Assess Endpoint Compliance Using Cisco Secure Client ISE Posture Module and Cisco Secure Firewall Management Center

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Introduction

Cisco Secure Client's ISE Posture module helps you to assess endpoint compliance before allowing them to connect to your network. The assessment can be for a specific version of an antivirus, an antispyware, a file, a registry key, and so on. During posture evaluation, all clients connecting to your network must meet the mandatory requirements to be compliant.

The ISE Posture module performs a client-side evaluation. The client receives the posture requirement policy from ISE, performs the posture data collection, compares the results against the policy, and sends the assessment results back to the ISE. The posture service classifies the posture states as unknown, compliant, and noncompliant.

Benefits

Using a threat defense to configure ISE Posture modules offers significant benefits such as:

- Easily distribute and manage the ISE posture modules and profiles on each endpoint.
- Easily assess endpoint compliance before they connect to the corporate network.

Is this Guide for You?

This use case is primarily intended for network administrators who use the management center to configure the ISE Posture module for endpoint compliance assessment.

System Requirements

The following table shows the supported platforms for this feature.

Product	Version	Version used in this document
Cisco Secure Firewall Threat Defense (formerly Firepower Threat Defense/FTD)	6.3 and later	7.3
Cisco Secure Firewall Management Center (formerly Firepower Management Center/FMC)	6.7 and later	7.3
Cisco Secure Client (formerly AnyConnect)	4.0 and later	5.0
Cisco ISE	2.0 and later	3.1

Prerequisites

Ensure that you have:

- Access to a Cisco ISE server with admin privileges.
- Downloaded the Secure Client package and the Secure Client profile editor from Cisco Software Download Center to your local host.
- Installed the Secure Client profile editor to your local host.
- Downloaded the ISE Compliance Module from Cisco Software Download Center to your local host.
- Configured ISE server details in the managed threat defense. See Configure ISE in the Management Center.
- Configured a remote access VPN in the management center.

Licenses

- ISE Premier license.
- One of the following Secure Client licenses:

  Secure Client Premier, Secure Client Advantage, or Secure Client VPN Only.
- Management center Essentials (formerly Base) license must allow export-controlled functionality.

  Choose **System** > **Licenses** > **Smart Licenses** to verify this functionality in the management center.

Configure ISE in the Management Center

You must configure the ISE server in the management center to:

- Allow AAA requests from the threat defense for remote access VPN.
- Receive the posture requirement policy from ISE.
- Send the assessment results to ISE.

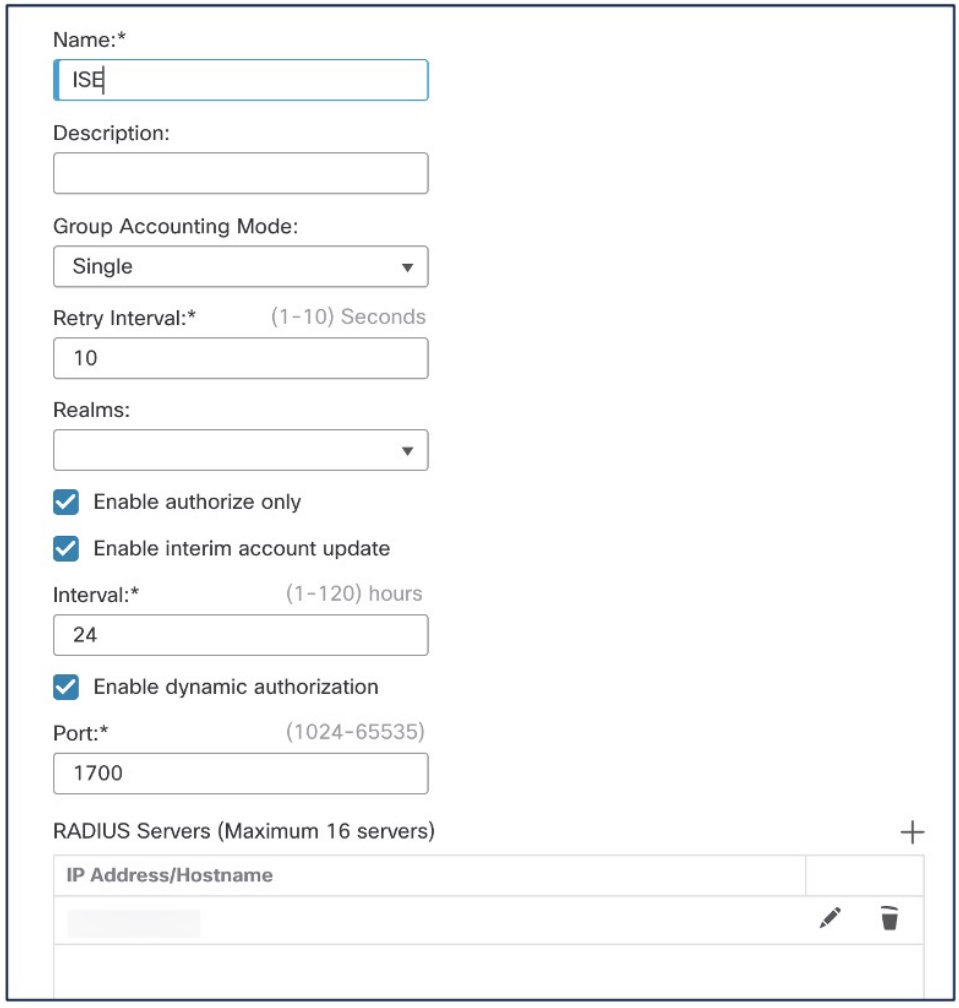
You must create a RADIUS Server object and configure it with the ISE server details.

Procedure

Step 1 Choose **Objects** > **Object Management** > **AAA Server** > **RADIUS Server Group**.

Step 2 Click **Add RADIUS Server Group**.

Step 3 Enter a name and a retry interval.



Step 4 Configure the port as 1700.

Step 5 Click + to add the ISE server.

Step 6 Enter the IP address of the ISE server.

Step 7 Leave the **Authentication Port** as 1812.

Step 8 Configure the key.

Enter the shared secret to encrypt data between the managed device (client) and the ISE server.

Step 9 Enter the key again in the **Confirm Key** field.

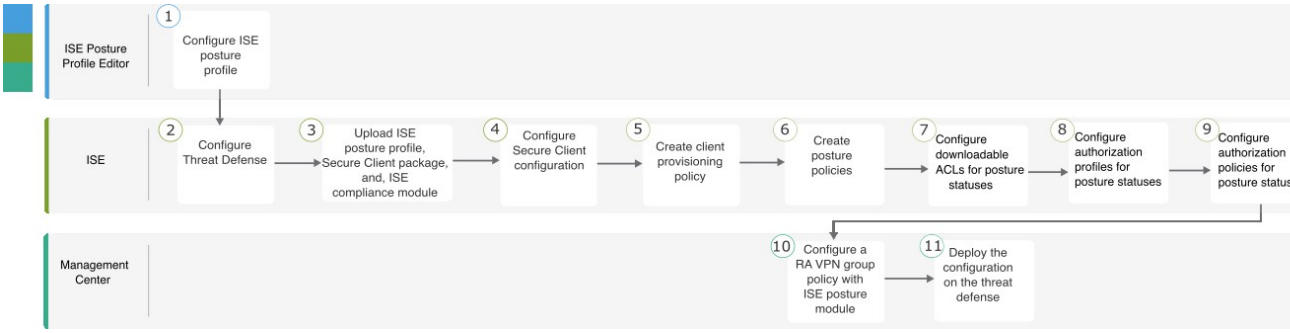
You need this key when you add the threat defense in ISE.

Step 10 Use the default values for the remaining parameters.

Step 11 Click **Save**.

End-to-End Process for Configuring ISE Posture Module Using Management Center

The following flowchart illustrates the workflow for configuring Secure Client ISE posture module using management center.



Step	Application	Description
1	ISE Posture Profile Editor	Configure the Posture Profile using the ISE Posture Profile Editor, on page 5
2	ISE	Configure Threat Defense in ISE, on page 6
3	ISE	Upload ISE Posture Profile, Secure Client Package, and ISE Compliance Module to ISE, on page 6
4	ISE	Configure a Secure Client Configuration in ISE, on page 8
5	ISE	Create a Client Provisioning Policy in ISE, on page 9
6	ISE	Configure Posture Policy in ISE, on page 10
7	ISE	Configure Downloadable ACLs for the Posture Statuses in ISE, on page 12
8	ISE	Configure Authorization Profiles for the Posture Statuses in ISE, on page 13
9	ISE	Configure Authorization Policies for the Posture Statuses in ISE, on page 15

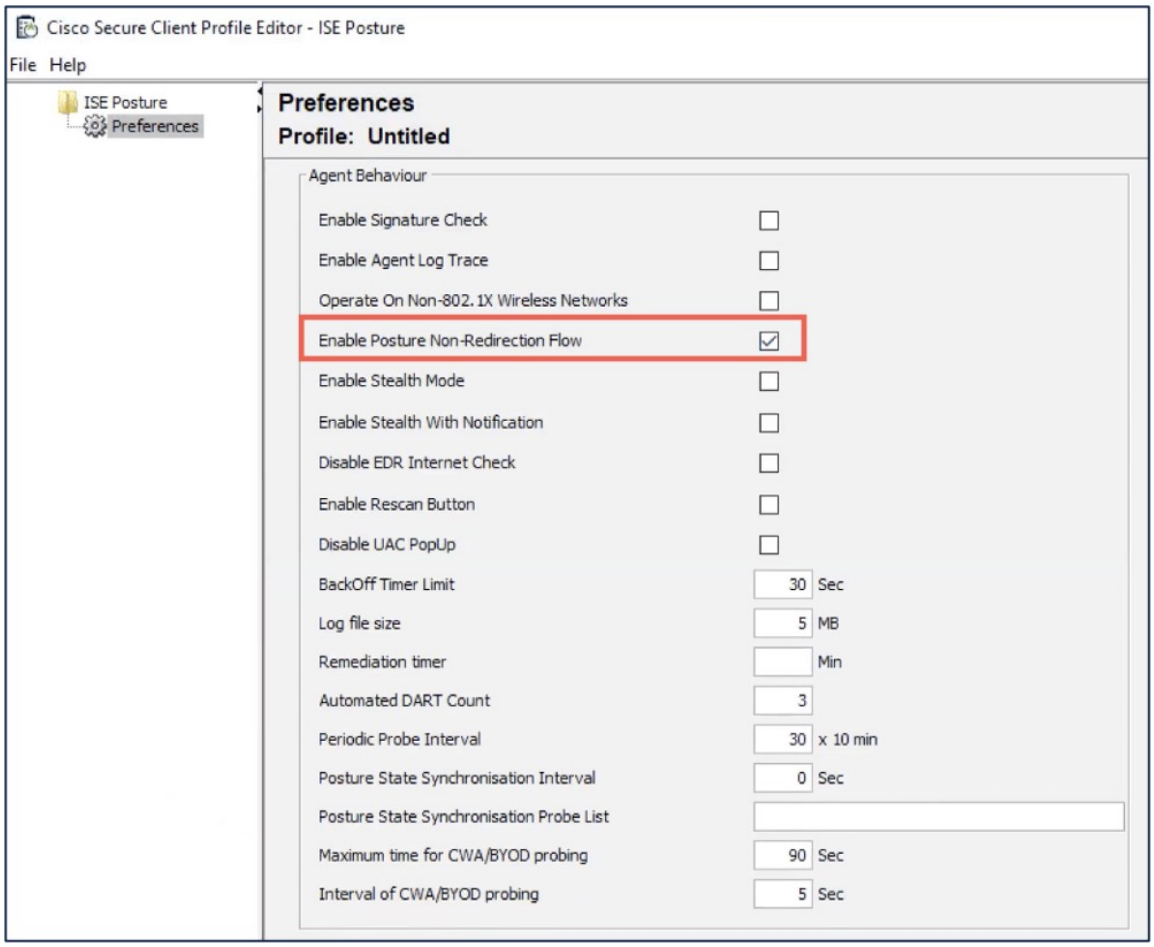
Step	Application	Description
10	Management Center	Configure a Remote Access VPN Group Policy with ISE Posture Module in the Management Center, on page 16
11	Management Center	On the management center menu bar, click **Deploy** and then select **Deployment**.

Configure the Posture Profile using the ISE Posture Profile Editor

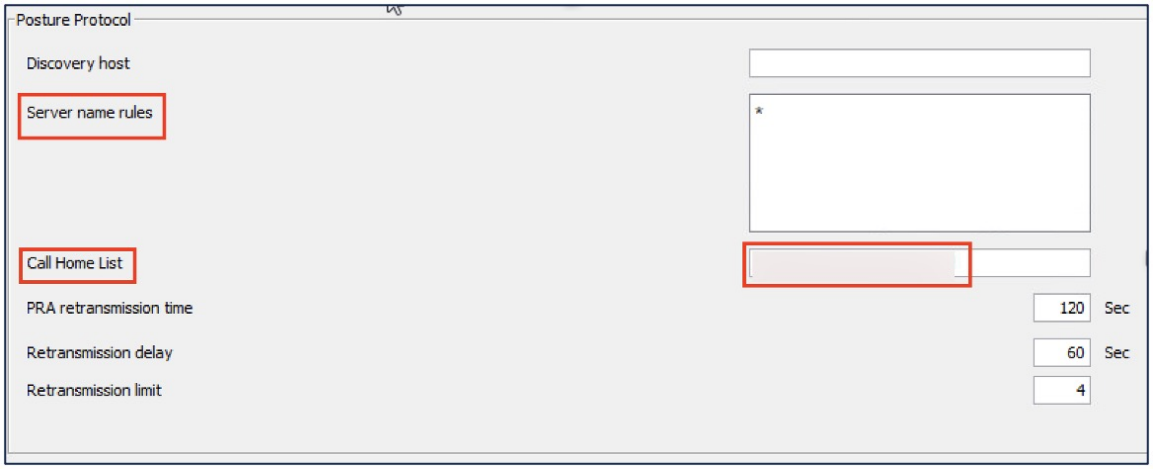
The standalone Secure Client profile editor package contains the ISE posture profile editor. Use this editor to create the ISE posture profile and then upload it to ISE and the management center.

Configure the following parameters:

1. Check the **Enable posture non-redirection flow** check box.



2. Enter the **Server name rules** as *.
3. Configure **Call Homes List** with the FQDN or the IP address of the ISE.



Configure Threat Defense in ISE

Procedure

Step 1 Log in to ISE.

Step 2 Choose **Administration** > **Network Resources** > **Network Devices**.

Step 3 Click **Add**.

Step 4 Enter the name, description, and IP address of the threat defense.

Step 5 Choose **Cisco** from the **Device Profile** drop-down list.

Step 6 Expand **RADIUS Authentication Settings**.

Step 7 Configure the **Shared Secret** and the **CoA Port**.

You need this secret and the port when you configure ISE in the threat defense. For more information, see Configure ISE in the Management Center.

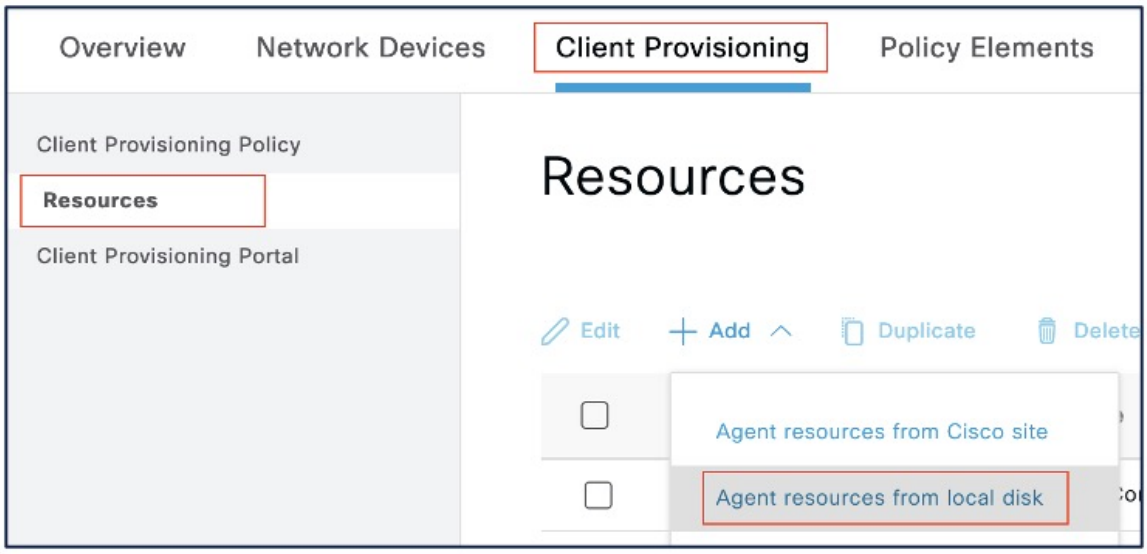
Step 8 Click **Save**.

Upload ISE Posture Profile, Secure Client Package, and ISE Compliance Module to ISE

Procedure

Step 1 Choose **Work Centers** > **Posture** > **Client Provisioning** > **Resources**.

Step 2 Click **Add** and choose **Agent resources from local disk**.



Step 3 Choose **Cisco Provided Packages** from the **Category** drop-down list.

Step 4 Click **Choose File** and select one of the following from the local host:

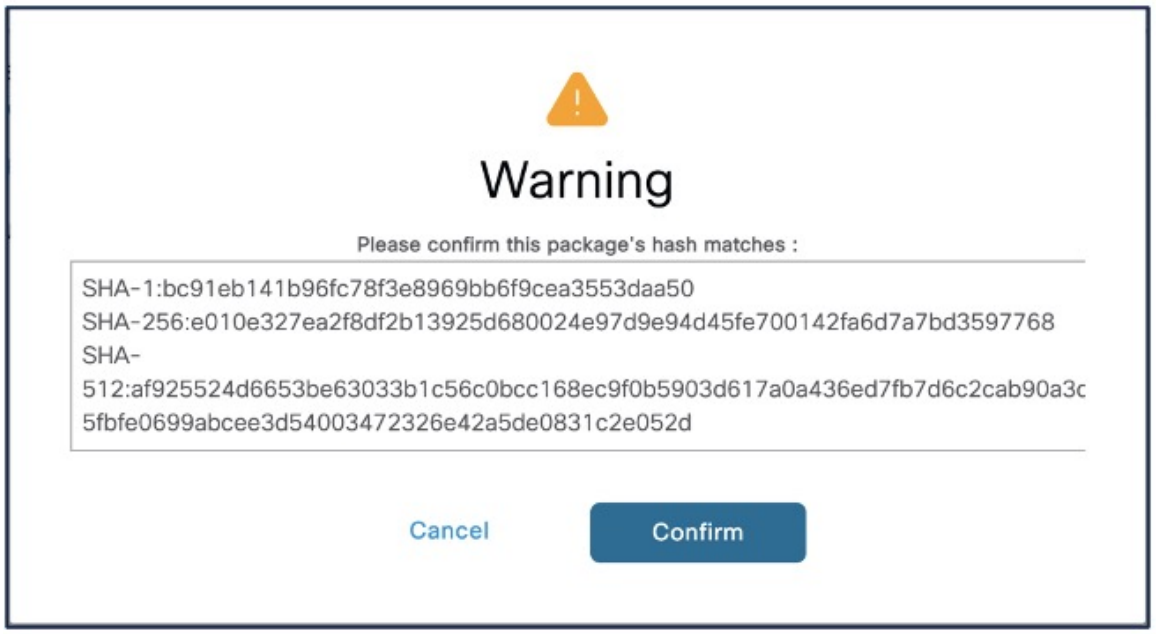
a. ISE Posture Profile (ISEPostureCFG.xml)

b. Secure Client package

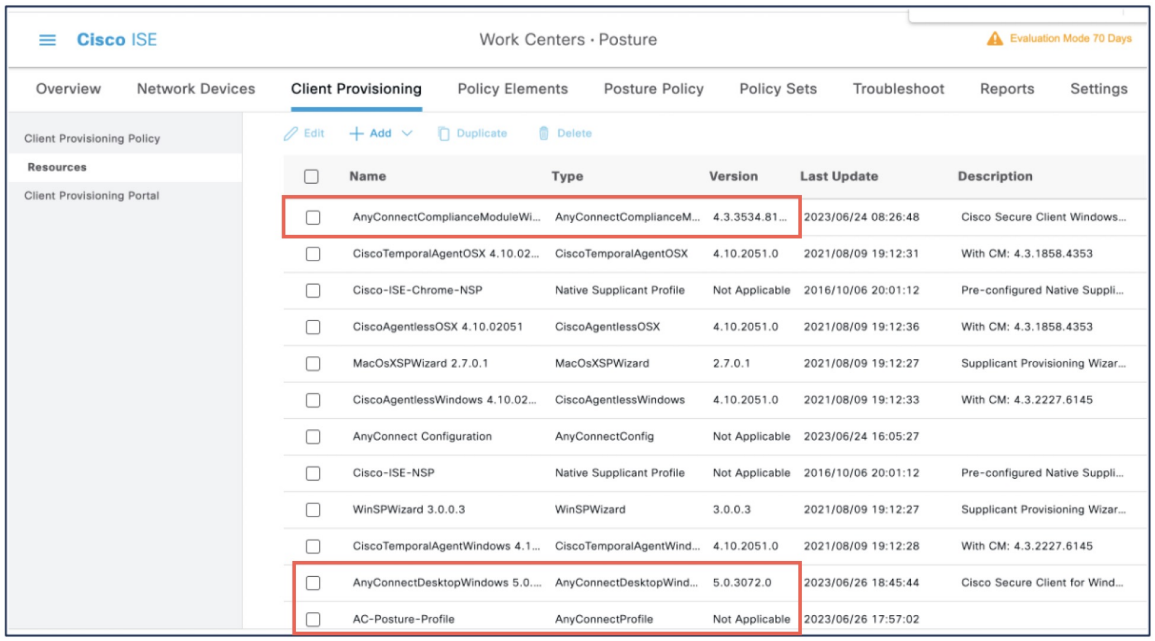
c. ISE Compliance Module

Step 5 Click **Submit**.

Step 6 Click **Confirm** to validate the checksum.



Step 7 Repeat steps 2 to 6 to upload the remaining two files.



Configure a Secure Client Configuration in ISE

Secure Client Configuration (AnyConnect Configuration in ISE) is the Secure Client software and its different configuration files like the Secure Client binary packages for clients, ISE compliance module, ISE module profiles, customization, and language packages for AnyConnect.

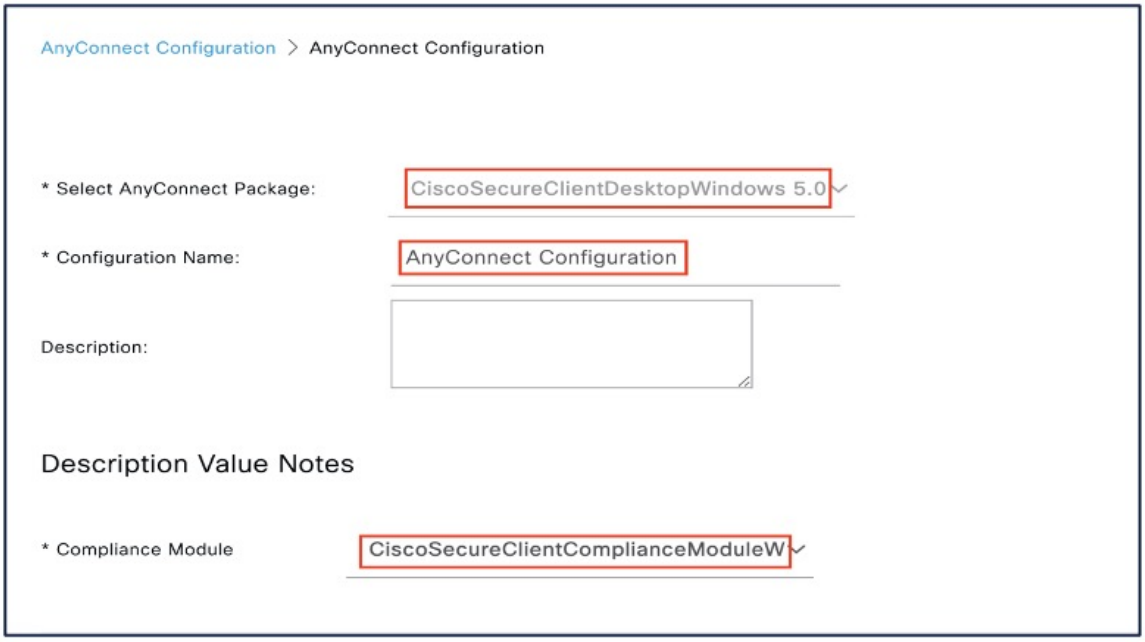
Procedure

Step 1 Choose **Work Centers** > **Posture** > **Client Provisioning** > **Resources**.

Step 2 Click **Add** and choose **AnyConnect Configuration**.

Step 3 Choose the Secure Client package from the **Select AnyConnect Package** drop-down list.

Step 4 Choose the ISE Compliance Module from the **Compliance Module** drop-down list.



Step 5 Under **Cisco Secure Client Module Selection**, by default, ISE Posture is enabled.

Step 6 Under **Profile Selection**, choose the ISE Posture file from the **ISE Posture** drop-down list.

Step 7 Click **Submit**.

Create a Client Provisioning Policy in ISE

A user receives specific versions of resources such as agents, agent compliance modules, or agent customization profiles from ISE based on the client provisioning policy.

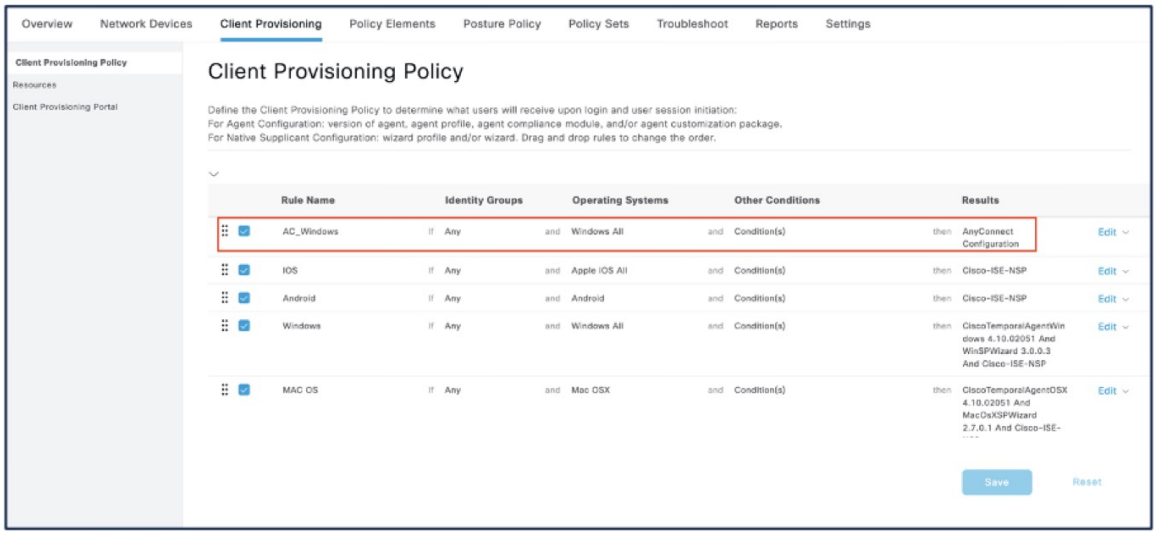
Procedure

Step 1 Choose **Policy** > **Client Provisioning**.

Step 2 Click **Edit**, and choose **Insert new policy above**.

Step 3 Enter the policy name, and choose an operating system.

Step 4 Click **+** under **Results**, and choose the AnyConnect Configuration from the **Agent** drop-down list.



Step 5 Click **Save**.

Configure Posture Policy in ISE

The posture policies, posture requirements, and the posture conditions determine the compliance status of the endpoint.

Procedure

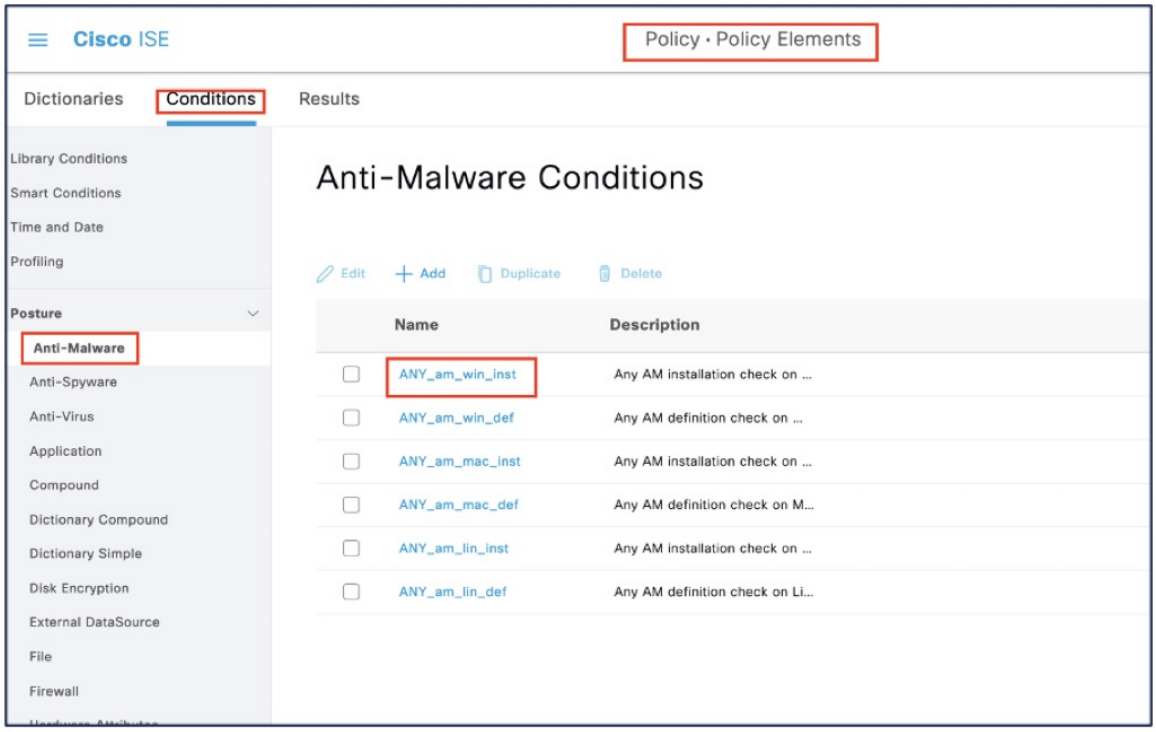
Step 1 Configure posture conditions.

a. Choose **Policy** > **Policy Elements** > **Conditions** > **Posture**.

You can choose one or more posture conditions.

b. Click **Anti-Malware** to choose an anti-malware condition.

You can choose a predefined anti-malware condition or create a new one. For Windows, you can select the ‘ANY_am_win_inst’ anti-malware posture condition.

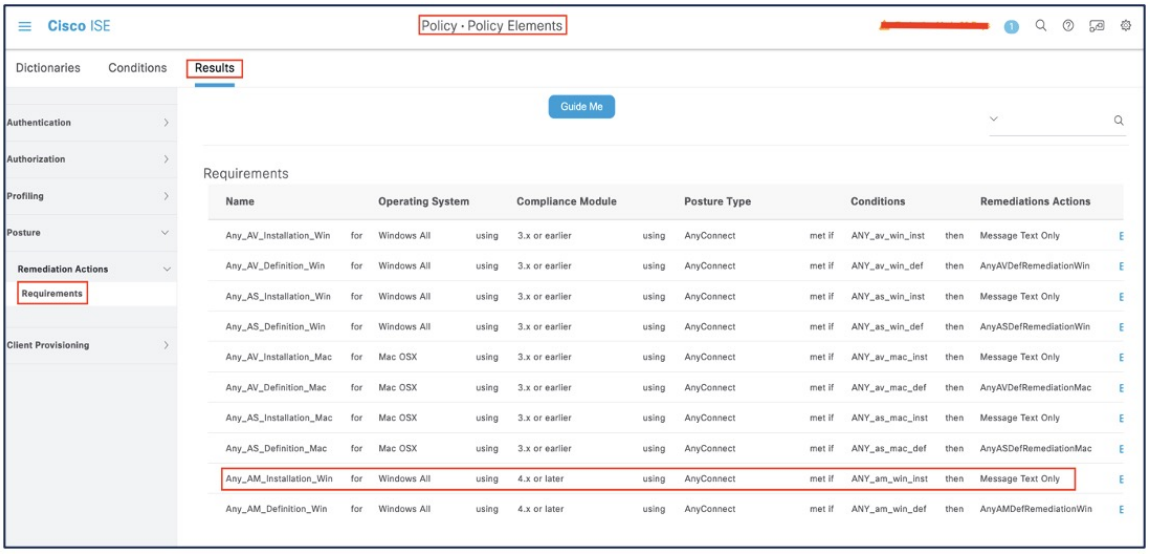


Step 2 Configure posture requirements.

Choose **Policy** > **Policy Elements** > **Results** > **Posture** > **Requirements**.

A posture requirement is a set of posture conditions associated with a remediation action. You can choose one of the multiple default or predefined posture requirements, or create a new one.

For Windows, you can select the 'Any_AM_Installation_Win' anti-malware posture requirement.

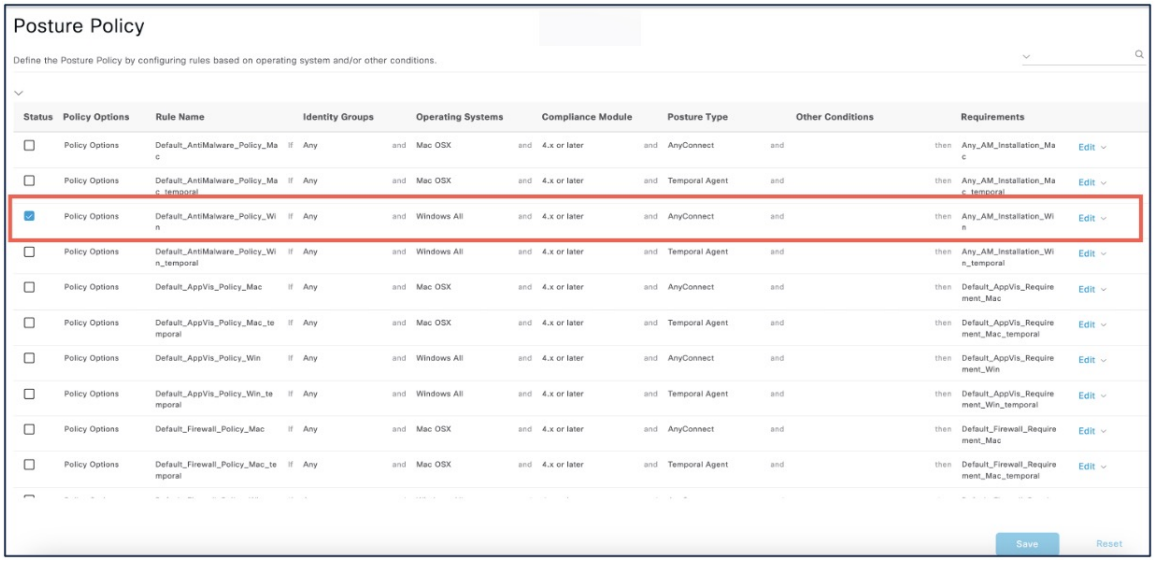


Step 3 Configure posture policy.

a. Choose **Policy** > **Posture**.

You must define a posture policy by configuring a rule based on an operating system and one or more posture requirements.

For Windows, you can select the 'Default_AntiMalware_Policy_Win' anti-malware posture policy.



b. Check the **Status** check box to enable the posture policy.

c. Click **Save**.

Configure Downloadable ACLs for the Posture Statuses in ISE

You must configure downloadable ACLs (DACL) for the Unknown, Noncompliant, and Compliant posture statuses. Default authorization DACLs are also available.

Procedure

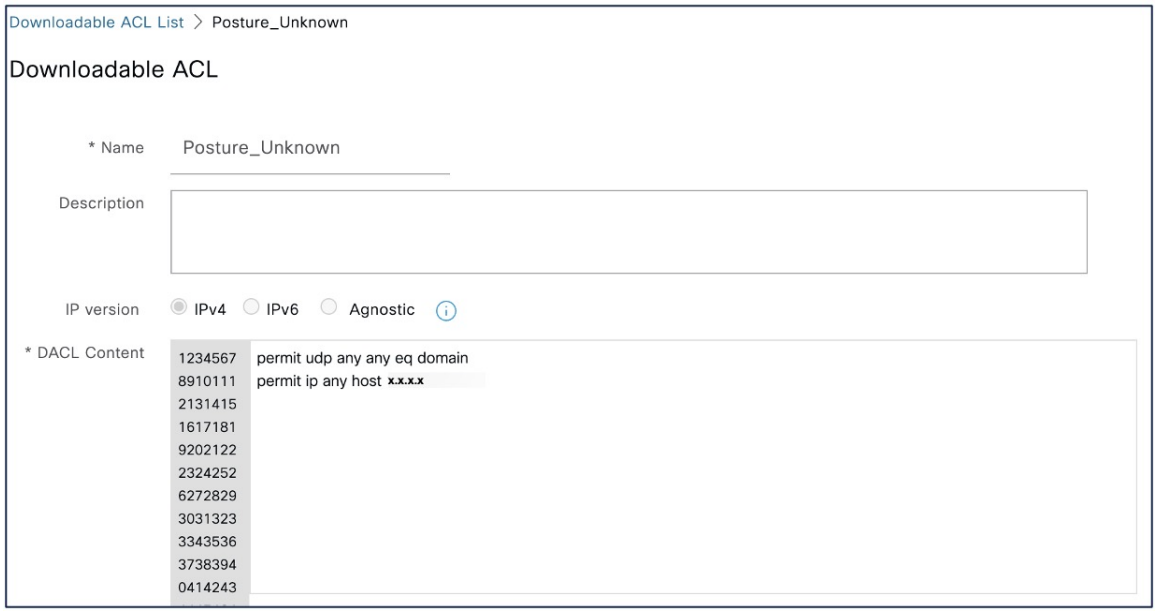
Step 1 Choose **Policy** > **Policy Elements** > **Results** > **Authorization** > **Downloadable ACLs**.

Step 2 Click **Add**.

Step 3 Enter a name and description.

Step 4 Click the radio button for the required IP version.

Step 5 Enter the values for the DACL.



Step 6 Click **Submit**.

Step 7 Repeat steps 2 to 6 to create DACLs for the remaining posture statuses.

Examples of DACLs for Unknown, Noncompliant, and Compliant posture statuses:

Type of DACL	Description	DACL
Posture Unknown DACL	Allows traffic to DNS and Policy Service (PSN).	permit udp any any eq domain permit ip any host x.x.x.x
Posture Noncompliant DACL	Denies access to private subnets and allow only internet traffic.	deny ip any x.x.x.x 255.255.255.0 permit ip any any
Posture Compliant DACL	Allows all traffic.	permit ip any any

What to do next

Configure authorization profiles using these DACLs. For more information, see Configure Authorization Profiles for the Posture Statuses in ISE.

Configure Authorization Profiles for the Posture Statuses in ISE

You must create three authorization profiles for the Unknown, Noncompliant, and Compliant posture statuses.

Procedure

Step 1 Choose **Policy** > **Policy Elements** > **Results** > **Authorization** > **Authorization Profiles**.

Step 2 Create an authorization profile for each posture status.

Step 3 Click **Add**.

Step 4 Enter a name.

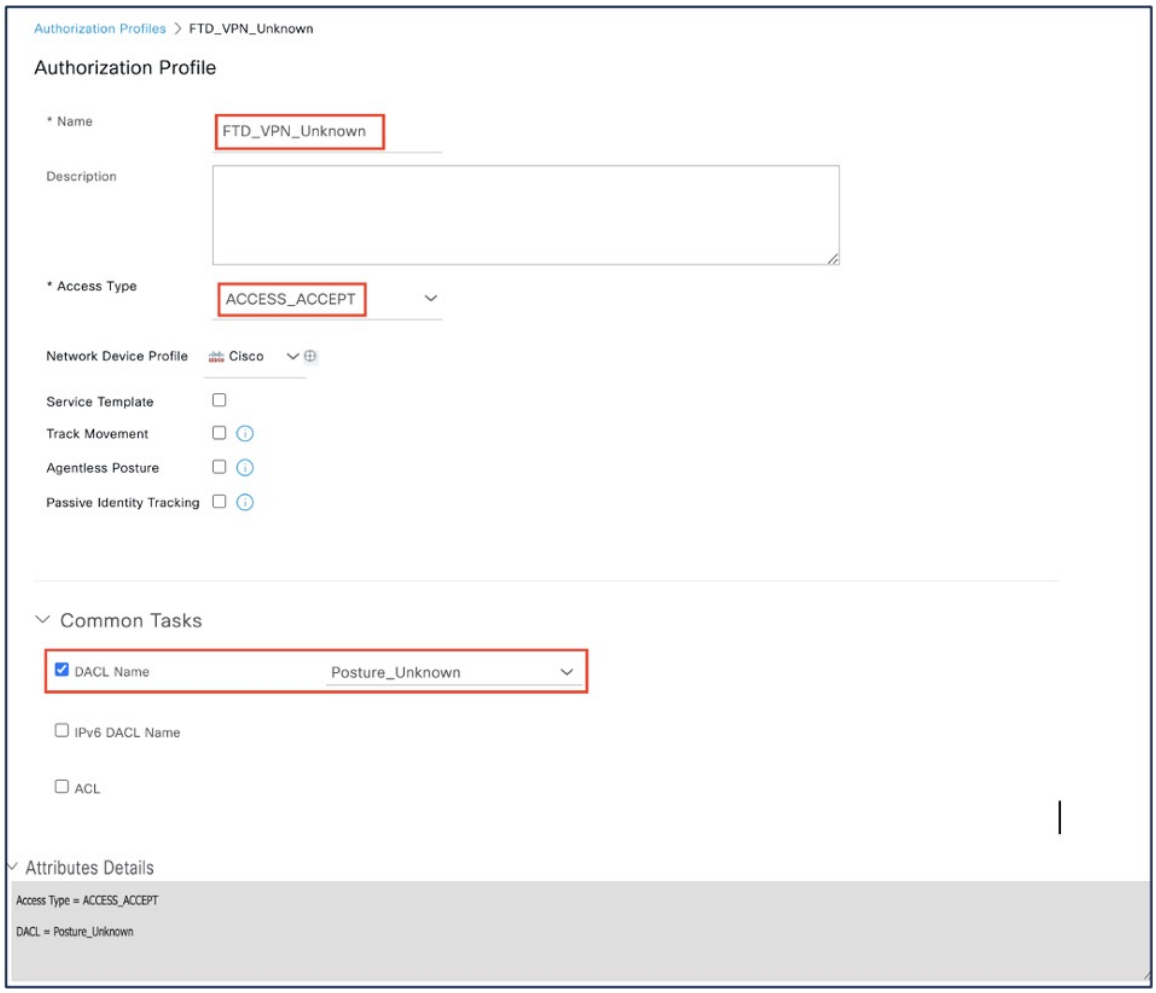
Step 5 From the **Access Type** drop-down list, choose **ACCESS_ACCEPT**.

Step 6 From the **Network Device Profile** drop-down list, choose **Cisco**.

Step 7 Under **Common Tasks**, check the **DACL Name** check box and choose the DACL for the posture state from the drop-down list.

You can view the configured attributes under **Attributes Details**.

The example below shows the authorization profile for the Unknown status.



Step 8 Click **Submit**.

Step 9 Repeat steps 3 to 8 to create authorization profiles for the remaining posture statuses.

What to do next

Configure authorization policies using these authorization profiles. For more information, see Configure Authorization Policies for the Posture Statuses in ISE.

Configure Authorization Policies for the Posture Statuses in ISE

You must create an authorization policy for each posture status.

Procedure

Step 1 Choose **Policy** > **Policy Sets**.

Step 2 In the **View** column, click the arrow icon adjacent to the Default policy.

Step 3 Expand **Authorization Policy**.

Step 4 Click + adjacent to the **Status** column.

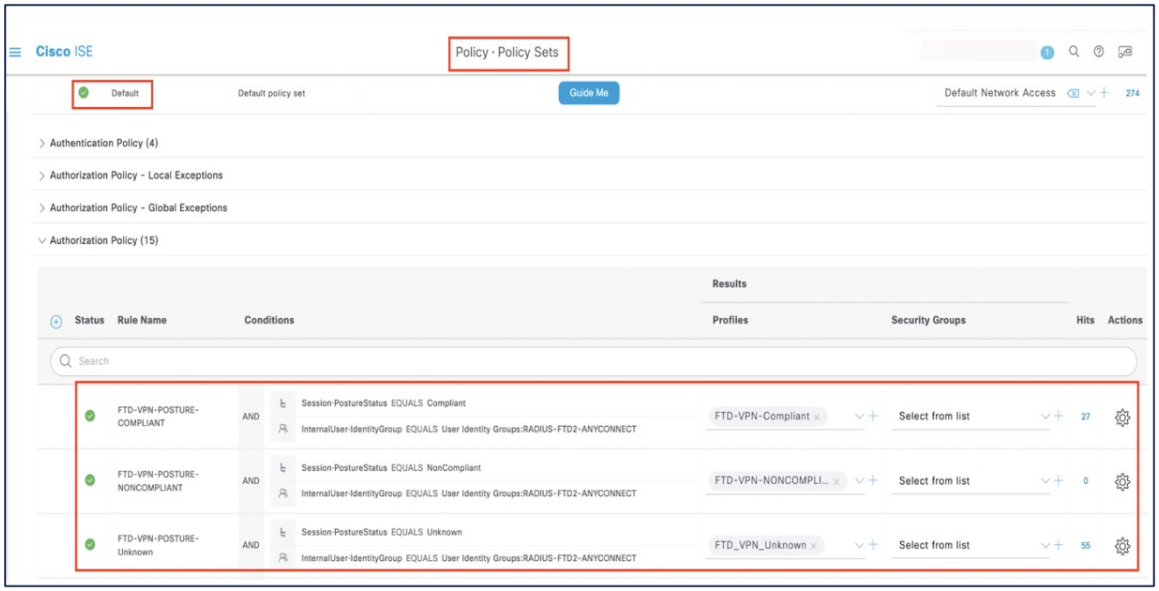
Step 5 Use **Posture Status** and **Identity Group** as conditions of the policy.

Step 6 Choose the appropriate authorization profile from the drop-down list for the posture status.

Step 7 Click **Save**.

Step 8 Repeat steps 4 to 7 for the remaining authorization policies.

The image below shows the authorization policies for the posture statuses.



Configure a Remote Access VPN Group Policy with ISE Posture Module in the Management Center

Before you begin

Configure a remote access VPN policy in the management center.

Procedure

Step 1 Log in to your management center web interface.

Step 2 Choose **Devices** > **Remote Access**.

Step 3 Select a remote access VPN policy, and click **Edit**.

Step 4 Select a connection profile, and click **Edit**.

Step 5 Click **Edit Group Policy**.

Step 6 Click the **Secure Client** tab.

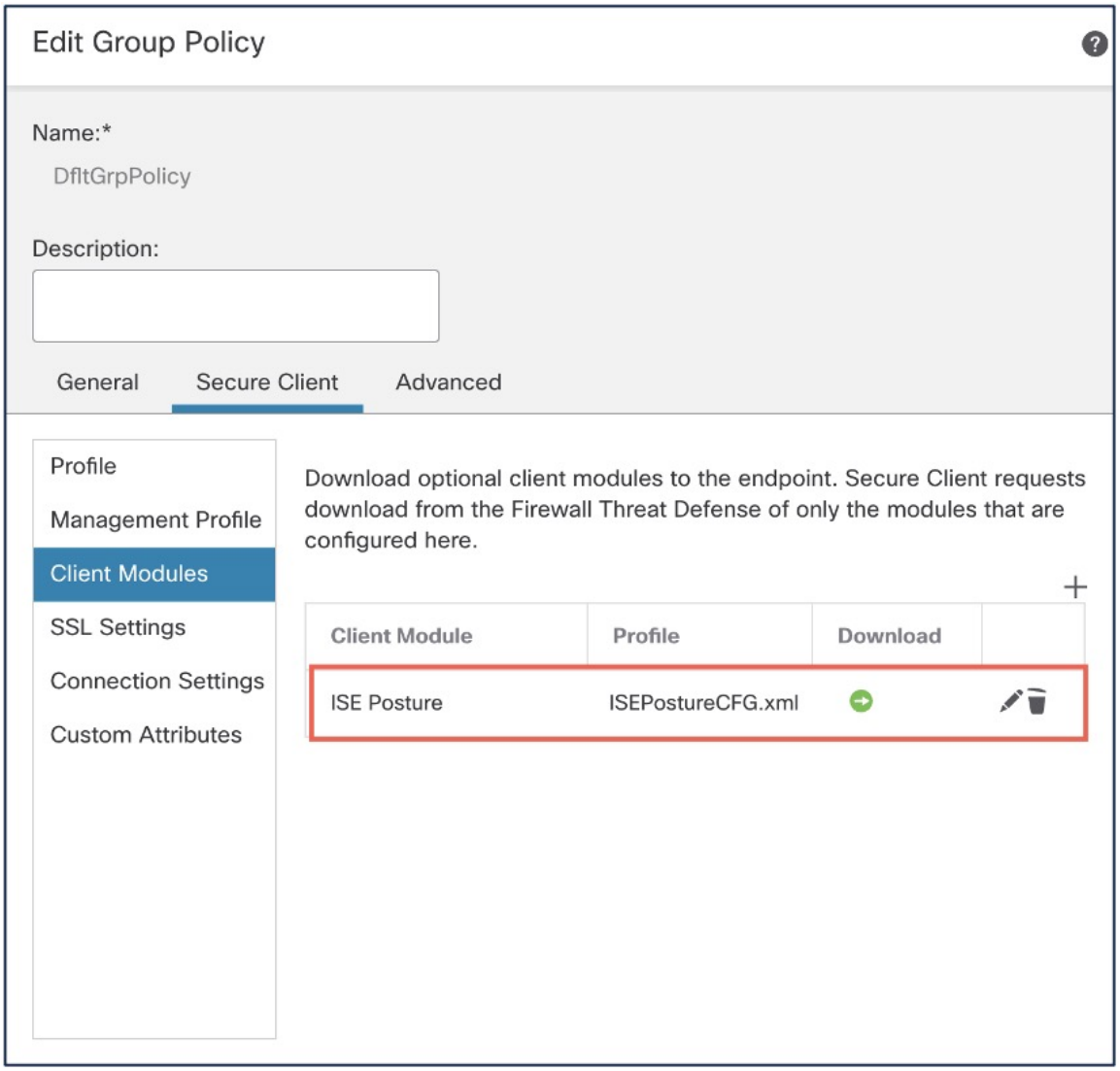
Step 7 Click **Client Module**s, and click **+**.

Step 8 Choose the ISE Posture module from the **Client Module** drop-down list.

Step 9 Choose the ISE profile from the **Profile to download** drop-down list.

Step 10 Check the **Enable module download** check box.

Step 11 Click **Add**.



Step 12 Click **Save**.

What to do next

1. Deploy the configuration on the threat defense. On the management center menu bar, click **Deploy** and then select **Deployment**.
2. Establish a VPN connection to the threat defense using the Secure Client.
3. Verify ISE posture module configuration.

Verify ISE Posture Module Configuration

On the Threat Defense

Use the following commands on the threat defense CLI to verify the ISE posture module configuration:

show run webvpn: View details of the Secure Client configurations.

```
> show run webvpn
webvpn
 enable Outside
 http-headers
  hsts-server
   enable
   max-age 31536000
   include-sub-domains
   no preload
  hsts-client
   enable
  x-content-type-options
  x-xss-protection
  content-security-policy
 anyconnect image disk0:/csm/cisco-secure-client-win-5.0.03072-
webdeploy-k9.pkg 1 regex "Windows"
 anyconnect profiles ISEPostureCFG.xml disk0:/csm/ISEPostureCFG.xml
 anyconnect profiles raftd1.xml disk0:/csm/raftd1.xml
 anyconnect enable
 tunnel-group-list enable
 cache
  disable
 error-recovery disable
```

show run group-policy <*ravpn_group_policy_name*>: View details of the RA VPN group policy for Secure Client.

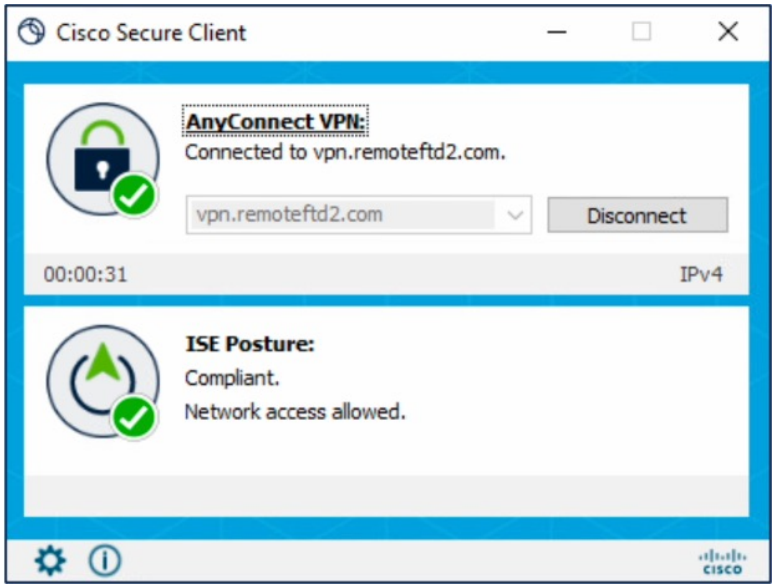
```
> show run group-policy AC-Posture
group-policy AC-Posture internal
group-policy AC-Posture attributes
 banner none
 wins-server none
 dns-server none
 dhcp-network-scope none
 vpn-simultaneous-logins 3
 vpn-idle-timeout 30
 vpn-idle-timeout alert-interval 1
 vpn-session-timeout none
 vpn-session-timeout alert-interval 1
 vpn-filter none
 vpn-tunnel-protocol ikev2 ssl-client
 split-tunnel-policy tunnelall
 ipv6-split-tunnel-policy tunnelall
 split-tunnel-network-list none
 default-domain none
 split-dns none
 split-tunnel-all-dns disable
 client-bypass-protocol disable
 vlan none
 address-pools none
 webvpn
  anyconnect ssl dtls enable
  anyconnect mtu 1406
  anyconnect firewall-rule client-interface public none
  anyconnect firewall-rule client-interface private none
  anyconnect ssl keepalive 20
  anyconnect ssl rekey time none
  anyconnect ssl rekey method none
  anyconnect dpd-interval client 30
  anyconnect dpd-interval gateway 30
  anyconnect ssl compression none
  anyconnect dtls compression none
  anyconnect modules value iseposture
  anyconnect profiles value ISEPostureCFG.xml type iseposture
  anyconnect ask none default anyconnect
  anyconnect ssl df-bit-ignore disable
```

show run aaa-server: View details of the ISE server.

```
> show run aaa-server
aaa-server ISE protocol radius
 authorize-only
 interim-accounting-update periodic 24
 dynamic-authorization
aaa-server ISE (Inside) host 1[redacted]
 key *****
 authentication-port 1812
 accounting-port 1813
```

On the Endpoint

Establish a VPN connection to the threat defense using the Secure Client and verify the ISE posture module installation.



Related Documentation:

- Cisco Identity Services Engine Administrator Guides
- Secure Firewall Management Center Administration and Device Configuration Guides
- Cisco Secure Client Administration Guides

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