**.

- Step 8** Click **Add**, copy the CLI commands generated by Security Cloud Control in the **Install Certificate** page, and click **Cancel**.

- Step 9** Below enrollment terminal, add no ca-check in a text clipboard.

- Step 10** SSH into your ASA device or use the ASA CLI option in Security Cloud Control and execute the following commands:

```
DataCenterFW-1> en
Password: *****
DataCenterFW-1# conf t
DataCenterFW-1(config)# <paste your modified ASA CLIs here and press Enter>
DataCenterFW-1(config)# wr mem
Building configuration...
Cryptochecksum: 6634f35f 4c5137f1 ab0c5cdc 9784bdb6
```

What to do next

You can check if your SEC is receiving packets using AWS SSM:

You should now see logs similar to this:

```
time="2023-05-10T17:13:46.135018214Z" level=info msg="[ip-10-100-5-19.ec2.internal][util.go:67
plugin.createTickers:func1] Events - Processed - 6/s, Dropped - 0/s, Queue size - 0"
```

Remove the Secure Event Connector

Warning: This procedure deletes the Secure Event Connector from the Secure Device Connector. Doing so will prevent you from using Secure Logging Analytics (SaaS). It is not reversible. If you have any questions or concerns, [contact Security Cloud Control support](#) before taking this action.

Removing the Secure Event Connector from your Secure Device Connector is a two-step process:

1. [Remove SEC from Security Cloud Control](#).
2. [Remove SEC files from the SDC](#).

What to do next: Continue to [Remove SEC from Security Cloud Control](#)

Remove an SEC from Security Cloud Control

Before you begin

See [Remove the Secure Event Connector, on page 681](#).

Procedure

-
- Step 1** Log in to Security Cloud Control.
- Step 2** From the left pane, choose **Tools & Services > Secure ConnectorsAdministration > Secure Connectors**.
- Step 3** Select the row with the device type, **Secure Event Connector**.
- Warning**
Be careful NOT to select your Secure Device Connector.
- Step 4** In the **Actions** pane, click **Remove**.
- Step 5** Click **OK** to confirm.
-

What to do next

Continue to [Remove a Secure Event Connector from the Secure Device Connector VM, on page 682](#).

Remove a Secure Event Connector from the Secure Device Connector VM

This is the second part of a two part procedure to remove the Secure Event Connector from your SDC. See [Remove the Secure Event Connector, on page 681](#) before you begin.

Procedure

-
- Step 1** Open your virtual machine hypervisor and start a console session for your SDC.
- Step 2** Switch to the SDC user using the command `[cdo@sdm]$ sudo su sdm`.
- Step 3** To remove an SEC from the SDC virtual machine, you can use one of the following commands:
- If you want to use the tenant selector (or if there's only one tenant on the VM):

```
[sdm@tenant toolkit]$ sdm eventing delete
```
 - If you want to specify the tenant directly in the command arguments:

```
[sdm@tenant toolkit]$ sdm eventing delete CDO_{tenant-name}
```
- Step 4** Confirm your intention to remove the SEC files.
-

Finding Your Device's TCP, UDP, and NSEL Port Used for Secure Logging Analytics (SaaS)

Secure Logging Analytics (SaaS) allows you to send events from your ASA or FDM-managed devices to certain UDP, TCP, or NSEL ports on the Secure Event Connector (SEC). The SEC then forwards those events to the Cisco cloud.

If these ports aren't already in use, the SEC makes them available to receive events and the Secure Logging Analytics (SaaS) documentation recommends using them when you configure the feature.

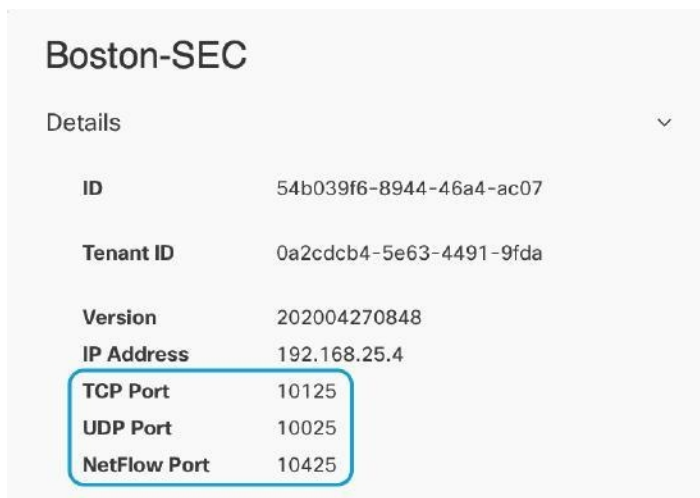
- TCP: 10125
- UDP: 10025
- NSEL: 10425

If those ports are already in use, before you configure Secure Logging Analytics (SaaS), look at your SEC device details to determine what ports it is actually using to receive events.

To find the port numbers the SEC uses:

Procedure

- Step 1** From the left pane, click **Tools & Services > Secure ConnectorsAdministration > Secure ConnectorsAdministration > Integrations > Firewall Management Center** and then click the **Secure Connectors** tab.
- Step 2** In the **Secure Connectors** page, select the SEC you want to send events to.
- Step 3** In the **Details** pane, you will see the TCP, UDP, and NetFlow (NSEL) port you should send events to.



Boston-SEC	
Details	
ID	54b039f6-8944-46a4-ac07
Tenant ID	0a2cdcb4-5e63-4491-9fda
Version	202004270848
IP Address	192.168.25.4
TCP Port	10125
UDP Port	10025
NetFlow Port	10425



CHAPTER 18

Secure Logging Analytics (SaaS) for ASA Devices

- [About Security Analytics and Logging \(SAL SaaS\) for the ASA, on page 685](#)
- [Implementing Secure Logging Analytics \(SaaS\) for ASA Devices, on page 689](#)
- [Send ASA Syslog Events to the Cisco Cloud using a Security Cloud Control Macro, on page 690](#)
- [Send ASA Syslog Events to the Cisco Cloud Using the Command Line Interface, on page 693](#)
- [NetFlow Secure Event Logging \(NSEL\) for ASA Devices, on page 700](#)
- [Parsed ASA Syslog Events, on page 713](#)

About Security Analytics and Logging (SAL SaaS) for the ASA

Security Analytics and Logging (SaaS) allows you to capture all syslog events and Netflow Secure Event Logging (NSEL) from your ASA and view them in one place in Security Cloud Control.

The events are stored in the Cisco cloud and viewable from the Event Logging page in Security Cloud Control where you can filter and review them to gain a clear understanding of what security rules are triggering in your network. The **Logging and Troubleshooting** package gives you these capabilities.

With the **Logging Analytics and Detection** package (formerly **Firewall Analytics and Logging** package), the system can apply Secure Cloud Analytics dynamic entity modeling to your FTD events, and use behavioral modeling analytics to generate Secure Cloud Analytics observations and alerts. If you obtain a **Total Network Analytics and Monitoring** package, the system applies dynamic entity modeling to both your FTD events and your network traffic, and generates observations and alerts. You can cross-launch from Security Cloud Control to a Secure Cloud Analytics portal provisioned for you, using Cisco Single Sign-On.

How ASA Events are Displayed in the Security Cloud Control Events Viewer

Syslog events and NSEL events are generated when logging is enabled on the ASA, and network traffic matches access control rule criteria. After the events are stored in the Cisco cloud, you can view them in Security Cloud Control.

You can install multiple Secure Event Connectors (SECs) and send events generated by a rule, on any device, to any of the SECs as if it were a syslog server. The SEC then forwards the event to the Cisco cloud. Do not forward the same events to all of your SECs. You will be duplicating the events sent to the Cisco cloud and needlessly inflate your daily ingest rate.

How Syslog and NSEL Events are Sent from an ASA to the Cisco Cloud by way of the Secure Event Connector

With the basic **Logging and Troubleshooting** license, this is how an ASA event reaches the Cisco cloud:

1. You onboard your ASA to Security Cloud Control using username and password.
2. You configure the ASA to forward syslog and NSEL events to any one of your SECs as if they were syslog servers and enable logging on the device.
3. The SEC forwards the events to the Cisco cloud where the events are stored.
4. Security Cloud Control displays events from the Cisco cloud in its Events Viewer based on the filters you set.

With the **Logging Analytics and Detection** or **Total Network Analytics and Monitoring** license, the following also occur:

1. Cisco Secure Cloud Analytics applies analytics to the ASA syslog events stored in the Cisco cloud.
2. Generated observations and alerts are accessible from the Secure Cloud Analytics portal associated with your Security Cloud Control portal.
3. From the Security Cloud Control portal, you can cross-launch your Secure Cloud Analytics portal to review these observations and alerts.

Components Used in the Solution

Secure Device Connector (SDC)-The SDC connects Security Cloud Control to your ASAs. The login credentials for the ASA are stored on the SDC.

Secure Event Connector (SEC)-The SEC is an application that receives events from your ASAs and forwards them to the Cisco cloud. Once in the Cisco cloud, you can view the events on Security Cloud Control's Event Logging page or analyze them with Secure Cloud Analytics. Depending on your environment, the SEC is installed on a Secure Device Connector, if you have one; or on its own Security Cloud Control Connector virtual machine that you maintain in your network. See [About Secure Event Connectors, on page 663](#) for more information.

Adaptive Security Appliance (ASA)-The ASA provides advanced stateful firewall and VPN concentrator functionality as well as integrated services with add-on modules. The ASA includes many advanced features, such as multiple security contexts (similar to virtualized firewalls), clustering (combining multiple firewalls into a single firewall), transparent (Layer 2) firewall or routed (Layer 3) firewall operation, advanced inspection engines, IPsec VPN, SSL VPN, and clientless SSL VPN support, and many more features.

Secure Cloud Analytics applies dynamic entity modeling to ASA events, generating detections based on this information. This provides a deeper analysis of telemetry gathered from your network, allowing you to identify trends and examine anomalous behavior in your network traffic. You would make use of this service if you have a **Logging Analytics and Detection** or **Total Network Analytics and Monitoring** license.

Licensing

To configure this solution you need the following accounts and licenses:

- **Security Cloud Control.** You must have a Security Cloud Control tenant.
- **Secure Device Connector.** There is no separate license for a Secure Device Connector.
- **Secure Event Connector.** There is no separate license for a Secure Event Connector.
- **Secure Logging Analytics (SaaS).** See the [Security Analytics and Logging License table](#).
- **Adaptive Security Appliance (ASA).** Base license or higher.

Security Analytics and Logging Licensing

In order to implement Security Analytics and Logging (SaaS), you need to purchase one of these licenses:

License Name	Provided Functionality	Available License Durations	Functionality Prerequisites
Logging and Troubleshooting	View ASA events and event detail within Security Cloud Control, both as a live feed and as a historical view	1 year 3 years 5 years	- Security Cloud Control - An on-premises ASA deployment running software version 9.6 or greater. - Deployment of one or more SECs to pass ASA events to the Cisco cloud.
Logging Analytics and Detection (formerly Firewall Analytics and Monitoring)	Logging and Troubleshooting functionality, plus: - Apply dynamic entity modeling and behavioral analytics to your events. - Open alerts in Secure Cloud Analytics based on event data, cross-launching from the Security Cloud Control event viewer.	1 year 3 years 5 years	- Security Cloud Control - An on-premises ASA deployment running software version 9.6 or greater - Deployment of one or more SECs to pass ASA events to the Cisco cloud. - A newly provisioned or existing Cisco Secure Cloud Analytics portal.

License Name	Provided Functionality	Available License Durations	Functionality Prerequisites
Total Network Analytics and Monitoring	Logging Analytics and Detection , plus: • Apply dynamic entity modeling and behavioral analytics to ASA events, on-premises network traffic, and cloud-based network traffic • Open alerts in Cisco Secure Cloud Analytics based on the combination of ASA event data, on-premises network traffic flow data collected by Cisco Secure Cloud Analytics sensors, and cloud-based network traffic passed to Cisco Secure Cloud Analytics, cross-launching from the Security Cloud Control event viewer.	• 1 year • 3 years • 5 years	• Security Cloud Control • An on-premises ASA deployment running software version 9.6 or greater • Deployment of one or more SECs to pass events to the Cisco cloud. • Deployment of at least one Cisco Secure Cloud Analytics sensor version 4.1 or greater to pass network traffic flow data to the cloud OR integrating Cisco Secure Cloud Analytics with a cloud-based deployment, to pass network traffic flow data to Cisco Secure Cloud Analytics. • A newly provisioned or existing Cisco Secure Cloud Analytics portal.

Data Plans

You need to buy a data plan that reflects the number of events the Cisco cloud receives from your on-boarded ASAs on a daily basis. This is called your "daily ingest rate." You can use the [Logging Volume Estimator Tool](#) to estimate your daily ingest rate and as that rate changes you can update your data plan.

Data plans are available in 1 GB daily volumes increments, and in 1, 3 or 5 year terms. See the [Secure Logging Analytics \(SaaS\) Ordering Guide](#) for information about data plans.



Note If you have a Security Analytics and Logging license and data plan, then obtain a different license at a later date, that alone does not require you to obtain a different data plan. If your network traffic throughput changes and you obtain a different data plan, that alone does not require you to obtain a different Security Analytics and Logging license.

30-day Free Trial

You can request a 30-day risk-free trial by logging in to Security Cloud Control and navigating **Events & Logs > Events > Event Logging** tab. On completion of the 30-day trial, you can order the desired event data volume to continue the service from Cisco Commerce Workspace (CCW), by following the instructions in the [Secure Logging Analytics \(SaaS\) ordering guide](#).

Next Step

Go to [Implementing Secure Logging Analytics \(SaaS\) for ASA Devices](#)

Implementing Secure Logging Analytics (SaaS) for ASA Devices

Before you Begin

- Review [Secure Logging Analytics \(SaaS\) for ASA devices](#) to learn about:
 - How events are sent to the Cisco cloud
 - Applications in the solution
 - Licenses you need
 - Data plan you need
- You have contacted your managed service provider or Security Cloud Control Sales representative to create a Security Cloud Control tenant.
- You have [installed one or more SECs for your tenant](#) and you can send events from any ASA to any SEC onboarded to your tenant.

Workflow to Implement Cisco Security Analytics and Logging (SaaS) and Send Events through the Secure Event Connector to the Cisco Cloud

1. Be sure to review "Before you Begin" above to make sure your environment is properly configured.
2. [Onboard ASA Device to Security Cloud Control, on page 217](#) using username and password.
3. [Send ASA Syslog Events to the Cisco Cloud](#).
4. [Configuring NSEL for ASA Devices Using a Security Cloud Control Macro](#).
5. Confirm events are visible in Security Cloud Control. From the navigation bar, select **Events & Logs > Events > Event Logging**. Click the **Live** tab to view live events.
6. If you have a **Firewall Analytics and Monitoring** or **Total Network Analytics and Monitoring** license, continue with the next section, **Analyzing Events with Cisco Secure Cloud Analytics**.

Reviewing Cisco Secure Cloud Analytics Alerts by Cross-launching from Security Cloud Control

With a **Firewall Analytics and Monitoring** or **Total Network Analytics and Monitoring** license, you can cross-launch from Security Cloud Control to Secure Cloud Analytics to review the alerts generated by FTD events.

Review these articles for more information:

Troubleshooting Secure Event Connector Issues

Use these troubleshooting topics to gather status and logging information about

- [Troubleshooting Secure Event Connector Onboarding Failures](#)
- [Event Logging Troubleshooting Log Files](#)
- [Use Health Check to Learn the State of your Secure Event Connector](#)

Workflows

[Troubleshooting Using Security and Analytics Logging Events](#) describes using the events generated from Cisco Security Analytics and Logging to determine why a user can't access a network resource.

Send ASA Syslog Events to the Cisco Cloud using a Security Cloud Control Macro

You can configure all your ASAs to send events to the Cisco cloud by creating a Security Cloud Control Macro that uses all the commands described in [Send ASA Syslog Events to the Cisco Cloud Using the Command Line Interface](#) and running that macro on all your ASA in the same batch.

Security Cloud Control's Macro tool allows you to assemble a list of CLI commands, turn elements of the command syntax into parameters, and then save the list of commands so that it can be used more than once. Macros can also be run on more than one device at a time.

Using proven macros promotes configuration consistencies between devices and prevents syntax errors that can occur when using the command line interface.

Before you read further, review macros in [Security Cloud Control configuration guide](#) so that you understand the mechanics of using macros. This article will only describe assembling the final macro.

Creating an ASA Security Analytics and Logging (SaaS) Macro

There are two types of formatting you'll see in the following procedure, ASA CLI commands and macro formatting. The ASA CLI commands are written to follow [ASA syntax conventions](#). See [Use command line interface](#) for more information about using the CLI in Security Cloud Control.

Before you begin, open [Send ASA Syslog Events to the Cisco Cloud](#) in a separate window and read it in parallel with this procedure so you can read the command descriptions as you create your macros.



Note If a logging config is already in place on the ASA, running the macro from Security Cloud Control will *not* first clear out all of the existing logging config. Rather, the settings defined in the Security Cloud Control macro will merge into whatever might already be in place.

Procedure

Step 1 Open a plain text editor and create a list of commands you are going to turn into a macro, based on the instructions and options below. Security Cloud Control will execute the commands in the order they are written in the macro. Some command will have values that you turn into `{{parameters}}` that you will fill in when it comes time to run the macro.

Step 2 **Configure the ASA to send messages to an SEC as if it were a syslog server.**

Use the **logging host** command to specify the SEC as the syslog server you send messages to. You can send events to any one of the SECs you have onboarded to your tenant.

The **logging host** command specifies a TCP or UDP port to send events to. See [Finding Your Device's TCP, UDP, and NSEL Port Used for Cisco Security Analytics and Logging](#) to determine what ports you should use.

logging host*interface_name**SEC_IP_address* { **tcp**/*port* | **udp**/*port* }

Turn this command into one of two different macros depending on what protocol you use to send syslog events to the SEC:

`logging host {{interface_name}} {{SEC_ip_address}} tcp/{{port_number}}`

`logging host {{interface_name}} {{SEC_ip_address}} udp/{{port_number}}`

(Optional) If you use TCP, you can add this command to your list of commands in your macro. It does not need any parameters.

logging permit-hostdown

Step 3 **Specify which syslog messages should be sent to the syslog server.**

Use the **logging trap** command to specify which syslog messages should be sent to the syslog server:

logging trap { *severity_level* | *message_list* }

If you want to define the events sent to the SEC by severity level, turn the command into this macro:

`logging trap {{severity_level}}`

If you only want to send events to the SEC that are part of a message list, turn the command into this macro:

`logging trap {{message_list_name}}`

If you chose the **logging trap message_list** command in the previous step, you need to define the syslogs in your message list. Open [Create a Custom Event List](#) so you can read the command descriptions as you create the macro. Start with this command:

logging list*name* { **level**/*level* [**class***message_class*] | **message***start_id* [-*end_id*] }

And break it down into these variations:

`logging list {{message_list_name}} level {{security_level}}`

`logging list {{message_list_name}} level {{security_level}} class {{message_class}}`

`logging list {{message_list_name}} message {{syslog_range_or_number}}`

In the last variation, the message parameter `{{syslog_range_or_number}}` could be entered as a single syslog ID, 106023, or a range, 302013-302018. Use one or more of the command variations in as many lines as you

like to create your message list. Keep in mind that, in a single macro, all parameters with the same name will use the same value you enter. Security Cloud Control will not run a macro with empty parameters.

Important

The **logging list** command has to come before the **logging trap** command in your macro. You define the list first and then the **logging trap** command can use it. See the [sample macro](#) below.

- Step 4** (Optional) Add the **syslog timestamp**. Add this command if you want to add the date and time to the message that the syslog message originated on the ASA. The timestamp value is displayed in the **SyslogTimestamp** field. Add this command to your list of commands, it will not need any parameters:

logging timestamp

Note

Beginning with version 9.10(1), ASA provides the option to enable timestamp as per RFC 5424 in eventing syslogs. When this option is enabled, all timestamp of syslog messages would be displaying the time as per RFC 5424 format. Following is a sample output with RFC 5424 format:

```
<166>2018-06-27T12:17:46Z asa : %ASA-6-110002: Failed to locate egress interface for
protocol from src interface :src IP/src port to dest IP/dest port
```

- Step 5** (Optional) Include a device ID in non-EMBLEM format syslog messages. Open [Include the Device ID in Non-EMBLEM Format Syslog Messages](#) so you can read the command descriptions as you create the macro. This is the CLI command you will base your macro on:

logging device-id { **cluster-id** | **context-name** | **hostname** | **ipaddress** *interface_name* [**system**] | **stringtext** }

And break it down into these variations:

logging device-id cluster-id

logging device-id context-name

logging device-id hostname

logging device-id ipaddress { { *interface_name* } } **system**

logging device-id string { { *text_16_char_or_less* } }

- Step 6** Enable logging. Add this command to your macro as it is. It does not have any parameters:

logging enable

- Step 7** Do not add **write memory** to the last line of the macro. Add the **show running-config logging** command instead to review the results of the logging commands you entered before committing them to the ASA's startup config.

show running-config logging

- Step 8** After you are confident your configuration changes were made, you can create a separate macro for the **write memory** command or use Security Cloud Control's Bulk Command Line Interface tool to issue the command to all the devices you configured using your macro.

write memory

- Step 9** (Optional) Enable logging on access control rule "permit" events. This step is described in the [Send ASA Syslog Events to the Cisco Cloud](#) procedure but it is not included in this macro. It is performed in the Security Cloud Control GUI instead.

Step 10 Save the macro.**Example**

Here is a sample of a list of commands combined into a single macro:

```
logging host {{interface_name}} {{SEC_ip_address}} {{tcp_or_udp}}/{{port_number}}
logging permit-hostdown
logging list {{message_list_name}} level {{security_level}}
logging list {{message_list_name}} message {{syslog_range_or_number_1}}
logging list {{message_list_name}} message {{syslog_range_or_number_2}}
logging trap {{message_list_name}}
logging device-id cluster-id
logging enable
show running-config logging
```



Note There are several logging list commands to add different specific syslog IDs or ranges. The {{syslog_range_or_number_X}} parameter requires a number or some other differentiator, otherwise their values will all be the same when the macro is filled in. Also keep in mind that Security Cloud Control will not run a macro if not all the parameters are given a value, so only include the commands in the macro you want to execute. We do want all the syslog IDs contained in the same list so event_list_name stays the same for in each line.

What to do next**Run the Macro**

After you have created and saved the ASA Security Analytics and Logging Macro, run the macro to send ASA syslog events to the Cisco cloud.

Send ASA Syslog Events to the Cisco Cloud Using the Command Line Interface

This procedure explains how to forward ASA syslog events to a Secure Event Connector (SEC) and then enable logging. These procedures explain only what is needed to complete that workflow. For a broader discussion of all the ways you can configure logging on the ASA, see the Monitoring chapter of either [ASDM1: Cisco ASA Series General Operations ASDM Configuration Guide](#) or [CLI Book 1: Cisco ASA Series General Operations CLI Configuration Guide](#).

Limitations on Supported ASA Commands

Security Cloud Control does not yet support these syslog commands or message formats:

- EMBLEM format for syslogs
- Secure Syslogs

Security Cloud Control Command Line Interface for ASA

For all the tasks in this procedure, you will be working on the Security Cloud Control's command line interface for ASA. To open the command line interface page:

Procedure

- Step 1** From the left navigation bar, click **InventorySecurity Devices**.
 - Step 2** Click the **Devices** tab.
 - Step 3** Click the appropriate device type tab and select the ASA for which you want to enable logging.
 - Step 4** In the Device Actions pane on the right, click > **Command Line Interface**.
 - Step 5** Click the **Command Line Interface** tab. You are now ready to enter the commands described below at the prompt.
- After entering every command, you will click **Send**. Because Security Cloud Control's CLI Interface is a direct connection to the ASA, the command is written to the device's running configuration immediately. For changes to be written to the ASA's startup configuration, you need to issue the `write memory` command in addition.
-

Forward ASA Syslog Events to the Secure Event Connector

To forward ASA syslog events to one of the Secure Event Connectors (SECs) you have onboarded and then enable logging, you need complete these tasks in the procedure that follows.

Procedure

- Step 1** Configure the ASA to send messages to the SEC as if it were a syslog server.
 - Step 2** Decide what severity level of all logs, or what list of syslog events, you want to send to the SEC.
 - Step 3** Enable logging.
 - Step 4** Save the changes to the ASA's startup config.
-

Send ASA Syslog Events to the Cisco Cloud Using CLI

Procedure

- Step 1** **Configure the ASA to send messages to the SEC as if it were a syslog server**

When sending syslog events from the ASA to the Cisco cloud, you forward them to the SEC as if it were an external syslog server, and it forwards the messages to the Cisco cloud.

To send syslog messages to the SEC, perform the following steps:

- a. Configure the ASA to send messages, using TCP or UDP, to the SEC as if it were a syslog server. The SEC can use an IPv4 or IPv6 address. You will be sending events to either a TCP or UDP port. See [Finding Your Device's TCP, UDP, and NSEL Port Used for Cisco Security Analytics and Logging](#) to determine what ports you should use.

Here is an example of the **logging host** command syntax:

```
logging host interface_name SEC_IP_address [ [ tcp/port ] | [ udp/port ] ]
```

Examples:

```
> logging host mgmt 192.168.1.5 tcp/10125
> logging host mgmt 192.168.1.5 udp/10025
> logging host mgmt 2002::1:1 tcp/10125
> logging host mgmt 2002::1:1 udp/10025
```

- The **interface_name** argument specifies the ASA interface from which messages are sent to the syslog server. It is a "best practice" to send the syslog messages to the SDC over the same ASA interface already in use for communication with the SDC.
- The **SEC_IP_address** argument should contain the IP address of the VM on which the SEC is installed.
- The **tcp/port** or **udp/port** keyword-argument pair specifies that syslog messages should be sent using either TCP protocol and relevant port, or the UDP protocol and relevant port. You can configure the ASA to send data to a syslog server using either UDP or TCP, but not both. The default protocol is UDP if you do not specify a protocol.

If you specify TCP, the ASA will discover syslog server failures and as a security protection, new connections through the ASA are blocked. To allow new connections regardless of connectivity to a TCP syslog server, see step b. If you specify UDP, the ASA continues to allow new connections whether or not the syslog server is operational. Valid port values

Note

If you want to send ASA messages to two separate syslog servers, you can run a second logging host command with the appropriate interface, IP address, protocol and port of the other syslog server.

- b. (Optional) If you send events to the SEC over TCP, and if either the SEC is down or the log queue on the ASA is full, then new connections are blocked. New connections are allowed again after the syslog server is back up and the log queue is no longer full. To allow new connections regardless of connectivity to a TCP syslog server, disable the feature to block new connections when a TCP-connected syslog server is down using this command:

```
logging permit-hostdown
```

Example:

```
> logging permit-hostdown
```

Step 2 Specify which syslog messages should be sent to the syslog server with the following command:

```
logging trap { severity_level | message_list }
```

Examples:

```
> logging trap 3
> logging trap asa_syslogs_to_cloud
```

You can specify the severity level number (1 through 7) or name. For example, if you set the severity level to 3, then the ASA sends syslog messages for severity levels 3, 2, and 1.

The `message_list` argument is replaced with the name of a custom event list, if you have created one. When specifying a custom event list, you only send the syslog messages that are in that list to the Secure Event Connector. In the example above, `asa_syslogs_to_cloud` is the name of the event list.

Using a `message_list` could save you money by tightly defining which syslog messages are sent to the Cisco cloud.

See [Create a Custom Event List](#) to create a `message_list`. See [Security Analytics and Logging Event Storage](#) for more information about data ingest and storage costs.

Step 3 (Optional) Add the syslog timestamp

Add the date and time that the syslog message originated on the ASA to the message using the logging timestamp command. The timestamp value is displayed in the **SyslogTimestamp** field.

Example:

```
> logging timestamp
```

Note

Beginning with version 9.10(1), ASA provides the option to enable timestamp as per RFC 5424 in eventing syslogs. When this option is enabled, all timestamp of syslog messages would be displaying the time as per RFC 5424 format. Following is a sample output with RFC 5424 format:

```
<166>2018-06-27T12:17:46Z asa : %ASA-6-110002: Failed to locate egress interface for protocol from src interface :src IP/src port to dest IP/dest port.
```

Step 4 (Optional) Include a device ID in non-EMBLEM format syslog messages

A device ID is an identifier you can insert in a syslog message that will help you easily distinguish all syslog messages sent from a particular ASA. See [Include the Device ID in Non-EMBLEM Format Syslog Messages](#) for instructions.

Step 5 (Optional) Enable logging on access control rule "permit" events

When an access control rule denies access to a resource, the event is automatically logged. If you also want to log events generated when an access control rule allows access to a resource, you need to turn on logging for the access control rule and configure a severity type. See [Log Rule Activity](#) for instructions on how to turn on logging for an individual network access control rule.

Note

Enabling logging on access control rule "permit" events will use-up more of your purchased data plan as it is based on your daily ingest rate of events.

Step 6 Enable logging

At the command prompt, type `logging enable`. On the ASA, logging is enabled for the entire device, not for individual rules.

Example:

```
> logging enable
```

Note

At this time, Security Cloud Control does not support enabling secure logging.

Step 7 Save your Changes to the Startup Config

At the command prompt, type write memory. On the ASA, logging is enabled for the entire device, not for individual rules.

Example:

```
> write memory
```

Related Information:

- [Install a Secure Event Connector on an SDC Virtual Machine, on page 664](#)
- [Install Second or Subsequent SECs for your Tenant](#)

Create a Custom Event List

Create a custom event list when you are sending ASA syslog events to the Cisco Cloud using one of these methods:

- [Send ASA Syslog Events to the Cisco Cloud Using the Command Line Interface](#)
- [Send ASA Syslog Events to the Cisco Cloud using a Security Cloud Control Macro](#)

You can create an event list, also referred to as a message_list, based on the following three criteria:

- Event Class
- Severity
- Message ID

To create a custom event list to send to a specific logging destination (for example, a syslog server or a Secure Event Connector), perform the following steps:

Procedure

Step 1 From the left navigation bar, click **InventorySecurity Devices**.

Step 2 Click the **Devices** tab.

Step 3 Click the appropriate tab and select the ASA whose syslog messages you want to include in a custom event list.

Step 4 In the **Device Actions** pane, click **>_ Command Line Interface**.

Step 5 Use this command syntax to issue the **logging list** command to the ASA:

```
logging list name { level level [ class message_class ] | message start_id [ -end_id ] }
```

The *name* argument specifies the name of the list. The **level** *level* keyword and argument pair specify the severity level. The **class** *message_class* keyword-argument pair specify a particular message class. The **message** *start_id* [-*end_id*] keyword-argument pair specify an individual syslog message number or a range of numbers.

Note

Do not use the names of severity levels as the name of a syslog message list. Prohibited names include emergencies, alert, critical, error, warning, notification, informational, and debugging. Similarly, do not use the first three characters of these words at the beginning of an event list name. For example, do not use an event list name that starts with the characters "err."

- **Add syslog messages to the event list based on severity.** For example, if you set the severity level to 3, then the ASA sends syslog messages for severity levels 3, 2, and 1.

Example:

```
> logging list asa_syslogs_to_cloud level 3
```

- **Add syslog messages based on other criteria to the event list:**

Enter the same command as in the previous step, specifying the name of the existing message list and the additional criterion. Enter a new command for each criterion that you want to add to the list. For example, you can specify criteria for syslog messages to be included in the list as the following:

- Syslog message IDs that fall into the range of 302013-302018.
- All syslog messages with the critical severity level or higher (emergency, alert, or critical).
- All HA class syslog messages with the warning severity level or higher (emergency, alert, critical, error, or warning).

Example:

```
> logging list asa_syslogs_to_cloud message 302013-302018
> logging list asa_syslogs_to_cloud level critical
> logging list asa_syslogs_to_cloud level warning class ha
```

Note

A syslog message is logged if it satisfies any of these conditions. If a syslog message satisfies more than one of the conditions, the message is logged only once.

Step 6 Save your Changes to the Startup Config

At the command prompt, type **write memory**.

Example:

```
> write memory
```

Include the Device ID in Non-EMBLEM Format Syslog Messages

You can configure the ASA to include a device ID in non-EMBLEM-format syslog messages. You can specify only one type of device ID for syslog messages. This procedure is referred to by these procedures:

- [Send ASA Syslog Events to the Cisco Cloud Using the Command Line Interface](#)
- [Send ASA Syslog Events to the Cisco Cloud using a Security Cloud Control Macro](#)

This device identifier will be reflected in the SensorID field of a syslog event displayed on the Event Logging page.

Procedure

Step 1 Select the ASA whose syslog messages you want to assign a device-id to.

Step 2 In the Device Actions pane, click **>_ Command Line Interface**.

Step 3 Use this command syntax to issue the **logging device-id** commands to the device.

logging device-id { **cluster-id** | **context-name** | **hostname** | **ipaddress***interface_name* [**system**] | **string***text* }

Example:

```
> logging device-id hostname
> logging device-id context-name
> logging device-id string Cambridge
```

The **context-name** keyword indicates that the name of the current context should be used as the device ID (applies to multiple context mode only). If you enable the logging device ID for the admin context in multiple context mode, messages that originate in the system execution space use a device ID of **system**, and messages that originate in the admin context use the name of the admin context as the device ID.

Note

In an ASA cluster, always use the primary unit IP address for the selected interface.

The **cluster-id** keyword specifies the unique name in the boot configuration of an individual ASA unit in the cluster as the device ID.

The **hostname** keyword specifies that the hostname of the ASA should be used as the device ID.

The **ipaddress** *interface_name* keyword-argument pair specifies that the interface IP address specified as *interface_name* should be used as the device ID. If you use the **ipaddress** keyword, the device ID becomes the specified ASA interface IP address, regardless of the interface from which the syslog message is sent. In the cluster environment, the **system** keyword dictates that the device ID becomes the system IP address on the interface. This keyword provides a single, consistent device ID for all syslog messages that are sent from the device.

The **string** *text* keyword-argument pair specifies that the text string should be used as the device ID. The string can include as many as 16 characters.

You cannot use blank spaces or any of the following characters:

- & (ampersand)
- ' (single quote)
- " (double quote)
- < (less than)
- > (greater than)
- ? (question mark)

Step 4 **Save your Changes to the Startup Config**

At the command prompt, type **write memory**.

Example:

```
> write memory
```

NetFlow Secure Event Logging (NSEL) for ASA Devices

Basic syslog messages from the ASA lack much of the data that Secure Cloud Analytics needs to determine if events reported by the ASA indicate a threat. Netflow Secure Event Logging (NSEL) provides the Secure Cloud Analytics with that data.

"A flow is defined as a unidirectional sequence of packets with some common properties that pass through a network device. These collected flows are exported to an external device, the NetFlow collector. Network flows are highly granular; for example, flow records include details such as IP addresses, packet and byte counts, timestamps, Type of Service (ToS), application ports, input and output interfaces, etc."¹

The Cisco ASA supports NetFlow Version 9 services. The ASA implementation of NSEL provides a stateful, IP flow tracking method that exports only those records that indicate significant events in a flow. In stateful flow tracking, tracked flows go through a series of state changes.

This documentation describes a straight forward approach to configuring NetFlow for your ASAs using a Security Cloud Control macro. The [Cisco ASA NetFlow Implementation Guide](#) provides an extremely detailed discussion of configuring NetFlow on the ASA and you may find it a valuable resource to accompany this content.

What to do Next

Go to [Configuring NSEL for ASA Devices Using a Security Cloud Control Macro](#).

Related Articles

- [Configuring NSEL for ASA Devices Using a Security Cloud Control Macro](#)
- [Delete NetFlow Secure Event Logging \(NSEL\) Configuration from an ASA](#)
- [Determine the Name of an ASA Global Policy](#)

1. ("Cisco Systems NetFlow Services Export Version 9." Internet Engineering Task Force, Network Working Group, Request for Comments: 3954, October 2004, B. Claise, Ed. <https://www.ietf.org/rfc/rfc3954.txt>)

Configuring NSEL for ASA Devices by Using a Security Cloud Control Macro

ASAs report detailed connection event data using Netflow Secure Event Logging (NSEL). You can apply Secure Cloud Analytics to this connection event data, which includes bidirectional flow statistics. This procedure describes how to configure NSEL on an ASA device and send those NSEL events to a flow collector. In this case, the flow collector is a Secure Event Connector (SEC).

This procedure refers to this macro, **Configure NSEL**:

```
flow-export destination {{interface}} {{SEC_IPv4_address}} {{SEC_NetFlow_port}}
flow-export template timeout-rate {{timeout_rate_in_mins}}
flow-export delay flow-create {{delay_flow_create_rate_in_secs}}
flow-export active refresh-interval {{refresh_interval_in_mins}}
class-map {{flow_export_class_name}}
  match {{add_this_traffic_to_class_map}}
policy-map {{global_policy_map_name}}
```

```

class {{flow_export_class_name}}
    flow-export event-type {{event_type}} destination {{SEC_IPv4_address}}
service-policy {{global_policy_map_name}} global
logging flow-export-syslogs disable
show run flow-export
show run policy-map {{global_policy_map_name}}
show run class-map {{flow_export_class_name}}

```

Here is an example of the Configure NSEL macro with all the default values filled in, a generic name for the class-map, and the class map added to the global_policy. When you are done with these procedures, your macro will resemble this:

```

flow-export destination {{interface}} {{SEC_IPv4_address}} {{SEC_NetFlow_port}}
flow-export template timeout-rate 60
flow-export delay flow-create 55
flow-export active refresh-interval 1
class-map flow_export_class_map
    match any
policy-map global_policy
    class flow_export_class_map
        flow-export event-type all destination {{SEC_IPv4_address}}
logging flow-export-syslogs disable
show run flow-export
show run policy-map global_policy
show run class-map flow_export_class_map

```

Before you Begin

Gather the following information:

- Read about macros in [Security Cloud Control configuration guide](#) if you have never worked with a Security Cloud Control Macro before.
- IPv4 address of the SEC that will receive data from the ASA
- Interface on the asa that will send data to the SEC
- UDP port number used to forward NetFlow events. See [Finding Your Device's TCP, UDP, and NSEL Port Used for Secure Logging Analytics \(SaaS\)](#), on page 683.
- [Determine the Name of an ASA Global Policy](#), on page 708

Workflow

Follow this workflow to configure NSEL for ASA devices by using a Security Cloud Control macro. You need to follow each step:

1. [Open the Configuring NSEL Macro](#) , on page 702.
2. [Define the Destination of NSEL Messages and the Interval at Which They Are Sent to the SEC](#), on page 702.
3. [Create a Class-Map that Defines which NSEL Events Will Be Sent to the SEC](#), on page 703.
4. [Define a Policy-Map for NSEL Events](#), on page 704.
5. [Disable Redundant Syslog Messages](#), on page 705.
6. [Review and Send the Macro](#), on page 706.

What to do next

Begin the workflow above by going to [Open the Configuring NSEL Macro](#) , on page 702.

Open the Configuring NSEL Macro**Before you begin**

This is first part in a longer workflow, see [Configuring NSEL for ASA Devices by Using a Security Cloud Control Macro](#), on page 700 before getting started.

Procedure

-
- Step 1** On the **InventorySecurity Devices** page, click the **Devices** tab.
 - Step 2** Click the appropriate device type tab and select the ASA(s) on which you want to configure NetFlow Secure Event Logging (NSEL).
 - Step 3** In the **Device Actions** pane, click **Command Line Interface**.
 - Step 4** Click the Macro star  **Macros** to show the list of available macros.
 - Step 5** From the list of macros, select **Configuring NSEL**.
 - Step 6** Under the Macro box, click **View Parameters**.
-

What to do next

Continue to [Define the Destination of NSEL Messages and the Interval at Which They Are Sent to the SEC](#), on page 702.

Define the Destination of NSEL Messages and the Interval at Which They Are Sent to the SEC

NSEL messages can be sent to any one of the SECs you have onboarded to your tenant. These instructions refer to this section of the macro:

```
flow-export destination {{interface}} {{SEC_IPv4_address}} {{SEC_NetFlow_port}}
```

```
flow-export template timeout-rate {{timeout_rate_in_mins}}
```

```
flow-export delay flow-create {{delay_flow_create_rate_in_secs}}
```

```
flow-export active refresh-interval {{refresh_interval_in_mins}}
```

Before you begin

This is part of a larger workflow. See [Configuring NSEL for ASA Devices by Using a Security Cloud Control Macro](#), on page 700 before getting started.

Procedure

-
- Step 1** The **flow-export destination** command defines the collector to which the NetFlow packets are sent. In this case, you are sending them to an SEC. Fill in the fields for these parameters:

- **{{interface}}**-Enter the name of the interface on the ASA from which the NetFlow events are sent.
- **{{SEC_IPv4_address}}**-Enter the IPv4 address of the SEC. The SEC functions as the flow collector.
- **{{SEC_NetFlow_port}}**-Enter the UDP port number on the SEC to which NetFlow packets are sent.

Step 2 The **flow-export template timeout-rate** command specifies the interval at which template records are sent to all configured output destinations.

- **{{timeout_rate_in_mins}}**-Enter the number of minutes before templates are resent. **We recommend using a value of 60 minutes.** The SEC does not process the templates. A large number reduces traffic to the SEC.

Step 3 The **flow-export delay flow-create** command delays the sending of flow-create events by the specified number of seconds. This value matches the recommended Active Timeout value and reduces the number of flow events exported from the ASA. At that rate, expect NSEL events to first appear in Security Cloud Control at the close of a connection or within 55 seconds of the creation of the connection, whichever happens earlier. If this command is not configured, there is no delay, and the flow-create event is exported as soon as the flow is created.

- **{{delay_flow_create_rate_in_secs}}**-Enter the number of seconds delay between sending flow-create events. **We recommend using a value of 55 seconds.**

Step 4 The **flow-export active refresh-interval** command defines the frequency that status updates for long-lived flows will be sent from ASA. Valid values are from 1-60 minutes. In the Flow Update Interval field, configuring the **flow-export active refresh-interval** to be at least 5 seconds more than the **flow-export delay flow-create** interval prevents flow-update events from appearing before flow-creation events.

- **{{refresh_interval_in_mins}}**-We recommend using a value of 1 minute. Valid values are from 1-60 minutes.

What to do next

Continue to [Create a Class-Map that Defines which NSEL Events Will Be Sent to the SEC, on page 703](#).

Create a Class-Map that Defines which NSEL Events Will Be Sent to the SEC

The following commands in the macro group all NSEL events in a class and then export that class to the Secure Event Connector (SEC). These instructions refer to this section of the macro:

```
class-map {{flow_export_class_name}}
match {{add_this_traffic_to_class_map}}
```

Before you begin

This is part of a larger workflow. See [Configuring NSEL for ASA Devices by Using a Security Cloud Control Macro, on page 700](#) before getting started.

Procedure

-
- Step 1** The **class-map** command names the class map that identifies NSEL traffic that will be exported to the SEC.
- **{{flow-export-class-name}}**-Enter a name for your class map. The name may be up to 40 characters in length. The names "class-default" and any name that begins with "_internal" or "_default" are reserved. All types of class maps use the same name space, so you cannot re-use a name already used by another type of class map.
- Step 2** Identify the traffic that is going to be associated with (matched with) your class-map. Choose one of these options for the value of **{{add_this_traffic_to_class_map}}**:
- Enter **any** in the **{{add_this_traffic_to_class_map}}** field. This monitors all traffic types for NSEL traffic. **We recommend using the value "any".**
 - Enter **access-list name-of-access-list** in the **{{add_this_traffic_to_class_map}}** field. This associates all the traffic associated with an access-list that you have created. See [Configure Flow-Export Actions Through Modular Policy Framework](#) in the [Cisco ASA NetFlow Implementation Guide](#) for more information.
-

What to do next

Continue to, [Define a Policy-Map for NSEL Events, on page 704](#).

Define a Policy-Map for NSEL Events

The task assigns NetFlow export actions to the class you created in the previous task, and the class to a new policy map. These instructions refer to this section of the macro:

```
policy-map {{global_policy_map_name}}
class {{flow_export_class_name}}
flow-export event-type {{event_type}} destination {{SEC_IPv4_address}}
```

Before you begin

This is part of a larger workflow. See [Configuring NSEL for ASA Devices by Using a Security Cloud Control Macro, on page 700](#) before getting started.

Procedure

-
- Step 1** The **policy-map** command creates a policy-map. In the next task, you associate this policy map with the global policy.
- **{{global_policy_map_name}}**-Enter a name for the policy map. **We recommend using the name of the firewall's existing global policy if there is one.** The default name for the global policy is **global_policy**. See [Determine the Name of an ASA Global Policy](#). If you create a new policy map and

apply it globally according to [Configure Flow-Export Actions Through Modular Policy Framework in Cisco ASA NetFlow Implementation Guide](#), the remaining inspection policies are deactivated.

- Step 2** The **class** command inherits the name of the class-map you created in [Create a Class-Map that Defines which NSEL Events Will Be Sent to the SEC, on page 703](#).
- Step 3** The **flow-export event-type {{event-type}}** **destination {{IPv4_address}}** command defines which event types should be sent to flow collector, (in this case the SEC).
- **{{event-type}}**-The event_type keyword is the name of the supported event being filtered. **We recommend using the value "all"**.
 - **{{SEC_IPv4_address}}**-This is the IPv4 address of the SEC. Its value is inherited from the value you entered in [Define the Destination of NSEL Messages and the Interval at Which They Are Sent to the SEC, on page 702](#).

What to do next

Continue to, [Disable Redundant Syslog Messages, on page 705](#).

Disable Redundant Syslog Messages

These instructions refer to this section of the macro. You do not need to modify the command.

logging flow-export-syslogs disable

Enabling NetFlow to export flow information makes the syslog messages in the following table redundant. In the interest of performance, we recommend that you disable redundant syslog messages, because the same information is exported through NetFlow.



Note When NSEL and syslog messages are both enabled, there is no guarantee of chronological ordering between the two logging types.

Syslog Message	Description	NSEL Event ID	NSEL Extended Event ID
106100	Generated whenever an access control rule (ACL) is encountered.	1-Flow was created (if the ACL allowed the flow). 3-Flow was denied (if the ACL denied the flow).	0-If the ACL allowed the flow. 1001-Flow was denied by the ingress ACL. 1002-Flow was denied by the egress ACL.
106015	A TCP flow was denied because the first packet was not a SYN packet.	3-Flow was denied.	1004-Flow was denied because the first packet was not a TCP SYN packet.

Syslog Message	Description	NSEL Event ID	NSEL Extended Event ID
106023	When a flow was denied by an ACL attached to an interface through the access-group command.	3-Flow was denied.	1001-Flow was denied by the ingress ACL. 1002-Flow was denied by the egress ACL.
302013, 302015, 302017, 302020	TCP, UDP, GRE, and ICMP connection creation.	1-Flow was created.	0-Ignore.
302014, 302016, 302018, 302021	TCP, UDP, GRE, and ICMP connection teardown.	2-Flow was deleted.	0-Ignore. > 2000-Flow was torn down.
313001	An ICMP packet to the device was denied.	3-Flow was denied.	1003-To-the-box flow was denied because of configuration.
313008	An ICMP v6 packet to the device was denied.	3-Flow was denied.	1003-To-the-box flow was denied because of configuration.
710003	An attempt to connect to the device interface was denied.	3-Flow was denied.	1003-To-the-box flow was denied because of configuration.

If you do not want to disable redundant syslog messages, you can edit this macro and delete only this line from it:

logging flow-export-syslogs disable

You can later enable or disable individual syslog messages by following the procedure in the [Disabling and Reenabling NetFlow-related Syslog Messages](#).

Review and Send the Macro

Before you begin

This is part of a larger workflow. See [Configuring NSEL for ASA Devices by Using a Security Cloud Control Macro, on page 700](#), before getting started.

Procedure

- Step 1** After filling in the fields of the macro, click **Review** to review the commands before they are sent to the ASA.
- Step 2** If you are satisfied with your responses to the commands, click **Send**.
- Step 3** After you send the command, you may see the message, "Some commands may have made changes to the running config" along with two links.

⚠ Some commands may have made changes to the running config

[Write to Disk](#) [Dismiss](#)

- Clicking **Write to Disk** saves the changes made by this command, and any other changes in the running-configuration, to the device's startup configuration.
- Clicking **Dismiss** dismisses the message.

You have finished the workflow described in [Configuring NSEL for ASA Devices by Using a Security Cloud Control Macro](#), on page 700.

Delete NetFlow Secure Event Logging (NSEL) Configuration from an ASA

This procedure explains how to DELETE the NetFlow Secure Event Logging (NSEL) Configuration on an ASA, which specifies the Secure Event Connector (SEC) as the NSEL flow collector. This procedure reverses the macro described in [Configuring NSEL for ASA Devices Using a Security Cloud Control Macro](#).

This procedure refers to this macro, **DELETE NSEL**:

```
policy-map {{flow_export_policy_name}}
no class {{flow_export_class_name}}
no class-map {{flow_export_class_name}}
no flow-export destination {{interface}} {{IPv4_address}} {{NetFlow_port}}
no flow-export template timeout-rate {{timeout_rate_in_mins}}
no flow-export delay flow-create {{delay_flow_create_rate_in_secs}}
no flow-export active refresh-interval {{refresh_interval_in_mins}}
logging flow-export-syslogs enable
show run flow-export
show run policy-map {{flow_export_policy_name}}
show run class-map {{flow_export_class_name}}
```

Open the DELETE-NSEL Macro

Procedure

- Step 1** On the **InventorySecurity Devices** page, click the **Devices** tab.
- Step 2** Click the appropriate device type tab and select the ASA(s) on which you want to delete the configuration of NetFlow Secure Event Logging (NSEL).
- Step 3** In the **Device Actions** pane, click **Command Line Interface**.
- Step 4** Click the Macros star  **Macros** to show the list of available macros.
- Step 5** In the list of macros, select **DELETE-NSEL**.
- Step 6** Under the Macro box, click **View Parameters**.

Enter the Values in the Macro to Complete the No Commands

The ASA CLI uses the "no" form of a command to delete it. Fill in the fields in the macro to complete the "no" form of the command:

Procedure

-
- Step 1** policy-map {{flow_export_policy_name}}
- **{{flow_export_policy_name}}**-Enter the value of the policy-map name.
- Step 2** no class {{flow_export_class_name}}
- **{{flow_export_class_name}}**-Enter the value of the class-map name.
- Step 3** no class-map {{flow_export_class_name}}
- **{{flow_export_class_name}}**-The value of the class-map name is inherited from the step above.
- Step 4** no flow-export destination {{interface}} {{IPv4_address}} {{NetFlow_port}}
- **{{interface}}**-Enter the name of the interface on the ASA from which the NetFlow events were sent.
 - **{{IPv4_address}}**-Enter the IPv4 address of the SEC. The SEC functions as the flow collector.
 - **{{NetFlow_port}}**-Enter the UDP port number on the SEC to which NetFlow packets were sent.
- Step 5** no flow-export template timeout-rate {{timeout_rate_in_mins}}
- **{{timeout_rate_in_mins}}**-Enter the flow-export template timeout-rate.
- Step 6** no flow-export delay flow-create {{delay_flow_create_rate_in_secs}}
- **{{delay_flow_create_rate_in_secs}}**-Enter the flow-export delay flow-create rate.
- Step 7** no flow-export active refresh-interval {{refresh_interval_in_mins}}
- **{{refresh_interval_in_mins}}**-Enter the flow-export active refresh-interval interval.
-

Determine the Name of an ASA Global Policy

To determine the name of the ASA's global policy, follow this procedure:

Procedure

-
- Step 1** From the **InventorySecurity Devices** page, select the device for which you want to find the name of the global policy.
- Step 2** In the Device Actions pane, select **>_Command Reference**.
- Step 3** In the Command Line Interface window, at the prompt, type:
show running-config service-policy

In the output of the example below, `global_policy` is the name of the global policy.

Example:

```
> show running-config service-policy
```

```
service-policy global_policy global
```

Troubleshooting NSEL Data Flows

Once you have [configured Netflow Secure Event Logging \(NSEL\)](#), use these procedures to verify that NSEL events are being sent from your ASA to the Cisco Cloud and that the Cisco Cloud is receiving them.

Note that once your ASA is configured to send NSEL events to the Secure Event Connector (SEC) and then on to the Cisco Cloud, data does not flow immediately. It could take a few minutes for the first NSEL packets to arrive assuming there is NSEL-related traffic being generated on the ASA.



Note This workflow shows you a straight-forward use of the "flow-export counters" command and "capture" commands to Troubleshoot NSEL Data Flows. See "Packet Captures" [CLI Book 1: Cisco ASA Series General Operations CLI Configuration Guide](#) and "Monitoring NSEL" in the [Cisco ASA NetFlow Implementation Guide](#) for a more detailed discussion of the usage of these commands.

Perform these tasks:

- Verify that NetFlow Packets are Being Sent to the SEC
- Verify that NetFlow Packets are Being Received by the Cisco Cloud

Verify that NSEL Events are Being Sent to the SEC

Use one of two commands to verify that NSEL packets are being sent to the SEC:

- flow-export counters
- capture

Use the "flow-export counters" Command to Check for flow-export Packets Being Sent and for NSEL errors

- Make sure you have configured your ASA to send NSEL events to the SEC. See [Configuring NSEL for ASA Devices Using a Security Cloud Control Macro](#).
- The SEC IP address is the flow collector address for NSEL events. If you have onboarded more than one SEC to your tenant, be sure you are using the correct IP address.
- Find the UDP port number used to forward NetFlow events. See [Finding Your Device's TCP, UDP, and NSEL Port Used for Cisco Security Analytics and Logging](#).
- Our recommended interface on the ASA from which to send NSEL events is the management interface; your interface may be different.

Use the [command line interface](#) in Security Cloud Control to send these commands to the ASAs that you have configured for NSEL.

Procedure

-
- Step 1** In the navigation pane, click **InventorySecurity Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** Click the appropriate device tab and select the ASA you configured to send NSEL events to the SEC.
- Step 4** In the **Device Actions** pane on the right, click **Command Line Interface**.
- Step 5** Reset the flow export counters by running the `clear flow-export counters` command. This resets the clear export flow counters to zero so that you can easily tell if new events are coming in.

example:

```
> clear flow-export counters
```

Done!

- Step 6** Run the `show flow-export counters` command to see the destination of the NSEL packets, how many packets were sent and any errors:

example:

```
>show flow-export counters
```

```
destination: management 209.165.200.225 10425
```

```
Statistics:
```

```
packets sent 25000
```

```
Errors:
```

```
block allocation errors 0
```

```
invalid interface 0
```

```
template send failure 0
```

```
no route to collector 0
```

```
source port allocation 0
```

In the output above, the destination line shows the interface on the ASA from which NSEL events are sent, the IP address of the SEC, port 10425 of the SEC. It also shows packets sent of 25000.

If there are no errors and packets are being sent, skip to [Verify that NetFlow Packets are Being Received by the Cisco Cloud](#) below.

Error descriptions:

- **block allocation errors**-If you receive a block allocation error, the ASA did not allocate memory to the flow-exporter.
 - Recovery action: Call Cisco Technical Assistance Center (TAC).

- **invalid interface**-Indicates that you are trying to send NSEL events to the SEC but the interface you've defined for flow export isn't configured to do so.
 - Recovery action: Review the interface you chose when configuring NSEL. We recommend using the management interface, your interface may be different.
- **template send failure**-The template you had to define NSEL was not parsed correctly.
 - Recovery action: [Contact Security Cloud Control support](#).
- **no route to collector**-Indicates there is no network route from the ASA to the SEC.
 - Recovery actions:
 - Make sure that the IP address you used for the SEC when you configured NSEL is correct.
 - Make sure the SEC's status is Active and it has sent a recent heartbeat. See [SDC is Unreachable, on page 781](#).
 - Make sure the Secure Device Connector's status is Active and it has sent a recent heartbeat.
- **source port allocation**-May indicate that there is a bad port on your ASA.

Use the "capture" Command to Capture NSEL Packets Sent from the ASA to the SEC

- Make sure you have configured your ASA to send NSEL events to the SEC. See [Configuring NSEL for ASA Devices Using a Security Cloud Control Macro](#).
- The SEC IP address is the flow collector address for NSEL events. If you have onboarded more than one SEC to your tenant be sure you are using the correct IP address.
- Find the UDP port number used to forward NetFlow events. See [Finding Your Device's TCP, UDP, and NSEL Port Used for Cisco Security Analytics and Logging](#).
- Our recommended interface on the ASA from which to send NSEL events is the management interface; your interface may be different.

Use the [command line interface](#) in Security Cloud Control to send these commands to the ASAs that you have configured for NSEL.

Procedure

-
- Step 1** In the navigation pane, click **InventorySecurity Devices**.
- Step 2** Click the **Devices** tab.
- Step 3** Click the appropriate device type tab and select the ASA you configured to send NSEL events to the SEC.
- Step 4** In the **Device Actions** pane on the right, click **Command Line Interface**.
- Step 5** In the command window, run this **capture** command:
- ```
>capturecapture_nameinterfaceinterface_name match udp any host IP_of_SECeqNetFlow_port
```
- Where
- *capture\_name* is the name of the packet capture.

- *interface\_name* is the name of the interface from which NSEL packets leave the ASA.
- *IP\_of\_SEC* is the IP address of the SEC VM.
- *NetFlow\_port* is the port to which NSEL events are sent.

This starts the packet capture.

**Step 6** Run the **show capture** command to view the captured packets:

> **show capture***capture\_name*

Where *capture\_name* is the name of the packet capture you defined in the previous step.

Here is an example of the output showing the time of the capture, the IP address from which the packet was sent, the IP address, and the port the packet was sent to. In this example, 192.168.25.4 is the IP address of the SEC and port 10425 is the port on the SEC that receives NSEL events.

6 packets captured

```
1: 14:23:51.706308 192.168.0.169.16431 > 192.168.25.4.10425: udp 476
2: 14:23:53.923017 192.168.0.169.16431 > 192.168.25.4.10425: udp 248
3: 14:24:07.411904 192.168.0.169.16431 > 192.168.25.4.10425: udp 1436
4: 14:24:07.411920 192.168.0.169.16431 > 192.168.25.4.10425: udp 1276
5: 14:24:21.021208 192.168.0.169.16431 > 192.168.25.4.10425: udp 112
6: 14:24:27.444755 192.168.0.169.16431 > 192.168.25.4.10425: udp 196
```

**Step 7** Run the **capture stop** command to manually stop the packet capture:

> **capture** *capture\_name***stop**

Where *capture\_name* is the name of the packet capture you defined in the previous step.

## Verify that NetFlow Packets are Being Received by the Cisco Cloud

### Before you Begin

Verify that NSEL events are being sent from the ASA.

## Check for Live NSEL Events

Check for both live and historical events.

This procedure will filter for NSEL events that the Cisco Cloud has received within the last hour.

### Procedure

**Step 1** In the left pane, choose **Events & Logs > Events > Event Logging**.

**Step 2** Click the **Live** tab.

**Step 3** Pin-open the event filter.



- Step 4** In the ASA Events section, make sure **NetFlow** is checked.
- Step 5** In the Sensor ID field, enter the IP address of the ASA you configured to send NSEL events.
- Step 6** At the bottom of the filter, make sure that **Include NetFlow Events** is checked.

---

## Check for Historical NSEL Events

This procedure will filter for NSEL events that the Cisco Cloud has received within the time-frame you specify.

### Procedure

- 
- Step 1** In the left pane, choose **Events & Logs > Events > Event Logging**.
- Step 2** Click the **Historical** tab.
- Step 3** Pin-open the event filter.
- Step 4** In the ASA Events section, make sure **NetFlow** is checked.
- Step 5** Set the Start time far enough back in time to check if Security Cloud Control ever did receive NSEL events.
- Step 6** In the Sensor ID field, enter the IP address of the ASA you configured to send NSEL events.
- Step 7** At the bottom of the filter, make sure that **Include NetFlow events** is checked.
- 

## Parsed ASA Syslog Events

Parsed syslog events contain more event attributes than other syslog events and let you search on any specific parsed field. The SEC forwards all ASA events you specify to the Cisco cloud but only the syslog messages in the table below are parsed. All parsed Syslogs events are shown with their EventTypes italicised to help you identify.

For detailed explanations of syslogs see, [Cisco ASA Series Syslog Messages](#).

| Syslog ID                      | Syslog Category           | Purpose of syslog message                                                                                                      |
|--------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 106015                         | Firewall                  | Represents out of state TCP Deny                                                                                               |
| 106023                         | Firewall                  | A real IP packet was denied by the ACL. This message appears even if you do not have the <b>log</b> option enabled for an ACL. |
| 106100                         | Access Lists/User Session | Packet was permitted or denied by an ACL.                                                                                      |
| 113019                         | User Authentication       | Critical AnyConnect                                                                                                            |
| 302013, 302015, 302017, 302020 | User Session              | Connection start and end syslogs for TCP, UDP, GRE, and ICMP connection creation.                                              |

| Syslog ID                      | Syslog Category          | Purpose of syslog message                                                                      |
|--------------------------------|--------------------------|------------------------------------------------------------------------------------------------|
| 302014, 302016, 302018, 302021 | User Session             | Connection start and end syslogs for TCP, UDP, GRE, and ICMP connection creation.              |
| 302020 - 302021                | User Session             | ICMP session establishment and teardown.                                                       |
| 305006                         | User Session/NAT and PAT | NAT connection failure                                                                         |
| 305011-305014                  | User Session/NAT and PAT | NAT Build/Teardown related                                                                     |
| 313001, 313008                 | IP Stack                 | Represents denied connections to the box.                                                      |
| 414004                         | System                   | Critical AnyConnect                                                                            |
| 609001 - 609002                | Firewall                 | A network state container was reserved/removed for host <b>ip-address</b> connected to a zone. |
| 710002,710004 710005           | User Session             | To the box connections failures                                                                |
| 710003                         | User Session             | Represents denied connections to the box.                                                      |
| 746012, 746013                 | User Session             | Critical AnyConnect                                                                            |

#### Related Information:

- [Send ASA Syslog Events to the Cisco Cloud Using the Command Line Interface](#)
- [Filtering Events in the Event Logging Page](#)



## CHAPTER 19

# Security Analytics and Logging (SaaS) for Cloud-Delivered Firewall Management Center-Managed Devices

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- [Implementing SAL \(SaaS\) for Cloud-Delivered Firewall Management Center-Managed Devices, on page 715](#)
- [Requirements, Guideline, and Limitations for the SAL \(SaaS\) Integration, on page 716](#)
- [Send Cloud-Delivered Firewall Management Center-Managed Events to SAL \(SaaS\) Using Syslog, on page 719](#)
- [Send Cloud-Delivered Firewall Management Center-Managed Event Logs to SAL \(SaaS\) Using a Direct Connection, on page 721](#)
- [Enable or Disable Threat Defense Devices to Send Event logs to SAL \(SaaS\) Using a Direct Connection, on page 722](#)

## Implementing SAL (SaaS) for Cloud-Delivered Firewall Management Center-Managed Devices

To deploy this integration, you must set up event data storage in SAL (SaaS) using either syslog or a direct connection.

- [Send Cloud-Delivered Firewall Management Center-Managed Events to SAL \(SaaS\) Using Syslog, on page 719](#)
- [Send Cloud-Delivered Firewall Management Center-Managed Event Logs to SAL \(SaaS\) Using a Direct Connection, on page 721](#)

## Requirements, Guideline, and Limitations for the SAL (SaaS) Integration

| Type                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cisco Secure Firewall Threat Defense | <ul style="list-style-type: none"> <li>• Security Cloud Control-managed standalone Firewall Threat Defense devices, Version, 7.2 and later.</li> <li>• To send events using syslog, you must have Firewall Threat Defense device version 6.4 or later.</li> <li>• To send events directly, you must have Firewall Threat Defense device version 7.2 or later.</li> <li>• To optionally exclude Firewall Threat Defense devices from sending events directly, you must have Firewall Threat Defense device version 7.4.1 or later.</li> <li>• Your firewall system must be deployed and successfully generating events.</li> </ul> |
| Regional cloud                       | <ul style="list-style-type: none"> <li>• Determine the regional cloud that you want to send events to.</li> <li>• Events cannot be viewed from or moved between different regional clouds.</li> <li>• If you use a direct connection to send events to the Cisco Security Cloud for integration with Cisco SecureX, or Cisco SecureX threat response, or Cisco XDR, you must use the same cloud region for this integration.</li> <li>• If you send events directly, the regional cloud you specify in Security Cloud Control must match the region of your Security Cloud Control tenant.</li> </ul>                             |
| Data plan                            | <ul style="list-style-type: none"> <li>• You must buy a data plan that reflects the number of events the Cisco cloud receives from your threat defense devices daily. This is called your daily ingest rate.</li> <li>• Use the <a href="#">Logging Volume Estimator Tool</a> to estimate your data storage requirements.</li> </ul>                                                                                                                                                                                                                                                                                              |
| Accounts                             | When you purchase a license for this integration, you are provided with a Security Cloud Control tenant account to support the integration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| Type         | Description |
|--------------|-------------|
| Connectivity |             |

| Type | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <p>The Firewall Threat Defense devices must be able to connect outbound on port 443 to the Cisco Security Cloud at the following addresses:</p> <ul style="list-style-type: none"> <li>• US region: <ul style="list-style-type: none"> <li>• api-sse.cisco.com</li> <li>• mx*.sse.itd.cisco.com</li> <li>• dex.sse.itd.cisco.com</li> <li>• eventing-ingest.sse.itd.cisco.com</li> <li>• registration.us.sse.itd.cisco.com</li> <li>• us.manage.security.cisco.com</li> <li>• edge.us.cdo.cisco.com</li> </ul> </li> <li>• EU region: <ul style="list-style-type: none"> <li>• api.eu.sse.itd.cisco.com</li> <li>• mx*.eu.sse.itd.cisco.com</li> <li>• dex.eu.sse.itd.cisco.com</li> <li>• eventing-ingest.eu.sse.itd.cisco.com</li> <li>• registration.eu.sse.itd.cisco.com</li> <li>• eu.manage.security.cisco.com</li> <li>• edge.eu.cdo.cisco.com</li> </ul> </li> <li>• Asia (APJ) region: <ul style="list-style-type: none"> <li>• api.apj.sse.itd.cisco.com</li> <li>• mx*.apj.sse.itd.cisco.com</li> <li>• dex.apj.sse.itd.cisco.com</li> <li>• eventing-ingest.apj.sse.itd.cisco.com</li> <li>• registration.apj.sse.itd.cisco.com</li> <li>• apj.cdo.cisco.com</li> <li>• edge.apj.cdo.cisco.com</li> </ul> </li> <li>• Australia region: <ul style="list-style-type: none"> <li>• api.aus.sse.itd.cisco.com</li> <li>• mx*.aus.sse.itd.cisco.com</li> <li>• dex.au.sse.itd.cisco.com</li> </ul> </li> </ul> |

| Type | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <ul style="list-style-type: none"> <li>• eventing-ingest.aus.sse.itd.cisco.com</li> <li>• registration.au.sse.itd.cisco.com</li> <li>• aus.cdo.cisco.com</li> <li>• India region: <ul style="list-style-type: none"> <li>• api.in.sse.itd.cisco.com</li> <li>• mx*.in.sse.itd.cisco.com</li> <li>• dex.in.sse.itd.cisco.com</li> <li>• eventing-ingest.in.sse.itd.cisco.com</li> <li>• registration.in.sse.itd.cisco.com</li> <li>• in.cdo.cisco.com</li> </ul> </li> </ul> |

## Send Cloud-Delivered Firewall Management Center-Managed Events to SAL (SaaS) Using Syslog

This procedure provides information about the configuration for sending syslog messages for security events (connection, security intelligence, intrusion, file, and malware events) from devices managed by Security Cloud Control.

### Before you begin

- Configure policies to generate security events, and verify that the events you expect to see are displayed in the applicable tables under the **AnalyticsEvents & Logs** menu.
- Gather information relating to the syslog server IP address, port, and protocol (UDP or TCP).
- Ensure that your devices can reach the syslog server.

### Procedure

- 
- Step 1** In the left pane, click **Administration > Firewall Management Center** to open the **Services** page.
- Step 2** Click and select **Cloud-Delivered FMC** and then click **Configuration**.
- Step 3** Configure the syslog settings for your threat defense device:
- Click **Devices > Platform Settings** and edit the platform settings policy that is associated with your threat defense device.
  - In the left-side navigation pane, click **Syslog** and configure the syslog settings as follows:

| Click this UI Element...   | To Do the Following:                                                                                                                                            |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Logging Setup</b>       | Enable logging, specify FTP server settings, and the Flash usage.                                                                                               |
| <b>Logging Destination</b> | Enable logging to specific destinations and to specify filtering by message severity level, event class, or by a custom event list.                             |
| <b>E-mail Setup</b>        | Specify the email address that is used as the source address for syslog messages that are sent as emails.                                                       |
| <b>Events Lists</b>        | Define a custom event list that includes an event class, a severity level, and an event ID.                                                                     |
| <b>Rate Limit</b>          | Specify the volume of messages being sent to all the configured destinations and define the message severity level to which you want to assign the rate limits. |
| <b>Syslog Settings</b>     | Specify the logging facility, enable the inclusion of a time stamp, and enable other settings to set up a server as a syslog destination.                       |
| <b>Syslog Servers</b>      | Specify the IP address, protocol that is used, format, and security zone for the syslog server that is designated as a logging destination.                     |

c) Click **Save**.

#### Step 4

Configure the general logging settings for the access control policy (including file and malware logging):

- Click **Policies > Access Control** and then edit the access control policy that is associated with your threat defense device.
- Click **More** and then choose **Logging**. Configure the general logging settings for the access control policy (including file and malware logging) as follows:

| Click this UI Element...                                                                             | To Do the Following:                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Send using specific syslog alert</b>                                                              | Select a syslog alert from the list of existing predefined alerts or add one by specifying the name, logging host, port, facility, and severity.                                                                                                      |
| <b>Use the syslog settings configured in the FTD Platform Settings policy deployed on the device</b> | Unify the syslog configuration by configuring it in <b>Platform Settings</b> and reuse the settings in the access control policy. The selected severity is applied to all the connection and intrusion events. The default severity is <b>ALERT</b> . |
| <b>Send Syslog messages for IPS events</b>                                                           | Send events as syslog messages. The default syslog settings are used unless you override them.                                                                                                                                                        |



| Click this UI Element...                         | To Do the Following:                                                                                            |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Send Syslog messages for File and Malware events | Send file and malware events as syslog messages. The default syslog settings are used unless you override them. |

c) Click **Save**.

**Step 5** Enable logging for security intelligence events for the access control policy:

- a) In the same access control policy, click the **Security Intelligence** tab.
- b) Click the logging icon and enable security intelligence logging using the following criteria:
  - By Domain Name—Click the logging icon next to the **DNS Policy** drop-down list.
  - By IP address—Click the logging icon next to **Networks**.
  - By URL—Click the logging icon next to **URLs**.

c) Click **Save**.

**Step 6** Enable syslog logging for each rule in the access control policy:

- a) In the same access control policy, click the **Access Control** tab.
- b) Click a rule to edit.
- c) Click the **Logging** tab in the rule.
- d) Check the **Log at beginning of connection** and **Log at end of connection** check boxes.
- e) If you want to log file events, check the **Log Files** check box.
- f) Check the **Syslog Server** check box.
- g) Verify that the rule is **Using default syslog configuration in Access Control Logging**.
- h) Click **Confirm**.
- i) Click **Apply** to save the rule.
- j) Repeat steps 7.a through 7.h for each rule in the policy and click **Save** to save the policy.

### What to do next

If you have made all the required changes, deploy your changes to the managed devices.

## Send Cloud-Delivered Firewall Management Center-Managed Event Logs to SAL (SaaS) Using a Direct Connection

Configure the cloud-delivered Firewall Management Center to send events directly to SAL (SaaS). Follow this procedure to enable the Cisco cloud event global setting in the cloud-delivered Firewall Management Center. When needed, you can exclude individual FTD devices from sending event logs to SAL (SaaS). For more information, see [Enable or Disable Threat Defense Devices to Send Event logs to SAL \(SaaS\) Using a Direct Connection](#).

**Before you begin**

- Onboard devices to the cloud-delivered Firewall Management Center, assign licenses to these devices, and configure these devices to send events directly to SAL (SaaS).
- Enable connection logging on a per-rule basis by editing a rule and choosing the **Log at Beginning of Connection** and **Log at End of Connection** options.

**Procedure**

- 
- Step 1** Log in to Security Cloud Control.
- Step 2** In the left pane, click **Administration > Firewall Management Center**.
- Step 3** Click **Cloud-Delivered FMC**, and in the **System** pane that is located at the right-side, click **Cisco Cloud Events**.
- Step 4** In the **Configure Cisco Cloud Events** widget, do the following:
- a. Click the **Send Events to the Cisco Cloud** toggle button to enable the overall configuration.
  - b. Check the **Send Intrusion Events to the cloud** check box to send the intrusion events to the cloud.
  - c. Check the **Send File and Malware Events to the cloud** check box to send the file and malware events to the cloud.
  - d. Choose an option to send the connection events to the cloud:
    - Click the **None** radio button to not send connection events to the cloud.
    - Click the **Security Events** radio button to send only security intelligence events to the cloud.
    - Click the **All** radio button to send all the connection events to the cloud.
  - e. Click **Save**.
- 

## Enable or Disable Threat Defense Devices to Send Event logs to SAL (SaaS) Using a Direct Connection

Enable or disable the FTD devices managed by the Cloud-Delivered Firewall Management Center to send events directly to SAL (SaaS). This device-level control allows you to optionally exclude specific FTD devices from sending event logs to the Cisco cloud to reduce traffic or to maintain a combination of SAL and on-premises event log storage.

**Note**

- To enable or disable sending events to the Cisco cloud from the FTD devices, enable the Cisco cloud event global setting in the Cloud-Delivered Firewall Management Center. For more information on enabling the Cisco cloud event global setting, see [Send Cloud-Delivered Firewall Management Center-Managed Event Logs to SAL \(SaaS\) Using a Direct Connection, on page 721](#).  
  
Sending events to the Cisco cloud is enabled by default for all FTD devices when the Cisco cloud event global setting is enabled in the Cloud-Delivered Firewall Management Center.
- The option to enable or disable FTD devices to send event logs to the cloud is supported on FTD Version 7.4.1 or later.

**Before you begin**

- Onboard devices to the Cloud-Delivered Firewall Management Center, assign licenses to these devices, and configure these devices to send events directly to SAL (SaaS).
- Enable connection logging on a per-rule basis by editing a rule and choosing the **Log at Beginning of Connection** and **Log at End of Connection** options.

**Procedure**

- 
- |               |                                                                                                       |
|---------------|-------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Log in to Security Cloud Control.                                                                     |
| <b>Step 2</b> | From the left pane, click <b>InventorySecurity Devices</b> .                                          |
| <b>Step 3</b> | Click the <b>Devices</b> tab to view the device.                                                      |
| <b>Step 4</b> | Click the <b>FTD</b> tab to view FTD devices.                                                         |
| <b>Step 5</b> | Choose the FTD devices whose configurations you want to edit, from the <b>Security Devices</b> list.  |
| <b>Step 6</b> | In the <b>Device Management</b> pane, click <b>Cloud Events</b> .                                     |
| <b>Step 7</b> | Click the <b>Send Events to the Cisco Cloud</b> toggle button to enable or disable the configuration. |
| <b>Step 8</b> | Click <b>Save</b> .                                                                                   |
-





## CHAPTER 20

# View Events in Security Cloud Control

- [Viewing Live Events, on page 725](#)
- [View Historical Events, on page 726](#)
- [Customize the Events View, on page 727](#)
- [Show and Hide Columns on the Event Logging Page, on page 729](#)
- [Change the Time Zone for the Event Timestamps, on page 732](#)
- [Customizable Event Filters, on page 732](#)
- [Search and Filter Events Using the Event Logging Page, on page 733](#)
- [Event Attributes in Security Analytics and Logging, on page 742](#)

## Viewing Live Events

The Live events page shows the most recent 500 events that match the [filter and search criteria](#) you entered. If the Live events page displays the maximum of 500 events, and more events stream in, Security Cloud Control displays the newest live events, and transfers the oldest live events to the Historical events page, keeping the total number of live events at 500. That transfer takes roughly a minute to perform. If no filtering criteria is added, you will see all the latest Live 500 events generated by rules configured to log events.

The event timestamps are shown in UTC.

Changing the filtering criteria, whether live events are playing or paused, clears the events screen and restarts the collection process.

To see live events in the Security Cloud Control Events viewer:

### Procedure

- 
- |               |                                                                                    |
|---------------|------------------------------------------------------------------------------------|
| <b>Step 1</b> | In the left pane, choose <b>Events &amp; Logs &gt; Events &gt; Event Logging</b> . |
| <b>Step 2</b> | Click the <b>Live</b> tab.                                                         |
- 

### What to do next

See how to play and pause events by reading .

### Related Information:

- [Play/Pause Live Events, on page 726](#)
- [View Historical Events, on page 726](#)
- [Customize the Events View, on page 727](#)

## Play/Pause Live Events

You can "play"  or "pause"  live events as they stream in. If live events are "playing," Security Cloud Control displays events that match the filtering criteria specified in the Events viewer in the order they are received. If events are paused, Security Cloud Control does not update the Live events page until you restart playing live events. When you restart playing events, Security Cloud Control begins populating events in the Live page from the point at which you restarted playing events. It doesn't back-fill the ones you missed.

To view all the events that Security Cloud Control received whether you played or paused live event streaming, click the **Historical** tab.

### Auto-pause Live Events

After displaying events for about 5 consecutive minutes, Security Cloud Control warns you that it is about to pause the stream of live events. At that time, you can click the link to continue streaming live events for another 5 minutes or allow the stream to stop. You can restart the live events stream when you are ready.

### Receiving and Reporting Events

There may be a small lag between the Secure Event Connector or the Security Service Exchange receiving events and Security Cloud Control posting events in the Live events viewer. You can view the gap on the Live page. The time stamp of the event is the time it was received by Secure Event Connector or the Security Service Exchange.

#### Events

Search by event fields and values

Historical

Live

|   | Date/Time                                     | Event Type |
|---|-----------------------------------------------|------------|
|   | Waiting for matching events after 1:38:40 PM. |            |
| + | May 31, 2019 1:33:35 PM                       | Connection |
| + | May 31, 2019 1:33:36 PM                       | Connection |
| + | May 31, 2019 1:33:44 PM                       | Connection |

## View Historical Events

The Live events page shows the most recent 500 events that match the [filter and search criteria](#) you entered. Events older than the most recent 500 are transferred to the Historical events table. That transfer takes roughly a minute to perform. You can then filter all the events you have stored to find events you're looking for.

To view historical events:

### Procedure

- 
- Step 1** In the navigation pane, choose **Events & Logs > Events > Event Logging**.
- Step 2** Click the **Historical** tab. By default, when you open the Historical events table, the filter is set to display the events collected within the last hour.
- The event attributes are largely the same as what is reported by Firepower Device Manager (FDM) or the Adaptive Security Device Manager (ASDM).
- For a complete description of Firepower Threat Defense event attributes, see [Cisco FTD Syslog Messages](#).
  - For a complete description of ASA event attributes, see [Cisco ASA Series Syslog Messages](#).
- 

## Customize the Events View

Any changes made to the Event Logging page are automatically saved for when you navigate away from this page and come back at a later time.



---

**Note** The Live and Historical events view have the same configuration. When you customize the events view, these changes are applied to both the Live and Historical view.

---

### Show or Hide Columns

You can modify the event view for both live and historical events to only include column headers that apply to the view you want. Click the column filter icon  located to the right of the columns, select or deselect the columns you want, and then click **Apply**.

Figure 25: Show or Hide Columns

**Customize Table**

+ Drag and drop to change column order.

- ☒ Date/Time\*
- ☒ Device Type\*
- ☒ Event Type\*
- ☒ Sensor ID / Hostname\*
- ☒ Initiator IP\*
- ☒ Responder IP\*
- ☒ Responder Port\*
- ☒ Protocol\*
- ☒ Action\*
- ☒ Policy\*

10 selected **Apply**

Columns with asterisks are provided within the event table by default, although you can remove them at any time.

### Search and Add Columns

You can search for more columns, which are not part of the default list, and add them to the event view for both live and historical events. Note that adding many columns for customizing the table may reduce performance. Consider using fewer columns for faster data retrieval.

Alternatively, click the + icon next to an event to expand it and view the hidden columns. Note that some of the event fields displayed when you expand an event can have a different name compared to the corresponding column name. To correlate the events fields displayed when you expand an event to the corresponding column name, see [Correlate Threat Defense Event Fields and Column Names](#).

### Reorder the Columns

You can reorder the columns of the event table. Click the column filter icon  located to the right of the columns to view the list of selected columns. Then, drag and drop the columns into the order you want. The column at the top of the list in the drop-down menu appears as the left-most column in the event table.

### Related Information:

- [Filtering Events in the Event Logging Page](#)
- [Event Attributes in Security Analytics and Logging](#)



## Correlate Firewall Threat Defense Event Fields and Column Names

On the Security Cloud Control **Event Logging** page, you can click on any event to expand its details and view all the associated event fields. Note that the names of some event fields may differ from those of the column headers in the Security Cloud Control event viewer where the values of these fields are displayed. The table below lists those Firewall Threat Defense event fields that have differing column names and provides a comparison between the Firewall Threat Defense event field and the respective column name.

**Table 38: Firewall Threat Defense Event Field and the Corresponding Security Cloud Control Column Name**

| Security Cloud Control Column Name            | FTD Event Field           |
|-----------------------------------------------|---------------------------|
| Date/Time                                     | Timestamp                 |
| Detection Type                                | ClientAppDetector         |
| Encrypted Visibility Fingerprint              | EVE_Fingerprint           |
| Encrypted Visibility Process Name             | EVE_Process               |
| Encrypted Visibility Process Confidence Score | EVE_ProcessConfidencePct  |
| Encrypted Visibility Threat Confidence        | EVE_ThreatConfidenceIndex |
| Encrypted Visibility Threat Confidence Score  | EVE_ThreatConfidencePct   |
| MITRE                                         | MitreAttackGroups         |
| NAT Source IP                                 | NAT_InitiatorIP           |
| NAT Source Port                               | NAT_InitiatorPort         |
| Rule Group                                    | SnortRuleGroups           |

## Show and Hide Columns on the Event Logging Page

The **Event Logging** page displays events sent to the Cisco cloud from configured ASA and FDM-managed devices.

You can show or hide columns on the **Event Logging** page by using the Show/Hide widget with the table:

### Procedure

- Step 1** In the left pane, choose **Events & Logs > Events > Event Logging**.
- Step 2** Scroll to the far right of the table and click the column filter icon .
- Step 3** Check the columns you want to see and uncheck the columns you want to hide.

Other users logging into the tenant will see the same columns you chose to show until columns are shown or hidden again.

This table describes the default column headers:

| Column Header        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date/Time            | The time the device generated the event. By default, event timestamps are displayed in your Local time zone. To view event timestamps in UTC, see <a href="#">Change the Time Zone for the Event Timestamps, on page 732</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Device Type          | ASA (Adaptive Security Appliance)<br>FTD (Firepower Threat Defense)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Event Type           | <p>This composite column can have any of the following:</p> <ul style="list-style-type: none"> <li>• <b>FTD Event Types</b> <ul style="list-style-type: none"> <li>• Connection: Displays connection events from access control rules.</li> <li>• File: Displays events reported by file policies in access control rules.</li> <li>• Intrusion: Displays events reported by intrusion policy in access control rules.</li> <li>• Malware: Displays events reported by malware policies in access control rules.</li> </ul> </li> <li>• <b>ASA Event Types:</b> These event types represent groups of syslog or NetFlow events. See <a href="#">ASA Event Types</a> for more information about which syslog ID or which NetFlow ID is included in which group. <ul style="list-style-type: none"> <li>• Parsed Events: Parsed syslog events contain more event attributes than other syslog events and Security Cloud Control is able to return search results based on those attributes more quickly. Parsed events are not a filtering category; however, parsed event IDs are displayed in the Event Types column in <i>italics</i>. Event IDs that are not displayed in italics are not parsed.</li> <li>• ASA NetFlow Event IDs: All <a href="#">Netflow (NSEL) events</a> from ASA appear here.</li> </ul> </li> </ul> |
| Sensor ID / Hostname | <p>The Sensor ID is the IP address from which events are sent to Security Service Exchange or Secure Event Connector.</p> <p>This is typically the management interface on the threat defense or the ASA.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Column Header | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Initiator IP  | This is the IP address of the source of the network traffic. The value of the Initiator address field corresponds to the value of the InitiatorIP field in the event details. You can enter a single address, such as 10.10.10.100, or a network defined in CIDR notation such as 10.10.10.0/24.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Responder IP  | This is the destination IP address of the packet. The value of the Destination address field corresponds to the value in the ResponderIP field in the event details. You can enter a single address, such as 10.10.10.100, or a network defined in CIDR notation such as 10.10.10.0/24.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Port          | The port or ICMP code used by the session <b>responder</b> . The value of the destination port corresponds to the value of the <b>ResponderPort</b> in the event details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Protocol      | It represents the protocol in the events.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Action        | <p>Specifies the security action defined by the rule. The value you enter must be an exact match to what you want to find; however, the case doesn't matter. Enter different values for connection, file, intrusion, malware, syslog, and NetFlow event types:</p> <ul style="list-style-type: none"> <li>• For connection event types, the filter searches for matches in the AC_RuleAction attribute. Those values could be Allow, Block, Trust.</li> <li>• For file event types, the filter searches for matches in the FileAction attribute. Those values could be Allow, Block, Trust.</li> <li>• For intrusion event types, the filter searches for matches in the InLineResult attribute. Those values could be Allowed, Blocked, Trusted.</li> <li>• For malware event types, the filter searches for matches in the FileAction attribute. Those values could be Cloud Lookup Timeout.</li> <li>• For syslog and NetFlow events types, the filter searches for matches in the Action attribute.</li> </ul> |
| Policy        | The name of the policy that triggered the event. Names will be different for ASA and FDM-managed devices.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

**Related Information:**

[Search and Filter Events Using the Event Logging Page, on page 733](#)

# Change the Time Zone for the Event Timestamps

Change the time zone display for event timestamps on the Security Cloud Control **Event Logging** page.

## Procedure

- 
- Step 1** From the left pane, choose **Events & Logs > Events > Event Logging**.
- Step 2** Click the **UTC Time** or **Local Time** button on the top right side of the **Event Logging** page to display the event timestamps in the selected time zone.
- By default, event timestamps are displayed in your local time zone.
- 

# Customizable Event Filters

If you are a Secure Logging Analytics (SaaS) customer, you can create and save custom filters that you use frequently.

The elements of your filter are saved to a filter tab as you configure them. Whenever you return to the Event Logging page, these searches will be available to you. They will not be available to other Security Cloud Control users of the tenant. They will not be available to you on a different tenant, if you manage more than one tenant.




---

**Note** Be aware that when you are working in a filter tab, if you modify any filter criteria, those changes are saved to your custom filter tab automatically.

---

## Procedure

- 
- Step 1** From the main menu, choose **Events & Logs > Events > Event Logging**.
- Step 2** Clear the Search field of any values.
- Step 3** Above the event table, click the blue plus button to add a View tab. Filter views are labeled "View 1", "View 2", "View 3" and so on until you give them a name.



- Step 4** Select a view tab.
- Step 5** Open the filter bar and select the filters attributes you want in your custom filter. See [Search and Filter Events Using the Event Logging Page, on page 733](#). Remember that only filter attributes are saved in the custom filter.
- Step 6** Customize the columns you want to show in the event logging table. See [Show and Hide Columns on the Event Logging Page, on page 729](#) for a discussion of showing and hiding columns.

- Step 7** Double-click the filter tab with the "View X" label and rename it.
- Step 8** (Optional) Now that you have created a custom filter, you can fine tune the results displayed on the Event Logging page, without changing the custom filter, by adding search criteria to the Search field. See [Search and Filter Events Using the Event Logging Page, on page 733](#).

## Search and Filter Events Using the Event Logging Page

Searching and filtering the historical and live event tables for specific events, works the same way as it does when searching and filtering for other information in Security Cloud Control. As you add filter criteria, Security Cloud Control starts to limit what it displays on the **Event Logging** page. You can also enter search criteria in the search field to find events with specific values. If you combine the filtering and searching mechanisms, search tries to find the value you entered from among the results displayed after filtering the events.

Following are the options to conduct a search for event logs:

- [Search Events Using the Events Logging Page, on page 739](#)
- [Search Historical Events in the Background, on page 741](#)

Filtering works the same way for live events as it does for historical events with the exception that live events cannot be filtered by time.

Learn about these filtering methods:

- [Filter Live or Historical Events, on page 733](#)
- [Filter Only NetFlow Events, on page 735](#)
- [Filter for ASA or FDM-Managed Device Syslog Events but not ASA NetFlow Events, on page 735](#)
- [Combine Filter Elements, on page 736](#)

## Filter Live or Historical Events

This procedure explains how to use event filtering to see a subset of events in the **Event Logging** page. If you find yourself repeatedly using certain filter criteria, you can create a customized filter and save it. See [Customizable Event Filters](#) for more information.

### Procedure

- Step 1** In the navigation bar, choose **Events & Logs > Events > Event Logging**
- Step 2** Click either the **Historical** or **Live** tab.
- Step 3** Click the filter icon (  ). Click the pin icon (  ) to pin the **Filter** pane and keep it open.
- Step 4** Click a view tab that has no saved filter elements.



**Step 5** Select the event details you want to filter by:

- **FTD Events:**

- **Connection:** Displays connection events from access control rules.
- **File:** Displays events reported by file policies in access control rules.
- **Intrusion:** Displays events reported by intrusion policy in access control rules.
- **Malware:** Displays events reported by malware policies in access control rules.

- **ASA Events:** These event types represent groups of syslog or NetFlow events.

See [Security Cloud Control Event Types](#) for more information about events.

- **Parsed Events:** [Parsed syslog events](#) contain more event attributes than other syslog events and Security Cloud Control is able to return search results based on those attributes more quickly. Parsed events are not a filtering category; however, parsed event IDs are displayed in the Event Types column in *italics*. Event IDs that are not displayed in italics are not parsed.
- **Time Range:** Click the Start or End time fields to select the beginning and end of the time period you want to display. The time stamp is displayed in the local time of your computer.
- **Action:** Specifies the security action defined by the rule. The value you enter must be an exact match to what you want to find; however, the case doesn't matter. Enter different values for connection, file, intrusion, malware, syslog, and NetFlow event types:
  - For connection event types, the filter searches for matches in the AC\_RuleAction attribute. Those values could be Allow, Block, Trust.
  - For file event types, the filter searches for matches in the FileAction attribute. Those values could be Allow, Block, Trust.
  - For intrusion event types, the filter searches for matches in the InLineResult attribute. Those values could be Allowed, Blocked, Trusted.
  - For malware event types, the filter searches for matches in the FileAction attribute. Those values could be Cloud Lookup Timeout.
  - For syslog and NetFlow events types, the filter searches for matches in the Action attribute.

- **Sensor ID / Hostname:** The Sensor ID is the management IP address from which events are sent to the Secure Event Connector or Security Service Exchange.

For an FDM-managed device, the Sensor ID is typically the IP address of the device's management interface.

- **IP addresses**

- **Initiator :** This is the IP address of the source of the network traffic. The value of the Initiator address field corresponds to the value of the InitiatorIP field in the event details. You can enter a single address, such as 10.10.10.100, or a network defined in CIDR notation such as 10.10.10.0/24.
- **Responder:** This is the destination IP address of the packet. The value of the Destination address field corresponds to the value in the ResponderIP field in the event details. You can enter a single address, such as 10.10.10.100, or a network defined in CIDR notation such as 10.10.10.0/24.

- **Ports**

- **Initiator:** The port or ICMP type used by the session initiator. The value of the source port corresponds to the value for the InitiatorPort in the event details. (Add a range - starting port ending port and space in between or both initiator and responder)
- **Responder:** The port or ICMP code used by the session responder. The value of the destination port corresponds to the value of the ResponderPort in the event details.
- **NetFlow:** [ASA NetFlow](#) events are different than syslog events. The NetFlow filter searches for all NetFlow events IDs that resulted in an NSEL record. Those "NetFlow event IDs" are defined in the [Cisco ASA NetFlow Implementation Guide](#).

**Step 6** (Optional) Save your filter as a custom filter by clicking out of the view tab.

---

## Filter Only NetFlow Events

This procedure finds only ASA NetFlow events:

### Procedure

---

- Step 1** From the left menu, choose **Events & Logs > Events > Event Logging**.
  - Step 2** Click the Filter icon  and pin the filter open.
  - Step 3** Check **Netflow** ASA Event filter.
  - Step 4** Clear all other ASA Event filters.
- Only ASA NetFlow events are displayed in the Event Logging table.
- 

## Filter for ASA or FDM-Managed Device Syslog Events but not ASA NetFlow Events

This procedure finds only syslog events:

### Procedure

---

- Step 1** In the left pane, choose **Events & Logs > Events > Event Logging**.
- Step 2** Click the Filter icon  and pin the filter open.
- Step 3** Scroll to the bottom of the **Filter** pane and make sure the **Include NetFlow events** filter is **unchecked**.
- Step 4** Scroll back up to the ASA Events filter tree, and make sure the **NetFlow** box is **unchecked**.

**Step 5** Select the rest of your ASA or FTD filter criteria.

## Combine Filter Elements

Filtering events generally follows the standard filtering rules in Security Cloud Control: The filtering categories are "AND-ed" and the values within the categories are "OR-ed." You can also combine the filter with your own search criteria. In the case of event filters; however, the device event filters are also "OR-ed." For example, if these values were chosen in the filter:

The screenshot shows the 'Filter' configuration window in Security Cloud Control. At the top, a search bar contains the text 'ResponderPort:443'. Below this, the 'Filter' section is expanded, showing two main categories: 'FTD Events' and 'ASA Events'. Under 'FTD Events', the 'Connection' checkbox is checked. Under 'ASA Events', the 'BotNet' and 'Firewall Traffic' checkboxes are checked. At the bottom of the filter panel, there is a 'Time Range' section with a calendar icon. It shows a 'Start' time of '05/07/2020 09:40:17 PM' and an 'End' time of '05/07/2020 11:43:24 PM'.

With this filter in use, Security Cloud Control would display Firewall Threat Defense device connection events **or** ASA BotNet **or** Firewall Traffic events, **and** those events that occurred between the two times in the time range, **and** those events that also contain the ResponderPort 443. You can filter by historical events within a time range. The live events page always displays the most recent events.

### Search for Specific Attribute: Value Pairs

You can search for live or historical events by entering an event attribute and a value in the search field. The easiest way to do this is to click the attribute in the Event Logging table that you want to search for, and Security Cloud Control enters it in the Search field. The events you can click on will be blue when you roll over them. Here is an example:



## Event Logging

Historical
Live

InitiatorIP: "10.10.11.11" AND EventType: "3"

?

Clear
Time Range After 05/03/2023 07:23:40 PM

+

Views

View 1

| Date/Time               | Device Type | Event Type ? | Sensor ID / Hostname | Initiator IP |
|-------------------------|-------------|--------------|----------------------|--------------|
| May 3, 2023, 7:23:40 PM | ASA         | 3            |                      |              |

|                       |                                        |                     |
|-----------------------|----------------------------------------|---------------------|
| Action                | Deny                                   | IngressACLID        |
| ConnectorID           | 08c0a888-b619-4f1a-a655-d4bd005dd8c8 ? | IngressInterface    |
| DeviceType            | ASA                                    | InitiatorIP         |
| EgressInterface       | 4                                      | InitiatorPort       |
| EventType             | 3                                      | LastPacketSecond    |
| FirewallExtendedEvent | 1001                                   | MappedInitiatorIP   |
| ICMPCode              | 0                                      | MappedInitiatorPort |
| ICMPType              | 0                                      | MappedResponderIP   |

In this example, the search started by rolling over the InitiatorIP value of 10.10.11.11 and clicking it. Initiator IP and its value were added to the search string. Next, Event Type, 3 was rolled-over and clicked and added to the search string and an AND was added by Security Cloud Control. So the result of this search will be a list of events that were initiated from 10.10.11.11 AND that are 3 event types.

Notice the magnifying glass next to the value 3 in the example above. If you roll-over the magnifying glass, you could also choose an AND, OR, AND NOT, OR NOT operator to go with the value you want to add to the search.

In the example below, "OR" is chosen. The result of this search will be a list of events that were initiated from 10.10.11.11 OR are a 106023 event type. Note that if the search field is empty and you right click a value from the table, only NOT is available as there is no other value.

The screenshot shows the 'Event Logging' interface. At the top, there's a search bar with the filter 'InitiatorIP: "10.10.11.11" AND EventType: "3"'. Below the search bar, there's a 'Time Range' set to 'After 05/03/2023 07:23:40 PM'. A 'Views' section shows 'View 1'. The main table displays event details for May 3, 2023, 7:23:40 PM. A dropdown menu is open over the 'Event Type' column, showing options: AND, OR, NOT, AND NOT, and OR NOT. The table columns are Date/Time, Device Type, Event Type, Sensor ID / Hostname, and Initiator IP. The table rows show details for a specific event, including Action (Deny), ConnectorID, DeviceType (ASA), EgressInterface (4), EventType (3), FirewallExtendedEvent (1001), ICMPCode (0), and ICMPType (0).

| Date/Time               | Device Type | Event Type | Sensor ID / Hostname | Initiator IP |
|-------------------------|-------------|------------|----------------------|--------------|
| May 3, 2023, 7:23:40 PM | ASA         | 3          |                      |              |

| Action | ConnectorID                | DeviceType | EgressInterface | EventType | FirewallExtendedEvent | ICMPCode | ICMPType |
|--------|----------------------------|------------|-----------------|-----------|-----------------------|----------|----------|
| Deny   | 08c0a888-b619-41bd005dd8c8 | ASA        | 4               | 3         | 1001                  | 0        | 0        |

As long as you rollover a value and it is highlighted blue, you can add that value to the search string.

### AND, OR, NOT, AND NOT, OR NOT Filter Operators

Here are the behaviors of "AND", "OR", "NOT", "AND NOT", and "OR NOT" used in a search string:

#### AND

Use the AND operator in the filter string, to find events that include all attributes. The AND operator cannot begin a search string.

For example, the search string below will search for events that contain the TCP protocol AND that originated from InitiatorIP address 10.10.10.43, AND that were sent from the Initiator port 59614. One would expect that with each additional AND statement, the number of events that meet the criteria would be small and smaller.

```
Protocol: "tcp" AND InitiatorIP: "10.10.10.43" AND InitiatorPort: "59614"
```

#### OR

Use the OR operator in the filter string, to find events that include any of the attributes. The OR operator cannot begin a search string.

For example, the search string below will display events in the event viewer that include events that include the TCP protocol, OR that originated from InitiatorIP address 10.10.10.43, OR that were sent from the Initiator port 59614. One would expect that with each additional OR statement, the number of events that meet the criteria would be bigger and bigger.

```
Protocol: "tcp" OR InitiatorIP: "10.10.10.43" OR InitiatorPort: "59614"
```

### NOT

Use this only at the beginning of a search string to exclude events with certain attributes. For example, this search string would exclude any event with the InitiatorIP 192.168.25.3 from the results.

```
NOT InitiatorIP: "192.168.25.3"
```

### AND NOT

Use the AND NOT operator in the filter string to exclude events that contain certain attributes. AND NOT cannot be used at the beginning of a search string.

For example, this filter string will display events with the InitiatorIP 192.168.25.3 but not those whose ResponderIP address is also 10.10.10.1.

```
InitiatorIP: "192.168.25.3" AND NOT ResponderIP: "10.10.10.1"
```

You can also combine NOT and AND NOT to exclude several attributes. For example this filter string, will exclude events with InitiatorIP 192.168.25.3 and events with ResponderIP 10.10.10.1

```
NOT InitiatorIP: "192.168.25.3" AND NOT ResponderIP: "10.10.10.1"
```

### OR NOT

Use the OR NOT operator to include search results that exclude certain elements. The OR NOT operator cannot be used at the beginning of a search string.

For example, this search string will find events with the Protocol of TCP, OR that have the InitiatorIP of 10.10.10.43, or those NOT from InitiatorPort 59614.

```
Protocol: "tcp" OR InitiatorIP: "10.10.10.43" OR NOT InitiatorPort: "59614"
```

You could also think of it this way: Search for (Protocol: "tcp") OR (InitiatorIP: "10.10.10.43") OR (NOT InitiatorPort: "59614").

### Wildcard Searches

Use an asterisk (\*) to represent a wildcard in the value field of an **attribute:value** search to find results within events. For example, this filter string,

```
URL:*feedback*
```

will find strings in the URL attribute field of events that contain the string **feedback**.

### Related Information:

- [Show and Hide Columns on the Event Logging Page](#)
- [Event Attributes in Security Analytics and Logging](#)

## Search Events Using the Events Logging Page

Use the search and report capabilities in the **Event Logging** page to search all logged events and find the information you need. Note that you can generate reports only for historical events.

## Procedure

- 
- Step 1** In the navigation bar, choose **Events & Logs > Events > Event Logging**.
- Step 2** Click either the **Historical** or **Live** tab.
- Step 3** Type the search query in the search bar and click **Search** to execute the search.
- Alternatively, click the search box to choose from a list of **Sample Filters** to quickly search for events. Use the sample filters to quickly populate a search query in the search bar and then modify it to match your specific needs. Find more information about using the sample filters in [Use Sample Filters to Search Events, on page 740](#).
- Step 4** (optional) To run a search in the background and generate a report while you move away from the search page, do the following:
- Type your search query and choose **Schedule Report** from the **Search** drop-down list.
  - Click **Generate Report**.
- The search is queued, and you are notified when it is complete. You can run multiple searches in the background.
- For more information about scheduling a report, refer to [Schedule to Generate a Search Report in the Background, on page 741](#)
- Step 5** (Optional) If you want to view and manage your search reports, click **Reports**. From this view, you can do the following:
- The **Reports** page allows you to view, download, or delete the search reports.
  - Click **Schedule a Report** to generate a one-time report or to schedule a recurring report.
  - Click **View Notification Settings** to navigate to the **Notification Preferences** page to view or modify your notification settings.
- 

## What to do next

You can convert any one-time report into a recurring report schedule if you need recurring searches. For more information, refer to [Schedule to Generate a Search Report in the Background, on page 741](#).

## Use Sample Filters to Search Events

Sample filters allow you to construct common search queries quickly without requiring you to type the full query. Select the filter and modify the query parameters to fit your specific needs.

## Procedure

- 
- Step 1** In the **Event Logging** page, click the search bar. A list of **Sample Filters** appears below the search bar.
- Step 2** Choose a filter from the drop-down list. The search bar automatically populates with the corresponding search query.

**Step 3** Modify the values in the predefined query to refine your search.

**Examples**

- To search for events related to a specific website, select **Wildcard URL**. The search bar displays **URL:** **"\*.sharepoint.com"**. You can then change sharepoint.com to any other domain you wish to investigate.
- To search for events involving a specific device, select **Specific Host**. The search bar displays **InitiatorIP:** **"192.168.55.55" OR ResponderIP: "192.168.55.55"**. Change 192.168.55.55 to the IP address of the device you want to monitor.

**Step 4** Click **Search**.

---

## Search Historical Events in the Background

Security Cloud Control allows you to define a search criteria and search for event logs based on that criteria. The **Reports** feature enables you to perform the event log searches in the background and generate reports.

You receive a notification when the report generation is complete, based on your configured notification preferences.

You can view, download, or delete the reports from the **Reports** page. Additionally, you can schedule to generate either a one-time report or a recurring report. Navigate to the **Notification Settings** page to view or modify the subscription options.

### Schedule to Generate a Search Report in the Background

Use the **Report** feature in the **Event Logging** page to run one-time or scheduled event log searches in the background and generate reports. You can modify or cancel the scheduled report at any time. You can also modify a one-time search query to be a recurring search.



**Note**

- You can schedule to generate reports only for historical events.
- You can opt to get alerts on reports that have started, completed, or have failed.

---

Follow these steps to schedule a search and generate report:

### Procedure

---

**Step 1** In the navigation bar, choose **Events & Logs > Events > Event Logging**.

**Step 2** Click the **Historical** tab to view historical events.

**Step 3** Type the search query in the search bar.

**Step 4** Click the **Search** drop-down and choose **Schedule Report**.

**Step 5** (Optional) Enter a name for the report to identify it.

**Step 6** The **Generate report now** check box is checked by default. When checked, the report generation starts upon saving.

**Step 7** Check the **Setup recurring schedule** check box and configure these settings:

- **Search Logs for the Last:** Specify how far back you want to search through.
- **Frequency:** Specify how frequent you want the scheduled search to occur and the time at which you want it to run.

**Step 8** Confirm the scheduled search criteria at the bottom of the window. Click **Schedule and Generate Now**. If you did not opt for the search to start immediately, click **Schedule Report**.

---

### What to do next

Scheduled search reports are available to view for up to seven days before Security Cloud Control automatically deletes them.

## Download a Search Report

Search results and schedules queries are stored for seven days before Security Cloud Control automatically removes them. You can download a copy of the search report in CSV format.

### Procedure

- 
- Step 1** In the navigation bar, choose **Events & Logs > Events > Event Logging**.
- Step 2** Click **Reports**.
- Step 3** In the **Actions** column, click **Download** next to the report to download it. The report file in CSV format is automatically downloaded to the default storage location on your local drive.
- Step 4** (Optional) To view the search query and download the report, follow these steps:
- click **Queries** tab.
  - Expand the report to see the search query details.
  - Click **View Reports** next to the report you want to view and download.
  - Click **Download**.
- 

# Event Attributes in Security Analytics and Logging

## Event Attribute Descriptions

The event attribute descriptions used by Security Cloud Control are largely the same as what is reported by Firepower Device Manager (FDM) and Adaptive Security Device Manager (ASDM).

- For a complete description of FDM-managed device event attributes, see [Cisco Firepower Threat Defense Syslog Messages](#).
- For a complete description of Adaptive Security Appliance (ASA) event attributes, see [Cisco ASA Series Syslog Messages](#).

Some ASA syslog events are "parsed" and others have additional attributes which you can use when filtering the contents of the Event Logging table using attribute:value pairs. See these additional topics for other important attributes of syslog events:

- [Parsed ASA Syslog Events](#)
- [EventGroup and EventGroupDefinition Attributes for Some Syslog Messages](#)
- [Event Name Attributes for Syslog Events](#)
- [Time Attributes](#)

## EventGroup and EventGroupDefinition Attributes for Some Syslog Messages

Some syslog events will have the additional attributes "EventGroup" and "EventGroupDefinition". You will be able to filter the events table to find events using these additional attributes by filtering by attribute:value pairs. For example, you could filter for Application Firewall events by entering `apfw:415*` in the search field of the Event Logging table.

### Syslog Message Classes and Associated Message ID Numbers

| EventGroup   | EventGroupDefinition                         | Syslog Message ID Numbers (first 3 digits) |
|--------------|----------------------------------------------|--------------------------------------------|
| aaa/auth     | User Authentication                          | 109, 113                                   |
| acl/session  | Access Lists/User Session                    | 106                                        |
| apfw         | Application Firewall                         | 415                                        |
| bridge       | Transparent Firewall                         | 110, 220                                   |
| ca           | PKI Certification Authority                  | 717                                        |
| citrix       | Citrix Client                                | 723                                        |
| clst         | Clustering                                   | 747                                        |
| cmgr         | Card Management                              | 323                                        |
| config       | Command Interface                            | 111, 112, 208, 308                         |
| csd          | Secure Desktop                               | 724                                        |
| cts          | Cisco TrustSec                               | 776                                        |
| dap          | Dynamic Access Policies                      | 734                                        |
| eap, eapoudp | EAP or EAPoUDP for Network Admission Control | 333, 334                                   |
| eigrp        | EIGRP Routing                                | 336                                        |
| email        | E-mail Proxy                                 | 719                                        |
| ipaa/envmon  | Environment Monitoring                       | 735                                        |
| ha           | Failover                                     | 101, 102, 103, 104, 105, 210, 311, 709     |

| EventGroup     | EventGroupDefinition                                        | Syslog Message ID Numbers (first 3 digits)                                                               |
|----------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| idfw           | Identity-based Firewall                                     | 746                                                                                                      |
| ids            | Intrusion Detection System                                  | 733                                                                                                      |
| ids/ips        | Intrusion Detection System /<br>Intrusion Protection System | 400                                                                                                      |
| ikev2          | IKEv2 Toolkit                                               | 750, 751, 752                                                                                            |
| ip             | IP Stack                                                    | 209, 215, 313, 317, 408                                                                                  |
| ipaa           | IP Address Assignment                                       | 735                                                                                                      |
| ips            | Intrusion Protection System                                 | 401, 420                                                                                                 |
| ipv6           | IPv6                                                        | 325                                                                                                      |
| l4tm           | Block lists, Allow lists, grey lists                        | 338                                                                                                      |
| lic            | Licensing                                                   | 444                                                                                                      |
| mdm-proxy      | MDM Proxy                                                   | 802                                                                                                      |
| nac            | Network Admission Control                                   | 731, 732                                                                                                 |
| vpn/nap        | IKE and IPsec / Network Access<br>Point                     | 713                                                                                                      |
| np             | Network Processor                                           | 319                                                                                                      |
| ospf           | OSPF Routing                                                | 318, 409, 503, 613                                                                                       |
| passwd         | Password Encryption                                         | 742                                                                                                      |
| pp             | Phone Proxy                                                 | 337                                                                                                      |
| rip            | RIP Routing                                                 | 107, 312                                                                                                 |
| rm             | Resource Manager                                            | 321                                                                                                      |
| sch            | Smart Call Home                                             | 120                                                                                                      |
| session        | User Session                                                | 108, 201, 202, 204, 302, 303, 304,<br>314, 405, 406, 407, 500, 502, 607,<br>608, 609, 616, 620, 703, 710 |
| session/natpat | User Session/NAT and PAT                                    | 305                                                                                                      |
| snmp           | SNMP                                                        | 212                                                                                                      |
| ssafe          | ScanSafe                                                    | 775                                                                                                      |
| ssl/np ssl     | SSL Stack/NP SSL                                            | 725                                                                                                      |
| svc            | SSL VPN Client                                              | 722                                                                                                      |
| sys            | System                                                      | 199, 211, 214, 216, 306, 307, 315,<br>414, 604, 605, 606, 610, 612, 614,<br>615, 701, 711, 741           |
| tre            | Transactional Rule Engine                                   | 780                                                                                                      |



| EventGroup     | EventGroupDefinition         | Syslog Message ID Numbers (first 3 digits)       |
|----------------|------------------------------|--------------------------------------------------|
| ucime          | UC-IME                       | 339                                              |
| tag-switching  | Service Tag Switching        | 779                                              |
| td             | Threat Detection             | 733                                              |
| vm             | VLAN Mapping                 | 730                                              |
| vpdn           | PPTP and L2TP Sessions       | 213, 403, 603                                    |
| vpn            | IKE and IPsec                | 316, 320, 402, 404, 501, 602, 702, 713, 714, 715 |
| vpnc           | VPN Client                   | 611                                              |
| vpnfo          | VPN Failover                 | 720                                              |
| vpnlb          | VPN Load Balancing           | 718                                              |
| vxlan          | VXLAN                        | 778                                              |
| webfo          | WebVPN Failover              | 721                                              |
| webvpn         | WebVPN and AnyConnect Client | 716                                              |
| session/natpat | User Session / NAT and PAT   | 305                                              |

## EventName Attributes for Syslog Events

Some syslog events will have the additional attribute "EventName". You will be able to filter the events table to find events using the EventName attribute by filtering by attribute:value pairs. For example, you could filter events for a "Denied IP packet" by entering **EventName:"Denied IP Packet"** in the search field of the Event Logging table.

### Syslog Event ID and Event Names Tables

- [AAA Syslog Event IDs and Event Names](#)
- [Botnet Syslog Event IDs and Event Names](#)
- [Failover Syslog Event IDs and Event Names](#)
- [Firewall Denied Syslog Event IDs and Event Names](#)
- [Firewall Traffic Syslog Event IDs and Event Names](#)
- [Identity Based Firewall Syslog Event IDs and Event Names](#)
- [IPSec Syslog Event IDs and Event Names](#)
- [NAT Syslog Event ID and Event Names](#)
- [SSL VPN Syslog Event IDs and Event Names](#)

### AAA Syslog Event IDs and Event Names

| EventID | EventName              |
|---------|------------------------|
| 109001  | AAA Begin              |
| 109002  | AAA Failed             |
| 109003  | AAA Server Failed      |
| 109005  | Authentication Success |
| 109006  | Authentication Failed  |
| 109007  | Authorization Success  |
| 109008  | Authorization Failed   |
| 109010  | AAA Pending            |
| 109011  | AAA Session Started    |
| 109012  | AAA Session Ended      |
| 109013  | AAA                    |
| 109014  | AAA Failed             |
| 109016  | AAA ACL not found      |
| 109017  | AAA Limit Reach        |
| 109018  | AAA ACL Empty          |
| 109019  | AAA ACL error          |
| 109020  | AAA ACL error          |
| 109021  | AAA error              |
| 109022  | AAA HTTP limit reached |
| 109023  | AAA auth required      |
| 109024  | Authorization Failed   |
| 109025  | Authorization Failed   |
| 109026  | AAA error              |
| 109027  | AAA Server error       |
| 109028  | AAA Bypassed           |
| 109029  | AAA ACL error          |
| 109030  | AAA ACL error          |
| 109031  | Authentication Failed  |

| EventID | EventName                 |
|---------|---------------------------|
| 109032  | AAA ACL error             |
| 109033  | Authentication Failed     |
| 109034  | Authentication Failed     |
| 109035  | AAA Limit Reach           |
| 113001  | AAA Session limit reach   |
| 113003  | AAA overridden            |
| 113004  | AAA Successful            |
| 113005  | Authorization Rejected    |
| 113006  | AAA user locked           |
| 113007  | AAA User unlocked         |
| 113008  | AAA successful            |
| 113009  | AAA retrieved             |
| 113010  | AAA Challenge received    |
| 113011  | AAA retrieved             |
| 113012  | Authentication Successful |
| 113013  | AAA error                 |
| 113014  | AAA error                 |
| 113015  | Authentication Rejected   |
| 113016  | AAA Rejected              |
| 113017  | AAA Rejected              |
| 113018  | AAA ACL error             |
| 113019  | AAA Disconnected          |
| 113020  | AAA error                 |
| 113021  | AAA Logging Fail          |
| 113022  | AAA Failed                |
| 113023  | AAA reactivated           |
| 113024  | AAA Client certification  |
| 113025  | AAA Authentication fail   |

| EventID | EventName |
|---------|-----------|
| 113026  | AAA error |
| 113027  | AAA error |

**Botnet Syslog Event IDs and Event Names**

| EventID | EventName                     |
|---------|-------------------------------|
| 338001  | Botnet Source Block List      |
| 338002  | Botnet Destination Block List |
| 338003  | Botnet Source Block List      |
| 338004  | Botnet Destination Block List |
| 338101  | Botnet Source Allow List      |
| 338102  | Botnet destination Allow List |
| 338202  | Botnet destination Grey       |
| 338203  | Botnet Source Grey            |
| 338204  | Botnet Destination Grey       |
| 338301  | Botnet DNS Intercepted        |
| 338302  | Botnet DNS                    |
| 338303  | Botnet DNS                    |
| 338304  | Botnet Download successful    |
| 338305  | Botnet Download failed        |
| 338306  | Botnet Authentication failed  |
| 338307  | Botnet Decrypt failed         |
| 338308  | Botnet Client                 |
| 338309  | Botnet Client                 |
| 338310  | Botnet dyn filter failed      |

**Failover Syslog Event IDs and Event Names**

| EventID | EventName          |
|---------|--------------------|
| 101001  | Failover Cable OK  |
| 101002  | Failover Cable BAD |

| EventID | EventName                          |
|---------|------------------------------------|
| 101003  | Failover Cable not connected       |
| 101004  | Failover Cable not connected       |
| 101005  | Failover Cable reading error       |
| 102001  | Failover Power failure             |
| 103001  | No response from failover mate     |
| 103002  | Failover mate interface OK         |
| 103003  | Failover mate interface BAD        |
| 103004  | Failover mate reports failure      |
| 103005  | Failover mate reports self failure |
| 103006  | Failover version incompatible      |
| 103007  | Failover version difference        |
| 104001  | Failover role switch               |
| 104002  | Failover role switch               |
| 104003  | Failover unit failed               |
| 104004  | Failover unit OK                   |
| 106100  | Permit/Denied by ACL               |
| 210001  | Stateful Failover error            |
| 210002  | Stateful Failover error            |
| 210003  | Stateful Failover error            |
| 210005  | Stateful Failover error            |
| 210006  | Stateful Failover error            |
| 210007  | Stateful Failover error            |
| 210008  | Stateful Failover error            |
| 210010  | Stateful Failover error            |
| 210020  | Stateful Failover error            |
| 210021  | Stateful Failover error            |
| 210022  | Stateful Failover error            |
| 311001  | Stateful Failover update           |

| EventID | EventName                             |
|---------|---------------------------------------|
| 311002  | Stateful Failover update              |
| 311003  | Stateful Failover update              |
| 311004  | Stateful Failover update              |
| 418001  | Denied Packet to Management           |
| 709001  | Failover replication error            |
| 709002  | Failover replication error            |
| 709003  | Failover replication start            |
| 709004  | Failover replication complete         |
| 709005  | Failover receive replication start    |
| 709006  | Failover receive replication complete |
| 709007  | Failover replication failure          |
| 710003  | Denied access to Device               |

**Firewall Denied Syslog Event IDs and Event Names**

| EventID | EventName                   |
|---------|-----------------------------|
| 106001  | Denied by Security Policy   |
| 106002  | Outbound Deny               |
| 106006  | Denied by Security Policy   |
| 106007  | Denied Inbound UDP          |
| 106008  | Denied by Security Policy   |
| 106010  | Denied by Security Policy   |
| 106011  | Denied Inbound              |
| 106012  | Denied due to Bad IP option |
| 106013  | Dropped Ping to PAT IP      |
| 106014  | Denied Inbound ICMP         |
| 106015  | Denied by Security Policy   |
| 106016  | Denied IP Spoof             |
| 106017  | Denied due to Land Attack   |
| 106018  | Denied outbound ICMP        |

| EventID | EventName                               |
|---------|-----------------------------------------|
| 106020  | Denied IP Packet                        |
| 106021  | Denied TCP                              |
| 106022  | Denied Spoof packet                     |
| 106023  | Denied IP Packet                        |
| 106025  | Dropped Packet failed to Detect context |
| 106026  | Dropped Packet failed to Detect context |
| 106027  | Dropped Packet failed to Detect context |
| 106100  | Permit/Denied by ACL                    |
| 418001  | Denied Packet to Management             |
| 710003  | Denied access to Device                 |

#### Firewall Traffic Syslog Event IDs and Event Names

| EventID | EventName               |
|---------|-------------------------|
| 108001  | Inspect SMTP            |
| 108002  | Inspect SMTP            |
| 108003  | Inspect ESMTP Dropped   |
| 108004  | Inspect ESMTP           |
| 108005  | Inspect ESMTP           |
| 108006  | Inspect ESMTP Violation |
| 108007  | Inspect ESMTP           |
| 110002  | No Router found         |
| 110003  | Failed to Find Next hop |
| 209003  | Fragment Limit Reach    |
| 209004  | Fragment invalid Length |
| 209005  | Fragment IP discard     |
| 302003  | H245 Connection Start   |
| 302004  | H323 Connection start   |
| 302009  | Restart TCP             |
| 302010  | Connection USAGE        |

| EventID | EventName                |
|---------|--------------------------|
| 302012  | H225 CALL SIGNAL CONN    |
| 302013  | Built TCP                |
| 302014  | Teardown TCP             |
| 302015  | Built UDP                |
| 302016  | Teardown UDP             |
| 302017  | Built GRE                |
| 302018  | Teardown GRE             |
| 302019  | H323 Failed              |
| 302020  | Built ICMP               |
| 302021  | Teardown ICMP            |
| 302022  | Built TCP Stub           |
| 302023  | Teardown TCP Stub        |
| 302024  | Built UDP Stub           |
| 302025  | Teardown UDP Stub        |
| 302026  | Built ICMP Stub          |
| 302027  | Teardown ICMP Stub       |
| 302033  | Connection H323          |
| 302034  | H323 Connection Failed   |
| 302035  | Built SCTP               |
| 302036  | Teardown SCTP            |
| 303002  | FTP file download/upload |
| 303003  | Inspect FTP Dropped      |
| 303004  | Inspect FTP Dropped      |
| 303005  | Inspect FTP reset        |
| 313001  | ICMP Denied              |
| 313004  | ICMP Drop                |
| 313005  | ICMP Error Msg Drop      |
| 313008  | ICMP ipv6 Denied         |



| EventID | EventName                                |
|---------|------------------------------------------|
| 324000  | GTP Pkt Drop                             |
| 324001  | GTP Pkt Error                            |
| 324002  | Memory Error                             |
| 324003  | GTP Pkt Drop                             |
| 324004  | GTP Version Not Supported                |
| 324005  | GTP Tunnel Failed                        |
| 324006  | GTP Tunnel Failed                        |
| 324007  | GTP Tunnel Failed                        |
| 337001  | Phone Proxy SRTP Failed                  |
| 337002  | Phone Proxy SRTP Failed                  |
| 337003  | Phone Proxy SRTP Auth Fail               |
| 337004  | Phone Proxy SRTP Auth Fail               |
| 337005  | Phone Proxy SRTP no Media Session        |
| 337006  | Phone Proxy TFTP Unable to Create File   |
| 337007  | Phone Proxy TFTP Unable to Find File     |
| 337008  | Phone Proxy Call Failed                  |
| 337009  | Phone Proxy Unable to Create Phone Entry |
| 400000  | IPS IP options-Bad Option List           |
| 400001  | IPS IP options-Record Packet Route       |
| 400002  | IPS IP options-Timestamp                 |
| 400003  | IPS IP options-Security                  |
| 400004  | IPS IP options-Loose Source Route        |
| 400005  | IPS IP options-SATNET ID                 |
| 400006  | IPS IP options-Strict Source Route       |
| 400007  | IPS IP Fragment Attack                   |
| 400008  | IPS IP Impossible Packet                 |
| 400009  | IPS IP Fragments Overlap                 |
| 400010  | IPS ICMP Echo Reply                      |

| EventID | EventName                             |
|---------|---------------------------------------|
| 400011  | IPS ICMP Host Unreachable             |
| 400012  | IPS ICMP Source Quench                |
| 400013  | IPS ICMP Redirect                     |
| 400014  | IPS ICMP Echo Request                 |
| 400015  | IPS ICMP Time Exceeded for a Datagram |
| 400017  | IPS ICMP Timestamp Request            |
| 400018  | IPS ICMP Timestamp Reply              |
| 400019  | IPS ICMP Information Request          |
| 400020  | IPS ICMP Information Reply            |
| 400021  | IPS ICMP Address Mask Request         |
| 400022  | IPS ICMP Address Mask Reply           |
| 400023  | IPS Fragmented ICMP Traffic           |
| 400024  | IPS Large ICMP Traffic                |
| 400025  | IPS Ping of Death Attack              |
| 400026  | IPS TCP NULL flags                    |
| 400027  | IPS TCP SYN+FIN flags                 |
| 400028  | IPS TCP FIN only flags                |
| 400029  | IPS FTP Improper Address Specified    |
| 400030  | IPS FTP Improper Port Specified       |
| 400031  | IPS UDP Bomb attack                   |
| 400032  | IPS UDP Snork attack                  |
| 400033  | IPS UDP Chargen DoS attack            |
| 400034  | IPS DNS HINFO Request                 |
| 400035  | IPS DNS Zone Transfer                 |
| 400036  | IPS DNS Zone Transfer from High Port  |
| 400037  | IPS DNS Request for All Records       |
| 400038  | IPS RPC Port Registration             |
| 400039  | IPS RPC Port Unregistration           |

| EventID | EventName                            |
|---------|--------------------------------------|
| 400040  | IPS RPC Dump                         |
| 400041  | IPS Proxied RPC Request              |
| 400042  | IPS YP server Portmap Request        |
| 400043  | IPS YP bind Portmap Request          |
| 400044  | IPS YP password Portmap Request      |
| 400045  | IPS YP update Portmap Request        |
| 400046  | IPS YP transfer Portmap Request      |
| 400047  | IPS Mount Portmap Request            |
| 400048  | IPS Remote execution Portmap Request |
| 400049  | IPS Remote execution Attempt         |
| 400050  | IPS Statd Buffer Overflow            |
| 406001  | Inspect FTP Dropped                  |
| 406002  | Inspect FTP Dropped                  |
| 407001  | Host Limit Reach                     |
| 407002  | Embryonic limit Reached              |
| 407003  | Established limit Reached            |
| 415001  | Inspect Http Header Field Count      |
| 415002  | Inspect Http Header Field Length     |
| 415003  | Inspect Http body Length             |
| 415004  | Inspect Http content-type            |
| 415005  | Inspect Http URL length              |
| 415006  | Inspect Http URL Match               |
| 415007  | Inspect Http Body Match              |
| 415008  | Inspect Http Header match            |
| 415009  | Inspect Http Method match            |
| 415010  | Inspect transfer encode match        |
| 415011  | Inspect Http Protocol Violation      |
| 415012  | Inspect Http Content-type            |

| EventID | EventName                      |
|---------|--------------------------------|
| 415013  | Inspect Http Malformed         |
| 415014  | Inspect Http Mime-Type         |
| 415015  | Inspect Http Transfer-encoding |
| 415016  | Inspect Http Unanswered        |
| 415017  | Inspect Http Argument match    |
| 415018  | Inspect Http Header length     |
| 415019  | Inspect Http status Matched    |
| 415020  | Inspect Http non-ASCII         |
| 416001  | Inspect SNMP dropped           |
| 419001  | Dropped packet                 |
| 419002  | Duplicate TCP SYN              |
| 419003  | Packet modified                |
| 424001  | Denied Packet                  |
| 424002  | Dropped Packet                 |
| 431001  | Dropped RTP                    |
| 431002  | Dropped RTCP                   |
| 500001  | Inspect ActiveX                |
| 500002  | Inspect Java                   |
| 500003  | Inspect TCP Header             |
| 500004  | Inspect TCP Header             |
| 500005  | Inspect Connection Terminated  |
| 508001  | Inspect DCERPC Dropped         |
| 508002  | Inspect DCERPC Dropped         |
| 509001  | Prevented No Forward Cmd       |
| 607001  | Inspect SIP                    |
| 607002  | Inspect SIP                    |
| 607003  | Inspect SIP                    |
| 608001  | Inspect Skinny                 |

| EventID | EventName                |
|---------|--------------------------|
| 608002  | Inspect Skinny dropped   |
| 608003  | Inspect Skinny dropped   |
| 608004  | Inspect Skinny dropped   |
| 608005  | Inspect Skinny dropped   |
| 609001  | Built Local-Host         |
| 609002  | Teardown Local Host      |
| 703001  | H225 Unsupported Version |
| 703002  | H225 Connection          |
| 726001  | Inspect Instant Message  |

#### Identity Based Firewall Syslog Event IDs and Event Names

| EventID | EventName               |
|---------|-------------------------|
| 746001  | Import started          |
| 746002  | Import complete         |
| 746003  | Import failed           |
| 746004  | Exceed user group limit |
| 746005  | AD Agent down           |
| 746006  | AD Agent out of sync    |
| 746007  | Netbios response failed |
| 746008  | Netbios started         |
| 746009  | Netbios stopped         |
| 746010  | Import user failed      |
| 746011  | Exceed user limit       |
| 746012  | User IP add             |
| 746013  | User IP delete          |
| 746014  | FQDN Obsolete           |
| 746015  | FQDN resolved           |
| 746016  | DNS lookup failed       |
| 746017  | Import user issued      |

| EventID | EventName              |
|---------|------------------------|
| 746018  | Import user done       |
| 746019  | Update AD Agent failed |

#### IPSec Syslog Event IDs and Event Names

| EventID | EventName                               |
|---------|-----------------------------------------|
| 402114  | Invalid SPI received                    |
| 402115  | Unexpected protocol received            |
| 402116  | Packet doesn't match identity           |
| 402117  | Non-IPSEC packet received               |
| 402118  | Invalid fragment offset                 |
| 402119  | Anti-Replay check failure               |
| 402120  | Authentication failure                  |
| 402121  | Packet dropped                          |
| 426101  | cLACP Port Bundle                       |
| 426102  | cLACP Port Standby                      |
| 426103  | cLACP Port Moved To Bundle From Standby |
| 426104  | cLACP Port Unbundled                    |
| 602103  | Path MTU updated                        |
| 602104  | Path MTU exceeded                       |
| 602303  | New SA created                          |
| 602304  | SA deleted                              |
| 702305  | SA expiration - Sequence rollover       |
| 702307  | SA expiration - Data rollover           |

#### NAT Syslog Event ID and Event Names

| EventID | EventName                        |
|---------|----------------------------------|
| 201002  | Max connection Exceeded for host |
| 201003  | Embryonic limit exceed           |
| 201004  | UDP connection limit exceed      |
| 201005  | FTP connection failed            |
| 201006  | RCMD connection failed           |
| 201008  | New connection Disallowed        |
| 201009  | Connection Limit exceed          |

| EventID | EventName                                      |
|---------|------------------------------------------------|
| 201010  | Embryonic Connection limit exceeded            |
| 201011  | Connection Limit exceeded                      |
| 201012  | Per-client embryonic connection limit exceeded |
| 201013  | Per-client connection limit exceeded           |
| 202001  | Global NAT exhausted                           |
| 202005  | Embryonic connection error                     |
| 202011  | Connection limit exceeded                      |
| 305005  | No NAT group found                             |
| 305006  | Translation failed                             |
| 305007  | Connection dropped                             |
| 305008  | NAT allocation issue                           |
| 305009  | NAT Created                                    |
| 305010  | NAT teardown                                   |
| 305011  | PAT created                                    |
| 305012  | PAT teardown                                   |
| 305013  | Connection denied                              |

#### SSL VPN Syslog Event IDs and Event Names

| EventID | EventName                     |
|---------|-------------------------------|
| 716001  | WebVPN Session Started        |
| 716002  | WebVPN Session Terminated     |
| 716003  | WebVPN User URL access        |
| 716004  | WebVPN User URL access denied |
| 716005  | WebVPN ACL error              |
| 716006  | WebVPN User Disabled          |
| 716007  | WebVPN Unable to Create       |
| 716008  | WebVPN Debug                  |
| 716009  | WebVPN ACL error              |
| 716010  | WebVPN User access network    |
| 716011  | WebVPN User access            |
| 716012  | WebVPN User Directory access  |
| 716013  | WebVPN User file access       |
| 716014  | WebVPN User file access       |

| EventID | EventName                             |
|---------|---------------------------------------|
| 716015  | WebVPN User file access               |
| 716016  | WebVPN User file access               |
| 716017  | WebVPN User file access               |
| 716018  | WebVPN User file access               |
| 716019  | WebVPN User file access               |
| 716020  | WebVPN User file access               |
| 716021  | WebVPN user access file denied        |
| 716022  | WebVPN Unable to connect proxy        |
| 716023  | WebVPN session limit reached          |
| 716024  | WebVPN User access error              |
| 716025  | WebVPN User access error              |
| 716026  | WebVPN User access error              |
| 716027  | WebVPN User access error              |
| 716028  | WebVPN User access error              |
| 716029  | WebVPN User access error              |
| 716030  | WebVPN User access error              |
| 716031  | WebVPN User access error              |
| 716032  | WebVPN User access error              |
| 716033  | WebVPN User access error              |
| 716034  | WebVPN User access error              |
| 716035  | WebVPN User access error              |
| 716036  | WebVPN User login successful          |
| 716037  | WebVPN User login failed              |
| 716038  | WebVPN User Authentication Successful |
| 716039  | WebVPN User Authentication Rejected   |
| 716040  | WebVPN User logging denied            |
| 716041  | WebVPN ACL hit count                  |
| 716042  | WebVPN ACL hit                        |
| 716043  | WebVPN Port forwarding                |
| 716044  | WebVPN Bad Parameter                  |
| 716045  | WebVPN Invalid Parameter              |
| 716046  | WebVPN connection terminated          |



| EventID | EventName                        |
|---------|----------------------------------|
| 716047  | WebVPN ACL usage                 |
| 716048  | WebVPN memory issue              |
| 716049  | WebVPN Empty SVC ACL             |
| 716050  | WebVPN ACL error                 |
| 716051  | WebVPN ACL error                 |
| 716052  | WebVPN Session Terminated        |
| 716053  | WebVPN SSO Server added          |
| 716054  | WebVPN SSO Server deleted        |
| 716055  | WebVPN Authentication Successful |
| 716056  | WebVPN Authentication Failed     |
| 716057  | WebVPN Session terminated        |
| 716058  | WebVPN Session lost              |
| 716059  | WebVPN Session resumed           |
| 716060  | WebVPN Session Terminated        |
| 722001  | WebVPN SVC Connect request error |
| 722002  | WebVPN SVC Connect request error |
| 722003  | WebVPN SVC Connect request error |
| 722004  | WebVPN SVC Connect request error |
| 722005  | WebVPN SVC Connect update issue  |
| 722006  | WebVPN SVC Invalid address       |
| 722007  | WebVPN SVC Message               |
| 722008  | WebVPN SVC Message               |
| 722009  | WebVPN SVC Message               |
| 722010  | WebVPN SVC Message               |
| 722011  | WebVPN SVC Message               |
| 722012  | WebVPN SVC Message               |
| 722013  | WebVPN SVC Message               |
| 722014  | WebVPN SVC Message               |
| 722015  | WebVPN SVC invalid frame         |
| 722016  | WebVPN SVC invalid frame         |
| 722017  | WebVPN SVC invalid frame         |
| 722018  | WebVPN SVC invalid frame         |

| EventID | EventName                         |
|---------|-----------------------------------|
| 722019  | WebVPN SVC Not Enough Data        |
| 722020  | WebVPN SVC no address             |
| 722021  | WebVPN Memory issue               |
| 722022  | WebVPN SVC connection established |
| 722023  | WebVPN SVC connection terminated  |
| 722024  | WebVPN Compression Enabled        |
| 722025  | WebVPN Compression Disabled       |
| 722026  | WebVPN Compression reset          |
| 722027  | WebVPN Decompression reset        |
| 722028  | WebVPN Connection Closed          |
| 722029  | WebVPN SVC Session terminated     |
| 722030  | WebVPN SVC Session terminated     |
| 722031  | WebVPN SVC Session terminated     |
| 722032  | WebVPN SVC connection Replacement |
| 722033  | WebVPN SVC Connection established |
| 722034  | WebVPN SVC New connection         |
| 722035  | WebVPN Received Large packet      |
| 722036  | WebVPN transmitting Large packet  |
| 722037  | WebVPN SVC connection closed      |
| 722038  | WebVPN SVC session terminated     |
| 722039  | WebVPN SVC invalid ACL            |
| 722040  | WebVPN SVC invalid ACL            |
| 722041  | WebVPN SVC IPv6 not available     |
| 722042  | WebVPN invalid protocol           |
| 722043  | WebVPN DTLS disabled              |
| 722044  | WebVPN unable to request address  |
| 722045  | WebVPN Connection terminated      |
| 722046  | WebVPN Session terminated         |
| 722047  | WebVPN Tunnel terminated          |
| 722048  | WebVPN Tunnel terminated          |
| 722049  | WebVPN Session terminated         |
| 722050  | WebVPN Session terminated         |

| EventID | EventName                            |
|---------|--------------------------------------|
| 722051  | WebVPN address assigned              |
| 722053  | WebVPN Unknown client                |
| 723001  | WebVPN Citrix connection Up          |
| 723002  | WebVPN Citrix connection Down        |
| 723003  | WebVPN Citrix no memory issue        |
| 723004  | WebVPN Citrix bad flow control       |
| 723005  | WebVPN Citrix no channel             |
| 723006  | WebVPN Citrix SOCKS error            |
| 723007  | WebVPN Citrix connection list broken |
| 723008  | WebVPN Citrix invalid SOCKS          |
| 723009  | WebVPN Citrix invalid connection     |
| 723010  | WebVPN Citrix invalid connection     |
| 723011  | WebVPN citrix Bad SOCKS              |
| 723012  | WebVPN Citrix Bad SOCKS              |
| 723013  | WebVPN Citrix invalid connection     |
| 723014  | WebVPN Citrix connected to Server    |
| 724001  | WebVPN Session not allowed           |
| 724002  | WebVPN Session terminated            |
| 724003  | WebVPN CSD                           |
| 724004  | WebVPN CSD                           |
| 725001  | SSL handshake Started                |
| 725002  | SSL Handshake completed              |
| 725003  | SSL Client session resume            |
| 725004  | SSL Client request Authentication    |
| 725005  | SSL Server request authentication    |
| 725006  | SSL Handshake failed                 |
| 725007  | SSL Session terminated               |
| 725008  | SSL Client Cipher                    |
| 725009  | SSL Server Cipher                    |
| 725010  | SSL Cipher                           |
| 725011  | SSL Device choose Cipher             |
| 725012  | SSL Device choose Cipher             |

| EventID | EventName                     |
|---------|-------------------------------|
| 725013  | SSL Server choose cipher      |
| 725014  | SSL LIB error                 |
| 725015  | SSL client certificate failed |

## Time Attributes in a Syslog Event

Understanding the purposes of the different time-stamps in the Event Logging page will help you filter and find the events that interest you.

| Historical               |                          | Live                                                                     |                   |           |    |                          |          |                      |                                                  |                                       |  |
|--------------------------|--------------------------|--------------------------------------------------------------------------|-------------------|-----------|----|--------------------------|----------|----------------------|--------------------------------------------------|---------------------------------------|--|
|                          |                          |                                                                          |                   | Initiator |    | Responder                |          |                      |                                                  |                                       |  |
| 1                        | Date/Time                | Event Type                                                               | Sensor ID         | IP        | IP | Port                     | Protocol | Action               | Policy                                           |                                       |  |
| <input type="checkbox"/> | Aug 20, 2019 10:44:14 AM | Malware                                                                  | 192.168.20.53     |           |    | 80                       | tcp      | Cloud Lookup Timeout | BlockOfficeDocumentsPDFupload_BlockMalwareOthers |                                       |  |
| 2                        | Application              | HTTP                                                                     | FileSize          |           |    | 68                       |          |                      | SensorID                                         | 192.168.20.53                         |  |
|                          | ClientApplication        | Web browser                                                              | FileType          |           |    | EICAR                    |          |                      | SHA_Disposition                                  | Unavailable                           |  |
|                          | EventSecond              | 1566312254                                                               | FirstPacketSecond |           |    | Aug 20, 2019 10:44:08 AM |          |                      | SperoDisposition                                 | Spero detection not performed on file |  |
|                          | EventType                | MalwareEvent                                                             | InitiatorIP       |           |    |                          |          |                      | ThreatName                                       | Unknown                               |  |
|                          | FileAction               | Cloud Lookup Timeout                                                     | InitiatorPort     |           |    | 65386                    |          |                      | timestamp                                        | Aug 20, 2019 10:44:14 AM              |  |
|                          | FileDirection            | Download                                                                 | LastPacketSecond  |           |    | Aug 20, 2019 10:44:14 AM |          |                      | URI                                              | /eicar.com                            |  |
|                          | FileName                 | eicar.com                                                                | Protocol          |           |    | tcp                      |          |                      | UserName                                         | No Authentication Required            |  |
|                          | FilePolicy               | BlockOfficeDocumentsPDFU<br>pload_BlockMalwareOthers                     | ResponderIP       |           |    |                          |          |                      |                                                  |                                       |  |
|                          | FileSHA256               | 275a021bbfb6489e54d471<br>899f7db9d1663fc695ec2fe<br>2a2c4538aabf651fd0f | ResponderPort     |           |    | 80                       |          |                      |                                                  |                                       |  |

| Date/Time                                                                                                    | Device Type                                                                                                                                               | Event Type ⓘ        | Sensor ID | Initiator IP | Responder IP                 | Port ⓘ | Protocol                      | Action ⓘ | Policy |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------|--------------|------------------------------|--------|-------------------------------|----------|--------|
|  Jun 12, 2020, 7:27:02 AM | ASA                                                                                                                                                       | 302013              | admin     | 192.168.25.4 | 192.168.0.68                 | 443    | TCP                           | Built    |        |
| Action                                                                                                       | Built                                                                                                                                                     | EventType           |           | 302013       | Protocol                     |        | TCP                           |          |        |
| ConnectionID                                                                                                 | 1169028                                                                                                                                                   | IngressInterface    |           | management   | ResponderIP                  |        | 192.168.0.68                  |          |        |
| DeviceType                                                                                                   | ASA                                                                                                                                                       | InitiatorIP         |           | 192.168.25.4 | ResponderPort                |        | 443                           |          |        |
| Direction                                                                                                    | inbound                                                                                                                                                   | InitiatorPort       |           | 36540        | SensorID                     |        | admin                         |          |        |
| EgressInterface                                                                                              | identity                                                                                                                                                  | MappedInitiatorIP   |           | 192.168.25.4 | Severity                     |        | Informational                 |          |        |
| EventGroup                                                                                                   | session                                                                                                                                                   | MappedInitiatorPort |           | 36540        | <div>6</div> SyslogTimestamp |        | 2020-06-12 11:15:26 +0000 UTC |          |        |
| EventGroupDefinition                                                                                         | User Session                                                                                                                                              | MappedResponderIP   |           | 192.168.0.68 |                              |        | timestamp                     |          |        |
| EventName                                                                                                    | Built TCP                                                                                                                                                 | MappedResponderPort |           | 443          |                              |        | Jun 12, 2020, 7:27:02 A M ⓘ   |          |        |
| Message                                                                                                      | ASA-6-302013: Built inbound TCP connection 1169028 for management:192.168.25.4/36540 (192.168.25.4/36540) to identity:192.168.0.68/443 (192.168.0.68/443) |                     |           |              |                              |        |                               |          |        |

| Date/Time                                                                                                    | Device Type             | Event Type ⓘ | Sensor ID                                                                                            | Initiator IP            | Responder IP  | Port ⓘ | Protocol         | Action ⓘ                | Policy |
|--------------------------------------------------------------------------------------------------------------|-------------------------|--------------|------------------------------------------------------------------------------------------------------|-------------------------|---------------|--------|------------------|-------------------------|--------|
|  Jun 12, 2020, 7:27:13 AM | ASA                     | 5            | 192.168.0.169                                                                                        | 192.168.25.4            | 192.168.0.169 | 443    | TCP              | Update                  |        |
| Action                                                                                                       | Update                  |              | InitiatorBytes                                                                                       | 0                       |               |        | Protocol         |                         | TCP    |
| ConnectionID                                                                                                 | 482168                  |              | InitiatorIP                                                                                          | 192.168.25.4            |               |        | ResponderBytes   | 3581                    |        |
| DeviceType                                                                                                   | ASA                     |              | InitiatorPackets                                                                                     | 0                       |               |        | ResponderIP      | 192.168.0.169           |        |
| EgressInterface                                                                                              | 65535                   |              | InitiatorPort                                                                                        | 38068                   |               |        | ResponderPackets | 33                      |        |
| EventType                                                                                                    | 5                       |              | LastPacketSecond                                                                                     | Jun 12, 2020, 7:27:07 A |               |        | ResponderPort    | 443                     |        |
| FirewallExtendedEvent                                                                                        | 2034                    |              |                                                                                                      | M ⓘ                     |               |        | SensorID         | 192.168.0.169           |        |
| FirstPacketSecond                                                                                            | Jun 12, 2020, 7:27:07 A |              | MappedInitiatorIP                                                                                    | 192.168.25.4            |               |        | Severity         | Informational           |        |
|                                                                                                              | M ⓘ                     |              | MappedInitiatorPort                                                                                  | 38068                   |               |        | timestamp        | Jun 12, 2020, 7:27:13 A |        |
| ICMPCode                                                                                                     | 0                       |              | MappedResponderIP                                                                                    | 192.168.0.169           |               |        |                  |                         | M ⓘ    |
| ICMPType                                                                                                     | 0                       |              | MappedResponderPort                                                                                  | 443                     |               |        |                  |                         |        |
| IngressInterface                                                                                             | 9                       |              |  NetFlowTimestamp | 1591961232              |               |        |                  |                         |        |

| Number | Label     | Description                                                                                                                                                       |
|--------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Date/Time | The time the Secure Event Connector (SEC) processed the event. This may not be the same as the time the firewall inspected that traffic. Same value as timestamp. |

| Number | Label             | Description                                                                                                                                                                                                                                                                                                                                                                             |
|--------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2      | EventSecond       | Equals with LastPacketSecond.                                                                                                                                                                                                                                                                                                                                                           |
| 3      | FirstPacketSecond | <p>The time at which the connection opened. The firewall inspects the packet at this time.</p> <p>The value of the FirstPacketSecond is calculated by subtracting the ConnectionDuration from the LastPacketSecond.</p> <p>For connection events logged at the beginning of the connection, the value of FirstPacketSecond, LastPacketSecond, and EventSecond will all be the same.</p> |
| 4      | LastPacketSecond  | The time at which the connection closed. For connection events logged at the end of the connection, LastPacketSecond and EventSecond will be equal.                                                                                                                                                                                                                                     |
| 5      | timestamp         | The time the Secure Event Connector (SEC) processed the event. This may not be the same as the time the firewall inspected that traffic. Same value as Date/Time.                                                                                                                                                                                                                       |
| 6      | Syslog TimeStamp  | Represents the syslog originated time if 'logging timestamp' is used. If the syslog does not have this info, the time the SEC received the event is reflected.                                                                                                                                                                                                                          |
| 7      | NetflowTimeStamp  | The time at which the ASA finished gathering enough flow records/events to fill a NetFlow packet to then send them off to a flow collector.                                                                                                                                                                                                                                             |





## PART **VII**

### **Appendix**

- [Troubleshooting, on page 769](#)
- [FAQ and Support, on page 823](#)
- [Security and Internet Access, on page 839](#)
- [Terraform, on page 841](#)
- [Appendix, on page 843](#)







## CHAPTER 21

# Troubleshooting

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This chapter covers the following sections:

- [Troubleshoot an Secure Firewall ASA Device, on page 769](#)
- [Troubleshoot a Secure Device Connector, on page 781](#)
- [Troubleshoot a Secure Event Connector, on page 790](#)
- [Troubleshoot Security Cloud Control, on page 798](#)
- [Device Connectivity States, on page 807](#)

## Troubleshoot an Secure Firewall ASA Device

### ASA Fails to Reconnect to Security Cloud Control After Reboot

If Security Cloud Control and your ASA do not connect after an ASA reboot, it may be because the ASA has fallen back to using an OpenSSL cipher suite that is not supported by Security Cloud Control's Secure Device Connector (SDC). This troubleshooting topic tests for that case and provides remediation steps.

#### Symptoms

- ASA reboots and Security Cloud Control and the ASA fail to reconnect. Security Cloud Control displays the message, "Failed to reconnect."
- When attempting to onboard an ASA, Security Cloud Control displays the message: *Certificate could not be retrieved for <ASA\_IP\_Address>*.

### Cannot onboard ASA due to certificate error

**Environment:** ASA is configured with client-side certificate authentication.

**Solution:** Disable client-side certificate authentication.

**Details:** ASAs support credential-based authentication as well as client-side certificate authentication. Security Cloud Control cannot connect to ASAs that use client-side certificate authentication. Before onboarding your ASA to Security Cloud Control, make sure it does not have client-certificate authentication enabled by using this procedure:

### Procedure

- 
- Step 1** Open a terminal window and connect to the ASA using SSH.
- Step 2** Enter global configuration mode.
- Step 3** At the hostname (config)# prompt, enter this command:
- ```
no ssl certificate-authentication interface interface-name port 443
```
- The interface name is the name of the interface Security Cloud Control connects to.
-

Determine the OpenSSL Cipher Suite Used by your ASA

Use this procedure to identify the OpenSSL cipher suite being used by your ASA. If the cipher suite named in the command output is not in the [list of supported cipher suites](#), the SDC doesn't support that cipher suite and you will need to update the cipher suites on your ASA.

Procedure

-
- Step 1** Open a console window on a computer that can reach the SDC.
- Step 2** Connect to your SDC using SSH. You can log in as a regular user such as Security Cloud Control or SDC or some other user you created. You don't need to be logged in as root.

Tip

To find your SDC IP address:

- a. Open Security Cloud Control.
- b. From the user menu, select Secure Device Connectors.
- c. Click the SDC displayed in the table. The IP address of the SDC is displayed in the details pane for the device.

- Step 3** At the command prompt enter: **openssl s_client -showcerts -connect ASA_IP_Address:443**

- Step 4** Look for these lines in the command output.

```
New, TLSv1/SSLv3, Cipher is DES-CB3-SHA
or
SSL-Session:
    Protocol: TLSv1.2
    Cipher: DES-CB3-SHA
```

In this example, the cipher suite being used by the ASA is DES-CB3-SHA.

Cipher Suites Supported by Security Cloud Control's Secure Device Connector

Security Cloud Control's Secure Device Connector uses node.js which only accepts the latest and most secure ciphers. As a result, Security Cloud Control's SDC only supports this list of ciphers:

- ECDHE-RSA-AES128-GCM-SHA256
- ECDHE-ECDSA-AES128-GCM-SHA256
- ECDHE-RSA-AES256-GCM-SHA384
- ECDHE-ECDSA-AES256-GCM-SHA384
- DHE-RSA-AES128-GCM-SHA256
- ECDHE-RSA-AES128-SHA256
- DHE-RSA-AES128-SHA256
- ECDHE-RSA-AES256-SHA384
- DHE-RSA-AES256-SHA384
- ECDHE-RSA-AES256-SHA256
- DHE-RSA-AES256-SHA256

If the cipher suite you use on your ASA is not in this list, SDC does not support it and you will need to [update the cipher suite on your ASA](#).

Updating your ASA's Cipher Suite

To update the TLS cipher suites on an ASA:

Procedure

-
- Step 1** Connect to the ASA using SSH.
- Step 2** Once connected to the ASA, [elevate your privileges](#) to global configuration mode. Your prompt should look like this: `asaname(config)#`
- Step 3** At the prompt, enter a command similar to this:

```
ssl cipher tlsv1.2 custom "ECDHE-RSA-AES128-GCM-SHA256 ECDHE-ECDSA-AES128-GCM-SHA256
ECDHE-RSA-AES256-GCM-SHA384 ECDHE-ECDSA-AES256-GCM-SHA384 DHE-RSA-AES128-GCM-SHA256
ECDHE-RSA-AES128-SHA256 DHE-RSA-AES128-SHA256 ECDHE-RSA-AES256-SHA384 DHE-RSA-AES256-SHA384
ECDHE-RSA-AES256-SHA256 DHE-RSA-AES256-SHA256"
```

Note

The cipher suites this command configures your ASA to support are contained between quotes and after the word `custom`. In this command, the cipher suites specified begin with `ECDHE-RSA-AES128-GCM-SHA256` and end with `DHE-RSA-AES256-SHA256`. When you enter the command on your ASA, remove any cipher suites you know your ASA will not support.

- Step 4** After you submit the command, enter write memory at the prompt to save the local configuration. For example:
- ```
asaname(config) #write memory
```
-

## Troubleshoot ASA using CLI commands

This section discusses some of the important commands you may want to use to troubleshoot the ASA and test basic connectivity. See [CLI Book 1: Cisco ASA Series General Operations CLI Configuration Guide](#) to learn about other troubleshooting scenarios and CLI commands. In the 'System Administration' section, navigate to the 'Testing and Troubleshooting' chapter.

You can use the Security Cloud Control CLI interface available for each ASA device to execute these commands. See [ASA Command Line Interface, on page 415](#) to learn about how to use the CLI interface in Security Cloud Control.

### NAT Policy Settings

Some of the important commands to determine the NAT settings are as follows:

- To determine NAT policy statistics, use **show nat**.
- To determine the NAT pools, including the addresses and ports allocated, and how many times they were allocated, use **show nat pool**.

For more commands related to NAT, see [CLI Book 2: Cisco ASA Series Firewall CLI Configuration Guide](#), and navigate to the 'Network Address Translation (NAT)' chapter.

### Test Basic Connectivity: Pinging Addresses

You can ping the ASA device using the **ping <IP address>** command using the ASA CLI interface. To learn about

### Display the Routing Table

Use the **show route** command to view the entries in the routing table.

**ciscoasa# show route**

Example output for a routing table of an ASA:

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, V - VPN
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, + - replicated route
SI - Static InterVRF

Gateway of last resort is 192.168.0.254 to network 0.0.0.0

S* 0.0.0.0 0.0.0.0 [1/0] via 192.168.0.254, management
C 10.0.0.0 255.0.0.0 is directly connected, Outside
L 10.10.10.1 255.255.255.255 is directly connected, Outside
C 192.168.0.0 255.255.255.0 is directly connected, management
```

```
L 192.168.0.118 255.255.255.255 is directly connected, management
```

### Monitor Switch Ports

- **show interface**

Displays interface statistics.

- **show interface ip brief**

Displays interface IP addresses and status.

- **show arp**

Shows dynamic, static, and proxy ARP entries. Dynamic ARP entries include the age of the ARP entry in seconds.

Example output of ARP entries:

```
management 10.10.32.129 0050.568a.977b 0
management 10.10.32.136 0050.568a.5387 21
LANFAIL 20.20.21.1 0050.568a.4d70 96
outsi 10.10.16.6 0050.568a.e6d3 3881
outsi 10.10.16.1 0050.568a.977b 5551
```

## Troubleshoot ASA Remote Access VPN

This section discusses some of the troubleshooting issues that may occur when configuring remote access VPN on an ASA device.

### Missing Information on the RA VPN Monitoring Page

This issue may occur if the outside interface is not enabled for Webvpn.

#### Resolution:

1. In the navigation pane, click **Inventory**.
2. Click the **Devices** tab and then click the **ASA** tab.
3. In the left pane, click **Security Devices** and then click the **ASA** tab.
4. Select the RA VPN headend ASA device that is having issues.
5. In the **Management** pane on the right, click **Configuration**.
6. Click **Edit** and search for 'webvpn'.
7. Press **Enter** and add `enable interface_name`. Here, the `interface_name` is the name of the outside interface to which users connect when making the remote access VPN connection. Although this is normally the outside (internet-facing) interface, choose whichever interface is between the device and the end-users you are supporting with this connection profile.

For example:

```
webvpn
```

```
enable outside
```

8. Click **Save**.
9. [Preview and deploy](#) the configuration to the device.

## ASA Real-time Logging

Use real-time logging to display the last 20 seconds of logged data or the last 10 KB of logged data, whichever limit is reached first. When Security Cloud Control retrieves the real-time data, it reviews the existing logging configuration on your ASDM, changes it to request debugging-level data, and then returns the logging configuration to your configuration. The logging Security Cloud Control displays reflects any logging filters you may have set in ASDM.

You can see the commands that Security Cloud Control sends to perform logging by reviewing the change log. Below is an example of a change log entry. The first entry (on the bottom) indicates that Security Cloud Control "turned on" logging with the logging enable command and changed the ASDM logging level to debugging. The second entry (on the top) shows that the logging configuration was returned to its previous state. Logging was "turned off" with the no logging enable command and the ASDM logging level was returned to informational.

| LAST UPDATED                                    | DEVICE NAME     | LAST DESCRIPTION  | CHANGE STATUS |
|-------------------------------------------------|-----------------|-------------------|---------------|
| 11/21/2017, 2:39:38 PM                          | ASA1            | Troubleshooting   | ACTIVE        |
| DATE                                            | DESCRIPTION     | USER              |               |
| Nov 21, 2017 10:50:45 AM                        | Troubleshooting | user1@example.com |               |
| no logging enable<br>logging asdm informational |                 |                   |               |
| Nov 21, 2017 10:50:45 AM                        | Troubleshooting | user1@example.com |               |
| logging enable<br>logging asdm debugging        |                 |                   |               |

## View ASA Real-time Logs

### Procedure

- Step 1** On the **Inventory** page, click the **Devices** tab.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the appropriate device type tab and select the device for which you want to view real-time data.
- Step 4** Click **Troubleshoot** [Troubleshoot](#).
- Step 5** (Optional) Before clicking View Real-time Log, you can define a filter in the left pane to refine the results of your logging search.
- Step 6** Click **View Real-time Log**. Security Cloud Control retrieves the real-time logging data based on your filterin criteria and displays it.
- Step 7** To see an additional 20 seconds of logged data or the last 10 KB of logged data, click **View Real-Time Log** again.

## ASA Packet Tracer

Packet tracer allows you to send a synthetic packet into the network and evaluate how the existing routing configuration, NAT rules, and policy configurations, affect that packet. Use this tool to troubleshoot these kinds of issues:

- Users report that they cannot reach resources that they should be able to.
- Users report that they can reach resources they should not be able to.
- Test a policy to determine if it works as you expect.

Packet tracer can be used on a live, online, ASA device either physical or virtual. Packet Tracer does not work on [ASA model devices](#). Packet tracer evaluates packets based on the saved configuration on the ASA. Staged changes on Security Cloud Control are not evaluated by packet tracer.

We consider it a best-practice to run packet tracer on an ASA that is in the synced state. Though packet tracer will run if the device is not synced, you could encounter some unexpected results. For example, if you deleted a rule in the staged configuration on Security Cloud Control, and this same rule was triggered on the ASA during packet tracing, Security Cloud Control won't be able to show you the result of the packet's interaction with that rule.

### Troubleshooting with ASA Packet Tracer

As packet tracer sends the packet through the routing configuration, NAT rules, and security policies of your ASA, it displays the packet's status at each step. If the packet is allowed by the policy it receives a green checkmark ✓. If a packet is denied and dropped, Security Cloud Control displays a red X ✗.

Packet tracer also displays a real time log of the result of the packet trace. In the example below, you can see where a rule denied a tcp packet.

| LOGGING |   |                        |        |                                                                                                                                   |
|---------|---|------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------|
| ✓       | 6 | 10/10/2017, 8:36:09 PM | 605005 | Login permitted from 10.82.109.213/55400 to outside:10.82.109.113/https for user * *                                              |
| ✓       | 4 | 10/10/2017, 8:36:09 PM | 106023 | Deny tcp src inside:10.82.109.113/80 dst outside:10.82.109.176/80 by access-group "inside_access_in" [0xbe9efe96, 0x0]            |
| ✓       | 5 | 10/10/2017, 8:36:09 PM | 111008 | User ' ' executed the 'packet-tracer input inside tcp 10.82.109.113 80 10.82.109.176 80 detailed xml' command.                    |
| ✓       | 5 | 10/10/2017, 8:36:09 PM | 111010 | User ' ', running 'CLI' from IP 0.0.0.0, executed 'packet-tracer input inside tcp 10.82.109.113 80 10.82.109.176 80 detailed xml' |

## Troubleshoot an ASA Device Security Policy

### Procedure

- Step 1** From the **Inventory** page, select your ASA, and click **Troubleshoot**  **Troubleshoot** in the Actions pane.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Select your ASA and view troubleshooting details in the **Troubleshooting** pane.
- Step 4** In the pane, select the interface and packet type you want to send virtually through your ASA.
- Step 5** (Optional) If you want to trace a packet where the security group tag value is embedded in the Layer 2 CMD header (Trustsec), check SGT number and enter the security group tag number, 0-65535.
- Step 6** Specify the source and destination. You can specify IPv4 or IPv6 addresses, fully-qualified domain names (FQDN), or security group names or tags if you use Cisco Trustsec. For the source address, you can also specify a username in the format Domain\username.

- Step 7** Specify other protocol characteristics:
- ICMP-Enter the ICMP type, ICMP code (0-255), and optionally, the ICMP identifier.
  - TCP/UDP/SCTP-Enter the source and destination ports by selecting them from the list or entering a value in the port combo box.
  - IP-Enter the protocol number, 0-255.
- Step 8** Click **Run Packet Tracer**.
- Step 9** Continue with [Analyze Packet Tracer Results](#).
- 

## Troubleshoot an Access Rule

### Procedure

- Step 1** Select **Policies > Network Policies**.
- Step 2** In the left pane, click **Manage > Policies > ASA > Access Policies**.
- Step 3** Select a policy that is associated with your ASA.
- Step 4** Select a rule in the network policy to troubleshoot and click **Troubleshoot**  [Troubleshoot](#) in the details pane. Notice that in the values panel of the troubleshoot page, many of the fields are pre-populated with the attributes of the rule you chose.
- Step 5** Enter information in the remaining required fields. Once you have completed all the required fields the Run Packet Tracer button becomes active.
- Step 6** Click **Run Packet Tracer**.
- Step 7** Continue with [Analyze Packet Tracer Results](#).
- 

## Troubleshoot a NAT Rule

### Procedure

- Step 1** From the **Inventory** page, select your ASA, and click **View NAT Rules**  [View NAT Rules](#) in the Action pane.
- Step 2** In the left pane, click **Security Devices** and then click the **ASA** tab.
- Step 3** Select your ASA, and click **View NAT Rules**  [View NAT Rules](#) in the Action pane.
- Step 4** Select the rule from the NAT Rules table that you want to troubleshoot and click **Troubleshoot**  [Troubleshoot](#) in the details pane. Notice that in the values panel of the Troubleshoot page, many of the fields are pre-populated with the attributes of the rule you chose.
- Step 5** Enter information in the remaining required fields. Once you have completed all the required fields the Run Packet Tracer becomes active.
- Step 6** Click **Run Packet Tracer**.



**Step 7** Continue with [Analyze Packet Tracer Results](#).

## Troubleshoot a Twice NAT Rule

### Procedure

- Step 1** From the **Inventory** page, select your ASA, and click **View NAT Rules**  [View NAT Rules](#) in the Action pane.
- Step 2** In left pane, click **Security Devices**.
- Step 3** Click the **ASA** tab, select your ASA, and click **View NAT Rules**  [View NAT Rules](#) in the Action pane.
- Step 4** Select the rule from the NAT Rules table that you want to troubleshoot and click **Troubleshoot**  [Troubleshoot](#) in the details pane. For a bi-directional Twice NAT rule, this opens a dropdown where you choose to troubleshoot the source packet translation or the destination packet translation.
- Step 5** Enter information in the remaining required fields. Once you have completed all the required fields the Run Packet Tracer becomes active.
- Step 6** Click **Run Packet Tracer**.

## Analyze Packet Tracer Results

Whether the packet is dropped or allowed, you can learn why by expanding a row in the packet trace table and reading the rule or logging information related to that action. In the example below, packet tracer identified an access list policy that included a rule to deny an IP packet coming from any source and going to any destination. If this is not the action you want, you can click the **View in Network Policies** link and edit that rule immediately. After you edit the rule, be sure to deploy that configuration change to the ASA and then re-run packet tracer to ensure that you get the access results you expect.

Along with the packet tracer results, Security Cloud Control displays the [real-time logs](#) from the ASA.

**PACKET TRACE**

ROUTE-LOOKUP

ACCESS-LIST

| ACTION                                                                              | PROTOCOL | SOURCE      | PORT | DESTINATION | PORT | HITS (DAY) |
|-------------------------------------------------------------------------------------|----------|-------------|------|-------------|------|------------|
|  | icmp     | oded-obj1   | -    | oded-obj2   | -    | -          |
|  | ip       | any         | any  | any         | any  | -          |
|  | icmp     | oded-range1 | -    | oded-obj2   | -    | -          |

[View in Network Policies](#)

Expand the row showing where the packet was dropped.

View the rule that denied the action.

Click View in Network Policies to view and edit the rule in the Network Policies table.

## Cisco ASA Advisory cisco-sa-20180129-asa1

The Cisco Product Security Incident Response Team (PSIRT) **published the security advisory** [cisco-sa-20180129-asa1](#) which describes a critical-severity ASA and Firepower security vulnerability. [Read](#)

the [entire PSIRT team advisory](#) for a full explanation of what ASA and Firepower hardware, software, and configurations are affected.

If you determine that your ASAs are impacted by the advisory, you can upgrade your ASAs to the patched version using Security Cloud Control. Use this process:

### Procedure

- 
- Step 1** [Configure a DNS server](#) on each ASA that is affected.
- Step 2** Return to the [advisory](#) to determine which software patch you need.
- 

## Confirming ASA Running Configuration Size

To confirm the size of your running configuration file, follow this procedure:

### Procedure

- 
- Step 1** Access the ASA's command line interface in one of these ways:
- Open a terminal window and log into your ASA using SSH. Elevate your privilege to "privileged EXEC" mode so you see the prompt with `hostname#`.
  - If you managed to get your ASA onboarded, open the **Security Devices** page, select the device you want to connect to, and click **>\_ Command Line Interface** button in the Device Actions pane.
- Step 2** At the prompt type `copy running-config flash`
- Step 3** When prompted for the Source filename, don't type anything and press <Enter>
- Step 4** When prompted for the destination filename, enter a name for the output file. After ASA copies the running configuration the file you specified, it returns you to the privileged EXEC prompt.
- Step 5** At the prompt, type `show flash`
- Step 6** Look in the length column. If your file is over 4718592 bytes, it is larger than 4.5 MB.

Here is a sample set of commands and output:

```
asa1# copy running-config flash
Source filename [running-config]?
Destination filename [running-config]? running-config-output
Cryptochecksum: 725f4c1c 4adfb8a9 8b3e7a6d 49e3420d
23648 bytes copied in 1.380 secs (23648 bytes/sec)
asa1# show flash
--#-- --length-- -----date/time----- path
107 110325428 Feb 28 2019 15:41:42 asdm-8826067.bin
122 5018592 Apr 30 2019 21:00:59 running-config-output
111 102647808 Mar 12 2019 14:26:10 asa9-12-1-smp-k8.bin
```

---

## Container Privilege Escalation Vulnerability Affecting Secure Device Connector: cisco-sa-20190215-runc

The Cisco Product Security Incident Response Team (PSIRT) published the security advisory cisco-sa-20190215-runc which describes a high-severity vulnerability in Docker. [Read the entire PSIRT team advisory](#) for a full explanation of the vulnerability.

This vulnerability impacts all Security Cloud Control customers:

- Customers using Security Cloud Control's cloud-deployed Secure Device Connector (SDC) do not need to do anything as the remediation steps have already been performed by the Security Cloud Control Operations Team.
- Customers using an SDC deployed on-premise need to upgrade their SDC host to use the latest Docker version. They can do so by using the following instructions:

### Updating a Security Cloud Control-Standard SDC Host

#### Procedure

---

**Step 1** Connect to your SDC host using SSH or the hypervisor console.

**Step 2** Check the version of your Docker service by running this command:

```
docker version
```

**Step 3** If you are running one of the latest virtual machines (VMs) you should see output like this:

```
> docker version
Client:
 Version: 18.06.1-ce
 API version: 1.38
 Go version: go1.10.3
 Git commit: e68fc7a
 Built: Tue Aug 21 17:23:03 2018
 OS/Arch: linux/amd64
 Experimental: false
```

It's possible you may see an older version here.

**Step 4** Run the following commands to update Docker and restart the service:

```
> sudo yum update docker-ce
> sudo service docker restart
```

#### Note

There will be a brief connectivity outage between Security Cloud Control and your devices while the docker service restarts.

**Step 5** Run the docker version command again. You should see this output:

```
> docker version
Client:
 Version: 18.09.2
 API version: 1.39
 Go version: go1.10.6
 Git commit: 6247962
```

```
Built: Sun Feb XX 04:13:27 2019
OS/Arch: linux/amd64
Experimental: false
```

**Step 6** You are done. You have now upgraded to the latest, and patched, version of Docker.

---

## Updating a Custom SDC Host

The Secure Device Connector (SDC) has been installed on CentOS 7 virtual machines up to now. However, as CentOS has reached its end-of-life and is no longer supported by Firewall in Security Cloud Control, we recommend migrating all SDCs from CentOS 7 to an Ubuntu virtual machine.

For more information, see [Migrate an On-Premises Secure Device Connector and Secure Event Connector from a CentOS 7 Virtual Machine to an Ubuntu Virtual Machine](#).

This procedure applies if you are still using CentOS.

- If you have created your own SDC host you will need to follow the instructions to update based on how you installed Docker. If you used CentOS, yum and Docker-ce (the community edition) the preceding procedure will work.
- If you have installed Docker-ee (the enterprise edition) or used an alternate method to install Docker, the fixed versions of Docker may be different. You can check the Docker page to determine the correct versions to install: [Docker Security Update and Container Security Best Practices](#).

## Bug Tracking

Cisco is continuing to evaluate this vulnerability and will update the advisory as additional information becomes available. After the advisory is marked Final, you can refer to the associated Cisco bug for further details:

[CSCvo33929-CVE-2019-5736: runc container breakout](#)

## Large ASA Running Configuration Files

### Behavior in Security Cloud Control

You may see behavior such as the ASA failing to onboard, Security Cloud Control not displaying all of the configuration defined in the ASA's running configuration file, or Security Cloud Control failing to write to the change log.

### Possible Cause

The running configuration file of your ASA may be "too large" for Security Cloud Control.

When you onboard an ASA to Security Cloud Control, Security Cloud Control stores a copy of the ASA's running configuration file in its database. Generally, if that running configuration file is too large (4.5 MB or larger), or it contains too many lines (approximately 22,000 lines), or there are too many access-list entries for a single access group, Security Cloud Control will not be able to predictably manage that device.

To confirm the size of your running configuration file, see [Confirming ASA Running Configuration Size](#).

**Workaround or Solution**

Contact your Cisco account team for help safely reducing the size of your configuration file without disrupting your security policies.

## Troubleshoot a Secure Device Connector

Use these topics to troubleshoot an on-premises Secure Device Connector (SDC).

If none of these scenarios match yours, [open a case with Cisco Technical Assistance Center](#).

### SDC is Unreachable

An SDC is in the state "Unreachable" if it has failed to respond to two heartbeat requests from Security Cloud Control in a row. If your SDC is unreachable, your tenant will not be able to communicate with any of the devices you have onboarded.

Security Cloud Control indicates that an SDC is unreachable in these ways:

- You see the message, "Some Secure Device Connectors (SDC) are unreachable. You will not be able to communicate with devices associated with these SDCs." on the Security Cloud Control home page.
- The SDC's status in the Services page is "Unreachable."

First, attempt to reconnect the SDC to your tenant to resolve this issue:

1. Check that the SDC virtual machine is running and can reach a Security Cloud Control IP address in your region.
2. Attempt to reconnect Security Cloud Control and the SDC by requesting a heartbeat manually. If the SDC responds to a heartbeat request, it will return to "Active" status. To request a heartbeat manually:
  - a. In the left pane, choose **Administration > Integrations > Secure Connectors**.
  - b. Click the SDC that is unreachable.
  - c. In the Actions pane, click **Request Heartbeat**.
  - d. Click **Reconnect**.
3. If the SDC does not return to the Active status after manually attempting to reconnect it to your tenant, follow the instructions in [SDC Status not Active on Security Cloud Control After Deployment, on page 781](#).

### SDC Status not Active on Security Cloud Control After Deployment

If Security Cloud Control does not indicate that your SDC is active in about 10 minutes after deployment, connect to the SDC VM using SSH using the `Security Cloud Control` user and password you created when you deployed the SDC.

### Procedure

**Step 1** In Security Cloud Control, click on the SDC that isn't showing as active, and click **Request Heartbeat**.

**Step 2** Ensure that the container is running using the command:

```
docker ps
```

**Step 3** View the SDC logs and check for errors using the command:

```
sdctl show logs
```

**Step 4** Restart the container using the command:

```
sdctl restart
```

## Changed IP Address of the SDC is not Reflected in Security Cloud Control

To view the updated IP address of an SDC, request a heartbeat using the steps provided earlier, and then refresh your browser.

### Request a Heartbeat

In Security Cloud Control, click on the SDC that isn't showing as active, and, in the sidebar, click **Request Heartbeat**.

1. Make sure the container is running using the command: `docker ps`
2. View the SDC logs and check for errors using the command `sdctl show logs`
3. Restart the container using the command `sdctl restart`

## Troubleshoot Device Connectivity with the SDC

Use this tool to test connectivity from Security Cloud Control, through the Secure Device Connector (SDC) to your device. You may want to test this connectivity if your device fails to onboard or if you want to determine, before on-boarding, if Security Cloud Control can reach your device.

### Procedure

**Step 1** In the left pane, choose **Tools & Services > Secure Connectors**.

**Step 2** In the left pane, click **Administration > Integrations > Firewall Management Center**, and click the **Secure Connectors** tab.

**Step 3** Select the SDC.

**Step 4** In the **Troubleshooting** pane on the right, click **Device Connectivity**.

**Step 5** Enter a valid IP address or FQDN and port number of the device you are attempting to troubleshoot, or attempting to connect to, and click **Go**. Security Cloud Control performs the following verifications:

- a) **DNS Resolution** - If you provide a FQDN instead of an IP address, this verifies the SDC can resolve the domain name and acquires the IP address.
- b) **Connection Test** - Verifies the device is reachable.
- c) **TLS Support** - Detects the TLS versions and ciphers that both the device and the SDC support.
  - **Unsupported Cipher** - If there are no TLS version that are supported by both the device and the SDC, Security Cloud Control also tests for TLS versions and ciphers that are supported by the device, but not the SDC.
- d) **SSL Certificate** - The troubleshoot provides certificate information.

**Step 6** If you continue to have issues onboarding or connecting to the device, [contact Security Cloud Control support](#).

---

## Intermittent or No Connectivity with SDC

The Secure Device Connector (SDC) has been installed on CentOS 7 virtual machines up to now. However, as CentOS has reached its end-of-life and is no longer supported by Firewall in Security Cloud Control, we recommend migrating all SDCs from CentOS 7 to an Ubuntu virtual machine.

For more information, see [Migrate an On-Premises Secure Device Connector and Secure Event Connector from a CentOS 7 Virtual Machine to an Ubuntu Virtual Machine](#).

This procedure applies only to an on-premise SDC and if you are still using CentOS.

**Symptom:** Intermittent or no connectivity with SDC.

**Diagnosis:** This problem may occur if the disk space is almost full (above 80%).

Perform the following steps to check the disk space usage.

1. Open the console for your Secure Device Connector (SDC) VM.
2. Log in with the username **cdo**.
3. Enter the password created during the initial login.
4. First, check the amount of free disk space by typing **df -h** to confirm that there is no free disk space available.

You can confirm that the disk space was consumed by the Docker. The normal disk usage is expected to be under 2 Gigabytes.

5. To see the disk usage of the **Docker** folder,  
execute **sudo du -h /var/lib/docker | sort -h**.

You can see the disk space usage of the **Docker** folder.

### Procedure

If the disk space usage of the Docker folder is almost full, define the following in the docker config file:

- **Max-size:** To force a log rotation once the current file reaches the maximum size.
- **Max-file:** To delete excess rotated log files when the maximum limit is reached.

Perform the following:

1. Execute `sudo vi /etc/docker/daemon.json`.

2. Insert the following lines to the file.

```
{
 "log-driver": "json-file",
 "log-opts": {"max-size": "100m", "max-file": "5" }
}
```

3. Press **ESC** and then type `:wq!` to write the changes and close the file.




---

**Note** You can execute `sudo cat /etc/docker/daemon.json` to verify the changes made to the file.

---

4. Execute `sudo systemctl restart docker` to restart the docker file.

It will take a few minutes for the changes to take effect. You can execute `sudo du -h /var/lib/docker | sort -h` to see the updated disk usage of the docker folder.

5. Execute `df -h` to verify that the free disk size has increased.
6. Before your SDC status can change from Unreachable to Active, you must go to the Secure Connectors tab in the **Services** page from Security Cloud Control and click **Request Reconnect** from the Actions menu.
7. Before your SDC status can change from Unreachable to Active, you must go to the **Secure Connectors** tab which you can navigate to from **Administration > Integrations > Firewall Management Center** and click **Request Reconnect** from the Actions menu.

## Container Privilege Escalation Vulnerability Affecting Secure Device Connector: cisco-sa-20190215-runc

The Cisco Product Security Incident Response Team (PSIRT) published the security advisory **cisco-sa-20190215-runc** which describes a high-severity vulnerability in Docker. [Read the entire PSIRT team advisory](#) for a full explanation of the vulnerability.

This vulnerability impacts all Security Cloud Control customers:

- Customers using Security Cloud Control's cloud-deployed Secure Device Connector (SDC) do not need to do anything as the remediation steps have already been performed by the Security Cloud Control Operations Team.
- Customers using an SDC deployed on-premise need to upgrade their SDC host to use the latest Docker version. They can do so by using the following instructions:
  - [Updating a Security Cloud Control-Standard SDC Host, on page 779](#)
  - [Updating a Custom SDC Host, on page 780](#)
  - [Bug Tracking, on page 780](#)



## Updating a Security Cloud Control-Standard SDC Host

### Procedure

---

**Step 1** Connect to your SDC host using SSH or the hypervisor console.

**Step 2** Check the version of your Docker service by running this command:

```
docker version
```

**Step 3** If you are running one of the latest virtual machines (VMs) you should see output like this:

```
> docker version
Client:
 Version: 18.06.1-ce
 API version: 1.38
 Go version: go1.10.3
 Git commit: e68fc7a
 Built: Tue Aug 21 17:23:03 2018
 OS/Arch: linux/amd64
 Experimental: false
```

It's possible you may see an older version here.

**Step 4** Run the following commands to update Docker and restart the service:

```
> sudo yum update docker-ce
> sudo service docker restart
```

#### Note

There will be a brief connectivity outage between Security Cloud Control and your devices while the docker service restarts.

**Step 5** Run the docker version command again. You should see this output:

```
> docker version
Client:
 Version: 18.09.2
 API version: 1.39
 Go version: go1.10.6
 Git commit: 6247962
 Built: Sun Feb XX 04:13:27 2019
 OS/Arch: linux/amd64
 Experimental: false
```

**Step 6** You are done. You have now upgraded to the latest, and patched, version of Docker.

---

## Updating a Custom SDC Host

The Secure Device Connector (SDC) has been installed on CentOS 7 virtual machines up to now. However, as CentOS has reached its end-of-life and is no longer supported by Firewall in Security Cloud Control, we recommend migrating all SDCs from CentOS 7 to an Ubuntu virtual machine.

For more information, see [Migrate an On-Premises Secure Device Connector and Secure Event Connector from a CentOS 7 Virtual Machine to an Ubuntu Virtual Machine](#).

This procedure applies if you are still using CentOS.

- If you have created your own SDC host you will need to follow the instructions to update based on how you installed Docker. If you used CentOS, yum and Docker-ce (the community edition) the preceding procedure will work.
- If you have installed Docker-ee (the enterprise edition) or used an alternate method to install Docker, the fixed versions of Docker may be different. You can check the Docker page to determine the correct versions to install: [Docker Security Update and Container Security Best Practices](#).

## Bug Tracking

Cisco is continuing to evaluate this vulnerability and will update the advisory as additional information becomes available. After the advisory is marked Final, you can refer to the associated Cisco bug for further details:

[CSCvo33929-CVE-2019-5736: runc container breakout](#)

## Invalid System Time

The Secure Device Connector (SDC) has been installed on CentOS 7 virtual machines up to now. However, as CentOS has reached its end-of-life and is no longer supported by Firewall in Security Cloud Control, we recommend migrating all SDCs from CentOS 7 to an Ubuntu virtual machine.

For more information, see [Migrate an On-Premises Secure Device Connector and Secure Event Connector from a CentOS 7 Virtual Machine to an Ubuntu Virtual Machine](#).

This procedure applies if you are still using CentOS.

- Security Cloud Control is adapting a new way of communicating with the Secure Device Connector (SDC). To facilitate this, Security Cloud Control must migrate your existing SDC to the new communication method by February 1, 2024.



**Note** If your SDC is not migrated by February 1, 2024, Security Cloud Control will no longer be able to communicate with your devices through the SDC.

- Security Cloud Control's operations team attempted to migrate your SDC but was unsuccessful because your SDC system time was 15 minutes ahead or behind the AWS system time.

Follow the steps below to correct the system time issue. Once this problem is resolved, you can proceed with the migration.

### Procedure

- Step 1** Login to your SDC VM through the VM terminal or by making an SSH connection.
- Step 2** At the prompt, enter `sudo sdc-onboard setup` and authenticate.
- Step 3** You are now going to respond to the SDC setup questions as if you are were setting up the SDC for the first time. Re-enter all the same passwords and network information as you had before, except take special note of the NTP server address:
  - a) Reset the root and Security Cloud Control user passwords with the same passwords you used to setup the SDC.

- b) When prompted, enter **y** to re-configure the network.
- c) Enter the value for IP address/CIDR as you had before.
- d) Enter the value for the network gateway as you had before.
- e) Enter the value for the DNS Server as you had before.
- f) When prompted for the NTP server, be sure to provide a valid NTP server address, such as `time.aws.com`.
- g) Review the values you provided and enter **y** if they are correct.

**Step 4** Validate that your time server is reachable and synchronized with your SDC by entering `date` at the prompt. The UTC date and time are displayed and you can compare it to your SDC time.

### What to do next

Contact the [Cisco Technical Assistance Center \(TAC\)](#) once you have completed these steps, or in case you encounter any errors. Once you have successfully completed these steps, the Security Cloud Control operations team can complete your SDC migration to the new communication method.

## SDC version is lower than 202311\*\*\*\*

The Secure Device Connector (SDC) has been installed on CentOS 7 virtual machines up to now. However, as CentOS has reached its end-of-life and is no longer supported by Firewall in Security Cloud Control, we recommend migrating all SDCs from CentOS 7 to an Ubuntu virtual machine.

For more information, see [Migrate an On-Premises Secure Device Connector and Secure Event Connector from a CentOS 7 Virtual Machine to an Ubuntu Virtual Machine](#).

This procedure applies if you are still using CentOS.

- Security Cloud Control is adapting a new way of communicating with the Secure Device Connector (SDC). To facilitate this, Security Cloud Control must migrate your existing SDC to the new communication method by February 1, 2024.



**Note** If your SDC is not migrated by February 1, 2024, Security Cloud Control will no longer be able to communicate with your devices through the SDC.

- Security Cloud Control's operations team attempted to migrate your SDC but was unsuccessful because your tenant is running a version lower than 202311\*\*\*\*.
- The current version of your SDC is listed on the Secure Connectors page by navigating from the Security Cloud Control navigation menu, **Administration** > **Integrations** > **Secure Connectors**. After selecting your SDC, its version number is found in the **Details** pane on the right of the screen.

Please follow the steps below to upgrade the SDC version. Once this problem is resolved, Security Cloud Control operations will run the migration process again.

### Procedure

- Step 1** Log in to the SDC VM and authenticate.
- Step 2** At the prompt, enter `sudo su - sdc` and authenticate.

- Step 3** At the prompt, enter `crontab -r`.
- If you receive the message `no crontab for sdc` you can ignore it and move to the next step.
- Step 4** At the prompt, enter `./toolkit/toolkit.sh upgrade`. Security Cloud Control will determine if you need an upgrade and upgrade the toolkit. Ensure that no errors were reported in the console.
- Step 5** Verify the new version of the SDC:
- Log in to Security Cloud Control.
  - Navigate to the Secure Connectors page by navigating from the Security Cloud Control menu bar, **Tools & Services** > **Secure Connectors**.
  - Select your SDC and click **Request Heartbeat** in the **Actions** pane.
  - Validate that the SDC version is 202311\*\*\*\* or later.

---

### What to do next

Contact the [Cisco Technical Assistance Center \(TAC\)](#) once you have completed these steps, or in case you encounter any errors. Once you have successfully completed these steps, the Security Cloud Control operations team can run the migration process again.

## Certificate or Connection errors with AWS servers

Security Cloud Control is adapting a new way of communicating with the Secure Device Connector (SDC). To facilitate this, Security Cloud Control must migrate your existing SDC to the new communication method by February 1, 2024.




---

**Note** If your SDC is not migrated by February 1, 2024, Security Cloud Control will no longer be able to communicate with your devices through the SDC.

---

Security Cloud Control's operations team attempted to migrate your SDC but was unsuccessful because they experienced a connection issue.

Please follow the steps below to correct the connection issue. Once this problem is resolved, we will be able to proceed with the migration.

### Procedure

- 
- Step 1** Create firewall rules that allow outbound proxy connections, on port 443, to the domains in your region:
- Production tenants in the Australia region:
    - `cognito-identity.ap-southeast-2.amazonaws.com`
    - `cognito-idp.ap-southeast-2.amazonaws.com`
    - `sns.ap-southeast-2.amazonaws.com`
    - `sqs.ap-southeast-2.amazonaws.com`

- Production tenants in the India region:
  - `cognito-identity.ap-south-1.amazonaws.com`
  - `cognito-idp.ap-south-1.amazonaws.com`
  - `sns.ap-south-1.amazonaws.com`
  - `sqs.ap-south-1.amazonaws.com`
- Production tenants in the US region:
  - `cognito-identity.us-west-2.amazonaws.com`
  - `cognito-idp.us-west-2.amazonaws.com`
  - `sns.us-west-2.amazonaws.com`
  - `sqs.us-west-2.amazonaws.com`
- Production tenants in the EU region:
  - `cognito-identity.eu-central-1.amazonaws.com`
  - `cognito-idp.eu-central-1.amazonaws.com`
  - `sns.eu-central-1.amazonaws.com`
  - `sqs.eu-central-1.amazonaws.com`
- Production tenants in the APJ region:
  - `cognito-identity.ap-northeast-1.amazonaws.com`
  - `cognito-idp.ap-northeast-1.amazonaws.com`
  - `sqs.ap-northeast-1.amazonaws.com`
  - `sns.ap-northeast-1.amazonaws.com`

**Step 2** You can determine the full list of IP addresses you need to add to your firewall's "allow list" by using one of the commands below.

**Note**

The commands below are for users that have **jq** installed. The IP addresses will be displayed in a single list.

- Production tenants in the US region:
 

```
curl -s https://ip-ranges.amazonaws.com/ip-ranges.json | jq -r '.prefixes[] | select(
 (.service == "AMAZON") and .region == "us-west-2") | .ip_prefix'
```
- Production tenants in the EU region:
 

```
curl -s https://ip-ranges.amazonaws.com/ip-ranges.json | jq -r '.prefixes[] | select(
 (.service == "AMAZON") and .region == "eu-central-1") | .ip_prefix'
```
- Production tenants in the APJ region:
 

```
curl -s https://ip-ranges.amazonaws.com/ip-ranges.json | jq -r '.prefixes[] | select(
 (.service == "AMAZON") and .region == "ap-northeast-1") | .ip_prefix'
```

**Note**

If you don't have **jq** installed, you can use this shortened version of the command:

```
curl -s https://ip-ranges.amazonaws.com/ip-ranges.json
```

**What to do next**

Contact the [Cisco Technical Assistance Center \(TAC\)](#) once you have completed these steps, or in case you encounter any errors. Once you have successfully completed these steps, the Security Cloud Control operations team can complete your SDC migration to the new communication method.

## Troubleshoot a Secure Event Connector

If none of the scenarios described below match your issue, [open a case with Cisco Technical Assistance Center \(TAC\)](#) for further assistance.

### Troubleshoot SEC Onboarding Failures

The troubleshooting scenarios describe a variety of symptoms associated with Secure Event Connector (SEC) onboarding and operational failures. Use this topic to identify and resolve the issue impacting your deployment.

**SEC onboarding failed**

**Symptom:** SEC onboarding failed.

**Repair:** [Remove](#) and [onboard](#) the SEC again.



**Tip** Always use the copy link to copy the bootstrap data when on-boarding an SEC.



**Note** If this procedure does not correct the problem, [gather the troubleshooting logs](#) and contact your Managed Service Provider or the [Cisco Technical Assistance Center](#).

**Downloading, decoding, or extracting bootstrap data failed****Messages:**

- [Error] Downloading the bootstrap package failed.
- [Error] Extracting the bootstrap package failed.
- [Error] Max retries exceeded for bootstrap download.

**Diagnosis:** Decoding bootstrap data failed.

**Repair:**

- Wait briefly and retry the bootstrap operation.

- Add a new SEC in the UI and attempt to bootstrap the new one instead.

### Adequate CPU and memory not available

**Message:** [Error] Secure Event Connector minimum system requirements not met.

```
[sdc@localhost ~]$ /usr/local/cdo/toolkit/sec.sh setup
[2020-06-10 04:37:26] ERROR unable to setup Secure Event Connector, minimum 4 cpus and 8 GB ram required, exiting.
```

**Diagnosis:** Adequate CPU and memory not available.

**Repair:** Increase the resources of your virtual machine to meet the minimum required specifications.

### Host already has an SEC

**Message:** [Error] This host currently has an SEC enabled for the same tenant. Please remove the SEC before trying to bootstrap it again.

**Diagnosis:** SEC already running.

**Repair:** Ensure that there is no existing operational SEC in your environment. If one is present but not operational, remove it and then re-bootstrap the SEC.



**Note** Ensure that you are removing an active SEC. This error message can occur when a bootstrap progresses far enough for the system to assume normal operation but fails to fully complete. As a result, it is possible that a bootstrap error is causing this situation.

To confirm, run the command `sdc eventing healthcheck`. If the health check reports all green, it indicates that the SEC is active and functioning properly. In such a case, removing it would disrupt an operational SEC.

### Contact Security Cloud Control Support

If none of the scenarios described above match your issue, [open a case with Cisco Technical Assistance Center](#).

## Troubleshoot Secure Event Connector Registration Failure

**Symptom:** Registration of Cisco Secure Event Connector to cloud eventing service fails.

**Diagnosis:** These are the most common reasons that the SEC fails to register to the eventing cloud service.

- **The SEC is unable to reach the Eventing cloud service from SEC**

**Repair:** Ensure that Internet is accessible on port 443 and DNS is configured correctly.

- **Registration failure due to invalid or expired one-time-password in SEC bootstrapdata**

**Repair:**

### Procedure

**Step 1** SSH to the host VM as the admin user, typically `cdo`.

- Step 2** Switch to the `sdc` user using the command: `sudo su - sdc`.
- Step 3** View the connector log by running command `sdc eventing logs --type connector`.

**Note**

If the registration has failed due to an invalid token, you see an error message in the log file similar to the example below:

```
context>(*contextImpl).handleFailed] registration - CE2001: Registration failed - Failed
to register the device because of invalid token. Retry with a new valid token.
```

- Step 4** [Remove](#) the SEC.
- Step 5** Add a new SEC in the UI and [re-onboard](#).

## Troubleshooting Network Problems Using Security and Analytics Logging Events

Here is a basic framework you can use to troubleshoot network problems using the Events Viewer.

This scenario assumes that your network operations team has had a report that a user can't access a resource on the network. Based on the user reporting the issue and their location, the network operations team has a reasonable idea of which firewall controls their access to resources.

**Note**

This scenario also assumes that an FDM-managed device is the firewall managing the network traffic. Security Analytics and Logging does not collect logging information from other device types.

### Procedure

- Step 1** In the left pane, click **Events & Logs > Events > Event Logging**.
- Step 2** Click the **Historical** tab.
- Step 3** Start filtering events by **Time Range**. By default, the Historical tab shows the last hour of events. If that is the correct time range, enter the current date and time as the **End** time. If that is not the correct time range, enter a start and end time encompassing the time of the reported issue.
- Step 4** Enter the IP address of the firewall that you suspect is controlling the user's access in the **Sensor ID** field. If it could be more than one firewall, filter events using **attribute:value** pairs in the search bar. Make two entries and combine them with an OR statement. For example: `SensorID:192.168.10.2 OR SensorID:192.168.20.2`.
- Step 5** Enter the user's IP address in the **Source IP** field in the Events filter bar.
- Step 6** If the user can't access a resource, try entering that resource's IP address in the **Destination IP** field.
- Step 7** Expand the events in the results and look at their details. Here are some details to look at:
- **AC\_RuleAction** - The action taken (Allow, Trust, Block) when the rule was triggered.
  - **FirewallPolicy** - The policy in which the rule that triggered the event resides.
  - **FirewallRule** - The name of the rule that triggered the event. If the value is Default Action then it was the default action of the policy that triggered the event and not one of the rules in the policy.



- **UserName** - The user associated with the initiator IP address. The Initiator IP address is the same as the Source IP address.

**Step 8** If the rule action is preventing access, look at the FirewallRule and FirewallPolicy fields to identify the rule in the policy that is blocking access.

## Troubleshooting NSEL Data Flows

Once you have [configured Netflow Secure Event Logging \(NSEL\)](#), use these procedures to verify that NSEL events are being sent from your ASA to the Cisco Cloud and that the Cisco Cloud is receiving them.

Note that once your ASA is configured to send NSEL events to the Secure Event Connector (SEC) and then on to the Cisco Cloud, data does not flow immediately. It could take a few minutes for the first NSEL packets to arrive assuming there is NSEL-related traffic being generated on the ASA.



**Note** This workflow shows you a straight-forward use of the "flow-export counters" command and "capture" commands to Troubleshoot NSEL Data Flows. See "Packet Captures" [CLI Book 1: Cisco ASA Series General Operations CLI Configuration Guide](#) and "Monitoring NSEL" in the [Cisco ASA NetFlow Implementation Guide](#) for a more detailed discussion of the usage of these commands.

Perform these tasks:

- Verify that NetFlow Packets are Being Sent to the SEC
- Verify that NetFlow Packets are Being Received by the Cisco Cloud

## Event Logging Troubleshooting Log Files

The Secure Event Connector troubleshooting command collects logs, configurations, and limited system information, compressing them into a single archive to simplify the diagnosis of issues. If you already have a TAC case open, the compressed archive can also be sent directly to your TAC representative.

1. SSH to your host using the admin account, typically `cdo`.
2. Switch to the SDC user using the command `sudo su - sdc`
3. **If you do not have a TAC case open:** Run the command to gather and compress the troubleshooting bundle:

```
sdc eventing troubleshoot
```

4. **If you already have a TAC case open:** Request an upload token from your TAC representative and use the command to gather, compress, and upload the troubleshooting bundle directly to your case:

```
sdc eventing troubleshoot --case-number [your-tac-case-number] --token
[the-token-tac-provided]
```

5. If you prefer to retrieve the troubleshooting bundle manually, use SCP or SFTP. Locate the absolute path to the bundle provided in the last log entry after running the troubleshoot command. Then, use the following SCP command to download the bundle to your local machine:

```
scp -P [22 or whichever port you SSH on]
cdo@your-vm-ip:/opt/cdo/.cdo/troubleshooting/cdo_[tenant-name-here]
- troubleshooting-[timestamp-here].tar.gz ./sec-troubleshooting-bundle.tar.gz
```

**Note** Replace

/opt/cdo/.cdo/troubleshooting/cdo\_\[tenant-name-here\]-troubleshooting-\[timestamp-here\].tar.gz  
with the actual path displayed in the log output.

If you want to decompress the archive to review the logs and system configurations, use the command:

```
tar xvf ./[sec-troubleshooting-bundle-filename].tar.gz
```

## SEC Status is Inactive in Security Cloud Control

**Symptom:** The Secure Event Connector status shows "Inactive" in the Security Cloud Control Secure Connectors page after onboarding for one of these reasons:

- Heartbeat failed
- Connector registration failed

**Repair:**

- **Heartbeat failed:** Request SEC heartbeat and refresh Secure Connector page to see if the status changes to "Active", if not check if the Secure Device Connector registration failed.
- **Connector registration failed:** Refer issue [Troubleshooting SEC Registration Failure](#).

## The SEC is online, but there are no events in Security Cloud Control Event Logging Page

**Symptom:** The Secure Event Connector shows "Active" in Security Cloud Control Secure Connectors page but you do not see events in Security Cloud Control Event viewer.

**Solution or workaround:****Procedure**

**Step 1** SSH to your host using the admin account, typically `cdo`.

**Step 2** Switch to the SDC user with the command `sudo su - sdc`.

**Step 3** Perform the following checks:

- Check SEC connector log using the command `sdc eventing logs --type connector -n 100` and ensure the SEC registration was successful.

If not, see [Secure Event Connector Registration failure](#).

- Check SEC events log using the command `sdc eventing logs --type events -n 200` and ensure that the events are being processed.

If not, [contact Security Cloud Control support](#).

- Check the SEC supervisor log with `sdcc eventing logs --type supervisor -n 100` and ensure the output is as shown below and all processes in **RUNNING** state.

If not, [contact Security Cloud Control support](#).

**INFO success: estreamer-connector entered RUNNING state, process has stayed up for > than 1 seconds**

**INFO success: estreamer-plugin entered RUNNING state, process has stayed up for > than 1 seconds**

**INFO success: estreamer-rsyslog entered RUNNING state, process has stayed up for > than 1 seconds**

- Ensure that the firewall rules on the on-premise SDC are not blocking the UDP and TCP ports shown for the SEC on the Secure Connectors page. See [Finding Your Device's TCP, UDP, and NSEL Port Used for Cisco Security Analytics and Logging](#) to determine what ports you need to open.

| ID                                   | Type                    | Deployment | Status | Last Heartbeat        |
|--------------------------------------|-------------------------|------------|--------|-----------------------|
| CDO_solution_es1-SDC                 | Secure Device Connector | On-Prem    | Active | 5/31/2019, 3:00:21 PM |
| 6c24d6bb-e307-4a05-9dd7-4f6f6c084d6b | Secure Event Connector  | On-Prem    | Active | 5/31/2019, 3:00:23 PM |

6c24d6bb-e307-4a05-9dd7-4f6f6c084d6b

Details

Version 83a49e199bdd85b7cdfb8dd05972e50c5929abf4

IP Address 192.168.0.191

TCP Port 10125

UDP Port 10025

- If you have setup SDC manually using a CentOS 7 VM of your own and have the firewall configured to block incoming requests, you could execute the following commands to unblock the UDP and TCP ports:

**firewall-cmd --zone=public --add-port=<udp\_port>/udp --permanent**

**firewall-cmd --zone=public --add-port=<tcp\_port>/tcp --permanent**

**firewall-cmd --reload**

- Using Linux network tools of your choice, check if packets are being received on these ports. If not receiving, re-check the FTD logging configuration.

If none of the above repairs work, [raise a support ticket with Security Cloud Control support](#).

## Remove an SEC from Your Host

The Secure Event Connector (SEC) delete command removes the SEC container along with its associated files from the Secure Device Connector (SDC) virtual machine. This command is typically used to address issues such as Secure Event Connector registration failures or onboarding failures.

To run the command:

### Procedure

- Step 1** SSH to your host using the admin account, typically `cdo`.
- Step 2** Switch to the SDC user with `sudo su - sdc`.

**Step 3** Run the command `sdm eventing delete`.

If applicable, you will be prompted to select the tenant you wish to delete. Follow the on-screen prompts to confirm your selection and fully remove the SEC data from the virtual machine.

---

## Use Health Check to Learn the State of your Secure Event Connector

The Secure Event Connector (SEC) Health Check script provides information on the state of your SEC.

Follow this procedure to run Health Check:

### Procedure

---

**Step 1** SSH to your host using the admin account, typically `cdm`.

**Step 2** Switch to the SDC user using the command `sudo su - sdm`

**Step 3** Run the command `sdm eventing healthcheck` and, if applicable, select the tenant when prompted.

```
sdci-ci-sdc-4:~$ sdc eventing healthcheck
2025-05-06 16:36:20 [INFO] [Manual Command] ev
2025-05-06 16:36:44 [INFO] Running SEC healthche

=====

Running SEC health check for tenant CD0_blum-ten
--

SEC cloud URL stage-api-sse.cisco.com is: Reacha
SEC Connector status: Eventing subscription not
okSEC Events Plugin is: Running
SEC UDP syslog server is: Running
SEC TCP syslog server is: Running
SEC netflow collector is: Running
Skipping SEC test event due to earlier failures
SEC healthcheck failed, please review any errors
ok

=====
```

Values of Health Check output:

- **SEC Cloud URL:** Displays the Security Cloud Control cloud URL and whether or not the SEC can reach Security Cloud Control.
- **SEC Connector:** Will show "Running" if the SEC connector has been onboarded correctly and has started.
- **SEC UDP syslog server:** Will show "Running" if the UDP syslog server is ready to send UDP events.
- **SEC TCP syslog server:** Will show "Running" if the TCP syslog server is ready to send TCP events.
- **SEC Connector status:** Will show Active if the SEC is running and onboarded to Security Cloud Control.

- **SEC Send sample event:** If at the end of the health check, all the status checks are "green," the tool sends a sample event. (If any of the processes are "Down," the tool skips sending the test event.) The sample event shows up in the Event Log as a policy named "sec-health-check."
- 

# Troubleshoot Security Cloud Control

## Troubleshooting Login Failures

### Login Fails Because You are Inadvertently Logging in to the Wrong Security Cloud Control Region

Make sure you are logging in to the appropriate Security Cloud Control region. After you log in to <https://sign-on.security.cisco.com>, you will be given a choice of what region to access.

## Troubleshooting Login Failures after Migration

### Login to Security Cloud Control Fails Because of Incorrect Username or Password

**Solution** If you try to log in to Security Cloud Control and you *know* you are using the correct username and password and your login is failing, or you try the "forgot password" option and cannot recover a viable password, you may have tried to log in without creating a new Cisco Security Cloud Sign On account. You need to sign up for a new Cisco Security Cloud Sign On Account.

### Login to the Cisco Security Cloud Sign On Dashboard Succeeds but You Can't Launch Security Cloud Control

**Solution** You may have created a Cisco Security Cloud Sign On account with a different username than your Security Cloud Control tenant. Contact the [Cisco Technical Assistance Center \(TAC\)](#) to standardize your user information between Security Cloud Control and Cisco Secure Sign-On.

### Login Fails Using a Saved Bookmark

**Solution** You may be attempting to log in using an old bookmark you saved in your browser. The bookmark could be pointing to <https://cdo.onelogin.com>.

**Solution** Log in to <https://sign-on.security.cisco.com>.

- **Solution** If you have created your new secure sign-on account, click the Security Cloud Control tile on the dashboard that corresponds to the region in which your tenant was created:
  - **Solution** Security Cloud Control APJ
  - **Solution** Security Cloud Control Australia
  - **Solution** Security Cloud Control EU
  - **Solution** Security Cloud Control India
  - **Solution** Security Cloud Control US
- **Solution** Update your bookmark to point to <https://sign-on.security.cisco.com>.

## Troubleshooting Access and Certificates

### Troubleshoot User Access with Security Cloud Control

Consider the case of users being denied access to a resource that they should have access to. Here is an approach you can take to diagnose and remediate that problem.

#### Procedure

- 
- Step 1** Users inform your security team that their access to a resource is blocked. Determine how that resource is typically reached. What is its IP address? Do you reach it on a specific port? What protocol is used to send information to the resource?
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **ASA** tab and select the ASA and run packet tracer. See [ASA Packet Tracer](#) for more instructions.
  - Step 4** Examine the packet trace table for rules that may have denied access to the resource.
  - Step 5** Edit the rule from Security Cloud Control to correct the behavior. Your ASA is now out of sync with Security Cloud Control.
  - Step 6** Deploy the changes to the ASA from the **Security Devices** page. Security Cloud Control traces packets through the configuration saved on the ASA not a configuration staged on Security Cloud Control. Be aware, you will also be deploying any other configuration changes staged on Security Cloud Control to your ASA.
  - Step 7** Re-run packet tracer to determine if the policy change provides the desired results. Confirm that your users now have access to the resource.
  - Step 8** Assuming your users now have access, clear the change request label in Security Cloud Control. This prevents unrelated activity from being associated with this fix.

#### Note

If the change you made doesn't fix the problem or creates some new problems and you want to return to your previous configuration, you can do restore the ASA Configuration. See [Restoring ASA Configurations](#).

---

### Resolve New Fingerprint Detected State

#### Procedure

- 
- Step 1** In the navigation bar, click **Inventory**.
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **Devices** tab.
  - Step 4** Click the appropriate device type tab.
  - Step 5** Select the device in the **New Fingerprint Detected** state.
  - Step 6** Click **Review Fingerprint** in the New Fingerprint Detected pane.
  - Step 7** When prompted to review and accept the fingerprint:
    - a. Click **Download Fingerprint** and review it.

- b. If you are satisfied with the fingerprint, click **Accept**. If you are not, click **Cancel**.

**Step 8** After you resolve the new fingerprint issue, the connectivity state of the device may show **Online** and the Configuration Status may show "Not Synced" or "Conflict Detected." Review [Resolve Configuration Conflicts](#) to review and resolve configuration differences between Security Cloud Control and the device.

## Troubleshooting Network Problems Using Security and Analytics Logging Events

Here is a basic framework you can use to troubleshoot network problems using the Events Viewer.

This scenario assumes that your network operations team has had a report that a user can't access a resource on the network. Based on the user reporting the issue and their location, the network operations team has a reasonable idea of which firewall controls their access to resources.



**Note** This scenario also assumes that an FDM-managed device is the firewall managing the network traffic. Security Analytics and Logging does not collect logging information from other device types.

### Procedure

- Step 1** In the left pane, click **Events & Logs > Events > Event Logging**.
- Step 2** Click the **Historical** tab.
- Step 3** Start filtering events by **Time Range**. By default, the Historical tab shows the last hour of events. If that is the correct time range, enter the current date and time as the **End** time. If that is not the correct time range, enter a start and end time encompassing the time of the reported issue.
- Step 4** Enter the IP address of the firewall that you suspect is controlling the user's access in the **Sensor ID** field. If it could be more than one firewall, filter events using **attribute:value** pairs in the search bar. Make two entries and combine them with an OR statement. For example: `SensorID:192.168.10.2 OR SensorID:192.168.20.2`.
- Step 5** Enter the user's IP address in the **Source IP** field in the Events filter bar.
- Step 6** If the user can't access a resource, try entering that resource's IP address in the **Destination IP** field.
- Step 7** Expand the events in the results and look at their details. Here are some details to look at:
- **AC\_RuleAction** - The action taken (Allow, Trust, Block) when the rule was triggered.
  - **FirewallPolicy** - The policy in which the rule that triggered the event resides.
  - **FirewallRule** - The name of the rule that triggered the event. If the value is Default Action then it was the default action of the policy that triggered the event and not one of the rules in the policy.
  - **UserName** - The user associated with the initiator IP address. The Initiator IP address is the same as the Source IP address.
- Step 8** If the rule action is preventing access, look at the FirewallRule and FirewallPolicy fields to identify the rule in the policy that is blocking access.



## Troubleshooting SSL Decryption Issues

### Handling Web Sites Where Decrypt Re-sign Works for a Browser but not an App (SSL or Certificate Authority Pinning)

Some apps for smart phones and other devices use a technique called SSL (or Certificate Authority) pinning. The SSL pinning technique embeds the hash of the original server certificate inside the app itself. As a result, when the app receives the resigned certificate from the Firepower Threat Defense device, the hash validation fails and the connection is aborted.

The primary symptom is that users cannot connect to the web site using the site's app, but they can connect using the web browser, even when using the browser on the same device where the app fails. For example, users cannot use the Facebook iOS or Android app, but they can point Safari or Chrome at <https://www.facebook.com> and make a successful connection.

Because SSL pinning is specifically used to avoid man-in-the-middle attacks, there is no workaround. You must choose between the following options:

#### More Details

If a site works in a browser but not in an app on the same device, you are almost certainly looking at an instance of SSL pinning. However, if you want to delve deeper, you can use connection events to identify SSL pinning in addition to the browser test.

There are two ways an app might deal with hash validation failures:

- Group 1 apps, such as Facebook, send an SSL ALERT Message as soon as it receives the SH, CERT, SHD message from the server. The Alert is usually an "Unknown CA (48)" alert indicating SSL Pinning. A TCP Reset is sent following the Alert message. You should see the following symptoms in the event details:
  - SSL Flow Flags include `ALERT_SEEN`.
  - SSL Flow Flags do not include `APP_DATA_C2S` or `APP_DATA_S2C`.
  - SSL Flow Messages typically are: `CLIENT_HELLO`, `SERVER_HELLO`, `SERVER_CERTIFICATE`, `SERVER_KEY_EXCHANGE`, `SERVER_HELLO_DONE`.
- Group 2 apps, such as Dropbox, do not send any alerts. Instead they wait until the handshake is done and then send a TCP Reset. You should see the following symptoms in the event:
  - SSL Flow Flags do not include `ALERT_SEEN`, `APP_DATA_C2S`, or `APP_DATA_S2C`.
  - SSL Flow Messages typically are: `CLIENT_HELLO`, `SERVER_HELLO`, `SERVER_CERTIFICATE`, `SERVER_KEY_EXCHANGE`, `SERVER_HELLO_DONE`, `CLIENT_KEY_EXCHANGE`, `CLIENT_CHANGE_CIPHER_SPEC`, `CLIENT_FINISHED`, `SERVER_CHANGE_CIPHER_SPEC`, `SERVER_FINISHED`.

## Troubleshooting Login Failures after Migration

### Login to Security Cloud Control Fails Because of Incorrect Username or Password

**Solution** If you try to log in to Security Cloud Control and you *know* you are using the correct username and password and your login is failing, or you try the "forgot password" option and cannot recover a viable

password, you may have tried to log in without creating a new Cisco Security Cloud Sign On account. You need to sign up for a new Cisco Security Cloud Sign On Account.

### Login to the Cisco Security Cloud Sign On Dashboard Succeeds but You Can't Launch Security Cloud Control

**Solution** You may have created a Cisco Security Cloud Sign On account with a different username than your Security Cloud Control tenant. Contact the [Cisco Technical Assistance Center \(TAC\)](#) to standardize your user information between Security Cloud Control and Cisco Secure Sign-On.

### Login Fails Using a Saved Bookmark

**Solution** You may be attempting to log in using an old bookmark you saved in your browser. The bookmark could be pointing to <https://cdo.onelogin.com>.

**Solution** Log in to <https://sign-on.security.cisco.com>.

- **Solution** If you have created your new secure sign-on account, click the Security Cloud Control tile on the dashboard that corresponds to the region in which your tenant was created:

- **Solution** Security Cloud Control APJ
- **Solution** Security Cloud Control Australia
- **Solution** Security Cloud Control EU
- **Solution** Security Cloud Control India
- **Solution** Security Cloud Control US

- **Solution** Update your bookmark to point to <https://sign-on.security.cisco.com>.

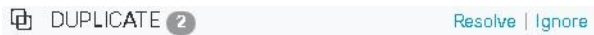
## Troubleshooting Objects

### Resolve Duplicate Object Issues

Duplicate objects  are two or more objects on the same device with different names but the same values. These objects are usually created accidentally, serve similar purposes, and are used by different policies. After resolving duplicate object issues, Security Cloud Control updates all affected object references with the retained object name.

To resolve duplicate object issues:

#### Procedure

- Step 1** In the left pane, click **Objects** and choose an option.
- Step 2** Select one of the results. In the objects details panel, you will see the DUPLICATE field with the number of duplicates affected:  

- Step 3** Click **Resolve**. Security Cloud Control displays the duplicate objects for you to compare.
- Step 4** Select two of the objects to compare.

- Step 5** You now have these options:
- If you want to replace one of the objects with the other, click **Pick** for the object you to keep, click **Resolve** to see what devices and network policies will be affected, and then click **Confirm** if you are satisfied with the changes. Security Cloud Control keeps the object you selected as the replacement and deletes the duplicate.
  - If you have an object in the list that you want to ignore, click **Ignore**. If you ignore an object, it will be removed from the list of duplicate objects that Security Cloud Control shows you.
  - Click **Ignore All** if you want to keep the object but do not want Security Cloud Control to find it in a search for duplicate objects.
- Step 6** Once the duplicate object issue has been resolved [review and deploy](#) the changes you made now, or wait and deploy multiple changes at once.
- 

## Resolving Inconsistent or Unused Security Zone Objects

Security zone objects can be marked inconsistent or unused like other objects. See [Resolve Unused Object Issues](#) and [Resolve Inconsistent Object Issues](#) for instructions on how to resolve these issues.

### Resolve Unused Object Issues

Unused objects  are objects that exist in a device configuration but are not referenced by another object, an access-list, or a NAT rule.

#### Resolve an Unused Object Issue

##### Procedure

---

- Step 1** In the left pane, click **Objects** and choose an option.
- Step 2** Select one or more unused objects.
- Step 3** You now have these options:
- In the Actions pane, click **Remove**  to remove the unused object from Security Cloud Control.
  - In the Issues pane, click **Ignore**. If you ignore an object, Security Cloud Control will stop displaying it among the results of unused objects objects.
- Step 4** If you removed the unused object, [Preview and Deploy Configuration Changes for All Devices, on page 615](#) the changes you made now, or wait and deploy multiple changes at once.

##### Note

To resolve unused object issues in bulk, see [Resolve Object Issues in Bulk](#).

---

## Remove Unused Objects in Bulk

### Procedure

- 
- Step 1** In the left pane, click **Objects** and choose an option.
- Step 2** Select the unused objects you want to delete:
- Click the checkbox in the object table header row to select all the objects on the page.
  - Select individual unused objects in the object table.
- Step 3** In the Actions pane on the right, click **Remove**  to remove all the unused objects you selected in Security Cloud Control. You can remove 99 objects at a time.
- Step 4** Click **OK** to confirm you want to delete the unused objects.
- Step 5** You have two choices to deploy these changes:
- [Review and deploy](#) the changes you made now, or wait and deploy multiple changes at once.
  - Open the **Security Devices** page and find the devices that were affected by the change. Select all the devices affected by the change and, in the **Management** pane, click **Deploy All** . Read the warning and take the appropriate action.
- 

## Resolve Inconsistent Object Issues

Inconsistent objects  **INCONSISTENT**  [Resolve](#) | [Ignore](#) are objects with the same name, but different values, on two or more devices. Sometimes users create objects in different configurations with the same name and content, but over time the values of these objects diverge, which creates the inconsistency.

**Note:** To resolve inconsistent object issues in bulk, see [Resolve Object Issues in Bulk](#).

You can perform the following on inconsistent objects:

- **Ignore:** Security Cloud Control ignores the inconsistency between objects and retains their values. The objects will no longer be listed under the inconsistency category.
- **Merge:** Security Cloud Control combines all selected objects and their values into a single object group.
- **Rename:** Security Cloud Control allows you to rename one of the inconsistent objects and give it a new name.
- **Convert Shared Network Objects to Overrides:** Security Cloud Control allows you to combine inconsistent shared objects (with or without overrides) into a single shared object with overrides. The most common default value from the inconsistent objects is set as a default in the newly formed object.




---

**Note** If there are multiple common default values, one of them is selected as the default. The remaining default values and override values are set as overrides of that object.

---

- **Convert Shared Network Group to Additional Values:** - Security Cloud Control allows you to combine inconsistent shared network groups into a single shared network group with additional values. The criteria for this functionality is that the inconsistent network groups to be converted must have a minimum of one common object with the same value. All default values that match this criterion becomes the default values, and the remaining objects are assigned as additional values of the newly formed network group.

For example, consider two inconsistent shared network groups. The first network group 'shared\_network\_group' is formed with 'object\_1' (192.0.2.x) and 'object\_2' (192.0.2.y). It also contains additional value 'object\_3' (192.0.2.a). The second network group 'shared\_network\_group' is formed with 'object\_1' (192.0.2.x) and additional value 'object\_4' (192.0.2.b). On converting the shared network group to additional values, the newly formed group 'shared\_network\_group' contain 'object\_1' (192.0.2.x) and 'object\_2' (192.0.2.y) as default values and 'object\_3' (192.0.2.a) and 'object\_4' (192.0.2.b) as additional values.



**Note** When you create a new network object, Security Cloud Control auto assigns its value as an override to an existing shared network object with the same name. This is also applicable when a new device is onboarded to Security Cloud Control.

The auto-assignment happens only when the following criteria are met:

1. The new network object must be assigned to a device.
2. Only one shared object with the same name and type must be existing in the tenant.
3. The shared object must already contain overrides.

To resolve inconsistent object issues:

## Procedure

- 
- Step 1** In the Security Cloud Control navigation bar on the left, click **Objects** and choose an option.
- Step 2** Select an inconsistent object. In the objects details panel, you will see the INCONSISTENT field with the number of objects affected:
- 
- Step 3** Click **Resolve**. Security Cloud Control displays inconsistent objects for you to compare.
- Step 4** You now have these options:
- **Ignore All:**
    - a. Compare the objects presented to you and on one of the objects, click **Ignore**. Or, to ignore all objects, click **Ignore All**.
    - b. Click **OK** to confirm.
  - **Resolve by merging objects:**
    - a. Click **Resolve by Merging X Objects**.
    - b. Click **Confirm**.

- **Rename:**

- Click **Rename**.
- Save your changes to affected network policies and devices and click **Confirm**.

- **Convert to Overrides (for inconsistent shared objects):** When comparing shared objects with overrides, the comparison panel shows only the default values in the **Inconsistent Values** field.

- Click **Convert to Overrides**. All inconsistent objects will be converted to a single shared object with overrides.
- Click **Confirm**. You can click **Edit Shared Object** to view the details of the newly formed object. You can use up and down arrows to move the values between default and override.

- **Convert to Additional Values (for inconsistent network groups):**

- Click **Convert to Additional Values**. All inconsistent objects will be converted to a single shared object with additional values.
- Save your changes to affected network policies and devices and click **Confirm**.

**Step 5** After resolving the inconsistencies, [review and deploy](#) now the changes you made, or wait and deploy multiple changes at once.

## Resolve Object Issues in Bulk

One way to resolve objects with [unused](#), [duplicate](#), or [Resolve Inconsistent Object Issues, on page 804](#) issues is to ignore them. You can select and ignore multiple objects, even if objects exhibit more than one issue. For example, if an object is both inconsistent and unused, you can only ignore one issue type at a time.



### Important

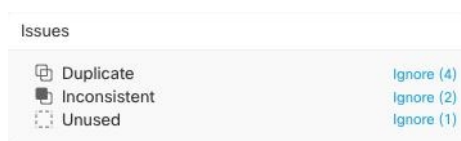
If the object becomes associated with another issue type at a later time, the ignore action you committed only affects the issues you selected at that time. For example, if you ignored an object because it was a duplicate and the object is later marked inconsistent, ignoring it as a duplicate object does not mean it will be ignored as an inconsistent object.

To ignore issues in bulk, follow this procedure:

### Procedure

**Step 1** In the left pane, click **Objects** and choose an option.

**Step 2** In the Object table, select all the applicable objects you want to ignore. The Issues pane groups objects by issue type.



**Step 3** Click **Ignore** to ignore issues by type. You must **Ignore** each issue type separately.

**Step 4** Click **OK** to confirm you want to ignore those objects.

## Device Connectivity States

You can view the connectivity states of the devices onboarded in your Security Cloud Control tenant. This topic helps you understand the various connectivity states. On the **Security Devices** page, the **Connectivity** column displays the device connectivity states.

When the device connectivity state is 'Online' it means that the device is powered on and connected to Security Cloud Control. The other states described in the table below usually occur when the device is running into problems for various reasons. The table provides the method to recover from such problems. It may be that there is more than one problem causing the connection failure. When you attempt to reconnect, Security Cloud Control will prompt you to fix all of these problems first before performing the reconnect.

| Device Connectivity State | Possible Reasons                                                                                                                                         | Resolution                                                                                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Online                    | Device is powered on and connected to Security Cloud Control.                                                                                            | NA                                                                                                                                                                            |
| Offline                   | Device is powered down or lost network connectivity.                                                                                                     | Check whether the device is offline.                                                                                                                                          |
| Insufficient licenses     | Device doesn't have sufficient licenses.                                                                                                                 | <a href="#">Troubleshoot Insufficient Licenses, on page 808</a>                                                                                                               |
| Invalid credentials       | Username and password combination used by Security Cloud Control to connect to the device is incorrect.                                                  | <a href="#">Troubleshoot Invalid Credentials, on page 809</a>                                                                                                                 |
| Onboarding                | Device onboarding is initiated but is not complete.                                                                                                      | Check you device's connectivity and ensure you complete the device registration.                                                                                              |
| Unknown                   | Device onboarding failed and Security Cloud Control cannot fetch the connectivity state of the device.                                                   | On the <b>Security Devices</b> page, select the device and choose <b>Check for Changes</b> from the right pane, to attempt fetching the latest configuration from the device. |
| New Certificate Detected  | Certificate on the device has changed. If the device uses a self-signed certificate, then this could have happened due to the device being power cycled. | <a href="#">Troubleshoot New Certificate Issues, on page 810</a>                                                                                                              |
| Onboarding Error          | Security Cloud Control may have lost connectivity with the device when onboarding it.                                                                    | <a href="#">Troubleshoot Onboarding Error, on page 818</a>                                                                                                                    |

## Troubleshoot Device Unregistered

The FDM-managed device may have been unregistered from the cloud via Firewall Device Manager.

Perform the following to register the device again on the cloud:

### Procedure

- 
- Step 1** In the **Security Devices** page, click the **Devices** tab.
- Step 2** Click the **FTD** tab and select the device in the "Device Unregistered" state, and see the error message on the right.
- Step 3** If the unregistered device was onboarded using the registration key, Security Cloud Control prompts you to generate a new registration key as the previously applied key has expired.
- Click the Refresh button to generate a new registration key and then click the Copy icon .
  - Log into the Firewall Device Manager of the device you want to reregister with Security Cloud Control.
  - Under **System Settings**, click **Cloud Services**.
  - In the Security Cloud Control area, expand **Get Started**.
  - In the **Registration Key** field, paste the registration key that you generated in Security Cloud Control.
  - Click **Register** and then **Accept** the Cisco Disclosure. Firewall Device Manager sends the registration request to Security Cloud Control.
  - Refresh the **Security Devices** page in Security Cloud Control until you see the device's connectivity state changes to "Read Error".
  - Click **Read Configuration** for Security Cloud Control to read the configuration from the device.
- Step 4** If the unregistered device was onboarded using the serial number, Security Cloud Control prompts you to auto-enroll the device from Firewall Device Manager.
- Log into the Firewall Device Manager of the device you want to reregister with Security Cloud Control.
  - Under **System Settings**, click **Cloud Services**.
  - Select the **Auto-enroll with Tenancy from Security Cloud Control** option and click **Register**.
  - Refresh the **Security Devices** page in Security Cloud Control until you see the device's connectivity state changes to "Read Error".
  - Click **Read Configuration** for Security Cloud Control to read the configuration from the device.
- 

## Troubleshoot Insufficient Licenses

If the device connectivity status shows "Insufficient License", do the following:

- Wait for some time until the device attains the license. Typically it takes some time for Cisco Smart Software Manager to apply a new license to the device.
- If the device status doesn't change, refresh the Security Cloud Control portal by signing out from Security Cloud Control and signing back to resolve any network communication glitch between license server and device.
- If the portal refresh doesn't change the device status, perform the following:



### Procedure

- 
- Step 1** Generate a new token from [Cisco Smart Software Manager](#) and copy it. You can watch the [Generate Smart Licensing](#) video for more information.
- Step 2** In the left pane, click the **Inventory** page.
- Step 3** In the left pane, click **Security Devices**.
- Step 4** Click the **Devices** tab.
- Step 5** Click the appropriate device type tab and select the device with the **Insufficient License** state.
- Step 6** In the **Device Details** pane, click **Manage Licenses** appearing in **Insufficient Licenses**. The **Manage Licenses** window appears.
- Step 7** In the **Activate** field, paste the new token and click **Register Device**.
- Once the token is applied successfully to the device, its connectivity state turns to **Online**.
- 

## Troubleshoot Invalid Credentials

Perform the following to resolve device disconnection due to invalid credentials:

### Procedure

- 
- Step 1** In the left pane, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab.
- Step 4** Click the appropriate device type tab and select the device with the **Invalid Credentials** state.
- Step 5** In the **Device Details** pane, click **Reconnect** appearing in **Invalid Credentials**. Security Cloud Control attempts to reconnect with your device.
- Step 6** When prompted enter the new username and password for the device.
- Step 7** Click **Continue**.
- Step 8** After the device is online and ready to use, click **Close**.
- Step 9** It is likely that because Security Cloud Control attempted to use the wrong credentials to connect to the device, the username and password combination Security Cloud Control should use to connect to the device was changed directly on the device. You may now see that the device is "Online" but the configuration state is "Conflict Detected." Use [Resolve Configuration Conflicts](#) to review and resolve configuration differences between Security Cloud Control and the device.
-

# Troubleshoot New Certificate Issues

## Security Cloud Control's Use of Certificates

Security Cloud Control checks the validity of certificates when connecting to devices. Specifically, Security Cloud Control requires that:

1. The device uses a TLS version equal to or greater than 1.0.
2. The certificate presented by the device is not expired, and its issuance date is in the past (i.e. it is already valid, not scheduled to become valid at a later date).
3. The certificate must be a SHA-256 certificate. SHA-1 certificates will not be accepted.
4. One of these conditions is true:
  - The device uses a self-signed certificate, and it is the same as the most recent one trusted by an authorized user.
  - The device uses a certificate signed by a trusted Certificate Authority (CA), and provides a certificate chain linking the presented leaf certificate to the relevant CA.

These are the ways Security Cloud Control uses certificates differently than browsers:

- In the case of self-signed certificates, Security Cloud Control overrides the domain name check, instead checking that the certificate exactly matches the one trusted by an authorized user during device onboarding or reconnection.
- Security Cloud Control does not yet support internal CAs. There is currently no way to check a certificate signed by an internal CA.

It is possible to disable certificate checking for ASA devices on a per-device basis. When an ASA's certificate cannot be trusted by Security Cloud Control, you will have the option of disabling certificate checking for that device. If you have attempted to disable certificate checking for the device and you are still unable to onboard it, it is likely that the IP address and port you specified for the device is incorrect or unreachable. There is no way to disable certificate checking globally, or to disable certificate checking for a device with a supported certificate. There is no way to disable certificate checking for non-ASA devices.

When you disable certificate checking for a device, Security Cloud Control will still use TLS to connect to the device, but it will not validate the certificate used to establish the connection. This means that a passive man-in-the-middle attacker will not be able to eavesdrop on the connection, but an active man-in-the-middle could intercept the connection by supplying Security Cloud Control with an invalid certificate.

## Identifying Certificate Issues

There are several reasons that Security Cloud Control may not be able to onboard a device. When the UI shows a message that "Security Cloud Control cannot connect to the device using the certificate presented," there is a problem with the certificate. When the UI does not show this message, the problem is more likely related to connectivity problems (the device is unreachable) or other network errors.

To determine why Security Cloud Control rejects a given certificate, you can use the `openssl` command-line tool on the SDC host or another host that can reach the relevant device. Use the following command to create a file showing the certificates presented by the device:

```
openssl s_client -showcerts -connect <host>:<port> &> <filename>.txt
```

This command will start an interactive session, so you will need to use Ctrl-c to exit after a couple of seconds.

You should now have a file containing output like the following:

```
depth=2 C = US, O = GeoTrust Inc., CN = GeoTrust Global CA
verify return:1
depth=1 C = US, O = Google Inc, CN = Google Internet Authority G2
verify return:1
depth=0 C = US, ST = California, L = Mountain View, O = Google Inc, CN = *.google.com
verify return:1 CONNECTED(00000003)

Certificate chain
0 s:/C=US/ST=California/L=Mountain View/O=Google Inc/CN=*.google.com
 i:/C=US/O=Google Inc/CN=Google Internet Authority G2
-----BEGIN CERTIFICATE-----
MIIH0DCCBrigAwIBAgIIUOMfH+8ftN8wDQYJKoZIhvcNAQELBQAwSTELMAkGA1UE
...lots of base64...
tzw9TylihnhJpZcl4qihFVTgFM7rMU2VHulpJgA59gdbaO/Bf
-----END CERTIFICATE-----
1 s:/C=US/O=Google Inc/CN=Google Internet Authority G2
 i:/C=US/O=GeoTrust Inc./CN=GeoTrust Global CA
-----BEGIN CERTIFICATE-----
MIID8DCCAtigAwIBAgIDAjqSMA0GCSqGSIb3DQEBCwUAMEIxCzAJBgNVBAYTA1VT
...lots of base64...
tzw9TylihnhJpZcl4qihFVTgFM7rMU2VHulpJgA59gdbaO/Bf
-----END CERTIFICATE-----
2 s:/C=US/O=GeoTrust Inc./CN=GeoTrust Global CA
 i:/C=US/O=Equifax/OU=Equifax Secure Certificate Authority
-----BEGIN CERTIFICATE-----
MIIDfTCCAuagAwIBAgIDervmMA0GCSqGSIb3DQEBBQUAME4xCzAJBgNVBAYTA1VT
...lots of base64...
b8ravHNjkOR/ez4iyz0H7V84dJzjA1BOoa+Y7mHyhD8S
-----END CERTIFICATE-----

Server certificate
subject=/C=US/ST=California/L=Mountain View/O=Google Inc/CN=*.google.com
issuer=/C=US/O=Google Inc/CN=Google Internet Authority G2

No client certificate CA names sent
Peer signing digest: SHA512
Server Temp Key: ECDH, P-256, 256 bits

SSL handshake has read 4575 bytes and written 434 bytes

New, TLSv1/SSLv3, Cipher is ECDHE-RSA-AES128-GCM-SHA256
Server public key is 2048 bit Secure Renegotiation IS supported
Compression: NONE
Expansion: NONE
No ALPN negotiated
SSL-Session:
 Protocol : TLSv1.2
 Cipher : ECDHE-RSA-AES128-GCM-SHA256
 Session-ID: 48F046F3360225D51BE3362B50CE4FE8DB6D6B80B871C2A6DD5461850C4CF5AB
 Session-ID-ctx:
 Master-Key:
9A9CCBAA4F5A25B95C37EF7C6870F8C5DD3755A9A7B4CCE4535190B793DEFF53F94203AB0A62F9F70B9099FBFEBAB1B6

 Key-Arg : None
 PSK identity: None
 PSK identity hint: None
 SRP username: None
 TLS session ticket lifetime hint: 100800 (seconds)
```

```

TLS session ticket:
0000 - 7a eb 54 dd ac 48 7e 76-30 73 b2 97 95 40 5b de z.T..H~v0s...@[.
0010 - f3 53 bf c8 41 36 66 3e-5b 35 a3 03 85 6f 7d 0c .S..A6f>[5...o].
0020 - 4b a6 90 6f 95 e2 ec 03-31 5b 08 ca 65 6f 8f a6 K..o....1[...eo..
0030 - 71 3d c1 53 b1 29 41 fc-d3 cb 03 bc a4 a9 33 28 q=.S.)A.....3(
0040 - f8 c8 6e 0a dc b3 e1 63-0e 8f f2 63 e6 64 0a 36 ..n....c...c.d.6
0050 - 22 cb 00 3a 59 1d 8d b2-5c 21 be 02 52 28 45 9d "...:Y...\\!...R(E.
0060 - 72 e3 84 23 b6 f0 e2 7c-8a a3 e8 00 2b fd 42 1d r..#...|....+.B.
0070 - 23 35 6d f7 7d 85 39 1c-ad cd 49 f1 fd dd 15 de #5m.}.9...I.....
0080 - f6 9c ff 5e 45 9c 7c eb-6b 85 78 b5 49 ea c4 45 ...^E.|.k.x.I..E
0090 - 6e 02 24 1b 45 fc 41 a2-87 dd 17 4a 04 36 e6 63 n.$.E.A....J.6.c
00a0 - 72 a4 ad
00a4 - <SPACES/NULLS> Start Time: 1476476711 Timeout : 300 (sec)
Verify return code: 0 (ok)

```

The first thing to note in this output is the last line, where you see the **Verify return code**. If there is a certificate issue, the return code will be non-zero and there will be a description of the error.

### Expand this list of certificate error code to see common errors and how to remediate them

0 X509\_V\_OK The operation was successful.

2 X509\_V\_ERR\_UNABLE\_TO\_GET\_ISSUER\_CERT The issuer certificate of an untrusted certificate could not be found.

3 X509\_V\_ERR\_UNABLE\_TO\_GET\_CRL The CRL of a certificate could not be found.

4 X509\_V\_ERR\_UNABLE\_TO\_DECRYPT\_CERT\_SIGNATURE The certificate signature could not be decrypted. This means that the actual signature value could not be determined rather than it not matching the expected value. This is only meaningful for RSA keys.

5 X509\_V\_ERR\_UNABLE\_TO\_DECRYPT\_CRL\_SIGNATURE The CRL signature could not be decrypted. This means that the actual signature value could not be determined rather than it not matching the expected value. Unused.

6 X509\_V\_ERR\_UNABLE\_TO\_DECODE\_ISSUER\_PUBLIC\_KEY The public key in the certificate SubjectPublicKeyInfo could not be read.

7 X509\_V\_ERR\_CERT\_SIGNATURE\_FAILURE The signature of the certificate is invalid.

8 X509\_V\_ERR\_CRL\_SIGNATURE\_FAILURE The signature of the certificate is invalid.

9 X509\_V\_ERR\_CERT\_NOT\_YET\_VALID The certificate is not yet valid: the notBefore date is after the current time. See [Verify return code: 9 \(certificate is not yet valid\)](#) below for more information.

10 X509\_V\_ERR\_CERT\_HAS\_EXPIRED The certificate has expired; that is, the notAfter date is before the current time. See [Verify return code: 10 \(certificate has expired\)](#) below for more information.

11 X509\_V\_ERR\_CRL\_NOT\_YET\_VALID The CRL is not yet valid.

12 X509\_V\_ERR\_CRL\_HAS\_EXPIRED The CRL has expired.

13 X509\_V\_ERR\_ERROR\_IN\_CERT\_NOT\_BEFORE\_FIELD The certificate notBefore field contains an invalid time.

14 X509\_V\_ERR\_ERROR\_IN\_CERT\_NOT\_AFTER\_FIELD The certificate notAfter field contains an invalid time.

15 X509\_V\_ERR\_ERROR\_IN\_CRL\_LAST\_UPDATE\_FIELD The CRL lastUpdate field contains an invalid time.

- 16 X509\_V\_ERR\_ERROR\_IN\_CRL\_NEXT\_UPDATE\_FIELD The CRL nextUpdate field contains an invalid time.
- 17 X509\_V\_ERR\_OUT\_OF\_MEM An error occurred trying to allocate memory. This should never happen.
- 18 X509\_V\_ERR\_DEPTH\_ZERO\_SELF\_SIGNED\_CERT The passed certificate is self-signed and the same certificate cannot be found in the list of trusted certificates.
- 19 X509\_V\_ERR\_SELF\_SIGNED\_CERT\_IN\_CHAIN The certificate chain could be built up using the untrusted certificates but the root could not be found locally.
- 20 X509\_V\_ERR\_UNABLE\_TO\_GET\_ISSUER\_CERT\_LOCALLY The issuer certificate of a locally looked up certificate could not be found. This normally means the list of trusted certificates is not complete.
- 21 X509\_V\_ERR\_UNABLE\_TO\_VERIFY\_LEAF\_SIGNATURE No signatures could be verified because the chain contains only one certificate and it is not self-signed. See "Verify return code: 21 (unable to verify the first certificate)" below for more information. [Verify return code: 21 \(unable to verify the first certificate\)](#) below for more information.
- 22 X509\_V\_ERR\_CERT\_CHAIN\_TOO\_LONG The certificate chain length is greater than the supplied maximum depth. Unused.
- 23 X509\_V\_ERR\_CERT\_REVOKED The certificate has been revoked.
- 24 X509\_V\_ERR\_INVALID\_CA A CA certificate is invalid. Either it is not a CA or its extensions are not consistent with the supplied purpose.
- 25 X509\_V\_ERR\_PATH\_LENGTH\_EXCEEDED The basicConstraints pathlength parameter has been exceeded.
- 26 X509\_V\_ERR\_INVALID\_PURPOSE The supplied certificate cannot be used for the specified purpose.
- 27 X509\_V\_ERR\_CERT\_UNTRUSTED The root CA is not marked as trusted for the specified purpose.
- 28 X509\_V\_ERR\_CERT\_REJECTED The root CA is marked to reject the specified purpose.
- 29 X509\_V\_ERR\_SUBJECT\_ISSUER\_MISMATCH The current candidate issuer certificate was rejected because its subject name did not match the issuer name of the current certificate. Only displayed when the -issuer\_checks option is set.
- 30 X509\_V\_ERR\_AKID\_SKID\_MISMATCH The current candidate issuer certificate was rejected because its subject key identifier was present and did not match the authority key identifier current certificate. Only displayed when the -issuer\_checks option is set.
- 31 X509\_V\_ERR\_AKID\_ISSUER\_SERIAL\_MISMATCH The current candidate issuer certificate was rejected because its issuer name and serial number were present and did not match the authority key identifier of the current certificate. Only displayed when the -issuer\_checks option is set.
- 32 X509\_V\_ERR\_KEYUSAGE\_NO\_CERTSIGN The current candidate issuer certificate was rejected because its keyUsage extension does not permit certificate signing.
- 50 X509\_V\_ERR\_APPLICATION\_VERIFICATION An application specific error. Unused.

### New Certificate Detected

If you upgrade a device that has a self-signed certificate and a new certificate is generated after the upgrade process, Security Cloud Control may generate a "New Certificate Detected" message as both a **Configuration Status** and **Connectivity** status. You must manually confirm and resolve this issue before you can continue managing it from Security Cloud Control. Once the certificate is synchronized and the device is in a healthy state, you can manage the device.

Use the following procedure to resolve a new certificate:

1. Navigate to the **Inventory** page.
2. In the left pane, click **Security Devices**.
3. Use the filter to display devices with a **New Certificate Detected** connectivity or configuration status and select the desired device.
4. In the action pane, click **Review Certificate**. Security Cloud Control allows you to download the certificate for review and accept the new certificate.
5. In the Device Sync window, click **Accept** or in the Reconnecting to Device window, click **Continue**.

Security Cloud Control automatically synchronizes the device with the new self-signed certificate. You may have to manually refresh the page to see the device once it's synced.

### Certificate Error Codes

#### Verify return code: 0 (ok) but Security Cloud Control returns certificate error

Once Security Cloud Control has the certificate, it attempts to connect to the URL of the device by making a GET call to "https://<device\_ip>:<port>". If this does not work, Security Cloud Control will display a certificate error. If you find that the certificate is valid (openssl returns 0 ok) the problem may be that a different service is listening on the port you're trying to connect to. You can use the command:

```
curl -k -u <username>:<password> https://<device_id>:<device_port>/admin/exec/show%20version
```

to determine whether you are definitely talking to an ASA and check if HTTPS server running on the correct port on the ASA:

```
show asp table socket
```

| Protocol | Socket   | State  | Local Address   | Foreign Address |
|----------|----------|--------|-----------------|-----------------|
| SSL      | 00019b98 | LISTEN | 192.168.1.5:443 | 0.0.0.0:*       |
| SSL      | 00029e18 | LISTEN | 192.168.2.5:443 | 0.0.0.0:*       |
| TCP      | 00032208 | LISTEN | 192.168.1.5:22  | 0.0.0.0:*       |

#### Verify return code: 9 (certificate is not yet valid)

This error means that the issuance date of the certificate provided is in the future, so clients will not treat it as valid. This can be caused by a poorly-constructed certificate, or in the case of a self-signed certificate it can be caused by the device time being wrong when it generated the certificate.

You should see a line in the error including the notBefore date of the certificate:

```
depth=0 CN = ASA Temporary Self Signed Certificate
verify error:num=18:self signed certificate
verify return:1
depth=0 CN = ASA Temporary Self Signed Certificate
verify error:num=9:certificate is not yet valid
notBefore=Oct 21 19:43:15 2016 GMT
verify return:1
depth=0 CN = ASA Temporary Self Signed Certificate
notBefore=Oct 21 19:43:15 2016 GMT
```

From this error, you can determine when the certificate will become valid.

### Remediation

The notBefore date of the certificate needs to be in the past. You can reissue the certificate with an earlier notBefore date. This issue can also arise when the time is not set correctly either on the client or issuing device.

#### Verify return code: 10 (certificate has expired)

This error means that at least one of the certificates provided has expired. You should see a line in the error including the notBefore date of the certificate:

```
error 10 at 0 depth lookup:certificate has expired
```

The expiration date is located in the certificate body.

### Remediation

If the certificate is truly expired, the only remediation is to get another certificate. If the certificate's expiration is still in the future, but openssl claims that it is expired, check the time and date on your computer. For instance, if a certificate is set to expire in the year 2020, but the date on your computer is in 2021, your computer will treat that certificate as expired.

### Verify return code: 21 (unable to verify the first certificate)

This error indicates that there is a problem with the certificate chain, and openssl cannot verify that the certificate presented by the device should be trusted. Let's look at the certificate chain from the example above to see how certificate chains should work:

```

Certificate chain
0 s:/C=US/ST=California/L=Mountain View/O=Google Inc/CN=*.google.com
i:/C=US/O=Google Inc/CN=Google Internet Authority G2

-----BEGIN CERTIFICATE-----
MIIH0DCCBrigAwIBAgIIUOMfH+8ftN8wDQYJKoZIhvcNAQELBQAwSTELMAkGA1UE
...lots of base64...
tzw9TylihJpZcl4qihFVTgFM7rMU2VHulpJgA59gdbaO/Bf
-----END CERTIFICATE-----

1 s:/C=US/O=Google Inc/CN=Google Internet Authority G2
i:/C=US/O=GeoTrust Inc./CN=GeoTrust Global CA

-----BEGIN CERTIFICATE-----
MIID8DCCAtigAwIBAgIDAjqsMA0GCSqGSIb3DQEBCwUAMEIxCzAJBgNVBAYTA1VT
...lots of base64...
tzw9TylihJpZcl4qihFVTgFM7rMU2VHulpJgA59gdbaO/Bf
-----END CERTIFICATE-----

2 s:/C=US/O=GeoTrust Inc./CN=GeoTrust Global CA
i:/C=US/O=Equifax/OU=Equifax Secure Certificate Authority

-----BEGIN CERTIFICATE-----
MIIDfTCCAuagAwIBAgIDervmMA0GCSqGSIb3DQEBCwUAME4xCzAJBgNVBAYTA1VT
...lots of base64...
b8ravHNjkOR/ez4iyz0H7V84dJzjA1BOoa+Y7mHyhD8S
-----END CERTIFICATE----- ---
```

The certificate chain is a list of certificates presented by the server, beginning with the server's own certificate and then including increasingly higher-level intermediate certificates linking the server's certificate with a Certificate Authority's top-level certificate. Each certificate lists its Subject (the line starting with 's:' and its Issuer (the line starting with 'i').

The Subject is the entity identified by the certificate. It includes the Organization name and sometimes the Common Name of the entity for which the certificate was issued.

The Issuer is the entity that issued the certificate. It also includes an Organization field and sometimes a Common Name.

If a server had a certificate issued directly by a trusted Certificate Authority, it would not need to include any other certificates in its certificate chain. It would present one certificate that looked like:

```

--- Certificate chain 0 s:/C=US/ST=California/L=Anytown/O=ExampleCo/CN=*.example.com
i:/C=US/O=Trusted Authority/CN=Trusted Authority
-----BEGIN CERTIFICATE-----
MIIH0DCCBrigAwIBAgIIUOMfH+8ftN8wDQYJKoZIhvcNAQELBQAwSTELMAkGA1UE
....lots of base64...
tzw9TylihJpZcl4qihFVTgFM7rMU2VHulpJgA59gdbaO/Bf
-----END CERTIFICATE----- ---

```

Given this certificate, openssl would verify that the ExampleCo certificate for **\*.example.com** was correctly signed by the Trusted Authority certificate, which would be present in openssl's built-in trust store. After that verification, openssl would successfully connect to the device.

However, most servers do not have certificates signed directly by a trusted CA. Instead, as in the first example, the server's certificate is signed by one or more intermediates, and the highest-level intermediate has a certificate signed by the trusted CA. OpenSSL does not trust these intermediate CAs by default, and can only verify them if it is given a complete certificate chain ending in a trusted CA.

It is critically important that servers whose certificates are signed by intermediate authorities supply ALL the certificates linking them to a trusted CA, including all of the intermediate certificates. If they don't supply this entire chain, the output from openssl will look something like this:

```

depth=0 OU = Example Unit, CN = example.com
verify error:num=20:unable to get local issuer certificate
verify return:1

depth=0 OU = Example Unit, CN = example.com
verify error:num=27:certificate not trusted
verify return:1

depth=0 OU = Example Unit, CN = example.com
verify error:num=21:unable to verify the first certificate
verify return:1

CONNECTED(00000003)

Certificate chain
0 s:/OU=Example Unit/CN=example.com
i:/C=US/ST=Massachusetts/L=Cambridge/O=Intermediate
Authority/OU=http://certificates.intermediateauth...N=Intermediate Certification
Authority/sn=675637734
-----BEGIN CERTIFICATE-----
...lots of b64...
-----END CERTIFICATE-----

Server certificate
subject=/OU=Example Unit/CN=example.com
issuer=/C=US/ST=Massachusetts/L=Cambridge/O=Intermediate
Authority/OU=http://certificates.intermediateauth...N=Intermediate Certification
Authority/sn=675637734

No client certificate CA names sent

SSL handshake has read 1509 bytes and written 573 bytes

New, TLSv1/SSLv3, Cipher is AES256-SHA
Server public key is 2048 bit
Secure Renegotiation IS NOT supported
Compression: NONE
Expansion: NONE
SSL-Session:
Protocol : TLSv1
Cipher : AES256-SHA

```



```

Session-ID: 24B45B2D5492A6C5D2D5AC470E42896F9D2DDDD54EF6E3363B7FDA28AB32414B
Session-ID-ctx:
Master-Key:
21BAF9D2E1525A5B935BF107DA3CAF691C1E499286CBEA987F64AE5F603AAF8E65999BD21B06B116FE9968FB7C62EF7C

Key-Arg : None
Krb5 Principal: None
PSK identity: None
PSK identity hint: None
Start Time: 1476711760
Timeout : 300 (sec)
Verify return code: 21 (unable to verify the first certificate)

```

This output shows that the server only provided one certificate, and the provided certificate was signed by an intermediate authority, not a trusted root. The output also shows the characteristic verification errors.

### Remediation

This problem is caused by a misconfigured certificate presented by the device. The only way to fix this so that Security Cloud Control or any other program can securely connect to the device is to load the correct certificate chain onto the device, so that it will present a complete certificate chain to connecting clients.

To include the intermediate CA to the trustpoint follow one of the links below (depending on your case - if CSR was generated on the ASA or not):

- <https://www.cisco.com/c/en/us/support/docs/security-vpn/public-key-infrastructure-pki/200339-Configure-ASA-SSL-Digital-Certificate-I.html#anc13>
- <https://www.cisco.com/c/en/us/support/docs/security-vpn/public-key-infrastructure-pki/200339-Configure-ASA-SSL-Digital-Certificate-I.html#anc15>

## New Certificate Detected

If you upgrade a device that has a self-signed certificate and a new certificate is generated after the upgrade process, Security Cloud Control may generate a "New Certificate Detected" message as both a **Configuration Status** and **Connectivity** status. You must manually confirm and resolve this issue before you can continue managing it from Security Cloud Control. Once the certificate is synchronized and the device is in a healthy state, you can manage the device.

Use the following procedure to resolve a new certificate:

### Procedure

- 
- Step 1** In the navigation bar, click **Inventory**.
  - Step 2** In the left pane, click **Security Devices**.
  - Step 3** Click the **Devices** tab.
  - Step 4** Click the appropriate device type tab.
  - Step 5** Use the filter to display devices with a **New Certificate Detected** connectivity or configuration status and select the desired device.
  - Step 6** In the action pane, click **Review Certificate**. Security Cloud Control allows you to download the certificate for review and accept the new certificate.

- Step 7** In the Device Sync window, click **Accept** or in the Reconnecting to Device window, click **Continue**.

---

Security Cloud Control automatically synchronizes the device with the new self-signed certificate. You may have to manually refresh the page to see the device once it's synced.

## Troubleshoot Onboarding Error

The device onboarding error can occur for various reasons.

You can take the following actions:

### Procedure

- 
- Step 1** On the **Inventory** page, click the **Devices** tab.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the appropriate device type tab and select the device running into this error. In some cases, you will see the error description on the right. Take the necessary actions mentioned in the description.
- Or
- Step 4** Remove the device instance from Security Cloud Control and try onboarding the device again.
- 

## Resolve the Conflict Detected Status

Security Cloud Control allows you to enable or disable conflict detection on each live device. If [Conflict Detection, on page 628](#) is enabled and there was a change made to the device's configuration without using Security Cloud Control, the device's configuration status will show **Conflict Detected**.

To resolve a "Conflict Detected" status, follow this procedure:

### Procedure

- 
- Step 1** In the navigation bar, click **Inventory**.
- Note**  
For an On-Premises Firewall Management Center, navigate **Tools & Services > Firewall Management Center** and select the FMC that is in **Not Synced** state and continue from Step 5.
- Step 2** In the navigation bar, click **Security Devices**.
- Note**  
For an On-Premises Firewall Management Center, click **Administration > Integrations > Firewall Management Center** and select the FMC that is in **Not Synced** state and continue from Step 5.
- Step 3** Click the **Devices** tab to locate your device.

- Step 4** Click the appropriate device type tab.
- Step 5** Select the device reporting the conflict and click **Review Conflict** in the details pane on the right.
- Step 6** In the **Device Sync** page, compare the two configurations by reviewing the highlighted differences.
- The panel labeled "Last Known Device Configuration" is the device configuration stored on Security Cloud Control.
  - The panel labeled "Found on Device" is the configuration stored in the running configuration on the ASA.
- Step 7** Resolve the conflict by selecting one of the following:
- **Accept Device changes:** This will overwrite the configuration **and any pending changes stored on** Security Cloud Control with the device's running configuration.
- Note**  
As Security Cloud Control does not support deploying changes to the Cisco IOS devices outside of the command line interface, your only choice for a Cisco IOS device will be to select **Accept Without Review** when resolving the conflict.
- **Reject Device Changes:** This will overwrite the configuration stored on the device with the configuration stored on Security Cloud Control.
- Note**  
All configuration changes, rejected or accepted, are recorded in the change log.
- 

## Resolve the Not Synced Status

Use the following procedure to resolve a device with a "Not Synced" Configuration Status:

### Procedure

---

- Step 1** In the navigation bar, click **Inventory**.
- Note**  
For an On-Premises Firewall Management Center, navigate **Tools & Services > Firewall Management Center** and select the FMC that is in **Not Synced** state and continue from Step 5.
- Step 2** In the navigation bar, click **Security Devices**.
- Note**  
For an On-Premises Firewall Management Center, click **Administration > Integrations > Firewall Management Center** and select the FMC that is in **Not Synced** state and continue from Step 5.
- Step 3** Click the **Devices** tab to locate the device or the **Templates** tab to locate the model device.
- Step 4** Click the appropriate device type tab.
- Step 5** Select the device reported as Not Synced.

- Step 6** In the **Not synced** panel to the right, select either of the following:
- **Preview and Deploy...** -If you want to push the configuration change from Security Cloud Control to the device, [preview and deploy](#) the changes you made now, or wait and deploy multiple changes at once.
  - **Discard Changes** -If you do **not** want to push the configuration change from Security Cloud Control to the device, or you want to "undo" the configuration changes you started making on Security Cloud Control. This option overwrites the configuration stored in Security Cloud Control with the running configuration stored on the device.

## Troubleshoot Unreachable Connection State

The device may be in "unreachable" for various reasons:

### Procedure

- Step 1** In the left pane, click **Security Devices**.
- Step 2** Click the **Devices** tab to locate your device.
- Step 3** Click the appropriate device type tab and select the device in the **Unreachable** state.
- Step 4** Click  **Reconnect**.
- Step 5** Take one of these actions based on the message appearing on the right:
- If you have onboarded the FDM-managed device using the IP address and device credentials, the following message appears:
 

*"This device is unreachable, review the IP address and port,"* enter the new IP address and/or new port information of the device in the message box. It is likely that because Security Cloud Control attempted to connect to an invalid IP address, the IP address for the device was changed directly on the device.

**Note**  
If the device was rebooted, and there are no other pending changes, the device should return to an online connection state, and no further action is needed.

You may now see that the device is "Online", but the configuration state is "Conflict Detected." Use [Resolve Configuration Conflicts](#), to review the configuration differences between Security Cloud Control and the device.
  - If you are onboarding the FDM-managed device using the registration token or serial number, the following message appears:
 

*"This device has been deleted from Cisco Cloud. The deletion could be caused as part of the Return Material Authorization (RMA) process"*. It means that the faulty device that you have returned to the RMA team has been deleted from Cisco Cloud as a part of the RMA process.

As a result, you'll see that the device Connectivity status is "Unreachable" in Security Cloud Control.

    - For the RMA case, you need to perform the following steps in Security Cloud Control:
      1. If the device was successfully onboarded, you need to save the device configuration as a template. See [Configure an FDM Template](#).

Remove the device instance from Security Cloud Control.

2. Power on the new replacement device that you have received from the RMA team and onboard it to Security Cloud Control.

**Important**

The replacement device will probably have a different serial number and needs to be onboarded as a new device.

You'll now see that the device is "Online", but the configuration state is "Conflict Detected."

3. Use [Resolve Configuration Conflicts](#), to review the configuration differences between Security Cloud Control and the device.

Apply the previously saved template to the new device. See [Apply an FDM Template](#).

- If you have sold the device or transferred its ownership to another user outside of your tenant without erasing the device's configuration, you will no longer possess the device. This error occurs when the buyer reimages the device. If the device was configured correctly and synced earlier, you can save the device configuration as a template and then remove the device instance from Security Cloud Control.
-





## CHAPTER 22

# FAQ and Support

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This chapter contains the following sections:

- [Security Cloud Control, on page 823](#)
- [FAQ About Onboarding Devices to Security Cloud Control, on page 824](#)
- [Device Types, on page 825](#)
- [Security, on page 826](#)
- [Troubleshooting, on page 828](#)
- [How Do I Transfer a Firewall Threat Defense Device to a New or Existing Security Cloud Control Tenant?, on page 828](#)
- [Terminologies and Definitions used in Zero-Touch Provisioning, on page 828](#)
- [Policy Optimization, on page 829](#)
- [Connectivity, on page 829](#)
- [Complete the Initial Configuration of a Secure Firewall Threat Defense Device Using the CLI, on page 830](#)
- [What does it mean to be FedRAMP certified, on page 833](#)
- [About Data Interfaces, on page 834](#)
- [How Security Cloud Control Processes Personal Information, on page 834](#)
- [Contact Security Cloud Control Support, on page 834](#)

## Security Cloud Control

### What is Security Cloud Control?

Security Cloud Control (formerly Cisco Defense Orchestrator) is a cloud-based multi-device manager that allows network administrators to create and maintain consistent security policies across various security devices.

You can use Security Cloud Control to manage these devices:

- Cisco Secure Firewall ASA
- Cisco Secure Firewall Threat Defense
- Cisco IOS devices

Security Cloud Control administrators can monitor and maintain all these device types through a single interface.

# FAQ About Onboarding Devices to Security Cloud Control

## FAQs About Onboarding Secure Firewall ASA to Security Cloud Control

### How do I onboard an ASA using credentials?

You can onboard ASAs one at a time or in a bulk operation. device at a time. When onboarding an ASA that is part of a high-availability pair, use [Onboard an ASA Device](#) to onboard only the primary device of the pair. The method of onboarding a security context or admin context is the same for onboarding any other ASA.

### How do I onboard more than one ASA at a time?

You can create a list of ASAs using a CSV file, and Security Cloud Control will onboard all the ASAs in the list. See [Onboard ASAs in Bulk](#) for instructions on how to bulk onboard ASAs.

### What do I do after onboarding my ASAs?

See [Managing ASA with Security Cloud Control](#) to get started.

## FAQs About Onboarding Secure Firewall Threat Defense to Cloud-Delivered Firewall Management Center

### How do I onboard Secure Firewall Threat Defense?

You can onboard an FTD device using a CLI registration key, through zero-touch provisioning, or with a serial number.

### What do I do after onboarding my Secure Firewall Threat Defense?

Once the device is synchronized, navigate to **Administration > Integrations > Firewall Management Center** and select an action from the Actions, Management, or Settings pane to begin configuring your threat defense device in Cloud-Delivered Firewall Management Center. See [Cloud-delivered Firewall Management Center Application Page](#) to get started.

### How do I troubleshoot my Secure Firewall Threat Defense?

See [Troubleshoot Onboarding Secure Firewall Threat Defense](#).

## FAQs About On-Premises Secure Firewall Management Center

### How do I onboard an On-Prem management center?

You can onboard an On-Prem Management Center to Security Cloud Control. Onboarding an On-Prem Management Center also onboards all of the devices registered to the On-Prem Management Center. Security Cloud Control does not support creating or modifying objects or policies associated with the On-Prem Management Center or the devices registered to the On-Prem Management Center. You must make these changes in the On-Prem Management Center UI. See [Onboard an On-Prem Management Center](#) to get started.



## FAQs About Onboarding SSH Devices to Security Cloud Control

### How do I onboard an SSH device?

You can use the username and password of a highly privileged user stored on the SSH device to onboard the device with a Secure Device Connector (SDC). See [Onboard an SSH Device](#) to get started.

### How do I delete a device?

You can delete a device from the inventory page.

You can delete a device from the **Security Devices** page.

## Device Types

### What is an Adaptive Security Appliance (ASA)?

The Cisco ASA provides advanced stateful firewall and VPN concentrator functionality in one device as well as integrated services with add-on modules. The ASA includes many advanced features, such as multiple security contexts (similar to virtualized firewalls), clustering (combining multiple firewalls into a single firewall), transparent (Layer 2) firewall or routed (Layer 3) firewall operation, advanced inspection engines, IPsec VPN, SSL VPN, and clientless SSL VPN support, and many more features. ASAs can be installed on virtual machines or supported hardware.

### What is an ASA Model?

An ASA model is a copy of the running configuration file of an ASA device that you have onboarded to Security Cloud Control. You can use an ASA model to analyze the configuration of an ASA device without onboarding the device itself.

### What is Firepower Threat Defense (FTD)?

Cisco's next generation firewall software image. It strives to combine the best of Sourcefire next generation firewall services and the ASA platform. It can be installed on a number of different Firepower hardware devices or virtual machines. This is not the same as a ASA FirePOWER module.

### What is Firepower Device Manager (FDM)?

Firepower Device Manager is Firepower Threat Defense management software delivered with the FTD image. FDM is designed to manage the one FTD it is delivered with. You may also hear FDM referred to as the "local device manager."

### What is Firepower?

Firepower is a general term that refers to a group of next generation firewall hardware and software.

### When is a device Synced?

When the configuration on Security Cloud Control and the configuration stored locally on the device are the same.

**When is a device Not Synced?**

When the configuration stored in Security Cloud Control was changed and it is now different than the configuration stored locally on the device.

**When is a device in a Conflict Detected state?**

When the configuration on the device was changed outside of Security Cloud Control (out-of-band), and is now different than the configuration stored on Security Cloud Control.

**What is an out-of-band change?**

When a change is made to the device outside of Security Cloud Control. The change is made directly on the device using CLI command or by using the on-device manager such as ASDM or FDM. An out-of-band change causes Security Cloud Control to report a "Conflict Detected" state for the device.

**What does it mean to deploy a change to a device?**

After you onboard a device to Security Cloud Control, Security Cloud Control maintains a copy of its configuration. When you make a change on Security Cloud Control, Security Cloud Control makes a change to its copy of the device's configuration. When you "deploy" that change back to a device, Security Cloud Control copies the changes you made to the device's copy of its configuration. See these topics:

- [Preview and Deploy Configuration Changes for All Devices, on page 615](#)
- [Deploy Configuration Changes from Security Cloud Control to FTD](#)
- [Deploy Configuration Changes from Security Cloud Control to an ASA](#)

**What ASA commands are currently supported?**

All commands. Click the **Command Line Interface** link under Device Actions to use the ASA CLI.

**Are there any scale limitations for device management?**

Security Cloud Control's cloud architecture allows it to scale to thousands of devices.

**Does Security Cloud Control manage Cisco Integrated Services Routers and Aggregation Services Routers?**

Security Cloud Control allows you to create a model device for ISRs and ASRs and import its configuration. You can then create templates based on the imported configurations and export the configuration as a standardized configuration that can be deployed to new or existing ISR and ASR devices for consistent security.

**Can Security Cloud Control manage SMA?**

No, Security Cloud Control does not currently manage SMA.

# Security

**Is Security Cloud Control Secure?**

Security Cloud Control offers end-to-end security for customer data through the following features:

- Authentication calls for APIs and database operations
- Data isolation in flight and at rest
- Separation of roles

Security Cloud Control requires multi-factor authentication for users to connect to their cloud portal. Multi-factor authentication is a vital function needed to protect the identity of customers.

All data, in flight and at rest, is encrypted. Communication from devices on customer premises and Security Cloud Control is encrypted with SSL, and all customer-tenant data volumes are encrypted.

Security Cloud Control's multi-tenant architecture isolates tenant data and encrypts traffic between databases and application servers. When users authenticate to gain access to Security Cloud Control, they receive a token. This token is used to fetch a key from a key-management service, and the key is used to encrypt traffic to the database.

Security Cloud Control provides value to customers quickly while making sure customer credentials are secured. This is achieved by deploying a "Secure Data Connector" in the cloud or a customer's own network (in roadmap) that controls all inbound and outbound traffic to make sure the credential data doesn't leave the customer premises.

#### **I received the error "Could not validate your OTP" when logging into Security Cloud Control for the first time**

Check that your desktop or mobile device clock is synchronized with a world time server. Clocks being out of sync by less or more than a minute can cause incorrect OTPs to be generated.

#### **Is my device connected directly to Security Cloud Control cloud platform?**

Yes. The secured connection is performed using the Security Cloud Control SDC which is used as a proxy between the device and Security Cloud Control platform. Security Cloud Control architecture, designed with security first in mind, enables having complete separation between data traversing back and forth to the device.

#### **How can I connect a device which does not have a public IP address?**

You can leverage Security Cloud Control Secure Device Connector (SDC) which can be deployed within your network and doesn't need any outside port to be open. Once the SDC is deployed you can onboard devices with internal (non-internet routable) IP addresses.

#### **Does the SDC require any additional cost or license?**

No.

#### **How can I check the tunnel status? State options**

Security Cloud Control performs the tunnel connectivity checks automatically every hour, however ad-hoc VPN tunnel connectivity checks can be performed by choosing a tunnel and requesting to check connectivity. Results may take several seconds to process.

#### **Can I search a tunnel based on the device name as well as its IP address of one of its peers?**

Yes. Search and pivot to a specific VPN tunnel details by using available filters and search capabilities on both name and the peers IP addresses.

# Troubleshooting

**While performing complete deploy of device configuration from Security Cloud Control to managed device, I get a warning "Cannot deploy changes to device". What can I do to solve that?**

If an error occurs when you deploy a full configuration (changes performed beyond Security Cloud Control supported commands) to the device, click "Check for changes" to pull the latest available configuration from device. This may solve the problem and you will be able to continue making changes on Security Cloud Control and deploy them. In case the issue persists, please contact Cisco TAC from the **Contact Support** page.

**While resolving out-of-band issue (changes performed outside of Security Cloud Control; directly to a device), comparing the configuration present in Security Cloud Control that of the device, Security Cloud Control presents additional metadata that were not added or modified by me. Why?**

As Security Cloud Control expands its functionality, additional information will be collected from the device's configuration to enrich and maintain all required data for better policy and device management analysis. These are not changes that occurred on managed device but already existing information. Resolving the conflict detected state can be easily solved by checking for changes from the device and reviewing the changes occurred.

**Why is Security Cloud Control rejecting my certificate?**

See [Resolving New Certificates](#)

## How Do I Transfer a Firewall Threat Defense Device to a New or Existing Security Cloud Control Tenant?

To transfer a Firewall Threat Defense device to a new or existing Security Cloud Control tenant, follow these steps:

1. Ensure that all pending changes are downloaded to the Firewall Threat Defense device so that the latest changes are available on it.
2. Remove the Firewall Threat Defense device from the source Security Cloud Control tenant.
3. (optional) Create a new Security Cloud Control tenant in the desired region by using [Security Cloud Control Provisioning Portal](#) and [enable cloud-delivered Firewall Management Center](#) on it. Skip this step if the target Security Cloud Control tenant already exists.
4. Onboard the Firewall Threat Defense device to the new Security Cloud Control tenant using the [CLI registration key](#) method.

## Terminologies and Definitions used in Zero-Touch Provisioning

- **Claimed** - Used in the context of serial number onboarding in Security Cloud Control. A device is "claimed" if its serial number has been onboarded to a Security Cloud Control tenant.

- **Parked** - Used in the context of serial number onboarding in Security Cloud Control. A device is "parked" if it has connected to the Cisco Cloud, and a Security Cloud Control tenant has not claimed its serial number.
- **Initial provisioning** - Used in the context of the initial FTD setup. During this phase, the device accepts EULA, creates a new password, configures management IP address, sets FQDN, sets DNS servers, and chooses to manage the device locally with FDM.
- **Zero-Touch Provisioning** - It is the process of shipping an FTD from the factory to a customer site (typically a branch office), an employee at the site connects the FTD to their network, and the device contacts the Cisco Cloud. At that point, the device is onboarded to Security Cloud Control tenant if its serial number has already been "claimed," or the FTD is "parked" in the Cisco cloud until a Security Cloud Control tenant claims it.

## Policy Optimization

**How can I identify a case when two or more access lists (within the same access group) are shadowing each other?**

Security Cloud Control Network Policy Management (NPM) is able to identify and alert the user if within a rule set, a rule higher in order, is shadowing a different rule. User can either navigate between all network policies or filter to identify all shadow issues. For more information, see [Network Policy Management](#).




---

**Note** Security Cloud Control supports only fully shadowed rules.

---

## Connectivity

**The Secure Device Connector changed IP address, but this was not reflected within Security Cloud Control. What can I do to reflect the change?**

In order to obtain and update the new Secure Device Connector (SDC) within Security Cloud Control, you will need to restart the container using the following commands:

```
Stop Docker daemon>#service docker stop
Change IP address
Start Docker daemon >#service docker start
Restart container on the SDC virtual appliance >bash-4.2$./cdo/toolkit/toolkit.sh restartSDC
<tenant-name>
```

**What happens if the IP address used by Security Cloud Control to manage my devices ( FTD or ASA) changes?**

If the IP address of the device changes for any reason, whether it is a change in the static IP address or a change in the IP address due to DHCP, you can change the IP address that Security Cloud Control uses to connect to the device and then reconnect the device . When reconnecting the device you will be asked to enter the new IP address of the device as well as re-enter the authentication credentials.

**What networking is required to connect my ASA to Security Cloud Control?**

- ASDM image present and enabled for ASA.
- Public interface access to 52.25.109.29, 52.34.234.2, 52.36.70.147
- ASA's HTTPS port must be set to 443 or to a value of 1024 or higher. For example, it cannot be set to port 636.
- If the ASA under management is also configured to accept AnyConnect VPN Client connections, the ASA HTTPS port must be changed to a value of 1024 or higher.

## Complete the Initial Configuration of a Secure Firewall Threat Defense Device Using the CLI

Connect to the device's CLI to perform initial setup, including setting the management IP address, gateway, and other basic networking settings using the setup wizard. Ensure all DNS and firewall ports are accessible for communication.

The dedicated management interface is a special interface with its own network settings. If you do not want to use the management interface, you can use the CLI to configure a data interface instead.

This configuration is ideal for devices that are going to be onboarded with their CLI registration key.




---

**Note** Do **not** use this configuration procedure for devices that are onboarding with zero-touch provisioning.

---

### Procedure

---

**Step 1** Connect to the device's CLI, either from the console port or using SSH to the management interface. If you intend to change the network settings, we recommend using the console port so you do not get disconnected. (Firepower hardware models) The console port connects to the FXOS CLI. The SSH session connects directly to the FTD CLI.

**Step 2** Log in with the username **admin** and the password **Admin123**. (Firepower hardware models) At the console port, you connect to the FXOS CLI. The first time you log in to FXOS, you are prompted to change the password. This password is also used for the FTD login for SSH.

**Note**

If the password was already changed, and you do not know it, you must reimage the device to reset the password to the default.

For Firepower and Secure Firewall hardware, see the [Reimage Procedures](#) in the [Cisco FXOS Troubleshooting Guide for the Firepower 1000/2100 and Secure Firewall 3100/4200 with Threat Defense](#).

**Example:**

```
firepower login: admin
```

```

Password: Admin123
Successful login attempts for user 'admin' : 1

[...]

Hello admin. You must change your password.
Enter new password: *****
Confirm new password: *****
Your password was updated successfully.

[...]

firepower#

```

**Step 3** (Firepower hardware models) If you connected to FXOS on the console port, connect to the FTD CLI.

**connect ftd**

**Example:**

```

firepower# connect ftd
>

```

**Step 4** The first time you log in to the device, you are prompted to accept the End User License Agreement (EULA) and, if using an SSH connection, to change the admin password. You are then presented with the CLI setup script.

**Note**

You cannot repeat the CLI setup wizard unless you clear the configuration; for example, by reimaging. However, all of these settings can be changed later at the CLI using **configure network** commands. See the [threat defense command reference](#).

Defaults or previously entered values appear in brackets. To accept previously entered values, press **Enter**.

**Note**

The management interface settings are used even when you enable FTD access on a data interface. For example, the management traffic that is routed over the backplane through the data interface will resolve FQDNs using the management interface DNS servers, and not the data interface DNS servers.

See the following guidelines:

- **Configure IPv4 via DHCP or manually?**—If you want to use a data interface for FTD access instead of the management interface, choose **manual**. Although you do not plan to use the management interface, you must set an IP address, for example, a private address. You cannot configure a data interface for management if the management interface is set to DHCP, because the default route, which must be **data-interfaces** (see the next bullet), might be overwritten with one received from the DHCP server.
- **Enter the IPv4 default gateway for the management interface**—If you want to use a data interface for FTD access instead of the management interface, set the gateway to be **data-interfaces**. This setting forwards management traffic over the backplane so it can be routed through the FMC access data interface.
- **If your networking information has changed, you will need to reconnect**—If you are connected with SSH but you change the IP address at initial setup, you will be disconnected. Reconnect with the new IP address and password. Console connections are not affected.
- **Manage the device locally?**—Enter **YES** to configure the device for the device to be managed by either the cloud-delivered Firewall Management Center or Firepower Device Manager.

**Manage the device locally?**—Enter **NO** to configure the device for remote management with the on-premises management center.

- **Configure firewall mode?**—We recommend that you set the firewall mode at initial configuration. Changing the firewall mode after initial setup erases your running configuration. Note that data interface FTD access is only supported in routed firewall mode.

**Step 5** (Optional) Configure a data interface for FMC access.

#### **configure network management-data-interface**

You are then prompted to configure basic network settings for the data interface.

#### **Note**

You should use the console port when using this command. If you use SSH to the Management interface, you might get disconnected and have to reconnect to the console port. See below for more information about SSH usage.

See the following details for using this command. See [About Data Interfaces, on page 834](#) for more information.

- The original management interface cannot use DHCP if you want to use a data interface for management. If you did not set the IP address manually during initial setup, you can set it now using the **configure network {ipv4 | ipv6} manual** command. If you did not already set the management interface gateway to **data-interfaces**, this command will set it now.
- When you onboard the device for Firewall Threat Defense management through Security Cloud Control, Security Cloud Control discovers and maintains the interface configuration, including the following settings: interface name and IP address, static route to the gateway, DNS servers, and DDNS server. For more information about the DNS server configuration, see below. You can later make changes to the access interface configuration, but make sure you don't make changes that can prevent the device or Security Cloud Control from re-establishing the management connection. If the management connection is disrupted, the device includes the **configure policy rollback** command to restore the previous deployment.
- This command sets the *data* interface DNS server. The Management DNS server that you set with the setup script (or using the **configure network dns servers** command) is used for management traffic. The data DNS server is used for DDNS (if configured) or for security policies applied to this interface.

Also, local DNS servers are only retained if the DNS servers were discovered at initial registration. For example, if you registered the device using the Management interface, but then later configure a data interface using the **configure network management-data-interface** command, then you must manually configure all of these settings in Security Cloud Control, including the DNS servers, to match the device configuration.

- You can change the management interface after you onboard the FTD for Firewall Threat Defense management through , to either the management interface or another data interface.
- The FQDN that you set in the setup wizard will be used for this interface.
- You can clear the entire device configuration as part of the command; you might use this option in a recovery scenario, but we do not suggest you use it for initial setup or normal operation.
- To disable data management, enter the **configure network management-data-interface disable** command.

#### **Example:**



```
> configure network management-data-interface
Data interface to use for management: ethernet1/1
Specify a name for the interface [outside]:
IP address (manual / dhcp) [dhcp]:
DDNS server update URL [none]:
https://jcrichon:pa$$w0rd17@domains.example.com/nic/update?hostname=<h>&myip=<a>
Do you wish to clear all the device configuration before applying ? (y/n) [n]:

Configuration done with option to allow FMC access from any network, if you wish to change
the FMC access network
use the 'client' option in the command 'configure network management-data-interface'.

Setting IPv4 network configuration.
Network settings changed.

>
```

### Example:

```
> configure network management-data-interface
Data interface to use for management: ethernet1/1
Specify a name for the interface [outside]: internet
IP address (manual / dhcp) [dhcp]: manual
IPv4/IPv6 address: 10.10.6.7
Netmask/IPv6 Prefix: 255.255.255.0
Default Gateway: 10.10.6.1
Comma-separated list of DNS servers [none]: 208.67.222.222,208.67.220.220
DDNS server update URL [none]:
Do you wish to clear all the device configuration before applying ? (y/n) [n]:

Configuration done with option to allow FMC access from any network, if you wish to change
the FMC access network
use the 'client' option in the command 'configure network management-data-interface'.

Setting IPv4 network configuration.
Network settings changed.

>
```

**Step 6** (Optional) Limit data interface access to Security Cloud Control on a specific network.

**configure network management-data-interface client ip\_address netmask**

By default, all networks are allowed.

## What does it mean to be FedRAMP certified

Being "FedRAMP certified" means that a cloud service provider (CSP) has undergone a rigorous security assessment and authorization process as defined by the Federal Risk and Authorization Management Program (FedRAMP). This certification ensures that the CSP meets stringent security standards required for handling sensitive government data. The key aspects of being FedRAMP certified include:

1. **Standardized Security Assessment:** The CSP has been evaluated against a standardized set of security requirements and assessment procedures.
2. **Authorization:** The CSP has received an official authorization to operate (ATO) from a federal agency.

3. **Continuous Monitoring:** The CSP is required to continuously monitor and report on their security controls to maintain their FedRAMP Authorized status.
4. **Compliance:** The certification ensures that the CSP complies with federal regulations for cloud services, providing a high level of security assurance for government agencies and contractors.

Overall, FedRAMP certification signifies that the cloud service provider has implemented strong security measures to protect customer data and is in compliance with federal security mandates.

Learn more at [What is FedRAMP](#).

## About Data Interfaces

You can use either the dedicated management interface or a regular data interface for communication with the device. Security Cloud Control access on a data interface is useful if you want to manage the FTD remotely from the outside interface, or you do not have a separate management network. Security Cloud Control supports high availability on the FTD managed remotely from the data interface.

FTD management access from a data interface has the following limitations:

- You can only enable manager access on one physical, data interface. You cannot use a subinterface or EtherChannel.
- Routed firewall mode only, using a routed interface.
- PPPoE is not supported. If your ISP requires PPPoE, you will have to put a router with PPPoE support between the FTD and the WAN modem.
- The interface must be in the global VRF only.
- SSH is not enabled by default for data interfaces, so you will have to enable SSH later using Security Cloud Control. Because the management interface gateway will be changed to be the data interfaces, you also cannot SSH to the management interface from a remote network unless you add a static route for the management interface using the **configure network static-routes** command.

## How Security Cloud Control Processes Personal Information

To learn how Security Cloud Control processes your personal identifiable information, see the [Security Cloud Control Privacy Data Sheet](#).

## Contact Security Cloud Control Support

This chapter covers the following sections:

### Export The Workflow

We strongly recommend exporting the workflow of a device that is experience issues prior to opening a support ticket. This additional information can help the support team expeditiously identify and correct any troubleshooting efforts.

Use the following procedure to export the workflow:

#### Procedure

- 
- Step 1** In the navigation bar, click **Inventory**.
- Step 2** In the left pane, click **Security Devices**.
- Step 3** Click the **Devices** tab to locate your device.
- Step 4** Click the appropriate device type tab and select the device you need to troubleshoot.
- Use the **filter** or **search bar** to locate the device you need to troubleshoot. Select the device so it is highlighted.
- Step 5** In the **Device Actions** pane, select **Workflows**.
- Step 6** Click the **Export** button located at the top right of the page, above the table of events. The file automatically saves locally as a **.json** file. Attach this to any emails or tickets you open with TAC.
- 

## Open a Support Ticket with TAC

A customer using a 30-day trial or a licensed Security Cloud Control account can open a support ticket with Cisco's Technical Assistance Center (TAC).

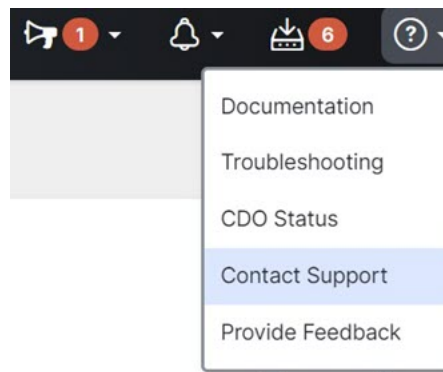
- [How Security Cloud Control Customers Open a Support Ticket with TAC.](#)
- [How Security Cloud Control Trial Customers Open a Support Ticket with TAC.](#)

## How Security Cloud Control Customers Open a Support Ticket with TAC

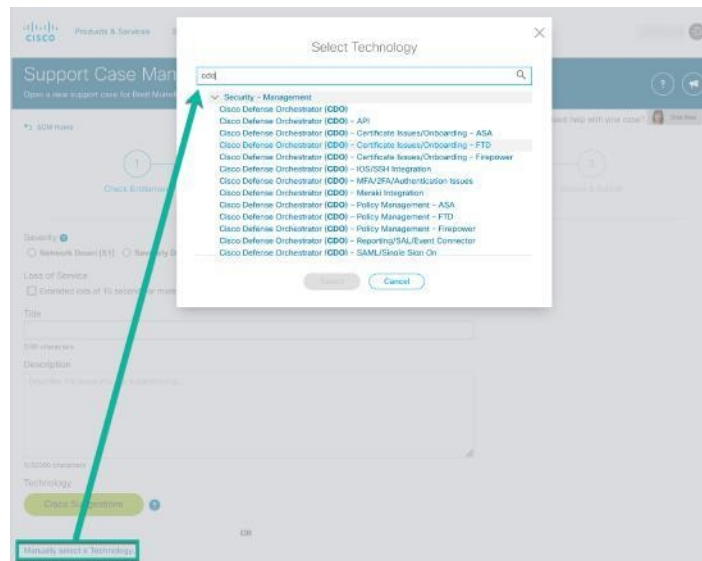
This section explains how a customer using a licensed Security Cloud Control tenant can open a support ticket with Cisco's Technical Assistance Center (TAC).

#### Procedure

- 
- Step 1** Log in to Security Cloud Control.
- Step 2** Next to your tenant name, click the help button and select **Contact Support**.



- Step 3** Click **Support Case Manager**.
- Step 4** Click the blue **Open New Case** button.
- Step 5** Click **Open Case**.
- Step 6** Select **Products and Services** and then click **Open Case**.
- Step 7** Choose a **Request Type**.
- Step 8** Expand **Find Product by Service Agreement** row.
- Step 9** Fill in all the fields. Many of the fields are obvious. This is some additional information:
- **Product Name (PID)** - If you no longer have this number, see the [Security Cloud Control Data Sheet](#).
  - **Product Description** - This is the description of the PID.
  - **Site Name** - Enter your site name. If you are a Cisco Partner opening a case for one of your customers, enter the customer's name.
  - **Service Contract** - Enter your service contract number.
    - **Important:** In order for your case to be associated with your Cisco.com account, you need to associate your contract number to your Cisco.com profile. Use this procedure to associate your contract number to your Cisco.com profile.
      - a. Open to [Cisco Profile Manager](#).
      - b. Click the **Access Management** tab.
      - c. Click **Add Access**.
      - d. Choose **TAC and RMA case creation, Software Download, support tools, and entitled content on Cisco.com** and click **Go**.
      - e. Enter service contracts number(s) in the space provided and click **Submit**. You will receive notification via email that the service contract associations have been completed. Service contract association can take up to 6 hours to complete.
- Important**  
Important: If you are not able to access any of the links below, please contact your authorized Cisco partner or re-seller, your Cisco account representative, or the individual in your company who manages Cisco service agreement information.
- Step 10** Click **Next**.
- Step 11** In the **Describe Problem** screen, scroll down to **Manually select a Technology**, click it, and type **Security Cloud Control** in the search field.
- Step 12** Select the category that best matches your request, and click **Select**.



**Step 13** Complete the remainder of the service request and click **Submit**.

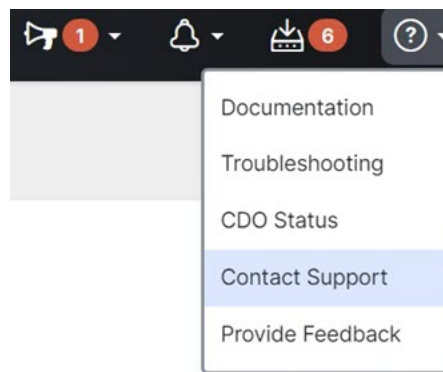
## How Security Cloud Control Trial Customers Open a Support Ticket with TAC

This section explains how a customer using a free trial of a Security Cloud Control tenant can open a support ticket with Cisco's Technical Assistance Center (TAC).

### Procedure

**Step 1** Log in to Security Cloud Control.

**Step 2** Next to your tenant and account name, click the help button and select **Contact Support**.



**Step 3** In the **Enter Issue or request below** field, specify the issue that you are facing or your request and click **Submit**.

Your request, along with the technical information, will be sent to the support team, and a technical support engineer will respond to your query.

---

## Security Cloud Control Service Status Page

Security Cloud Control maintains a customer-facing service status page that shows you if the Security Cloud Control service is up and any service interruptions it may have had. You can view up-time information with daily, weekly, or monthly graphs.

You can reach the Security Cloud Control status page by clicking [Security Cloud Control Status](#) in the help menu on any page in Security Cloud Control.

On the status page, you can click the **Subscribe to Updates** to receive a notification if the Security Cloud Control service goes down.



## CHAPTER 23

# Security and Internet Access

Lists of URLs used by the dynamic attributes connector when communicating with cloud service providers and the .

- [Internet Access Requirements, on page 839](#)

## Internet Access Requirements

By default, the dynamic attributes connector is configured to communicate with the Firepower System over the internet using HTTPS on port 443/tcp (HTTPS). If you do not want the dynamic attributes connector to have direct access to the internet, you can configure a proxy server.

The following information informs you of the URLs the dynamic attributes connector use to communicate with the and with external servers.

**Table 39: Cisco Secure Dynamic Attributes Connector access requirements**

| URL                                                                                                                                                                                                                             | Reason                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <a href="https://fmc-ip/api/fmc_platform/v1/auth/generatetoken">https://fmc-ip/api/fmc_platform/v1/auth/generatetoken</a>                                                                                                       | Authentication               |
| <a href="https://fmc-ip/api/fmc_config/v1/domain/domain-id/object/dynamicobjects">https://fmc-ip/api/fmc_config/v1/domain/domain-id/object/dynamicobjects</a>                                                                   | GET and POST dynamic objects |
| <a href="https://fmc-ip/api/fmc_config/v1/domain/domain-id/object/dynamicobjects/object-id/mappings?action=add">https://fmc-ip/api/fmc_config/v1/domain/domain-id/object/dynamicobjects/object-id/mappings?action=add</a>       | Add mappings                 |
| <a href="https://fmc-ip/api/fmc_config/v1/domain/domain-id/object/dynamicobjects/object-id/mappings?action=remove">https://fmc-ip/api/fmc_config/v1/domain/domain-id/object/dynamicobjects/object-id/mappings?action=remove</a> | Remove mappings              |

### Migration from DockerHub to Amazon ECR

Docker images for the Cisco Secure Dynamic Attributes Connector are being migrated from [Docker Hub](#) to [Amazon Elastic Container Registry](#) (Amazon ECR).

To use the new field packages, you must allow access through your firewall or proxy to all of the following URLs:

- <https://public.ecr.aws>
- <https://csdac-cosign.s3.us-west-1.amazonaws.com>

#### **Cisco Secure Dynamic Attributes Connector Azure access requirements**

The dynamic attributes connector calls built-in SDK methods to get instance information. These methods internally call <https://login.microsoft.com> (for authentication) and <https://management.azure.com> (to get instance information).





## Terraform

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- [About Terraform, on page 841](#)

### About Terraform

Security Cloud Control customers can use the [Security Cloud Control Terraform provider](#) and Security Cloud Control Terraform modules to rapidly set up their tenants using code that is repeatable and version-controlled. The Security Cloud Control Terraform provider allows users to do the following:

- **Manage** users
- **Onboard** Secure Firewall Threat Defense devices on cloud-delivered Firewall Management Centers, Cisco Secure ASA devices, and iOS devices
- **Onboard** secure device connectors on vSphere and AWS
- **Onboard** secure event connectors on AWS

For more information, refer to the following pages:

- [Security Cloud Control Terraform Provider page](#)
- [Security Cloud Control SDC on vSphere module page](#)
- [Security Cloud Control SDC on AWS module page](#)
- [Security Cloud Control SEC on AWS module page](#)
- Work through the [Devnet learning lab](#)
- [Automating Security Infrastructure Management Using the Security Cloud Control Terraform Provider - Learning Lab](#)
- [Security Cloud Control automation examples](#) on GitHub

### Support

The Security Cloud Control Terraform provider and modules are published as Open Source Software under the Apache 2.0 license. Please file issues on GitHub in the repositories below if you require support:

| Module                                      | Repository                                                                                                                                                            |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Security Cloud Control Terraform Provider   | <a href="https://github.com/cisco/devnet/terraform-provider-Security-Cloud-Control">https://github.com/cisco/devnet/terraform-provider-Security-Cloud-Control</a>     |
| Security Cloud Control SDC Module (vSphere) | <a href="https://github.com/CiscoDevNet/terraform-vsphere-Security-Cloud-Control-sdc">https://github.com/CiscoDevNet/terraform-vsphere-Security-Cloud-Control-sdc</a> |
| Security Cloud Control SDC Module (AWS)     | <a href="https://github.com/CiscoDevNet/terraform-aws-Security-Cloud-Control-sdc">https://github.com/CiscoDevNet/terraform-aws-Security-Cloud-Control-sdc</a>         |
| Security Cloud Control SEC Module (AWS)     | <a href="https://github.com/CiscoDevNet/terraform-aws-Security-Cloud-Control-sec">https://github.com/CiscoDevNet/terraform-aws-Security-Cloud-Control-sec</a>         |

### Contribution to Repositories

The Security Cloud Control team welcomes contributions to the repositories above. Please create pull requests on these GitHub repositories if you wish to contribute to improving the provider and modules.

### Related Topics

- [Deploy an SDC to vSphere Using Terraform](#)
- [Deploy an SDC to AWS VPC Using Terraform](#)
- [Deploy an SEC to AWS VPC Using Terraform](#)



## CHAPTER 25

# Appendix

- [Open Source and Third-Party License in SDC](#), on page 843

## Open Source and Third-Party License in SDC

=====

**\* amqplib \***

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Michael Bridgen <mikeb@squaremobius.net>

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**\* async \***

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**\* command-line-args \***

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\* json-buffer \*

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**\* json-stable-stringify \***

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**\* json-stringify-safe \***

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**\* log4js \***

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**\* mkdirp \***

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