Migrating Palo Alto Networks Firewall to Cisco Secure Firewall Threat Defense with the Migration Tool

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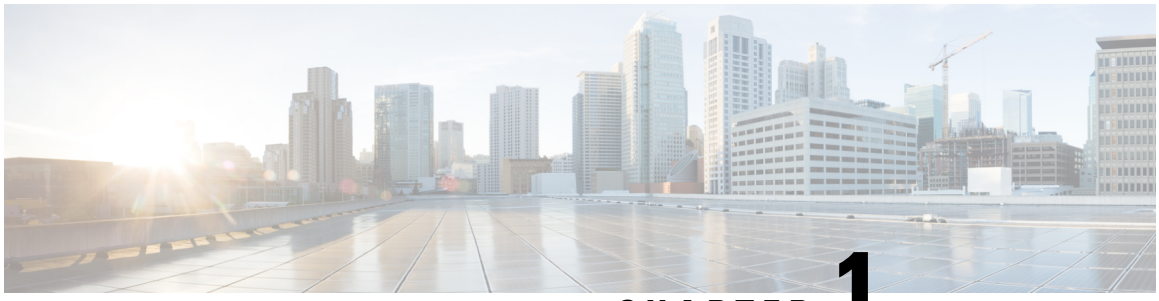


CHAPTER 1

Getting Started with the Secure Firewall Migration Tool

About the Secure Firewall Migration Tool

This guide contains information on how you can download the Secure Firewall migration tool and complete the migration. In addition, it provides you troubleshooting tips to help you resolve migration issues that you may encounter.

The sample migration procedure (Sample Migration: PAN to Threat Defense 2100) included in this book helps to facilitate understanding of the migration process.

The Secure Firewall migration tool converts supported PAN configurations to a supported Secure Firewall Threat Defense platform. The Secure Firewall migration tool allows you to automatically migrate the supported PAN features and policies to threat defense. You must manually migrate all unsupported features.

The Secure Firewall migration tool gathers PAN information, parses it, and finally pushes it to the Secure Firewall Management Center. During the parsing phase, the Secure Firewall migration tool generates a **Pre-Migration Report** that identifies the following:

- PAN configuration XML lines with errors
- PAN lists the PAN XML lines that the Secure Firewall migration tool cannot recognize. Report the XML configuration lines under error section in the **Pre-Migration Report** and the console logs; this blocks migration

If there are parsing errors, you can rectify the issues, reupload a new configuration, connect to the destination device, map the interfaces to threat defense interfaces, map applications, map security zones and proceed to review and validate your configuration. You can then migrate the configuration to the destination device.

Console

The console opens when you launch the Secure Firewall migration tool. The console provides detailed information about the progress of each step in the Secure Firewall migration tool. The contents of the console are also written to the Secure Firewall migration tool log file.

The console must stay open while the Secure Firewall migration tool is open and running.

Important When you exit the Secure Firewall migration tool by closing the browser on which the web interface is running, the console continues to run in the background. To completely exit the Secure Firewall migration tool, exit the console by pressing the Command key + C on the keyboard.

Logs

The Secure Firewall migration tool creates a log of each migration. The logs include details of what occurs at each step of the migration and can help you determine the cause if a migration fails.

You can find the log files for the Secure Firewall migration tool in the following location: `<migration_tool_folder>\logs`

Resources

The Secure Firewall migration tool saves a copy of the **Pre-Migration Reports**, **Post-Migration Reports**, PAN configs, and logs in the **Resources** folder.

You can find the **Resources** folder in the following location: *<migration_tool_folder>\resources*

Unparsed File

You can find the unparsed file in the following location:

<migration_tool_folder>\resources

Search in the Secure Firewall Migration Tool

You can search for items in the tables that are displayed in the Secure Firewall migration tool, such as those on the **Optimize, Review and Validate** page.

To search for an item in any column or row of the table, click the **Search** () above the table and enter the search term in the field. The Secure Firewall migration tool filters the table rows and displays only those that contain the search term.

To search for an item in a single column, enter the search term in the **Search** field that is provided in the column heading. The Secure Firewall migration tool filters the table rows and displays only those that match the search term.

Ports

The Secure Firewall migration tool supports telemetry when run on one of these 12 ports: ports 8321-8331 and port 8888. By default, Secure Firewall migration tool uses port 8888. To change the port, update port information in the *app_config* file. After updating, ensure to relaunch the Secure Firewall migration tool for the port change to take effect. You can find the *app_config* file in the following location: *<migration_tool_folder>\app_config.txt*.

Note We recommend that you use ports 8321-8331 and port 8888, as telemetry is only supported on these ports. If you enable Cisco Success Network, you cannot use any other port for the Secure Firewall migration tool.

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 Secure Firewall migration tool and the Cisco cloud to stream usage information and statistics. Streaming telemetry provides a mechanism to select data of interest from the Secure Firewall migration tool 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 is available for your product.
- To help Cisco improve our products.

The Secure Firewall migration tool establishes and maintains the secure connection and allows you to enroll in the Cisco Success Network. You can turn off this connection at any time by disabling the Cisco Success Network, which disconnects the device from the Cisco Success Network cloud.

What's New in the Secure Firewall Migration Tool

Version	Supported Features
6.0	

Version	Supported Features
	This release includes the following new features and enhancements **Cisco Secure Firewall ASA to Cisco Secure Firewall Threat Defense Migration** • You can now migrate WebVPN configurations on your Secure Firewall ASA to Zero Trust Access Policy configurations on a threat defense device. Ensure that you check the **WebVPN** checkbox in **Select Features** page and review the new **WebVPN** tab in the **Optimize, Review and Validate Configuration** page. The threat defense device and the target management center must be running on Version 7.4 or later and must be operating Snort3 as the detection engine. • You can now migrate Simple Network Management Protocol (SNMP) and Dynamic Host Configuration Protocol (DHCP) configurations to a threat defense device. Make sure that you check the **SNMP** and **DHCP** checkboxes in the **Select Features** page. If you have configured DHCP on your Secure Firewall ASA, note that the DHCP server, or relay agent and DDNS configurations can also be selected to be migrated. • You can now migrate the equal-cost multipath (ECMP) routing configurations when performing a multi-context ASA device to a single-instance threat defense merged context migration. The **Routes** tile in the parsed summary now includes ECMP zones also, and you can validate the same under the **Routes** tab in the **Optimize, Review and Validate Configuration** page. • You can now migrate dynamic tunnels from the dynamic virtual tunnel interface (DVTI) configurations from your Secure Firewall ASA to a threat defense device. You can map them in the **Map ASA Interfaces to Security Zones, Interface Groups, and VRFs** page. Ensure that your ASA Version is 9.19 (x) and later for this feature to be applicable. **FDM-managed Device to Cisco Secure Firewall Threat Defense Migration** • You can now migrate the Layer 7 security policies including SNMP and HTTP, and malware and file policy configurations from your FDM-managed device to a threat defense device. Ensure that the target management center Version is 7.4 or later and that **Platform Settings** and **File and Malware Policy** checkboxes in **Select Features** page are checked. **Check Point Firewall to Cisco Secure Firewall Threat Defense Migration** • You can now migrate the site-to-site VPN (policy-based) configurations on your Check Point firewall to a threat defense device. Note that this feature applies to Check Point R80 or later versions, and management center and threat defense Version 6.7 or later. Ensure that the **Site-to-Site VPN Tunnels** checkbox is checked in the **Select Features** page. Note that, because this is a device-specific configuration, the migration tool does not display these configurations if you choose to **Proceed without FTD**. **Fortinet Firewall to Cisco Secure Firewall Threat Defense Migration** • You can now optimize your application access control lists (ACLs) when migrating configurations from a Fortinet firewall to your threat defense device.

Version	Supported Features
	Use the **Optimize ACL** button in the **Optimize, Review and Validate Configuration** page to see the list of redundant and shadow ACLs and also download the optimization report to see detailed ACL information.
5.0.1	This release includes the following new features and enhancements: • The Secure Firewall migration tool now supports migration of multiple transparent firewall-mode security contexts from Secure Firewall ASA devices to threat defense devices. You can merge two or more transparent firewall-mode contexts that are in your Secure Firewall ASA device to a transparent-mode instance and migrate them. In a VPN-configured ASA deployment where one or more of your contexts have VPN configurations, you can choose only one context whose VPN configuration you want to migrate to the target threat defense device. From the contexts that you have not selected, only the VPN configuration is ignored and all other configurations are migrated. See Select the ASA Security Context for more information. • You can now migrate site-to-site and remote access VPN configurations from your Fortinet and Palo Alto Networks firewalls to threat defense using the Secure Firewall migration tool. From the **Select Features** pane, select the VPN features that you want to migrate. See the Specify Destination Parameters for the Secure Firewall Migration Tool section in Migrating Palo Alto Networks Firewall to Secure Firewall Threat Defense with the Migration Tool and Migrating Fortinet Firewall to Secure Firewall Threat Defense with the Migration Tool guides. • You can now select one or more routed or transparent firewall-mode security contexts from your Secure Firewall ASA devices and perform a single-context or multi-context migration using the Secure Firewall migration tool.

Version	Supported Features
5.0	• Secure Firewall migration tool now supports migration of multiple security contexts from Secure Firewall ASA to threat defense devices. You can choose to migrate configurations from one of your contexts or merge the configurations from all your routed firewall mode contexts and migrate them. Support for merging configurations from multiple transparent firewall mode contexts will be available soon. See Select the ASA Primary Security Context for more information. • The migration tool now leverages the virtual routing and forwarding (VRF) funtionality to replicate the segregated traffic flow observed in a multi-context ASA environment, which will be part of the new merged configuration. You can check the number of contexts the migration tool has detected in a new **Contexts** tile and the same after parsing, in a new **VRF** tile in the **Parsed Summary** page. In addition, the migration tool displays the interfaces to which these VRFs are mapped, in the **Map Interfaces to Security Zones and Interface Groups** page. • You can now try the whole migration workflow using the new demo mode in Secure Firewall migration tool and visualize how your actual migration looks like. See Using the Demo Mode in Firewall Migration Tool for more information. • With new enhancements and bug fixes in place, Secure Firewall migration tool now provides an improved, faster migration experience for migrating Palo Alto Networks firewall to threat defense.
4.0.3	The Secure Firewall migration tool 4.0.3 includes bug fixes and the following new enhancements: • The migration tool now offers an enhanced **Application Mapping** screen for migrating PAN configurations to threat defense. See Map Configurations with Applications in *Migrating Palo Alto Networks Firewall to Secure Firewall Threat Defense with the Migration Tool* guide for more information.

Version	Supported Features
4.0.2	The Secure Firewall migration tool 4.0.2 includes the following new features and enhancements: • Secure Firewall migration tool now supports splitting of access control lists (ACLs) with applications per rule. When your Palo Alto Networks firewall configuration contains ACLs with one rule configured to more than one application, you can use the **Split ACLs with applications per rule** option to split the rule into multiple rules with one application per rule. The migration tool creates new rules such that one rule is configured to one application, which ensures more clarity in reviewing and validating the configuration. • The migration tool now validates the NAT configuration in your source firewall for dynamic IP or port-fallback addresses and migrates the configurations only if the fallback address is same as the destination zone address. This is because the Secure Firewall Management Center can have only the destination address as the dynamic IP or port-fallback interface. • The migration tool now has an always-on telemetry; however, you can now choose to send limited or extensive telemetry data. Limited telemetry data inludes few data points, whereas extensive telemetry data sends a more detailed list of telemetry data. You can change this setting from **Settings** > **Send Telemetry Data to Cisco?**.
4.0.1	The Secure Firewall migration tool 4.0.1 includes the following new features and enhancements: • The Secure Firewall migration tool now supports Network Address Translation (NAT) rules with fully qualified domain name (FQDN) objects in the translated destination when migrating to a management center version 7.1 or higher. **Important** NAT rules with FQDN objects or FQDN object groups in the translated source, NAT rules with FQDN objects and FQDN object groups both in the original source and destination, and NAT rules with FQDN object groups in the translated destination are not supported. • The ACL optimization is now enhanced to include a new **Application** column in the post-migration report, which lists the optimized applications.
3.0.1	• For ASA with FirePOWER Services, Check Point, Palo Alto Networks, and Fortinet, Secure Firewall 3100 series is only supported as a destination device.
3.0	The Secure Firewall migration tool 3.0 provides support to migrate to Cloud-delivered Firewall Management Center from Palo Alto Networks if the destination management center is 7.2 or later.

Version	Supported Features

2.1	• Provides support for PAN OS versions 6.1.x and later
	• The Secure Firewall migration tool allows you to migrate the following PAN configuration elements to threat defense:
	  • Interfaces
	  • Static Routes
	  • Network Objects and Groups
	  • Port Objects and Port Groups
	  • Access Control Lists (Policies)
	  • Zones
	  • Applications
	  • NAT Rules
	• Content-based search capability that is enabled on **Review and Validate** page
	• A progress bar is provided as part of UI enhancement

Licensing for the Secure Firewall Migration Tool

The Secure Firewall migration tool application is free and does not require license. However, the management center must have the required licenses for the related threat defense features to successfully register threat defense devices and deploy policies to it.

Platform Requirements for the Secure Firewall Migration Tool

The Secure Firewall migration tool has the following infrastructure and platform requirements:

- Runs on a Microsoft Windows 10 64-bit operating system or on a macOS version 10.13 or higher
- Has Google Chrome as the system default browser
- (Windows) Has Sleep settings configured in Power & Sleep to Never put the PC to Sleep, so the system does not go to sleep during a large migration push
- (macOS) Has Energy Saver settings configured so that the computer and the hard disk do not go to sleep during a large migration push

Requirements and Prerequisites for Threat Defense Devices

When you migrate to the management center, it may or may not have a target threat defense device added to it. You can migrate shared policies to a management center for future deployment to a threat defense device.

To migrate device-specific policies to a threat defense, you must add it to the management center. As you plan to migrate your PAN configuration to threat defense, consider the following requirements and prerequisites:

- The target threat defense device must be registered with the management center.
- The threat defense device can be a standalone device or a container instance. It must **not** be part of a cluster or a high availability configuration.
  - If the target threat defense device is a container instance, at minimum it must have an equal number of used physical interfaces, physical subinterfaces, port channel interfaces, and port channel subinterfaces (excluding 'management-only') as that of the PAN; if not you must add the required type of interface on the target threat defense device.

Note

- Subinterfaces are not created by the Secure Firewall migration tool, only interface mapping is allowed.
- Mapping across different interface types is allowed, for example: physical interface can be mapped to a port channel interface.

Guidelines and Limitations

The Secure Firewall migration tool creates a one-to-one mapping for all the supported objects and rules, whether they are used in a rule or policy during conversion.The Secure Firewall migration tool provides an optimization feature, that allows you to exclude migration of unused objects (objects that are not referenced in any ACLs and NATs).

The Secure Firewall migration tool does not migrate unsupported objects, NAT rules, and routes.

PAN Configuration Limitations

Migration of the source PAN configuration has the following limitations:

- The Secure Firewall migration tool allows migration of multi-vsys.
- The system configuration is not migrated.
- Nested service object groups or port group are not supported in the management center. As part of conversion, the Secure Firewall migration tool expands the content of the referenced nested object group or port group.
- The Secure Firewall migration tool splits the extended service objects or groups with source and destination ports that are in one line into different objects across multiple lines. References to such access control rules are converted into management center rules with the same meaning.

PAN Migration Guidelines

The Secure Firewall migration tool uses best practices for threat defense configurations, including the following:

- The migration of the ACL log option follows the best practices for threat defense. The log option for a rule is enabled or disabled based on the source PAN configuration. For rules with an action of **deny**, the

Secure Firewall migration tool configures logging at the beginning of the connection. If the action is **permit**, the Secure Firewall migration tool configures logging at the end of the connection.

Supported PAN Configurations

The Secure Firewall migration tool can fully migrate the following PAN configurations:

- Network objects and groups
- Zones (Layer 2, Layer 3, Virtual wire)
- Service objects
- Service object groups, except for nested service object groups

Note Since nesting is not supported on the management center, the Secure Firewall migration tool expands the content of the referenced rules. The rules however, are migrated with full functionality.

- IPv4 and IPv6 FQDN objects and groups
- IPv6 conversion support (Interface, Static Routes, Objects, ACL)
- Access rules
- NAT rules

Note All the policies with service as "application-default" will be migrated as "any" as threat defense does not have an equivalent feature.

Translated source and original destination do not have pre-defined “any” object on management center. Hence, an object with 0.0.0.0/0 named Obj_0.0.0.0 will be created and pushed.

- NAT rules with an FQDN object in the translated destination, when migrating to Secure Firewall Threat Defense running version 7.1 or higher
- Physical interfaces
- Subinterfaces (subinterface ID is always set to the same number as the VLAN ID on migration)
- Aggregate Interface (Port channels)
- Static routes, except for those configured with Next Hop as Next VR and ECMP routes which are not migrated

Note If the source firewall (PAN) has connected routes that are configured as static routes, it results in a push failure. management center does not allow you to create static routes for connected routes. Remove any such route and proceed with the migration.

Note Virtual wire interface will not be migrated whereas virtual wire zone will be migrated. You must manually create BVI interface on threat defense after migration.

Partially Supported PAN Configurations

The Secure Firewall migration tool partially supports the following PAN configurations for migration. Some of these configurations include rules with advanced options that are migrated without those options. If management center supports those advanced options, you can configure them manually after the migration is complete.

- Access control policy rules using profiles
- Service-Group that contains service objects with protocols containing TCP, UDP, and SCTP.

Note The SCTP type will be removed and the service-group will be migrated partially.

- Object-group that contains supported and unsupported object will be migrated by removing the unsupported objects.

Unsupported PAN Configurations

The Secure Firewall migration tool does not support the following PAN configurations for migration. You can configure the configurations manually after the migration is complete, if these configurations are supported in the management center:

- Time-based access control policy rules
- User-based access control policy rules
- Service-object using protocol SCTP
- FQDN objects that begin with a special character or that contains a special character
- Wildcard FQDNs
- NAT rules that are configured with SCTP
- NAT rule with an FQDN object and FQDN object group in the translated source
- NAT rule with an FQDN object and FQDN object group in both original source and destination
- NAT rule with an FQDN object group in the translated destination
- IPv6 NAT
- Policies that use URL filtering

To configure unsupported features on threat defense, see Threat Defense Configuration Guide.

Note All policies that are either supported or unsupported are migrated to management center. The unsupported policies are migrated as disabled. You can enable these policies after the workaround or configuring them as permanagement center.

Policy with profile URL filtering, User-ID, source, or destination negate is **Unsupported**.

Guidelines and Limitations for Threat Defense Devices

As you plan to migrate your PAN configuration to threat defense, if there are any existing device-specific configurations on the threat defense such as routes, interfaces, and so on, during the push migration, the Secure Firewall migration tool cleans the device automatically and overwrites from the PAN configuration.

Note To prevent any undesirable loss of device (target threat defense) configuration data, we recommend you to manually clean the device before migration.

Supported Platforms for Migration

The following PAN and threat defense platforms are supported for migration with the Secure Firewall migration tool. For more information about the supported threat defense platforms, see Cisco Secure Firewall Compatibility Guide.

Supported Target Threat Defense Platforms

You can use the Secure Firewall migration tool to migrate a source configuration to the following standalone or container instance of the threat defense platforms:

- Firepower 1000 Series
- Firepower 2100 Series
- Secure Firewall 3100 Series
- Firepower 4100 Series
- Secure Firewall 4200 Series
- Firepower 9300 Series that includes:
  - SM-24
  - SM-36
  - SM-40
  - SM-44
  - SM-48
  - SM-56

- Threat Defense on VMware, deployed using VMware ESXi, VMware vSphere Web Client, or vSphere standalone client
- Threat Defense Virtual on Microsoft Azure Cloud or AWS Cloud

Note

- For pre-requisites and pre-staging of threat defense virtual in Azure, see Getting Started with Secure Firewall Threat Defense Virtual and Azure.
- For pre-requisites and pre-staging of threat defense virtual in AWS Cloud, see Threat Defense Virtual Prerequisites.

For each of these environments, once pre-staged as per the requirements, the Secure Firewall migration tool requires network connectivity to connect to the management center in Microsoft Azure or AWS Cloud, and then migrate the configuration to the management center in the Cloud.

Note The pre-requisites of pre-staging the management center or threat defense virtual is required to be completed before using the Secure Firewall migration tool, to have a successful migration.

Supported Target Management Center for Migration

The Secure Firewall migration tool supports migration to threat defense devices managed by the management center and cloud-delivered Firewall Management Center.

Management Center

The management center is a powerful, web-based, multi-device manager that runs on its own server hardware, or as a virtual device on a hypervisor. You can use both On-Prem and Virtual management center as a target management center for migration.

The management center should meet the following guidelines for migration:

- The Management Center software version that is supported for migration, as described in Supported Software Versions for Migration, on page 15.
- The management center software version that is supported for migration for PAN is 6.1.x and later.
- You have obtained and installed smart licenses for threat defense that include all features that you plan to migrate from the PAN interface, as described in the following:
  - The Getting Started section of Cisco Smart Accounts on Cisco.com.
  - Register the Firewall Management Center with the Cisco Smart Software Manager.
  - Licensing the Firewall System
  - You have enabled management center for REST API.

On the management center web interface, navigate to **System** > **Configuration** > **Rest API Preferences** > **Enable Rest API** and check the **Enable Rest API** check box.

Important You need to have an administrator user role in management center to enable REST API. For more information on management center user roles, see User Roles.

Cloud-Delivered Firewall Management Center

The cloud-delivered Firewall Management Center is a management platform for threat defense devices and is delivered via Cisco Defense Orchestrator. The cloud-delivered Firewall Management Center offers many of the same functions as a management center.

You can access the cloud-delivered Firewall Management Center from CDO. CDO connects to cloud-delivered Firewall Management Center through the Secure Device Connector (SDC). For more information about cloud-delivered Firewall Management Center, see Managing Cisco Secure Firewall Threat Defense Devices with Cloud-Delivered Firewall Management Center.

The Secure Firewall migration tool supports cloud-delivered Firewall Management Center as a destination management center for migration. To select the cloud-delivered Firewall Management Center as destination management center for migration, you need to add the CDO region and generate the API token from CDO portal.

CDO Regions

CDO is available in three different regions and the regions can be identified with the URL extension.

Table 1: CDO Regions and URL

Region	CDO URL
Europe Region	https://defenseorchestrator.eu/
US Region	https://defenseorchestrator.com/
APJC Region	https://www.apj.cdo.cisco.com/

Supported Software Versions for Migration

The following are the supported Secure Firewall migration tool, PAN and threat defense versions for migration:

Supported Secure Firewall Migration Tool Versions

The versions posted on software.cisco.com are the versions formally supported by our engineering and support organizations. We strongly recommend you download the latest version of Secure Firewall migration tool from software.cisco.com.

Supported Palo Alto Networks Firewall Versions

The Secure Firewall migration tool supports migration to threat defense that is running PAN firewall OS version 6.1.x and later.

Supported Management Center Versions for source PAN Firewall Configuration

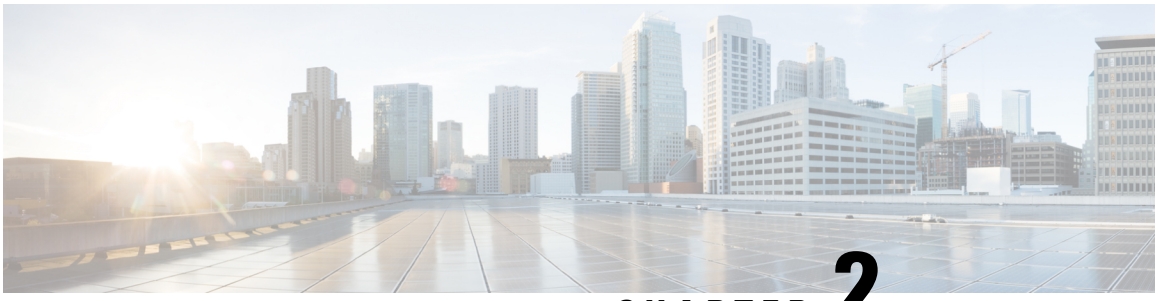
For PAN firewall, the Secure Firewall migration tool supports migration to a management center device managed by a management center that is running version 6.2.3.3 or later.

Note The migration to 6.7 threat defense device is currently not supported. Hence, migration may fail if the device is configured with data interface for management center access.

Supported Threat Defense Versions

The Secure Firewall migration tool recommends migration to a device that is running threat defense version 6.5 and later.

For detailed information about the Cisco Firewall software and hardware compatibility, including operating system and hosting environment requirements, for threat defense, see the Cisco Firewall Compatibility Guide.

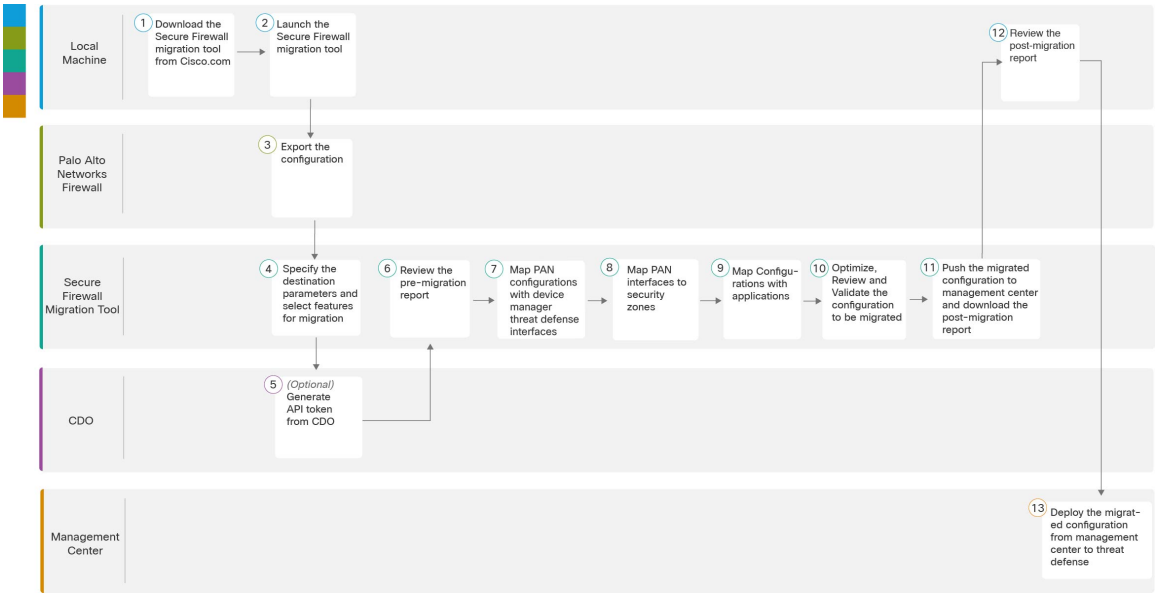


CHAPTER 2

Palo Alto Networks Firewall to Threat Defense Migration Workflow

End-to-End Procedure

The following flowchart illustrates the workflow for migrating a Palo Alto Networks firewall to threat defense using the Secure Firewall migration tool.



	Workspace	Steps
1	Local Machine	Download the latest version of Secure Firewall migration tool from Cisco.com. For detailed steps, see Download the Secure Firewall Migration Tool from Cisco.com.
2	Local Machine	Launch the Secure Firewall migration tool on your local machine, see Launch the Secure Firewall Migration Tool.
3	Palo Alto Networks Firewall	Export the Configuration File: To export the configuration from Palo Alto Networks Firewall, see Export the Configuration from Palo Alto Networks Firewall.
4	Secure Firewall Migration Tool	During this step, you can specify the destination parameters for the migration. For detailed steps, see Specify Destination Parameters for the Secure Firewall Migration Tool.
5	CDO	(Optional) This step is optional and only required if you have selected cloud-delivered Firewall Management Center as destination management center. For detailed steps, see Specify Destination Parameters for the Secure Firewall Migration Tool.
6	Secure Firewall Migration Tool	Navigate to where you downloaded the pre migration report and review the report. For detailed steps, see Review the Pre-Migration Report.
7	Secure Firewall Migration Tool	To ensure that the PAN configuration is migrated correctly, map the PAN interfaces to the appropriate threat defense interface objects, security zones and interface groups. For detailed steps, see Map PAN Firewall Configurations with Threat Defense Interfaces
8	Secure Firewall Migration Tool	Map the PAN interfaces to the appropriate security zones, see Map PAN Interfaces to Security Zones Interface Groups for detailed steps.
9	Secure Firewall Migration Tool	You can map PAN configuration to the corresponding target applications, see Map Configurations with Applications for detailed steps.
10	Secure Firewall Migration Tool	Optimize and review the configuration carefully and validate that it is correct and matches how you want to configure the threat defense device. For detailed steps, see Optimize, Review and Validate the Configuration.
11	Secure Firewall Migration Tool	This step in the migration process sends the migrated configuration to management center and allows you to download the post-migration report. For detailed steps, see Push the Migrated Configuration to Management Center.
12	Local Machine	Navigate to where you downloaded the post migration report and review the report. For detailed steps, see Review the Post-Migration Report and Complete the Migration.
13	Management Center	Deploy the migrated configuration from the management center to threat defense. For detailed steps, see Review the Post-Migration Report and Complete the Migration.

Prerequisites for Migration

Before you migrate your PAN configuration, execute the following activities:

Download the Secure Firewall Migration Tool from Cisco.com

Before you begin

You must have a Windows 10 64-bit or macOS version 10.13 or higher machine with an internet connectivity to Cisco.com.

Step 1 On your computer, create a folder for the Secure Firewall migration tool.

We recommend that you do not store any other files in this folder. When you launch the Secure Firewall migration tool, it places the logs, resources, and all other files in this folder.

Note Whenever you download the latest version of the Secure Firewall migration tool, ensure, you create a new folder and not use the existing folder.

Step 2 Browse to https://software.cisco.com/download/home/286306503/type and click **Firewall Migration Tool**.

The above link takes you to the Secure Firewall migration tool under Firewall NGFW Virtual. You can also download the Secure Firewall migration tool from the threat defense device download areas.

Step 3 Download the most recent version of the Secure Firewall migration tool into the folder that you created.

Download the appropriate executable of the Secure Firewall migration tool for Windows or macOS machines.

Run the Migration

Launch the Secure Firewall Migration Tool

This task is applicable only if you are using the desktop version of the Secure Firewall migration tool. If you are using the cloud version of the migration tool hosted on CDO, skip to Export the Configuration from Palo Alto Networks Firewall .

Note When you launch the Secure Firewall migration tool a console opens in a separate window. As you go through the migration, the console displays the progress of the current step in the Secure Firewall migration tool. If you do not see the console on your screen, it is most likely to be behind the Secure Firewall migration tool.

Before you begin

- Download the Secure Firewall Migration Tool from Cisco.com

- Review and verify the requirements in the Supported Target Management Center for Migration, on page 14 section.
- Ensure that your computer has a recent version of the Google Chrome browser to run the Secure Firewall migration tool. For information on how to set Google Chrome as your default browser, see Set Chrome as your default web browser.
- If you are planning to migrate a large configuration file, configure sleep settings so the system doesn't go to sleep during a migration push.

Step 1 On your computer, navigate to the folder where you downloaded the Secure Firewall migration tool.

Step 2 Do one of the following:

- On your Windows machine, double-click the Secure Firewall migration tool executable to launch it in a Google Chrome browser.

  If prompted, click **Yes** to allow the Secure Firewall migration tool to make changes to your system.

  The Secure Firewall migration tool creates and stores all related files in the folder where it resides, including the log and resources folders.

- On your Mac move, the Secure Firewall migration tool `*.command` file to the desired folder, launch the Terminal application, browse to the folder where the Secure Firewall migration tool is installed and run the following commands:

  ```
  # chmod 750 Firewall_Migration_Tool-version_number.command
  ```

  ```
  # ./Firewall_Migration_Tool-version_number.command
  ```

  The Secure Firewall migration tool creates and stores all related files in the folder where it resides, including the log and resources folders.

  Tip When you try to open the Secure Firewall migration tool, you get a warning dialog because the Secure Firewall migration tool is not registered with Apple by an identified developer. For information on opening an application from an unidentified developer, see Open an app from an unidentified developer.

  Note Use MAC terminal zip method.

Step 3 On the **End User License Agreement** page, click **I agree to share data with Cisco Success Network** if you want to share telemetry information with Cisco, else click **I'll do later**.

When you agree to send statistics to Cisco Success Network, you are prompted to log in using your Cisco.com account. Local credentials are used to log in to the Secure Firewall migration tool if you choose not to send statistics to Cisco Success Network.

Step 4 On the Secure Firewall migration tool's login page, do one of the following:

- To share statistics with Cisco Success Network, click the **Login with CCO** link to log in to your Cisco.com account using your single sign-on credentials. If you do not have a Cisco.com account, create it on the Cisco.com login page.

  Proceed to step 8, if you have used your Cisco.com account to log in.

- If you have deployed your firewall in an air-gapped network that does not have internet access, contact Cisco TAC to receive a build that works with administrator credentials. Note that this build does not send usage statistics to Cisco, and TAC can provide you the credentials.

Step 5 On the **Reset Password** page, enter the old password, your new password, and confirm the new password.

The new password must have 8 characters or more and must include upper and lowercase letters, numbers, and special characters.

Step 6 Click **Reset**.

Step 7 Log in with the new password.

Note If you have forgotten the password, delete all the existing data from the <*migration_tool_folder*> and reinstall the Secure Firewall migration tool.

Step 8 Review the pre-migration checklist and make sure you have completed all the items listed.

If you have not completed one or more of the items in the checklist, do not continue until you have done so.

Step 9 Click **New Migration**.

Step 10 On the **Software Update Check** screen, if you are not sure you are running the most recent version of the Secure Firewall migration tool, click the link to verify the version on Cisco.com.

Step 11 Click **Proceed**.

What to do next

You can proceed to the following step:

- If you must extract information from a PAN firewall using the Secure Firewall migration tool, proceed to Configuration File from Palo Alto Firewall (Not Managed by Panorama).

Using the Demo Mode in the Secure Firewall Migration Tool

When you launch the Secure Firewall Migration tool and are on the **Select Source Configuration** page, you can choose to start performing a migration using **Start Migration** or enter the **Demo Mode**.

The demo mode provides an opportunity to perform a demo migration using dummy devices and visualize how an actual migration flow would look like. The migration tool triggers the demo mode based on the selection you make in the **Source Firewall Vendor** drop-down; you can also upload a configuration file or connect to a live device and continue with the migration. You can proceed performing the demo migration by selecting demo source and target devices such as demo FMC and demo FTD devices.

Caution Choosing **Demo Mode** erases existing migration workflows, if any. If you use the demo mode while you have an active migration in **Resume Migration**, your active migration is lost and needs to be restarted from first, after you use the demo mode.

You can also download and verify the pre-migration report, map interfaces, map security zones, map interface groups, and perform all other actions like you would in an actual migration workflow. However, you can only perform a demo migration up to validation of the configurations. You cannot push the configurations to the demo target devices you selected because this is only a demo mode. You can verify the validation status and the summary and click **Exit Demo Mode** to go the **Select Source Configuration** page again to start your actual migration.

Note The demo mode lets you leverage the whole feature set of the Secure Firewall Migration Tool, except pushing of configurations, and do a trial run of the end-to-end migration procedure before performing your actual migration.

Export the Configuration from Palo Alto Networks Firewall

You can export the configuration file in the following ways:

Configuration File from Palo Alto Firewall (Not Managed by Panorama)

Follow these steps to extract the configuration from the gateway:

Step 1 Navigate to **Device** > **Setup** > **Operations**, and select **Save Named Configuration** <*file_name.xml*>.

Step 2 Click **Ok**.

Step 3 Navigate to **Device** > **Setup** > **Operations**, and click **Export Named Configuration**.

Step 4 Select the <*file_name.xml*> file.

Step 5 Click **Ok**.

Step 6 Select the XML file that contains your running configuration <*file_name.xml*>, and click **Ok** to export the configuration file.

Step 7 Save the exported file to a location, external to the firewall. You can use this backup to upload to the Secure Firewall migration tool to migrate the configuration to threat defense.

Step 8 (Optional) If you have a NAT policy where the destination NAT has the same source and destination zones, perform these steps:

a) Run the **show routing route** command from CLI on the firewall.

b) Copy the routing table to a *.txt* file.

c) Add the *.txt* file to the folder where you will zip the .txt and the .xml files with the *panconfig.xml*.

These steps are not mandatory for migration. If you do not perform these steps, the destination zones will not be mapped during the Secure Firewall migration tool migration and will be included in the Migration Reports.

Note Use the **show routing route** command to extract the routing table details. Paste the extracted output in a notepad.

Configuration File from Palo Alto Firewall (Managed by Panorama)

The configuration must be extracted from the gateway if your device is managed by panorama. Merge the panorama configuration with the gateway and extract the configuration.

In the Secure Firewall migration tool user interface, do the following:

Before you begin

Log in to the Palo Alto Firewall web UI using super-user account.

Step 1 Navigate to **Device** > **Support** > **Tech Support File**.

Step 2 Click **Generate Tech Support File**.

Step 3 Click **Download Tech Support File** once the generated file is available.

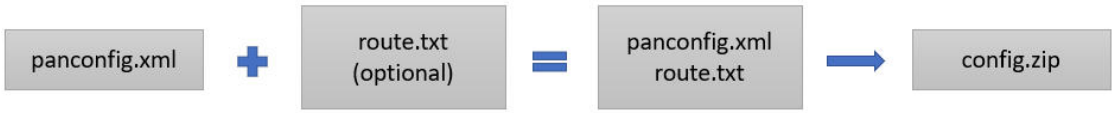
Step 4 Unzip and Untar the file and then navigate to the path *\opt\pancfg\mgmt\saved-configs* to retreive the *merged-running-config.xml* file.

What to do next

Zip the Exported Files

Zip the Exported Files

Export the *panconfig.xml* for the Palo Alto Gateway firewall and *route.txt* (if you have the NAT rules with the same source zone and destination zone).



Specify Destination Parameters for the Secure Firewall Migration Tool

Before you begin

- Obtain the IP address for the management center for On-Prem Firewall Management Center.
- From Secure Firewall Migration Tool 3.0 onwards, you can select between On-Prem Firewall Management Center or Cloud-delivered Firewall Management Center.
- For Cloud-delivered Firewall Management Center, region and API token have to be provided. For more information, see Supported Target Management Center for Migration.
- (Optional) If you want to migrate device-specific configurations like interfaces and routes, add the target threat defense to the management center. See Adding Devices to the Firewall Management Center
- If it requires you to apply IPS or file policy to ACL in the **Review and Validate** page, we highly recommend you create a policy on the management center before migration. Use the same policy, as the Secure Firewall migration tool fetches the policy from the connected management center. Creating a new policy and assigning it to multiple access control lists may degrade the performance and may also result in a push failure.

Step 1 On the **Select Target** screen, in the **Firewall Management** section, do the following: you can choose to migrate to an On-Prem Firewall Management Center or Cloud-delivered Firewall Management Center:

- For migrating to an On-Prem Firewall Management Center, do the following:

a) Click the **On-Prem FMC** radio button.
b) Enter the IP address or Fully-Qualified Domain Name (FQDN) for the management center.
c) In the **Domain** drop-down list, select the domain to which you are migrating.

   If you want to migrate to a threat defense device, you can only migrate to the threat defense devices available in the selected domain.

d) Click **Connect** and proceed to **Step 2**.

- For migrating to a Cloud-delivered Firewall Management Center, do the following:

a) Click the **Cloud-delivered FMC** radio button.
b) Choose the region and paste the CDO API token. For generating the API token. from CDO, follow the below steps:

   1. Log in to CDO portal.
   2. Navigate to **Settings** > **General Settings** and copy the API Token.

c) Click **Connect** and proceed to **Step 2**.

Step 2 In the **Firewall Management Center Login** dialog box, enter the username and password of the dedicated account for the Secure Firewall migration tool, and click **Login**.

The Secure Firewall migration tool logs in to the management center and retrieves a list of threat defense devices that are managed by that management center. You can view the progress of this step in the console.

Step 3 Click **Proceed**.

Step 4 In the **Choose Threat Defense** section, do one of the following:

- Click the **Select Firewall Threat Defense Device** drop-down list and check the device where you want to migrate the configuration.

  The devices in the selected management center domain are listed by **IP Address** and **Name**.

  Note At minimum, the native threat defense device you choose must have the same number of physical or port channel interfaces as the configuration that you are migrating. At minimum, the container instance of the threat defense device must have the same number of physical or port channel interfaces and subinterfaces. You must configure the device with the same firewall mode as the configuration. However, these interfaces do not have to have the same names on both devices.

  Note Only when the supported target threat defense platform is Firewall 1010 with management center version 6.5 or later.6.5, FDM 5505 migration support is applicable for shared policies and not for device specific policies. When you proceed without threat defense, the Secure Firewall migration tool will not push any configurations or the policies to the threat defense. Thus, interfaces and routes, and site-to-site VPN which are threat defense device-specific configurations will not be migrated. However, all the other supported configurations (shared policies and objects) such as NAT, ACLs, and port objects will be migrated. Remote Access VPN is a shared policy and can be migrated even without threat defense.

  Palo Alto Networks firewall migration to management center or threat defense 6.7 or later with the Remote deployment enabled is supported by the Secure Firewall migration tool. Migration of Interface and Routes must be done manually.

- Click **Proceed without FTD** to migrate the configuration to the management center.

  When you proceed without threat defense, the Secure Firewall migration tool will not push any configurations or the policies to threat defense. Thus, interfaces and routes, and site-to-site VPN which are threat defense

device-specific configurations will not be migrated and need to be manually configured on management center. However, all the other supported configurations (shared policies and objects) such as NAT, ACLs, and port objects will be migrated. Remote Access VPN is a shared policy and can be migrated even without threat defense.

Step 5 Click **Proceed**.

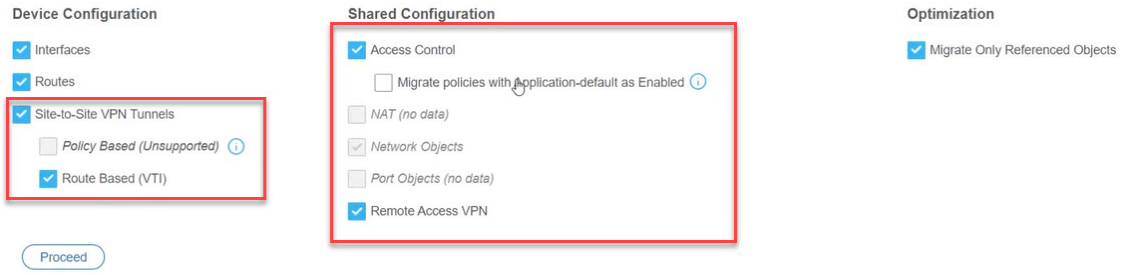
Depending on the destination that you are migrating to, the Secure Firewall migration tool allows you to select the features that you want to migrate.

Step 6 Click the **Select Features** section to review and select the features that you want to migrate to the destination.

- If you are migrating to a destination threat defense device, the Secure Firewall migration tool automatically selects the features available for migration from the configuration in the **Device Configuration** and **Shared Configuration** sections. You can further modify the default selection, according to your requirements.
- If you are migrating to a management center, the Secure Firewall migration tool automatically selects the features available for migration from the configuration in the **Device Configuration**, **Shared Configuration**, and **Optimization** sections. You can further modify the default selection, according to your requirements.
- For PAN, under **Shared Configuration**, select the relevant **Access Control** option:

  Migrate policies with Application-Default as Enabled—When you select this option, the PAN application will be migrated. You can view **Migrate policies with Application-Default as Enabled** option only if you select this check box.

  Note **Application Mapping** is enabled only when policies are selected for migration.



If you are migrating configuration from a VPN-configured Palo Alto Networks firewall, you can choose to select or deselect **Site-to-Site VPN Tunnels** under **Device Configuration** pane and **Remote Access VPN** under **Shared Configuration** pane. Note that policy-based site-to-site VPN configuration is not supported because Palo Alto Networks firewall does not support it.

Policies with service as "Application-Default"

Policies with service as **"application-default"** and application that has a member or group that is referenced, is migrated as per the choices you made on the **Feature Selection** page. management center does not have the equivalent of **application-default**, so such policies are pushed with service "any". If you replicate the similar functionality as **application-default**, then find out the ports that are used by the application from the Palo Alto Networks firewall, and configure the ports under the port section of Policy in management center.

For example, a policy having "**web-browsing**" and service as "**application-default**" is migrated as application HTTP (the equivalent of web-browsing) and port as "**any**". To replicate the same functionality as "**application-default**", configure the port as TCP/80 and TCP/8080. Web-browsing uses port TCP 80 and TCP 8080. If a policy has multiple applications, configure the ports that are used by each application.

In case of multiple applications in a policy, we recommend you to split the policy before configuring the ports, as it might allow additional access to other applications.

Policies with an application configured as "**any**" and service as "**application-default**" is migrated as disabled, irrespective of the choices available on the **Feature Selection** page (the application as "**any**" and service as "**any**"). If this is an acceptable behavior, enable the application and commit the changes. Otherwise, select the required application or service, and enable the policy.

Split Access Control Lists with Applications Per Rule

When migrating access control lists containing one rule configured to several applications, you can choose to split the ACLs, which splits the rule into multiple rules with one application per rule. You can do this by checking the **Split ACLs with applications per rule** checkbox. However, the checkbox does not appear if the configuration you are trying to migrate does not contain multiple applications configured per access rule.

Each rule gets converted into multiple rules with one application per rule, which you can review in the **Optimize, Review, and Validate Configuration** page.

- The Secure Firewall migration tool supports migration of Remote Access VPN if the target management center is 7.2 or later. Remote Access VPN is a shared policy that can be migrated without threat defense. If migration is selected with threat defense, the threat defense version should be 7.0 or later.
- (Optional) In the **Optimization** section, select **Migrate only referenced objects** to migrate only those objects that are referenced in an access control policy and a NAT policy.

  Note When you select this option, unreferenced objects in the configuration will not be migrated. This optimizes migration time and cleans out unused objects from the configuration.

Step 7 Click **Proceed**.

Step 8 In the **Rule Conversion/ Process Config** section, click **Start Conversion** to initiate the conversion.

Step 9 Review the summary of the elements that the Secure Firewall migration tool converted.

To check whether your configuration file is successfully uploaded and parsed, download and verify the **Pre-Migration Report** before you continue with the migration.

Step 10 Click **Download Report** and save the **Pre-Migration Report**.

A copy of the **Pre-Migration Report** is also saved in the `Resources` folder in the same location as the Secure Firewall migration tool.

Review the Pre-Migration Report

If you have missed to download the Pre-Migration Reports during migration, use the following link to download:

Pre-Migration Report Download Endpoint—http://localhost:8888/api/downloads/pre_migration_summary_html_format

Note You can download the reports only when the Secure Firewall migration tool is running.

Step 1 Navigate to where you downloaded the **Pre-Migration Report**.

A copy of the **Pre-Migration Report** is also saved in the `Resources` folder in the same location as the Secure Firewall migration tool.

Step 2 Open the **Pre-Migration Report** and carefully review its contents to identify any issues that can cause the migration to fail.

The **Pre-Migration Report** includes the following information:

- A summary of the supported configuration elements that can be successfully migrated to threat defense and specific features selected for migration.
- **Configuration Lines with Errors**—Details of configuration elements that cannot be successfully migrated because the Secure Firewall migration tool could not parse them. Correct these errors on the configuration, export a new configuration file, and then upload the new configuration file to the Secure Firewall migration tool before proceeding.
- **Partially Supported Configuration**—Details of configuration elements that can be only partially migrated. These configuration elements include rules and objects with advanced options where the rule or the object can be migrated without the advanced options. Review these lines, verify whether the advanced options are supported in management center, and if so, plan to configure those options manually after you complete the migration with the Secure Firewall migration tool.
- **Unsupported Configuration**—Details of configuration elements that cannot be migrated because the Secure Firewall migration tool does not support migration of those features. Review these lines, verify whether each feature is supported in management center, and if so, plan to configure the features manually after you complete the migration with the Secure Firewall migration tool.
- **Ignored Configuration**—Details of configuration elements that are ignored because they are not supported by the management center or the Secure Firewall migration tool. The Secure Firewall migration tool does not parse these lines. Review these lines, verify whether each feature is supported in management center, and if so, plan to configure the features manually.

For more information about supported features in management center and threat defense, see Management Center Configuration Guide.

Step 3 If the **Pre-Migration Report** recommends corrective actions, complete those corrections on the interface, export the configuration file again and upload the updated configuration file before proceeding.

Step 4 After your configuration file is successfully uploaded and parsed, return to the Secure Firewall migration tool, and click **Next** to continue the migration.

What to do next

Map PAN Firewall Configurations with Threat Defense Interfaces

Map PAN Firewall Configurations with Threat Defense Interfaces

The threat defense device must have an equal or greater number of physical and port channel interfaces than those used by configuration. These interfaces do not have to have the same names on both devices. You can choose how you want to map the interfaces.

The mapping of interface to the threat defense interface differs based on the threat defense device type:

- If the target threat defense is of native type:

- The threat defense must have equal or a greater number of used PAN interfaces or port channel (PC) data interfaces or subinterfaces (excluding management-only in the PAN configuration). If the number is less, add the required type of interface on the target threat defense.
- Subinterfaces are created by the secure Firewall migration tool based on physical interface or port channel mapping.

- If the target threat defense is of container type:
  - The threat defense must have equal or a greater number of used PAN interfaces, physical subinterfaces, port channel, or port channel subinterfaces (excluding management-only in configuration). If the number is less, add the required type of interface on the target threat defense. For example, if the number of physical interfaces and physical subinterface on the target threat defense is 100 less than that of PAN then you can create the additional physical or physical subinterfaces on the target threat defense.

Before you begin

Make sure you have connected to the management center and chosen the destination as threat defense. For more information, see Specify Destination Parameters for the Secure Firewall Migration Tool, on page 23.

Note This step is not applicable if you are migrating to a management center without a threat defense device.

Step 1 If you want to change an interface mapping, click the drop-down list in the **FTD Interface Name** and choose the interface that you want to map to that interface.

You cannot change the mapping of the management interfaces. If a threat defense interface has already been assigned to an interface, you cannot choose that interface from the drop-down list. All assigned interfaces are greyed out and unavailable.

You do not need to map subinterfaces. The Secure Firewall migration tool maps subinterfaces on the threat defense device for all subinterfaces in the configuration.

Note If the number of interfaces on the source firewall is more than that of the target firewall, then create subinterfaces on the target firewall and retry the migration.

Step 2 When you have mapped each interface to a threat defense interface, click **Next**.

What to do next

Map the PAN interfaces to the appropriate threat defense interface objects and security zones. For more information, see Map PAN Interfaces to Security Zones Interface Groups.

Map PAN Interfaces to Security Zones Interface Groups

To ensure that the configuration is migrated correctly, map the interfaces to the appropriate threat defense interface objects, security zones. In an configuration, access control policies and NAT policies use interface

names (nameif). In management center, those policies use interface objects. In addition, management center policies group interface objects into the following:

- Security zones—An interface can belong to only one security zone.

The Secure Firewall migration tool allows one-to-one mapping of interfaces with security zones; when a security zone is mapped to an interface, it is not available for mapping to other interfaces although the management center allows it. For more information about security zones in management center, see Security Zones and Interface Groups in *Cisco Secure Firewall Management Center Device Configuration Guide*.

Step 1 On the **Map Security Zones** screen, review the available interfaces, and security zones.

Step 2 To map interfaces to security zones and interface groups that exist in management center, or that is available in configuration files as Security Zone type objects and is available in the drop-down list, do the following:

a) In the **Security Zones** column, choose the security zone for the interface.
b) In the **Interface Groups** column, choose the interface group for the interface.

Step 3 To map interfaces to security zones that exist in management center, in the **Security Zones** column, choose the security zone for that interface.

Step 4 You can manually map or auto-create the security zones.

To map the security zones manually, perform the following:

a) Click **Add SZ & IG**.
b) In the **Add SZ & IG** dialog box, click **Add** to add a new security zone.
c) Enter the security zone name in the **Security Zone** column. The maximum characters allowed is 48.
d) Click **Close**.

To map the security zones through auto-creation, perform the following:

a) Click **Auto-Create**.
b) In the **Auto-Create** dialog box, check **Zone Mapping**.
c) Click **Auto-Create**.

Once you click **Auto-Create**, the source firewall zones are mapped automatically. If the same name zones already exist on management center, then the zone will be re-used. The mapping page will display "(A)" against the re-used zone. For example, **inside** "(A)".

Step 5 When you have mapped all interfaces to the appropriate security zones, click **Next**.

Map Configurations with Applications

You can map applications to the corresponding target applications. You can migrate rules that are based on application.

A list of pre-defined applications from the management center and some of the applications from the configuration files are listed in this tab. Some of the pre-defined mappings that exist in the management center is mapped.

Note You will not be able to edit a pre-defined mapping.

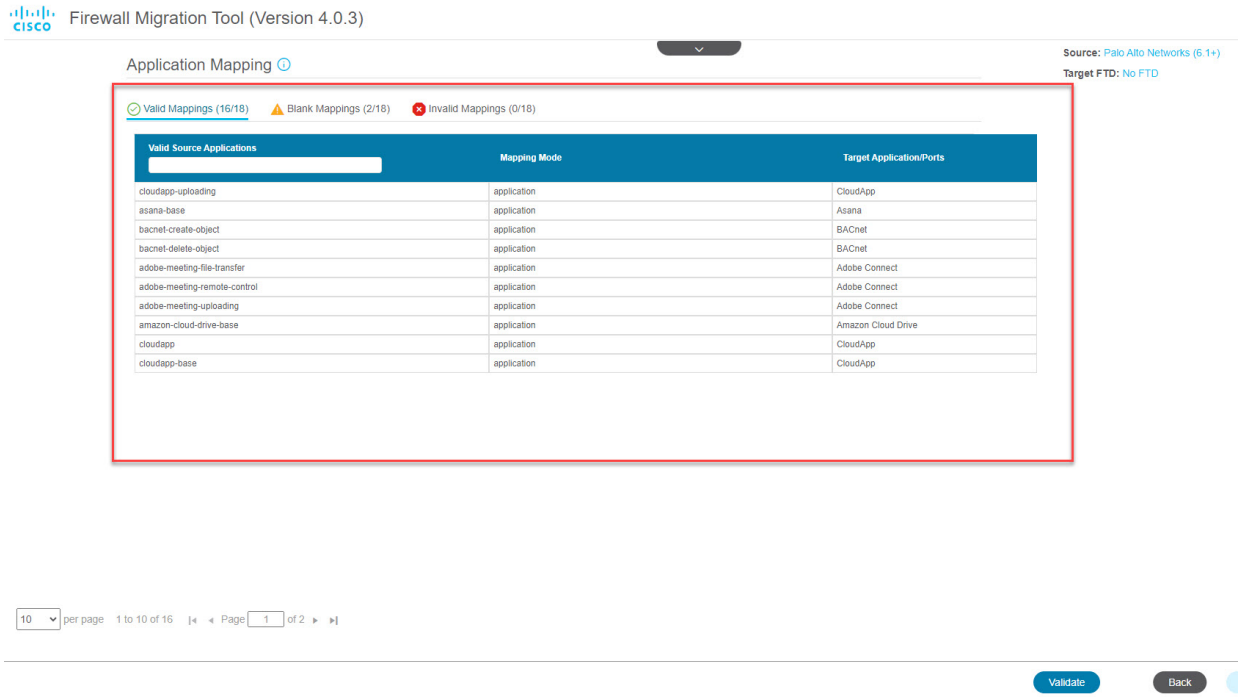
The **Application Mapping** page displays the following tabs:

- Invalid Mappings—View the list of invalid mappings for that migration.

  A mapping is termed **Invalid** under the following scenarios:

  - When the **Mapping Mode** is selected to either **Application** or **Port**, but the **Target** is empty.
  - When the **Mapping Mode** is **Port** and the syntax of the port is incorrect. To proceed with the migration, **Invalid Mapping** must be zero.

Note The **Next** button is disabled until there is a correct validation.



When you get the pre-defined list of mappings from the source, there are pre-defined applications that will be mapped automatically. If there are applications that are not mapped, you must map them manually to the port or application.

- Blank Mappings—Displays the Unmapped application and requires user action. The **Application** must be mapped to either **Application** or **Port**.

Note We recommend you to map all the **Application** entries, but it is not mandatory.

When the mapping mode is selected, and the target application has valid data, then it is a valid mapping.

Note By default, all the pre-defined mappings are available in the **Valid Mappings** tab.

- Valid Mappings—Displays the correct mapping. The Secure Firewall migration tool has its own database of pre-defined mapping with PAN and threat defense application for commonly used applications. If PAN application matches the pre-defined mapping DB, those applications will be mapped automatically and will be displayed under valid mapping.

  Once an **Application** is mapped to **Application** or **Port** in the **Blank Mapping** , it is moved to **Valid Mapping** after validation.

Note Pre-defined mapping is not editable.

The count for invalid, valid, and blank mapping keeps changing based on the migration.

The following table displays the Application Mapping properties.

Table 2: Application Mapping Table Properties

Field	Description
Source Application	Displays the list of application that is used on your Palo Alto Networks firewall.
Mapping Mode	Choose the Mapping mode that is either Application or Port(s). • Application—Choose from the list of available target application for mapping. You can map only one application. • Port(s)—Choose from the list of available ports for mapping. When you select Ports, enter the relevant port information in the format that is specified. For example, tcp/80 and udp/80. **Note** Spaces between characters are not allowed.
Target Application	Displays a list of target applications or ports that are based on the mapping mode.

ICMP and Ping applications will be migrated as **ICMP** and **ping** services. This is done automatically by the Secure Firewall migration tool and hence will not be displayed in the **Application Mapping** page.

Step 1 Click **Valid Mappings** tab to view the number of valid mappings for that migration. Map the **Valid Source Application** with the valid **Mapping Mode** and the **Target Application**.

When a mapping becomes valid, you can view the increase in the count of the valid mappings.

Step 2 Click **Blank Mappings** to view the list of blank mapping for that migration. Map the **Blank Source Application** with the valid **Mapping Mode** and the **Target Application**.

For example, if you select the mapping mode and save it without entering the target destination, the number of counts for the blank mapping increases. Review the tab, map it correctly, and then proceed with the migration.

Note Even if there is a blank mapping, you can still proceed with the migration.

Step 3 Click **Invalid Mappings** tab, to view the list of invalid mappings. Perform the following:

a) Invalid Application—Displays the invalid mapping during the migration.
b) Mapping Mode—Choose the mapping mode that is either Application or Port.
c) Target Application—Choose the target application for the application mapping.

For example, if you have selected the mapping mode but, mapped it with a different target destination, you cannot proceed with the other tabs. Review the **Invalid Mappings** tab, enter the correct target application, and then perform the application mapping.

Step 4 Click **Validate** in each tab to validate the invalid, blank, or valid mappings for that migration.

Step 5 Click **Next** to proceed further.

Step 6 Click **Clear Mapped Data** to clear the mappings that you performed manually, before validating. It is recommended that you click **Validate** only when you are entirely sure about the mappings you are doing, because you cannot undo the mapping after you click on validate and the mapping becomes valid.

What to do next

Optimize, Review and Validate the Configuration

Optimize, Review and Validate the Configuration

Before you push the migrated configuration to management center, optimize and review the configuration carefully and validate that it is correct and matches how you want to configure the threat defense device. A flashing tab indicates that you must take the next course of action.

Note If you close the Secure Firewall migration tool at the **Optimize, Review and Validate Configuration** screen, it saves your progress and allows you to resume the migration later. If you close the Secure Firewall migration tool before this screen, your progress is not saved. If there is a failure after parsing, relaunching the Secure Firewall migration tool resumes from the **Interface Mapping** screen.

Here, the Secure Firewall migration tool fetches the Intrusion Prevention System (IPS) policies and file policies, which are already present on the management center and allows you to associate those to the access control rules you are migrating.

A file policy is a set of configurations that the system uses to perform Advanced Malware Protection for networks and file control, as part of your overall access control configuration. This association ensures that before the system passes a file in traffic that matches the conditions of the access control rule, it first inspects the file.

Similarly, you can use an IPS policy as the system's last line of defense before traffic is allowed to proceed to its destination. Intrusion policies govern how the system inspects traffic for security violations and, in inline deployments, can block or alter malicious traffic. Whenever the system uses an intrusion policy to evaluate

traffic, it uses an associated variable set. Most variables in a set represent values commonly used in intrusion rules to identify source and destination IP addresses and ports. You can also use variables in intrusion policies to represent IP addresses in rule suppression and dynamic rule states.

To search for specific configuration items on a tab, enter the item name in the field at the top of the column. The table rows are filtered to display only items that match the search term.

Note By default, the Inline Grouping option is enabled.

If you close the Secure Firewall migration tool at the **Optimize, Review and Validate Configuration** screen, it saves your progress and allows you to resume the migration later. If you close the before this screen, your progress is not saved. If there is a failure after parsing, relaunching the Secure Firewall migration tool resumes from the **Interface Mapping** screen.

Secure Firewall Migration Tool ACL Optimization Overview

The Secure Firewall migration tool provides support to identify and segregate ACLs that can be optimized (disabled or deleted) from the firewall rule base without impacting the network functionality.

The ACL optimization supports the following ACL types:

- Redundant ACL—When two ACLs have the same set of configurations and rules, then removing the non-base ACL will not impact the network. For example, if any two rule allows FTP and IP traffic on the same network with no rules that are defined for denying access, the first rule can be deleted.
- Shadow ACL—The first ACL completely shadows the configurations of the second ACL. If two rules have similar traffic, the second rule is not applied to any traffic as it appears later in the access list. If the two rules specify different actions for traffic, you can either move the shadowed rule or edit any one of the rules to implement the required policy. For example, the base rule may deny the IP traffic, and the shadowed rule may allow FTP traffic for a given source or destination.

The Secure Firewall migration tool uses the following parameters while comparing rules for ACL optimization:

Note Optimization is available for the PAN only for ACP rule action.

- The disabled ACLs are not considered during the optimization process.
- The source ACLs are expanded into the corresponding ACEs (inline values), and then compared for the following parameters:
  - Source and Destination Zones
  - Source and Destination Network
  - Source and Destination Port

Click **Download Report** to review the ACL name and the correponding redundant and shadowed ACLs tabulated in an Excel file. Use the **Detailed ACL Information** sheet to view more ACL information.

Dynamic IP/Port Fallback Interface

When reviewing the NAT configurations on the **Optimize, Review and Validate Configuration** page for a Palo Alto Networks to threat defense migration, you can check whether the NAT rule has a **Dynamic IP/Port-Fallback** configuration and also if the rule is migrated or dropped.

The Secure Firewall migration tool migrates the NAT rule if the configured dynamic IP or the port fallback interface address is same as the destination zone address. If it is different, the rule is not migrated and is listed as unsupported, because the Secure Firewall Management Center can have only the destination address as the dynamic IP or port fallback interface. If the NAT rule does not have a fallback configuration, the migration happens without any validation and is listed as **Not applicable** in the **Dynamic IP/Port-fallback** column.

Step 1 On the **Optimize, Review and Validate Configuration** screen, click **Access Control Rules** and do the following:

a) For each entry in the table, review the mappings and veriy that they are correct.

b) If you do not want to migrate one or more access control list policies, choose the rows by checking the box against the policy, choose **Actions** > **Do not migrate** and then click **Save**.

All rules that you choose not to migrate are grayed out in the table.

c) If you want to apply a management center file policy to one or more access control policies, check the box for the appropriate rows, choose **Actions** > **File Policy**.

In the **File Policy** dialog, select the appropriate file policy and apply it to the selected access control policies and click **Save**.

d) If you want to apply a management center IPS policy to one or more access control policies, check the box for the appropriate rows, choose **Actions** > **IPS Policy**.

In the **IPS Policy** dialog, select the appropriate IPS policy and its corresponding variable set and apply it to the selected access control policies and click **Save**.

e) If you want to change the logging options for an access control rule which has logging enabled, check the box for the appropriate row and choose **Actions** > **Log**.

In the **Log** dialog, you can enable logging events either at the beginning or end of a connection or both. If you enable logging, you must opt to send the connection events either to the **Event Viewer** or to the **Syslog** or both. When you opt to send connection events to a syslog server, you can choose the syslog policies that are already configured on the management center from the **Syslog** drop-down menu.

f) If you want to change the actions for the migrated access control rules in the Access Control table, check the box for the appropriate row and choose **Actions** > **Rule Action**.

Tip The IPS and file policies that are attached to an access control rule are automatically removed for all rule actions except for the **Allow** option.

You can filter the ACE counts in the ascending, descending, equal, greater than, and lesser than filtering order sequence.

To clear the existing filter criteria, and to load a new search, click **Clear Filter**.

Note The order that you sort the ACL based on ACE is for viewing only. The ACLs are pushed based on the chronological order in which they occur.

Step 2 Click the following tabs and review the configuration items:

- **Access Control**
- **Objects (Network Objects, Port Objects)**

- **NAT**
- **Interfaces**
- **Routes**
- **Site-to-Site VPN Tunnels**
- **Remote Access VPN**

Note For site-to-site and remote access VPN configurations, VPN filter configurations and extended access list objects pertaining to them are migrated and can be reviewed under the respective tabs.

If you do not want to migrate one or more NAT rules or route interfaces, check the box for the appropriate rows, choose **Actions** > **Do not migrate**, and then click **Save**.

All rules that you choose not to migrate are grayed out in the table.

Step 3 (Optional) While reviewing your configuration, you can rename one or more network or port objects in the **Network Objects** or the **Port Objects** tab by selecting the object and choosing **Actions** > **Rename**.

Access rules and NAT policies that reference the renamed objects are also updated with new object names.

Step 4 You can view routes from the **Routes** area and select the routes that you do not want to migrate, by selecting an entry and choosing **Actions** > **Do not migrate**.

Step 5 In the **Site-to-Site VPN Tunnels** section, the VPN tunnels from the source firewall configurations are listed. Review the VPN tunnel data such as **Source Interface**, **VPN Type**, and **IKEv1** and **IKEv2** configurations for each row and ensure that you provide the preshared key values for all the rows.

Step 6 In the **Remote Access VPN** section, all objects corresponding to remote access VPN are migrated from Palo Alto Networks firewall to the management center, and are displayed:

- **Policy Assignment**: Review and validate your connection profiles, their VPN protocols, targeted devices, and the names of the VPN interfaces. To rename a connection profile, select the corresponding entry and choose **Actions** > **Rename**.
- **IKEV2**: Review and validate your IKEv2 protocol configurations, if any, and the source interfaces mapped with them.
- **Anyconnect Packages**: Retreive the AnyConnect packages and AnyConnect profiles should be retrieved from the source device for migration.

  As part of the premigration activity, upload all the AnyConnect packages to the management center. You can upload AnyConnect profiles either directly to the management center or from the Secure Firewall migration tool.

  Select pre-existing AnyConnect, Hostscan, or external browser packages retrieved from the management center. You must select atleast one AnyConnect package. You must also select the Hostscan, dap.xml, data.xml, or external browser, if they are available in the source configuration. AnyConnect profiles are optional.

  Ensure that the correct Dap.xml file is retrieved from the source firewall. Validations are performed on the dap.xml file that are available in the configuration file. You must select all the files that are required for validation and upload them. Failure to update marks as incomplete and the Secure Firewall migration tool does not proceed with validation.
- **Address Pool**—Review all the IPv4 and IPv6 pools that are displayed here.
- **Group-Policy**—Select or remove the user profile, management profile, and client module profile from this area, which displays group policies with client profiles, management profiles, client modules, and group policies without

profiles. If a profile was added in the AnyConnect file area, it is displayed as preselected. You can select or remove the user profile, management profile, and client module profile.

- **Connection Profile**—Review all connection profiles/tunnel groups that are displayed here.
- **Trustpoints**—Trustpoint or PKI object migration from the PAN firewall to the management center is part of the premigration activity and is required for successful migration of remote access VPN. Map the trustpoint for Global SSL, IKEv2, and interfaces in the **Remote Access Interface** section to proceed with the migration.

  If a Security Assertion Markup Language (SAML) object exists, the trustpoint for the SAML IDP and SP can be mapped in the SAML section. SP certificate upload is optional. Trustpoints can be overridden for a specific tunnel group. If the overriden SAML trustpoint configuration is available in the source , it can be selected under **Override SAML**.

Step 7 (Optional) To download the details for each configuration item in the grid, click **Download**.

Step 8 After you have completed your review, click **Validate**. Note that the mandatory fields that need your attention keeps flickering until you enter values in them. The **Validate** button gets enabled only after all the mandatory fields are filled.

During validation, the Secure Firewall migration tool connects to management center, reviews the existing objects, and compares those objects to the list of objects to be migrated. If an object already exists in management center, the Secure Firewall migration tool does the following:

- If the object has the same name and configuration, the Secure Firewall migration tool reuses the existing object and does not create a new object in management center.
- If the object has the same name but a different configuration, the Secure Firewall migration tool reports an object conflict.

You can view the validation progress in the console.

Step 9 When the validation is complete, if the **Validation Status** dialog box shows one or more object conflicts, do the following:

a) Click **Resolve Conflicts**.

   The Secure Firewall migration tool displays a warning icon on either or both of the **Network Objects** or **Port Objects** tab, depending upon where the object conflicts were reported.

b) Click the tab and review the objects.
c) Check the entry for each object that has a conflict and choose **Actions** > **Resolve Conflicts**.
d) In the **Resolve Conflicts** window, complete the recommended action.

   For example, you might be prompted to add a suffix to the object name to avoid a conflict with the existing management center object. You can accept the default suffix or replace it with one of your own.

e) Click **Resolve**.
f) When you have resolved all object conflicts on a tab, click **Save**.
g) Click **Validate** to revalidate the configuration and confirm that you have resolved all object conflicts.

Step 10 When the validation is complete and the **Validation Status** dialog box displays the message **Successfully Validated**, continue with Push the Migrated Configuration to Management Center, on page 37.

Push the Migrated Configuration to Management Center

You cannot push the migrated configuration to management center if you have not successfully validated the configuration and resolved all object conflicts.

This step in the migration process sends the migrated configuration to management center. It does not deploy the configuration to the threat defense device. However, any existing configuration on the threat defense is erased during this step.

Note Do not make any configuration changes or deploy to any device while the Secure Firewall migration tool is sending the migrated configuration to management center.

Step 1 In the **Validation Status** dialog box, review the validation summary.

Step 2 Click **Push Configuration** to send the migrated configuration to management center.

The Secure Firewall migration tool displays a summary of the progress of the migration. You can view detailed, line-by-line progress of which the components that are being pushed to management center in the console.

Step 3 After the migration is complete, click **Download Report** to download and save the post-migration report.

Copy of the **Post-Migration Report** is also saved in the `Resources` folder in the same location as the Secure Firewall migration tool.

Step 4 If your migration failed, review the post-migration report, log file, and unparsed file carefully to understand what caused the failure.

You can also contact the support team for troubleshooting.

Migration Failure Support

If the migration is unsuccessful, contact Support.

a. On the **Complete Migration** screen, click the **Support** button.

The Help support page appears.

b. Check the **Support Bundle** check box and then select the configuration files to download.

Note The Log and dB files are selected for download by default.

c. Click **Download**.

The support bundle file is downloaded as a .zip to your local path. Extract the Zip folder to view the log files, DB, and the Configuration files.

d. Click **Email us** to email the failure details for the technical team.

You can also attach the downloaded support files to your email.

e. Click **Visit TAC page** to create a TAC case in the Cisco support page.

Note You can open a TAC case at any time during the migration from the support page.

Review the Post-Migration Report and Complete the Migration

The Post-migration report provides details on ACL count under various categories, ACL optimization, and the overall view of optimization performed on the configuration file. For more information, see Optimize, Review and Validate the Configuration, on page 32

Review and verify the objects:

- **Category**
  - Total ACL rules (Source Configuration)
  - Total ACL rules considered for Optimization. For example, Redundant, Shadow, and so on.
- ACL Count for optimization gives the total number of ACL rules counted before and after Optimization.

If you have missed to download the Post-Migration Reports during migration, use the following link to download:

Post-Migration Report Download Endpoint—http://localhost:8888/api/downloads/post_migration_summary_html_format

Note You can download the reports only when the Secure Firewall migration tool is running.

Step 1 Navigate to where you downloaded the **Post-Migration Report**.

Step 2 Open the post-migration report and carefully review its contents to understand how your configuration was migrated:

- **Migration Summary**—A summary of the configuration that was successfully migrated from to threat defense, including information about the interface, management center hostname and domain, target threat defense device (if applicable), and the successfully migrated configuration elements.
- **Selective Policy Migration**—Details of the specific feature selected for migration are available within three categories - Device Configuration Features, Shared Configuration Features, and Optimization.
- **Interface to Threat Defense Interface Mapping**—Details of the successfully migrated interfaces and how you mapped the interfaces on the configuration to the interfaces on the threat defense device. Confirm that these mappings match your expectations.

  Note This section is not applicable for migrations without a destination threat defense device or if **Interfaces** are **not** selected for migration.
- **Source Interface Names to Threat Defense Security Zones**—Details of the successfully migrated PAN logical interfaces and name and how you mapped them to security zones in threat defense. Confirm that these mappings match your expectations.

  Note This section is not applicable if **Access Control Lists** and **NAT** are **not** selected for migration.
- **Object Conflict Handling**—Details of the objects that were identified as having conflicts with existing objects in management center. If the objects have the same name and configuration, the Secure Firewall migration tool reused the management center object. If the objects have the same name but a different configuration, you renamed those objects. Review these objects carefully and verify that the conflicts were appropriately resolved.

- **Access Control Rules, NAT, and Routes You Chose Not to Migrate**—Details of the rules that you choose not to migrate with the Secure Firewall migration tool. Review these rules that were disabled by the Secure Firewall migration tool and were not migrated. Review these lines and verify that all the rules you choose are listed in this section. If desired, you can configure these rules manually.
- **Partially Migrated Configuration**—Details of the rules that were only partially migrated, including rules with advanced options where the rule could be migrated without the advanced options. Review these lines, verify whether the advanced options are supported in management center, and if so, configure these options manually.
- **Unsupported Configuration**—Details of configuration elements that were not migrated because the Secure Firewall migration tool does not support migration of those features. Review these lines, verify whether each feature is supported in threat defense. If so, configure those features manually in management center.
- **Expanded Access Control Policy Rules**—Details of access control policy rules that were expanded from a single Point rule into multiple threat defense rules during migration.
- **Actions Taken on Access Control Rules**
  - **Access Rules You Chose Not to Migrate**—Details of the access control rules that you choose not to migrate with the Secure Firewall migration tool. Review these lines and verify that all the rules you choose are listed in this section. If desired, you can configure these rules manually.
  - **Access Rules with Rule Action Change**—Details of all Access Control Policy Rules that had 'Rule Action' changed using the Secure Firewall migration tool. The Rule Action values are - Allow, Trust, Monitor, Block, Block with reset. Review these lines and verify that all the rules you choose are listed in this section. If desired, you can configure these rules manually.
  - **Access Control Rules that have IPS Policy and Variable Set Applied**—Details of all access control policy rules that have IPS Policy applied. Review these rules carefully and determine whether the feature is supported in threat defense.
  - **Access Control Rules that have File Policy Applied**—Details of all access control policy rules that have File Policy applied. Review these rules carefully and determine whether the feature is supported in threat defense.
  - **Access Control Rules that have Rule 'Log' Setting Change**—Details of the access control rules that had 'Log setting' changed using the Secure Firewall migration tool. The Log Setting values are - False, Event Viewer, Syslog. Review these lines and verify that all the rules you choose are listed in this section. If desired, you can configure these rules manually.

Note An unsupported rule that was not migrated causes issues with unwanted traffic getting through your firewall. We recommend that you configure a rule in management center to ensure that this traffic is blocked by threat defense.

Note If it requires you to apply IPS or file policy to ACL in the **Review and Validate** page, you are highly recommended to create a policy on the management center before migration. Use the same policy, as the Secure Firewall migration tool fetches the policy from the connected management center. Creating a new policy and assigning it to multiple policies may degrade the performance and may also result in a push failure.

For more information about supported features in management center and threat defense, see Management Center Configuration Guide, Version 6.2.3.

Step 3 Open the **Pre-Migration Report** and make a note of any configuration items that you must migrate manually on the threat defense device.

Step 4 In management center, do the following:

a) Review the migrated configuration for the threat defense device to confirm that all expected rules and other configuration items, including the following, were migrated:

- Access control lists (ACL)
- Network Address Translation rules
- Port and network objects
- Routes
- Interfaces
- Dynamic Route objects

b) Configure all partially supported, unsupported, ignored, and disabled configuration items and rules that were not migrated.

For information on how to configure these items and rules, see the Management Center Configuration Guide. The following are examples of configuration items that require manual configuration:

- Platform settings, including SSH and HTTPS access, as described in Platform Settings for Threat Defense
- Syslog settings, as described in Configure Syslog
- Dynamic routing, as described in Routing Overview for Threat Defense
- Service policies, as described in FlexConfig Policies
- VPN configuration, as described in Threat Defense VPN
- Connection log settings, as described in Connection Logging

Step 5 After you have completed your review, deploy the migrated configuration from management center to the threat defense device.

Verify that the data is reflected correctly in the **Post-Migration Report** for unsupported and partially supported rules.

The Secure Firewall migration tool assigns the policies to the threat defense device. Verify that the changes are reflected in the running configuration. To help you to identify the policies that are migrated, the description of those policies includes the hostname of the configuration.

Parse Summary

Parse summary displays the number of objects, interfaces, NAT, policy, and application. The summary has three components: Pre-parse Summary, Parse Summary and Pre-push Summary.

- **Pre-parse Summary**—Pre-parse summary is displayed after the configuration is uploaded. At this stage, the Secure Firewall migration tool displays the count of various components. Only custom applications or applications that are used in the group is displayed. If a configuration is multi-vsys, the interface count will be displayed for the complete *vsys*. Pre-parse summary does not show all the applications because, the application that is called directly in policy is not counted. So, application count is different than the Parse summary. Similar behavior is applicable on NAT. Few components of the Pre-parse summary may display zero count but that does not mean that these configurations have zero configurations elements.

- **Parse Summary**—Parse summary is displayed after you click start conversion. At this stage, the Secure Firewall migration tool has taken the action on the configuration and all the unsupported configuration is removed from the summary count. The unsupported policies are part of the count, as unsupported policies are migrated to the management center as disabled. Every component of the configuration is parsed. The count that is displayed at the Parse summary is the exact configuration count that is going to get migrated.
- **Pre-push Summary**—Pre-push summary is displayed before you are prompted to push the configuration to the management center. The Pre-parse summary count may be different from the parse summary as per the action taken by the Secure Firewall migration tool. Directly referenced IP in NAT will be pushed as objects. If applications are mapped to ports, service count increases and the application will go down. If application mapping is left blank, the application count reduces. If the static route has a duplicate entry, that will be removed and the count will decrease.

Migration Failures

The following are the parsing failures during migration:

- **Parse Failure**—Parse failure occurs after the configuration is uploaded to the Secure Firewall migration tool. Due to the misconfiguration of the interface. If multiple IPs are configured or a /32 or /128 IP is assigned to interface, that leads to a parsing failure.

  If an interface has multiple IP assigned or tunneled, loopback, or VLAN interface are part of routing, that leads to a push failure.

  Workaround—Download the **Pre-Migration Report** and refer to **Configuration lines with errors** section of the Migration Report. This section displays the details of the configuration that is causing the issue. You must rectify the issue and reupload the configuration to Secure Firewall migration tool.

  If push failure is caused by tunnel, loopback, or VLAN interface in the routes, you must delete such routes and retry the migration, as such interfaces are not supported on the management center.

- **Push Failure**—Push failure occurs when Secure Firewall migration tool has migrated the configuration and is being pushed to the management center. Push failures are captured in the **Post-Migration Report**.

  Workaround—Download the **Post-Migration Report** and refer to **Error Reporting** section of the Migration Report. This section displays the details of the configuration that causes the issue. You must rectify the issue on the **Review and Validation** page by choosing **do not migrate** option for the section that shows the failure or you can fix the issue in the source configuration and reupload the configuration to Secure Firewall migration tool.

Uninstall the Secure Firewall Migration Tool

All components are stored in the same folder as the Secure Firewall migration tool.

Step 1 Navigate to the folder where you placed the Secure Firewall migration tool.

Step 2 If you want to save the logs, cut or copy and paste the `log` folder to a different location.

Step 3 If you want to save the pre-migration reports and the post-migration reports, cut or copy and paste the `resources` folder to a different location.

Step 4 Delete the folder where you placed the Secure Firewall migration tool.

Tip The log file is associated with the console window. If the console window for the Secure Firewall migration tool is open, the log file and the folder cannot be deleted.

Sample Migration: PAN to Threat Defense 2100

Note Create a test plan that you can run on the target device after you complete the migration.

- Pre-Maintenance Window Tasks
- Maintenance Window Tasks

Pre-Maintenance Window Tasks

Before you begin

Make sure you have installed and deployed a management center. For more information, see the appropriate Management Center Hardware Installation Guide and the appropriate Management Center Getting Started Guide.

Step 1 Deploy the Firepower 2100 series device in your network, connect the interfaces and power on the appliance.

For more information, see Cisco Threat Defense for the 2100 Series Using Management Center Quick Start Guide.

Step 2 Register the Firepower 2100 series device to be managed by the management center.

For more information, see Add Devices to the Management Center.

Step 3 Download and run the most recent version of the Secure Firewall migration tool from https://software.cisco.com/download/home/286306503/type.

For more information, see Download the Secure Firewall Migration Tool from Cisco.com, on page 19.

Step 4 When you launch the Secure Firewall migration tool, and specify destination parameters, make sure that you select the Firepower 2100 series device that you registered to the management center.

For more information, see Specify Destination Parameters for the Secure Firewall Migration Tool, on page 23.

Step 5 Map the interfaces with the threat defense interfaces.

Note The Secure Firewall migration tool allows you to map an interface type to the threat defense interface type.

For more information, see Map PAN Firewall Configurations with Threat Defense Interfaces.

Step 6 While mapping logical interfaces to security zones, click **Auto-Create** to allow the Secure Firewall migration tool to create new security zones. To use existing security zones, manually map the logical interfaces to the security zones.

For more information, see Map PAN Interfaces to Security Zones Interface Groups.

Step 7 Follow the instructions of this guide to sequentially review and validate the configuration to be migrated, and then push the configuration to the management center.

Step 8 Review the Post Migration report, manually setup and deploy other configurations to the threat defense and complete the migration.

For more information, see .

Step 9 Test the Firepower 2100 series device using the test plan that you would have created while planning for migration.

Maintenance Window Tasks

Before you begin

Make sure you have completed all the tasks that must be performed before the maintenance window. See Pre-Maintenance Window Tasks, on page 42.

Step 1 Clear the Address Resolution Protocol (ARP) cache on the surrounding switching infrastructure.

Step 2 Perform basic ping tests from surrounding switching infrastructure to the Firepower 2100 series device interface IP addresses, to make sure that they are accessible.

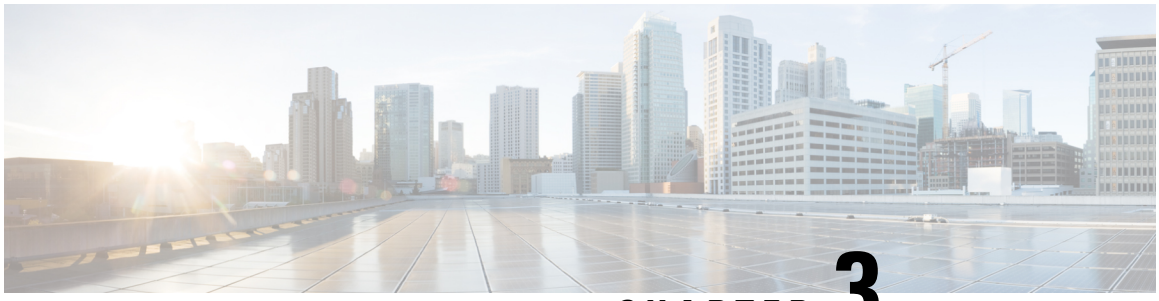
Step 3 Perform basic ping tests from devices which require layer 3 routing to Firepower 2100 series device interface IP addresses.

Step 4 If you are assigning a new IP address to the Firepower 2100 series device and not reusing the IP address assigned to the perform the following steps:

a. Update any static routes which refer to the IP address, so that they now point to the Firepower 2100 series device IP address.

b. If you are using routing protocols, ensure that neighbors see the Firepower 2100 series device IP address as the next hop for expected destinations.

Step 5 Run a comprehensive test plan and monitor logs within the managing management center for your Firepower 2100 device.



CHAPTER 3

Cisco Success Network-Telemetry Data

Cisco Success Network - Telemetry Data

Cisco Success Network is an always-on usage information and metrics collection feature in the Secure Firewall migration tool, which collects and trasmits usage statistics through a secure cloud connection between the migration tool and the Cisco cloud. These statistics help us provide additional support on unused features and also improve our products. When you initiate a migration process in the Secure Firewall migration tool, the corresponding telemetry data file is generated and stored in a fixed location.

When you push the migrated configuration to management center, the push service reads the telemetry data file from the location and deletes it after the data is successfully uploaded to the cloud.

The migration tool provides two options to choose from, for streaming telemetry data—**Limited** and **Extensive**.

With **Cisco Success Network** set to **Limited**, the following telemetry data points are collected:

Table 3: Limited Telemetry

Data Point	Description	Example Value
Time	The time and date when the telemetry data is collected	2023-04-25 10:39:19
Source Type	The source device type	ASA
Device Model Number	Model number of ASA	ASA5585-SSP-10, 5969 MB RAM, CPU Xeon 5500 series 2000 MHz, 1 CPU (4 cores)
Source Version	Version of ASA	9.2 (1)
Target Management Version	The target version of management center	6.5 or later
Target Management Type	The type of target management device, namely, management center	Management Center
Target Device Version	The version of target device	75

Data Point	Description	Example Value
Target Device Model	The model of target device	Cisco Secure Firewall Threat Defense for VMware
Migration Tool Version	The version of the migration tool	1.1.0.1912
Migration Status	The status of the migration of ASA configuration to management center	SUCCESS

The following tables provide information on the telemetry data points, their descriptions, and sample values, when **Cisco Success Network** is set to **Extensive**:

Table 4: Extensive Telemetry

Data Point	Description	Example Value
Operating System	Operating system that runs the Secure Firewall migration tool. It could be Windows7/Windows10 64-bit/macOS High Sierra	Windows 7
Browser	Browser used to launch the Secure Firewall migration tool. It could be Mozilla/5.0 or Chrome/68.0.3440.106 or Safari/537.36	Mozilla/5.0

Table 5: Target Management Device (Management Center) Information

Data Point	Description	Example Value
Target Management Version	The target version of management center	6.2.3.3 (build 76)
Target Management Type	The type of target management device, namely, management center	Management Center
Target Device Version	The version of target device	75
Target Device Model	The model of target device	Cisco Secure Firewall Threat Defense for VMware
Migration Tool Version	The version of the migration too1	1.1.0.1912

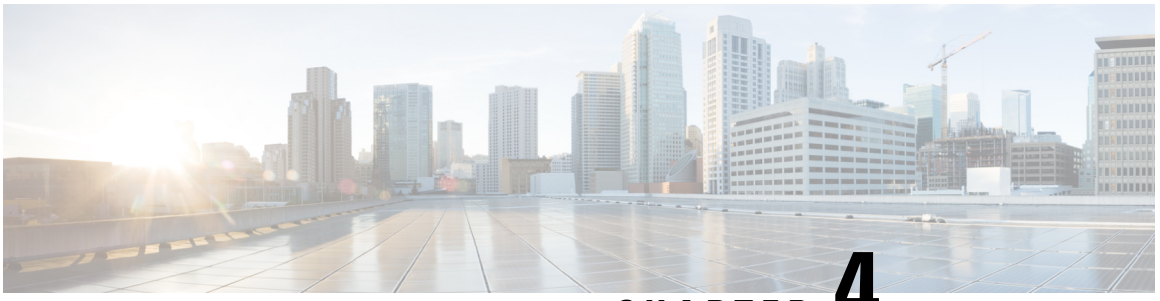
Table 6: Migration Summary

Data Point	Description	Example Value
Access Control Policy		
Name	The name of access control policy	Doesn't Exist
Access Rule Counts	The total number of migrated ACL rules	0
Partially Migrated ACL Rule Counts	The total number of partially migrated ACL rules	3
Expanded ACP Rule Counts	The number of expanded ACP rules	0

Data Point	Description	Example Value
NAT Policy		
Name	The name of NAT policy	Doesn't Exist
NAT Rule Counts	The total number of migrated NAT rules	0
Partially Migrated NAT Rule Counts	The total number of partially migrated NAT rules	0
More migration details...		
Interface Counts	The number of updated interfaces	0
Sub Interface Counts	The number of updated subinterfaces	0
Static Routes Counts	The number of static routes	0
Objects Counts	The number of objects created	34
Object Group Counts	The number of object groups created	6
Security Zone Counts	The number of security zones created	3
Network Object Reused Counts	The number of objects reused	21
Network Object Rename Counts	The number of objects that are renamed	1
Port Object Reused Counts	The number of port objects that are reused	0
Port Object Rename Counts	The number of port objects that are renamed	0

Table 7: Secure Firewall Migration Tool Performance Data

Data Point	Description	Example Value
Conversion Time	The time taken to parse configuration lines (in minutes)	14
Migration Time	The total time taken for end-to-end migration (in minutes)	592
Config Push Time	The time taken to push the final configuration (in minutes)	7
Migration Status	The status of the migration of configuration to management center	SUCCESS
Error Message	The error message as displayed by the Secure Firewall migration tool	null
Error Description	The description about the stage when the error has occurred and the possible root cause	null



CHAPTER 4

Troubleshooting Migration Issues

Troubleshooting for the Secure Firewall Migration Tool

A migration typically fails during the PAN configuration file upload or during the push of the migrated configuration to management center.

Unexpected file—Invalid files detected for PAN. For example, when zipped using Mac OS, Mac system files are created. Remove the Mac files.

Secure Firewall Migration Tool Support Bundle

The Secure Firewall migration tool provides the option to download a support bundle to extract valuable troubleshooting information like log files, DB, and configuration files. Perform the following:

1. On the **Complete Migration** screen, click the **Support** button.

   The Help support page appears.

2. Check the **Support Bundle** check box and then select the configuration files to download.

Note The Log and dB files are selected for download by default.

3. Click **Download**.

   The support bundle file is downloaded as a .zip to your local path. Extract the Zip folder to view the log files, DB, and the Configuration files.

4. Click **Email us** to email the failure details for the technical team.

   You can also attach the downloaded support files to your email.

5. Click **Visit TAC page** to create a TAC case in the Cisco support page.

Note You can open a TAC case at any time during the migration from the support page.

Logs and Other Files Used for Troubleshooting

You can find information that is useful for identifying and troubleshooting issues in the following files.

File	Location
Log file	*<migration_tool_folder>*\logs
Pre-migration report	*<migration_tool_folder>*\resources
Post-migration report	*<migration_tool_folder>*\resources
unparsed file	*<migration_tool_folder>*\resources
telemetry_sessionid_timestamp.json	*<migration_tool_folder>*\resources\telemetry_data

Troubleshooting Example for PAN: Cannot Find Member of Object Group

In this example, the PAN configuration file upload and parsing failed because of an error in the configuration of an element.

Step 1 Review the error messages to identify the problem.

This failure generates the following error messages:

Location	Error Message
Secure Firewall migration tool message	Check Point config files parsed with errors.
Log file	[ERROR | objectGroupRules] > "ERROR, SERVICE_GROUP_RULE not applied for port-group object [services_epacity_nt_abc] as CheckPoint object [ica] does not exist in <service> table;" [INFO | objectGroupRules] > "Parsing object-group service:[services_gvxs06]" [INFO | objectGroupRules] > "Parsing object-group service:[services_iphigenia]" [INFO | objectGroupRules] > "Parsing object-group service:[Services_KPN_ISP]"

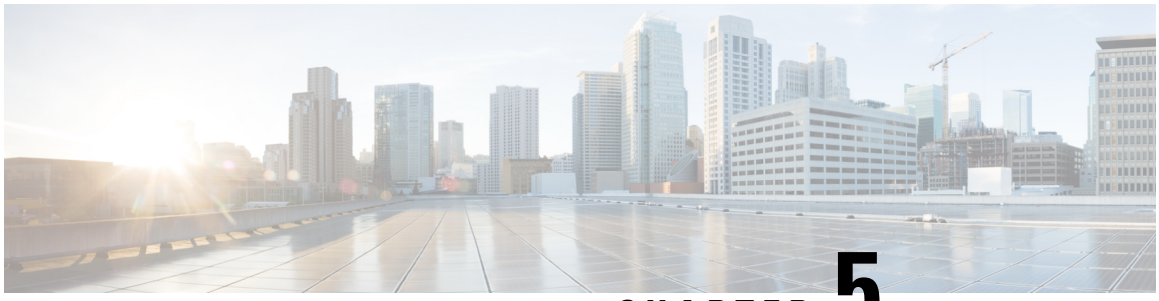
Step 2 Open the PAN `services.xml` file.

Step 3 Search the object-group with name as services_gvxs06.

Step 4 Create the missing member for the object-group using the smart dashboard.

Step 5 Export the configuration file again. For more information, see .

Step 6 If there are no more errors, upload the new PAN configuration zip file to the Secure Firewall migration tool and continue with the migration.



CHAPTER 5

Secure Firewall Migration Tool FAQs

Secure Firewall Migration Tool Frequently Asked Questions

Q. What are the new features supported on the Secure Firewall migration tool for Release 3.0.1?

A. The Secure Firewall migration tool 3.0.1 now provides support for Secure Firewall 3100 series only as a destination device for migrations from Palo Alto Networks.

Q. What are the new features supported on the Secure Firewall migration tool for Release 3.0?

A. The following features are supported with release 3.0:

- Migration to Cloud-delivered Firewall Management Center.

Q. What are the source and target platforms that the Firewall migration tool can migrate policy?

A. The Secure Firewall migration tool can migrate policies from supported PAN firewall platform to threat defense virtual platform. For more information, see Supported Platforms for Migration.

Q. What are the hardware limitations for the conversion from PAN to Threat Defense Virtual?

A. The Secure Firewall migration tool will migrate the configuration, if the PAN OS version is 6.1.x and later.

Q. Does PAN firewall support interface groups?

A. No. PAN firewall does not support the interface groups for the conversion to threat defense virtual.

Q. NAT is using FQDN which is not supported by Management Center. What should I do?

A. As you know that FQDN in NAT is not supported on management center, in the similar line, FQDN is also not supported on Secure Firewall migration tool. To replicate, the same config as source, you must configure the whole set of IP addresses that are mapped with FQDN manually post migration.

Q. What to do when the source firewall has more interfaces than the target?

A. If the source firewall has more interfaces than the target, then, create subinterfaces on the threat defense virtual before initiating the migration.

Q. Will Secure Firewall Migration Tool migrate aggregate interfaces (port channels)?

A. Secure Firewall migration tool does not migrate aggregate interfaces (port channels). You must configure the port channel interface on management center before initiating the migration.

Q. Is Inter VR routing supported on Management Center?

A. Any route that has Next Hop as Next VR is not supported.

Q. What is the command to extract the Route table from PAN?

A. Use the **Show routing route** command. Once you paste the route in the *txt* file, ensure that the formatting is correct. In case of multi-vsys, paste the route of the relevant *vsys* only. We recommend you to remove the tunnel, loopback, and VLAN routes from the Routing table as these interfaces are unsupported by management center.

Q. What should I do with the Ignored Configuration files?

A. The Ignored configuration contains XML tags that are specific to PAN only and is irrelevant to management center. Hence, they are ignored. You must review the ignored configuration carefully. Anything unexpected that reflects in the ignored section should be configured manually on management center.

Q. I get an error in the Pre-Migration Report. Can I ignore the interfaces and continue?

A. If you chose to proceed without interfaces, then the routes will also not get migrated.

Q. What is the common cause of Parse Failure?

A. Parse failure occurs if the interfaces have multiple IP addresses or IP addresses assigned with subnets, for example /32 or /128. To proceed further, you must correct the IP address and retry the migration.

Q. Why NAT in Pre-Parsing Summary is as shown zero?

A. See Parse Summary for more information.

Q. How can you export PAN configuration?

A. The configuration must be extracted from the gateway if your device is managed by panorama. Merge the panorama configuration with the gateway and extract the configuration.

For more information, see Configuration File from Palo Alto Firewall (Not Managed by Panorama).

Q. What does Application Mapping do?

A. With application mapping, you can map applications to the corresponding target applications such as HTTP, SSH. You can also migrate rules that are based on application.

For more information, see Map Configurations with Applications.

Q. What happens to the policies with "application-default"?

A. Perform the following:

- If application is selected as "any" and the port is set to "application-default", then the policy is unsupported and is migrated as disabled.
- If application is selected as "xyz" and the port is set to "application-default", then the policy is migrated with application "xyz" and service as "any".