



Corero Network Security

SmartWall Threat Defense Director Central Management Server User Guide

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TDD Documentation

There are three main documents which you can use to learn more about the SmartWall TDD:

Document	Location	Use
SmartWall TDD Getting Started Guide	The appropriate guide (KVM or ESXi) is provided by your Support representative or available on the Juniper support portal	Deploy a SmartWall TDD on your own servers. After completing the tasks in this guide, your TDD will be ready for use.
SmartWall TDD User Guide	PDF help from the top menu of the SWA Web UI or available on the Juniper support portal	Manage your SmartWall TDD. Contains TDD specific tasks and reference information for the SWA Web UI.
SmartWall TDD CMS User Guide	Context sensitive help site built into the CMS Web UI or available on the Juniper support portal	Understand general system tasks, enabling you manage your Defense devices and troubleshoot any issues. Contains reference information for the CMS Web UI, CLI, pCLI and REST API.

Note: The SmartWall TDD User Guide available from inside the SWA and CMS User Guide available from inside the CMS contain additional information compared to the versions of the guides available on the Juniper Support Portal. This information is only available to customers and is not publicly accessible.

Corero SmartWall DDoS Protection Solution

The SmartWall DDoS Protection Solution can be deployed in a number of ways to best fit your infrastructure and protection needs.

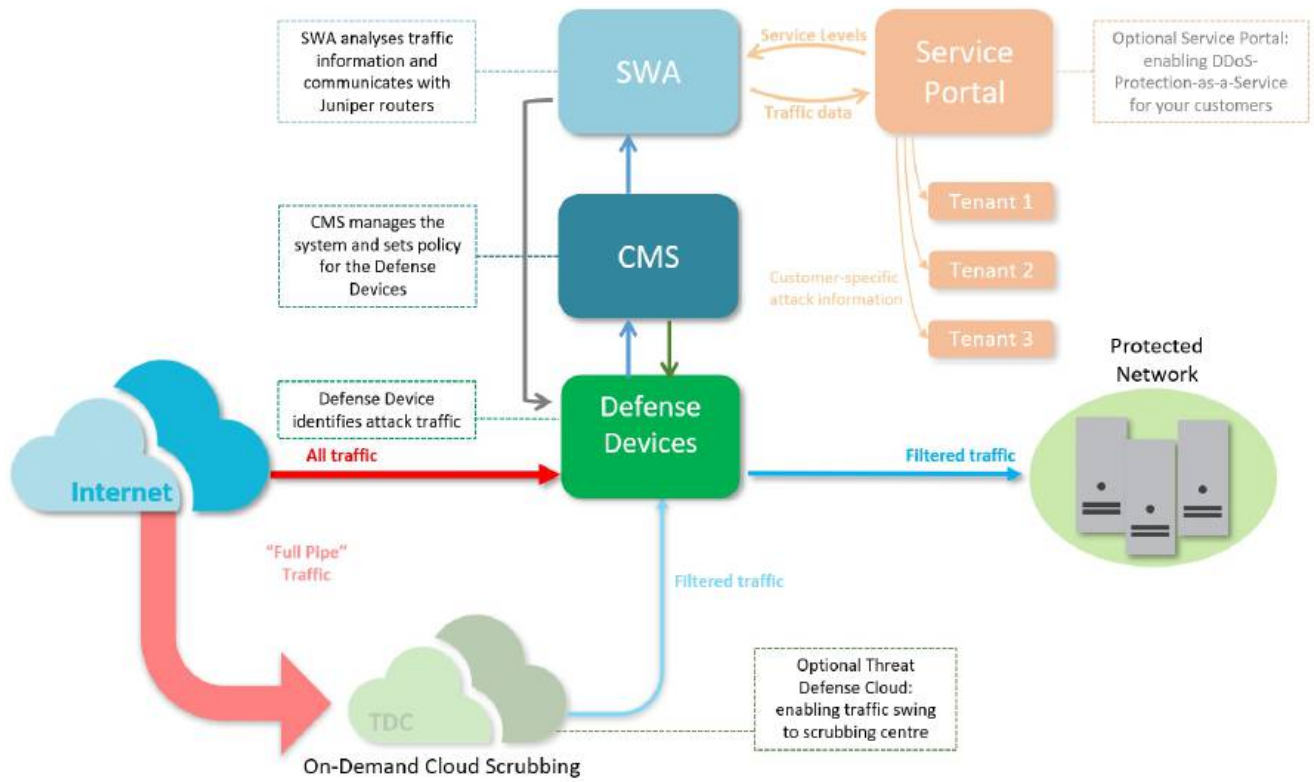
There are two main deployment models for the core SmartWall components:

- **SmartWall Threat Defense System (SmartWall TDS)** – SmartWall TDS uses appliances deployed at the edge of your network to protect your internal resources from DDoS attack traffic. It comprises of three main components: Defense devices (with optional zero-power bypass protection), the SmartWall Central Management Server (CMS), and SmartWall SecureWatch Analytics (SWA).
- **SmartWall Threat Defense Director (SmartWall TDD)** – SmartWall TDD works together with Juniper Networks® routers to filter out DDoS attack traffic at the edge of your network, without needing to deploy additional appliances at every protected location. It comprises of four main components: Edge routers, Defense devices (acting as Detection Engines for the routers), the SmartWall Central Management Server (CMS), and SmartWall SecureWatch Analytics (SWA).

The following Corero components are also available and can be deployed with a SmartWall TDS or SmartWall TDD solution:

- **SmartWall Threat Defense Cloud (SmartWall TDC)** – SmartWall TDC enables your inbound traffic to be automatically routed via a cloud scrubbing center when an attack becomes large enough that it could overwhelm your available internet bandwidth.
- **SmartWall Service Portal (Service Portal)** – The Service Portal enables you to offer DDoS-Protection-as-a-service to your customers, providing each with their own portal access to view only their attack information. Each customer can be assigned a specific mitigation level and receive attack alerts and scheduled reports.

Note: Some of the documentation you receive will be tailored to your specific solution, but as some applications are generic you may see the options for other solutions shown in the guides. There are other non-Corero components that can be attached to the Threat Defense System.



SmartWall Threat Defense Director


The SmartWall Threat Defense Director (SmartWall TDD) works together with Juniper Networks® MX Series routers to filter out DDoS attack traffic at the edge of your network.

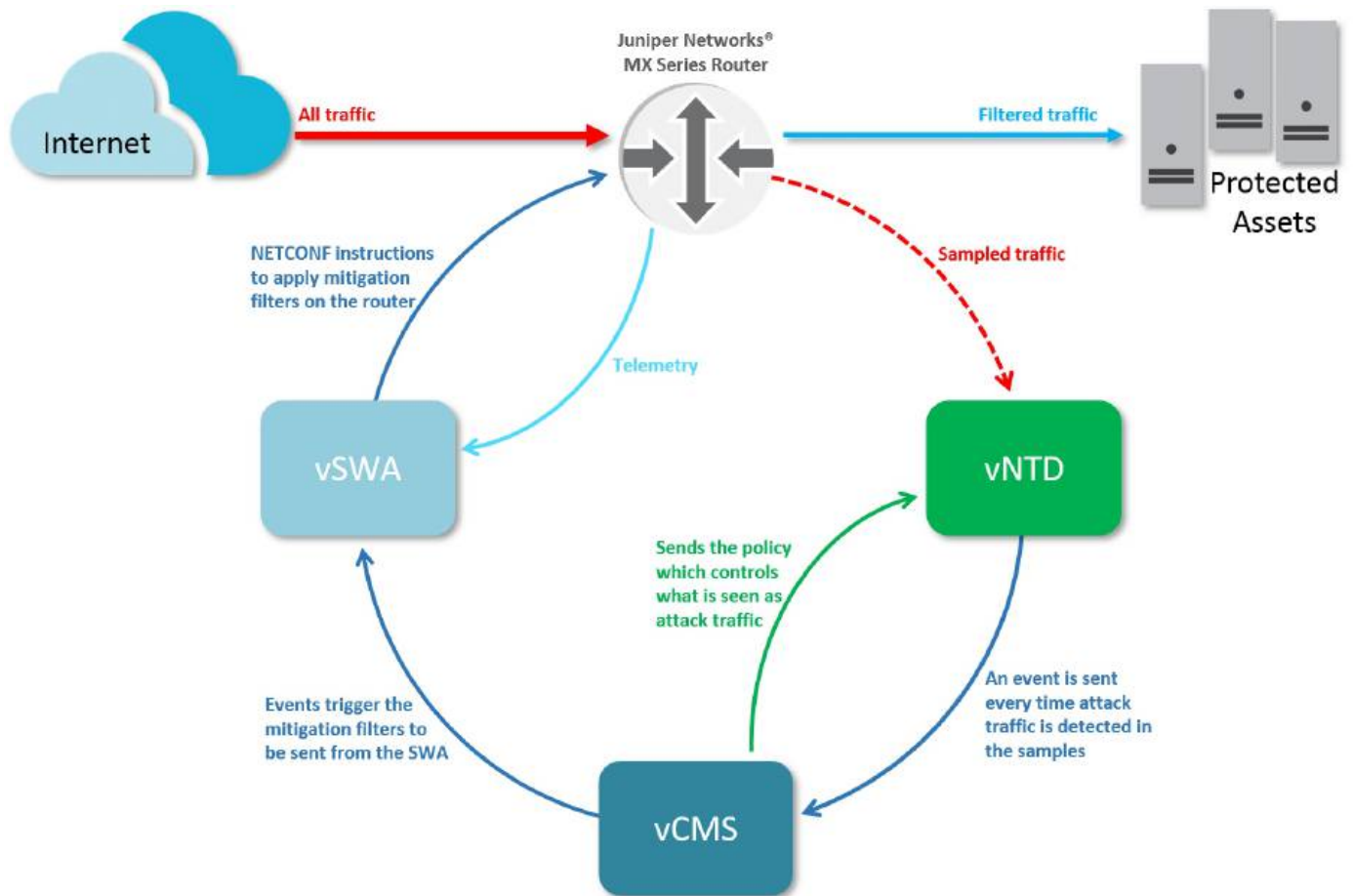
A SmartWall TDD system requires the following components:

- **Remote Devices** – The Juniper Networks MX Series router at the edge of the network being protected. They send sampled traffic to the vNTD and are directed by vSWA to apply firewall filters to block DDoS attack traffic.
- **Defense Director** – A bundle of three virtual applications:
 - **vSWA** – The SmartWall SecureWatch Analytics Virtual Edition (vSWA) receives information from the Detection Engine (via the vCMS) to identify the DDoS attacks currently active against your network. The vSWA application then sends firewall filter commands to the router to filter the attack traffic as it arrives at the router. The vSWA application also displays real-time and historical statistics that enable you to analyze attacks on your network.
 - **vCMS** – The SmartWall Central Management Server Virtual Edition (vCMS) controls the Detection Engine and enables you to configure the attack mitigation policy used to distinguish attack traffic from normal network traffic.
 - **Detection Engine (vNTD)** – The SmartWall Network Threat Defense Virtual Edition (vNTD) is the Detection Engine for the SmartWall TDD. It detects DDoS attack traffic in mirrored samples sent from the edge routers.
- **Additional Detection Engines** – The Defense Director bundle includes a single Detection Engine (vNTD). You may need to purchase additional Detection Engines for your deployment.

Working with the SmartWall TDD applications and documentation

The same three applications which power the SmartWall TDD are also used in the Corero SmartWall Threat Defense System (SmartWall TDS). The SmartWall TDS is primarily used inline or in a scrubbing configuration, where the Defense devices block traffic directly. As the system shares common components, you may see the following types of information relating to the SmartWall TDS:

- Some features in the CMS are designed for NTD inline mitigation and will not be available in a SmartWall TDD deployment. When working in the CMS, if you are unsure if a feature applies to the SmartWall TDD, click  the help icon in the top left and look for a note labeled **TDD deployments**.
- In the CMS interface, events, and documentation you will see references to "blocking traffic". In a SmartWall TDD deployment, this should be interpreted as "identifying DDoS attacks".



Juniper Networks MX Series router Requirements

Your Juniper Networks MX Series routers must meet the following criteria:

- It must support Sampled Mirror, Flexible Filtering, Ephemeral Configuration, and Remote Telemetry.
- Your router should be running one of the following JunOS versions:
 - For production deployments:
 - 17.2R3
 - 17.3R3
 - **17.3R3-S8 recommended**
 - 17.4R2
 - 18.1R3
 - 18.2R2
 - 18.3R1
 - **18.3R3-S2 recommended**
 - **19.2R3 recommended**
 - **20.1R2 recommended**

Note: Recommended versions have had a broad and successful use with Corero SmartWall TDD.

- For lab tests or proof of concept deployments:
 - Any of the above
 - 16.2R3

Caution: For JunOS versions not listed, please refer to your support representative for compatibility.

Core Concepts

Provisioning Command Line Interface (pCLI)

When you install a SmartWall device or application, you need to execute essential configuration tasks using the Corero Provisioning Command Line Interface (pCLI). The pCLI is a set of commands you can use to define the initial configuration of each SmartWall® component. For initial configuration of any component, type `setup` in the pCLI to launch a wizard which will guide you through the initial configuration options.

Policy

A Policy is a configuration of the attack mitigation features which tells the Defense devices how to handle incoming traffic. Each policy is contained in a Protection Profile.

Protection Profiles

A Protection Profile is a container for a configuration of the attack mitigation features (Policy) in the CMS. When you associate a Protection Profile with a Cluster, it provides all the Defense devices in that Cluster with the same Policy for handling incoming traffic. You can create one Protection Profile for your network or multiple Protection Profiles each containing a different Policy.

Clusters

A Cluster is a set of identically configured Defense devices. When you create a new Cluster you must associate it with a Protection Profile containing the Policy which controls how the devices in that Cluster respond to traffic.

Devices

There are two types of devices in the SmartWall TDD system:

- **Defense devices** – This is broader term for the vNTDs (SmartWall Network Threat Defense Virtual Edition devices) which are used purely as Detection Engines in a SmartWall TDD deployment
- **Remote Devices** – This is a broader term for the Juniper Networks MX Series router used to mitigate DDoS attack traffic

While the SmartWall TDD only uses the above device types, in the user interface and documentation you should be aware that device can refer to any of the Defense devices compatible with the SmartWall TDS system (vNTD, NTD1100, NTD280, NTD120 and Bypass Devices).

Segments

A Segment is a set of 1 or 2 interfaces to which DDoS protection is applied. The first time you connect a Defense device to the CMS, it identifies the available interfaces and records them as Segments. A vNTD has two available interface

ports which act as 2 single interface Detector Segments. If you don't require the second Segment, you can disable it after deployment.

Defense Mode

The Defense Mode is the default traffic handling mode which tells the system whether it should use the rest of the Policy features to block attack traffic, just inspect the traffic, or send the traffic to the internal network without any inspection.

For a TDD deployment, when you select a defense mode you have the following options:

- **Mitigate** mode – The TDD system instructs the router to discard attack traffic.
- **Monitor** mode – The router will complete all steps as if it was mitigating traffic (i.e. sending telemetry to SWA) but will accept the attack traffic.

Note: In the CMS documentation and user interface, the Defense Mode is described for an inline SmartWall TDS deployment where the Defense device is able to directly block traffic. In the TDD system the blocking is only ever performed by the routers. Pass-through mode only applies to the TDS system.

Licenses

The SmartWall TDD system requires two types of license:

- **TDD License** – The main license for your TDD system
- **vNTD License(s)** – The correct number of licenses to cover all of your vNTD detection devices

Due to the different security measures protecting each license type, they must be requested and installed in different ways.

Analytics

Analytics is the process of collecting and analyzing the event and system information generated by the Defense devices. The Defense devices send analytics syslog messages to the CMS where that information is aggregated and sent to SWA.

Sampled Traffic

This is a feed of a proportion of the traffic received by the Juniper Networks MX Series router ahead of any mitigation. The vNTD uses this traffic to detect DDoS attacks, and enables the TDD system to generate the filter instructions it sends to the Remote Device to block that attack traffic and permit non-attack traffic. For example, if you have 1Tbps of traffic coming into a Remote Device, and a sample rate of 1:1000, the vNTD will see 1Gbps of sampled traffic.

Telemetry

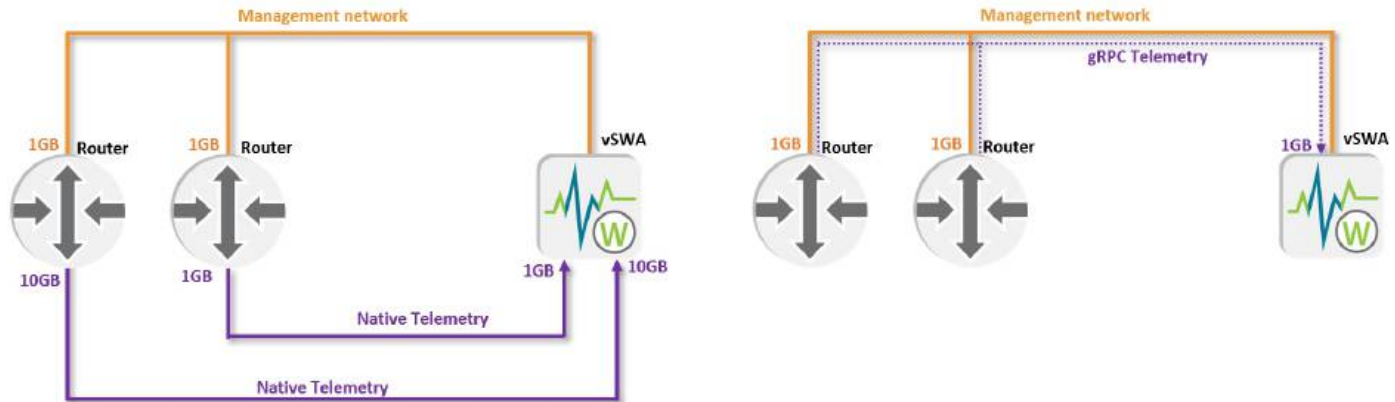
Telemetry is sent from the Juniper Networks MX Series router to the vSWA. It shows the network traffic processed by the router including what was permitted or blocked by the TDD system.

The TDD requires a telemetry feed from every monitored router to the SWA application. There are two main telemetry delivery methods:

- **Native telemetry** (UDP) – Telemetry is sent over your traffic network between the router and SWA. This requires a non-management interface on the router and on the SWA host unit.
- **gRPC telemetry** – Telemetry is sent over the 1GB Management network. With gRPC telemetry you have the option to encrypt the telemetry traffic using SSL certificates.

You decide which telemetry type is used when you [configure the Juniper Networks MX Series router](#). If you choose gRPC telemetry, you must download 2 additional software files to the router during set up and then provide additional configuration information when [adding the router to the SWA as a remote device](#).

You decided which telemetry type is used when you configure the Juniper Networks MX Series router (See SmartWall TDD Getting Started Guide for instructions). If you choose gRPC telemetry, you must download 2 additional software files to the router during set up and then provide additional configuration information when [adding the router to the SWA as a remote device](#).



NETCONF

The TDD system uses NETCONF to configure the ephemeral firewall rules in the Juniper Networks MX Series router to block or permit network traffic.

SmartWall Service Portal

The SmartWall Service Portal enables you to offer Corero SmartWall DDoS Protection, as a managed service, to your customers. The Service Portal is a customer-facing DDoS protection portal which uses traffic data from your SmartWall TDD and displays the information in easy to read dashboards and reports. Your customers can log in to the portal and view the attacks you have protected them against. For information on Service Portal versions which are compatible with your SmartWall TDD, see the SmartWall TDD release notes.

Note: If you do not have a Service Portal and would like to add one to your existing TDD system, contact your support representative for more information.

Accessing the TDD Components

After you deploy the SmartWall TDD, you will have 4 configured component types working together to protect your network:

- SmartWall SecureWatch Analytics(SWA)
- SmartWall Central Management Server (CMS)
- SmartWall Network Threat Defense devices (vNTD devices working as Detection Engines)
- Juniper Networks MX Series router

For regular operation, you will mostly use the SWA application, but you will also need to maintain some configuration settings in the CMS application, including managing your Defense devices.

Supported web browsers for the Web UI

- **Chrome:** 71 or newer
- **Edge:** 44 or newer
- **Firefox:** 64 or newer
- **Safari:** 12 or newer
- **Internet Explorer:** not supported

SWA

You can access the SWA Web UI through a browser by typing the IP address of your SWA application followed by :8000 (e.g. <https://10.10.100.200:8000>) or by the DNS address, if you set one up during installation. You can access all analytics and TDD functions through the Web UI.

After initial configuration, if you need to perform a higher level operation, like changing the application IP address or NTP server, you can access the pCLI by opening the console connection or using an SSH client: `ssh -p 2222 <username>@<SWAipAddress>`

Monitor users also have read-only access to the **REST API** on port 8089.

Caution: If you plan to allow monitor access to the REST API, you should [configure IP filtering](#) to limit access to only trusted accessors and ensure you have [changed the default passwords](#).

CMS

There are 3 ways to access the CMS:

- **Web UI** – You can access the CMS Web UI through a browser by typing the IP address of your CMS application (e.g. `https://10.10.100.100`) or DNS address, if you set one up during installation. You can access all main CMS functions through the Web UI.
- **CLI** – You can access the CMS CLI using an SSH client to connect to the IP Address of your CMS, on the default port 2024 . You can access all CMS functions through the CLI.
- **REST API** – You can access the REST API using any tool that sends HTTP requests to a URL, but it is most easily available using Swagger: In a browser type the IP address of your CMS followed by `/api`(e.g. `https://10.10.100.100/api`) and log in with your CMS credentials. You can affect Protection Policy changes through the REST API and view device status information.

vNTD (Detection Engine)

After initial configuration, you can manage the vast majority of the Defense device configuration from within the CMS (Network>Devices). If you need to perform a higher level operation, like changing the device's IP address or NTP server, you can access the device's pCLI by opening the console connection or using an SSH client: `ssh -p 2222 <username>@<vNTDipAddress>`

Juniper Networks MX Series router

After initial configuration, you should be able to manage the connection to the router in the SWA (Mitigation > Remote Devices). If you need to perform a higher level operation, like changing the application IP address or NTP server, you can access the pCLI by opening the console connection or using an SSH client: `ssh -p 22 <username>@<MXipAddress>`

Juniper Networks MX Series router Requirements

Your Juniper Networks MX Series routers must meet the following criteria:

- It must support Sampled Mirror, Flexible Filtering, Ephemeral Configuration, and Remote Telemetry.
- Your router should be running one of the following JunOS versions:
 - For production deployments:

- 17.2R3
- 17.3R3
- **17.3R3-S8 recommended**
- 17.4R2
- 18.1R3
- 18.2R2
- 18.3R1
- **18.3R3-S2 recommended**
- **19.2R3 recommended**
- **20.1R2 recommended**

Note: Recommended versions have had a broad and successful use with Corero SmartWall TDD.

- For lab tests or proof of concept deployments:
 - Any of the above
 - 16.2R3

Caution: For JunOS versions not listed, please refer to your support representative for compatibility.

Get Started

This section of the CMS User Guide provides introductory information on navigating and interacting with the CMS application.

Tip: For information on hardware or virtual application installation, see the Getting Started Guide for your specific product.

This section discusses the following:

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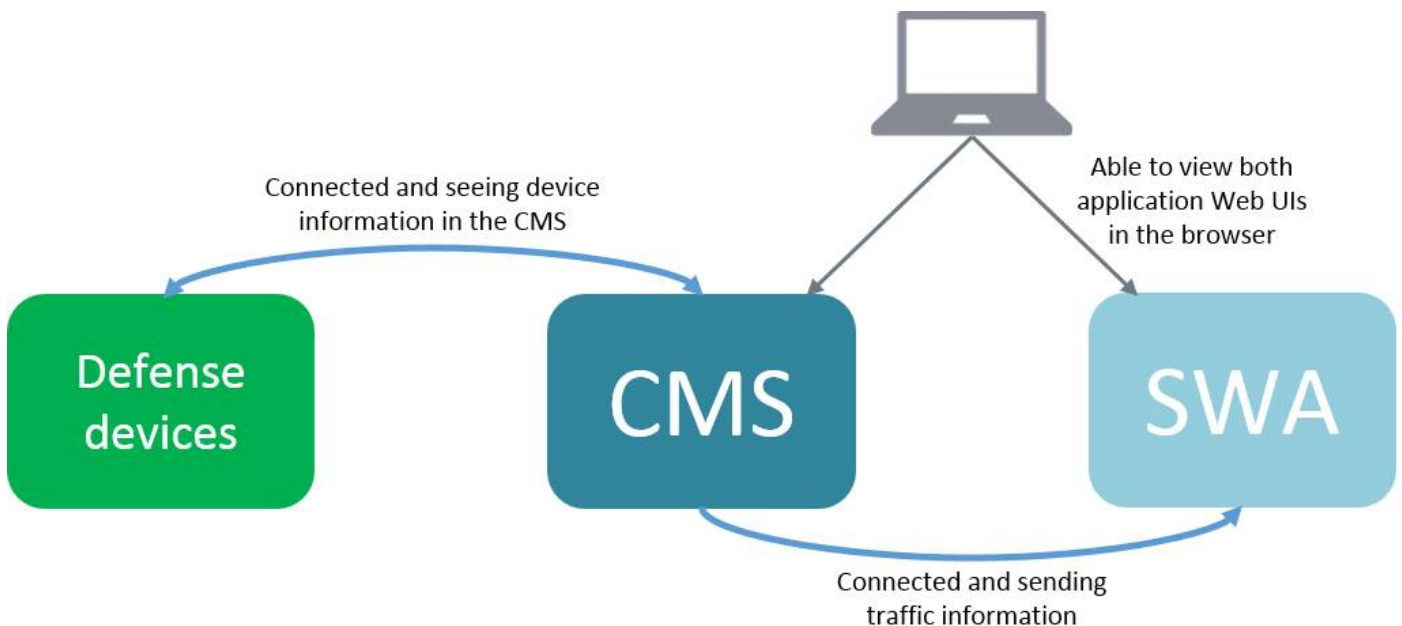
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Getting Started

This topic provides a brief overview of the next steps an admin user should take following installation. This should be used as a guide to help you plan your own strategy and may have to be modified to suit your network.

After you install your SmartWall system, you should have it in the following state:

- Your SmartWall devices are online and connected to a SmartWall Central Management Server (CMS). They should be showing the Deployment State: **not-in-cluster**. This means that the devices are currently passing traffic straight to the internal network, because they haven't yet inherited an attack mitigation Policy.
- The CMS should be connected to SmartWall SecureWatch Analytics (SWA) and sending syslog messages. You should have [added a signed certificate to the CMS](#) and be able to open the CMS in a browser and see the Web UI (e.g. `https://10.10.100.100`).
- Finally, the CMS and the SWA can be [connected to the SecureWatch Service](#). You should be able to open the SWA in a browser (using the SWA IP Address on port 8000, e.g. `https://10.10.100.200:8000`) and see traffic information.



Now that all components of the SmartWall system are online and connected, you can start to configure your SmartWall policy. Below is a recommended general configuration procedure, but the specifics will depend on your attack mitigation needs:

1. The CMS initially contains a single Protection Profile called "default". If all your devices are going to handle the same sort of traffic, you probably only need one Policy and, therefore, one Protection Profile to contain it. Alternatively you may need to [create additional Protection Profiles](#) to store the attack mitigation Policies you want different groups of devices to use.
2. The CMS initially contains a single Cluster called "default" which is associated with the default Protection Profile. Logically group your devices and then [create an additional Cluster](#) for each group you need. When you create a Cluster, you associate it with a Protection Profile; this means that every device you add to that Cluster will use the same attack mitigation Policy. You may need several clusters because you have several Protection Profiles you want to use, or you may have only one Protection Profile, but choose to use multiple Clusters to group your devices by another criteria so you can more easily identify them when you're looking at the SWA.
3. [Add your devices to their Clusters](#). Look at the [Devices table](#) to check all your devices are now showing as In Sync.

Note: While an **In Sync** device now has the default attack mitigation Policy, it won't be blocking any traffic yet, as the default Global Defense Mode is **Monitor**. This means that traffic is still going through the device to the internal network, but it is being inspected and the CMS is sending security events to the SWA.

4. If your CMS needs to connect to Corero SecureWatch and your network environment requires use of an HTTP Proxy then this can be configured in the [SecureWatch settings](#) in the CMS System menu.

Caution: The CMS must have been installed from 9.7.0 or later, to have the necessary operating system (SXOS) build to support a HTTP Proxy.

5. Before you change the Defense Mode to start blocking attack traffic, you may need to [tune the Policy](#) stored in each Protection Profile, for your network. In the CMS Web UI, you can see all the Policy configuration settings under **Policy** in the left menu.

6. Use the SWA to see what effect your Policy changes have had on the system. If you can still see attack traffic coming through without triggering any rules, you may need to tighten some settings. Also, if you now see some non-attack traffic triggering rules it shouldn't, you may need to adjust some of your changes. You can find out more about using the SWA in the **SmartWall SWA User Guide**.

Tip: In the SWA, rules are identified by their rule number (e.g. the UDP Service Smart-Rule has the rule number cns-002023). You can use the Rule Definitions list in the CMS (**Home** screen > Rule Statistics panel > click **Rule Definitions**) to search for any rule number and see a description of that rule. Click on the rule number to navigate to the area of the CMS where that rule is managed.

7. Once you are happy that only attack traffic is triggering rules (whose action would normally be to block that traffic), you can [change the Global Defense Mode](#) to **Mitigate**. The Defense devices will now start to block attack traffic as per your attack mitigation Policy.

DDoS attacks are constantly evolving, so you should regularly check the SWA often to ensure that your Policy is still optimized for protecting your system from attack. If you use the SecureWatch Service, then Corero Security Operations Center will be constantly monitoring your SWA for new attacks. They can use this information to continually optimize the attack mitigation Policy for your network.

Note: [If you are using the NTD120, specific support can be found here.](#)

Working in the CMS

There are 3 ways to access the SmartWall Central Management Server (CMS):

- **Web UI** – You can access the CMS Web UI through a browser by typing the IP address of your CMS application (e.g. <https://10.10.100.100>) or DNS address, if you set one up during installation. You can access all main CMS functions through the Web UI.
- **CLI** – You can [access the CMS CLI](#) using an SSH client to connect to the IP Address of your CMS, on the default port 2024 . You can access all CMS functions through the CLI.
- **REST API** – You can [access the REST API](#) using any tool that sends HTTP requests to a URL, but it is most easily available using Swagger: In a browser type the IP address of your CMS followed by /api(e.g. <https://10.10.100.100/api>) and log in with your CMS credentials. You can affect Protection Policy changes through the REST API and view device status information.

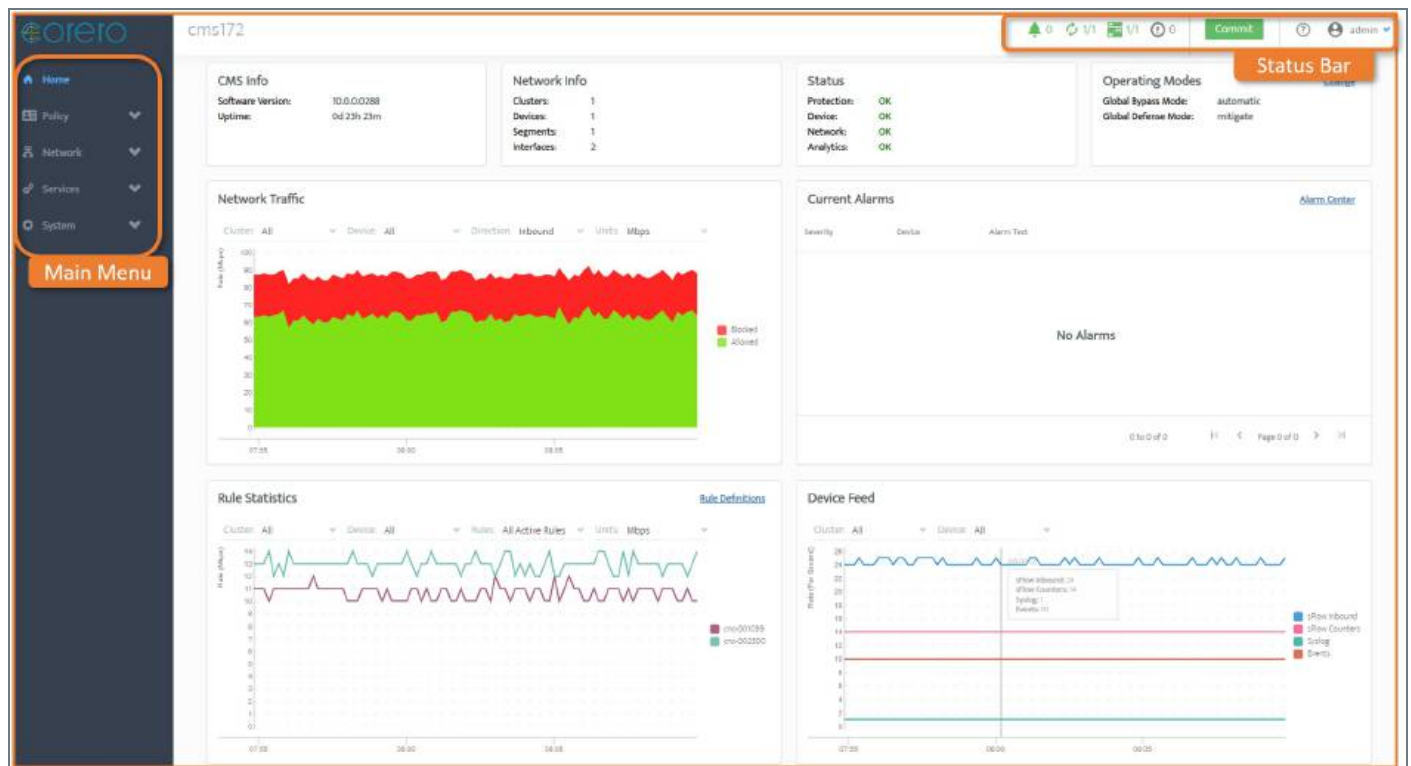
There are three standard user roles available for the CMS. The role you have, affects what you can do in the CMS:

- **cns-admin** – The administrative role. An admin user can edit all **Policy**, **Network**, and **System** configurations, including managing users.
- **cns-defense** – A non-administrative role which enables its users to edit all **Policy** options but no Network or System administrative settings
- **cns-monitor** – A primarily read-only role which enables its users to view settings without being able to enact any changes (aside from their own password)

Supported web browsers for the Web UI

- **Chrome:** 71 or newer
- **Edge:** 44 or newer
- **Firefox:** 64 or newer
- **Safari:** 12 or newer
- **Internet Explorer:** not supported

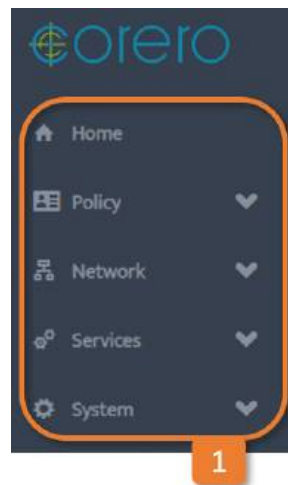
Web UI Interface



Note: The screenshots in this guide show the interface as a **cns-admin** user. Some features or screens may not be visible to other user roles.

Surrounding the main interface area there are the following navigation and information aids:

1. Main Menu



The expandable menu on the left of the screen contains a link back to the **Home** screen and then four expandable sections:


- **Policy** – Options related to creating Protection Profiles and tuning the Policies they contain
- **Network** – Options related to managing Clusters, devices, and Segments
- **Services** – Options related to using the SmartWall system with external devices
- **System** – Options related to managing the CMS, and its connection to SmartWall SecureWatch Analytics




2. Status bar




At the top right of the screen, there are 4 icons that summarize the status of the CMS and your devices. If the icon is green, this indicates there are no problems. If the icon turns orange, then something needs your attention.

The icons represent:

-  **Alarms** – When this icon is orange, there is an uncleared alarm. Click this icon to open the Alarm Center and view the list of cleared and uncleared alarms.


-  **Devices in sync** – When this icon is orange, there is a device which is not in-sync. Click this icon to open the Devices screen to sync the device.
-  **Devices reachable** – When this icon is orange, there is a device which is not reachable by the CMS. Click this icon to open the Devices screen to see what device cannot be reached.
-  **Notifications** – Click this icon to view or clear previous notifications from this session.

3. Commit button

In the top right of the screen, you can see the  button. This remains inactive until you make a change that needs to be saved and sent to a Defense device. When it is active, you can click the button to view a list of your pending changes. On that dialog, click **Commit** to send those changes to the appropriate devices, or **Discard** to delete those pending changes.

Caution: If you log out, or the CMS logs you out after a period of inactivity, you will lose any changes which you have not committed.

4. Help button

On the top right of the screen, you can click the  help button to open the CMS knowledgebase in a new tab. You can search for the information you need or browse the help guide using the left hand menu.

5. Account settings

On the top far right of the screen, you can see your account name. Click this to display a drop-down with two options:

- **Change Password** – Enables you to change your user account password
- **Log Out** – Logs you out of the CMS

Committing your changes

In the Web UI, most changes are temporarily stored in the CMS and are only saved when they are committed. For example, when you make a change to a Protection Profile in the CMS, it won't be pushed to the devices associated with that Protection Profile until you use the **Commit** button to review and then **Commit** your changes.

There are some exceptions to this rule: BGP Mitigation table entries are performed immediately, and some system level settings also do not require a commit.

When you have changes available for committing, the Commit button turns green. Click it to open the Commit dialog. Here you can choose to revert your pending changes (**Discard**), or commit the pending changes (**Commit**).

Note: If you delete a resource which is in use elsewhere in the CMS (e.g. a Protection Profile being referenced by a Cluster, or an Address Group being used in an Inspection Control entry), you won't see an error until you try to commit the change. The commit will fail until you remove the references to the deleted resource.

In the CLI, to save a change you need to type the `commit` command . You can do this after one or multiple changes. To revert all your changes since the last commit, you can type the `revert` command.

Caution: After a period of inactivity the CMS will log you out. Any changes you have not yet committed will be lost.

It is possible to experience commit conflicts in the CMS. If you are unable to commit due to a conflict, **Discard** the changes, re-do your changes and commit.

Working with different Protection Profiles

Unlike the CLI, where you must specify the Protection Profile you want to edit before you can access any of the attack mitigation features, in the Web UI you select an attack mitigation feature and then choose which Protection Profile you want to edit. The Protection Profile remains selected as you move between attack mitigation features. If you want to edit a different Protection Profile, you need to choose it from the **Selected Protection Profile** drop-down before you make any changes.

Web UI default values

A new Protection Profile contains default values for many Policy features. You can overwrite these defaults with your own values, that are more applicable to your specific network traffic. If at any point you want to return to the default value there are two methods to do this:

- For drop-down lists, click the black **x** at the right of the field
- For other fields, completely delete the existing value and the default value will appear

Notifications

In the Web UI, notifications inform you of your successful and unsuccessful actions. They appear on the right of the screen in green (successful) or red (unsuccessful) pop-ups. The CMS stores a list of your notifications from this session. When you log out the notification list is cleared.

To view previous notifications

1. In the Status bar, click  the Notification icon.

To clear your notifications list without logging out

1. In the Status bar, click  the Notification icon.
2. Click **Clear all**.

Using the CLI

To access the CLI you need to SSH to your CMS application using the following command in an SSH client (replacing the placeholders with your account username and CMS IP address):

```
ssh -p 2024 <username>@<ipaddress>
```

When you first log in to the CMS CLI, you're in operational mode where you can view settings and status information. If you want to make a change, you need to enter configuration mode by typing the command: `configure`. Type the `exit` command to return to operational mode.

To investigate possible commands in either mode, press the **Tab** key at any point to view possible completions. If there is only one possible completion, the tab key will auto-complete that command. Press the **Enter** key to submit commands.

You can focus on an area of the CLI using the `edit` command. For example, `edit policy protection-profile <ppName>`, where `<ppName>` is the name of one of your Protection Profiles, reduces your options to only affect that Protection Profile. You can now use the `set` command to make Policy changes, confident that you're only affecting your chosen Protection Profile. Use the `exit` command to return to the full configuration mode.

Using the corresponding CLI commands in this guide

In this guide, alongside every Web UI method for completing a task, there is a set of Corresponding CLI commands. You can use these commands to perform the same task in the CLI. In the commands, there are two types of placeholder you must replace; both are shown in italics:


- *[option1|option2|option3]* – Replace with one of the fixed options. This placeholder can be recognized by the square brackets and pipe characters separating the options. You must choose just one of the available options.
- *<specificInformation>* – Replace with information specific to your system. This placeholder can be recognized by the chevrons either side. The whole thing (chevrons included) must be replaced with a piece of specific information (e.g. a device name, a threshold rate, etc)

Note: [If you are using the NTD120, specific support can be found here.](#)

View System Status

When you first log into the CMS you can see the system dashboard. This provides an overview of your system health and its ability to mitigate attack traffic.

To view the current status of your network

Tip: The Status icons  in the top right of the screen provide a quick overview of your system status and are always accessible from all sections of the CMS UI. These are detailed at [Working in the CMS](#).

On the Home screen you can see the following information panels:

- **CMS Info** – The current Software Version, and the Uptime since the CMS started.



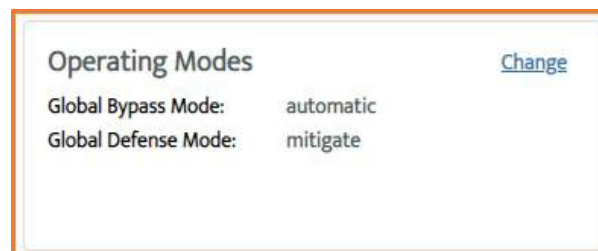
- **Network Info** – The number of [Clusters](#), [Devices](#), [Segments](#), and [Interfaces](#) currently managed by the CMS. If there are any issues, they will be shown beside the relevant item.



- **Status** – The current status of the following areas of the CMS. If there are any issues then **View Details** will be available. Clicking on this will show more details about the detected issue.



- **Protection:** Displays a colored message to indicate the current protection status:
 - **OK** – All segments are mitigating traffic (by Defense and Bypass Mode)
 - **Warnings detected** – An Operating Mode change means one or more segments are not mitigating traffic
 - **Errors detected** – A Bypass device has swapped to switched-bypass mode because of heartbeat failure
- **Device:** Displays a colored message to indicate the current status of all devices:
 - **OK** – All devices are showing a normal status
 - **Errors detected** – One or more devices are not showing a normal status
- **Network:** Displays a colored message to indicate the current status of your network:
 - **OK** – All enabled interfaces are up
 - **Warnings detected** – One or more interfaces are down due to LSP
 - **Errors detected** – One or more interfaces are down
- **Analytics:** Displays a colored message to indicate the current status of the analytics:
 - **OK** – Analytics are showing a normal status
 - **Errors detected** – Analytics are not showing a normal status
- **Operating Modes** – The current Global states for Bypass and Defense [Operating Modes](#). Click on **Change** to [edit the Global Bypass and Defense Modes, or add overrides](#).



- **Network Traffic** – The amount of traffic, allowed and blocked, for the last 15 minutes. By default, the chart shows inbound traffic for all Clusters and all Devices in Mbps. You can use the drop-downs to modify this chart to show a different set of traffic information.



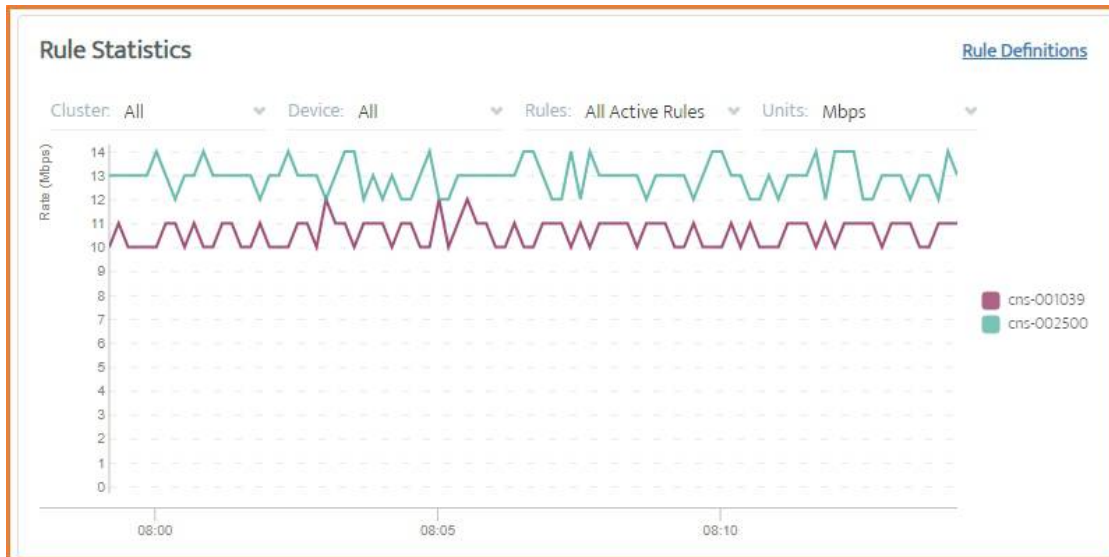
- **Current Alarms** – A list of recent [alarms](#), their perceived severity, the device that identified it and any text related to the alarm. Click on **Alarm Center** to record any actions taken and view any status changes that have happened. The alarms can also be purged. As it can be seen here, when there are currently **No Alarms** active then this will be displayed.

Current Alarms

[Alarm Center](#)

Severity	Device	Alarm Text
Major	cms	No analytics or syslog server has been configured and enabled

- **Rule Statistics** – Shows the impact of the active rules over the last 15 minutes, by showing the blocked and allowed traffic for that rule. By default, the chart shows traffic in Mbps for all Clusters, all Devices, and all active rules. You can use the drop-downs to modify this chart to show a different set of traffic information.

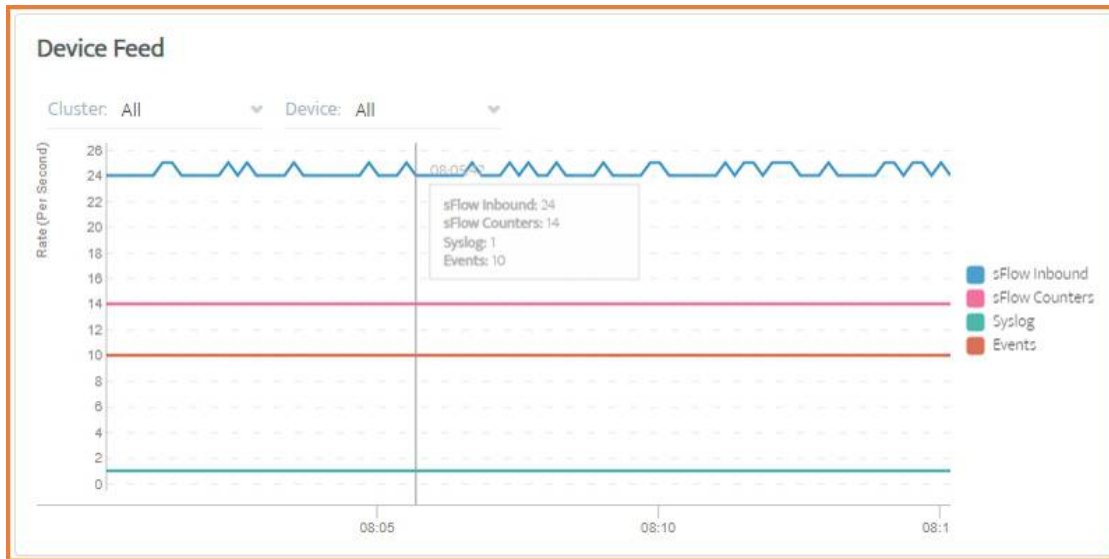


- Click on **Rule Definitions** to view a list of all of the rules used by the CMS and their definitions. The Rules are shown, by Name, in numeric order, and will either be blue, working and linked to the section that rule is part of, or black, deprecated and not working and will not link. When selecting one of the rules will navigate you to the specific [Policy](#) area of the CMS where that rule is controlled.

Name	Category	Protocol	Detail	Description
cns-000006	Packet Rule		IPv4 Checksum	IPv4 packet contains an invalid checksum
cns-000020	Packet Rule		IP Version	IP packet contains an invalid version number
cns-000050	Packet Rule		IP Header Length	IP header has invalid length
cns-000060	Packet Rule	UDP	Short Packet	UDP packet is shorter than specified minimum length
cns-000075	Packet Rule		Ethernet CRC	[deprecated] Packet has incorrect Ethernet CRC
cns-000076	Packet Rule		Frame Length	Packet has incorrect 802.3 frame length
cns-000085	Packet Rule		IPv4 Packet Length	IPv4 length is less than the header length
cns-000095	Packet Rule		Short Packet	Packet is too short

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- **Device Feed** – The last 15 minutes of data arriving at the CMS from the connected devices, so you can identify any connectivity issues with your [devices](#). By default, the chart shows data for all Clusters and all Devices. You can use the drop-downs to modify this chart to show a different set of traffic information.



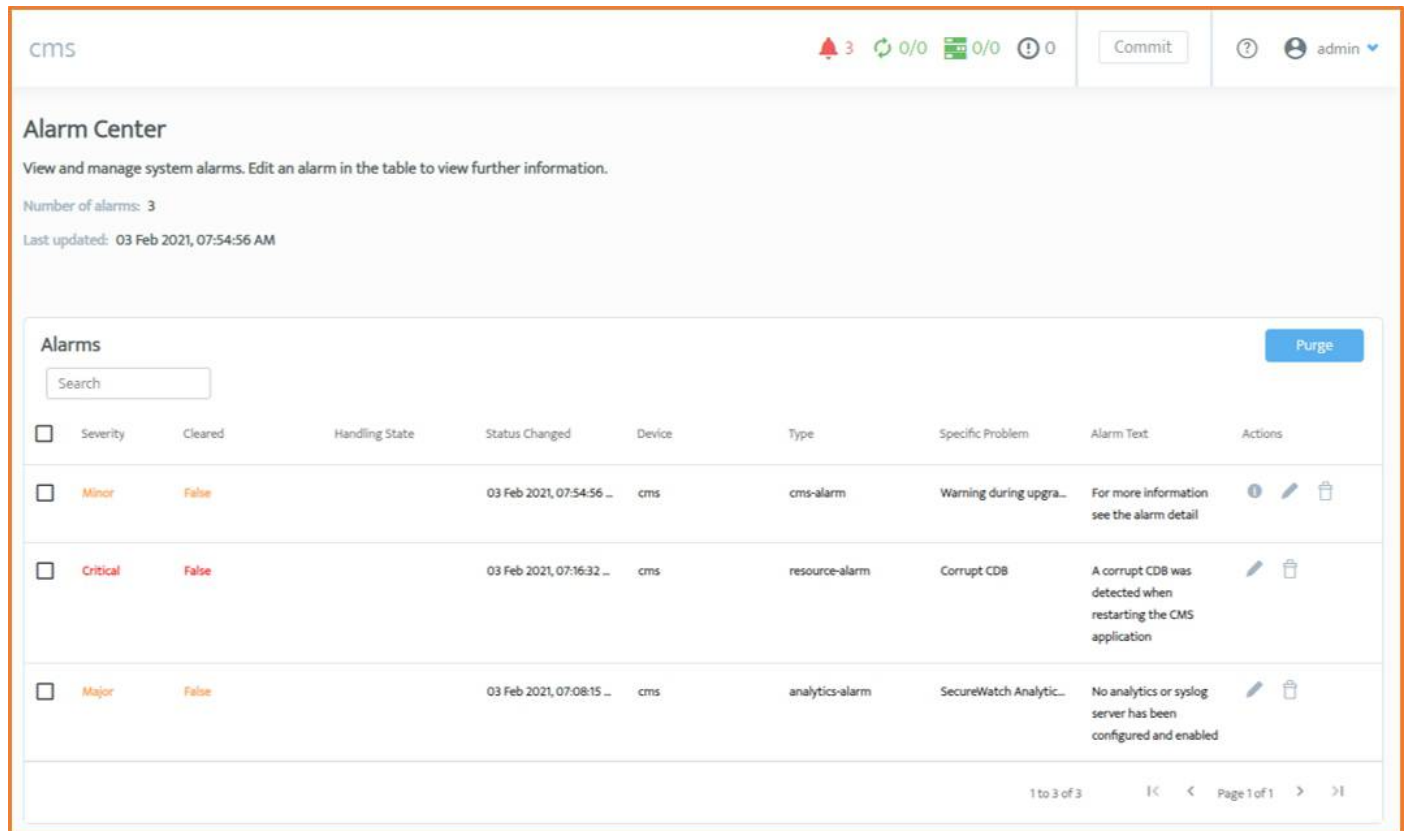
Note: [If you are using the NTD120, specific support can be found here.](#)

Alarms and Notifications

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Alarms Screen reference topic](#).

When an uncleared alarm appears, the alarm symbol  on your CMS Status bar will turn orange. Click that to view Alarm Center and see the current system alarms in a table.

In the Home Screen there is also the Current Alarms view, which will either show the open alarms or say No Alarms. The Alarm Center can be accessed from here.










Alarm Center

View and manage system alarms. Edit an alarm in the table to view further information.

Number of alarms: 3

Last updated: 03 Feb 2021, 07:54:56 AM

Severity	Cleared	Handling State	Status Changed	Device	Type	Specific Problem	Alarm Text	Actions
Minor	False		03 Feb 2021, 07:54:56 ...	cms	cms-alarm	Warning during upgra...	For more information see the alarm detail	  
Critical	False		03 Feb 2021, 07:16:32 ...	cms	resource-alarm	Corrupt CDB	A corrupt CDB was detected when restarting the CMS application	 
Major	False		03 Feb 2021, 07:08:15 ...	cms	analytics-alarm	SecureWatch Analytic...	No analytics or syslog server has been configured and enabled	 

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Alarm types

In the Alarms table, there are six possible alarm types:

- **Device status alarms** – Something has happened affecting the status of a device (e.g. the device is out of sync)
- **Device upgrade alarm** – Something has happened to a device during an attempted upgrade (e.g. upgrade has failed)
- **Device alarms** – Something has happened to cause a device to restart or reset.
- **CMS alarms** – Something has happened during a CMS software upgrade or rollback

- **Analytics alarms** – Something has happened to the analytics process
- **Resource alarms** – Something has happened to the underlying CMS application (e.g. low on disk space)

Tip: You can see the full list of alarms in the Reference area of the Corero SmartWall CMS User Guide . In the same list, you can see the [SNMP trap notifications](#) these alarms correspond to.

For each alarm, you can see the **Alarm Type**, the **Specific Problem** within that type, and the **Alarm Text** giving further information.

Perceived severity

Every alarm has a perceived severity that tells you how potentially problematic the alarm situation could be to the SmartWall system:

- **Critical** – This could be very damaging to your system and should be investigated immediately (note that critical alarms will not self-clear, you must do something to remedy the situation)
- **Major** – Something has happened that could interrupt the system's ability to function fully (e.g. a device is restarting)
- **Minor** – Something potentially problematic has happened that is unlikely to interrupt the systems ability to function
- **Cleared** – This alarm is there to notify you that a previous alarm situation has resolved, view the history of this alarm to see more details.


Note: The alarm system does not differentiate between unexpected actions and actions you have taken. For example, when you reboot a device using the CMS, you will see a major alarm when the device goes down and then a cleared alarm once it has restarted.

Notifications

Unlike alarms, notifications in the Web UI inform you of your successful and unsuccessful interactions with the Web UI. They appear on the right of the screen in green (successful) or red (unsuccessful) pop-ups. You can view a list of your notifications for this session on the Status bar. The notification list is cleared when you log out, but you can choose to clear your notification list mid-session using the **Clear all** button.




Note: [If you are using the NTD120, specific support can be found here.](#)

Viewing System Alarms

When the  alarm icon in the Status bar turns orange, you have an uncleared alarm which may require attention. To view the alarms, you need to open Alarm Center. The uncleared alarms will also be shown on the Home screen in the Current Alarms panel.

Tip: The CMS can produce a range of alarms. You can see the full list in the [alarms reference area](#).

To open Alarm Center

1. In the Status bar, click on the  alarm icon or click on **Alarm Center** in the Current Alarms panel of the Home screen.
2. In the Alarms table, you can see a list of cleared and uncleared alarms.
3. (Optional) For more information, click  the Edit button or  the Detail button (only available for specific alarm types).

CLI Commands

Command

`show alarms`

`alarm-list`

`alarm`

`last-changed`

`number-of-alarms`

`summary`

`critical`

`indeterminates`

`majors`

`minors`

`warnings`

Output

All alarm information

All alarm list information

List of current alarms

Time of the last change to the alarm list

Total number of alarms in the current alarm list

All alarm summaries

Number of current critical alarms

Number of current indeterminate alarms

Number of current major alarms

Number of current minor alarms



Number of current warning alarms

Managing the Alarm Handling Log and Status Change list



When an alarm requires your attention, you can keep a log of the steps you take to investigate and resolve it. You can also view the steps other CMS users are taking. Additionally, you can view a list of the status change events that have occurred.

Note: If the alarm is for a device, the Status Change list only shows related previous alarms for that specific device.

To view the alarm handling log and status change list

1. In the Status bar, click on the  alarm icon.
2. In the Alarms table, next to the alarm you are working on, click the  edit button.
3. On the **Alarm Handling** tab, you can view the alarm handling log.
4. Click the **Status Change** tab to view the status change list.

To create a new alarm handling log entry

1. In the Status bar, click on the  alarm icon.
2. In the Alarms table, next to the alarm you are working on, click the  edit button.
3. On the Alarm Handling tab, select a **State** from the drop-down.
4. (Optional) **Write a comment** to provide a description of your progress.
5. Click **Add**.

CLI Commands

Tip: Use the CLI's tab complete function to help fill in the alarm information.

View alarm handling log

```
show alarms alarm-list alarm <deviceName> <alarmType> <alarmPath> <specific Problem> alarm-handling
```

View status change list

```
show alarms alarm-list alarm <deviceName> <alarmType> <alarmPath> <specific Problem> status-change
```

Create a new log entry



```
request alarms alarm-list alarm <deviceName> <alarmType> <alarmPath>
<specific Problem> handle-alarm state
[ack|closed|investigation|none|observation] description "<description>"
commit
```

Deleting Alarms


To clear old alarms from alarm center, you can delete them individually or delete all alarms.

Caution: Once you delete an alarm you cannot recover it. Do not delete an uncleared alarm.

To delete a single alarm

1. In the Status bar, click on the  alarm icon.
2. In the Alarms table, next to the alarm you are working on, click the  delete button.
3. Click **OK**.

To delete multiple alarms

1. In the Status bar, click on the  alarm icon.
2. Click **Purge**.
3. The **Purge Alarms** option will appear and the drop down will give you the option to:
 - **Delete all** – Check that all the alarms in the table are cleared.
 - **Delete Cleared Only** – Deletes all alarms with the Cleared status of True.
 - **Delete Uncleared only** – Deletes all alarms with the Cleared status of false.
4. Click **Purge**.

CLI Commands

Delete a single alarm

Tip: Use the CLI's tab complete function to help fill in the alarm information.

```
request alarms alarm-list alarm <deviceName> <alarmType> <alarmPath>
<specific Problem> purge
commit
```

Delete multiple alarms

Tip: Rather than pressing **Enter** after purge-alarms, you can press **Tab** to see the options for filtering the alarms that you delete. For example, you could choose to only delete cleared alarms or only delete alarms where you were the last one to make an alarm handling log entry.

```
request alarms purge-alarms
commit
```

SECTION 2

Tune Policy

A Policy is used by Defense devices to separate attack traffic from non-attack traffic. This Policy is stored and configured in the CMS then sent to associated Defense devices.

This section discusses the following:

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Policy

A Policy is a configuration of the attack mitigation features which tells the Defense devices how to handle incoming traffic. Each Policy is contained in a [Protection Profile](#).


TDD deployment policy settings

The Policy area in the CMS is designed to work for inline deployments (SmartWall TDS) where the Defense device is responsible for blocking attack traffic, as well as the SmartWall TDD. In TDD deployments, the Defense device does not block traffic, instead it uses its policy to identify attack traffic and send that information to the SWA which can send mitigation filters directly to your router. Because all mitigations need to be understood by the router, TDD deployments have a more specific range of policy options which can be safely sent.

Caution: If you modify any other Policy settings in the CMS, you will not change the type of mitigations sent to the router. It could instead cause the Defense device to identify the wrong traffic as attack traffic. This can lead to good traffic being blocked and attack traffic being allowed through to your network. If you think you need to modify any other part of the Policy (including the Flex-Rule Filter definitions), you must contact your support representative to make a corresponding change to the SWA application.

For information about the additional features you can see in the CMS Web UI, you can use the CMS built in help.

To open the CMS built in help

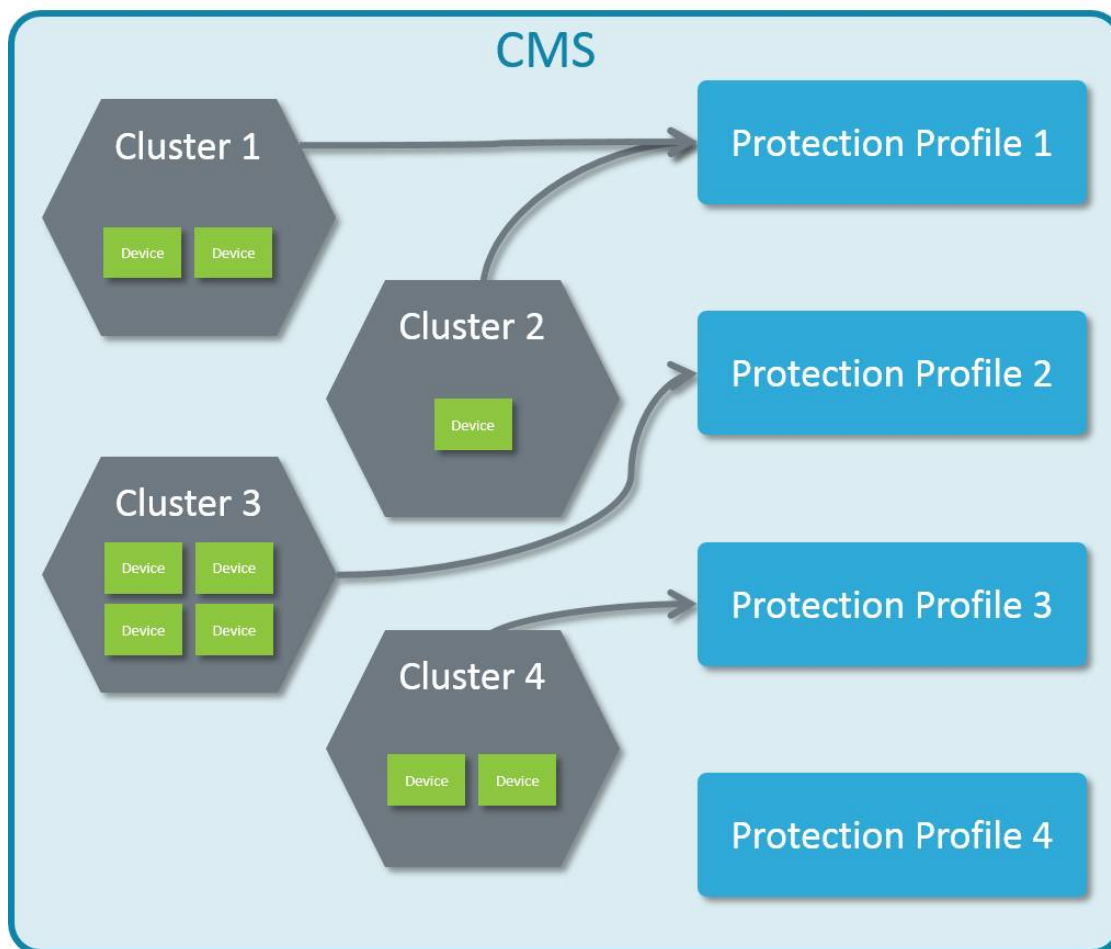
1. Open the CMS Web UI in a browser and log in.
2. On the top menu, click  the help button.

Note: [If you are using the NTD120, specific support can be found here.](#)

Protection Profiles

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Protection Profiles Screen reference topic](#).

A Protection Profile is a container for a configuration of the attack mitigation features (a Policy). When you associate a Protection Profile with a Cluster, it provides the Defense devices in that Cluster with the Policy for handling incoming traffic. You can create one Protection Profile for your network or multiple Protection Profiles each containing a different Policy. After installation, the CMS initially has a single default Protection Profile.



Using Protection Profiles

The [Policy](#) in a new Protection Profile only contains default values until you configure it for your network. On each Policy screen in the SmartWall Central Management Server, you must first select the Protection Profile you want to edit before you make any changes to the configuration.

For a Protection Profile to affect traffic, you must associate it with a [Cluster](#) containing the Defense devices whose Policy you want to change. Once you apply that change, the devices in that Cluster will now use the new Protection Profile to handle traffic.



Note: Clusters cannot exist without a Protection Profile. Before you can add Defense devices to a new CMS, you need to create a Protection Profile. You might want to create a single default Protection Profile for use during set up and then re-assign your Clusters once you're happy.



Creating Protection Profiles

A Protection Profile is a container for a defense Policy. This stores all the rules and thresholds which instruct Defense devices how to react to incoming traffic. Your CMS comes with a default Protection Profile but you can choose to create more if your network requires multiple Policies.

Caution: If you try and delete a Protection Profile, which is associated with one or more Clusters, you will be unable to **Commit** your changes until you associate those Clusters with a different Protection Profile or delete them.

To create a new Protection Profile

1. Use the left-hand menu to navigate to **Policy > Protection Profiles**.
2. Decide what base values you want to use for the new Protection Profile:
 - To create a new Protection Profile with default values click **Add**.
 - To create a new Protection Profile based on an existing one, click  the clone button next to the Profile you want to clone. This pre-populates the Name and Description fields which you can then edit.
3. Type a **Name** for this new Protection Profile. You must only use alphanumeric, spaces, or .-&()/@:= symbols.
4. (Optional) Type a **Description** (this only appears on the [Protection Profiles screen](#))
5. Click **Save**.
6. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: From the Protection Profile table, you can edit  or delete  existing Protection Profiles.

CLI Commands

Create a new Protection Profile

```
configure
set policy protection-profile <ppName> description "<description>"
commit
```

Tip: Once you're comfortable using the CLI you can continue tuning the new protection profile in the same command. Use the tab key to see the tuning options once you set the name.

Clone a Protection Profile

```
configure
request policy protection-profile <ppName> clone name <newProfileName>
commit
```

Edit an existing Protection Profile

```
configure
edit policy protection-profile <ppName> description "<description>"
commit
exit
```

Tip: Use the tab key after the description to see the current description string.

Rename a Protection Profile

```
configure
request policy protection-profile <ppName> rename name <newName>
commit
```

Delete a Protection Profile

```
configure
delete policy protection-profile <ppName>
commit
```

Next steps

1. Currently, your new Protection Profile's Policy contains only default values. You need to use the Policy features to tune it for the expected traffic.
2. To push this new Policy to a device, you need to associate the Protection Profile with a Cluster. You can [edit an existing Cluster](#) to use this new Protection Profile, or [create a new Cluster](#) associated with this Protection Profile then add device's to it.


Tip: If you want to test a policy change before applying it to all devices in a Cluster, you can clone the Protection Profile. Then make your change in the clone and assign it to a Cluster containing a single test device. When you're happy, you can edit the main Cluster to use the new Protection Profile.

Importing and Exporting Protection Profiles

You can export your Protection Profiles to store externally or use with another CMS application. Once you import a Protection Profile you can view it in your Profiles list and use it like any other.

Caution: Protection Profiles can only be imported into a CMS using the same major version number as the CMS it was exported from. If you store Profiles externally, you should replace your stored files after every major CMS upgrade.

To export a Protection Profile

1. Use the left-hand menu to navigate to **Policy > Protection Profiles**.
2. In the Profiles table, locate the Protection Profile you want to export and click  the export button next to it.
3. The Protection Profile is saved as a .pkg file and downloads through your browser.

To import a Protection Profile from another CMS

Note: The CMS validates .pkg files before they are imported. A corrupted or otherwise unusable file will be rejected.

1. Export the Protection Profile from the other CMS (see above).
2. Save the exported .pkg file somewhere accessible from the CMS you want to import it into.
3. Log into the new CMS in a browser.
4. Use the left-hand menu to navigate to **Policy > Protection Profiles**.
5. Click **Import**.
6. Navigate to your saved pkg file. Select it and click Open.
7. (Optional) Edit the **Name** and **Description**.
8. Click **Save**.

9. If you want to save the new configuration, and push your changes to any affected Defense devices, click **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

Export a Protection Profile

```
configure
request policy protection-profile <ppName> export remote-uri <remoteUri> remote-
password <remotePassword>
commit
```

Import a Protection Profile

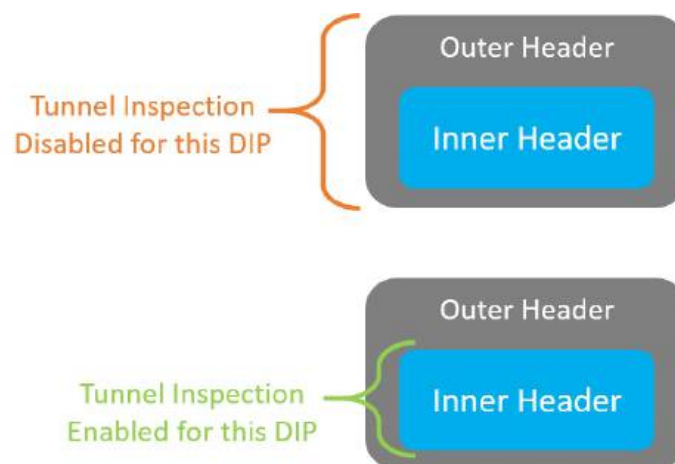
```
configure
request policy import protection-profile name <newProfileName> remote-uri <remoteUri>
remote-password <remotePassword>
commit
```

Tunnel Inspection

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Tunnel Inspection Screen reference topic](#).

Tunnel Inspection provides the capability to inspect traffic within **GRE**, **GTP-U**, **IP in IP**, and **VXLAN** tunnels based on destination IP address. You can use the Tunnel Inspection screen (**Policy > Tunnel Inspection**) to create Endpoint Entries which specify the traffic tunnel protocol and a list of destinations that should have tunneled traffic inspected. The type of destinations can be a single IP addresses, CIDR, range, or Address Group (containing destination IP addresses/CIDRs/ranges). The Tunnel Inspection process can have a maximum of 16 Endpoint Entries and be a mix of the tunnel types listed above.

Note: Tunnel inspection and the Tunnel Termination are separate features and can be used independently. Tunnel Inspection enables you to inspect traffic without terminating the tunnel at the SmartWall. If you do want to terminate the tunnel before inspecting traffic, you need to use [Tunnel Termination](#).



When the Tunnel Inspection is enabled for the destination, and a GRE/GTP-U/IP in IP/VXLAN packet enters the Defense device, all Policy decisions are based on the inner header. This process will **not** take place, and the outer header is used, if:

- It is a PPTP GRE packet.
- The packet is within more than 1 tunnel. The Defense device will only inspect a single level of tunneling.
- The outer packet is IP fragmented.

Tip: To avoid fragmentation of the outer packet, you can try increasing the MTU of the path between your router and the Defense device.



Managing Tunnel Inspection Endpoint Entries



To enable inspection of tunneled traffic, you must create an Endpoint Entry to identify the traffic to be inspected. The Endpoint Entry contains the tunnel type, and the destination IP addresses for all the tunnel endpoints to inspect.

You can specify up to 16 IP Addresses and Address Groups in an Endpoint Entry. If an Endpoint Entry contains one or more Address Groups the total number of entries in the Address Groups counts against this maximum limit. For example, if you added an Address Group containing 10 IP ranges to an entry alongside 2 Destination IP addresses, that Endpoint Entry would have used 12 out of the allowed 16 entries.

Tip: You can use IPv4 or IPv6 in your Destination IPs and Address Groups.

To create a new endpoint entry

1. Use the left-hand menu to navigate to **Policy > Tunnel Inspection**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Click **Add**.
4. Type a **Name** for the new endpoint entry. You must only use alphanumeric, spaces, or .-&()/_@:= symbols.
5. Select an **Admin State**:
 - **Enable** – The new entry is enabled upon creation
 - **Disable** – The new entry is not enabled upon creation, you can choose to enable it later
6. Use the **Protocol** drop-down to select the traffic tunnel type:
 - **GRE**
 - **GTP-U**
 - **IP in IP**
 - **VXLAN** – Compatible with 10.0.0 and later.
7. Click **Add** to add a destination IP address/range/subnet or destination Address Group to the Endpoint Entry. When you've typed a **Destination IP** address or selected a **Destination Group**, click **Save**.
8. You can use a single IP address/range/subnet or Address Group, or you can continue to add them to the override entry in the same way. You can also use  the delete button to modify your list.
9. When you're happy with your endpoint entry, click **Save**.
10. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: From the Endpoints table, you can edit  or delete  existing Endpoint Entries.

CLI Commands

Create a new Endpoint Entry

```
configure
set policy protection-profile <ppName> tunnel-inspection endpoint <entryName> admin-
state [disabled|enabled] protocol [gre|gtp-u|ip-in-ip|vxlan] destination-ip
<ipAddress>
commit
```

Tip: Rather than *destination-ip*, you can add an address group to the override entry by typing *destination-group* and the name of the address group.

Edit an existing Endpoint Entry

```
configure
edit policy protection-profile <ppName> tunnel-inspection endpoint <entryName>
commit
exit
```

Tip: Use the *set* command to edit the *admin-state*, *protocol*, or a new *destination-ip* or *destination-group*. Use the *delete* command to remove an existing *destination-ip* or *destination-group*.

Rename an Endpoint Entry

```
configure
request policy protection-profile <ppName> tunnel-inspection endpoint <entryName>
rename name <newName>
commit
```


Delete an Endpoint Entry

```
configure
edit policy protection-profile <ppName> tunnel-inspection
delete endpoint <entryName>
commit
exit
```

Inspection Control

For information on managing Inspection Control, access the built in help available in the CMS Web UI.


To open the CMS built in help

1. Open the CMS Web UI in a browser and log in.
2. On the top menu, click  the help button.

Source Control

For information on managing Source Control, access the built in help available in the CMS Web UI.


To open the CMS built in help

1. Open the CMS Web UI in a browser and log in.
2. On the top menu, click  the help button.

Packet Rules

For information on managing Packet Rules, access the built in help available in the CMS Web UI.

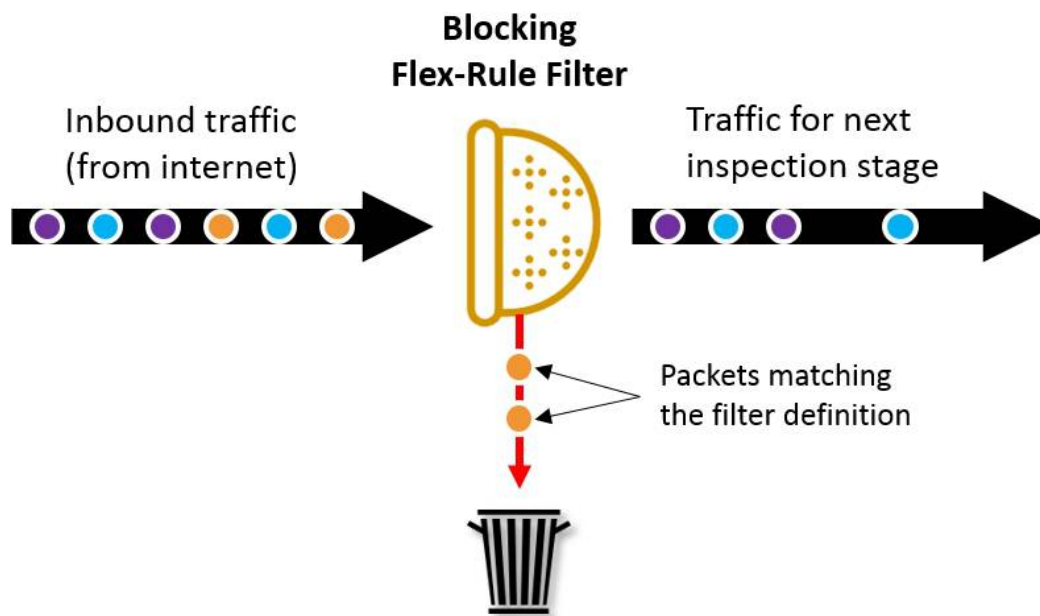
To open the CMS built in help

1. Open the CMS Web UI in a browser and log in.
2. On the top menu, click  the help button.

Flex-Rules

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Flex-Rules Screen reference topic](#).

Flex-Rules are an attack mitigation feature which enables you to define custom filters which can block or detect specific packets. Filters are written using the Berkeley Packet Filter (BPF) syntax expression.



Flex-Rule Rule Actions

When traffic matches a Flex-Rule filter's definition, how that traffic is handled is decided by the Rule Action of the Flex-Rule. The following are possible Rule Actions:

Note: Not all Rule Actions are available for every type of Flex-Rule.

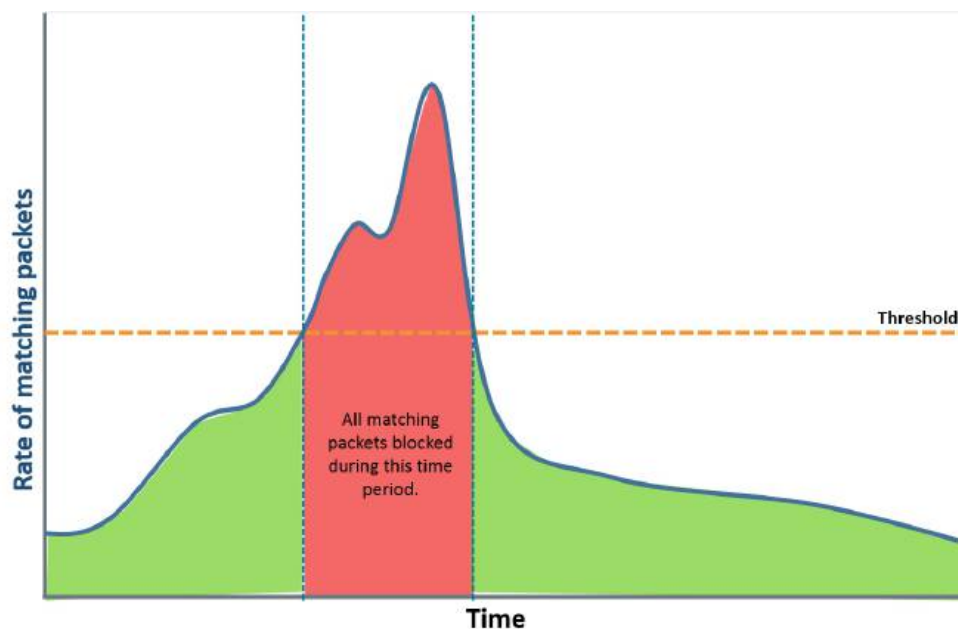
- **Block** – The Defense device blocks traffic which matches the filters on this Flex-Rule.
- **Detect** – The Defense device inspects traffic which matches the filters on this Flex-Rule and sends event syslog messages; it does not block the packets.
- **Egress** – The Defense device sends traffic directly to the internal network (bypassing any further policy checks).
- **Disabled** – The Defense device does not check if traffic matches the filters on the Flex-Rule

Flex-Rule Thresholds and Rate Limits

By default, a Flex-Rule's Rule Action is triggered when any packets match a filter on that rule and, when the Rule Action is triggered, it affects all matching packets. You can alter this behavior using Thresholds to only trigger the Rule Action above a certain traffic rate, and using Rate Limits to allow some matching traffic through when the Rule Action is in effect.

Thresholds

If you want to only trigger the Rule Action once a specific rate of matching traffic is detected, you need to set a traffic rate Threshold. The graph below shows how a non-zero Threshold affects traffic which matches a filter on a Block Flex-Rule.

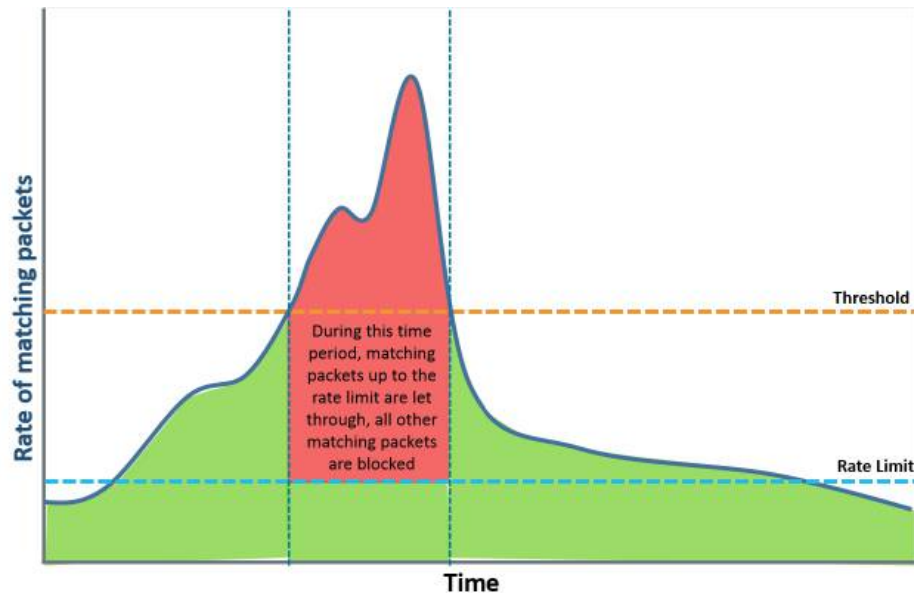


There can be a short delay between the traffic passing a threshold and the Flex-Rule triggering. This is because the Flex-Rule takes an average traffic rate and, if traffic rises slowly, the Flex-Rule doesn't see the threshold has been crossed straight away. However, when traffic rises sharply, the rule triggers almost immediately providing a fast response against large attacks.

Rate Limits

A Rate Limit tells the Defense device to let a certain rate of traffic through once the Threshold has been crossed. For example, if you set the Rate Limit to 5000pps then once the Threshold is crossed, the Defense device allows 5000 matching packets through every second and performs the Rule Action on the rest. If you set the Rate Limit to 0, it will

perform the Rule Action on all matching traffic once the Threshold is crossed. The graph below shows how a non-zero Rate Limit and Threshold affect traffic which matches a filter on a Block Flex-Rule.



Detecting traffic rates for Thresholds and Rate Limits

There are two types of detection method you can use to measure thresholds:

- **Packet Rate (pps)** – Use the number of matching packets to determine traffic rate
- **Bit Rate (bps)** – Use the size (in bits) of matching traffic to determine traffic rate

By default, only the Packet Threshold and Rate Limit contain a value (0 to signify the Rule Action is trigger by any rate of traffic matching a filter). If you edit the Packet Rate fields to enable a Threshold and Rate Limit, you can choose to leave the Bit rate fields blank or also to add a Bit Threshold and Rate Limit. If both detection methods are used, the Threshold that is reached first will trigger the Rule Action.

Tip: If you want to only use Bit Rate as your detection method, you can set very high Packet Rate values. This ensures it is always the Bit Threshold which triggers the Rule Action.

Types of Flex-Rule

TDD Deployments: The three default Flex-Rules should be **disabled**. No other Flex-Rules should be created. The TDD default Flex-Rule filters should not be modified. See the [TDD Policy Overview](#) for more configuration information.

There are 3 default Flex-Rules:

- **cns-002500 (Block only Flex-Rule)** – The Block Only Flex-Rule is always set to Block. If a rate limit is specified for this rule, the Block action is performed once any of the attributes match and any rate limit threshold is reached.
- **cns-002501 (Programmable Flex-Rule)** – The Programmable Flex-Rule can only be configured by Corero approved solutions. This rule can be set to Block or Detect. If a rate limit is specified for this rule, the Block-/Detect action is performed once any of the attributes match and any rate limit threshold is reached.
- **cns-002502 (Detect only Flex-Rule)** – The Detect Only Flex-Rule is always set to Detect. If a rate limit is specified for this rule, the Detect action is performed once any of the attributes match and any rate-limit threshold is reached.

There are 7 TDD specific Flex-Rules:

- **cns-002621 (NTP Monlist Response TDD Flex-Rule)** – Contains two filters which are used by the TDD system to block NTP Monlist Response attack traffic.
- **cns-002622 (SSDP Reflection TDD Flex-Rule)** – Contains two filters which are used by the TDD system to block SSDP Reflection attack traffic.
- **cns-002623 (Empty UDP data TDD Flex-Rule)** – Contains two filters which are used by the TDD system to block Empty UDP data attack traffic.
- **cns-002624 (Memcache TDD Flex-Rule)** – Contains two filters which are used by the TDD system to block Memcache attack traffic.
- **cns-002625 (SSRP Reflection TDD Flex-Rule)** – Contains two filters which are used by the TDD system to block SSRP Reflection attack traffic. Disabled by default.
- **cns-002626 (WSD Reflection TDD Flex-Rule)** – Contains two filters which are used by the TDD system to block WSD Reflection attack traffic. Disabled by default.
- **cns-002627 (Net Assistant Reflection TDD Flex-Rule)** – Contains two filters which are used by the TDD system to block Net Assistant Reflection attack traffic. Disabled by default.

There are 3 Flex-Rules reserved for use with the TDD Flexible Configuration Tool:

- **cns-002611 (CORERO_MANUAL_EGRESS TDD Flex-Rule)** – Contains any egress filters created using the Flexible Configuration Tool in the SWA
- **cns-002612 (CORERO_MANUAL_BLOCK TDD Flex-Rule)** – Contains any block filters created using the Flexible Configuration Tool in the SWA
- **cns-002613 (CORERO_MANUAL_DETECT TDD Flex-Rule)** – Contains any detect filters created using the Flexible Configuration Tool in the SWA

There are 111 additional Flex-Rules you can add to provide space for additional filters:

- **100 General Flex-Rules**
 - **cns-002503 to cns-002512** – The General Flex-Rule (cns-0025**) can be set to Block or Detect action. If a rate limit is specified for this rule, the action is performed once any of the attributes match and any rate-limit threshold is reached.
 - **cns-002611 to cns-002700** – The Programmable Flex-Rule (cns-002***) can be set to Block or Detect action. If a rate limit is specified for this rule, the action is performed once any of the attributes match and any rate-limit threshold is reached.
- **11 Programmable Flex-Rules**
 - **cns-002600 to cns-002610** – The Programmable Flex-Rule (cns-0026**) can be set to Block or Detect action. If a rate limit is specified for this rule, the action is performed once any of the attributes match and any rate-limit threshold is reached.

Flex-Rule Filters

For a Flex-Rule to affect traffic, you need to create filters that define the traffic types the Flex-Rule should block or detect. Flex-Rule filter definitions must be written as a Berkeley Pack Filter (BPF) syntax expression.

You can have up to 200 filters per Flex-Rule. However, the total number of filter description characters available for each Flex-Rule is 7000. Therefore, the amount of filters available for a rule can depend on the size of the filter descriptions already on that rule.

Tip: Each rule has a revision number which is incremented each time you make a change to the rule's filters, and that revision number is cited in relevant syslog messages.

Evaluation order

Flex-Rules are evaluated in order; first by Rule Action, then by rule number and finally by filter order on the rule:

- **General Flex-Rules with the rule action Egress** – The filters from top to bottom on each General Flex-Rules set to Egress, in rule number order.
- **Block Only Flex-Rule** – The filters on rule cns-002500, from top to bottom.
- **General Flex-Rules with the rule action Block** – The filters from top to bottom on each General Flex-Rules set to Block, in rule number order.
- **Programmable Flex-Rules with the rule action Block** – The filters from top to bottom on each Programmable Flex-Rules set to Block, in rule number order.
- **Programmable Flex-Rules with the rule action Detect** – The filters from top to bottom on each Programmable Flex-Rules set to Detect, in rule number order.
- **Detect Only Flex-Rule** – The filters on rule cns-002502, from top to bottom.
- **General Flex-Rules with the rule action Detect** – The filters from top to bottom on each General Flex-Rules set to Detect, in rule number order.

Once a packet matches a Flex-Rule filter, it is not inspected by any subsequent filters on that rule, or on any subsequent Flex-Rules.

Enable/Disable a Flex-Rule

A Flex-Rule is enabled when it has a Rule Action of **Block**, **Detect**, or **Egress**. When a Flex-Rule is enabled, you can enable/disable individual filters on that rule. To disable all the filters associated with a Flex-Rule, set the Flex-Rule Rule Action to **Disabled**. When you disable a Flex-Rule, none of the filters will function, even if they are individually enabled.

Note: [If you are using the NTD120, specific support can be found here.](#)

Managing Flex-Rules


TDD Deployments: The three default Flex-Rules should be **disabled**. No other Flex-Rules should be created. The TDD default Flex-Rule filters should not be modified. See the [TDD Policy Overview](#) for more configuration information.


You can configure Flex-Rule level settings that affect all filters on that rule. Until you add a filter to the Flex-Rule, they won't affect your defense Policy.

There are multiple Flex-Rules you can configure; however, some Flex-Rules are managed in different ways:

- **Block Only** (1 rule) – Primary rule for filters which block matching traffic. Can be set to Block or Disabled.
- **Detect Only** (1 rule) – Primary rule for filters which detect matching traffic. Can be set to Detect or Disabled.
- **General** (100 rules) – Configurable rules for filters which need a different configuration to the primary rules or which you want to report on separately. Can be set to Block, Detect, Egress, or Disabled.
- **Programmable** (1 primary rule and 11 additional rules) – Configurable rules which are reserved for use with SWA and other integrated systems. Adding filters is only available through the REST API. All other configuration is available in the Web UI and CLI. Can be set to Block, Detect, or Disabled.


To configure an existing Flex-Rule



1. Use the left-hand menu to navigate to **Policy > Flex-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Make sure the **RULES** tab is selected.
4. From the Rules table, click  the edit button next to the Flex-Rule you want to edit.
5. Select a **Rule Action** for this Rule. To disable a Flex-Rule and all filters on that rule, set this to Disabled. Otherwise select the appropriate Rule Action from Block, Detect, or Egress.

6. (Optional) Enable **Packet Rate** Threshold and Rate Limit:
 - a. From the drop-down, select **enabled**.
 - b. Set the **Packet Threshold** for the filters on this rule; this is the rate of packets per second which need to match the filter before the Rule Action is triggered.
 - c. You can optionally also set the **Packet Rate Limit**; this is the rate of packets per second which are allowed to pass unaffected by the Rule Action, once the Threshold has been reached.
7. (Optional) Enable **Bit Rate** Threshold and Rate Limit:
 - a. From the drop-down, select **enabled**.
 - b. Set the **Bit Threshold** for the filters on this rule; this is the rate of bits per second which need to match the filter before the Rule Action is triggered.
 - c. You can optionally also set the **Bit Rate Limit**; this is the rate of bits per second which are allowed to pass unaffected by the Rule Action, once the Threshold has been reached.
8. [Add or edit the Flex-Rule filters](#) on this rule. Return to the Edit Flex-Rule dialog.
9. Click **Save**.
10. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

To create a new General or Programmable Flex-Rule

1. Use the left-hand menu to navigate to **Policy > Flex-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Make sure the **RULES** tab is selected.
4. At the Rules table, click **Add**.
5. Type a **Name** for the new Flex-Rule.
6. From the Rule drop-down, select from the available rule numbers. Select from **cns-002503 to cns-002512** or **cns-002611 to cns-002700** to create a General Flex-Rule, or select from **cns-002600 to cns-002610** to create a Programmable Flex-Rule.
7. Select a **Rule Action** for this Rule. To disable a Flex-Rule and all filters on that rule, set this to **Disabled**. Otherwise select the appropriate Rule Action from **Block**, **Detect**, or **Egress**. Note: Egress is not available for Programmable Flex-Rules.
8. (Optional) Enable **Packet Rate** Threshold and Rate Limit:
 - a. Set the **Packet Threshold** for the filters on this rule; this is the rate of packets per second which need to match the filter before the Rule Action is triggered.
 - b. You can optionally also set the **Packet Rate Limit**; this is the rate of packets per second which are allowed to pass unaffected by the Rule Action, once the Threshold has been reached.
 - c. From the drop-down, select **enabled**.

9. (Optional) Enable **Bit Rate** Threshold and Rate Limit:
 - a. Set the **Bit Threshold** for the filters on this rule; this is the rate of bits per second which need to match the filter before the Rule Action is triggered.
 - b. You can optionally also set the **Bit Rate Limit**; this is the rate of bits per second which are allowed to pass unaffected by the Rule Action, once the Threshold has been reached.
 - c. From the drop-down, select **enabled**.
10. (General Flex-Rules only) [Add Flex-Rule filters](#) on this rule. Return to the Edit Flex-Rule dialog.
11. Click **Save**.
12. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Rules table you can use the following action buttons to edit  or delete  filters.
On the Flex-Rules table, you can also view the filters on each rule by expanding the table rows.

CLI Commands (All Flex-Rules)

Create a new General or Programmable Flex-Rule

Tip: You can also use this method to rename a General or Programmable Flex-Rule.

```
configure
set policy protection-profile <ppName> flex-rule-blocking [programmable|general]
<ruleNumber> name <ruleName>
commit
```

Note: When creating a new General or Programmable Flex-Rule, you must provide an unused *<ruleNumber>*. If you provide one already allocated to a Flex-Rule, you will edit the existing Flex-Rule rather than create a new one.

Set the Rule Action for a Flex-Rule

```
configure
set policy protection-profile <ppName> flex-rule-blocking [block-only|detect-
only|programmable <ruleNumber>|general <ruleNumber>] rule-action
[block|detect|disabled|egress]
commit
```

Note: For the `block-only` Flex-Rule, you can only choose `block` or `disabled`. For the `detect-only` Flex-Rule you can only choose `detect` or `disabled`. For Programmable Flex-Rules you can choose `block`, `detect`, or `disabled`. For a General Flex-Rule you can choose `block`, `detect`, `egress`, or `disabled`. Selecting any Rule Action except `disabled`, will enable the Flex-Rule.

Change the Packet Threshold and Rate Limit for a Flex-Rule

```
configure
set policy protection-profile <ppName> flex-rule-blocking [block-only|detect-only|programmable <ruleNumber>|general <ruleNumber>] packet-rate admin-state [disabled|enabled] threshold <ppsRate> rate-limit <ppsRate>
commit
```

Change the Bit Threshold and Rate Limit for a Flex-Rule

```
configure
set policy protection-profile <ppName> flex-rule-blocking [block-only|detect-only|programmable <ruleNumber>|general <ruleNumber>] bit-rate admin-state [disabled|enabled] threshold <bpsRate> rate-limit <bpsRate>
commit
```

Delete configuration of a General or Programmable Flex-Rule

```
configure
edit policy protection-profile <ppName> flex-rule-blocking
delete [programmable|general] [ruleNumber|ruleName]
commit
exit
```

Types of Flex-Rule Filters

Caution: It is Corero's recommendation to craft destination specific rules, to limit the impact of these rules to the intended destinations only.

To write a filter definition, you need to first use the historic attack data in SmartWall SecureWatch Analytics to identify a common type of attack traffic for your network. You then need to craft a definition that will target only that specific type of attack traffic and not anything else; perhaps a specific combination of destination IP address, TCP port, and packet length. Finally, you can write that definition out as a BPF syntax expression. For example, if you used the following definition to create a filter on the Block-only rule, you could block a common type of SSDP reflection attack:

```
udp and (udp[8:4]=0x48545450 and (udp[12:4]=0x2f312e31 or udp[12:4]=0x2f312e30))
```

Caution: Flex-Rules are very powerful tools capable of blocking finely-targeted attacks. Therefore, pay careful attention when defining a Flex-Rule filter, as a simple mistake in typing the filter syntax can have unintentionally damaging effects on other traffic you want to continue receiving. A simplistic example is that of using the Boolean operator "OR" instead of "AND", but more subtle mistakes, such as misplaced parentheses or an incorrect port ID, can have significant unintended consequences, also. Even if you are defining a Flex-Rule in response to an ongoing attack, take time to define it carefully.

There are three types of Flex-Rule filters which each require slightly different use of syntax in the definition:

- **Fixed pattern match** – If you need to look for expected and fixed packet characteristics and patterns, you can use the standard BPF syntax
- **Flexible pattern match** – If you need to search the packets content looking for patterns which could appear in different parts of each packet, you also need to use Corero specific search syntax.
- **Flex-Rule IP table filters** – You can write a filter which can check SIPs or DIPs from incoming packets, against a table of IP addresses stored in the CMS.

Flexible pattern match

If you want to use a Flex-Rule to target packets which contain a specific pattern that can appear at any point in the packet, you can use additional syntax created by Corero as an extension to the BPF library. For example, you may experience attack traffic where each packet contains similar but not identical URLs (e.g. each has a different prefix). You can use the search syntax to look for the common section of the URL which can be found in all related packets.

The search syntax uses the following structure to find a pattern inside a specified block within the packet:

```
<protocol>["<pattern>":<offset>:<size>]
```

You would need to replace the following placeholders:

- *<protocol>* – The protocol of the packets you're targeting. Can be: `udp`, `tcp`, `icmp`, or `sctp`.
- *<pattern>* – The pattern you want to search for. If it is a string value it must be within the quotation marks (e.g. `"company.com"`).

Caution: Instead of searching for a string, you could use the following syntax to include a regular expression. However, this can adversely affect your performance speed. *<protocol>*

```
[re"<regex>":<offset>:<size>]
```

- *<offset>* – The number of bytes after the IP header you want to skip before beginning the search. If you don't specify a value, the default is 0. For example, `udp["company.com"]` uses the default offset and size values.

- `<size>` – The size (in bytes) of the block in the packet you want to search for the pattern. If you don't specify a value, the default is 64. If there is not offset value set, the block begins after the IP header.



For example, to target all UDP packets which contain "company.com" in a 50 byte block starting 8 bytes in from the IP header, you would add the following to a Flex-Rule:

```
udp ["company.com":8:50]
```

Tip: If the pattern you want to search for is a hex value, you must use specific formatting to stop the filter converting it. For example to search for a hex value containing "58575655", you need to format it like this: "\x58\x57\x56\x55". A flexible pattern match filter looking for that hex value in udp packets would look something like: `udp ["\x58\x57\x56\x55":8:50]`

Flex-Rule IP table filters

You can create Flex-Rule filters, which can compare a SIP or DIP on an incoming packet against a list of stored IP addresses. You can store up to three tables of IP addresses as Flex-Rule IP Address Tables. Each Flex-Rule IP Address Tables is comprised of one or more Address Groups.

To write these IP table filters, you need to use additional syntax created by Corero as an extension to the BPF library:

iptables

This allows an ip-address to be checked against a table of addresses and returns true if a match is found and false if not. For example, a filter with this definition `ip` and `src iptable botnet_table`, would match traffic with a source IP address that matched any of the IP addresses in the IP Address Table named "botnet_table".

```
[src|dst] iptable <tableName>
```

You would need to replace the following placeholders:

- `[src|dst]` – Replace with `src` to compare the packet SIP to the IP Address Table, or replace with `dst` to compare the packet DIP to the IP Address Table
- `<tableName>` – Replace with the name of the Flex-Rule IP Address table you want to reference

tablesize

This returns the size (number of entries) currently present in the table and can be compared to a value using the binary comparison operators (`>`, `<=`, etc). For example this can be an important safety guard against a mis-populated table, especially for a negative check. The following filter will fail safely in the case where the "Australia" IP Address

table did not get populated: ip and udp and tablesize Australia > 0 and not src iptable Australia

```
tablesize {tableName} {>|<|==|!=|>=|<=|} {value}
```

You would need to replace the following placeholders:

- `<tableName>` – Replace with the name of the Flex-Rule IP Address table you want to reference
- `[>|<|==|!=|>=|<=|]` – Replace with one of the possible operators
- `<value>` – Replace with a value representing the number of table entries you want to compare with the current table size

Note: For IPv6 the syntax required is: `iptable6` and `table6size`.

Managing Flex-Rule Filters


TDD Deployments: Do not edit the default Flex-Rule Filters on a TDD system. Changing these filters can result in false positives in the attack detection engine in the SWA. The Flex-Rule Filters implemented when you first configured the TDD Policy should be sufficient for most deployments. If you do not want to use them, [disable the Flex-Rule](#) or contact your support representative. See the [TDD Policy Overview](#) for more configuration information.

For a Flex-Rule to affect traffic, you need to create filters on that Flex-Rule, which define the traffic types the Flex-Rule should block/detect. Filter definitions must be written using Berkeley Pack Filter (BPF) syntax. In addition to the BPF syntax you can use Corero specific syntax to search packets.

You can add filters to any of the Flex-Rules, however some Flex-Rules are managed in different ways:


- **Block Only** (1 rule) – Primary rule for filters which block matching traffic. Can be set to Block or Disabled.
- **Detect Only** (1 rule) – Primary rule for filters which detect matching traffic. Can be set to Detect or Disabled.
- **General** (100 rules) – Configurable rules for filters which need a different configuration to the primary rules or which you want to report on separately. Can be set to Block, Detect, Egress, or Disabled.
- **Programmable** (1 primary rule and 11 additional rules) – Configurable rules which are reserved for use with SWA and other integrated systems. Adding filters is only available through the REST API. All other configuration is available in the Web UI and CLI. Can be set to Block, Detect, or Disabled.



To create a Flex-Rule filter (except Programmable Flex-Rules)

1. Use the left-hand menu to navigate to **Policy > Flex-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Make sure the **RULES** tab is selected.
4. From the Rules table, click  the edit button next to the Flex-Rule you want to add a filter to.
5. At the Filters table, click **Add**.


6. Type a **Name** for the new filter. You must only use alphanumerics, spaces, or .-&()/_@:= symbols.
7. Select the Admin State:
 - **Enable** – To enable the Flex-Rule filter, and either block/detect/egress (depending on the Flex-Rule's Rule Action) the traffic which matches this filter
 - **Disable** – To disable the Flex-Rule filter
8. [Write a Definition for the filter.](#) This must be a Berkeley Packet Filter (BPF) syntax expression which defines the characteristics of the packets you want the Defense device to affect.
9. Click **Save**.
10. Check that the new filter is compatible with the current Flex-Rule configuration:
 - If a Threshold and Rate Limit is set, check it is sensible for this new filter
 - Check that the Rule Action is correct for this new filter


If the filter is not compatible with this Flex-Rule, delete it and recreate it on a [new Flex-Rule](#) configured as you require.


11. Click **Save**.
12. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Filter table, in the Edit Flex-Rule dialog, you can use the following action buttons to edit  or delete  filters.

Editing existing Flex-Rule filters

Flex-rule filters can be quickly amended from the Rules table (**Policy > Flex-Rules > RULES** tab) by clicking on  the arrow to the left of the Flex-Rule. This opens up the list of filters that have been applied to the Flex-Rule.

To modify an existing filter, click  the edit icon for that filter. This directly accesses the Edit Filter dialog.

You can also delete filters here, using  the delete icon next to the filter.

CLI Commands

View current filters

```
show configuration policy protection-profile <ppName> flex-rule-blocking [block-only|detect-only|general|programmable]
```

Create a new filter (Not available for Programmable Flex-Rules)

Tip: The filter must be within quotation marks or you won't be able to commit the change.

```
configure
set policy protection-profile <ppName> flex-rule-blocking [block-only|detect-only|programmable <ruleNumber>|general <ruleNumber>] filter <filterName> admin-state [disabled|enabled]
definition "<bpfFilter>"
commit
```

Edit an existing filter

```
configure
set policy protection-profile <ppName> flex-rule-blocking [block-only|detect-only|programmable <ruleNumber>|general <ruleNumber>] filter <filterName> definition "<bpfFilter>"
commit
```

Rename a filter

```
configure
```

```
request policy protection-profile <ppName> flex-rule-blocking [block-only|detect-
only|programmable <ruleNumber>|general <ruleNumber>] filter <filterName> rename name
<newName>
commit
```

Delete a filter



```
onfigure
edit policy protection-profile <ppName> flex-rule-blocking [block-only|detect-
only|programmable <ruleNumber>|general <ruleNumber>]
delete filter <filterName>
commit
exit
```

Enable/Disable a filter

```
configure
set policy protection-profile <ppName> flex-rule-blocking [block-only|detect-
only|programmable <ruleNumber>|general <ruleNumber>] filter <filterName> admin-state
[disabled|enabled]
commit
```



To edit Flex-Rule filters

Tip: The Flex-Rule filters can be edited in two different places.

1. Use the left-hand menu to navigate to **Policy > Flex-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Make sure the **RULES** tab is selected.
4. There are two options:
 - a. From the Rules table, click  the edit button next to the Flex-Rule you want amend the filter on. In the dialog box you can amend the Rule and then add, edit, reorder and delete the filters.
 - b. Click the arrow to the left of the Priority number. This opens up a box under the Flex-Rule with the filters. click  the edit button on the right of the filter. This allows the filter to be edited.

To re-order Flex-Rule filters

Note: In the CMS Web UI, rearranging the table using column sort does not affect the evaluation order. After sorting by column, you can refresh the page to see the evaluation order again.

1. Use the left-hand menu to navigate to **Policy > Flex-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Make sure the **RULES** tab is selected.
4. From the Rules table, click  the edit button next to the Flex-Rule you want reorder filter on.
5. In the filters table, filters are evaluated from top to bottom. Use the Priority column to drag and drop filters into the order you want them evaluated.
6. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands


```
configure
edit policy protection-profile <ppName> flex-rule-blocking [block-
only|detect-only|programmable|general <ruleNumber>]
move filter <filterName> [after|before|first|last]
commit
```

Tip: If you have a long list of filters to reorder, it helps to write out the new order, then set the filter you want to begin with to *first*. Then you can set each following filter as *after* the one before it in the list.

Troubleshooting

Flex-Rule filters are not blocking/detecting traffic

There are a few things to check:

- Check that the filter is enabled. Select the correct rule tab and locate the filter in the table. To enable a filter, click  the edit button.
- Check that [the Flex-Rule itself is enabled](#). Select the correct rule tab and check the **Rule Action** is **block** or **detect**.
- Check that the [Match Rate for this rule](#) isn't too high for your current traffic to start matching the filter. Select the correct rule tab and check the **Match Rate Limit**. If only one or two filters require a different Match Rate Limit, you can [configure a new General Flex-Rule](#) to hold just those filters with the altered Match Rate Limit.
- If you're using a [Flex-Rule Lookup Table](#), check that the name is correct and that it is populated with the correct list of IP addresses. Editing the associated [Address Groups](#), will affect your Flex-Rule Lookup Tables.

- Check that your filter order makes logical sense. You can see which filters are being matched with traffic using SecureWatch Analytics. Search for `cat=security,type=rule-stats` and look for the `cfg-frn` field for the filter name being matched for each event logged.

If everything else looks correct, you may have an issue with your filter definition. Contact Support for more specific assistance.

Managing Flex-Rule IP Tables

You can create Flex-Rule filters that compare incoming traffic against a list of IP addresses stored in a Flex-Rule IP Table. The tables must be stored and maintained in the CMS.

Note: You can create three Flex-Rule IP Tables per Protection Profile.

Prerequisites

- [Import lists of known IP addresses as one or more Address Groups](#). This could be a geographical grouping, a suspected botnet, a trusted set of destination IPs, etc. Each Flex-Rule IP Table can contain multiple Address Groups, and Address Groups can be referenced by more than one Flex-Rule IP Table. Alternatively, Dynamic Address Groups could be loaded using Smart-Plugins.


To create a Flex-Rule IP Table


1. Use the left-hand menu to navigate to **Policy > Flex-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Select the **IP TABLES** tab.

Note: The search on the front dialog box can look for both the Flex-Rule Name and the IP address within a group.

4. At the filter table, click **Add**.
5. Type a **Name** for the new table. The name can only include letters and numbers and must start with a letter.
6. Click **Add**.
7. The following dialog box allows the choice of either an **Address Group** or a **Dynamic Address Group**.
8. Select an **Address Group** from the either of the drop-downs.



Note: To ensure you have selected the correct Dynamic Address Group, you can search the name or IP address in the [Dynamic Address Group tab](#).

9. Click **Save**.
10. You can use a single Address Group, or you can continue to add them to the table in the same way. You can also use  the delete button to modify your list.

11. When you're happy with your table, click **Save**.
12. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Next Step

- [Create a Flex-Rule filter which references this table](#)

Tip: On the IP Tables table, you can use the following action buttons to edit  or delete  Flex-Rule IP Tables.

CLI Commands

View Address Groups in a Flex-Rule IP Table

```
show configuration policy protection-profile <ppName> flex-rule-blocking ip-table <tableName>
```

Hint: The detail address-group can be swapped for dynamic-address-groups to specify dynamic address groups to be included in the IP table.

Create a new Flex-Rule IP Table

```
configure
set policy protection-profile <ppName> flex-rule-blocking ip-table <tableName>
address-group <agName>
commit
```

Edit a Flex-Rule IP Table

```
configure
edit policy protection-profile <ppName> flex-rule-blocking ip-table <tableName>
```

Tip: Use the `set address-group <agName>` command to add another Address Group or the `delete address-group <agName>` command to remove an Address Group.

```
commit
exit
```

Rename a Flex-Rule IP Table

```
configure
request policy protection-profile <ppName> flex-rule-blocking ip-table <tableName>
rename name <newName>
commit
```

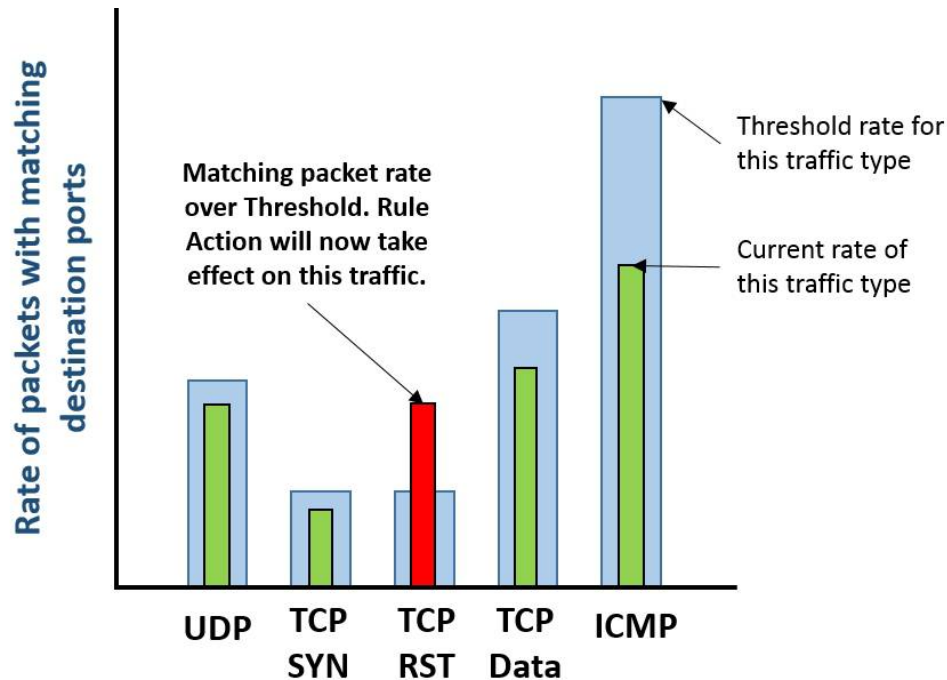
Delete a Flex-Rule IP Table

```
configure
edit policy protection-profile <ppName> flex-rule-blocking
delete ip-table <tableName>
commit
exit
```

Smart-Rules

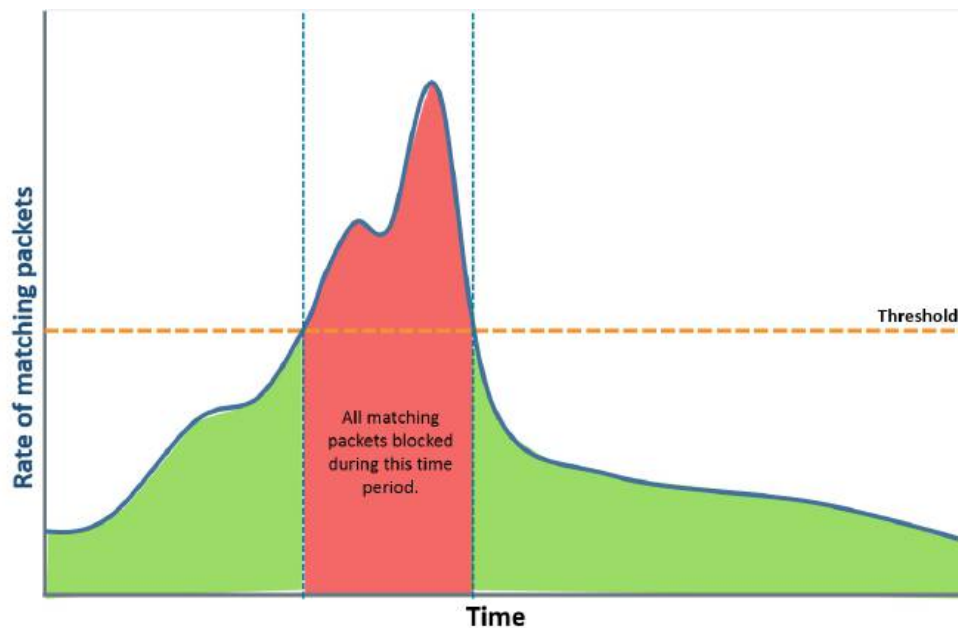
Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Smart-Rules Screen reference topic](#).

Smart-Rules is an attack mitigation feature. For each traffic type, a Smart-Rule looks for a large number of packets with similar characteristics. Once the number of these packets passes a set threshold, which denotes a flood attack is happening, the Smart-Rule can surgically block just the packets which match those attack characteristics.



Smart-Rule Thresholds

For each Smart-Rule, a proprietary algorithm monitors that rule's related fields in every incoming packet. When a high number of packets arrive with the same value in those fields, the rule sees this as an attack and can drop all the packets which match the Smart-Rule. Most Smart-Rules only act on one traffic type; therefore, if a flood of packets with the same source IP address triggers the Reflection TCP SYN Smart-Rule, the Defense device can drop those packets but it won't drop a normal volume of UDP packets, with the same source IP, which came through at the same time. However, if the volume of UDP packets with matching source IP addresses later rose and passed the threshold for the Reflection UDP Smart-Rule, they would be dropped by the Defense device.



For each Smart-Rule, you need to set a threshold value and an action the system should perform once that threshold is passed. You can use SmartWall SecureWatch Analytics to determine what your average rate is for each traffic type, then set the Smart-Rule threshold to around three times that. This ensures that the Smart-Rule action only triggers when an abnormal amount of matching traffic, of that type, is seen.

There are two types of detection method you can use to measure thresholds:

- **Bit rate (bps)** – Use the size (in bits) of this traffic type to determine traffic rate
- **Packet rate (pps)** – Use the number of packets of this traffic type to determine traffic rate

Tip: You can use one or both rates for each traffic specific setting, but in most situations packet rate is sufficient. If you don't want to use a certain type, you can set its value high so it never interacts with traffic. You can normally use a bit rate of 40,000,000,000bps and a packet rate of 40,000,000pps to accomplish this. If you use both rates, the Threshold that is reached first will trigger the Rule Action.

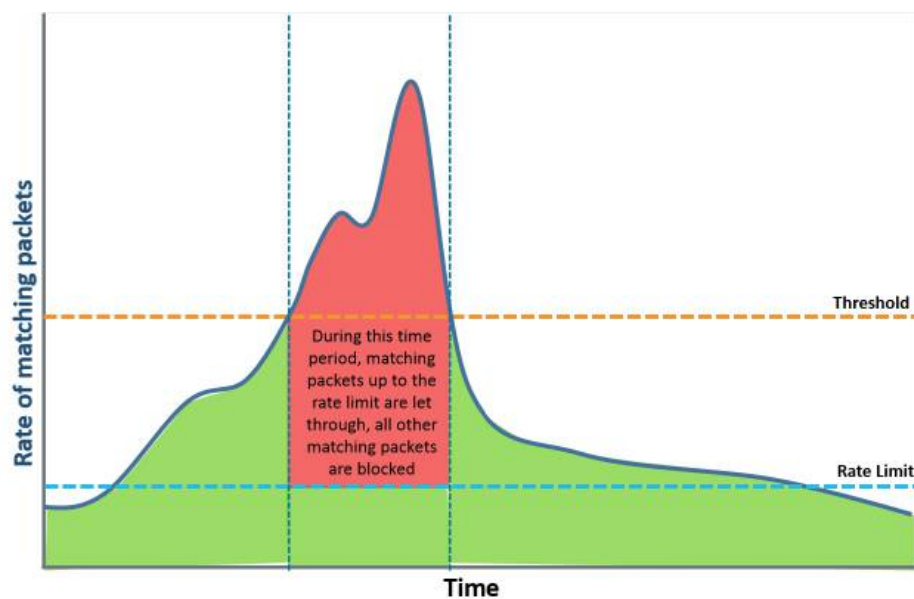
Once the volume of traffic with matching fields, of a specific traffic type, passes the threshold value, there are three action types a Smart-Rule can perform:

- **Block** – The Defense device blocks all traffic matching the rule definition
- **Detect** – The Defense device inspects all traffic matching the rule definition and sends event syslog messages, but it does not drop the packets
- **Disabled** – The Threshold is disabled, and the matching traffic is not blocked or detected.

There can be a short delay (around a second) between the traffic passing a threshold and the Smart-Rule triggering. This is because the Smart-Rule, takes an average traffic rate and if traffic rises slowly, the Smart-Rule doesn't see the threshold has been crossed straight away. However, when traffic rises sharply, the rule triggers almost immediately, providing a fast response against large attacks.

Rate Limits

A Rate Limit tells the Defense device to let a certain rate of traffic through once the Threshold has been crossed. For example, if you set the Rate Limit to 5000pps then once the Threshold is crossed, the Defense device allows 5000 matching packets through every second and drops the rest. If you set the Rate Limit to 0, it will drop all matching traffic once the Threshold is crossed.



Tip: The Thresholds and Rate Limits of Smart-Rules can be scaled up or down for selected destination IP addresses using the [Smart-Rule Scale](#) feature in Inspection Control override entries.

Smart-Rule Types

TDD Deployments: Smart-Rules cannot be set to Detect for TDD Deployments. See the [TDD Policy Overview](#) for more configuration information.

There are five Smart-Rules categories. Each category looks for matching values in different fields and, in each category, there are Smart-Rules which act on specific traffic types:

Source

TDD Deployments: All Source Smart-Rules must be set to **disabled**. See the [TDD Policy Overview](#) for more configuration information.

The Source Smart-Rule looks for a flood of packets with the same source IP address, where an attacker could be sending a flood of traffic from a single source.

- **TCP SYN cns-002058** – Indicates the rate of TCP SYN traffic with a specific TCP window size received from a source address exceeds the global threshold and has been limited. The limit is the same for ALL source addresses.
- **TCP RST cns-002059** – Indicates the rate of TCP RST traffic with a specific TCP window size received from a source address exceeds the global threshold and has been limited. The limit is the same for ALL source addresses.
- **Any Protocol cns-002057** – Indicates that the rate of a particular IP protocol's traffic received from a source address has been limited. The limit is the same for ALL source addresses.

Reflection

TDD Deployments: All Reflection Smart-Rules must be set to **block** and a custom Smart-Rule created for **LowShadyPorts**. See the [TDD Policy Overview](#) for more configuration information.

The Reflection Smart-Rules look for a flood of packets with the same source port. An attacker could have made a spoofed request, with your IP range, to an internet server which then reflects the attack back to your network, causing a packet flood.

- **UDP LowShadyPorts cns-002091** – Default custom Smart-Rule. Indicates that the rate of UDP traffic going to ports 19,111,137, 161, 389, and 520 exceeds the threshold and has been limited.
- **DNS Query Response cns-002067** – Indicates that the rate of DNS query responses to a server exceeds the threshold and has been limited. This is typical of reflection attacks. The limit must be the same for ALL servers and is intended to block high bandwidth attacks that can't be blocked by some more specific rule.

- **UDP Source Port 53 cns-002063** – Indicates that the rate of data being sent from UDP source port 53 to a server exceeds the threshold and has been limited. This is typical of reflection attacks. The limit must be the same for ALL servers and is intended to block high bandwidth attacks that can't be blocked by some more specific rule.
- **UDP Source Port 4500 cns-002065** – Indicates that the rate of data being sent from UDP source port 4500 to a server exceeds the threshold and has been limited. This is typical of reflection attacks. The limit must be the same for ALL servers and is intended to block high bandwidth attacks that can't be blocked by some more specific rule.
- **UDP Any Source Port cns-002033** – Indicates that the rate of traffic being sent from a specific source port to a server exceeds the global threshold and has been limited. The limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.
- **TCP RST cns-002043** – Indicates that the rate of TCP RST traffic being sent from a specific source port to a server exceeds the global threshold and has been limited. The limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.
- **TCP SYN/ACK cns-002041** – Indicates that rate of TCP SYN/ACK traffic being sent from a specific source port to a server exceeds the global threshold and has been limited. The limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some specific rule.
- **TCP PSH/ACK cns-002045** – Indicates that rate of TCP PSH/ACK traffic being sent from a specific source port to a server exceeds the global threshold and has been limited. The limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.

Group traffic using DNS Query Response parameters

You can further refine the Reflection DNS Query Response Smart-Rule by selecting or deselecting signature parameters, which the Defense device can look for on the incoming packets.

Selecting a parameter modifies how the traffic is grouped together when applying Thresholds and Rate Limits. For example, when **DNS Signature is Fragmented** is not selected, grouping does not depend on whether the packet is a fragment or not. However, when **DNS Signature is Fragmented** is selected, whether a packet is fragment is used, in addition to the default criteria used to split the traffic into groups. The result is that packets which are fragmented are measured in one group, while non-fragmented packets are measured in another group. The rate of packets assigned to a single group must exceed the configured Threshold to trigger the Rule Action.

Note: If you select an option to separate traffic into smaller groups or deselect an option to aggregate the traffic into a large group, you should adjust your Thresholds to reflect the change.

You can use this feature to separate traffic in the following ways:

- **DNS Signature Any** – The traffic is separated into two further groups; one for the rate of packets with the request type "ANY" and one for the rate of packets where it is not "ANY".

- **DNS Signature is Fragmented** – The traffic is separated into two further groups; one for the rate of packets which are fragments and one for the rate of packets which are not fragments.
- **DNS Signature Packet Length** – The traffic is further refined into multiple groups; one for each packet length. The rate of packets which all have the same packet length must cross a Threshold to trigger the Rule action.
- **DNS Signature Recursive** – The traffic is separated into two further groups; one for the rate of packets with "recursion desired" and one for the rate of packets without it.

Caution: Each option you select further refines your traffic into smaller groups. For example, if you selected **DNS Signature is Fragmented** and **DNS Signature Any** then, for each source port value, you would have four further sub-groups: fragmented with request type any, fragmented without request type any, non-fragmented with request type any, and non-fragmented without request type any.

ICMP

TDD Deployments: All ICMP Smart-Rules must be set to **block**. See the [TDD Policy Overview](#) for more configuration information.

The ICMP Smart-Rules look for a flood of packets with ICMP error messages, where an attacker may have attempted a reflection attack, but sent the query to a disabled server, resulting in a flood of errors coming back to you.

- **ICMP Failed Reflectors cns-002047** – Indicates that the rate of ICMP traffic being sent to a server exceeds the global threshold and has been limited. This is typical of ICMP server attacks. The limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.

You can further refine the ICMP Smart-Rule to include or exclude packets which contain the following features:

- **UDP Destination Port** – The ICMP packet contains the original destination port (of the internet server now sending you the ICMP messages). By default, all ports in the table are enabled. This means that ICMP traffic, whose original destination port is listed on the table, will be counted by the Smart-Rule as potential attack packets. If you disable a port, then ICMP traffic with that original destination port number will not trigger the Smart-Rule, even if the rate goes above the Threshold. The following ports are listed and enabled by default:

- **CHARGEN** – Default port number is 19
- **DNS** – Default port number is 53
- **LDAP** – Default port number is 389
- **NETBIOS** – Default port number is 137
- **NTP** – Default port number is 123
- **RIP** – Default port number is 520
- **RPC** – Default port number is 111
- **SNMP** – Default port number is 161
- **SSDP** – Default port number is 1900
- **TFTP** – Default port number is 69

You can provide a description of each port, change the port number, or create a new table entry to reflect the types of attack you're seeing.

- **ICMP v4 Type** – By default, the types listed in the table are enabled. If the ICMP packet is one of the ICMP v4 types listed it will be counted by the Smart-Rule as a potential attack packet. If you disable a type, the ICMP packets matching that type will not trigger the Smart-Rule, even if the rate goes above the Threshold. The following types are listed and enabled by default:

- **Destination Unreachable** – Default ICMP v4 type number is 3 (type number can be between 0-63)
- **Time Exceeded** – Default ICMP v4 type number is 11 (type number can be between 0-63)

You can provide a description of each type, change the type number, or create a new table entry to reflect the types of attack you're seeing.

- **ICMP v6 Type** – By default, the types listed in the table are enabled. If the ICMP packet is one of the ICMP v6 types listed it will be counted by the Smart-Rule as a potential attack packet. If you disable a type, the ICMP packets matching that type will not trigger the Smart-Rule, even if the rate goes above the Threshold. The following types are listed and enabled by default:

- **Destination Unreachable** – Default ICMP v6 type number is 1 (type number can be between 0-191)
- **Time Exceeded** – Default ICMP v6 type number is 3 (type number can be between 0-191)

You can provide a description of each type, change the type number, or create a new table entry to reflect the types of attack you're seeing.

Service

TDD Deployments: All Service Smart-Rules must be set to **block** and a custom Smart-Rule created for **destination port 53**. See the [TDD Policy Overview](#) for more configuration information.

The Service Smart-Rules look for a flood of packets with the same destination port, where an attacker could be targeting a specific service in your network.

- **UDP DNSrecreq cns-002085** – Default custom Smart-Rule. This Smart-Rule looks for all UDP packets going to destination port 53.
- **UDP Any Port cns-002023** – This Smart-Rule looks for all UDP packets with matching destination ports
- **ICMP Any Type cns-002071** – This Smart-Rule looks for all ICMP packets with matching destination ports
- **TCP SYN cns-002025** – This Smart-Rule looks for TCP SYN packets with matching destination ports
- **TCP RST cns-002027** – This Smart-Rule looks for TCP RST packets with matching destination ports
- **TCP PSH/ACK cns-002075** – This Smart-Rule looks for TCP PSH ACK packets with matching destination ports
- **TCP Data cns-002029** – This Smart-Rule looks for all other TCP packets with matching destination ports

Server

TDD Deployments: All Server Smart-Rules must be set to **block**. See the [TDD Policy Overview](#) for more configuration information..

The Server Smart-Rules look for a flood of packets with the same destination IP address, where an attacker could be targeting one of your assets.

- **UDP Fragment Under Attack cns-002069** – Indicates that the rate of UDP fragments to a server under service or reflection attack exceeds the packet threshold and has been limited.
- **UDP Any Port cns-002037** – Indicates that rate of UDP traffic being sent to a server exceeds the global threshold and has been limited. The limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.
- **ICMP Any Type cns-002077** – Indicates that rate of ICMP traffic being sent to a server exceeds the global threshold and has been limited. The limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.
- **TCP SYN cns-002049** – Indicates that the rate of TCP SYN (or SYN/ACK) traffic being sent to a server address exceeds the global threshold and has been limited. This limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.
- **TCP RST cns-002051** – Indicates that the rate of TCP RST traffic being sent to a server address exceeds the global threshold and has been limited. This limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.
- **TCP Any Flags cns-002053** – Indicates that the rate of TCP traffic being sent to a server address exceeds the global threshold and has been limited. This limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.

- **ANY Protocol cns-002079** – Indicates that rate of any IP traffic being sent to a server exceeds the global threshold and has been limited. The limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.

Scale

The Smart-Rules can have a scale applied to all of the thresholds and rate-limit values that have been set. The Scale is applied to a destination by the Inspection Control. The percentages can be adjusted on one of three settings:

- **High** – Preset to 200%
- **Medium** – Preset to 100%
- **Low** – Preset to 50%

Custom Smart-Rules

A custom Smart-Rule enables you to specify the Smart-Rule configuration (threshold, rate limit, and rule action) for traffic with a specific protocol or a specific port. When you create a custom Smart-Rule which provides specific configuration for a traffic type, that traffic will no longer be affected by any other existing Smart-Rules.

For example, in the Server category the existing Smart-Rules enable you to set Thresholds for traffic with the same destination IP addresses of any protocol type. If you create a custom Smart-Rule specifically for GRE traffic, then all GRE traffic with matching destination IP addresses will be subject to the new Smart-Rule configuration and excluded from the existing Smart-Rule.

You can create custom Smart-Rules in the following categories: **Service** (UDP only), **Reflection** (UDP only), and **Server** (any protocol except TCP).

- **cns-002091/002093/002095** – Indicates that the rate of traffic being sent from one of a custom set of source ports to a server exceeds the threshold and has been limited. The limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.
- **cns-002081/002083/002085** – Indicates that the rate of UDP traffic being sent to one of a custom set server ports exceeds the threshold and has been limited. This limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.
- **cns-002101/002103/002105** – Indicates that rate of one of a custom set of protocols being sent to a server exceeds the threshold and has been limited. The limit must be the same for ALL servers and is intended to block high rate attacks that can't be blocked by some more specific rule.

Programmable Smart-Rules

There are additional customizable Smart-Rules which you can configure using the CLI or REST API only. These are generally reserved for use with SWA and other integrated systems.

- **cns-002115/002117** – Programmable reflection rule.
- **cns-002127/002129** – Programmable ICMP rule.
- **cns-002123/002125** – Programmable server rule.

Caution: Implementing programmable Smart-Rules without assistance from your Support representative can lead to incorrect traffic handling.

Configuring Smart-Rules for Source Floods

TDD Deployments: All Source Smart-Rules must be set to **disabled**. See the [TDD Policy Overview](#) for more configuration information.

A source flood can happen during a DDoS attack and when a large number of packets appear with the same source IP address, you can configure a Source Smart-Rule to block that packet flood. The Smart-Rule threshold is set against SYN Flags, ACK Flags, or Any Address. For this type, you can set a Bit Rate and a Packet Rate Threshold


To configure a Smart-Rule to protect against source floods

1. Use the left-hand menu to navigate to **Policy > Smart-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Select the **SOURCE** tab.
4. Identify the Smart-Rule that you wish to edit.
 - **TCP SYN** – This Smart-Rule checks the number of SYN flags with no corresponding ACK flags.
 - **TCP RST** – This Smart-Rule looks at the number of RST flags.
 - **IP Any Source Address** – This Smart-Rule looks for any type of packets with matching source IP addresses

1. In the table, click  the edit button.

- a. Set the **Rule Action** for this Smart-Rule. It is triggered when the Packet Threshold or Bit Threshold is crossed.
 - **Block** – The Defense device blocks all traffic matching the rule definition
 - **Detect** – The Defense device inspects all traffic matching the rule definition and sends event syslog messages, but it does not drop the packets
 - **Disabled** – The Threshold is disabled, and the matching traffic is not blocked or detected.
- b. Set the **Threshold** rate for your chosen traffic type/s (**Bit Rate**, **Packet Rate** or both). When the rate of that type of traffic (with the same destination port) goes past the Threshold, the Smart-Rule performs the associated

Tip: You can use one or both rates for each traffic specific setting, but in most situations packet rate is sufficient. If you don't want to use a certain type, you can set its value high so it never interacts with traffic. You can normally use a bit rate of 40,000,000,000bps and a packet rate of 40,000,000pps to accomplish this. If you use both rates, the Threshold that is reached first will trigger the Rule Action.

- c. Rule Action.(Optional) Set the associated **Rate Limit** for this traffic type. When the Rule Action is set to Block, the Rate Limit sets how much traffic of this type is still allowed through to the internal network.
- d. (Optional) If you're not using one of the available traffic types (Bit Rate or Packet Rate), you can use the drop-down to disable that Threshold and Rate Limit.
- e. Click **Save**.
- f. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: To return to the default Threshold or Rate Limit value, delete all characters of the current value. To return to the default Rule Action, click the X in that field.

CLI Commands

Edit a Source Smart-Rule

```
configure
```

```
set policy protection-profile <ppName> smart-rule source ip-address rule-action
[block|detect|disabled] [bit-rate|packet-rate] admin-state [disabled|enabled]
threshold <rate> rate-limit <rate>
commit
```


Configuring Smart-Rules for Reflection Floods

TDD Deployments: All Reflection Smart-Rules must be set to **block** and a custom Smart-Rule created for **LowShadyPorts**. See the [TDD Policy Overview](#) for more configuration information.

A reflection flood can happen during a DDoS attack and when a large number of packets appear with the same source port, you can configure a Reflection Smart-Rule to block that packet flood. You can set Smart-Rules for seven traffic types; for each type, you can set a Bit Rate and a Packet Rate Threshold. You can set additional options to define attack packets for the DNS Query Response traffic type.



Tip: If you need to specify Thresholds and Rate Limits for a more specific set of UDP source ports, you can [create a custom Reflection Smart-Rule](#) to specify the Smart-Rule configuration (threshold, rate limit, and rule action) for that specific type of traffic and exclude it from the configuration of the more general Smart-Rules.

To configure a Smart-Rule to protect against reflection floods

1. Use the left-hand menu to navigate to **Policy > Smart-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Select the **REFLECTION** tab.
4. In the table, locate the Smart-Rule you want to edit and click  the edit button. You can type a text string into the Search field to narrow down the list of Smart-Rules.
5. Set the **Rule Action** for this Smart-Rule. It is triggered when the Packet Threshold or Bit Threshold is crossed.
 - **Block** – The Defense device blocks all traffic matching the rule definition
 - **Detect** – The Defense device inspects all traffic matching the rule definition and sends event syslog messages, but it does not drop the packets
 - **Disabled** – The Threshold is disabled, and the matching traffic is not blocked or detected.
6. Set the **Threshold** rate for your chosen traffic type/s (**Bit Rate**, **Packet Rate** or both). When the rate of that type of traffic (with the same source port) goes past the Threshold, the Smart-Rule performs the associated Rule Action.

Tip: You can use one or both rates for each traffic specific setting, but in most situations packet rate is sufficient. If you don't want to use a certain type, you can set its value high so it never interacts with traffic. You can normally use a bit rate of 40,000,000,000bps and a packet rate of

40,000,000pps to accomplish this. If you use both rates, the Threshold that is reached first will trigger the Rule Action.


7. (Optional) Set the associated **Rate Limit** for this traffic type. When the Rule Action is set to **Block**, the Rate Limit sets how much traffic of this type is still allowed through to the internal network.
8. (Optional) If you're not using one of the available traffic types (Bit Rate or Packet Rate), you can use the drop-down to disable that Threshold and Rate Limit.
9. (DNS Query Response Smart-Rule only) Check the boxes to modify how the traffic is grouped together when applying Thresholds and Rate Limits:
 - **DNS Signature Any** – The traffic is separated into two further groups; one for the rate of packets with the request type "ANY" and one for the rate of packets where it is not "ANY".
 - **DNS Signature Is Fragmented** – The traffic is separated into two further groups; one for the rate of packets which are fragments and one for the rate of packets which are not fragments.
 - **DNS Signature Packet Length** – The traffic is further refined into multiple groups; one for each packet length. The rate of packets which all have the same packet length must cross a Threshold to trigger the Rule action.
 - **DNS Signature Recursive** – The traffic is separated into two further groups; one for the rate of packets with "recursion desired" and one for the rate of packets without it.
10. (Custom Smart-Rules only) Use the **Source Ports** table to create a list of the ports you want this Smart-Rule to specifically affect (ports not specified in a custom Smart-Rule are affected by the existing Smart-Rules). Type a UDP source port number and click **Add**. You can use  the delete button to remove port numbers from the list.
11. Click **Save**.
12. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).



Tip: To return to the default Threshold or Rate Limit value, delete all characters of the current value. To return to the default Rule Action, click the X in that field.

To create a custom UDP Reflection Smart-Rule

Note: Customer Reflection Smart-Rules can only be used for UDP traffic.

1. Use the left-hand menu to navigate to **Policy > Smart-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Select the **REFLECTION** tab.
4. Click **Add**.
5. Type a unique **Name** for this Smart-Rule. You must only use alphanumeric, spaces, or `.-&()/_/@:=` symbols.

6. Select an available **Rule** to map your new custom configuration to. There are three available rules for Reflection Smart-Rules.
7. Edit the Smart-Rule configuration (as above) and click **Save**.
8. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Smart-Rule table, you can use the following action buttons to edit  any Smart-Rules or delete  custom Smart-Rules.

CLI Commands

Tip: While editing the protocols list you can use the following command to remove protocol numbers from the list: `delete <portNumber>`

Edit a built-in Reflection Smart-Rule

```
configure
set policy protection-profile <ppName> smart-rule reflection [dns-query-response|tcp-ack-psh|tcp-rst|tcp-syn-ack|udp-or-icmp|udp-source-port-53|udp-source-port-4500] rule-action [block|detect|disabled] [bit-rate|packet-rate] threshold <rate> rate-limit <rate>
commit
```

Note: For dns-query-response you can also set the following refinements to true or false: dns-signature-any, dns-signature-is-fragmented, dns-signature-packet-length, and dns-signature-recursive.

Edit a custom Reflection Smart-Rule

```
configure
edit policy protection-profile <ppName> smart-rule reflection custom reflection-[1|2|3]
set name <name> rule-action [block|detect|disabled]
set [bit-rate|packet-rate] admin-state [disabled|enabled] threshold <rate> rate-limit <rate>
set source-ports <portNumber>
commit
```

Create a custom Reflection Smart-Rule

```
configure
set policy protection-profile <ppName> smart-rule reflection custom reflection-[1|2|3]
name <name> rule-action [block|detect|disabled] [bit-rate|packet-rate] admin-state
[disabled|enabled] threshold <rate> rate-limit <rate>
edit policy protection-profile <ppName> smart-rule reflection custom reflection-
[1|2|3] source-ports
set <portNumber>
commit
```

Delete a custom Reflection Smart-Rule


```
configure
edit policy protection-profile <ppName> smart-rule reflection custom
delete reflection-[1|2|3]
commit
```

Configuring Smart-Rules for ICMP Floods

TDD Deployments: All ICMP Smart-Rules must be set to **block**. See the [TDD Policy Overview](#) for more configuration information.

An ICMP flood can happen during a DDoS attack and when a large number of packets appear with ICMP error messages, you can configure an ICMP Smart-Rule to block that packet flood. As well as setting the threshold, you can set additional Smart-Rule refinements for the packet's destination port and message type.

To configure a Smart-Rule to protect against ICMP floods

1. Use the left-hand menu to navigate to **Policy > Smart-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Select the **ICMP** tab.
4. In the first table, click  the edit button.
5. Set the **Rule Action** for this Smart-Rule. It is triggered when the Packet Threshold or Bit Threshold is crossed.
 - **Block** – The Defense device blocks all traffic matching the rule definition
 - **Detect** – The Defense device inspects all traffic matching the rule definition and sends event syslog messages, but it does not drop the packets
 - **Disabled** – The Threshold is disabled, and the matching traffic is not blocked or detected.
6. Set the **Threshold** rate for your chosen traffic type/s (**Bit Rate**, **Packet Rate** or both). When the rate of that type of traffic (with the same destination port) goes past the Threshold, the Smart-Rule performs the associated Rule Action.

Tip: You can use one or both rates for each traffic specific setting, but in most situations packet rate is sufficient. If you don't want to use a certain type, you can set its value high so it never interacts with traffic. You can normally use a bit rate of 40,000,000,000bps and a packet rate of 40,000,000pps to accomplish this. If you use both rates, the Threshold that is reached first will trigger the Rule Action.

7. (Optional) Set the associated **Rate Limit** for this traffic type. When the Rule Action is set to Block, the Rate Limit sets how much traffic of this type is still allowed through to the internal network.
8. (Optional) If you're not using one of the available traffic types (Bit Rate or Packet Rate), you can use the drop-down to disable that Threshold and Rate Limit.
9. Click **Save**.
10. You can edit the **UDP Destination Port** table to refine the ICMP Smart-Rule by including or excluding certain ICMP packets as potential attack packets when the Defense device calculates the rate. Each packet has an original destination port (from the server sending the ICMP messages); you can choose to enable/disable the ports that count as potential attack traffic towards the ICMP Smart-Rule Threshold.
11. You can edit the **ICMP V4 Types** and **ICMP V6 Types** tables to similarly include or exclude ICMP packets as potential attack packets, by enabling or disabling ICMP types.
12. If you want to save the new configuration, and push your changes to any affected Defense devices, click **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: To return to the default Threshold or Rate Limit value, delete all characters of the current value. To return to the default Rule Action, click the X in that field.

CLI Commands

Edit an ICMP Smart-Rule

```
configure
set policy protection-profile <ppName> smart-rule icmp icmp-from-failed-reflectors
rule-action [block|detect|disabled] [bit-rate|packet-rate] admin-state
[disabled|enabled] threshold <rate> rate-limit <rate>
edit policy protection-profile <ppName> smart-rule icmp [dest-port|v4-type|v6-type]
exit
commit
```

Tip: When your editing the `dest-port`, `v4-type`, or `v6-type` tables, you can type an existing table entry or create a new one. Then for each entry you can edit

description and port-number and choose if the entry is disabled or enabled.


Configuring Smart-Rules for Service Floods

TDD Deployments: All Service Smart-Rules must be set to **block** and a custom Smart-Rule created for **destination port 53**. See the [TDD Policy Overview](#) for more configuration information.



A service flood can happen during a DDoS attack and when a large number of packets appear with the same destination port, you can configure a Service Smart-Rule to block that packet flood. You can set Smart-Rules for five traffic types; for each type, you can set a Bit Rate and a Packet Rate Threshold.

Tip: If you need to specify Thresholds and Rate Limits for a more specific set of UDP destination ports, you can [create a custom Service Smart-Rule](#) to specify the Smart-Rule configuration (threshold, rate limit, and rule action) for that specific type of traffic and exclude it from the configuration of the more general Smart-Rules.

To configure a Smart-Rule to protect against service floods

1. Use the left-hand menu to navigate to **Policy > Smart-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Select the **SERVICE** tab.
4. In the table, locate the Smart-Rule you want to edit and click  the edit button. You can type a text string into the Search field to narrow down the list of Smart-Rules.
5. Set the **Rule Action** for this Smart-Rule. It is triggered when the Packet Threshold or Bit Threshold is crossed.
 - **Block** – The Defense device blocks all traffic matching the rule definition
 - **Detect** – The Defense device inspects all traffic matching the rule definition and sends event syslog messages, but it does not drop the packets
 - **Disabled** – The Threshold is disabled, and the matching traffic is not blocked or detected.
6. Set the **Threshold** rate for your chosen traffic type/s (**Bit Rate**, **Packet Rate** or both). When the rate of that type of traffic (with the same destination port) goes past the Threshold, the Smart-Rule performs the associated Rule Action.

Tip: You can use one or both rates for each traffic specific setting, but in most situations packet rate is sufficient. If you don't want to use a certain type, you can set its value high so it never interacts with traffic. You can normally use a bit rate of 40,000,000,000bps and a packet rate of 40,000,000pps to accomplish this. If you use both rates, the Threshold that is reached first will trigger the Rule Action.


7. (Optional) Set the associated **Rate Limit** for this traffic type. When the Rule Action is set to **Block**, the Rate Limit sets how much traffic of this type is still allowed through to the internal network.
8. (Optional) If you're not using one of the available traffic types (Bit Rate or Packet Rate), you can use the drop-down to disable that Threshold and Rate Limit.
9. (Custom Smart-Rules only) Use the **Destination Ports** table to create a list of the ports you want this Smart-Rule to specifically affect (ports not specified in a custom Smart-Rule are affected by the existing Smart-Rules). Type a UDP destination port number and click **Add**. You can use  the delete button to remove port numbers from the list.
10. Click **Save**.
11. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).



Tip: To return to the default Threshold or Rate Limit value, delete all characters of the current value. To return to the default Rule Action, click the X in that field.

To create a custom UDP Service Smart-Rule

Note: Customer Service Smart-Rules can only be used for UDP traffic.

1. Use the left-hand menu to navigate to **Policy > Smart-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Select the **SERVICE** tab.
4. Click **Add**.
5. Type a unique **Name** for this Smart-Rule. You must only use alphanumeric, spaces, or `.-&()/@:=` symbols.

6. Select an available **Rule** to map your new custom configuration to. There are three available rules for Service Smart-Rules.
7. Edit the Smart-Rule configuration (as above) and click **Save**.
8. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Smart-Rule table, you can use the following action buttons to edit  any Smart-Rules or delete  custom Smart-Rules.

CLI Commands

Tip: While editing the protocols list you can use the following command to remove protocol numbers from the list: `delete <portNumber>`

Edit a built-in Service Smart-Rule

```
configure
set policy protection-profile <ppName> smart-rule service [icmp|tcp-data|tcp-psh-
ack|tcp-rst|tcp-syn|udp] rule-action [block|detect|disabled] [bit-rate|packet-
rate] admin-state [disabled|enabled] threshold <rate> rate-limit <rate>
commit
```

Edit a custom Service Smart-Rule

```
configure
edit policy protection-profile <ppName> smart-rule service custom service-[1|2|3]
set name <name> rule-action [block|detect|disabled]
set [bit-rate|packet-rate] admin-state [disabled|enabled] threshold <rate> rate-limit
<rate>
set destination-ports <portNumber>
commit
```

Create a custom Service Smart-Rule

```
configure
set policy protection-profile <ppName> smart-rule service custom service-[1|2|3] name
<name> rule-action [block|detect|disabled] [bit-rate|packet-rate] admin-state
[disabled|enabled] threshold <rate> rate-limit <rate>
edit policy protection-profile <ppName> smart-rule service custom service-[1|2|3]
destination-ports
set <portNumber>
commit
Delete a custom Service Smart-Rule
configure
edit policy protection-profile <ppName> smart-rule service custom
delete service-[1|2|3]
commit
```

Delete a custom Service Smart-Rule

```
configure
edit policy protection-profile <ppName> smart-rule service custom
delete service-[1|2|3]
commit
```

Configuring Smart-Rules for Server Floods


TDD Deployments: All Server Smart-Rules must be set to **block**. See the [TDD Policy Overview](#) for more configuration information.

A server flood can happen during a DDoS attack and when a large number of packets appear with the same destination IP address, you can configure a Server Smart-Rule to block that packet flood. You can set Smart-Rules for different traffic types; for each type, you can set a Bit Rate and a Packet Rate Threshold.


Tip: If you need to specify Thresholds and Rate Limits for a more specific set of protocols, you can [create a custom Server Smart-Rule](#) to specify the Smart-Rule configuration (threshold, rate limit, and rule action) for that specific type of traffic and exclude it from the configuration of the more general Smart-Rules.

To configure a Smart-Rule to protect against server floods


1. Use the left-hand menu to navigate to **Policy > Smart-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Select the **SERVER** tab.

4. In the table, locate the Smart-Rule you want to edit and click  the edit button. You can type a text string into the Search field to narrow down the list of Smart-Rules.
5. Set the **Rule Action** for this Smart-Rule. It is triggered when the Packet Threshold or Bit Threshold is crossed.
 - **Block** – The Defense device blocks all traffic matching the rule definition
 - **Detect** – The Defense device inspects all traffic matching the rule definition and sends event syslog messages, but it does not drop the packets
 - **Disabled** – The Threshold is disabled, and the matching traffic is not blocked or detected.
6. Set the **Threshold** rate for your chosen traffic type/s (**Bit Rate**, **Packet Rate** or both). When the rate of that type of traffic (with the same destination port) goes past the Threshold, the Smart-Rule performs the associated Rule Action.

Tip: You can use one or both rates for each traffic specific setting, but in most situations packet rate is sufficient. If you don't want to use a certain type, you can set its value high so it never interacts with traffic. You can normally use a bit rate of 40,000,000,000bps and a packet rate of 40,000,000pps to accomplish this. If you use both rates, the Threshold that is reached first will trigger the Rule Action.


7. (Optional) Set the associated **Rate Limit** for this traffic type. When the Rule Action is set to **Block**, the Rate Limit sets how much traffic of this type is still allowed through to the internal network.
8. (Optional) If you're not using one of the available traffic types (Bit Rate or Packet Rate), you can use the drop-down to disable that Threshold and Rate Limit.
9. (Custom Smart-Rules only) Use the **Protocols** table to modify the list of the protocols you want this Smart-Rule to specifically affect (Protocols not specified in a custom Smart-Rule are affected by the existing Smart-Rules). Type an IP protocol number (e.g. 47 for GRE) and click **Add**. You can use  the delete button to remove protocols from the list.



Note: You cannot use TCP protocol (protocol number 6) when creating a Custom Server Smart-Rule. Use [Threat Awareness](#) to handle TCP floods with matching destination IP addresses.

10. Click **Save**.
11. If you want to save the new configuration, and push your changes to any affected Defense devices, click  **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: To return to the default Threshold or Rate Limit value, delete all characters of the current value. To return to the default Rule Action, click the X in that field.

To create a custom Server Smart-Rule

1. Use the left-hand menu to navigate to **Policy > Smart-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Select the **SERVER** tab.
4. Click **Add**.
5. Type a unique **Name** for this Smart-Rule. You must only use alphanumeric, spaces, or .-&()/_@:= symbols.
6. Select an available **Rule** to map your new custom configuration to. There are three available rules for Server Smart-Rules.
7. Edit the Smart-Rule configuration (as above) and click **Save**.
8. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Smart-Rule table, you can use the following action buttons to edit  any Smart-Rules or delete  custom Smart-Rules.

CLI Commands

Tip: While editing the protocols list you can use the following command to remove protocol numbers from the list: `delete <ipProtocolNumber>`

Edit a built-in Server Smart-Rule

```
configure
set policy protection-profile <ppName> smart-rule server [any|icmp|tcp-data|tcp-
rst|tcp-syn|udp|udp-fragment-under-attack] rule-action [block|detect|disabled] [bit-
rate|packet-rate] admin-state [disabled|enabled] threshold <rate> rate-limit <rate>
commit
```

Edit a custom Server Smart-Rule

```
configure
edit policy protection-profile <ppName> smart-rule server custom protocol-[1|2|3]
set name <name> rule-action [block|detect|disabled]
set [bit-rate|packet-rate] admin-state [disabled|enabled] threshold <rate> rate-limit
<rate> protocols
set <ipProtocolNumber>
commit
```

Create a custom Server Smart-Rule

```
configure
set policy protection-profile <ppName> smart-rule server custom protocol-[1|2|3] name
<name> rule-action [block|detect|disabled] [bit-rate|packet-rate] admin-state
[disabled|enabled] threshold <rate> rate-limit <rate>
edit policy protection-profile <ppName> smart-rule server custom protocol-[1|2|3]
set protocols <ipProtocolNumber>
commit
Delete a custom Server Smart-Rule
configure
edit policy protection-profile <ppName> smart-rule server custom
delete protocol-[1|2|3]
commit
```

Delete a custom Server Smart-Rule

```
configure
edit policy protection-profile <ppName> smart-rule server custom
```

```
delete protocol-[1|2|3]
commit
```

Edit the Smart-Rule Scale Percentages

Smart-Rule Scale is used in [Inspection Control override entries](#) to scale up or down the Smart-Rule Thresholds and Rate Limits depending on the traffic's destination IP address.

To edit a Smart-Rule Scale percentage

1. Use the left-hand menu to navigate to **Policy > Smart-Rules**.
2. From the **Selected Protection Profile** drop-down, choose the Protection Profile you want to edit.
3. Select the **SCALE** tab.
4. Set the following percentages:
 - **High** – Set the scaling percentage for all Inspection Control override entries set to use a **high** Smart-Rule Scale. The default is 200%.
 - **Medium** – Set the scaling percentage for all Inspection Control override entries set to use a **medium** Smart-Rule Scale. The default is 100%.
 - **Low** – Set the scaling percentage for all Inspection Control override entries set to use a **low** Smart-Rule Scale. The default is 50%.
5. If you want to save the new configuration, and push your changes to any affected Defense devices, click **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: To return to the default Threshold or Rate Limit value, delete all characters of the current value. To return to the default Rule Action, click the X in that field.

CLI Commands

Edit Smart-Rule Scale percentages

```
configure
set policy protection-profile <ppName> smart-rule scale high <highPercentage> medium
<mediumPercentage> low <lowPercentage>
commit
```

Managing Programmable Smart-Rules

CLI and REST API only

Custom match definitions will have the following options (each with a mask)

- Source – SIP, Protocol
- Reflection – Packet Length, DIP, Protocol, Fragment, Source Port, TCP Flags, DNS options
- Service – Packet Length, DIP, Protocol, TTL, Fragment, Destination Port, TCP Flags
- Server – DIP, Protocol, Fragment, TCP Flags
- ICMP – Destination, ICMP type, Fragments

Inspection Control Smart-Rule scaling works as per other rules

Create

```
configure
set policy protection-profile <ppName> smart-rule service programmable service-[1|2] name
<name> rank <rankNumber> rule-action [block|detect|disabled] [bit-rate|packet-rate] admin-state
[disabled|enabled] threshold <rate> rate-limit <rate>
edit policy protection-profile <ppName> smart-rule programmable custom service-[1|2]
destination-ports
set <portNumber>
edit policy protection-profile <ppName> smart-rule programmable custom service-[1|2]
set custom-mask <maskName>[???]
commit
```

Delete

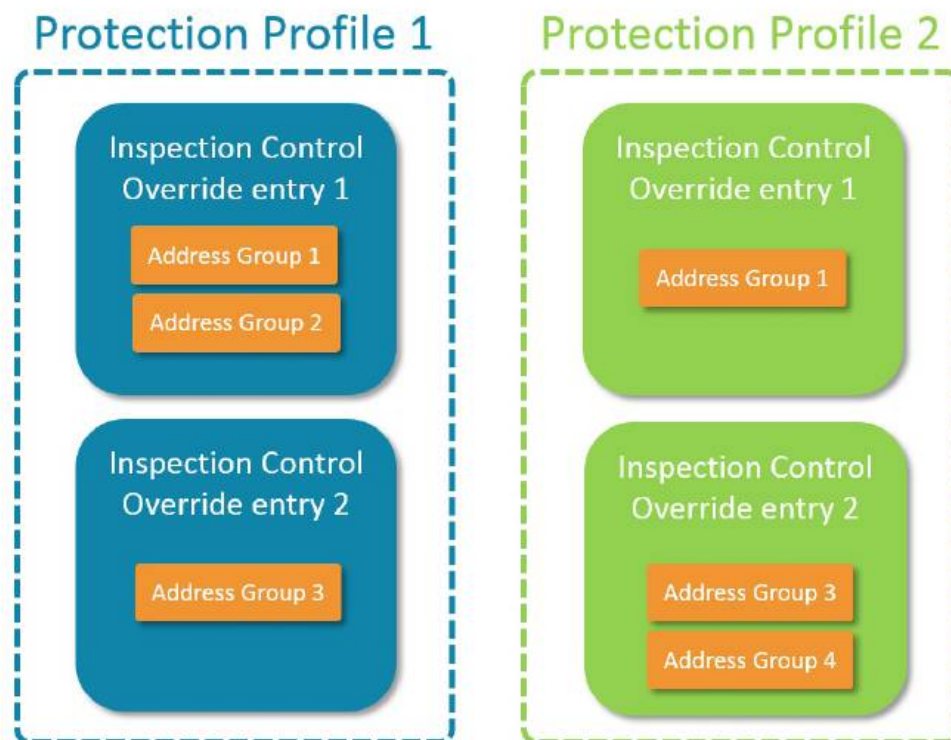
```
configure
edit policy protection-profile <ppName> smart-rule service programmable
delete service-[1|2]
commit
```


Address Groups

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Address Groups Screen reference topic](#).

An Address Group is a set of related IP addresses which you can use (and reuse) in multiple Protection Profiles. In addition to its use in Protection Profiles, the Address Group associated with an IP address can be made visible as part of any Security Event or sFlow syslog messages sent to SmartWall SecureWatch Analytics (SWA). This enables you to perform searches aimed at a specific Address Group. If you associate a name with an individual IP address it can also appear in the messages.

You can create up to 512 Address Groups.



When you create an Address Group, you don't assign a purpose to the IP addresses/ranges/subnets it contains. This enables you to use them how you want within the Policy and even reuse the same group in different ways or across different Protection Profiles.

If you choose to create Address Groups of related destination IP addresses, you can use them in Inspection Control override entries in multiple Protection Profiles. You can give names to the group and the individual IP addresses/ranges/subnets, so you can quickly see which assets in your network these IP addresses represent.

Equally, you could create groups of related source IP addresses to identify trustworthy or untrustworthy customers, and use those groups, in Source Control entries, to blocked list or allowed list the source IP addresses.

You can also use Address Groups in [Flex-Rule Lookup Tables](#), to enable a Flex-Rule filter to compare the IP on an incoming packet with the list of IP addresses in the selected Address Groups.

Note: If you enable IP Filters, then do not add your current IP address as an allowed IP address for management access, you will be blocked from accessing the CMS. Make sure you're current IP address is allowed before committing a change in this area.

[Learn more about using IP Address subsets in the CMS.](#)

Note: You can manually add IP addresses to an Address Group or you can import multiple addresses using a .csv file.

Syslog messages

When the CMS generates a syslog message, if the IP address in the message is contained in an Address Group, then the group name and the IP entry name (if used) can also be included in the message. This enables you to query specific Address Groups or IP entries in SmartWall SecureWatch Analytics. To include the Address Group name and IP names, you need to [enable analytics IP Reporting](#) for that group.

Dynamic Address Groups

Dynamic Address Groups are created and amended through Smart-Plugins. These are similar to Address Groups, but are managed by code within the plugin allowing for fast adding or removing of IP Address. Dynamic Address Groups are available for use in the Flex-Rules IP table and BGP Mitigation DIP Thresholds.

On the Address Groups page of the CMS Web UI, the DYNAMIC ADDRESS GROUPS tab provides a read-only view which can be searched to identify either the name of the Dynamic Address Group or an IP address within a group.



Creating Address Groups

Rather than managing IP addresses individually, you can group like addresses into Address Groups. For example, you may group the destination IP addresses of your assets into location based groups. You can create up to 512 Address Groups.

Tip: You can use Address Groups in Inspection Control and Source Control.

To create a new Address Group


1. Use the left-hand menu to navigate to **Policy > Address Groups**.
2. At the table, click **Add**.
3. Type a **Name** for the new Address Group. You must only use alphanumerics, spaces, or .-&()/@:= symbols.



4. (Optional) Type a **Description** of this Address Group.
5. Click **Add** to add an IP address, range, or subnet to the group. Type an **IP** address, range (e.g. 10.10.10.0-10.10.10.100) or subnet (e.g. 10.10.10.0/24) and, optionally, a **Name** (which will appear in syslog messages with the Address Group name). Then click **Save**.
6. You can use a single IP address/range/subnet, or you can continue to add them to the Address Group in the same way. You can also use  the delete button to modify your group.
7. When you're happy with the group, click **Save**.
8. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Caution: The same IP address cannot exist in more than one Address Group which is used for [IP Reporting](#). If you add an IP address which already exists in another group, you won't be warned at this stage.

To import an Address Group

Tip: [Learn more about importing and exporting Address Groups.](#)

1. Use the left-hand menu to navigate to **Policy > Address Groups**.
2. At the table, click **Import**.
3. Locate and select the .csv file and click **Open**.
4. (Optional) Edit the **Name** for the new Address Group.
5. (Optional) Type a **Description** of this Address Group.
6. Click **Save**.
7. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: From the Address Groups table, you can edit  or delete  existing Address Groups.

CLI Commands

Create a new Address Group

```
configure
set policy address-group <agName> description "<description>" ip <ipAddress> name
<ipName>
commit
```

Import an Address Group

```
configure
request policy import address-group name <agName> description "<description>" remote-
uri <remoteUri> remote-password <remotePassword>
commit
```

Edit an existing Address Group

```
configure
edit policy address-group <agName>
commit
exit
```

Tip: Use the *set* command to edit the *description*, or add a new *ip* (and optionally a *name*). Use the *delete* command to remove an existing *ip*.

Rename an Address Group

```
configure
edit policy address-group <agName> rename name <newName>
commit
```

Delete Address Group

```
configure
edit policy address-group
delete <agName>
```



Note: You can only delete an Address Group if it isn't referenced by an attack mitigation feature (i.e. Source Control or Inspection Control).

Exporting and Importing Address Groups

As well as importing a .csv file to create a new Address group you can use them to edit existing groups. You can export address groups to store externally, edit externally, or import into another CMS.

Caution: The same IP address cannot exist in more than one Address Group which is used for [IP reporting](#). If you import an IP address which already exists in another group, you won't be warned at this stage.


To add multiple IP addresses to an existing group

1. Use the left-hand menu to navigate to **Policy > Address Groups**.
2. At the table, locate the Address Group you want to edit and click  the edit button.
3. Click **Import**.
4. Locate and select the .csv file and click **Open**.
5. Select a **Method**:
 - **Merge** – Keep all existing IP addresses in this group and add any new ones from the .csv file
 - **Replace** – Delete all existing IP addresses in this group and replace with the list of IP addresses in this .csv file
6. Click **Import**.
7. If you want to save the new configuration, and push your changes to any affected Defense devices, click  **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

```
configure
request policy address-group <agName> import method [merge|replace] remote-uri
<remoteUri> remote-password <remotePassword>
commit
```

To export an Address Group as a .csv file

1. Use the left-hand menu to navigate to **Policy > Address Groups**.
2. At the table, locate the Address Group you want to export and click  the export button.
3. The addresses and their names will be downloaded as a .csv file in your browser

CLI Commands

```
request policy address-group <agName> export remote-uri <remoteUri> remote-password <remotePassword>
```

To format a .csv file for import

If you want to create a .csv file containing a list of IP addresses, or want to export it from another system, it must be formatted in the following way:

```
"address1", "name1"
"address2",
"address3", "name3"
"address4", "name4"
```

You must:

- Use a new line for each entry.
- Surround each address in quotes and surround each name in quotes.
- Not have any whitespaces around the comma.
- Include a comma after an address, even if you don't want to provide a name for it. No name can be represented by empty quotes or by nothing.
- Not have any empty lines.
- Save the file with a .csv extension.

Example in text editor

```
"1.1.1.1", ""
"2.2.2.2-2.2.2.19", "name2"
"3.3.3.0/24", "name3"
```

Example in Excel

If you are creating the .csv file in excel, you do not need to use quotes or commas. Put all addresses in column A and their corresponding names in column B. Then save the file as a .csv file.

	A	B	C	D
1	1.1.1.1			
2	2.2.2.2-2.2.2.19	name2		
3	3.3.3.0/24	name3		
4				
5				
6				
7				
8				


Enabling IP Reporting for an Address Group

You can configure the CMS to send Address Group and IP address names in event syslog messages. This can enable you more easily search and identify trends in the analytics application. You must enable this feature for each Address Group.

Caution: The same IP address cannot exist in more than one Address Group which is used for IP reporting.

To enable an Address Group for Analytics IP Reporting

1. Use the left-hand menu to navigate to **System > Analytics & Syslog**.
2. Select the **IP REPORTING** tab.
3. Click **Add**.
4. Select an **Address Group**.
5. Click **Save**.
6. If you want to save the new configuration, and push your changes to any affected Defense devices, click **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the table, you can use  the delete button to disable IP reporting for an Address Group.

CLI Commands

Enable IP reporting for an Address Group

```
configure
set analytics ip-reporting group2 <agName>
commit
```

Disable IP reporting for an Address Group

```
configure
delete analytics ip-reporting group2 <agName>
commit
```

Searching a Dynamic Address Group

1. Use the left-hand menu to navigate to **Policy > Address Groups**.
2. Click on the **DYNAMIC ADDRESS GROUPS** tab.
3. Searching the Dynamic Address Groups can be accomplished through either the:
 - Main Search box at the top of the screen – Searches the available Dynamic Address Groups by either name or IP address.
 - Search in the Actions field – Opens an additional dialogue box linked to that Dynamic Address Group and will allow the group to be searched. The search box will be greyed out if there are only a few IPs.

CLI Commands

Each registered Dynamic Address Group can be viewed at

```
/policy/dynamic-address-group
```

This shows the entry and the start and end IP addresses in the range.

SECTION 3

Manage Network

The CMS defines the attack mitigation Policy for each Defense device and enables you to push updates and changes to those devices without having to touch the device itself. The CMS also manages these connected Defense devices.

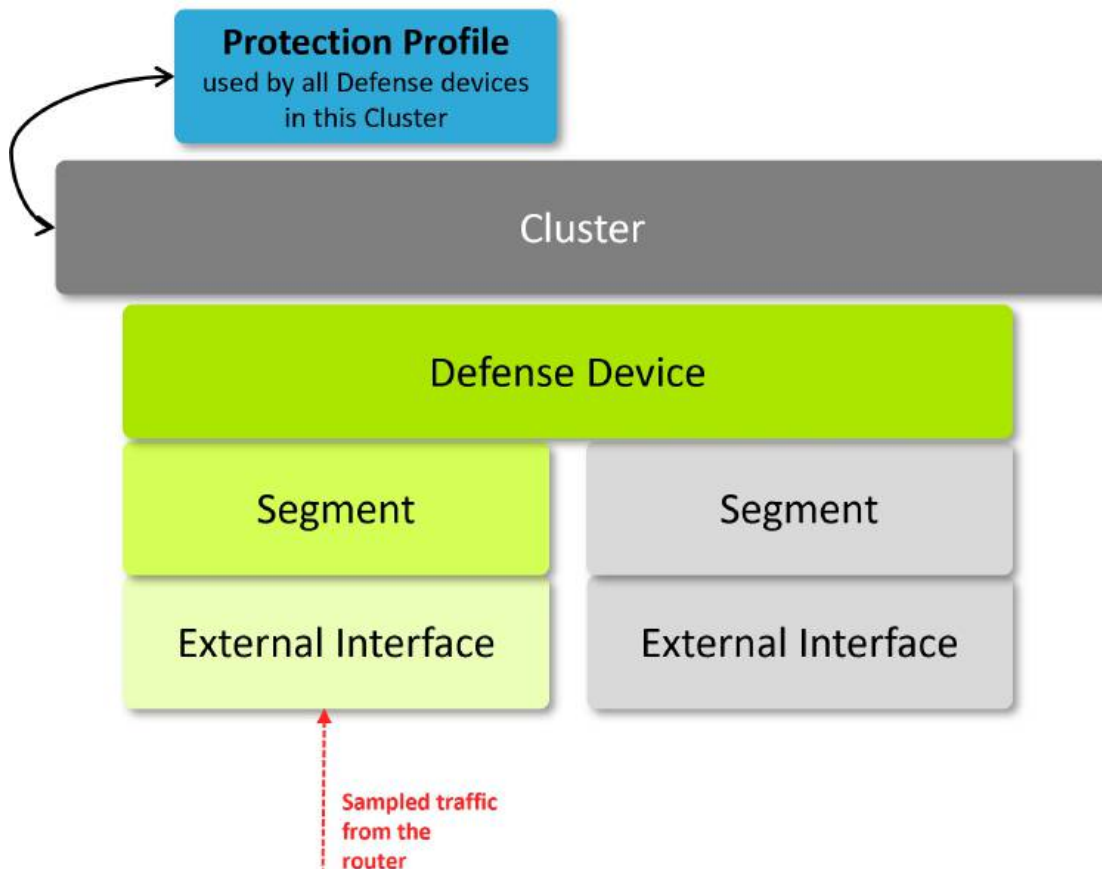
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SmartWall Network

Your SmartWall Threat Defense Director (SmartWall TDD) is made up of a SmartWall Central Management Server (CMS), a SmartWall SecureWatch Analytics (SWA) application and multiple Defense devices. You can manage these devices using the CMS.



Protection Profiles

A Protection Profile is a container for a configuration of the attack mitigation features (Policy) in the CMS. When you associate a Protection Profile with a Cluster, it provides the Defense devices in that Cluster with the Policy for handling incoming traffic. You can create one Protection Profile for your network or multiple Protection Profiles each containing a different Policy.

Clusters

A Cluster is a set of identically configured Defense devices. When you create a new Cluster you must associate it with a Protection Profile; which controls how the devices in that Cluster respond to traffic. A single CMS can control up to 16 Clusters.

Devices

There are two types of devices in the SmartWall TDD system:

- **Defense devices** – This is broader term for the vNTDs (SmartWall Network Threat Defense Virtual Edition devices) which are used purely as Detection Engines in a SmartWall TDD deployment.
- **Remote Devices** – This is a broader term for the Juniper Networks MX Series router used to mitigate DDoS attack traffic. These are managed in the SWA and will not appear in the CMS.

Segments

A Segment is a set of 1 or 2 interfaces to which DDoS protection is applied. The first time you connect a Defense device to the CMS, it identifies the available interfaces and records them as Segments. A vNTD has two available interface ports which act as 2 single interface Detector Segments. If you don't require the second Segment, you can [disable it after deployment](#).

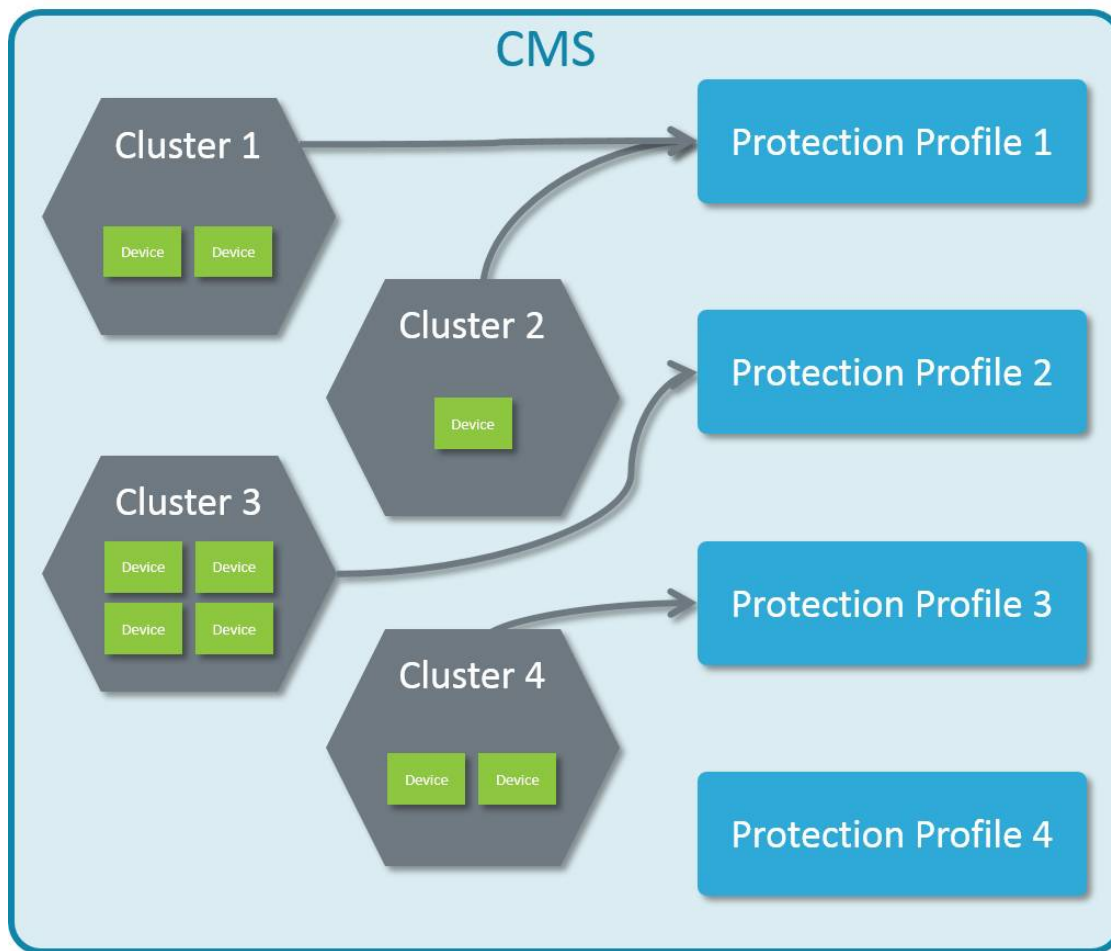
Interfaces

Interfaces are the physical ports on a device where traffic passes into and out of the device.

Clusters

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Clusters Screen reference topic](#).

A Cluster is a set of identically configured Defense devices. When you create a new Cluster, you must associate it with a Protection Profile; this Protection Profile contains a Policy which controls how the devices in that Cluster respond to traffic. A single SmartWall Central Management Server (CMS) can control up to 16 Clusters. After installation, the CMS initially has a single default Cluster which is associated with the default Protection Profile and default Authentication Group.



How you choose to group your Defense devices depends on your deployment:

- If you want to use multiple Protection Profiles (to have some Defense devices treat traffic differently to others), you need to have a new Cluster for each Protection Profile you want to use.

- If you want to use a single Protection Profile for all your Defense devices, you may choose to have a single Cluster. However multiple Clusters can use the same Protection Profile, so you could continue to use a single Protection Profile while you group your devices into logical arrangements, such as by location or link type. Having devices grouped in that way can improve the usefulness of SmartWall SecureWatch Analytics because every syslog message sent from the CMS contains a Cluster name. You could use this to view more specific queries on a specific group of Defense devices, such as reports on all the devices in a single location.
- Or you may choose a mixture of both, using multiple Protection Profiles where each has multiple Clusters. However, a Cluster can only be associated with one Protection Profile at a time. For example, if you want to separate your Defense devices by their locations in your New York and Boston data centers but you have two Protection Profiles which you use in both locations, you would need to have four clusters: "Protection Profile 1 (New York)", "Protection Profile 1 (Boston)", "Protection Profile 2 (New York)", and "Protection Profile 2 (Boston)".

Note: You cannot add a [Bypass device](#) to a Cluster. To associate a Bypass device with a Defense device, you must assign the Bypass device to the [Segment](#) it is physically connected to.

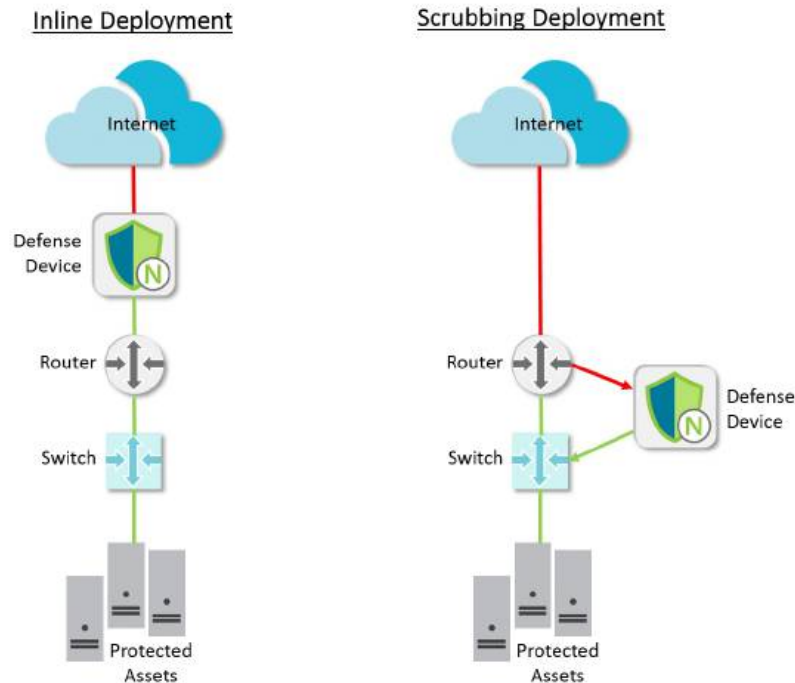
A Defense device can only belong to one Cluster at a time. If you want to move a Defense device to a new Cluster, you must first remove it from the current Cluster before you can add it to the new one.

Until you add a new Defense device to a Cluster, it can only work in pass-through mode (sending all traffic on to the internal network without inspecting or blocking). When you remove an existing Defense device from a Cluster, it retains the last Policy it synced from the CMS. It will continue to mitigate traffic in that way until you add it to a new Cluster. Once you add it to a new Cluster, the Policy associated with that new Cluster will overwrite the device's stored Policy.

Deployment Options and Clusters

There are multiple ways to deploy your Defense devices to provide the best DDoS mitigation for your network. The two most common are:

- **Inline DDoS Mitigation** – The Defense devices are deployed physically inline on the incoming fiber connection, in front of your edge router.
- **Scrubbing DDoS Mitigation** – Traffic requiring DDoS protection is logically rerouted by your router through the Defense devices.



When you use Inline DDoS Mitigation, the Defense devices must be placed before the edge router in your network. However, if you use Scrubbing DDoS Mitigation, the Defense devices can be deployed in various locations within your network.

Analytics reporting per cluster

The syslog messages sent from the CMS to SmartWall SecureWatch Analytics contain Cluster names. This enables you to aggregate device information for all devices in a Cluster and view reports on the group. For multiple Clusters, this enables you create more specific reports on your device groups. For Clusters that use different Protection Profiles, this enables you to more clearly see which Protection Profile might need tuning.

Managing Clusters

TDD Deployments: For Clusters of TDD vNTDs, you must set the **Ingress Sample Rate** to the same value as the Port-Mirroring Sample rate on the routers those vNTDs are connected to. If you have more than one Port-Mirroring Sample rate on your routers, you will need a Cluster of vNTDs configured for each rate.




If you want to use multiple Protection Profiles (to have some Defense devices treat traffic differently to others), you need to have a new Cluster for each Protection Profile you want to use. Alternatively, you may want to use the same Protection Profile for all devices but separate them into Clusters for more easily searchable analytics.



Caution: The more Clusters you use, the more copies of the Protection Profile must be sent down to the Defense devices. This can increase your device syncing time.

Prerequisites

You must have at least one [Protection Profile](#) and one [Authentication Group](#) before you can create a Cluster. When you first install the CMS you have a default Protection Profile and a default Authentication Group.



To create a new Cluster


1. Use the left-hand menu to navigate to **Network > Clusters**.
2. At the table, click **Add**.
3. Type a **Name** for Cluster. You must only use alphanumeric, spaces, or `.-&()/_@:=` symbols.
4. (Optional) Type a **Description**.
5. (Optional) If the devices are part of a TDD deployment you will need to set an **Ingress Sample Rate**. Otherwise leave it at the default value of 1.
6. Select the **Protection Profile** you want the devices in this Cluster to use.
7. In the **Available Devices** box, check the box next to the devices you want to add to the new Cluster and click  the right arrow. You can remove devices by selecting them in the **Devices in Cluster** box and using  the left arrow.
8. Click **OK**.
9. If you want to save the new configuration, and push your changes to any affected Defense devices, click  **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).


Tip: On the Clusters table, you can use the following action buttons to edit  or delete  a Cluster.

To add a Defense device to a Cluster

Note: You cannot add a Bypass device to a Cluster. You must [associate a Bypass device with the Segment](#) on the Defense device it is physically connected to. The Bypass device will then inherit the Cluster of that Defense device.

1. Use the left-hand menu to navigate to **Network > Clusters**.
2. From the table, locate the Cluster you want to add the device to, and click  the edit button. You can type a text string into the Search field to narrow down the list.
3. In the **Available Devices** box, check the box next to the device you want to add to the new Cluster and click  the right arrow.

4. Click **OK**.
5. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: To remove a device from a Cluster, follow the same process but use  the left arrow to remove the device. When you remove a Defense device from a Cluster, it will have the deployment state **not-in-cluster** and will retain its last Policy configuration. If you add the device to a new Cluster, the Policy associated with the new Cluster overrides the device's previous Policy.

CLI Commands

Create a new Cluster

```
configure
set clusters cluster <clusterName> description "<description of cluster>" protection-
profile <ppName> <deviceName>
commit
```

Edit an existing Cluster

```
configure
edit clusters cluster <clusterName>
set protection-profile <ppName> description "<descriptionText>"
commit
exit
```

Rename a Cluster

```
configure
request clusters cluster <clusterName> rename name <newName>
commit
```

Add a Defense device to a Cluster

```
configure
```

```
set clusters cluster <clusterName> <deviceName>  
commit
```

Remove a Defense device from a Cluster


```
configure
delete clusters cluster <clusterName> <deviceName>
commit
```

Delete a Cluster

```
configure
edit clusters
delete cluster <clusterName>
commit
exit
```

Troubleshooting

The Defense devices in this Cluster aren't handling traffic as I expected

Check the Cluster has the correct Protection Profile associated with it. That Protection Profile is what the Defense devices in this Cluster use to define how they handle incoming traffic. Locate the Cluster in the table and click  the edit button.

If the Protection Profile is correct, check there are no Operating Mode overrides on this Cluster or its devices: **Network > Operating Modes**.

Devices

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Devices Screen reference topic](#).

The CMS manages your Defense devices, which are virtual Network Threat Defense devices (vNTDs). These devices act as Detection Engines and detect DDoS attack traffic in mirrored samples sent from the edge routers.

While the SmartWall TDD only uses vNTDs, in the user interface and documentation you should be aware that device can refer to any of the Defense devices compatible with the SmartWall TDS system (virtual or physical) or a Bypass Device.

Note: The SmartWall TDD system also includes Remote Devices (which are your edge routers). These are managed by the SWA and are not part of the devices managed by the CMS. See the **SmartWall TDD User Guide** for more information.

Clusters

When you physically add a new Defense device to your network, you need to also add it to the CMS before it can begin to mitigate attacks. When you add a new Defense device to the CMS, you must also assign it to a [Cluster](#). The Cluster is associated with a [Protection Profile](#) which contains the Policy that your new device will use to identify good and bad traffic.

When you add a new external Bypass device to the CMS, you do not need to add it to a Cluster, but you must assign it to the Segment on the Defense device it is physically connected to.

Authentication Groups

An Authentication Group manages the authentication credentials which the SmartWall Central Management Server (CMS) uses to connect with the SmartWall devices. All devices must be associated with an [Authentication Group](#) containing the correct access credentials for that device, to enable the CMS to communicate with the device.

Default Authentication Group

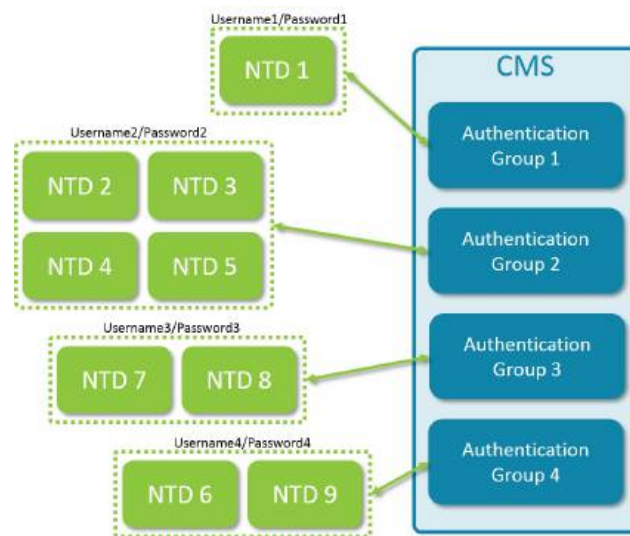
When you first deploy a SmartWall device, it has a default username and password associated with it (admin/smartwall). When you first deploy the CMS, it uses the default Authentication Group to connect with the new devices.

When you change the username and password on your devices to one specific to your organization, you must either update the default Authentication Group to match or create a new Authentication Group with the updated credentials.

Note: If your CMS authentication credentials do not match the expected credentials on a device, the Deployment State will appear as **authentication-failed** and you can't change any device configurations until you fix the authentication.

Using multiple Authentication Groups

Depending on your organization's security policy, all your devices may use the same username/password, or your devices may need to have a range of authentication credentials. If you have devices with different credentials in your network, you must create an Authentication Group for each set of credentials, then add the devices using those credentials to the relevant groups. This way the CMS knows which username/password to send to which device.





SNMP

You can use the CMS SNMP (Simple Network Management Protocol) to collect device and interface information on your SmartWall devices, using your own network management system. You can [enable basic SNMPv2c for the Defense device](#). This allows you to query basic network layer information from the [IF MIB](#). You can download MIB files from the support portal.

You can [enable basic SNMPv2c for the Defense device](#). This allows you to query basic network layer information from the [IF MIB](#). You can download the MIB files from the support portal.

Viewing Device Status

If you see a device status alert on the Status bar (when  the in-sync or  the reachable icon turns orange) or want to view information about your devices, you can view that information on the Devices screen and the Home screen.

To view the status of a device

1. Use the left-hand menu to navigate to **Network > Devices**.
2. At the table, you can see the current status of all your connected devices.
3. (Optional) Type a text string into the Search field to narrow down the list of devices. For example, you could search for all devices in a specific Cluster, or of a specific device type, or in a particular defense mode etc.

CLI Commands

```
show devices device status
```

Reading the Devices table

The Devices table shows the current status of every device connected to your CMS. For each device you can see its basic information and the current state of the device in three columns: **Deployment State**, **Deployment Action**, and **Status**.

Caution: The Devices table is updated every 10 seconds, so the state may be up to 10 seconds old. If a device quickly changes state and returns within that 10 second window, you won't see the change.

Deployment State

This column shows the current state of the device. It can display the following:

- **in-sync** – The device is connected and its configuration matches the current configuration stored in the CMS for this device.
- **sync-required** – The device is connected but its configuration does not match the current configuration stored in the CMS for this device. The device could have become out of sync if it was unavailable when a change was committed in the CMS or if you have replaced a connected device with a new version (with the same IP address). Use the **Sync** option to push the Policy changes to the device.
- **force-sync-required** – The device is connected but there has been an unexpected error in the configuration. Use the **Force sync** option to wipe the old configuration from the device and replace it with the current version stored in the CMS.

- **unexpected-device-type** – The selected device type does not match the information on the actual device when queried. Edit the device and give it the correct Device Type. If you have added a remote device to the devices table, it will appear as an unexpected device. You must delete it and add it to the Remote Devices screen in the SWA.
- **not-in-cluster** – (Defense device only) The Defense device is connected but it is not in a Cluster so has no Policy associated with it. Add the device to an existing Cluster or create a new Cluster for it.
- **initial-sync-pending** – The device is connected but it is new and the CMS has not yet sent its configuration. Alternatively, an unlicensed device has just been given a license.
- **deploy-pending** – The device is connected but is waiting for the CMS to complete a configuration deployment. If the deployment is successful the state will change to in-sync.
- **unsupported-version** – The device is connected but the software version on the device is not compatible with this version of the CMS.
- **invalid-modules-detected** – The Defense device contains an unsupported module configuration. Physically correct the modules, then redeploy the device.
- **unknown** – The CMS has not yet attempted a connection to a new device or is unable to report the state for another reason.
- **no-connection** – (Connection State) The CMS is unable to connect to the device or discover the device model.
- **connection-refused** – (Connection State) The CMS successfully sent a request to the device but the device refused to send a response. Check you have the correct IP address for the device in the Devices table, and check that there isn't a firewall blocking the connection.
- **connection-timed-out** – (Connection State) The CMS attempted a connection but the attempt timed out. Check you have the correct IP address for the device in the Devices table, and check that there isn't a firewall blocking the connection.
- **authentication-failed** – (Connection State) The CMS attempted a connection but the authentication credentials on the CMS did not match the credentials on the device. Check that the device is in the correct Authentication Group in the CMS and that the credentials associated with that group are correct.

Note: In the CLI there are two columns for this information: **Connection State** and **Deployment State**. Connection State covers the six connection states and, when the device is **Connected**, Deployment State shows whether the device is **In sync**, **Sync required**, **Force sync required**, **Not in cluster**, **Initial sync pending**, or **Deploy pending**.

Deployment Action



This column shows if the device is currently performing an action. It can display the following:



- **none** – The device is not performing any deployment action
- **deploy-in-progress** – The device is currently being deployed.
- **upgrade-in-progress** – The device is currently being upgraded by the CMS
- **commit-in-progress** – The device is currently receiving a committed configuration change from the CMS
- **sync-to-in-progress** – The device is currently syncing with the CMS
- **force-sync-in-progress** – The device is currently being force synced by the CMS

Note: You can use the **Reboot** option, on the Devices table, to restart a device. If you commit any changes in the CMS while the device is restarting, you may have to **Sync** the device when it comes back online.

Status

This column shows whether traffic is running to the device as normal or if there is currently a problem with the device which may affect traffic or its connection to the CMS. The Status field can display either **normal** or it can show one or more of the other states:

- **normal** – Traffic is running normally.
- **not-in-sync** – The device is not currently in sync. This could be for a number of reasons. Check the Deployment State to see if an action is required.
- **not-in-cluster** – (Defense device only) The Defense device is not in a Cluster. Go to **Network > Clusters** and edit a Cluster to include this device.
- **not-licensed** – (vNTD only) The vNTD does not currently have a license associated with it. If you have available license capacity, click  and select **License**. If you need additional license capacity, contact your Corero representative.
- **connection-issue** – This device is experiencing a connection issue. See the Deployment State column for the specific connection issue (i.e. no-connection, connection-refused, connection-timed-out, authentication-failed, unsupported-version, or unknown)
- **authentication-failed** – The CMS does not have the right authentication credentials for this device. Click  to check the device is in the correct Authentication Group.
- **device-unreachable** – The device cannot be reached at all. Check the device has the correct IP and all physical connections are working as expected.
- **link-down** – A link on this device is currently down. This status appears even if the link is brought down due to Link State Propagation.

- **uncleared-alarms** – There are one or more uncleared alarms associated with this device. Click  the Alarm icon in the status bar to see the list of alarms.
- **heartbeat-failed** – (Defense device Only) The Bypass device, associated with this Defense device, has been unable to reach the Defense device and if it was in Automatic mode has now started bypassing the Defense device and sending traffic directly to the internal network.
- **Invalid-modules-detected** – The Defense device contains an unsupported module configuration. Physically correct the modules, then redeploy the device.
- **unexpected-device-type** – The device has the wrong device type selected (e.g. it is a Bypass device but has defense type selected). Click  to change the device type.
- **unsupported-version** – The software version on this device is incompatible with the software currently on the CMS. You need to upgrade the device software to a supported version.
- **no-sflow** – CMS is not currently receiving sFlow samples from the device.
- **no-syslog** – CMS is not currently receiving syslog messages from the device.

Note: When a Defense device is showing heartbeat-failed, the associated Bypass device will most likely be showing as normal. This is because the Bypass device is behaving as expected in this situation and only the Defense device has an issue.

For more information about this table, see the [Devices Screen reference](#).

To view the current status of an interface on a device

Each Segment on a device is made of two interfaces; one internal and one external. You can check the status of a device's interfaces using CMS.

1. Use the left-hand menu to navigate to **Network > Devices**.
2. Click the **INTERFACES** tab.
3. From the **Device(s)** drop-down, choose the device where this interface is located.
4. From the **View** drop-down, select **Summary**, **Packet Statistics**, **Diagnostics** or **Hardware Modules**.
5. In the table you can see the selected information on the selected device.

CLI Commands

```
show devices device <deviceName> interfaces interface <interfaceName>
commit
```

Resetting interface counters

Caution: Resetting counters can affect your analytics information in SWA and should only be done when recommended by Corero Customer Support.

To investigate packet or byte counts, you can reset interface counters to measure inbound and outbound packets/bytes over any period of time you require.

Reset counters for all interfaces shown


1. Use the left-hand menu to navigate to **Network > Devices**.
2. Click the **INTERFACES** tab.
3. From the **Device(s)** drop-down, choose the device or devices you want to rest counters on.
4. From the **View** drop-down, select **Packet Statistics**.
5. The table should now display the current counters for all selected to devices.
6. To reset all displayed counters in the table, click **Reset All Counters**.
7. Click **OK** to confirm.

Corresponding CLI commands

Caution: The CLI command resets the interfaces for all devices connected to the CMS. There is no way to select a subset of devices like there is in the CLI.

```
request devices device <deviceName> interfaces reset interface-counters
commit
```

Reset counters for a single interface

1. Use the left-hand menu to navigate to **Network > Devices**.
2. Click the **INTERFACES** tab.
3. From the **Device(s)** drop-down, choose the device where this interface is located.
4. From the **View** drop-down, select **Packet Statistics**.
5. From the table, locate the interface you want to reset counters for and click  the reset button.
6. Click **OK** to confirm.


Corresponding CLI commands



```
request devices device <deviceName> interfaces interface <interfaceName> reset
interface-counters
commit
```

Adding a Device to the CMS

Once you physically install a new device, you need to connect it to a CMS.

To add a device to the CMS

1. Use the left-hand menu to navigate to **Network > Devices**.
2. At the table, click **Add**.
3. Type a **Name** for this device. You must only use alphanumeric, spaces, or .-&()/_@:= symbols.
4. (Optional) Type a **Description** of the device.
5. Type the IP **Address** (IPv4) of the device (you will have set this up when you installed the device. See the **Getting Started Guide** for more information)
6. For Defense devices, select the **Cluster** you want to add this device to. The device's defense Policy is determined by the Protection Profile associated with the Cluster.
7. (Optional) If your device does not use the credentials in the Default Authentication Group, from the **Authentication Group** drop-down, select the Authentication Group which corresponds to the authentication credentials on this device.
8. Click **OK**.
9. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Devices table, you can use the following action buttons to edit  or remove  a device.

CLI Commands

Add a device to the CMS

```
configure
set devices device <deviceName> description "<Description Text>" address <ipAddress>
type [defense|bypass] authgroup <authName>
set clusters cluster <clusterName> <deviceName>
commit
```

Edit a device

```
configure
edit devices device <deviceName>
set address <ipAddress>
set authgroup <groupName>
set description "<description>"
commit
exit
```

Note: Changing a device's IP address in the CMS only changes the IP address the CMS uses to locate the device. If you want to give the device a new IP address, you must [access the device's pCLI on the console port](#).

Remove a device from the CMS

```
configure
edit devices device
delete <deviceName>
commit
exit
```

Troubleshooting

New vNTD device showing as not-licensed

If the device is a SmartWall Network Threat Defense Virtual Edition (vNTD), you must have at least 10Gbps available license capacity for the device to automatically license and connect to the CMS. If you don't, you will have to create some space by delicensing an old vNTD or buying additional license capacity from your Corero representative. You can then [license the device](#) manually.


Next steps



- For a Defense device:
 - [Disable unused interfaces](#)
 - NTD1100 Only: [Changing the FEC mode for an interfaces](#)
 - Split-fiber deployments: [Disable Link State Propagation for Segments](#)
- For a Bypass device:
 - [Connect a Bypass device to a Segment](#)

Managing Authentication Groups

Unless all your devices use the same credentials, you will need to create additional Authentication Groups to connect them to the CMS.



To create an Authentication Group

1. Use the left-hand menu to navigate to **Network > Devices**.
2. Click the **AUTHENTICATION GROUPS** tab.
3. At the table, click **Add**.
4. Type a **Name** for the group. You must only use alphanumerics, spaces, or `.-&()/_/@:=` symbols.
5. Type the **Device Username**.
6. Select from the following verification options:
 - **SSH Key** – Not available for physical devices. For vNTD's only, use the drop-down to select the private key from the [SSH Keys](#) table that corresponds to the devices public key
 - **Device Password/Confirm Password** – Enter the Password for this device's administrator credentials
7. Click **OK**.
8. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Authentication Groups table, you can use the following action buttons to edit  or remove  Authentication Groups.

To change a device's Authentication Group

If you edit a device's credentials in the device pCLI, you will either need to [create a new Authentication Group](#) for this device or move the device into an existing Authentication Group which has those credentials already.

1. Use the left-hand menu to navigate to **Network > Devices**.
2. From the table, locate the device you want to edit and click the  edit button. You can type a text string into the Search field to narrow down the list.
3. From the **Authentication Group** drop-down, select the new group.
4. Click **OK**.
5. If you want to save the new configuration, and push your changes to any affected Defense devices, click  **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

Create a new Authentication Group

```
configure
set devices authgroups <authName> group <groupName> default-map remote-name <username>
remote-password <password>
commit
```

Tip: If you're using the Public Key authentication option, after `default-map` use the command `public-key private-key name <keyName>`.

Edit an Authentication Group

```
configure
edit devices authgroups <authName>
commit
exit
```

Tip: Use the `set default-map` command to edit the `remote-name` and `remote-password` or the `public-key`.

Rename an Authentication Group

```
configure
request devices authgroups group <authName> rename name <newName>
commit
```

Delete an Authentication Group

```
configure
edit devices authgroups
delete group <authName>
commit
exit
```

Change a device's Authentication Group

```
configure
edit devices device <deviceName>
set authgroup <authName>
commit
exit
```

Changing Device Credentials

In the CMS, you can only change the credentials that the CMS uses to connect to a device. To change the device's authentication credentials, you need to access it through the device console, and use the pCLI.

Note: If you change the credentials on an NTD1100, NTD280 or vNTD, and change the necessary Authentication Groups to match the new credentials, the device still shows as sync-required until the device is synced from the CMS. This is due to the way credentials are stored on the NETCONF devices and does not affect NTD120 or NBA, [click here](#) if you need to set one of these.

To change a Defense device's credentials

1. Connect to the device's console. For physical devices, you can connect using the device's IP address to SSH through an SSH client (e.g. `ssh -p 2222 admin@10.10.100.100`):
 - For **NTD1100** or **NTD280**, ssh on port 2222
 - For **vNTD**, you can ssh on port 2222 or open a console window for the VM in vsphere
2. Log in to the pCLI (using the same authentication credentials stored in the CMS for this device)
3. Type the following command: `setup aaa`
4. Follow the instructions to setup the new username and password.

5. When complete, return to the CMS.
6. If you already have an Authentication Group using the device's new credentials, skip this step. Otherwise, navigate to **Network > Authentication Groups** and [create a new Authentication Group](#) for the new device credentials.
7. Navigate to **Network > Devices**. The device will show a Deployment State of **sync-required**; this is expected.
8. [Change the device's Authentication Group](#).
9. [Sync the device](#). The device should now show a Deployment State of **in-sync**.

Note: [If you are using the NTD120, specific support can be found here.](#)

Licensing/delicensing a vNTD

When you add a vNTD to the CMS, if there is enough license capacity available, it will be automatically licensed by the CMS. If you do not have enough capacity, the device is still added but it won't be licensed. When you have available license capacity you must manually license the vNTD. One way to create license capacity is to delicense old vNTDs you're no longer using.


Caution: When you delicense a vNTD or add it to the CMS when there isn't enough license capacity available, it enters the not-licensed state. In the not-licensed state, the device will act as though it is [Pass-through mode](#); all traffic is sent to the internal network without inspecting any packets. The device can still receive configuration updates from the CMS.

Prerequisites

- [Add a vNTD to the CMS](#)
- [Add a vNTD license to the CMS](#)
- To license a vNTD, you must have at least 10Gbps available license capacity on the CMS

To license a vNTD

Note: You can only license a vNTD which is in the not-licensed state.

1. Use the left-hand menu to navigate to **Network > Devices**.
2. On the Devices table, locate the vNTD you want to license or delicense.
3. In the Actions column, click  and select **License** or **Delicense**.

Enabling SNMP for a Defense device

You can use SNMP (Simple Network Management Protocol) v2c to collect device and interface information on your SmartWall Network Threat Defense device for analysis in your own network management system.

SNMP configuration is via the CMS UI. Refer to the CMS User Guide, Manage Network > Devices > SNMP. You can:


- Enable/Disable SNMP on the Defense device.
- Set the community string required to make an SNMP request to the Defense device.
- Set the UDP port (default 161) used to receive SNMP requests,

The SmartWall Network Threat Defense devices respond to the following MIB-2 objects:

- IF-MIB. This allows monitoring of the interface state and packet statistics.
- SNMP-v2-MIB System Group. Allows discovery and identification of the device.
- There are 7 Corero MIB files [available from](#) the CMS.

Note: This feature is not available for NTD120 or Bypass device.

To enable SNMPv2c for a Defense device

1. In the CMS, use the left-hand menu to navigate to **Network > Devices**.
2. Select the **SNMP** tab.
3. From the table, locate the device you want to enable SNMP for and click  the edit button. You can type a text string into the Search field to narrow down the list.
4. At the **Admin State** drop-down, select **enabled**.
5. The default UDP port is 161. To change this, type a new port number in the **UDP Port** field.
6. The default community string is `smartwall`. To change this, type a new string in the **Community** field.
7. (Optional) Add a **System Location**. This can be any text string, for example, the city you're located in, or a building name.
8. (Optional) Add a **System Contact** email address. This should be someone able to manage the CMS SNMP settings.
9. Click **Save**.


10. If you want to save the new configuration, and push your changes to any affected Defense devices, click **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Enabling and Disabling an Interface

By default, all Defense device interfaces are enabled. If you're not planning to connect an interface to your network, you can disable it, so it doesn't affect your traffic statistics, or generate alarms. If you later choose to use this interface, you can enable it using the same method.

To enable/disable a Defense device interface

Caution: When Link State Propagation (LSP) is enabled, you cannot disable an interface. You must [disable LSP for this Segment](#) before you can continue.

1. Use the left-hand menu to navigate to **Network > Devices**.
2. Click the **INTERFACES** tab.
3. From the **Device(s)** drop-down, choose the device where this interface is located.
4. From the **View** drop-down, make sure **Summary** is selected.
5. From the table, locate the interface you want to edit, click  the edit button. You can type a text string into the Search field to narrow down the list.
6. Choose to **Enable** or **Disable** this interface.
 - If you need to enable or disable specific Channels on a 4*10Gbit breakout connection, interface shows the 4 channels and they can be individually toggled between enabled and disabled.
7. Click **Save**.
8. If you want to save the new configuration, and push your changes to any affected Defense devices, click **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

```
configure
set devices device <deviceName> interfaces interface <interfaceName> admin-state
[disabled|enabled]
commit
```

If the **4x10g sr** option is selected the admin states of the 4 breakout channels can be individually enabled or disabled. The following is the configurations where their state could be enabled or disabled:

```
configure
set devices device <name> interfaces interface et-1/2 breakout-mode [disabled | sr-4x10g]
commit

set devices device <name> interfaces interface et-1/2 breakout-channels channel-1-state [enabled | disabled]
set devices device <name> interfaces interface et-1/2 breakout-channels channel-2-state [enabled | disabled]
set devices device <name> interfaces interface et-1/2 breakout-channels channel-3-state [enabled | disabled]
set devices device <name> interfaces interface et-1/2 breakout-channels channel-4-state [enabled | disabled]
```

Upgrading a Device's Software

Caution: Device will restart during the upgrade process causing an interruption in traffic flow. Unless the [upgrade is hitless](#).

Once you upgrade the CMS version, you may also need to upgrade the software on your Defense or Bypass devices. You can manage this process entirely through the CMS. You must first upload a device software upgrade package to the CMS, then you can push the selected software to your devices one at a time.

Device package compatibility

When you upload a file to the Software Packages table, the CMS first checks to make sure it is for a supported device type and a supported software version for your system. If it passes those checks, the file is added to the list and stored in the CMS. You can view the list of available software packages and how many devices are running each software version.

Before the CMS uses a device software package to upgrade a device, it checks that the software in the package is compatible with the selected device. If it passes the checks, the software package is sent to the device and the upgrade begins.

Caution: If you need to send software of the same version or earlier to a device, you can **force** the "downgrade". Forced downgrades can never be [hitless](#) and will always require a device restart. They may also require additional [syncing](#) to update device policy from the CMS.

Maintenance Upgrades (Hitless)

Most feature upgrades require the Defense device to be restarted, meaning that links are taken down and the traffic flow is interrupted during the upgrade process. Hitless upgrades have been designed to enable maintenance release updates to be installed using a process that does not need the NTD to be restarted. A hitless upgrade ensures that

there are no link flaps and no interruptions to the traffic flow during the upgrade process. A hitless upgrade is only available on the NTD280-ZPB, NTD1100 and NTD1100-ZPB.

Note: Hitless upgrades keep the data flowing during upgrade by maintaining the traffic links. However, the Defense device will still lose contact with the CMS system during the application restart portion of the upgrade. You can monitor the progress of the upgrade from the Devices table. After the upgrade is complete, the CMS automatically updates any Policy associated with that device.

Hitless upgrades are only available for maintenance patches for Defense device. When you select to apply an upgrade to a Defense device, the CMS always presents a dialog to confirm whether you wish to proceed with the upgrade. If the upgrade could also be hitless this will be made clear in the dialog. A hitless upgrade can be overridden to force a restart if necessary.

There are a number of configurations that will prevent the use of hitless upgrades. These are:

- If, in that rare occasion, Tunnel Termination is active or is activated.
- Any Layer 3 segment configuration.
- Single Interface Segment deployments. In this configuration the Defense device cannot keep the packets flowing. If a hitless upgrade is desired, bypass the Defense device on the router first Apply the upgrade. Then restart the direction of traffic to the Defense device.

If a hitless upgrade needs to be reverted, then the rollback will also be hitless. A rollback requires that the Defense device had previously been running the desired software version.

Note: A downgrade, initiated by uploading and applying an older software version, is never hitless.

Prerequisites

- [Upgrade the CMS](#) to the required software version

Caution: Do not upgrade a device without first upgrading the CMS to that version. If you do not first upgrade the CMS, you will not be able to reach your upgraded device from the CMS.


- Make sure you are logged out of the pCLI on all devices being upgraded.
- Recommended for non-hitless upgrades: As the device may be down for a couple of minutes during upgrade, you should re-route the traffic to take the device out of line of active network traffic.

To upload a new software package

1. Use the left-hand menu to navigate to **System > Software Upgrade**.
2. Select the **DEVICES** tab.

3. Click **Upload**.
4. Select a device upgrade package and click **Open**.

To upgrade the software on a device

1. Use the left-hand menu to navigate to **System > Software Upgrade**.
2. Select the **DEVICES** tab.
3. In the Devices table, locate the device you want to upgrade and click  the upgrade button.
4. From the **Package version** drop-down, select the software version you want to upgrade this device to.
5. Click **Upgrade**.
6. A confirmation screen will appear with the **Hitless Upgrade** status. If hitless upgrade is available it is pre-selected, this can be deselected allowing a standard upgrade.
 - A hitless upgrade will result in no interruption to interface link state but traffic will not be inspected during upgrade.
 - A non-hitless upgrade will result in the device being restarted as part of the process, interrupting network operation.
7. Click **Upgrade**.
8. To monitor the upgrade, navigate to the **Home** screen. The following bullets show the expected steps taken for a non-hitless upgrade:
 - On the **Devices** table:
 - The **Deployment Action** goes from **none** > **upgrade-in-progress** > **none**
 - The **Status** goes through the following transition: **normal** > **uncleared-alarms** > **connection-issue, no-sflow, no-syslog, unclear-alarms** > **uncleared-alarms** > **normal**
 - On the **Segments** table, you will see the **External** and **Internal** interfaces go from **Up** > **Unknown** > **Up**
 - During the upgrade, in the Status panel you will see **Errors detected** for the Device status and **Warnings detected** for the Network status
9. Repeat for each device you need to upgrade.

Tip: You can also locate a package version from the Software Packages table, click the upgrade button, then select the device you want to use that package. Both methods will upgrade the device.

CLI Commands

Import the package file:

```
request devices software import remote-uri <fullPackagePath> remote-password
<password>
```

Note: <fullPackagePath> should follow a structure similar to this example:
*sftp://user1@1.2.1.2//downloads/corero-ntd-combined-vm-dpdk-10.3.0.0351-
 signed.pkg* and in this case, the password you enter should correspond to the *user1*
 account.

If you would like to use a hitless upgrade, then before starting the process you must check that the package has been flagged for hitless. You need to have the message come back as Hitless installation is **supported** and hitless-available **true**.

To check if hitless is available:

```
request devices software packages package <package_type> <package_Version> check-
hitless-install_available device <device_name>

result Success
message Hitless installation is <supported/not supported> for this device
hitless-available <true/false>
```

To complete the upgrade run the following script. If this is to be completed as hitless then, as long as the above criteria are met, then add hitless at the end of the script if not leave it off.

```
request devices software packages package <package_type> <package_version> device
<device_name> hitless
```

To check that the device is now running the new software:

```
show devices device status
```

Push the software to the remaining devices you want to update.

Next steps

If you could not use a hitless upgrade then the upgraded device needs to be put back inline with the active network traffic.



If required, both upgrade options (hitless and non-hitless) can be [rolled back](#) to the previous software version.

Changing a Device's IP Address

You cannot change a device's IP address from within the CMS, but when you change a device's IP address on the device, you need to update the information in the CMS so that the CMS can reach the device on the new IP address.

[Click here](#) to make the change on a NTD120.

To change a device's IP address

1. Connect to the device's console. For physical devices, you can connect using the device's IP address to SSH through an SSH client (e.g. `ssh -p 2222 admin@10.10.100.100`):
 - For **NTD1100** or **NTD280**, ssh on port 2222
 - For **vNTD**, you can ssh on port 2222 or open a console window for the VM in vsphere
2. Log in to the pCLI (using the same authentication credentials stored in the CMS for this device)
3. Type the command: `setup network`
4. Follow the steps in the wizard to change the device IP address.
5. In the CMS, use the left-hand menu to navigate to **Network > Devices**.
6. From the table, locate the device whose IP address you changed and click  the edit button. You can type a text string into the Search field to narrow down the list.
7. At the **Address** field, type the new IP address of the device.
8. Click **OK**.
9. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

These commands correspond to steps 6-10 above:

```
configure
edit devices device <deviceName>
set address <newIP>
commit
exit
```

Syncing a Device

If the Devices table shows the deployment actions **sync-required** (a commit was made when the device was unreachable and the devices policy no longer matches the CMS) or **force-sync-required** (an error occurred and the device's policy cannot be synced to the CMS), you must perform a CLI command to return the device to the in-sync state. Until you perform this command, the device won't receive any committed Policy updates.

To sync a device

1. Use the left-hand menu to navigate to **Network > Devices**.
2. From the table, locate the device you need to sync (the Deployment State displays **sync-required**) and click the **...** button. You can type sync-required into the Search field to narrow down the list.
3. Click **Sync Device**.
4. Click **OK**.

Note: If, after syncing a device, the Deployment State is **authentication-failed**. The credentials on your device do not match the stored credentials in the CMS. This can happen after you change a device's IP address. It may be in the wrong Authentication Group, or the Authentication Group may have a mistake in the credentials. Make sure the Authentication Group contains the correct credentials for this device then try syncing again.

To force sync a device

1. Use the left-hand menu to navigate to **Network > Devices**.
2. From the table, locate the device you need to force sync (the Deployment State displays **force-sync-required**) and click the **...** button. You can type force-sync-required into the Search field to narrow down the list.
3. Click **Force Sync Device**.
4. Click **OK**.

CLI Commands

Sync a device

```
request devices device <deviceName> sync-to-device
```

Force-sync a device

```
request devices device <deviceName> force-sync-device
```

Rebooting a Device


If you need to, you can use the CMS to restart a device.

Caution: When you reboot a device you can briefly interrupt your network traffic while it is offline. You should always reroute the traffic before rebooting a device.

Prerequisites

Reroute traffic around the device.

To reboot a device

1. Use the left-hand menu to navigate to **Network > Devices**.
2. From the table, locate the device you want to reboot and click the  button. You can type a text string into the Search field to narrow down the list.
3. Click **Reboot**.
4. Click **OK**.

CLI Commands

```
request devices device <deviceName> restart action [application-only|operating-system]
yes
```

Note: Choose `application-only`, to just restart the application on the device, or choose `operating-system` to restart the application and the operating system on the device.

Next steps

Place device back inline.

Redeploying a Device

Redeploying a device resets the hardware capabilities. For example, if you add a new module to an NTD280 Defense device, you must then redeploy the device before the CMS will see the new segments.

Caution: If the Defense device is not in a Cluster, redeploying will clear the Policy from the device. If the Defense device is in a Cluster, it will automatically re-sync the Policy associated with the Cluster.

Prerequisites

Reroute traffic around the device manually or using your connected Bypass device.

Caution: When you redeploy a device, you may briefly interrupt your network traffic unless you're using a connected Bypass device.

To redeploy a device

1. Use the left-hand menu to navigate to **Network > Devices**.
2. From the table, locate the device you want to reboot and click the **...** button. You can type a text string into the Search field to narrow down the list.
3. Click **Redeploy**.
4. Click **OK**.

CLI Commands

```
request devices device <deviceName> redeploy-yes
```

Next steps

Place device back inline or change Bypass Mode to send traffic to the Defense device.

Device Packet Capture

On occasion there may be a need to capture inbound and outbound packets from the SmartWall Network Threat Defense Device to be analyzed. The packet capture facility allows PCAP and PCAPNG formatted records to be sent

direct from the SmartWall Network Threat Defense Device to an external client. The packets can be filtered to those matching a BPF program.

Note: When running PCAP, if the device is under heavy load, the performance of the system can be impacted by up to 20%.

The packets will not be captured if:

- There is a switched or optical bypass active
- When a Segment is configured to use Layer 3 mode:
 - The packet arrives on the wrong VLAN
 - The packet has a multicast destination MAC address
- They are not an IPv4 or IPv6 packet

To configure the CMS to allow Packet Capture

By default packet capture is disabled, it must first be enabled in the CMS configuration. Using the CLI, log as admin to the CMS. The following command enables packet capture.

```
set devices advanced-settings packet-capture admin-state enabled
```

To run packet capture

A packet capture can be run in two ways using ssh commands, where <ip> relates to the IP address of the CMS and <NTD Name> being the specific name of the NTD that you wish to capture packets from:

1. Capture to a file:

```
# ssh -p2222 admin@<ip> pcap -d <NTD Name> ip and udp and dst host 1.1.1.1 >capture.pcap
```

2. Pipe to a pcap consumer such as tshark, BPF filtering is available:

```
# ssh -p2222 admin@<ip> pcap -d <ntd name> ip and udp and dst host 1.1.1.1 | tshark -r -
```

Simultaneous Sessions

Up to 3 simultaneous sessions are supported, after which any new pcap requests are rejected. The NTD only runs one packet capture BPF program at once. If more than one pcap session is started to a single NTD, their BGP filters are aggregated.

Escaping Quotes

Some search rules require quotes, these need to be escaped as shown below:

```
ssh -p2222 admin@<ip> pcap -d <ntd name> 'ip and udp[\"Hello World\":8:32]'
```

Other PCAP options

The other PCAP options can be identified through the following help command:

```
# ssh -p2222 admin@<ip> pcap --help
admin@<ip>'s password:
```

The following is returned.

```
usage: pcap [-h] [-c count] [-C file_size] -d ntd-name [-F format]
          [-I seconds] [-T seconds] [--bp {0,1,2}] [-v] [--version]
          [filter [filter ...]]

positional arguments:
  filter                BPF filter for packets to be captured

optional arguments:
  -h, --help            show this help message and exit
  -c count              maximum number of packets to capture (default: 0)
  -C file_size          Maximum number of KB to capture (default: 0)
  -d ntd-name           name of the NTD (default: )
  -F format             File format for output capture file (default: pcap)
  -I seconds           kill the session if no data within the timeout (default: 300)
  -T seconds           kill the session after seconds (default: 1800)
  --bp {0,1,2}         packet disposition (0 = only allowed packets, 1 = only
                        blocked packets) (default: 2)
  -v, --verbose         verbose output (default: False)
  --version             show program's version number and exit
```

To show current Packet Capture Sessions on the CMS

The following CMS CLI command shows the current PCAP sessions:

```
show devices device <NTD Name> live-status capture-sessions
```

LOCAL CMS PORT	LOCAL NTD PORT	FROM	MAX KB	MAX PACKETS	MAX SECONDS	INACTIVITY TIMEOUT	BP	FORMAT	BPF FILTER
3333	49346	<ip>/61808	0	0	1800	300	2	pcapng	ip or ip6
3334	49348	<ip>/61841	0	0	600	300	0	pcap	ip and icmp

Analyzing the PCAP file

There are a number of programs that can be used to read the PCAP files (e.g. Wireshark, tcpdump, tshark) running on an external client. The client may save the PCAP stream to a file for later analysis. An example of a Wireshark session on Linux would be:

```
sshpas -e ssh -p2222 admin@<ip> pcap -d<ntd-name> | wireshark -i -  
  
pcap [31467] note: tunnel established to NYD at <ip>  
Warning: permanently added '[ntd-ip]:2222' (ECDSA) to the list of known hosts.
```

Wireshark can then be used to analyze the packets.

Segments

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Segments Screen reference topic](#).

A Segment is a set of 1 or 2 interfaces to which DDoS protection is applied. The first time you connect a Defense device to the CMS, it identifies the available interfaces and records them as Segments. A vNTD has two available interface ports which act as 2 single interface Detector Segments. If you don't require the second Segment, you can [disable it after deployment](#).

Note: As well as the identification number, you can use the CMS to provide a name for each Segment.

Types of traffic sample

When you're using a detector segment, the vNTD can accept traffic samples in the following ways. Using the CMS, you need to configure the Segment differently, depending how your traffic samples arrived at the vNTD:

- **Mirrored traffic samples direct from the router** – The vNTD must be directly connected to the router with no truncated samples. No additional configuration required on the CMS.
- **Mirrored traffic samples over a GRE tunnel** – The vNTD only needs to be accessible from the router. Edit the Segment to add an **IPv4 Address**, a **Peer IPv4 Address**, and enable **GRE Ingestion**.

Caution: If you have multiple routers sending traffic samples in different formats, you **must** ensure all sample rates are the same. Otherwise, the mitigation thresholds and traffic charts in the SWA will not work correctly.

Analytics reporting per Segment

The CMS sends per segment syslog messages to SmartWall SecureWatch Analytics, where you can query these to view detailed reports. The CMS sends interface statistics which contain a field identifying the Segment associated with each statistic. You can query this field to view reports about an individual Segment on a device. Additionally, you can view a Segment's current and historic status (interface status, link speed, Defense Mode, Bypass Mode, etc).

Note: When a Segment has a Bypass device attached, the bypass mode, bypass state and port status displayed for that Segment are taken directly from the Bypass device rather than the Defense device.

Viewing Segment Status

If you want to view information about a Segment, you can view that information on the Segments screen and on the Home screen.

To view a segment's status


1. Use the left-hand menu to navigate to **Network > Segments**.
2. At the Segments table, you can see the current state of all the Segments in your network.
3. (Optional) Type a text string into the Search field to narrow down the list of Segments. For example, you could search for all Segments in a specific Defense device, or find the Segment using a specific Bypass device, or all Segments in a particular defense mode etc.
4. For more information about this table, see the [Segments Screen reference](#).

CLI Commands

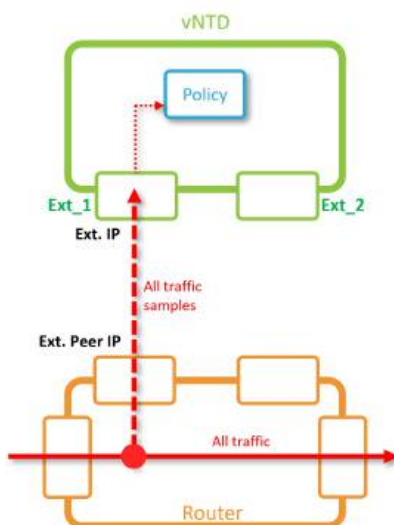
```
show segments
```



Configuring a Segment

Default Segments are generated by the CMS the first time it connects to a new Defense device. A vNTD has two available interface ports which act as 2 single interface Detector Segments. If you don't require the second Segment, you can disable it after deployment.

Note: If you are only using one of the available Segments you can and click  the delete button on the Segments table (**Network > Segments**). Then [disable the unused interface](#) (**Network > Devices > Interfaces**).

To configure a Segment for TDD



1. Open the CMS in a browser.
2. Use the left-hand menu to navigate to **Network > Segments**.
3. From the Segments table, locate the Segment you want to edit and click  the edit button. You can type a text string into the Search field to narrow down the list.
4. (Optional) Edit the **Name**. This must be unique among Segments. You must only use alphanumeric, spaces, or `.-&()/_@:=` symbols.
5. (Optional) Type a **Description** of up to 265 characters.
6. Check that the **External** Interface on the vNTD is selected and the **Internal** Interface drop-down shows **none - detector**.
7. How you configure the Segment depends on the traffic sampling method you chose when configuring your routers during set up:
 - For samples sent by **Port-Mirroring**:
 - a. No additional changes
 - For samples sent by **GRE tunnel**:
 - a. Set the External **IPv4 Address** to the IP address of the external interface on the vNTD (for termination this is the tunnel endpoint)
 - b. Set the External **Peer IPv4 Address** to the IP address of the interface which is the last hop before the traffic arrives at the vNTD (e.g the interface on the router which has received the sampled traffic and is connected to the vNTD)
 - c. Set the **GRE Ingestion** drop-down to **enabled**.
8. Click **Save**.
9. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

```
configure
delete segments segment <deviceName><segmentID> internal
edit segments segment <deviceName><segmentID>
set name <segmentName> description "<descriptionText>"
set segment-mode detector
set external interface <interfaceID> inet <IPv4Address>
set external interface <interfaceID> inet peer-address <IPv4Address>
set ingest-sflow [disabled|enabled]
set ingest-gre [disabled|enabled]
commit
exit
```


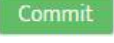
Connecting a Bypass Device to a Segment

If you use an external Bypass device, you must physically connect it to a Segment on a Defense device and also connect it to the Segment within the CMS. This enables you to manage the Bypass Mode for the external Bypass device attached to that Segment.

Prerequisites

- [Add a Defense device to the CMS](#)
- [Add a Bypass device to the CMS](#)
- Use cables to physically connect the Bypass device to a Segment on the Defense device

To connect an external Bypass device to a Segment

1. Use the left-hand menu to navigate to **Network > Segments**.
2. From the Segments table, locate the Segment you want to edit and click the  edit button. You can type a text string into the Search field to narrow down the list.
3. From the **Bypass Device** drop-down, select an available Bypass device.
4. Click **OK**.
5. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).



CLI Commands

```
configure
set segments segment <defenseDeviceName> <segmentName> bypass- <bypassDeviceName>
commit
```

Enabling Link State Propagation

For each supported Segment you can choose to enable or disable **Link State Propagation** (LSP). By default, this is enabled for all new Segments. When Link State Propagation is enabled, if one interface in a Segment goes down then the other interface is also brought down. This prevents an interface from continuing to receive traffic after its linked interface has gone down.

To enable/disable Link State Propagation

1. Use the left-hand menu to navigate to **Network > Segments**.
2. From the Segments table, locate the Segment you want to edit and click  the edit button. You can type a text string into the Search field to narrow down the list.
3. Select the required option from the **Link State Propagation** drop-down.
4. Click **Save**.
5. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands


```
configure
set segments segment <deviceName> <segmentName> link-state-propagation admin-state
[disabled|enabled] wait-time <timeInSeconds>
commit
```

Note: In the CLI, you have the additional options of editing the number of seconds the system should wait before propagating a link state change to a partner (`wait-time`); by default, this is 1 second but can be set anywhere between 0-360.

Operating Modes

For information on changing your Operating Mode, access the built in help available in the CMS Web UI.

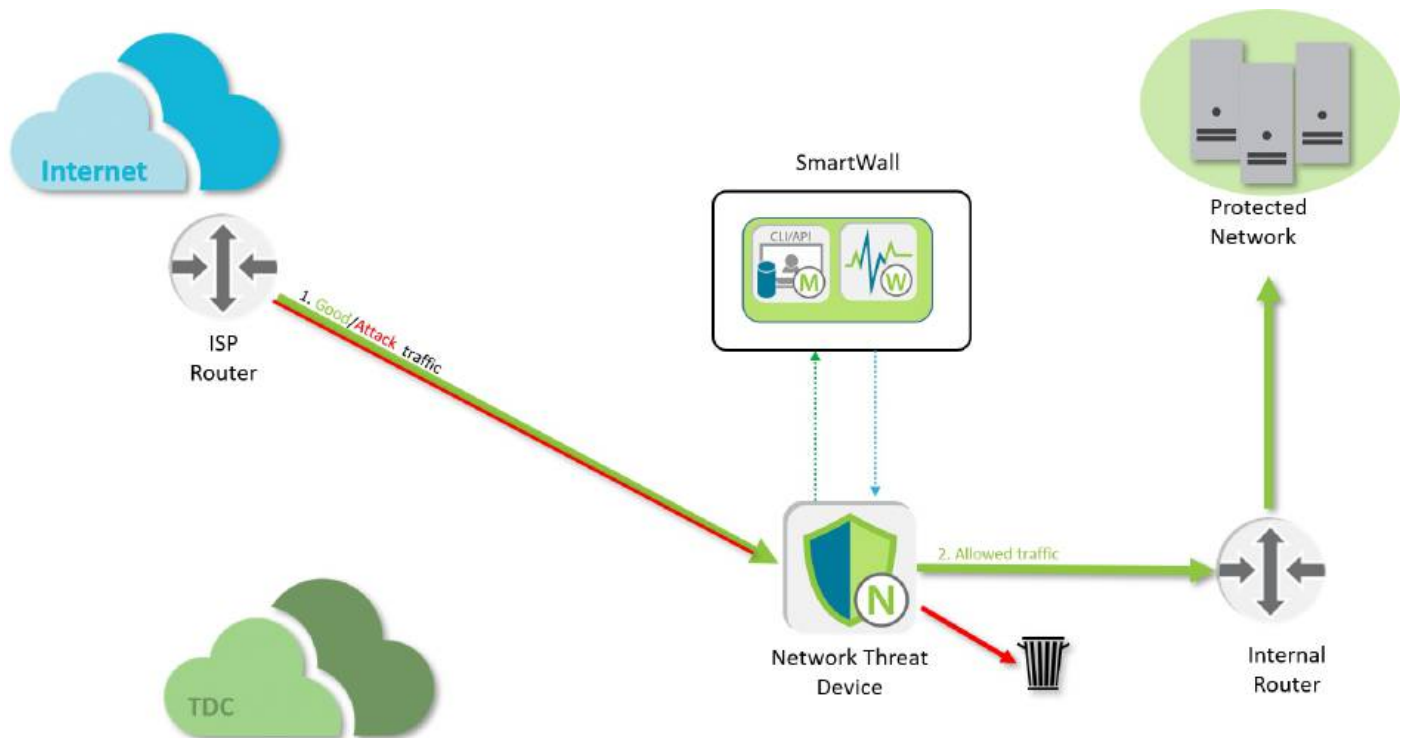
To open the CMS built in help

1. Open the CMS Web UI in a browser and log in.
2. On the top menu, click  the help button.

Tunnel Termination

Cloud DDoS protection services, like Corero's SmartWall Threat Defense Cloud (TDC), provide additional protection for the small percentage of DDoS attacks which are large enough to saturate your internet connections.

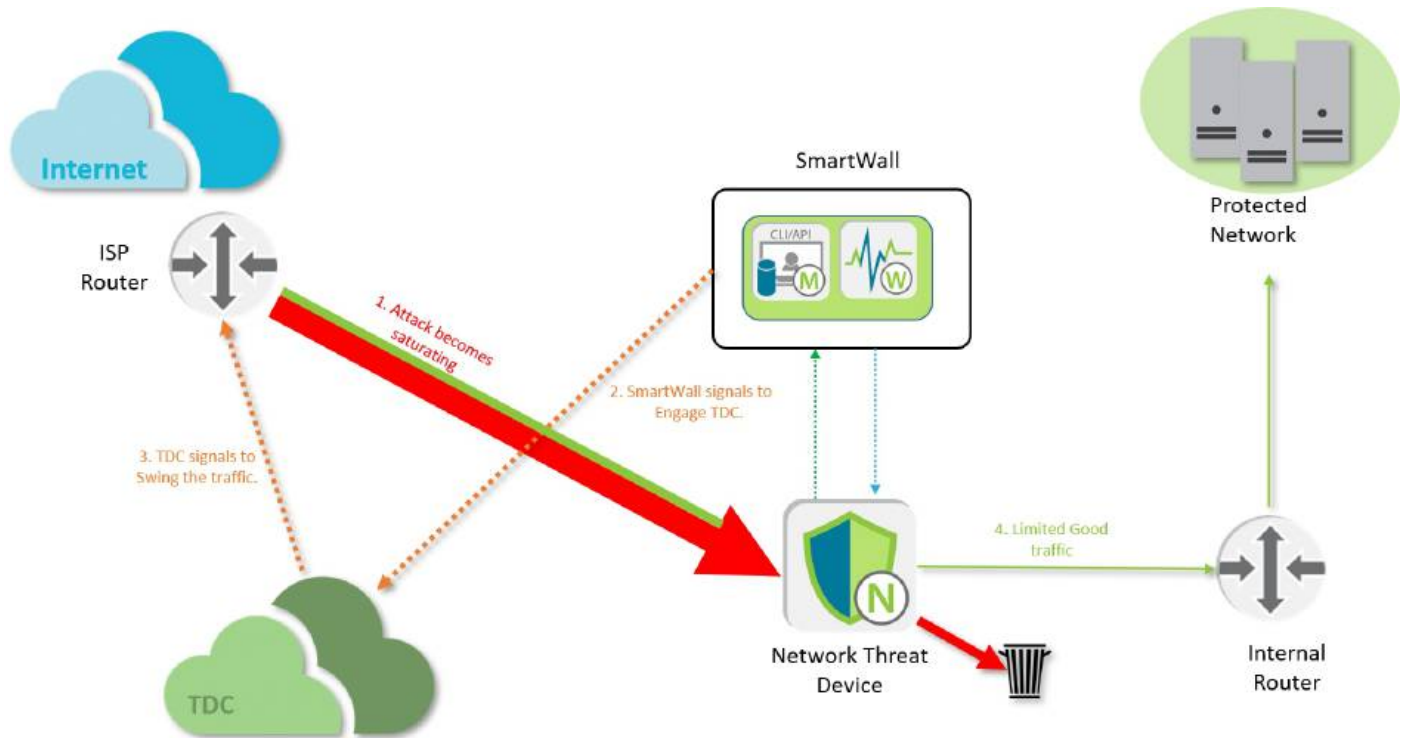
Traffic from the Internet normally arrives at the on-premise SmartWall solution directly, over the links to the upstream Service Provider. The SmartWall solution inspects the traffic, dropping any DDoS packets that are targeting the Protected Network.



When SmartWall detects a DDoS attack is getting large enough that it might saturate the links from the service provider, a redirection instruction is sent to engage the Cloud DDoS protection service. This normally comprises:

- An engagement alert to the Cloud DDoS protection service.
- A BGP route update to redirect the suspect traffic to the Cloud DDoS protection service scrubbing centers.

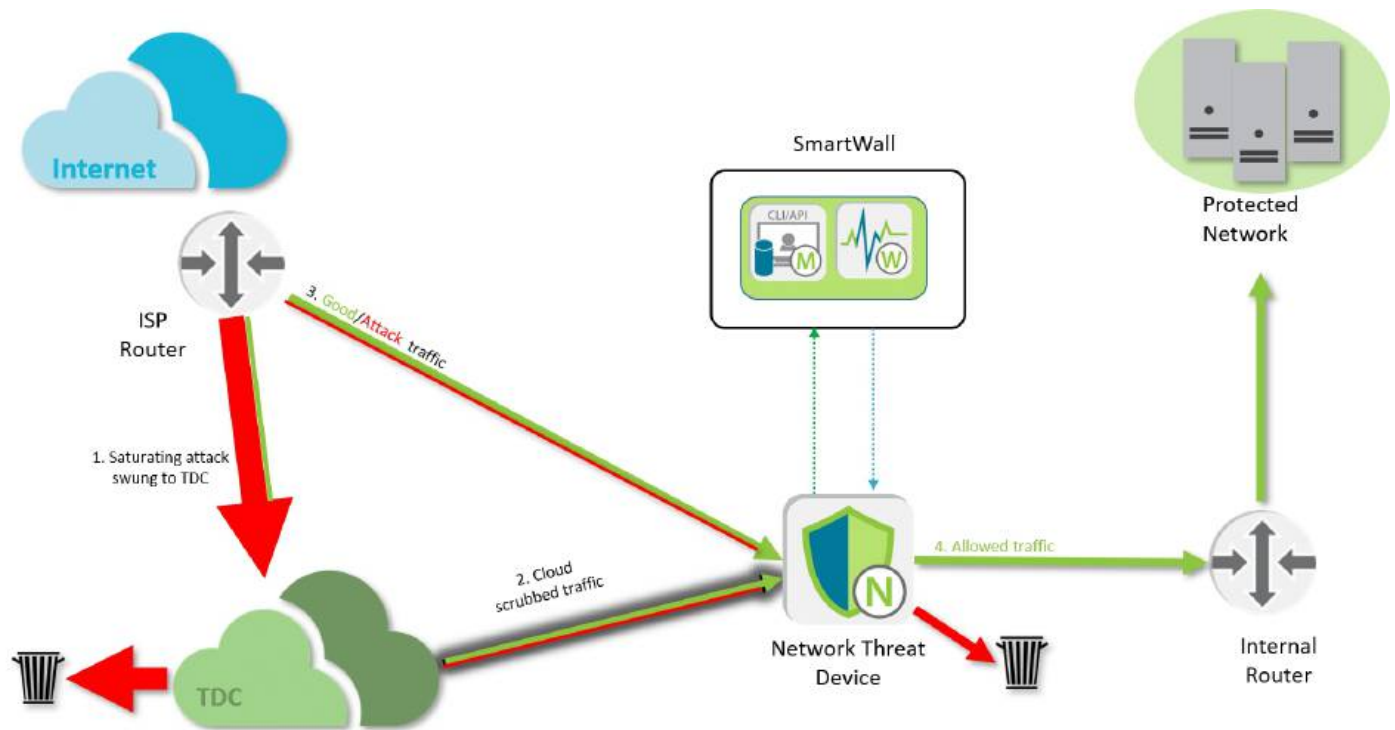
The redirected traffic will be the identified proportion of the traffic going to the protected network causing saturation, usually a /24 subnet containing the DIP or range of DIPs that are suffering the DDoS attack



The Cloud DDoS protection service inspects the traffic swung to it, dropping the the detected DDoS traffic. The remaining traffic is then sent to the protected network, normally through a GRE tunnel. This on-ramp traffic passes through the SmartWall service where the packets may be inspected again through Tunnel Inspection.

The on-ramp traffic may then be either:

- GRE terminated through the Tunnel Termination feature on the Defense device.
- Inspected and then Forwarded on to the protected network for GRE termination.



With the Corero SmartWall system configured for Tunnel Inspection, all traffic arriving, including that from the Cloud protection service via the on-ramp, will be inspected for DDoS by the Defense device.


Each SmartWall Network Threat Defense device can be configured to terminate up to 15 tunnels. Each tunnel termination can be applied at:

- a. The cluster level – All Defense devices can receive and terminate the GRE on-ramp traffic, providing redundancy and scaling.
- b. The individual Defense device level – This can be achieved by configuring individual Defense devices only.

Tunnel Termination Configuration

To enable Tunnel Termination, you need to create an entry for every GRE Tunnel you wish to terminate at a Defense device or Cluster of devices.

1. Open the CMS in a browser.
2. Use the left-hand menu to navigate to **Network > Tunnel Termination**.
3. Click **Add**.
4. Type a **Name** for the new GRE Tunnel. You must only use alphanumeric, spaces, or .-&()/_@:= symbols.
5. (Optional) Add a **Description** of the tunnel.
6. In the **Local IP** field, enter the destination IP address of the internal router.
7. In the **Peer IP** field, enter the source IP address from the cloud scrubbing transmission point.

8. Select an **Admin State**:
 - **Enabled** – The new tunnel termination is enabled upon creation
 - **Disabled** – The new tunnel termination is not enabled upon creation, you can choose to enable it later
9. Use the **Terminating Clusters** and **Terminating Devices** drop-downs to select the Clusters and/or single devices that will terminate this GRE Tunnel.
10. When you're happy with your new tunnel termination, click **Save**.
11. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

```
set tunnels tunnel ?

Possible completions:
  Name used to identify Tunnel

set tunnels tunnel name ?

Description: Define and manage GRE Tunnels
Possible completions:
  clusters      - Clusters which are a member of this Tunnel
  description   - Description of Tunnel
  devices       - Devices which are a member of this Tunnel
  local-ip      - Local IP of this Tunnel
  peer-ip       - Peer IP of this Tunnel

set tunnels tunnel name
```


SECTION 4

Manage Services

The SmartWall Central Management Server (CMS) provides support for additional DDoS protection services which use the SmartWall Threat Defense Director in conjunction with external devices:

- **BPG Mitigation** – Use the SmartWall system to detect when the rate of traffic going to one of your protected servers crosses a set threshold and send BGP routing updates for your Internet Service Provider to black-hole that DIP.
- **Smart-Plugins** – Upload optional plugins which can be installed without upgrading the SmartWall software, to enrich the security and event information in the syslog feed.

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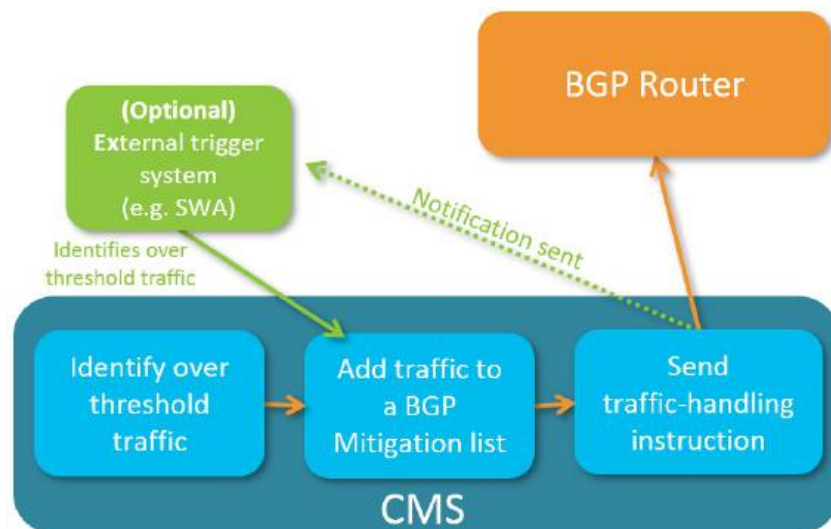
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Managing Smart-Plugins	187

BGP and FlowSpec Mitigation

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [BGP Mitigation Screen reference topic](#).

When the rate of traffic going to one of your protected servers crosses a set threshold, the CMS can use Border Gateway Protocol (BGP) routing updates for your Internet Service Provider to black-hole or re-route specific traffic for a set period of time. For example, a particular server in your network is being attacked and the CMS has identified the traffic is at a rate which could start overwhelming your Internet connections. The CMS could then send a message to the upstream routers to black hole just the traffic heading to that Destination IP (DIP) until the attack was over. This stops the attack traffic filling your Internet connections and enables good traffic to continue to reach your other servers, without impact.

Note: The CMS BGP engine is client only and will not respond to routers initiating communication on port TCP/179.



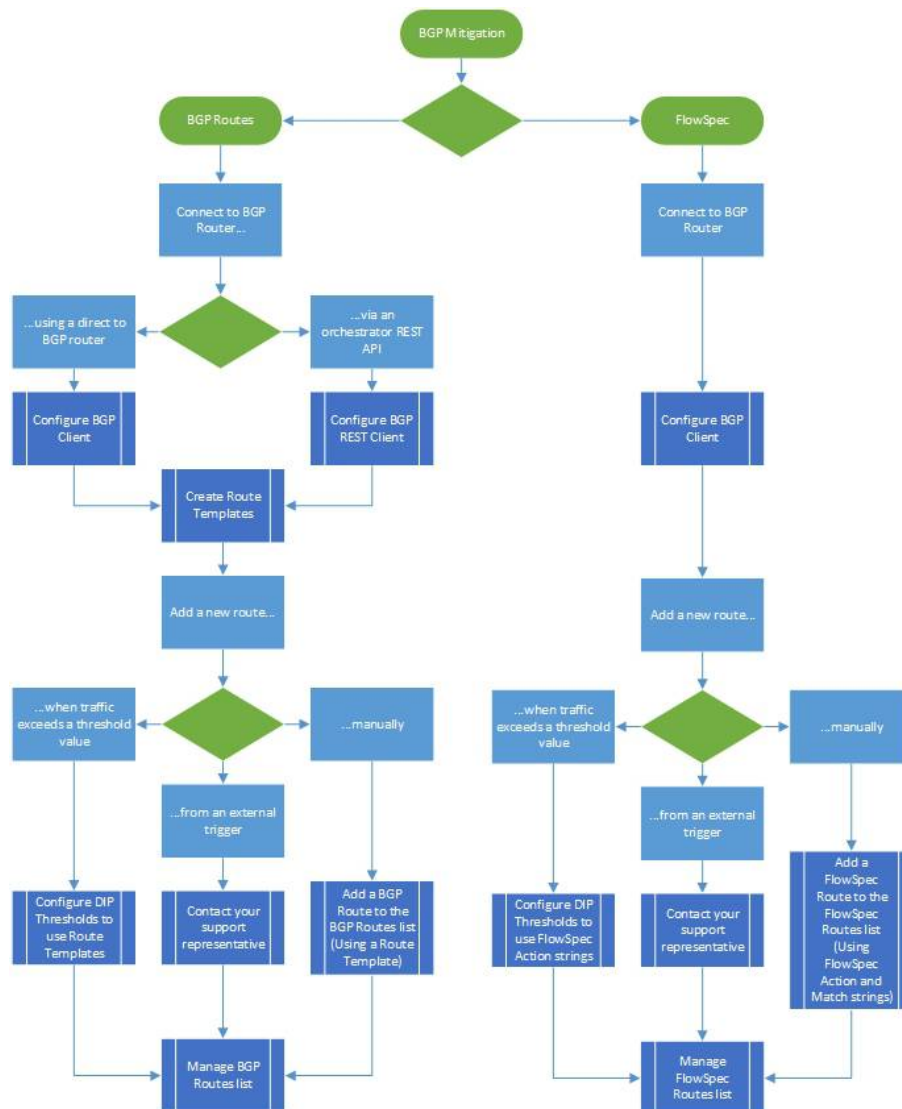
There are two types of BGP Mitigation available from the CMS:

- **BGP routes**— Blackholes (RTBH) or reroutes traffic going to a specified destination IP address or CIDR
- **FlowSpec**— Performs a specified action on traffic which is identified based on one or more match fields (DIP, SIP, destination port, source port, TCP flags etc)

There are three ways a BGP Mitigation can be activated:

- **Manually** – Use the CMS Web UI or CLI to add a BGP or FlowSpec route
- **Automatic CMS DIP threshold** – Traffic exceeds the specified rate thresholds to a single DIP, and the CMS performs the specified BGP Mitigation action
- **Automatic external trigger** – An external application (e.g. SWA), which monitors traffic levels, sends the command to apply a BGP Mitigation. For information on how to set up this type of BGP Mitigation integration, contact your support representative.

Note: BGP Routes and FlowSpec track the traffic rate of the top 32 DIPs in your network and can only announce routes for those 32 DIPs.



Connect to BGP routers

Different settings are required depending on the type of BGP Mitigation you want to configure.

BGP connection for BGP routes:

- Direct to BGP Router – Configure connection settings on **BGP CLIENT** tab
- Via an orchestrator REST API – Configure connection settings on **REST CLIENT** tab

BGP connection for FlowSpec:

- Configure connection settings on **BGP CLIENT** tab

Caution: You can only enable one method of communication between the CMS and your BGP router. You cannot enable BGP CLIENT settings and REST CLIENT settings at the same time. You cannot use REST CLIENT and FlowSpec at the same time. You **can** enable BGP CLIENT and FlowSpec at the same time as they both use the BGP CLIENT configuration.

Commit changes (Client vs REST connections)

If you already have active black holes, you will see the following behavior when you commit a change to the BGP connection settings:

- If using a **BGP Client** connection (FlowSpec and/or BGP Routes) – The update will take immediate effect on the existing black holes and any future activations
- If using **BGP REST** connection (BGP Routes only) – Any future activations will use the updated configuration, but existing black holes will not. If you cannot wait for an existing black hole to auto-withdraw, you can manually withdraw and re-announce a black hole to apply the new configuration.

Change the BGP configuration type

Before changing your BGP configuration type, you should always withdraw all active routes. If you change which BGP configuration type while you have active routes, you will be unable to send a withdraw instruction for that route. You will also be unable to delete the route from the Current BGP Routes table.

Tip: If you have changed connection type with active routes, you need to reconnect the CMS to the original configuration type or access the routes from another system to withdraw it.

Route Templates (BGP Routes only)

A Route Template is used when adding a BGP Route to provide the next hop and community configuration to apply for the route. You can create multiple Route Templates. They are used by BGP DIP Thresholds and by entries to the BGP Routes list (created manually or by an external trigger).

DIP Thresholds

DIP Thresholds are used to automatically apply a BGP mitigation to traffic which exceeds a specific threshold. When traffic exceeds the specified rate thresholds to a single DIP, and the CMS can apply either a BGP Route Template or a FlowSpec Action (described in an Action string). You can choose to apply this action to just the IP address which crossed the threshold, or a larger CIDR that IP address belongs to.

A DIP Threshold is triggered when traffic to one of its specified Destination IP Addresses (DIPs) crosses the rate threshold. You can add a list of DIPs to a DIP Threshold entry:

- **IP Address** – A single IP address, range, or CIDR
- **Destination Group** – An [Address Group](#) containing a list of DIPs
- **Dynamic Destination Group** – A [Dynamic Address Group](#) containing a list of DIPs (Dynamic Address Groups are only available with specific Smart-Plugins)

Tip: If you add a large Destination Group or IP CIDR to a DIP List, there may be specific IP addresses within that range which you know should never be blackholed or rerouted. To do this, you create one entry in the DIP list for the larger range, then create another entry in the DIP list for the IP addresses you want to exclude (select **Excluded** when creating the entry).

DIP Thresholds are evaluated in order (from top to bottom) in the DIP Thresholds table in the CMS Web UI (**Services > BGP Mitigation > DIP Thresholds**). You may need to reorder your DIP Threshold entries after creation to make sure they evaluate correctly for your configuration.

Example use

You want to send the traffic heading to a DIP-under-attack to a cloud scrubbing center when the total traffic rate to that DIP reaches 10,000 Mbps. But if the total traffic rate becomes so high it threatens to overwhelm your system (around 100,000 Mbps), you want to be able to announce a black hole for that DIP.

Create two Route Templates:

- *Cloud Scrubbing Template* – Contains the Next Hop and BGP communities information for your cloud scrubbing provider
- *RTBH Template* – Contains a Next Hop to an unused IP address space, e.g. 192.0.2.1

Create two DIP Threshold entries, one for each Route Template:

- *Cloud Scrubbing Threshold* – Set the Total Bit Threshold to 10,000 Mbps and select *Cloud Scrubbing Template* as the Trigger Action. To have this Threshold applied to all traffic, add the following IP Addresses: 0.0.0.0/0 and ::/0

- **RTBH Threshold** – Set the Total Bit Threshold to 100,000 Mbps and select *RTBH Template* as the Trigger Action. To have this Threshold applied to all traffic, add the following IP Addresses: 0.0.0.0/0 and ::/0.

Tip: If you need to exclude certain IP addresses from the cloud redirect or RTBH, you can add them to the IP Address list in the DIP Threshold and select the Excluded tag. This stops the trigger action being applied to that excluded IP address (or address group) even if it passes the threshold value.

Order DIP Thresholds table so the RTBH threshold is evaluated first:

1. *RTBH Threshold*
2. *Cloud Scrubbing Threshold*

This provides the following behavior:

- **Traffic under 10,000 Mbps** – Passes under the *RTBH Threshold* and then under the *Cloud Scrubbing Threshold*. No BGP route are announced.
- **Traffic over 10,000 (but under 100,000 Mbps)** – Passes under the *RTBH Threshold* and then triggers the *Cloud Scrubbing Threshold*. A new BGP route is announced for Cloud Scrubbing.
- **Traffic over 100,000 Mbps** – Triggers the *RTBH Threshold*. A new BGP route is announced for RTBH.

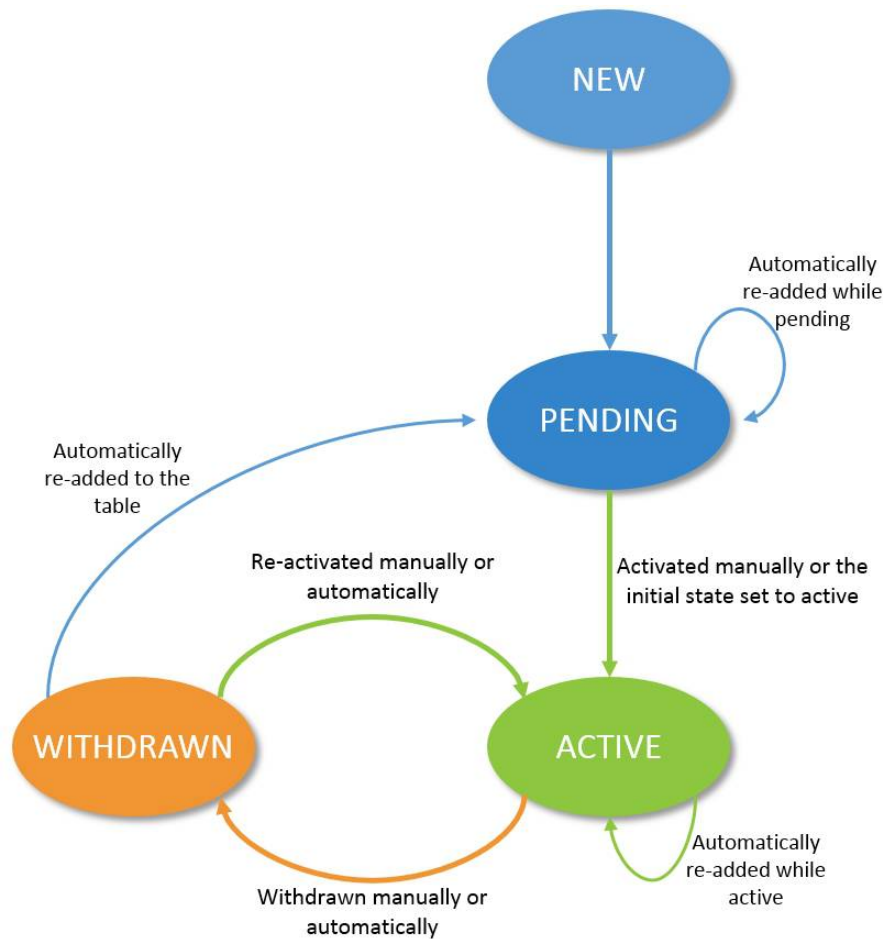
Note: If the *RTBH Threshold* came after the *Cloud Scrubbing Threshold*, the *RTBH Threshold* would never be triggered. Traffic over 100,000 Mbps would hit the *Cloud Scrubbing Threshold* first and be redirected for scrubbing.

Entry states

Entries on the BGP Routes and FlowSpec tables can exist in one of three states:

- **Pending** – The entry has been added to the table but not activated. This could be a new entry or one which has been re-added while in the Pending or Withdrawn state.
- **Active** – The entry is active. It could have been activated manually, automatically, or been re-added while the entry was in the Active state.
- **Withdrawn** – The entry was active but is now withdrawn. It could have been withdrawn manually, or automatically.

Note: When an entry is first added to a table it temporarily exists in the **new** state with the state reason **new-entry**. You may not see this in the table.



As well as showing the **State** of an entry (**pending**, **active**, or **withdrawn**), the tables also provides information on why this state has occurred in the **State Reason** column:

- **new-entry** – A temporary state while a new entry is added to the table.
- **re-added** – Traffic to the DIP has crossed the threshold rate and the entry has been re-added to the table.
- **activation-failed** – The CMS was unable to activate the entry. Check the BGP connection details are correct, and that there are no current network anomalies which could interrupt the connection.
- **withdraw-failed** – The CMS was unable to withdraw the entry. Check the BGP connection details are correct, and that there are no current network anomalies which could interrupt the connection.
- **activated-manually** – The initial state is set to pending and the entry was successfully activated by a CMS operator.
- **activated-automatically** – The initial state is set to active and the entry was successfully activated when it was added to the table.
- **withdrawn-manually** – The entry was successfully withdrawn by a CMS operator.
- **withdrawn-automatically** – The entry was successfully withdrawn by the Auto Withdraw Delay function.

- **withdrawn-snapshot-restore** – A snapshot has been restored on the CMS and active entries in the table have been withdrawn.

ExaBGP strings for FlowSpec routes

You can use the following semi-colon separated statements to create the Match and Action strings used for FlowSpec routes. You can use a single statement or multiple where appropriate.

Match string:

```
source <ip-address>/<prefixlength>;
destination <ip-address>/<prefixlength>;
port <portnumber>;
source-port <portnumber>;
destination-port <portnumber-expression>;
protocol [ udp | tcp ];
next-header [ udp | tcp ];
tcp-flags [ fin | syn | rst | push | ack | urgent ];
icmp-type [ echo-reply | echo-request | info-reply |
info-request | mask-reply | mask-request |
parameter-problem | redirect | router-advertisement |
router-solicit | source-quench | time-exceeded |
timestamp | timestamp-reply | unreachable ];
icmp-code [ communication-prohibited-by-filtering |
destination-host-prohibited |
destination-host-unknown |
destination-network-unknown |
fragmentation-needed | host-precedence-violation |
ip-header-bad | network-unreachable |
network-unreachable-for-tos | port-unreachable |
redirect-for-host | redirect-for-network |
redirect-for-tos-and-host |
redirect-for-tos-and-net |
required-option-missing | source-host-isolated |
source-route-failed |
ttl-eq-zero-during-reassembly |
ttl-eq-zero-during-transit ];
fragment [ not-a-fragment | dont-fragment | is-fragment |
first-fragment | last-fragment ];
dscp <dscp-value>;
traffic-class <traffic-class>;
packet-length <packet-length-expression>;
flow-label <flow-label-expression>;
```

Action string:

```
accept;
discard;
rate-limit <ratelimit>;
redirect ( <route-distinguisher> | <ip-address> );
copy <ip-address>;
mark <mark>;
action ( sample | terminal | sample-terminal );
community [...];
large-community [...];
extended-community [...];
```

Configuring a BGP Connection for BGP or FlowSpec Routes

Before you can use BGP Routes or FlowSpec in the CMS, you must connect the CMS to your BGP router. There are two ways to connect to the BGP client: a direct connection to the BGP client or via an orchestrator REST API. You can only enable one method of communication between the CMS and your BGP router.

Caution: You can only enable one method of communication between the CMS and your BGP router. You cannot enable BGP CLIENT settings and REST CLIENT settings at the same time. You cannot use REST CLIENT and FlowSpec at the same time. You **can** enable BGP CLIENT and FlowSpec at the same time as they both use the BGP CLIENT configuration.

Prerequisites


You must have a BGP router on your network edge which can announce and withdraw BGP routes and/or FlowSpec routes. The router must be accessible from the CMS:

- **BGP Client connection** – Over a TCP connection (used for BGP Routes and/or FlowSpec)
- **REST Client Connection** – Via your own orchestrator REST API (used for BGP Routes only)

To configure a direct BGP Client connection (BGP Routes/FlowSpec)

1. Use the left-hand menu to navigate to **Services > BGP Mitigation**.
2. Select the **BGP CLIENT** tab.
3. Change the **Admin State** to **enabled**.
4. Type the **Router ID** IP address of your local BGP router. This router must be positioned to enable a TCP connection with the CMS.
5. Type your **Local AS** for this router.

Note: The CMS supports 2-byte or 4-byte AS.

6. Add an entry for every neighbor (peer) of your local BGP router which may be contacted:
 - a. In the Neighbors table, click **Add**.
 - b. Type the **Address** of the neighbor.
 - c. (Optional) If you don't want to use this neighbor yet, change the **Admin State** to **Disable**. Otherwise, leave as **Enable**.
 - d. Type the **Remote AS** of this neighbor.
 - e. Type the **MD5 Password** to access this neighbor.
 - f. Click **Save**.
7. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

To configure a REST Client Connection (BGP Routes only)

1. Use the left-hand menu to navigate to **Services > BGP Mitigation**.
2. Select the **REST CLIENT** tab.
3. Change the **Admin State** to **enabled**.
4. Type your REST API **Username** and **Password**.
5. Select the **Content Type** required.
6. Configure the **Announce** endpoint:
 - a. Type your announce endpoint **URL**.
 - b. Select a HTTP **Request Method** from the drop-down.
 - c. Type the **Body** content required for your announce endpoint. Use the [required tokens](#) as placeholders for the information generated by the CMS for each new black hole.
7. Configure the **Withdraw** endpoint:
 - a. Type your withdraw endpoint **URL**.
 - b. Select a HTTP **Request Method** from the drop-down.
 - c. Type the **Body** content required for your withdraw endpoint. Use the [required tokens](#) as placeholders for the information generated by the CMS for each black hole which needs withdrawn.

8. (Optional) If there are any additional **HTTP Headers** required for your REST requests:

- a. Click **Add**.
- b. Type the HTTP **Header** you want to add to the REST requests.
- c. Type the **Value** for that header.
- d. Click **Save**.

Caution: There are three headers you must be cautious of adding to the HTTP headers table.

- `accept` is by default set to `all`. Adding it to the HTTP Headers table will overwrite `all` with your chosen value.
- `authorization` is set by the **Username** and **Password** fields on this page. Using these fields overwrites an `authorization` header in the table. You must clear the Username and Password fields to use your own `authorization` value in the HTTP Headers table.
- `content-type` is set by the **Content Type** field on this page. Using this field overwrites a `content-type` header in the table. You must clear the Content Type field to use your own `content-type` value in the HTTP Headers table.

9. If you want to save the new configuration, and push your changes to any affected Defense devices, click

Commit

. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: You can use the CLI to debug the REST API configuration, by viewing the exact REST configuration sent for an announce or withdraw request. The following command enables you to announce or withdraw a DIP and then returns the HTTP request sent: `request bgp-mitigation rtbh rest [announce-api|withdraw-api] test address <dipaddress>`. **Caution:** Using the command to send an announce request will block traffic from the specified DIP, just like manually adding a black hole.

BGP REST endpoints: Body and URL tokens

The URL and Body fields accept the following tokens as placeholders for variable information. The CMS replaces each token with the appropriate information for each new black hole being announced or withdrawn.

The CMS replaces the following tokens with:

- `{ip}` – The section of the DIP CIDR *before* the slash. For example, if the DIP being black-holed is `192.168.10.10/32` this token is replaced with `192.168.10.10`.
- `{mask}` – The section of the DIP CIDR *after* the slash. For example, if the DIP being black-holed is `192.168.10.10/32` this token is replaced with `32`.
- `{nexthop}` – The next hop for this black hole route. Can be IPv4 or IPv6.

- {community-n} – The community represented by the index value (e.g. 6500:1234). To use the token, you need to replace n with the index value (1-16) representing the one of the communities associated with this black hole route.
- {communities-space-separated} – All communities associated with this black hole route, separated by spaces (e.g. 6500:1234 6500:1235 6500:1236).
- {communities-comma-separated} – All communities associated with this black hole route, separated by commas (e.g. 6500:1234,6500:1235,6500:1236).
- {id} – A numeric hash of IP and mask values to identify the black hole. The ID will be the same every time this CIDR is announced.
- {time} – The current UTC time, formatted as the number of milliseconds since Epoch (e.g. 1525174499000).

Note: The {time} token is replaced by the time at the moment the REST request is sent and will not be the same for an announce and withdraw request for the same black hole.

In the event that there is no value available for a token, the token is removed from the URL or Body and replaced with nothing. For example, if you only have one community configured, {community-2} would be removed and replaced with nothing. If text other than a valid token is surrounded by braces { }, it will not be removed or replaced. It will appear as entered in the URL or Body (e.g. {community-pool} would not be valid and would appear unedited in the request).

Note: Text in the URL field is altered by URL encryption when a request is generated, so may appear slightly different in the request.

Next Steps

- (Optional) [Managing BGP Route Templates](#)
- (Optional) [Configuring BGP Mitigation DIP Thresholds](#)
- (Optional) [Managing the BGP Routes List](#)
- (Optional) [Managing the FlowSpec Routes List](#)

CLI Commands

View BGP configuration

```
configure
show bgp-mitigation bgp-client
```

BGP Client: Configure BGP router details

```
configure
set bgp-mitigation bgp-client admin-state [disabled|enabled] router-id <routerIP>
local-as <localASNumber>
commit
```

BGP Client: Add a new neighbor or edit an existing neighbor

```
configure
set bgp-mitigation bgp-client neighbor <neighbourAddress> admin-state
[disabled|enabled] remote-as <remoteASNumber> md5-password <password>
commit
```

BGP Client: Delete a neighbor

```
configure
edit bgp-mitigation bgp-client neighbor
delete <neighbourAddress>
commit
```

BGP REST API: Configure connection

```
configure
set bgp-mitigation rest-client admin-state [disabled|enabled] content-type
<contentType> basic authentication username <RESTusername> password <RESTpassword>
commit
```

Tip: In the CLI, you can also set the connection and read timeouts for contacting the REST API. The default for both is 5 seconds.

```
set rtbh bgp rest connection-
timeout <seconds> read-timeout <seconds>
```

BGP REST API: Configure announce and withdraw endpoints

```
configure
set bgp-mitigation rest-client announce-api url <endpointURL> request-method
[CONNECT|DELETE|GET|HEAD|OPTIONS|PATCH|PUT|TRACE] body "<body>"
set bgp-mitigation rest-client withdraw-api url <endpointURL> request-method
[CONNECT|DELETE|GET|HEAD|OPTIONS|PATCH|PUT|TRACE] body "<body>"
commit
```


Caution: The entire body string must be surrounded with quotes or the command won't be accepted e.g: body {"items":[{"adminState":"enabled", "definition": "hostabc{ip}", "name": "name{ip}"}]}

BGP REST API: Add a new HTTP header or edit the value of an existing HTTP header

```
configure
set bgp-mitigation rest-client http-headers <headerName> value <headerValue>
commit
```

BGP REST API: Delete a HTTP header



```
configure
edit bgp-mitigation rest-client http-headers
delete <headerName>
commit
```



Managing BGP Route Templates

Route Templates describe the path you want traffic to follow when a BGP Route is announced. Route Templates are referenced when you create a DIP Threshold entry or add a manual BGP route. You should create a route template for each traffic handling method you require for your BGP routing plan.

Create a new route template

1. Use the left-hand menu to navigate to **Services > BGP Mitigation**.
2. Select the **Route Templates** tab.
3. Click **Add**.
4. Type a **Name** for this Route Template.
5. (Optional) Type a **Description** of this Route Template.
6. Type the **IPv4 Next-Hop** and **IPv6 Next-Hop** for the route. These must be individual IP addresses without CIDR prefixes.

7. For each BGP community needed:
 - a. Click **Add**
 - b. Either:
 - Select **BGP Community** and enter a community name.
 - Select **Large BGP Community** and enter a large community name.
 - c. Click **Save**.
 - d. Repeat steps a-c to add as many communities as you require. You can also use  the delete button to modify your list.
8. When you're happy with the Route Template, click **Save**.
9. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: From the Route Templates table, you can edit  or delete  existing Route Templates.

Next Steps

- Adding a manual BGP route
- Creating a DIP Threshold entry

CLI Commands

Create a Route Template

```
configure
set bgp-mitigation route-template <routeTemplateName> description "<description>"
ipv4-next-hop <ipv4Address> ipv6-next-hop <ipv6Address>
commit
```

Add a new entry or add a new community to an existing Route Template

```
configure
set bgp-mitigation route-template <routeTemplateName> community <communityName>
commit
```

Delete a Route Template

```
configure
edit bgp-mitigation route-template
delete <routeTemplateName>
commit
```

Delete a community from a Route Template

```
configure
edit bgp-mitigation route-template <routeTemplateName>
delete community <communityName>
commit
```

Configuring DIP Thresholds

If you want to enable the CMS to send BGP routes or FlowSpec routes when the traffic rate to a Destination IP address goes too high, you need to configure the BGP Mitigation DIP Thresholds.

Prerequisites

You must have at least one of the following connections established with your BGP router:

- [Configuring a BGP connection for BGP Routes](#)
- [Configuring a BGP connection for FlowSpec](#)

To configure new DIP Thresholds

Caution: You do not have to commit changes made to the DIP Thresholds table. As soon as you make the change it is pushed to your BGP router.


1. Use the left-hand menu to navigate to **Services > BGP Mitigation**.
2. Select the **DIP THRESHOLDS** tab.
3. Click **Add**.
4. Type a **Name** for this new DIP Threshold entry.
5. Select an initial **Admin State** for this entry.
6. (Optional) Type a **Description** of the DIP Threshold.
7. Set the maximum rate of **Total** traffic (blocked and allowed traffic) to a DIP before the action is triggered (disabled by default):
 - a. Set the Total admin state drop-down to **enabled**.
 - b. Edit the Total **Bit Threshold** (Mbps) and Total **Packet Threshold** (pps).



8. Set the maximum rate of **Blocked** traffic to a DIP before the action is triggered (enabled by default):
 - a. Set the Blocked admin state drop-down to **enabled**.
 - b. Edit the Blocked **Bit Threshold** (Mbps) and Blocked **Packet Threshold** (pps).

Note: The Blocked traffic rate threshold is not affected by [Inspection Control](#) mode. Blocked packets are still counted whether the Inspection Control mode is set to Mitigate or Monitor.

9. Configure the **Trigger Action** which is applied to traffic once the traffic threshold is reached. Select one of the following options:
 - **Route Template** – (BGP Routes only) Select a Route Template from the drop-down. The route described in this template will be applied to traffic once the threshold is reached.
 - **FlowSpec Action** – (FlowSpec Route only) Type a FlowSpec Action string ([ExaBGP format action string](#)) to describe the route that will be applied to traffic once the threshold is reached.
10. (Optional) Edit the settings applied to the new route created by the Trigger Action:
 - a. When traffic going to a DIP passes a threshold, you can choose to apply the Trigger Action to that single IP address or the CIDR containing the over-threshold DIP. This is configured for IPv4 and IPv6 routes using the **IPv4 Route Prefix Length** and **IPv6 Route Prefix Length**. By default these are set to apply the route to the single triggering IP address (IPv4 by default has a /32 subnet mask and IPv6 has a /128 subnet mask).
 - b. Set the **Route Initial State** (Note: This overrides the Initial State configured on the BGP or FlowSpec routes tables):
 - **pending** – (default) This route is added to the BGP Routes or FlowSpec Routes table but not activated. An operator can be prompted of a new route announcement and then access CMS to manually activate the route.
 - **active** – This route is added to the BGP Routes or FlowSpec Routes table and is immediately activated.
 - c. In **Auto Withdraw Delay**, set the number of minutes the DIP should be should stay in a table, after the traffic rate drops below the threshold, before it is automatically withdrawn (default is **0** which disables auto withdraw). If an attack is still in progress, once withdrawn the traffic will re-trigger the threshold and be re-added to the table in the **Route Initial State**.


Tip: By default, the **Auto Withdraw Delay** is disabled by having it set to **0**. In this configuration, you must manually withdraw routes activated by DIP Thresholds. Routes which are manually added to the table must always be manually withdrawn.

11. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: From the DIP Thresholds table, you can edit  or delete  existing DIP Thresholds.

To modify the Threshold Trigger Period

A DIP Threshold is crossed when the average rate of traffic to a DIP is more than this threshold value. This average is calculated over the **Threshold Trigger Period**. By default that is set to 60 seconds.

1. Use the left-hand menu to navigate to **Services > BGP Mitigation**.
2. Select the **DIP THRESHOLDS** tab.
3. In the **Threshold Trigger Period** field, add a new value. This must be a multiple of 10 seconds.
4. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Next Steps

Set the initial state for new routes added to tables:

- [Manage the BGP Routes List](#)
- [Manage the FlowSpec Routes List](#)

CLI Commands

Configure a DIP threshold entry

```
configure
set bgp-mitigation dip-thresholds entry <entryName> admin-state [disabled|enabled]
description "<description>"
set bgp-mitigation dip-thresholds entry <entryName> total admin-state
[disabled|enabled] mbps-threshold <totalTrafficMbps> packet-threshold
<totalTrafficPps>
set bgp-mitigation dip-thresholds entry <entryName> blocked admin-state
[disabled|enabled] mbps-threshold <blockedTrafficMbps> packet-threshold
<blockedTrafficPps>
set bgp-mitigation dip-thresholds entry <entryName> trigger-action [flowspec-action
<actionString> | route-template <templateName>]
set bgp-mitigation dip-thresholds entry <entryName> ipv4-prefix-length <length> ipv6-
prefix-length <length> initial-state [active|pending] auto-withdraw-delay <minutes>
set bgp-mitigation dip-thresholds entry <entryName> [destination-ip <ipAddress> |
destination-group <addressGroupName> | dynamic-destination-group
<dynamicAddressGroupName>]
commit
```

Managing the BGP Routes List

You can manage the Current BGP Routes table manually or via REST API. This topic covers manual operations. For more information on announcing and withdrawing routes using the REST API (for example, from an analytics application like SWA), contact your Corero representative.

Caution: You do not have to commit changes made to the Current BGP Routes table. As soon as you make the change it is pushed to your BGP router through your enabled connection method (BGP Client or BGP REST API). You must commit changes to the **Initial State** drop-down.

As well as automatically adding DIPs to the Current BGP Routes table using the CMS DIP thresholds or an external trigger, you can manually add an address, with CIDR prefix, to the list. You might want to do this to test your BGP configuration is working as expected.


Note: Routes added manually will not be automatically withdrawn. You must manually withdraw these routes when ready.

Prerequisites

- [Set up a connection to your BGP server](#)


To set the initial state

Note: When you change the **Initial State** of a route from **Pending** to **Active**, this change applies to every new request for a route seen by the Current BGP Routes table. For entries which were added in the Pending state, they will remain in this state until another request is received for that DIP, then, now that the initial state is Active, the route will automatically activate.




1. Use the left-hand menu to navigate to **Services > BGP Mitigation**.
2. Select the **BGP ROUTES** tab.
3. Set the **Initial State**:
 - **pending** – (default) This route is added to the Current BGP Routes table but not activated. An operator can be prompted of a new route announcement and then access CMS to manually activate the route.
 - **active** – This route is added to the Current BGP Routes table and is immediately activated.
4. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

To manually apply a BGP route

1. Use the left-hand menu to navigate to **Services > BGP Mitigation**.
2. Select the **BGP ROUTES** tab.

3. Make sure the **Initial State** field is [set as required](#). This field also applies to routes added to the table automatically which don't have an Initial State specified.
4. Click **Add**.
5. Type the Destination IP **Address** you want to affect. This must be formatted to include the subnet (e.g. 1.2.3.0/24). The subnet can be any size.
6. Select a **Route Template**.
7. (Optional) Type a **Description** of this BGP route.
8. Click **Save**
9. Activate the route:
 - If the **Initial State** is **active**, the route will now be active (for the length of time given in the **Auto Withdraw Delay** field on the **DIP THRESHOLDS** tab).
 - If the **Initial State** is **pending**, you need to click  the activate button to announce the route.

Tip: While an IP address is in the Current BGP Routes table, you can:

-  deactivate a route
-  reactivate a route
-  deactivate the route (if active) and delete the entry from the table
- **Purge Withdrawn** – delete all withdrawn entries from the table

Deleting entries

The CMS can store up to 1000 BGP route entries. If another entry is added (manually or automatically) the oldest inactive entry is deleted to make room. If all 1000 entries are active, the CMS deletes the entry with the oldest "last updated" time field.

Note: In the unlikely event that you need to force the CMS to delete an entry from the table (without withdrawing the route), you can use the CLI command: `request bgp-mitigation rtbh blackhole-addresses entry <entryAddress> remove force`

CLI Commands

Set the initial state

```
configure
set bgp-mitigation routes initial-state [active|pending]
commit
```

View routes

```
show bgp-mitigation routes
```

Manually add a route

```
request bgp-mitigation routes add address <dipCIDR> description "<description>" route-  
template <TemplateName>
```

Manage an existing route

```
request bgp-mitigation routes entry <entryAddress> [activate|remove|withdraw]
```

Note: `remove` is the same as deleting an entry in the Web UI. It withdraws the route then removes the entry it from the table.

Purge all withdrawn routes

```
request bgp-mitigation routes purge-withdrawn
```

Managing the FlowSpec routes List

You can manage the FlowSpec Route table manually or via REST API. This topic covers manual operations. For more information on using the REST API (for example, from an analytics application like SWA), contact your Corero representative.

Caution: You do not have to commit changes made to the Current Routes table. As soon as you make the change it is pushed to your BGP router through your enabled connection method (BGP Client or BGP REST API). You must commit changes to the **Initial State** drop-down.


As well as automatically adding routes to the FlowSpec table using the CMS DIP thresholds or an external trigger, you can manually add a route. You might want to do this to test your BGP configuration is working as expected.

Note: Routes added manually will not be automatically withdrawn. You must manually withdraw these routes when ready.


Prerequisites

- [Set up a FlowSpec connection to your BGP server](#)




To set the initial state

1. Use the left-hand menu to navigate to **Services > BGP Mitigation**.
2. Select the **FLOWSPEC ROUTES** tab.
3. Set the **Initial State**:
 - **pending** – (default) This route is added to the FlowSpec Routes table but not activated. An operator can be prompted of a new route announcement and then access CMS to manually activate the route.
 - **active** – This route is added to the FlowSpec Routes table and is immediately activated.
4. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

To manually add a FlowSpec route

1. Use the left-hand menu to navigate to **Services > BGP Mitigation**.
2. Select the **FLOWSPEC ROUTES** tab.
3. Make sure the **Initial State** field is set as required. This field also applies to routes added to the table automatically which don't have an Initial State specified.
4. Click **Add**.
5. Type a **Name** for this route.
6. (Optional) Type a **Description** of this route.
7. Type a **Match** string in [ExaBGP format](#).
8. Type an **Action** string in [ExaBGP format](#).
9. Click **Save**
10. Activate the route:
 - If the **Initial State** is **active**, the route will now be active (for the length of time given in the **Auto Withdraw Delay** field on the **DIP THRESHOLDS** tab).
 - If the **Initial State** is **pending**, you need to click  the activate button to announce the route.

Tip: While a route is in the Current Routes table, you can:

-  withdraw the route
-  reactivate the route
-  withdraw the route (if active) and delete the entry from the table
- **Purge Withdrawn** – delete all withdrawn entries from the table

Deleting FlowSpec entries

The CMS can store up to 1000 entries in the FlowSpec routes table. If another entry is added (manually or automatically) the oldest inactive entry is deleted to make room. If all 1000 entries are active, the CMS deletes the

entry with the oldest "last updated" time field.

Note: In the unlikely event that you need to force the CMS to delete an entry from the table (without withdrawing the route), you can use the CLI command: `request bgp-mitigation flowspec-routes entry <entryAddress> remove force`

CLI Commands

Set the initial state

```
configure
set bgp-mitigation flowspec-routes initial-state [active|pending]
commit
```

View FlowSpec routes

```
show bgp-mitigation flowspec-routes
```

Manually add a route

```
request bgp-mitigation flowspec-routes add name <routeName> description
"<description>" action "<actionString>" match "<matchString>"
```

Manage an existing route

```
request bgp-mitigation flowspec-routes entry <entryName> [activate|remove|withdraw]
```

Note: `remove` is the same as deleting an entry in the Web UI. It withdraws the route then removes the entry it from the table.

Purge all withdrawn routes

```
request bgp-mitigation flowspec-routes purge-withdrawn
```

Smart-Plugins

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Smart-Plugins Screen reference topic](#).

The Smart-Plugins are optional packages which you load on your CMS to enhance SmartWall's protection and analytics capabilities, without needing to perform a software upgrade.

Smart-Plugins are developed only by Corero and may be freely available on request or for purchase depending on their purpose. Depending on the plugin, there maybe a degree of configuration possible. If a plugin is configurable, an additional dialog will be available in the user interface, to adjust the available parameters. You can upload a maximum of 8 plugins installed at any one time.

Note: Your support representative will be able to advise you on the available Smart-Plugins.

Managing Smart-Plugins



Note: The installation of a Smart-Plugin will require the CMS to restart.

Smart-Plugins must be installed in the CMS before you can access their additional features.

To install a Smart-Plugin





1. Use the left-hand menu to navigate to **Services > Smart Plugins**.
2. Click the **Install** button.
3. On the pop-up click on **Select File**.
4. Select the appropriate plugin and click on **Open**.
5. If you wish the plugin to be enabled when it is installed select **Enable this Plugin during installation**.
6. Select **Upload** to install the plugin.

To uninstall a Smart-Plugin

1. Use the left-hand menu to navigate to **Network > Devices**. If any device status shows a commit-in-progress, you **MUST** wait for the commit to complete before uninstalling.
2. Use the left-hand menu to navigate to **Services > Smart Plugins**.
3. Locate the Smart-Plugin in the table.
4. Click  to view more options, then select **Disable**.
5. Click  the Uninstall button.
6. The CMS will now restart.

To modify Smart-Plugins

On the plugins table you can use the following Action buttons to manage installed plugins:

- **Edit**  – If available the plugin can be reconfigured through this.
- **Update**  – Upload an updated PKG for this plugin.
- **Uninstall**  – Uninstalls the plugin. This requires a CMS restart.
- **More**  – Opens further options that can be used to manage the plugin.
 - **Enable** – If the plugin is disabled then this will enable the plugin.
 - **Disable** – If the plugin is enabled then this will disable the plugin.
 - **Upload Resource** – If the plugin supports resource upload then this will pass a file to the plugin.

Note:

SECTION 5

Manage CMS

The SmartWall Central Management Server (CMS) is the heart of the SmartWall Threat Defense Director. It connects the SmartWall devices in your network, and sends analytics information to SmartWall SecureWatch Analytics.

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CMS System

The CMS system features are for admin accounts only. You can use them to authenticate CMS users, create snapshots, perform software upgrades, configure your analytics settings, upload a new SSL certificate, and other high level administrative tasks.

Note: [If you are using the NTD120, specific support can be found here.](#)

Initial CMS System Actions

There are four main CMS System configuration actions you should do when you first deploy the CMS:

Note: If you are connecting to Corero SecureWatch, and your network requires use of an HTTP Proxy you can configure it in the [System Menu](#).

- Upload a signed SSL certificate
- Upload a SecureWatch package
- Connect the CMS to SWA or other syslog server

Uploading an HTTPS Certificate

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [HTTPS Screen reference topic](#).

The CMS comes with a default self-signed Corero SSL certificate which your browser will list as "not secure". As soon as possible, you should replace this with a signed certificate.

Note: Certificates must be packaged in pkcs12 format and can optionally be password protected. The pkcs file should contain a single private key and certificate pair.

To upload a new SSL certificate to the CMS

1. Use the left-hand menu to navigate to **System > Certificates**.
2. Click **Upload Certificate**.
3. Select a pkcs12 certificate file on your computer, and click **Open**.
4. (Optional) Type in the **Password** for the certificate file.
5. Click **OK**.
6. If necessary, refresh the browser to ensure the new certificate has been loaded.

CLI Commands

```
request system https install-certificate-from-pkcs12 remote-uri <remoteURI> remote-  
password <remotePassword> password <pkcs12Password>
```

Configuring SecureWatch Access

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [SecureWatch Screen reference topic](#).

The SecureWatch Service enables monitoring and remote management from Corero's Security Operations Center. If your SmartWall Central Management Server (CMS) application was not deployed on a SmartWall Management Controller you must configure the CMS to connect to the SecureWatch Service using a SecureWatch package file. You can upload this file to the CMS using the Web UI, CLI or pCLI. You can choose to also configure port forwarding and a HTTP proxy for this connection.

Note: To enable the SecureWatch Service, you must configure your firewall to allow **outbound TCP port 443** traffic to destination DNS **address sw2.-corero-cns.com** and IP address **68.233.164.235**.

Prerequisites

- You should receive a SecureWatch package file (.pkg) from your Corero representative and save this to your PC
- You should also receive an unlock code for that file and have that available


To upload a SecureWatch package

1. Log into the CMS in your browser.
2. Use the left-hand menu to navigate to **System > SecureWatch**.
3. Make sure the **PACKAGE** tab is selected.
4. Click **Upload Package**.
5. Select the SecureWatch package file on your computer, and click **Open**.
6. Type in the **Unlock Code** for the package file.
7. Click **OK**.

(Optional) To use a HTTP proxy for SecureWatch access

Caution: The CMS must have been installed from 9.7.0 or later, to have the necessary operating system (SXOS) build to support a HTTP Proxy.

If your internet connectivity is through an HTTP Proxy then you need to configure the CMS to use the external proxy for the connection to SecureWatch.

1. Use the left-hand menu to navigate to **System > SecureWatch**.
2. Select the **HTTP PROXY** tab.
3. Enable a **HTTP Proxy**:
 - a. From the **Admin State** drop-down, select **enabled**.
 - b. Type the IP address of the HTTP Proxy **Server**.
 - c. (Optional) Modify the default **Port** number (3128) for the HTTP Proxy port on your server.
4. (Optional) Enable authentication for the HTTP Proxy:
 - a. From the **Admin State** drop-down, select **enabled**.
 - b. Select an Authentication type (**Auth Type**): **Basic** or **NTLM**
 - c. Type the authentication **Username** and **Password** for the HTTP Server.
5. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

```
request system securewatch upload-package remote-uri <remoteURI> remote-password
<remotePassword> password <pkgUnlockCode>
```

Alternative methods for uploading a SecureWatch package using the CMS pCLI

The CMS pCLI is the provisioning command line interface for the CMS. You can use it to perform some initial tasks during installation, including uploading a SecureWatch package file. There are two ways to upload the package file using the pCLI.

To install the SecureWatch package using a base64 file

1. You will receive the base64 file and unlock code from Corero Customer Support.
2. Open a console connection to your CMS application to access the pCLI. If you're using an ssh client, you can connect using the following command: `ssh -p 2222 <username>@<cmsIPaddress>`
3. Type `package-install base64` and press return.
4. Copy the base64 text and paste into the pCLI. Type **Ctrl-d**.
5. When prompted, copy the unlock code and paste into the pCLI, then press return.
6. To verify you're connected, type: `show securewatch` and press return.

To install the SecureWatch package from a local server

1. You will receive the SecureWatch package and unlock code from Corero Customer Support.
2. Save the package on a local server (HTTP, HTTPS, FTP or SFTP).
3. Open a console connection to your CMS application to access the pCLI. If you're using an ssh client, you can connect using the following command: `ssh -p 2222 <username>@<cmsIPaddress>`
4. Type `package-install URL` and press return.
5. Type the address of the local server where you saved the package and press return. Then type the password and press return.
6. Type the SecureWatch package unlock code and press return.
7. To verify you're connected, type: `show securewatch` and press return.

Configuring an HTTPS Proxy for SecureWatch access

```

cms122>setup securewatch
Please configure the SecureWatch proxy settings:
  Enable HTTP Proxy? <Y,[N]>:

HTTP Proxy:
  State : Disabled

  Enter [C]hange or [E]xit without changing [C]:
Please configure the SecureWatch proxy settings:
  Enable HTTP Proxy? <Y,[N]>: y
  Enter Server [None]: <Proxy IP>
  Enter Port [3128]:
  Enable Proxy Authentication? <Y,[N]>: y
Using Basic Authentication
  Enter Username [None]: <Username>
  Enter Password:
  Re-enter Password:

HTTP Proxy:
  State : Enabled
  Server : <Proxy IP>
  Port : 3128
  Username : <Username>
  Password : *****
  Authentication : basic

  Enter [A]ccept, [C]hange, or [E]xit without saving [C]: a
  
```

Next Steps

- Once you have uploaded a package, the SecureWatch Service will be able to connect to your CMS.
- You also need to upload a SecureWatch Package on your SWA. In the SWA application, click the Help menu item to open the **Corero SmartWall SWA User Guide** for further information.


Connecting to SWA or Another Syslog Server



The SmartWall Central Management Server (CMS) collates syslog messages from the SmartWall devices in your network and then it can send a summarized version of that information on to SmartWall SecureWatch Analytics (SWA), where the messages are used to produce real-time and historical analytics.

Before the SWA can display information, you must set up the CMS to forward syslog messages to the SWA. You can also configure the CMS to forward the syslog messages to other applications that process syslog messages.

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Analytics & Syslog Screen reference topic](#). See information on Address Groups to [learn more about IP reporting](#).


To connect to an Analytics or Syslog Server

1. Use the left-hand menu to navigate to **System > Analytics & Syslog**. Make sure the SERVERS tab is selected.
2. Click **Add Server** at one of the following tables:
 - **Analytics Servers** – For SWA applications
 - **Syslog Servers** – For all other applications which process syslog messages
3. Type a **Name** for this server. You must only use alphanumeric, spaces, or .-&()/_/@:= symbols.
4. Type the IP **Address** of the server (or its DNS name).
5. Enable or Disable **Encryption** for this server. The CMS and SWA come with self-signed SSL certificates. You can choose to upload signed certificates to the CMS and SWA- see optional steps below.
6. Type the **Port** your server accepts syslog messages on. The default (9997 for unencrypted and 9998 for encrypted) is the correct port for SWA.
7. Click **Save**.
8. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).
9. Open your server application and check it is now receiving syslog messages.

Tip: On the servers tables in the CMS, you can use the following action buttons to edit  or delete  a server connection.

Optional– Add a signed certificate to the CMS - SWA connection

By default, the connection between the CMS and SWA uses an in-built self-signed certificate. If you want to use a signed certificate, you need to upload a PKCS#12 certificate to both sides of the connection.

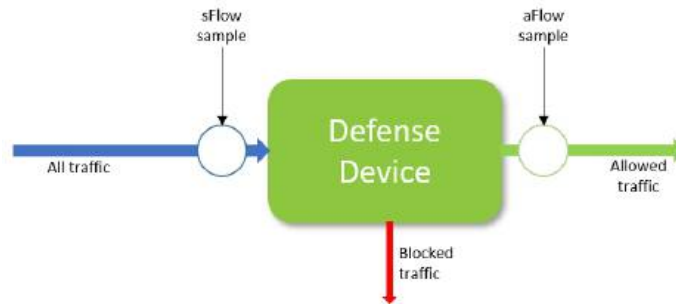
1. Add a signed SSL certificate in the CMS side of the connection:
 - a. Use the left-hand menu to navigate to **System > Analytics & Syslog**.
 - b. Open the **SSL CERTIFICATE** tab.
 - c. Click **Upload Certificate**.
 - d. Select a pkcs12 certificate file on your computer, and click **Open**.
 - e. (Optional) Type in the **Password** for the certificate file.
 - f. Click **OK**.
 - g. If necessary, refresh the browser to ensure the new certificate has been loaded.
 - h. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).
2. Add a signed certificate to the part of the SWA that receives information from CMS:
 - a. Access the SWA pCLI:
 - Open a console session. On an ESXi server, you can use VMware (select the VM and click **Open Console**) or on a KVM server you can use virsh (command: `virsh console <vmName>`).
 - SSH to the pCLI: `ssh -p 2222 admin@<ipAddress>`
 - b. Log in. If you haven't yet changed them, the default username and password is admin/smartwall.
 - c. To load a certificate, type `ssl-certificates forwarder` followed by the URI to the PKCS#12 format certificate file. The supported protocols are FTP, SFTP, HTTP, and HTTPS. For example: `ssl-certificates forwarder sftp://admin@10.20.30.40/certs/my_cert.p12`
 - d. You will be prompted for a password to access the file location. If you password protected the PKCS#12 file, you will also be prompted for that password.

Note: The certificate must be in PKCS#12 format, and include the private key, signed certificate, and CA certificate change to be used for SSL. The common name should match the hostname assigned to the SWA appliance.

To configure syslog message settings

Note: The configuration of syslog message settings in the CMS applies to all syslog and analytics servers.

The CMS analyzes sample packets from the traffic flow to detect attacks and trigger rules. The CMS then sends a sample of those packets on to SWA to provide the data for analytics.




There are two types of samples taken by the CMS:

- **sFlow** – A sample of all traffic coming into the Defense device. Useful for detecting attacks and seeing your incoming traffic stats.
- **aFlow** – A sample of the traffic that the Defense device has allowed through. You can use this to check how well your SmartWall system configuration is working to block unwanted packets.

These are used to report on inbound (coming into the internal network) and outbound (leaving the internal network) traffic.

Note: The default syslog message configuration should work for most systems.

1. Use the left-hand menu to navigate to **System > Analytics & Syslog**.
2. Select the **MESSAGE CONTROLS** tab.
3. You can edit the following options:
 - **sFlow Inbound Limit** – (Default: 5) Change the maximum number of sample inbound packets, sampled from all traffic types, that the CMS will send every second
 - **sFlow Outbound Limit** – (Default: 5) Change the maximum number of sample outbound packets, sampled from all traffic types, that the CMS will send every second
 - **aFlow Inbound Limit** – (Default: 5) Change the maximum number of sample inbound packets, sampled from allowed traffic, that the CMS will send every second
 - **aFlow Outbound Limit** – (Default: 5) Change the maximum number of sample outbound packets, sampled from allowed traffic, that the CMS will send every second
 - **Rule Event Limit** – (Default: 5) Change how many security event messages, per rule, the CMS will send to the SWA every second
 - **Send Events** – (Default: enabled) Choose to send (**enabled**) or stop sending (**disabled**) event messages
 - **Send Detected Events** – (Default: enabled) Choose to send (**enabled**) or stop sending (**disabled**) an event message when a rule detects matching traffic (as opposed to blocking matching traffic)
 - **Send Logs** – (Default: enabled) Choose to send (**enabled**) or stop sending (**disabled**) CMS log entries on to the analytics/syslog server

4. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

Connect to an Analytics or syslog server

```
configure
set analytics [server|syslog-server] name <serverName> address <ipAddress> port
<syslogPort>
commit
```

Edit a server

```
configure
set analytics [server|syslog-server] name <serverName> address <ipAddress> port
<syslogPort>
commit
```

Rename a server

```
configure
request analytics [server|syslog-server] <serverName> rename name <newName>
commit
```

Delete a server

```
configure
delete analytics [server|syslog-server] name <serverName>
commit
```

Upload an SSL certificate

```
configure
request analytics ssl install-certificate-from-pkcs12 remote-uri <remoteURI> remote-
password <remotePassword> password <pkcs12Password>
commit
```


Configure syslog message setting

```
configure
edit analytics message-controls
set rule-event-limit <limit>
set send-detected-events [disabled|enabled]
set send-events [disabled|enabled]
set send-logs [disabled|enabled]
set sflow-inbound-limit <limit>
set sflow-outbound-limit <limit>
set aflow-inbound-limit <limit>
set aflow-outbound-limit <limit>
commit
exit
```

Users

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Authentication Screen reference topic](#).

Note: The Authentication screen is only visible for **cns-admin** users.

When you install the SmartWall Central Management Server (CMS), you will have one administrative user account. You can create more user accounts, either locally or by mapping to an external LDAP server.




Note: If you need assistance from Corero Customer Support, you can enable a support account on the CMS, giving them access to high level settings.










Note: If you are connecting to Corero SecureWatch, and your network requires use of an HTTP Proxy you can configure it in the [System Menu](#).

CMS user roles

There are three standard user roles available for the CMS:

- **cns-admin** – The administrative role. An admin user can edit all **Policy**, **Network**, and **System** configurations, including managing users.
- **cns-defense** – A non-administrative role which enables its users to edit all **Policy** options but no Network or System administrative settings
- **cns-monitor** – A primarily read-only role which enables its users to view settings without being able to enact any changes (aside from their own password)

	cns-admin	cns-defense	cns-monitor
Policy (e.g. <ul style="list-style-type: none"> • Protection Profiles • Configuration of attack mitigation features • Address groups) 	 Full access	 Full access	 Read-only access

	cns-admin	cns-defense	cns-monitor
Devices (e.g. <ul style="list-style-type: none"> • Device Status • Upgrades • Clusters and Segments • Operating Modes • Authentication Groups) 	 Full access	 Read-only access	 Read-only access
CMS System (e.g. <ul style="list-style-type: none"> • User authentication • SSL certificates • Analytics settings • Snapshots and upgrades) 	 Full access	 Read-only access to some pages	 Read-only access to some pages
Manage own password			

Types of user authentication

There are three types of user authentication available on the CMS:

- **Local Authentication** – Admin users can create and manage local CMS user accounts using the CMS Web UI or CLI
- **RADIUS** – Admin users can configure the CMS to enable users to log into the CMS using their existing organization credentials by connecting to your organization's authentication server over RADIUS
- **LDAP** – Admin users can configure the CMS to enable users to log into the CMS using their existing organization credentials by connecting to your organization's authentication server over LDAP

Note: When you use LDAP or RADIUS authentication, you cannot edit external user details or manage those user passwords from within the CMS. Also, LDAP and RADIUS admin users cannot use their external credentials to access the CMS pCLI.

Authentication order

If you enable one or both types of external authentication, it's possible some of your users may be in more than one database. In that case, you should check you have the correct authentication order for your system:

Option	Authentication Order
External, Local (Default)	<ol style="list-style-type: none"> If enabled, try RADIUS server: <ul style="list-style-type: none"> If accepted: log user in. If rejected: log in denied and no further attempts are made. If server unavailable, try next level of authentication. If enabled, try LDAP server: <ul style="list-style-type: none"> If accepted: log user in. If rejected: log in denied and no further attempts are made. If user does not exist or server unavailable, try next level of authentication. Try local user database: <ul style="list-style-type: none"> If accepted: log user in. If rejected: log in denied and no further attempts are made.
Local, External	<ol style="list-style-type: none"> Try local user database: <ul style="list-style-type: none"> If accepted: log user in. If user does not exist or authentication fails, try next level of authentication. If enabled, try RADIUS server: <ul style="list-style-type: none"> If accepted: log user in. If rejected: log in denied and no further attempts are made. If server unavailable, try next level of authentication. If enabled, try LDAP server: <ul style="list-style-type: none"> If accepted: log user in. If rejected or server unavailable: log in denied and no further attempts are made.

Note: Support accounts are not affected by authentication order.

IP Filters

You can filter which IP addresses are permitted to access the application over the management interface. After you enable IP filtering, you can manage a list of permitted IP addresses. For the CMS, you can manage this list in the [CMS Web UI](#), [CLI](#) or in the [pCLI](#). You can manage IP filters for your devices, on the device pCLI.


Support login



If you require assistance with the CMS, you can allow a Support Engineer to log into your CMS to enact a change. For example, you may require assistance with an upgrade, or help diagnosing an issue. Support accounts can access everything an admin account can, and a few high level support-only options.

Managing Local Users

There are three types of local CMS user account, they all have different levels of access to the CMS.

To create a user account

1. Use the left-hand menu to navigate to **System > Authentication**. Make sure you're on the **USERS** tab.
2. Click **Add User**.
3. Type a user **Name**. The name must only include lowercase letters, numbers and `_`, `-`, and `$` symbols. The `$` symbol can only be the last character. The `-` symbol cannot be the first character.
4. Select a user **Role**:
 - **cns-admin** – The administrative role. An admin user can edit all **Policy**, **Network**, and **System** configurations, including managing users.
 - **cns-defense** – A non-administrative role which enables its users to edit all **Policy** options but no Network or System administrative settings
 - **cns-monitor** – A primarily read-only role which enables its users to view settings without being able to enact any changes (aside from their own password)
5. Type a **Password** for this user and then **Repeat Password** in the field below.
6. Click **Save**.
7. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Users table, you can use the following action buttons to edit  or delete  a user. When you edit a user's account, you can change their password for them or change their user role.

CLI Commands

Create a new local user

```
configure
set aaa authentication users user <userName> role [cns-admin|cns-defense|cns-monitor]
password <userPassword>
commit
```

Edit a user's role or change password

```
configure
edit aaa authentication users user <userName>
set role [cns-admin|cns-defense|cns-monitor]
set password <userPassword>
commit
exit
```

Delete a local user

```
configure
edit aaa authentication users
delete user <userName>
commit
exit
```


Configuring LDAP Authentication

There are three main steps to connect an LDAP server to the CMS:

- Configure the LDAP bind account details and attributes which the CMS will use to log in to the LDAP server and attempt to look up user details.
- Add the connection details for your LDAP server(s) to the LDAP Servers list.
- Create a mapping of LDAP groups to the user roles on the CMS. This controls what level of access different users on the LDAP server will receive on successful login to the CMS.

To configure the CMS's LDAP attributes

1. Use the left-hand menu to navigate to **System > Authentication**.
2. Select the **LDAP** tab.
3. At the **Admin State** drop-down, make sure LDAP authentication is **enabled**.

4. Type in a **Bind DN** (Bind Distinguished Name) and **Bind DN Password** for a set of credentials which has read access to the user store. This is used by the CMS to log into the LDAP server.
5. Set the following LDAP User Attributes to identify users within the user store:
 - **User Name Attribute** – (Default: **sAMAccountName**) The LDAP attribute which contains the user's user-name
 - **Real Name Attribute** – (Default: **cn**) The LDAP attribute which contains the user's real name
 - **Email Attribute** – (Default: **mail**) The LDAP attribute which contains the user's email address
 - **User Base DN** – The Base DN used to locate user information in the LDAP schema
 - **User Search Filter** – Optional filter to restrict user search results to a specific object class
6. Set the following LDAP Group Attributes to identify groups within the user store:
 - **Group Name Attribute** – (Default: **cn**) The LDAP attribute which contains the group's name
 - **Group Mapping Attribute** – (Default: **dn**) The LDAP attribute which references a group member
 - **Group Member Attribute** – (Default: **member**) The LDAP attribute which contains a group member
 - **Group Base DN** – The Base DN used to locate group information in the LDAP schema
 - **Group Search Filter** – Optional filter to restrict group search results to a specific object class
7. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).


Tip: To enable your users to log in using UPN formatted names, you can enter a UPN in the **Bind DN** field and type `userPrincipalName` in the **User Name Attribute** field.



CLI Commands

```
configure
edit aaa ldap
set admin-state enabled
set bind-dn <bindDN>
set bind-dn-password <bindDNpassword>
set group-attributes group-base-dn <gBaseDN> group-mapping-attribute <gMapping>
group-member-attribute <gMember> group-name-attribute <gName> group-search-filter
<gFilter>
set user-attributes email-attribute <uEmail> real-name-attribute <uRealName> user-
base-dn <uBaseDN> user-name-attribute <uUserName> user-search-filter <uFilter>
commit
exit
```

To add an LDAP server

Note: In addition to your primary LDAP server, you can add a backup server. The backup server must have the same Directory Information Tree structure as the primary LDAP server and accept the same bind credentials. You can have a maximum of 2 servers in the LDAP servers list.

1. Use the left-hand menu to navigate to **System > Authentication**.
2. Select the **LDAP** tab.
3. At the LDAP Servers table, click **Add Server**.
4. Type a **Name** for this server.
5. Select the **Connection Type** your LDAP server will use to communicate with the CMS. This will auto-fill the **Port** field with the default port number for your selected Connection Type; the default port for LDAP and Start-TLS is **389**, and the default port for LDAPS is **636**.
6. Type the **Host** IP Address.
7. (Optional) If you're not using the default port, you can edit the **Port** number.
8. Type a value for **Connect Timeout**. This is the maximum number of seconds the CMS is permitted to wait for a network response on connecting.
9. Type a value for **Request Timeout**. This is the maximum number of seconds the CMS is permitted to wait for a network response on sending a request.
10. Click **Save**.
11. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the LDAP Servers table, you can use the following action buttons to edit  or delete  a server.

CLI Commands

Add an LDAP server

```
configure
set aaa ldap servers <serverName> connect-timeout <cTimeout> connection-type
[ldap|ldaps|start-tls] host <hostIPAddress> port <portNumber> request-timeout
<rTimeout>
commit
```

Edit an LDAP server

```
configure
set aaa ldap servers <serverName> connect-timeout <cTimeout> connection-type
[ldap|ldaps|start-tls] host <hostIPAddress> port <portNumber> request-timeout
<rTimeout>
commit
```

Rename an LDAP Server

Note: Not currently available in the Web UI.

```
configure
request aaa ldap servers <serverName> rename name <newName>
commit
```


Delete an LDAP server



```
configure
delete aaa ldap servers <serverName>
commit
```

To add group role mappings

There are 3 CMS user roles you can map an LDAP group to. User's in a mapped group will have the same permissions as their associated role.

Note: If a user is assigned to multiple LDAP groups, and those groups are mapped to different CMS user roles, the user is assigned the role with the highest level of access. For example, if a user was in an LDAP group mapped to `cns-admin` and one mapped to `cns-defense`, they would receive `cns-admin` access when they log in to the CMS.

1. Use the left-hand menu to navigate to **System > Authentication**.
2. Select the **LDAP** tab.
3. At the Group Role Mapping table, click **Add Mapping**.
4. Type the name of an **LDAP Group** from your user store.
5. Select the **Role** you want to map to that group.
6. Click **Save**.
7. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Group Role mapping table, you can use the following action buttons to edit  or delete  a group role mapping.

CLI Commands

Add a group role mapping

```
configure
set aaa ldap group-role-mappings ldap-groups <groupName> role [cns-admin|cns-
defense|cns-monitor]
commit
```

Edit a group role mapping

```
configure
set aaa ldap group-role-mappings ldap-groups <groupName> role [cns-admin|cns-
defense|cns-monitor]
commit
```

Delete a group role mapping


```
configure
delete aaa ldap group-role-mappings ldap-groups <groupName>
commit
```

Configuring RADIUS Authentication

There are three main steps to connect an RADIUS server to the CMS:

- Enable RADIUS authentication.
- Select a default role for all users. Use the Filter ID attribute to apply other CMS user roles to specific RADIUS groups.
- Add the connection details for an RADIUS server to the RADIUS Servers list. Optionally add a backup server.

To enable RADIUS authentication

1. Use the left-hand menu to navigate to **System > Authentication**.
2. Select the **RADIUS** tab.
3. At the **Admin State** drop-down, select **enabled**.
4. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

```
configure
set aaa radius admin-state enabled
commit
```

To provision RADIUS users with CMS user roles

You can use the CMS to provision a default user role for RADIUS authenticated users. To provision specific RADIUS user groups with other CMS roles, use the Filter ID attribute in group configuration on the RADIUS server. Any users who do not have a Filter ID attribute set, or whose Filter ID is not set to a CMS user role, will receive the default user role.

To set a Default Role for all users

1. Use the left-hand menu to navigate to **System > Authentication**.
2. Select the **RADIUS** tab.
3. At the **Default Role** drop-down, select the CMS user role (**cns-admin**, **cns-defense**, or **cns-monitor**) you want to apply to all RADIUS users without a role specified in their Filter ID attributes. The default value is **cns-monitor**.

- If you want to save the new configuration, and push your changes to any affected Defense devices, click **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

```
configure
set aaa radius default-role [cns-admin|cns-defense|cns-monitor]
commit
```

Note: If you don't explicitly set default role, it will remain the default cns-monitor.



To set other CMS roles for specific RADIUS user groups

When configuring a RADIUS user group, use the Filter ID attribute to provision those users with a specific CMS role. You can use one of the three user role names (cns-admin, cns-defense, or cns-monitor) as the Filter ID.

To add a RADIUS Server

Note: In addition to your primary RADIUS server, you can add a backup server. You can have a maximum of 2 servers in the RADIUS servers list.

- Use the left-hand menu to navigate to **System > Authentication**.
- Select the **RADIUS** tab.
- At the RADIUS Servers table, click **Add**.
- Type a **Name** for this server.
- Type the IP **Address** of the server.
- (Optional) If you're not using the default port (1812), you can edit the **Port** number.
- Type the **Shared Secret** used to communicate with this server.
- Click **Save**.
- If you want to save the new configuration, and push your changes to any affected Defense devices, click **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the RADIUS Servers table, you can use the following action buttons to edit  or delete  a server.

CLI Commands

Add a RADIUS server

```
configure
set aaa radius default-role [cns-admin|cns-defense|cns-monitor]
commit
```

Note: If you don't explicitly set the port number, it will remain the default 1812.

Edit a RADIUS server

```
configure
set aaa radius servers <serverName> address <IPaddress> port <portNumber> shared-
secret <secret>
commit
```

Rename a RADIUS server

Note: Not currently available in the Web UI.

```
configure
request aaa radius servers <serverName> rename name <newName>
commit
```

Delete a RADIUS server


```
configure
delete aaa radius servers <serverName>
commit
```

Setting the Authentication Order

There are three types of authentication available on the CMS: local user database, external RADIUS server, and external LDAP server. If you enable one or both of the external authentication types, you may also need to check you have the correct authentication order for your system.

To configure authentication order


1. Use the left-hand menu to navigate to **System > Authentication**.
2. Select the **SETTINGS** tab.

3. From the **Order** drop-down, select the order you want users to be authenticated on the CMS:
 - **External, Local** – (Default) A user is first checked against enabled external authentication systems; RADIUS first and then LDAP if both are enabled. If the user is rejected by either, login is denied. If the user does not exist in either, or the servers are unavailable, the user is checked against the local user database.
 - **Local, External** – A user is first checked against the local user database. If the user does not have a local account, or local authentication fails, the user is checked against external authentication systems. If both types of external authentication is enabled, RADIUS is checked first and then LDAP.
4. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Setting Web UI Timeouts

You can set the idle timeout and maximum session duration for the Web UI. This applies to all user types regardless of role or authentication type.

To configure Web UI timeouts for all user types

1. Use the left-hand menu to navigate to **System > Authentication**.
2. Select the **SETTINGS** tab.
3. In the **Web UI Idle Timeout** field, you can set the number of minutes a user can be inactive in the Web UI before they are logged out.
4. In the **Web UI Max Session Duration** field, you can set the maximum number of minutes a user can be active in the Web UI before they are logged out.
5. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Caution: When a user is logged out by one of these settings, any un-committed changes are lost.

Enabling Support Account

To allow a Corero Support Engineer to access your CMS, you need to enable the support account. When you enable the support account you are given an 8-character token that you need to send to the Support Engineer to allow them to log in. Once your issue has been resolved, you can disable the support account if you choose.

Note: Once you enable the support user, you can see the support account in the Users table (System > Authentication). You cannot edit or delete the support user from that table.

To view the current support account status and (if enabled) view the support token

1. Use the left-hand menu to navigate to **System > System Actions**.
2. In the Support Account area, you can see a value next to **Support Token**. If you cannot see this value, you must first enable the support account.

To enable the support account

1. Use the left-hand menu to navigate to **System > System Actions**.
2. Click **Enable**.
3. You can now provide the Corero Support Engineer with the support token. They can use that token to log in as the support user and access high-level settings in the CMS.

Tip: To enable the support account with a specific token, you can enter an 8-character token in the field before you click **Enable**.

CLI Commands

View the current support account status

```
request system support-status
```

Enable the support account

```
request system support-enable
commit
```

Tip: You can disable the support account by using the command `request system support-disable`.

Configuring CMS IP Filter Management



Caution: Once you enable IP filtering, all IP addresses not explicitly allowed will be blocked from accessing the CMS. If you have a SecureWatch Service enabled, you must include the SecureWatch VPN IP address as a permitted management IP address.

To restrict access to the CMS, enable IP Filter management and create a list of permitted IP addresses.

To configure CMS IP Filter management

Note: After enabling IP filters, you must create one or more IP entries before you can commit the updated configuration.

1. Use the left-hand menu to navigate to **System > IP Filters**.
2. From the **Admin State** drop-down, select **enabled**.
3. By default, all ICMP traffic is allowed regardless of source IP. To restrict ICMP traffic to only the permitted IP addresses in the table, from the **Always Allow ICMP** drop-down, select **disabled**.
4. Create a permitted IP address entry:
 1. Click **Add**.
 2. Type the permitted IP **Address** CIDR.
 3. (Optional) Type a description of the entry.
 4. Click **Save**.
5. Repeat to add all the IP Addresses which should be permitted to access the CMS.
6. If you want to save the new configuration, and push your changes to any affected Defense devices, click **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Entries table, you can use the following action buttons to edit  or delete  an entry.

CLI Commands

View IP filter management

```
configure
show system ip-filter
```

Configure CMS IP Filter management

```
configure
set system ip-filter admin-state [disabled|enabled]
set system ip-filter always-allow-icmp [disabled|enabled]
set system ip-filter entry <entryIP> description "<description>"
commit
```


Edit an entry's description

```
configure
edit system ip-filter entry <entryIP>
set description "<description>"
commit
exit
```

Delete an entry

```
configure
edit system ip-filter
delete entry <entryIP>
commit
exit
```

Snapshots

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Snapshots Screen reference topic](#).

A snapshot is a package file containing the configuration of the CMS at the moment you create it. You can create one at any time and store multiple snapshots in the CMS. You may want to take a snapshot before you make a large configuration change so you have the option to restore the previous settings.

Note: The Snapshots screen is only visible for **cns-admin** users.

If you choose to restore a snapshot, it deletes the current CMS configuration and replaces it with the saved copy. This excludes the snapshot list, which does not change. This enables you to move back and forth between snapshots. When you restore a snapshot, you also have the option to exclude the user authentication information enabling you to restore the previous configuration without overwriting the user information which may have changed since then.

Caution: Restoring any snapshot will also deactivate all [RTBH instructions](#) in the RTBH DIP table. You can [manually reactivate](#) them as needed or wait for new [automatic triggers](#) to populate the table.

Scheduled backups

The CMS can be configured to create and store a snapshot automatically on a daily or weekly basis. At the time specified, the CMS creates a backup file (.zip) which can contain a snapshot of the current configuration and the CMS log files up to that time. This backup file is stored on a specified location of a remote server.

When the backup file is created, you can choose to store a copy of the snapshot in the CMS snapshot list. You can identify backup snapshots in the list from their auto-generated name which includes the date and time the snapshot was created (e.g. "cms-backup_cms_2017-12-06-05:00:00") and the description which is "Scheduled backup". By default, the CMS stores 10 backup snapshots at a time and will delete older backup snapshots to make room for new ones. It will never delete a manual snapshot to make room for a backup snapshot. You can change the number of stored snapshots using the CLI.

Snapshooting your CMS Configuration

Caution: Snapshots are version specific. After you upgrade the CMS, you will not be able to use any saved snapshots from the previous version. The snapshots remain available in the CMS after an upgrade to enable you to export them if needed.


Periodically, or before you perform a large configuration change, you may want to create a snapshot of the CMS's configuration.

To create a snapshot

1. Use the left-hand menu to navigate to **System > Snapshots**.
2. Click **Create**.
3. Type a **Name** for your new snapshot.


Caution: Snapshot names cannot contain any spaces. Only alphanumeric or .-&()_: symbols.

4. (Optional) Type a **Description** of the snapshot.
5. Click **Save**.

Tip: On the Snapshots table, you can delete  snapshots you no longer need.

To restore CMS configuration from a snapshot


If you want to return to a previous CMS configuration, you can restore an earlier snapshot. Restoring a snapshot does not erase your later snapshots, enabling you to move between snapshots to investigate configuration changes.

1. Use the left-hand menu to navigate to **System > Snapshots**.
2. From the table, locate the snapshot you want to restore and click  the restore button. You can type a text string into the Search field to narrow down the list.
3. Confirm snapshot restore, click **OK**.

Caution: Restoring a snapshot will cause the CMS to restart.

To export your saved configuration

You can export your snapshots to store externally or use with another CMS application. If you choose to password protect a snapshot, you must provide this password when you import the snapshot.

1. Use the left-hand menu to navigate to **System > Snapshots**.
2. From the table, locate the snapshot you want to export and click  the export button. You can type a text string into the Search field to narrow down the list.
3. (Optional) If you want to password protect the snapshot, type in a **Password**.
4. Click **OK**.
5. The snapshot package file is downloaded by your browser.

To import CMS configuration

You can import snapshots you have exported from other CMS applications or which you exported from this CMS application to store externally. Once you import a snapshot you can view it in your snapshot list and use it like any other.

1. Use the left-hand menu to navigate to **System > Snapshots**.
2. Click **Import**.
3. Select the snapshot on your computer and click **Open**.
4. (Optional) If the snapshot is password protected, type in the **Password**.
5. Click **OK**.

CLI Commands

Create a snapshot

```
request snapshots create name <snapName> description "<snapDescription>"
```

Rename a snapshot

Note: Not currently available in the Web UI.

```
configure
request snapshots snapshot <snapName> rename name <newName>
commit
```

Restore a snapshot

```
request snapshots snapshot <snapName> restore disable-connections [false|true]
exclude-aa [false|true]
```

Note: In the CLI, you can choose not to overwrite the current authentication information when you restore a snapshot by adding `exclude-aa true`. For local snapshots, you will not see the options to `restore disable-connections`.

Export a snapshot

```
request snapshots snapshot <snapName> export remote-uri <remoteUri> remote-password
<remotePassword> snapshot-password <snapPassword>
```

Import a snapshot

```
request snapshots import remote-uri <remoteUri> remote-password <remotePassword>
snapshot-password <snapPassword>
```

Scheduling Backups

You can use the CLI to create backup files daily or weekly which are stored in a remote server. Backup files can contain a snapshot and the CMS logs. When a backup file with a snapshot is created, the snapshot can also be saved to the CMS.

Tip: You can generate unscheduled backups immediately, in case you need backup the CMS before a large configuration change, or if you need to test the backup process.

To configure how often the CMS creates backup files (CLI only)

You can configure a scheduled back in using one full command. For example, the following command sets up a scheduled backup which runs at 8am every day and includes log files but doesn't include snapshots.

Tip: You can upload scheduled backups to an FTP or SFTP server. This is defined in the command. The examples below use SFTP (e.g. `sftp://<username>@<serverIP>`) but you can also choose to use FTP (e.g. `ftp://<username>@<serverIP>`).

```
configure
set system backup backup-state enabled remote-uri sftp://<username>@<serverIP> remote-password <remoteServerPassword> include-log-files true include-snapshots false frequency daily hour-to-run 08:00
commit
```

Or you can use the edit command to focus on a specific part of the scheduled backup configuration:

```
configure
edit system backup
set backup-state enabled
set remote-uri sftp://<username>@<serverIP> remote-password <remoteServerPassword>
set include-snapshots include-log-files
```

Note: You can choose to `include-snapshots` or `include-log-files`, or both. If you do not specify what to include, the backup is created with a snapshot and no log files.

```
set frequency [daily|weekly] day-to-run
[friday|monday|saturday|sunday|thursday|tuesday|wednesday] hour-to-run <hour_e.g.18:00>
```

Note: If you choose `daily`, you do not have to specify `day-to-run`. If you do not specify a frequency, the backup will run at 00:00 daily. If you specify `weekly`, but then do not specify a day or time, it will run every Saturday at 00:00.

```
set number-of-snapshots <number>
```

Note: This is the number of backup snapshots the CMS will store at one time. Once that number of backup snapshots exist, the CMS will delete older backup snapshots to make room for new ones. If you don't want the CMS to store any backup snapshots, use 0.

```
commit
exit
```

Tip: To stop the scheduled backups, set the backup-state to `disabled`.

To create an unscheduled backup file

If you want to immediately create a backup file, rather than wait for the next scheduled time, you can do that with the following CLI command:

```
request system backup execute
```

To revert to a snapshot from backup file

If a backup snapshot is stored in the CMS, you can restore the snapshot as you would any other from the snapshot list. If you want to restore a snapshot stored on your remote server, you must:

1. On the server, unzip the backup file containing your snapshot.
2. In the CMS CLI enter the following commands (where `remote-uri` now includes the snapshot file name):

```
request snapshots import remote-uri <remoteServerLocation> remote-password
<remoteServerPassword>
request snapshots snapshot <snapshotName> restore exclude-aa [false|true]
```

CMS Software

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Software Upgrade Screen reference topic](#). See the devices area for information on [upgrading a device](#).

You can upgrade the CMS from within the application. Once you receive an upgrade package file from Corero customer support, you can upload it to the CMS to perform the upgrade without losing your current CMS configuration. When you upgrade the CMS, you may also need to upgrade your Defense device; you must always upgrade the CMS before upgrading associated devices.

When you upgrade the software on the CMS, it creates a rollback point at the moment before upgrade which enables you to undo that software upgrade and return the CMS configuration to the state it was in prior to upgrade. When you rollback a software update, you lose any changes made since you updated the software. This includes: Policy changes, system configuration changes, device management changes, and any newer rollback points in the installed software list.

Caution: Unlike a snapshot, once you rollback a software upgrade, you cannot then "roll forward" to another saved state.

Upgrading the CMS Software Version

When a new version of the CMS software becomes available, you should receive an upgrade package file from your Corero representative.


Caution: The CMS will restart during the upgrade process.

Prerequisites

- Save the upgrade package file locally
- In SmartWall SecureWatch Analytics, check that there are no ongoing network anomalies
- [Check that all devices are in-sync](#) and all status bar icons in the CMS are green
- Check that you have no outstanding changes to commit
- Make sure you are logged out of the CMS pCLI.

To upgrade the software on the CMS

1. Use the left-hand menu to navigate to **System > Software Upgrade**.
2. Make sure the **CMS** tab is selected.
3. At the Software Pending Upgrade table, click **Upload**.
4. Select a CMS upgrade package file and click **Open**.

5. In the Software Pending Upgrade table, locate the version you want to upgrade the CMS to and click  the upgrade button. You can type a text string into the Search field to narrow down the list.
6. Click **OK**. The CMS will now restart and you will be logged out.
7. Once the application has restarted, log back in and check the software version displayed at the top of the Home screen.



Note: If the CMS is unable to validate a successful upgrade, it will automatically rollback to the previous version. If you are unable to complete an upgrade, contact your support representative.

CLI Commands

```
request system software upgrade remote-uri <packageLocation+FileName> remote-password
<password>
yes
```

Troubleshooting

After an upgrade, if there has been any issues, you can use the Upgrade Log to investigate:

1. In the Status bar, click on the  alarm icon or click on **Alarm Center** in the Current Alarms panel of the Home screen.
2. In the Alarms table, you can see a list of cleared and uncleared alarms.
3. Find a **cms-alarm** describing a "Warning during upgrade" or "Error during upgrade".
4. Click  the Detail button next to this alarm to view the upgrade log.

Next Steps

[Upgrade the devices](#) connected to this CMS

Caution: Do not upgrade a device without first upgrading the CMS to that version. If you do not first upgrade the CMS, you will not be able to reach your upgraded device from the CMS.

Rolling Back to an Old CMS Software Version


When you upgraded the CMS software, the system created a rollback point enabling you to return the CMS to the state it was in when the upgrade was performed. When you rollback a software update, you lose any changes made since you updated the software (including any snapshots or uploaded upgrade packages).


Caution: The CMS will restart during the rollback process.

Prerequisites

- In SmartWall SecureWatch Analytics, check that there are no ongoing network anomalies
- [Check that all devices are in-sync](#) and all status bar icons in the CMS are green
- Check that you have no outstanding changes to commit

To rollback the software version on the CMS

1. Use the left-hand menu to navigate to **System > Software Upgrade**.
2. Make sure the **CMS** tab is selected.
3. In the Old Software Versions table, locate the version you want to rollback to and click the  rollback button.
You can type a text string into the Search field to narrow down the list.
4. Click **OK**. The CMS will now restart and log you out.

Note: The CMS stores up to 4 older versions and their rollback points. You can delete old versions from this table using  the delete button. This also deletes the saved CMS configuration associated with this software version. You will be unable to rollback to this version once you delete.

CLI Commands

Roll back CMS software to an older version

```
request system software installed <versionNumber> rollback
yes
```

Delete an old software version

```
request system software installed <versionNumber> delete
yes
```

SNMP

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [SNMP Screen reference topic](#).

You can use the CMS SNMP (Simple Network Management Protocol) to collect information and view alerts from your SmartWall System, using the CMS User Interface or CLI.

Supported SNMP versions

The CMS supports version 2c and version 3 SNMP. You can enable both versions at the same time, or just enable the version you plan to use.

The versions require different authentication information:

- For version 2c, you need to provide a Community string. The default string is `smartwall`.
- For version 3, you can create a list of users. For each user, you can choose to set an authentication protocol (md5 or sha) and with a password, and an authentication privacy (aes or des) with a password. Additionally, version 3 requires an Engine ID to identify the system. By default, this is the 27 characters of your CMS UUID (see the [Licensing screen](#) to view this number) but you can provide a different ID.

SNMP traps

If you want to send alerts to other locations in your network, you can create SNMP traps. A trap sends a CMS or device alert to a specified IP address in your network. If you are using v3 SNMP, you also have the option to send inform type traps. These require the SNMP trap receiver to acknowledge the alert within 1.5 seconds otherwise it re-sends up to 3 more times.

CMS MIBs


You can download the CMS MIB files from the support portal. For more information on using the MIB files and a reference table of OIDs, see the CMS User Guide PDF reference information.

Configuring the CMS SNMP Settings

Once you set the general SNMP settings and enable SNMP for the CMS, you can choose to enable version 2c and/or version 3 SNMP. If you need to disable SNMP, you can use the **Admin State** drop-downs to disable SNMPv2c, SNMPv3, or all SNMP for the CMS. This can be found at System > SNMP.


Note: If the **Admin State** drop-down under General Settings is set to **disabled**, even if SNMPv2c or SNMPv3 is individually set to enabled, SNMP for the CMS is turned off. To enable SNMPv2c or SNMPv3 you must also enable SNMP under General Settings.

To configure the general SNMP settings and enable SNMP for the CMS



1. Use the left-hand menu to navigate to **System > SNMP**.
2. Under General Settings, set the **Admin State** drop-down to **enabled**.
3. The default UDP port for SNMP communication is 161. To change this, edit the **UDP Port** field.
4. Type a **System Name** for the CMS.
5. Type a **System Location** for the CMS. This can be any text string, for example, the city you're located in, or a building name.
6. Type a **System Contact** email address. This should be someone able to manage the CMS SNMP settings.
7. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

To enable v2c SNMP


Note: Once you enable SNMP, v2 is automatically enabled with a community called `smartwall`. Use the following instructions to edit those settings or re-enable v2 SNMP after you previously disabled it.

1. Use the left-hand menu to navigate to **System > SNMP**.
2. Make sure that SNMP is enabled for this CMS and all General Settings fields are filled out.
3. Under SNMPv2c, set the **Admin State** drop-down to **enabled**.
4. The default community string is `smartwall`. To change this, type a new string in the **Community** field.
5. If you want to save the new configuration, and push your changes to any affected Defense devices, click . Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

To enable v3 SNMP

1. Use the left-hand menu to navigate to **System > SNMP**.
2. Make sure that SNMP is enabled for this CMS and all General Settings fields are filled out.
3. Under SNMPv3, set the **Admin State** drop-down to **enabled**.
4. You need to create at least one user, but you can create as many as you require. Once you've created your users, you can use the  edit and  delete buttons to manage your user list.
 1. At the SNMP users table, click Add.
 2. Type a **Name** for this user. The name must be unique.
 3. (Optional) Select an Authentication type (MD5 or SHA) and provide a password.
 4. (Optional) Select an Privacy type (AES or DES) and provide a password. You can only select a Privacy type if you have an Authentication type selected.
 5. Click **Save**.

Once you've created your users, you can use the  edit and  delete buttons to manage your user list.

5. If you want to save the new configuration, and push your changes to any affected Defense devices, click  **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

CLI Commands

Configure general SNMP settings for the CMS

```
configure
set system snmp admin-state [disabled|enabled] system-contact <systemContact> system-
location <systemLocation> system-name<systemName> udp-port <portNumber>
commit
```

Enable SNMP v2

```
configure
set system snmp v2c admin-state enabled community <communityString>
commit
```

Enable SNMP v3c

```
configure
set system snmp v3 admin-state enabled user <userName>
```

Note: You can create as many users as you require. Once you create the user, setting `auth` and `priv` for that user is optional. You can choose to set both, neither, or only `auth`.

```
edit system snmp v3 user <userName>
set auth [md5|sha] <authPassword>
set priv [aes|des] <authPassword>
commit
```

Tip: v3 SNMP requires an engine ID for the system. By default this is 27 characters of your CMS UUID (see the [Licensing screen](#) to view this number). If you want to change this engine ID use the following command: `set system snmp v3 engine-id <idNumber>`

Managing SNMP trap destinations

You can create an SNMP trap for each destination in your network to which you want the CMS to send alert messages.



Prerequisites

Before you can set up trap destination, you must first [configure SNMP](#) for your network.

To add an SNMP trap destination

1. Use the left-hand menu to navigate to **System > SNMP**.
2. Under **Trap Destinations**, click **Add**.
3. Type a **Name** to identify the target destination.
4. Type the **IP Address** of the target destination.
5. Type the UDP **Port** number you want to use for communications.
6. Select the **SNMP Version** you are using for this trap:
 - **SNMP v2C** – Type your **Community** string
 - **SNMP v3** – Select whether this is a **Trap** or **Inform** and select an **SNMP User**
7. Click **Save**.

8. If you want to save the new configuration, and push your changes to any affected Defense devices, click **Commit**. Then, on the pop-up dialog, click **Commit** to push the changes (alternatively, you can click **Discard** to discard any uncommitted changes).

Tip: On the Trap Destinations table, you can use the following action buttons to edit  or delete  a trap destination.

CLI Commands

Add a new SNMP trap destination

```
configure
set system snmp trap-destinations <trapName> address <ipAddress> udp-port <portNumber>
[v2c|v3]
commit
```

Note: For v3 only: notification type *[inform|trap]* user *<userName>*
security *[auth-no-priv|auth-priv|no-auth-no-priv]*

Edit an existing trap destination

```
configure
edit system snmp trap-destinations <trapName>
commit
```

Tip: Use the *set* command to edit the *address*, *udp-port*, *v2c*, or *v3* information.
Use the *delete* command to remove an existing *udp-port* or *v3* notification-type.

Rename a trap destination

Note: Not currently available in the Web UI.

```
configure
request system snmp trap-destinations <trapName> rename name <newName>
commit
```

Delete an existing trap destination

```
configure
edit system snmp trap-destinations
delete <trapName>
commit
```


CMS Licenses for vNTD

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Licensing Screen reference topic](#).

Note: The Licensing screen is only visible for **cns-admin** users.

If you intend to use SmartWall Network Threat Defense Virtual Edition (vNTD) devices, you must have corresponding vNTD license capacity on the CMS.

If you do not have the required license capacity, you must contact your Corero representative . Licenses are created in increments of 10Gbps; you need 10Gbps license capacity for each vNTD you want to connect to a CMS.

If you have enough available license capacity, when you add a new vNTD the CMS automatically licenses it and you can add the device to a Cluster. However, if you do not have enough spare license capacity, the CMS adds the device to the Devices table but it will transition to a not-licensed state.

When you delicense a vNTD or add it to the CMS when there isn't enough license capacity available, it enters the not-licensed state. In the not-licensed state, the device will act as though it is [Pass-through mode](#); all traffic is sent to the internal network without inspecting any packets. The device can still receive configuration updates from the CMS. If you later add a new license to the CMS with additional capacity, you can then license the device manually.

When you remove a device from the CMS, it is automatically de-licensed and its license capacity becomes available for another vNTD to use. If you have a vNTD which you don't currently want to use, you can de-license it without deleting it and free up that license capacity. A de-licensed device returns to the not-licensed state.

For time-based licenses, you can see the license expiring date in the licenses table (**System > Licensing**). You should purchase and upload a new license before that date. If you are unable to, you will have a grace period after the expiry date, where the vNTD will continue to mitigate attacks.

Viewing License Capacity

Before you add a new vNTD to your CMS, you may need to check that you have enough license capacity available. You need 10Gbps of available license capacity for each vNTD you want to connect to a CMS.

Note: The number of cores allocated to a vNTD device does not affect the license capacity required to license a device. All devices require 10Gbps.

To view the available license capacity

1. Use the left-hand menu to navigate to **System > Licensing**.
2. Above the Licenses table, there are two values displayed:
 - **Total Capacity** – The total available capacity of all your uploaded licenses
 - **In-use** – The license capacity currently allocated to licensed vNTDs

Note: Licenses are associated with the CMS rather than with the vNTD. When you remove a vNTD from one CMS and add it to a new CMS, the license is not transferred. You must have adequate available license capacity in the new CMS to manage the vNTD.

CLI Commands

```
show system licenses
```

Note: You can see each license's available capacity in the table.

Adding a vNTD License

Before you can use SmartWall Network Threat Defense Virtual Edition (vNTD) devices, you must have a vNTD license on the CMS. Licenses have a total available capacity; you need 10Gbps of available capacity to license a new vNTD. If you have less than 10Gbps available you will need to add an additional license.

Prerequisites

1. Contact your SmartWall CMS User Guide representative for an additional license. You will need to provide your CMS UUID. You can find this at the top of the [Licensing screen](#) or using the following CLI command: `show system uuid`
2. When you receive the license from Corero, save it locally.

Note: Licenses are CMS specific and cannot be transferred or used on multiple CMS applications.

To add a vNTD license to the CMS

1. Use the left-hand menu to navigate to **System > Licensing**.
2. Click **Add**.
3. Either:
 - Select **Copy & paste license** and copy the contents of the license into the field. You must include the license header and footer: `----BEGIN-CORERO-LICENSE----` and `----END-CORERO-LICENSE----`
 - Select **Upload license file** and click **Choose file**. Select the license file you want to import and click **Open**.
4. Click **Save**.

Caution: If the selected license is not configured for this CMS, it will display in the table as invalid and you will not be able to use the additional license capacity.

CLI Commands

```
request system licenses import remote-uri <licenseLocation+FileName> remote-password
<password>
yes
```

Next steps

- You can now [view the available license capacity](#).
- [License an unlicensed vNTD](#)

Note: If you add a new vNTD to the CMS, when there is adequate available license capacity, it is automatically licensed. If you add a vNTD to the CMS when there isn't enough capacity it will remain in an unlicensed state until you manually license it.

Licensing/delicensing a vNTD

When you add a vNTD to the CMS, if there is enough license capacity available, it will be automatically licensed by the CMS. If you do not have enough capacity, the device is still added but it won't be licensed. When you have available license capacity you must manually license the vNTD. One way to create license capacity is to delicense old vNTDs you're no longer using.

Caution: When you delicense a vNTD or add it to the CMS when there isn't enough license capacity available, it enters the not-licensed state. In the not-licensed state, the device will act as though it is [Pass-through mode](#); all traffic is sent to the internal network without inspecting any packets. The device can still receive configuration updates from the CMS.

Prerequisites

- [Add a vNTD to the CMS](#)
- [Add a vNTD license to the CMS](#)
- To license a vNTD, you must have at least 10Gbps available license capacity on the CMS

To license a vNTD

Note: You can only license a vNTD which is in the not-licensed state.

1. Use the left-hand menu to navigate to **Network > Devices**.
2. On the Devices table, locate the vNTD you want to license or delicense.
3. In the Actions column, click **...** and select **License** or **Delicense**.

SSH Keys

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [SSH Keys Screen reference topic](#).

SSH Keys for Authentication Groups


For some deployment of SmartWall Network Threat Defense Virtual Edition devices, it is possible to authenticate using SSH keys rather than device username and password.



Note: For instructions on adding SSH Keys to vNTDs, contact your Corero representative.

Importing an SSH Key

If you want to use an SSH key to authenticate that connection, you must store the key in the CMS. SSH Keys can be used in [Authentication Groups](#) to authenticate vNTD Defense devices.

To import an SSH Key

1. Use the left-hand menu to navigate to **System > SSH Keys**.
2. At the table, click **Import**.
3. Type a **Name** for this key. You must only use alphanumerics, spaces, or .-&()/_/@:= symbols.
4. Add an SSH key by either:
 - **Copy & paste SSH Key text** into the field. This must be in PKCS#8 format.
 - Or **Upload SSH Key file** by clicking Choose File and selecting an SSH key file from your local computer.
5. (Optional) Type a **Key Phrase** for this SSH Key.
6. Click **Save**.
7. Click . Then, on the pop-up dialog, click **Commit** to push the changes.

Tip: On the devices table, you can use the following action buttons to edit  or remove  a remote device.

CLI Commands

Import an SSH Key

```
configure
set aaa ssh private-key <keyName> key-data <SSHkeyText> passphrase <keyPassphrase>
commit
```

Note: The `key-data` must be valid binary data for the private key, in PEM format (text starting with '-----BEGIN DSA PRIVATE KEY-----' or '-----BEGIN RSA PRIVATE KEY-----').

Remove an SSH Key

```
configure
delete aaa ssh private-key <keyName>
commit
```

Support Tasks

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [System Actions Screen reference topic](#). See the Users area for information on [enabling the Support account](#).

Note: The System Actions screen is only visible for **cns-admin** users.

The tasks in this section are usually only undertaken if you encounter problems with the CMS and are asked to perform some troubleshooting tasks by a Corero Support Engineer.

Viewing the Audit Log

The CMS records every action and which user account performed that action. You can use the CLI to view this audit log.

Tip: Alternatively, you can use SmartWall SecureWatch Analytics to view the audit log in a series of log messages. To do that use the Search screen to perform the following search: `index=*source=/var/log/corero/audit.log`.

To view the audit log in the CLI

```
request log view name audit
```

Reading the Audit log

After the time and date of the action, each audit log message has the following fields:

- **address** – The IP address the user accessed the CMS from
- **if** – Whether the action was performed using the CLI or Web UI interface
- **user** – The username of the user account who performed the action
- **sid** – The session ID for this session (this changes every time you log out)
- **op** – The operation performed, e.g. log-in, start-session, set, create, etc
- **tid** – If applicable, the transaction ID for the changes made in this commit
- **path** – If applicable, the model path to the option what was changed or action requested
- **value** – If applicable, the new value for the changed option
- **msg** – If applicable, the message associated with the action. This most commonly in the either "action invoked with parameters [...]" to log the request for an action, or "action completed with result [...]" to log the result of the action.

For example, these two log entries show first, the user requesting to download the diagnostics package from a device, and second, the successful result of that request:

```
<INFO> 2017-05-11T06:23:24.344-04:00,address=10.10.11.12,if=cli,user=admin,sid=172,op=action,path=/file-copy/from-,msg="action invoked with parameters [file:'diagnostics-package', remote-uri:'sftp://user@10.10.11.12/issues/ntd-test-diag.zip', remote-password:'*****', -name:'ntd-1']",
```

```
<INFO> 2017-05-11T06:23:41.783-04:00,address=10.10.11.12,if=cli,user=admin,sid=172,op=action,path=/file-copy/from-,msg="action completed with result [result:'Success', message:'Copy succeeded']",
```

Downloading Diagnostic Files

Tip: For information on specific fields, tables, or buttons in the Web UI, see the [Diagnostics Screen reference topic](#).

A Corero Support Engineer may ask you to download the CMS or device diagnostic log files when they are troubleshooting an issue.

Note: This feature is only available for defense and admin users.

To download a CMS diagnostic file

1. Use the left-hand menu to navigate to **System > Diagnostics**.
2. Under **Download file from CMS appliance**, use the **Source** drop-down to select a file to download:
 - diagnostics-package
 - app-log
 - audit-log
 - system-log
3. Click **Download File**.
4. A zip file will download in your browser.

To download a device diagnostic file

1. Use the left-hand menu to navigate to **System > Diagnostics**.
2. Under **Download file from device**, use the **Source** drop-down to select a file to download:
 - me-log
 - diagnostics-package
3. From the **Device** drop-down, select the device you want to download a log file from.

4. Click **Download File**.
5. A zip file will download in your browser.

CLI Commands

Download CMS diagnostics file

```
request file-copy from-cms file [app-log|audit-log|diagnostics-package|system-log]
remote-uri <remoteUri> remote-password <remotePassword>
```

Tip: The remote-uri must end with **.zip**.

Download a device diagnostics file

```
request file-copy from- file [diagnostics-package|me-log] <deviceName> remote-uri
<remoteUri> remote-password <remotePassword>
```

Tip: The remote-uri must end with **.zip**.

Restarting the CMS

You can restart the CMS application if you encounter any problems.

Caution: You will be logged out of the CMS and lose any uncommitted changes.

To restart the CMS

1. Use the left-hand menu to navigate to **System > System Actions**.
2. Click **Restart**.
3. Once the CMS restarts, you can log back in.

CLI Commands

```
request system restart
yes
```

Resetting the CMS to the Default Configuration

You can reset the CMS's configuration to factory defaults. This does not reset the underlying CMS application settings (e.g. the CMS IP address) but does return all options, configurable in the Web UI, to their default state.

Caution: When you reset the CMS, you will lose connection with the rest of your SmartWall Threat Defense Director. You must re-add your SmartWall devices and reconnect to the SWA.

To reset the CMS

1. Use the left-hand menu to navigate to **System > System Actions**.
2. Click **Reset**.
3. Once the CMS restarts, you can log back in.

CLI Commands

```
request system reset
yes
```

Next Steps

- [Add your Defense devices to the CMS](#)
- [Connect the CMS to SWA](#)
- [Create a Protection Profile](#)
- [Create a Cluster](#)

SECTION 6

Reference

This section of the CMS User Guide provides reference material to aid in your use of the CMS.

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Note: [If you are using the NTD120, specific support can be found here.](#)

Rules Reference


For reference information on all the Rules which make up your Defense Policy, including Rule numbers and descriptions, see your built in CMS help.

To open the CMS built in help

1. Open the CMS Web UI in a browser and log in.
2. On the top menu, click  the help button.

CMS Alarms and SNMP Trap Notifications

In theSmartWall Threat Defense Director (SmartWall TDD), an alarm is created when something happens which may require your attention. The alarm tells you what has occurred and where in the system it happened (for example, on a specific device). You can use the alarm to investigate any unexpected issues. Once a system has returned to the expected state, the alarm will clear.

You can view your alarms by clicking  the Alarm symbol the Status bar. If the symbol is green, you have no uncleared alarms; if it is orange, an alarm has not yet cleared and may require your attention.

Note: Alarms can also be generated when a previous alarm state has cleared.

Note: The following table does not list NTD120 only alarms, for this [check here](#).

Alarm type	Problem	Severity	Description
Analytics alarm (CMS)	Splunk Universal Forwarder	Critical	Syslog is not being forwarded to the SWA
Analytics alarm (SWA)	SecureWatch Analytics Not Configured	Major	No analytics or syslog server has been configured and enabled
Analytics alarm (SWA)	SecureWatch Analytics Connection	Major	Analytics server connection failed or is not responding
BGP alarm	<Rest Client Name Bgp Client Name> announce	Major	Announcing a route failed. The problem contains the name of the Rest or BGP client that failed
BGP alarm	<Rest Client Name Bgp Client Name> withdraw	Major	Withdrawing a route failed. The problem contains the name of the Rest or BGP client that failed
CMS alarm	CMS Start Failure	Critical	The CMS failed to start on previous attempt
CMS alarm	CMS Upgrade	Critical	CMS upgrade has failed
CMS alarm	Collector	Critical	The CMS collector did not start.



Alarm type	Problem	Severity	Description
CMS alarm	Internal Error	Critical	The CMS encountered an internal error and should be restarted.
CMS alarm	Rollback Error	Major	An error occurred while reverting to a previous software version
CMS alarm	Smart-Plugins	Critical	After if 1 or more plugins could not be started
CMS alarm	Snapshot Error	Major	An error occurred while loading a snapshot
CMS alarm	System Error	Critical	Raised on startup if the CMS has restarted unexpectedly
Smart-Plugin alarm	Plugin startup: <name>	Major	Raised if a plugin fails to start
Smart-Plugin alarm	Plugin startup: <name>	Major	Raised if a plugin cannot be loaded because it depends on other plugins that are not available.
Device Alarm	Application restart	Minor	The application was restarted
Device Alarm	Auto Bypass Engaged	Major	Automatic Bypass has engaged and traffic is being routed through the Bypass device/module to the internal network without inspection.
Device Alarm	Connection failure	Major	The connection between the CMS and the device isn't working.
Device Alarm	ECC memory errors	Major	Raised when there are any uncorrectable ECC memory errors.
Device Alarm	Factory Reset	Major	The device is undergoing a factory reset.
Device Alarm	File transfer	Major	A file transfer to or from the device has failed (e.g. pulling diagnostic files)
Device Alarm	Incompatible type	Major	A defense device has been incorrectly assigned on a segment.

Alarm type	Problem	Severity	Description
Device Alarm	Ingress sample rate	Major	External sampling of network traffic is not supported on NTD120's or (NTD280, NTD1100 or vNTD with a bypass device)
Device Alarm	Sensor out of bounds	Major	An environmental sensor is reporting an issue
Device alarm	System Boot	Major	The device is currently rebooting or restarting
Device Alarm	Unexpected system restart	Minor	An unexpected system restart
Device config alarm	Missing dynamic address group	Major	An IP table exceeds the maximum number of allowed entries
Device config alarm	Size limit exceeded	Minor	An IP table references dynamic address group that no longer exists
Device status alarm	CMS Address	Critical	The CMS address the device is sending information to is incorrect.
Device status alarm	Deployment State	Major	The deployment state for the device is an error state. For example; sync-required or unsupported-version
Device upgrade alarm	Device Upgrade	Major	Device upgrade has failed
license alarm	License Expiry: <UUID>	Critical	A license has expired. The problem will include the UUID of the license.
license alarm	License Expiry: <UUID>	Major	The license will expire soon. The problem will include the UUID of the license.
Resource alarm	Apache	Critical	Apache is not running on the CMS appliance

Alarm type	Problem	Severity	Description
Resource alarm	CPU	Critical	The CMS appliance does not have the required number of CPU cores
Resource alarm	Corrupt CDB	Critical	The CDB was corrupted on startup and operational data has been lost
Resource alarm	Filesystem	Critical	The CMS appliance file system does not have enough file descriptors
Resource alarm	High System Load	Major	The CMS appliance is experiencing high system load
Resource alarm	High Memory Usage	Major	The CMS appliance is experiencing high memory usage
Resource alarm	Java	Critical	The CMS appliance does not have the required Java version installed
Resource alarm	Low disk space	Critical	The CMS appliance has low free disk space
Resource alarm	Memory	Critical	The CMS appliance does not have the recommended system memory
Resource alarm	SXOS	Critical	The operating system version cannot be determined or is an unexpected version.
Resource alarm	System Resource Warning	Major	The number of devices exceeds the recommendation for the current number of cores/memory configuration.
Resource alarm	Threat Defense Mode	Critical	Initialization error if CMS can't determine whether it is in TDS or TDD mode (defaults to TDS if error).

SNMP Trap Notifications

When an alarm is triggered, you can configure the CMS to send SNMP trap notifications to specific locations in your network. The following table shows the possible alarms which the CMS can generate. When the alarm is translated into an SNMP trap it uses the same information fields. For example, if a device is restarting it sends an alarm which looks like this in the CMS:

Major	False	15 Nov 2017, 16:03 PM	ntd-1	/ncs:devices/ncs :device[ncs:nam e='ntd-1']	cms- alarm:device- alarm	System Boot	NTD is rebooting		
-------	-------	--------------------------	-------	---	--------------------------------	-------------	---------------------	---	---

Where you can see:

- Severity is **Major**
- Device name is **ntd-1**
- Object path is **/ncs:devices/ncs:device[ncs:name='ntd-1']**
- Alarm type is cms-alarm:**device-alarm**
- Problem is **System Boot**
- Alarm Text is **NTD is rebooting**

An SNMP trap created by this alarm would look something like this:

```
SNMPv2-MIB::snmpTrapOID.0 = OID: TAILF-ALARM-MIB::tfAlarmMajor  TAILF-ALARM-MIB::tfAlarmType.0
= STRING: -alarm          TAILF-ALARM-MIB::tfAlarmDevice.0 = STRING: ntd-1          TAILF-ALARM-
MIB::tfAlarmObject.0 = STRING: "/ncs:devices/ncs:device[ncs:name='ntd-1']" TAILF-ALARM-
MIB::tfAlarmObjectOID.0 = OID: SNMPv2-SMI::zeroDotZero  TAILF-ALARM-MIB::tfAlarmObjectStr.0 =
""          TAILF-ALARM-MIB::tfAlarmSpecificProblem.0 = STRING: "System Boot"          TAILF-ALARM-
MIB::tfAlarmEventType.0 = INTEGER: 1          TAILF-ALARM-MIB::tfAlarmProbableCause.0 = Gauge32:
0          TAILF-ALARM-MIB::tfAlarmTime.0 = STRING: 2017-15-11,16:03:7.6,+0:0          TAILF-ALARM-
MIB::tfAlarmText.0 = STRING: "NTD is rebooting"
```

As you can see by the bold sections, the same information is presented, it just has SNMP specific category titles.

Note: [If you are using the NTD120, specific support can be found here.](#)

SNMP MIBs

There are seven Corero MIB files available with the CMS. You can download the MIBs from the Corero support portal:

- **CORERO-MIB.mib** – Defines the devices and is referenced by the other MIB files
- **CORERO-CMS-MIB.mib** – Contains generic enterprise information referenced by the other MIB files
- **CORERO-CMS-DEVICES-MIB.mib** – Contains the objects for device status information
- **CORERO-CMS-CLUSTERS-MIB.mib** – Contains the objects for Cluster status information
- **CORERO-CMS-SEGMENTS-MIB.mib** – Contains the objects for Segment status information
- **CORERO-CMS-STATISTICS-MIB.mib** – Contains the objects for statistical information
- **CORERO-CMS-SYSTEM-STATUS-MIB.mib** – Contains the objects for system status information

The other important MIB file is **IF-MIB.mib**. This is used by CMS and, when you enable SNMP for specific Defense devices, this is the only MIB they access. IF-MIB is a standard MIB file, but Corero only use two IF-MIB tables: **ifTable** and **ifXTable**.

Tip: Every object in a MIB has a unique Object ID (OID) which you can use to look up specific pieces of information.

Viewing a Corero MIB

Note: Before you can perform an snmpwalk for the CMS you must [enable SNMP for the CMS](#). Before you can perform an snmpwalk for a Defense device, you must [enable SNMP for that device](#).

On the Linux machine you want to use to view information from the MIB, you must do the following:

- Install `snmpwalk` and `snmpget` (from the `net-snmp` and `net-snmp-utils` packages)
- Save a copy of the Corero MIB files in the required folder for `snmpwalk`. By default, this is `.snmp/mibs`

Using SNMP v2c to view values in a MIB

Use the following example to create a command to return all object values in the SNMP MIB:

```
snmpwalk -u test -v 2c -c <communitySecurityName> <IPAddress>:<snmpPort> <mibName>::<mibList>
```

Alternatively, you can use an object's OID to look up the value of a single object from the MIB:

```
snmpgetnext -v 2c -c <communitySecurityName> <IPAddress>:<snmpPort> <OID>
```

You need to replace the following placeholders:

- `<communitySecurityName>` – The security name of your SNMP community.
- `<IPaddress>:<snmpPort>` – The IP address of your CMSor Defense device, followed by the SNMP port (by default this is port 161). For example, 10.10.1.100:161.
- `<mibName>` – The file name of a Corero MIB, for example, CORERO-CMS-CLUSTERS-MIB
- `<mibList>` – The name of the list of objects you want to return, or example CORERO-CMS-CLUSTERS-MIB::clusters would return all objects in the clusters list, but CORERO-CMS-CLUSTERS-MIB::clusterName would only return the values for the clusterName object. See the below reference table for the list names and object names available in each MIB file.
- `<OID>` – The full OID of the object whose value you want to return. For example, 1.3.6.1.4.1.41036.4.1.5.1.1.3 will look for the value of advancedStatisticsStartTrustedAddresses (the number of trusted IP addresses).

Using SNMP v3 to view values in a MIB

Note: Defense devices cannot use SNMPv3.

Use the following example to create a command to return all object values in the SNMP MIB:

```
snmpwalk -u <userSecurityName> -v 3 -a [md5|sha] -A <authPassword> -x [aes|des] -X
<privPassword> -l [authPriv|authNoPriv|noAuthNoPriv] <IPaddress>:<snmpPort>
<mibName>::<mibList>
```

Alternatively, you can use an object's OID to look up the value of a single object from the MIB.

```
snmpwalk -u <userSecurityName> -v 3 -a [md5|sha] -A <authPassword> -x [aes|des] -X
<privPassword> -l [authPriv|authNoPriv|noAuthNoPriv] <IPaddress>:<snmpPort> <OID>
```

You need to replace the following placeholders:

- `<userSecurityName>` – The security name for the user you created above
- `[md5|sha]` – The authentication protocol for this user
- `<authPassword>` – The password or key value for this authentication protocol
- `[aes|des]` – The privacy protocol for this user
- `<privPassword>` – The password or key value for this privacy protocol
- `[authPriv|authNoPriv|noAuthNoPriv]` – The protocol type you need to use for your system
- `<IPaddress>:<snmpPort>` – The IP address of your CMSor Defense device, followed by the SNMP port (by default this is port 161). For example, 10.10.1.100:161.
- `<mibName>` – The file name of a Corero MIB, for example, CORERO-CMS-STATISTICS-MIB

- **<mibList>** – The name of the list of objects you want to return, or example **CORERO-CMS-CLUSTERS-MIB::clusters** would return all objects in the clusters list, but **CORERO-CMS-CLUSTERS-MIB::clusterName** would only return the values for the clusterName object. See the below reference table for the list names and object names available in each MIB file.
- **<OID>** – The full OID of the object whose value you want to return. For example, **.1.3.6.1.4.1.41036.4.1.5.1.1.3** will look for the value of **advancedStatisticsStartTrustedAddresses** (the number of trusted IP addresses).

Note: `-a [md5|sha]-A<authPassword>` is used with `-l authPriv` and `-l authNoPriv` only. `-x [aes|des]-X<privPassword>` is only used with `-l authPriv`.

OID numbers

The tables below lists the objects available in the Corero-specific MIB files. All are current and read-only.

Note: All OID numbers in the Corero MIB tables must be appended to the core OID number: **.1.3.6.1.4.1.41036.4.1**
For example, if the OID end digits in the table are **.2.1.1.1**. The full OID is **.1.3.6.1.4.1.41036.4.1.2.1.1.1**.

CORERO-MIB and CORERO-CMS-MIB

These MIB files define the devices and contain generic information referenced by the other MIBs. They do not contain any objects which can be accessed in an SNMP walk.

IF-MIB

Available for the CMS and Defense devices (excluding NTD120). The two tables used by Corero are: **ifTable** and **ifXTable**.

The IF MIB uses the standard MIB OID numbers and full documentation for non-Corero MIBs can be found online.

- The OID for the ifTable is **.1.3.6.1.2.1.2.2**
- The OID for the ifXTable is **.1.3.6.1.2.1.31.1.1**

CORERO-CMS-DEVICES-MIB

Available for the CMS only. The list name for all objects in this table is: **devices**

Name	OID end digits	Syntax	Description
deviceIndex	.2.1.1.1	INTEGER	The SNMP index of the device

Name	OID end digits	Syntax	Description
deviceName	.2.1.1.2	OCTET STRING	The name of the device
deviceAddress	.2.1.1.3	OCTET STRING	The IP address which the CMS uses to look for the device
deviceDescription	.2.1.1.4	OCTET STRING	The device description. If no description is entered, this is blank.
deviceDefenseMode	.2.1.1.5	INTEGER	The configured Defense Mode for the device
deviceAdminState	.2.1.1.6	INTEGER	The current admin-state of the device
deviceModel	.2.1.1.7	INTEGER	The type of device
deviceSerialNumber	.2.1.1.8	OCTET STRING	The serial number of the device
deviceConnectionState	.2.1.1.9	INTEGER	The current state of the connection between the CMS and the device
deviceDeploymentState	.2.1.1.10	INTEGER	The device's current deployment state
deviceDeploymentAction	.2.1.1.11	INTEGER	The deployment action the device is currently performing
deviceSXOSVersion	.2.1.1.12	OCTET STRING	The version number of the device's operating system (SXOS)
deviceSoftwareVersion	.2.1.1.13	OCTET STRING	The device's current software version in '{MAJOR}.{MINOR}.{PATCH}.{BUILD}' format
deviceUptime	.2.1.1.14	OCTET STRING	The amount of time since the device was last rebooted in '{DAYS}d {HOURS}h {MINUTES}m {SECONDS}s' format
deviceStatus	.2.1.1.15	OCTET STRING	The device status indicates whether traffic is running to the device (normal), or if there is an issue which may affect traffic or its connection to the CMS
deviceType	.2.1.1.16	INTEGER	The device type indicates whether this is a Defense (0) or Bypass (1) device

Name	OID end digits	Syntax	Description
deviceBypassMode	.2.1.1.17	OCTET STRING	The configured Bypass Mode for this device

CORERO-CMS-CLUSTERS-MIB

Available for the CMS only. The list name for all objects in this table is: `clusters`

Name	OID end digits	Syntax	Description
clusterIndex	.3.1.1.1	INTEGER	The SNMP index of the Cluster
clusterName	.3.1.1.2	OCTET STRING	The name of the Cluster
clusterDescription	.3.1.1.3	OCTET STRING	The description of the Cluster. If no description is entered, this is blank.
clusterProtectionProfile	.3.1.1.4	OCTET STRING	The name of the Protection Profile associated with this Cluster
clusterIngressSampleRate	.3.1.1.5	INTEGER	External ingress sampling rate for all devices in the cluster
clusterOptimizeForScrubbing	.3.1.1.6	INTEGER	Indicates whether the devices in the cluster are optimized for scrubbing deployments

CORERO-CMS-SEGMENTS-MIB

Available for the CMS only. The list name for all objects in this table is: `segments`

Name	OID end digits	Syntax	Description
segmentIndex	.4.1.1.1	INTEGER	The SNMP index of the Segment
segmentDevice	.4.1.1.2	OCTET STRING	The device containing the Segment
segmentId	.4.1.1.3	OCTET STRING	The ID of the segment

Name	OID end digits	Syntax	Description
segmentName	.4.1.1.4	OCTET STRING	The name of the Segment
segmentDescription	.4.1.1.5	OCTET STRING	The description of this Segment. If no description is entered, this is blank.
segmentLinkStatePropagationAdminState	.4.1.1.6	INTEGER	Whether this Segment has Link State Propagation enabled or disabled
segmentLinkStatePropagationWaitTime	.4.1.1.7	INTEGER	Number of seconds the CMS currently waits before propagating a link state change to the partner, when Link State Propagation is enabled
segmentLinkStatePropagationRecoveryTimeout	.4.1.1.8	INTEGER	Number of seconds the CMS currently waits after a link is brought back up before using its state to change partner state, when Link State Propagation is enabled
segmentConfiguredDefenseMode	.4.1.1.9	INTEGER	The configured Defense Mode of the Segment
segmentNtdExternalInterface	.4.1.1.10	OCTET STRING	The name of the Segment's external NTD interface
segmentNtdExternalInterfaceStatus	.4.1.1.11	INTEGER	The current status of the Segment's external NTD interface
segmentNtdExternalInterfaceLinkSpeed	.4.1.1.12	Unsigned32	The link speed of the Segment's external NTD interface in Mbit/s
segmentNtdInternalInterface	.4.1.1.13	OCTET STRING	The name of the Segment's internal NTD interface

Name	OID end digits	Syntax	Description
segmentNtdInternalInterfaceStatus	.4.1.1.14	INTEGER	The current status of the Segment's internal NTD interface
segmentNtdInternalInterfaceLinkSpeed	.4.1.1.15	Unsigned32	The link speed of the Segment's internal NTD interface in Mbit/s
segmentNbaExternalInterface	.4.1.1.16	OCTET STRING	The name of the Segment's external NBA interface
segmentNbaExternalInterfaceStatus	.4.1.1.17	INTEGER	The current status of the Segment's external NBA interface
segmentNbaExternalInterfaceLinkSpeed	.4.1.1.18	Unsigned32	The link speed of the Segment's external NBA interface in Mbit/s
segmentNbaInternalInterface	.4.1.1.19	OCTET STRING	The name of the Segment's internal NBA interface
segmentNbaInternalInterfaceStatus	.4.1.1.20	INTEGER	The current status of the Segment's internal NBA interface
segmentNbaInternalInterfaceLinkSpeed	.4.1.1.21	Unsigned32	The link speed of the Segment's internal NBA interface in Mbit/s
segmentCurrentDefenseMode	.4.1.1.22	INTEGER	The Defense Mode the Segment is currently operating in
segmentBypassDevice	.4.1.1.23	OCTET STRING	The name of the external bypass device connected to the Segment. If there is no connected bypass device, this is blank.
segmentConfiguredBypassMode	.4.1.1.24	INTEGER	The configured Bypass Mode for the Segment. If the Segment has no bypass capability, this shows blank.

Name	OID end digits	Syntax	Description
segmentCurrentBypassMode	.4.1.1.25	INTEGER	The current Bypass Mode the Segment is operating in. If the Segment has no bypass capability, this shows not-applicable.
segmentCurrentBypassState	.4.1.1.26	INTEGER	The current Bypass State the Segment is operating in. If the Segment has no bypass capability, this shows not-applicable.
segmentDefenseModeOverride	.4.1.1.27	INTEGER	The override level applied for the segment defense mode.
segmentBypassModeOverride	.4.1.1.28	INTEGER	The override level applied for the segment bypass mode.

CORERO-CMS-STATISTICS-MIB

Available for the CMS only. The list name for all objects in all of the tables below is: `statistics`

The list name for all objects in this table is: `advancedStatisticsTable`

Name	OID end digits	Syntax	Description
advancedStatisticsGroup	.5.1.1.1	GroupType	The grouping of Advanced statistics
advancedStatisticsGroupIndex	.5.1.1.2	INTEGER	The SNMP index of each element within a grouping
advancedStatisticsStartTrustedAddresses	.5.1.1.3	Counter64	Number of trusted IP addresses

Name	OID end digits	Syntax	Description
advancedStatisticsStartUnclassifiedAddresses	.5.1.1.4	Counter64	Number of unclassified IP addresses
advancedStatisticsFinishTrustedAddresses	.5.1.1.5	Counter64	Number of no-longer trusted IP addresses
advancedStatisticsFinishUnclassifiedAddresses	.5.1.1.6	Counter64	Number of no-longer unclassified IP addresses
advancedStatisticsTotalAddressAdds	.5.1.1.7	Counter64	Total number of IP addresses added across the device
advancedStatisticsInputOverloadPackets	.5.1.1.8	Counter64	Number of overload packets received from input
advancedStatisticsInputOverloadPacketRate	.5.1.1.9	Counter32	Rate of overload packets received from input (packets/sec)
advancedStatisticsSetupOverloadPackets	.5.1.1.10	Counter64	Number of overload packets received from setup
advancedStatisticsSetupOverloadPacketRate	.5.1.1.11	Counter32	Rate of overload packets received from setup (packets/sec)
advancedStatisticsContextOverloadPackets	.5.1.1.12	Counter64	Number of context overload packets received
advancedStatisticsContextOverloadPacketRate	.5.1.1.13	Counter32	Rate of context overload packets received (packets/sec)

Name	OID end digits	Syntax	Description
advancedStatisticsEgressDropPackets	.5.1.1.14	Counter64	Number of packets dropped on egress
advancedStatisticsEgressDropPacketRate	.5.1.1.15	Counter32	Rate of packets dropped on egress (packets/sec)
advancedStatisticsIngressDropPackets	.5.1.1.16	Counter64	Number of packets dropped on ingress
advancedStatisticsIngressDropPacketRate	.5.1.1.17	Counter32	Rate of packets dropped on ingress (packets/sec)
advancedStatisticsEgressOverloadPackets	.5.1.1.18	Counter64	Number of overload packets from egress
advancedStatisticsEgressOverloadPacketRate	.5.1.1.19	Counter32	Rate of overload packets from egress (packets/sec)
advancedStatisticsFlowOverloadPackets	.5.1.1.20	Counter64	Number of overload packets from flows
advancedStatisticsFlowOverloadPacketRate	.5.1.1.21	Counter32	Rate of overload packets from flows (packets/sec)
advancedStatisticsSmartRuleOverloadPackets	.5.1.1.22	Counter64	Number of overload packets from Smart-Rules
advancedStatisticsSmartRuleOverloadPacketRate	.5.1.1.23	Counter32	Rate of overload packets from Smart-Rules (packets/sec)

Name	OID end digits	Syntax	Description
advancedStatisticsSourceSmartRuleOverloadPackets	.5.1.1.24	Counter64	Number of overload packets from source Smart-Rules
advancedStatisticsSourceSmartRuleOverloadPacketRate	.5.1.1.25	Counter32	Rate of overload packets from source Smart-Rules (packets/sec)
advancedStatisticsFragmentOverloadPackets	.5.1.1.26	Counter64	Number of overload packets from fragments
advancedStatisticsFragmentOverloadPacketRate	.5.1.1.27	Counter32	Rate of overload packets from fragments (packets/sec)
advancedStatisticsIpOverloadPackets	.5.1.1.28	Counter64	Number of IP overload packets
advancedStatisticsIpOverloadPacketRate	.5.1.1.29	Counter32	Rate of IP overload packets (packets/sec)
advancedStatisticsFlexRuleOverloadPackets	.5.1.1.30	Counter64	Number of overload packets from Flex-Rules
advancedStatisticsFlexRuleOverloadPacketRate	.5.1.1.31	Counter32	Rate of overload packets from Flex-Rules (packets/sec)
advancedStatisticsIngressOverloadPackets	.5.1.1.32	Counter64	Number of ingress packets protected with overload

Name	OID end digits	Syntax	Description
advancedStatisticsIngressOverloadPacketRate	.5.1.1.33	Counter32	Rate of ingress packets protected with overload (packets/sec)
advancedStatisticsIngressOverloadBytes	.5.1.1.34	Counter64	Number of ingress bytes protected with overload
advancedStatisticsIngressOverloadBitRate	.5.1.1.35	Counter32	Rate of ingress bits protected with overload (Mbits per sec)
advancedStatisticsStartTrackingFlow	.5.1.1.36	Counter64	Number of tracked TCP flows during DDOS attach started
advancedStatisticsStopTrackingFlow	.5.1.1.37	Counter64	Number of tracked TCP flows during DDOS attack stopped

The list name for all objects in this table is: `blockRateStatisticsTable`

Name	OID end digits	Syntax	Description
blockRateStatisticsGroup	.5.2.1.1	GroupType	The grouping of Defense Block Rate statistics
blockRateStatisticsGroupIndex	.5.2.1.2	INTEGER	The SNMP index of each element within a grouping
blockRateStatisticsAllRulesBlockPackets	.5.2.1.3	Counter32	Aggregate number of blocked packet across all rules
blockRateStatisticsAllRulesBlockPacketRate	.5.2.1.4	Counter32	Aggregate blocked packet rate of all rules (packets per second)

Name	OID end digits	Syntax	Description
blockRateStatisticsAllRulesBlockBytes	.5.2.1.5	Counter64	Aggregate number of blocked bytes across all rules
blockRateStatisticsAllRulesBlockBitRate	.5.2.1.6	Counter32	Aggregate blocked bit rate of all rules (Mbits per second)

The list name for all objects in this table is: `interfaceStatisticsTable`

Name	OID end digits	Syntax	Description
interfaceStatisticsGroup	.5.3.1.1	GroupType	The grouping of Interface statistics
interfaceStatisticsGroupIndex	.5.3.1.2	INTEGER	The SNMP index of each element within a grouping
interfaceStatisticsExternalPortBitReceiveRate	.5.3.1.3	Counter32	Receive rate on the external ports (Mbits per second)
interfaceStatisticsExternalPortBitTransmitRate	.5.3.1.4	Counter32	Transmit rate on the external ports (Mbits per second)
interfaceStatisticsExternalPortEgressDroppedPackets	.5.3.1.5	Counter64	Number of dropped egress packets from the external port
interfaceStatisticsExternalPortIngressDroppedPackets	.5.3.1.6	Counter64	Number of dropped ingress packets from the external port
interfaceStatisticsExternalPortPacketReceiveRate	.5.3.1.7	Counter32	Receive rate on the external ports (packets per second)

Name	OID end digits	Syntax	Description
interfaceStatisticsExternalPortPacketTransmitRate	.5.3.1.8	Counter32	Transmit rate on the external ports (packets per second)
interfaceStatisticsExternalPortReceivedBadCrcPackets	.5.3.1.9	Counter64	Number of packets received to the external port with an invalid CRC
interfaceStatisticsExternalPortReceivedBytes	.5.3.1.10	Counter64	Number of bytes received to the external port
interfaceStatisticsExternalPortReceivedJabberPackets	.5.3.1.11	Counter64	Number of jabber packets received to the external port
interfaceStatisticsExternalPortReceivedOversizedPackets	.5.3.1.12	Counter64	Number of oversized packets received to the external port
interfaceStatisticsExternalPortReceivedPackets	.5.3.1.13	Counter64	Number of packets received to the external port
interfaceStatisticsExternalPortTransmitErrorPackets	.5.3.1.14	Counter64	Number of errors transmitting packets from the external port
interfaceStatisticsExternalPortTransmittedBytes	.5.3.1.15	Counter64	Number of bytes transmitted from external port
interfaceStatisticsExternalPortTransmittedPackets	.5.3.1.16	Counter64	Number of packets transmitted from the external port
interfaceStatisticsInternalPortBitReceiveRate	.5.3.1.17	Counter32	Receive rate on the internal ports (Mbits per second)

Name	OID end digits	Syntax	Description
interfaceStatisticsInternalPortBitTransmitRate	.5.3.1.18	Counter32	Transmit rate on the internal ports (Mbits per second)
interfaceStatisticsInternalPortEgressDroppedPackets	.5.3.1.19	Counter64	Number of dropped egress packets from the internal port
interfaceStatisticsInternalPortIngressDroppedPackets	.5.3.1.20	Counter64	Number of dropped ingress packets from the internal port
interfaceStatisticsInternalPortPacketReceiveRate	.5.3.1.21	Counter32	Receive rate on the internal ports (packets per second)
interfaceStatisticsInternalPortPacketTransmitRate	.5.3.1.22	Counter32	Transmit rate on the internal ports (packets per second)
interfaceStatisticsInternalPortReceivedBadCrcPackets	.5.3.1.23	Counter64	Number of packets received to the internal port with an invalid CRC
interfaceStatisticsInternalPortReceivedBytes	.5.3.1.24	Counter64	Number of bytes received to the internal port
interfaceStatisticsInternalPortReceivedJabberPackets	.5.3.1.25	Counter64	Number of jabber packets received to the internal port
interfaceStatisticsInternalPortReceivedOversizedPackets	.5.3.1.26	Counter64	Number of oversized packets received to the internal port
interfaceStatisticsInternalPortReceivedPackets	.5.3.1.27	Counter64	Number of packets received to the internal port

Name	OID end digits	Syntax	Description
interfaceStatisticsInternalPortTransmitErrorPackets	.5.3.1.28	Counter64	Number of errors transmitting packets from the internal port
interfaceStatisticsInternalPortTransmittedBytes	.5.3.1.29	Counter64	Number of bytes transmitted from the internal port
interfaceStatisticsInternalPortTransmittedPackets	.5.3.1.30	Counter64	Number of packets transmitted from the internal port
interfaceStatisticsExternalPortIngressOverloadPackets	.5.3.1.31	Counter64	Number of packets transmitted to the external port protected with overload
interfaceStatisticsExternalPortIngressOverloadBytes	.5.3.1.32	Counter64	Number of bytes transmitted to the external port protected with overload
interfaceStatisticsExternalPortReceivedFecErrorPackets	.5.3.1.33	Counter64	Number of packets to the external port with FEC errors
interfaceStatisticsInternalPortReceivedFecErrorPackets	.5.3.1.34	Counter64	Number of packets to the internal port with FEC errors

The list name for all objects in this table is: `ipAddressStatisticsTable`

Name	OID end digits	Syntax	Description
ipAddressStatisticsGroup	.5.4.1.1	GroupType	The grouping of IP Address statistics

Name	OID end digits	Syntax	Description
ipAddressStatisticsGroupIndex	.5.4.1.2	INTEGER	The SNMP index of an element within each grouping
ipAddressStatisticsInUseAddresses	.5.4.1.3	Counter32	Total number of IP Address Statistics table entries in use
ipAddressStatisticsInUseTrustedAddresses	.5.4.1.4	Counter32	Total number of trusted IP addresses across the devices
ipAddressStatisticsInUseUnclassifiedAddresses	.5.4.1.5	Counter32	Total number of unclassified IP addresses across the devices
ipAddressStatisticsPanicGood	.5.4.1.6	Counter64	Total number of source IP addresses which were deemed good while in panic mode
ipAddressStatisticsPanicGoodRate	.5.4.1.7	Counter32	Rate of source IP addresses which were deemed good while in panic mode
ipAddressStatisticsPanicBad	.5.4.1.8	Counter64	Total number of source IP addresses which were deemed bad while in panic mode
ipAddressStatisticsPanicBadRate	.5.4.1.9	Counter32	Rate of source IP addresses which were deemed bad while in panic mode
ipAddressStatisticsPanicTimedOut	.5.4.1.10	Counter64	Total number of source IP addresses which timed out while in panic mode
ipAddressStatisticsPanicTimedOutRate	.5.4.1.11	Counter32	Rate of source IP addresses which were timed out while in panic mode

Name	OID end digits	Syntax	Description
ipAddressStatisticsPromotedToTrusted	.5.4.1.12	Counter64	Total number of source IP addresses which were promoted to trusted
ipAddressStatisticsPromotedToTrustedRate	.5.4.1.13	Counter32	Rate of source IP addresses which were promoted to trusted
ipAddressStatisticsTrackedTcpFlows	.5.4.1.14	Counter64	Total number of tracked TCP flows in flow based threat awareness
ipAddressStatisticsTrackedTcpFlowsSuccess	.5.4.1.15	Counter64	Total number of TCP flows successfully tracked by flow based threat awareness
ipAddressStatisticsTrackedTcpFlowsSuccessRate	.5.4.1.16	Counter32	Rate of TCP flows successfully tracked by flow based threat awareness
ipAddressStatisticsTrackedTcpFlowsTimedOut	.5.4.1.17	Counter64	Total number of TCP flows that timed out when tracked by flow based threat awareness
ipAddressStatisticsTrackedTcpFlowsTimedOutRate	.5.4.1.18	Counter32	Rate of TCP flows that timed out when tracked by flow based threat awareness

The list name for all objects in this table is: ruleStatisticsTable

Name	OID end digits	Syntax	Description
ruleStatisticsGroup	.5.5.1.1	GroupType	The grouping of Rule statistics
ruleStatisticsGroupIndex	.5.5.1.2	INTEGER	The SNMP index of an element within each grouping

Name	OID end digits	Syntax	Description
ruleStatisticsRuleIndex	.5.5.1.3	INTEGER	The SNMP integer representation of the rule - usually the rule name with 'cns-' omitted
ruleStatisticsRuleName	.5.5.1.4	OCTET STRING	The name of the rule for which these statistics belong
ruleStatisticsRuleDescription	.5.5.1.5	OCTET STRING	The description of the rule
ruleStatisticsBlockEventCount	.5.5.1.6	Counter64	Number of events blocked by this rule
ruleStatisticsBlockPacketCount	.5.5.1.7	Counter64	Number of packets blocked by this rule
ruleStatisticsBlockByteCount	.5.5.1.8	Counter64	Number of bytes blocked by this rule
ruleStatisticsDetectEventCount	.5.5.1.9	Counter64	Number of events detected by this rule
ruleStatisticsDetectPacketCount	.5.5.1.10	Counter64	Number of packets detected by this rule
ruleStatisticsDetectByteCount	.5.5.1.11	Counter64	Number of bytes detected by this rule
ruleStatisticsBlockPacketRate	.5.5.1.12	Counter32	Rate of packets blocked by this rule (packets per second)
ruleStatisticsDetectPacketRate	.5.5.1.13	Counter32	Rate of packets detected by this rule (packets per second)
ruleStatisticsBlockBitRate	.5.5.1.14	Counter32	Rate of data blocked by this rule (Mbits per second)
ruleStatisticsDetectBitRate	.5.5.1.15	Counter32	Rate of data detected by this rule (Mbits per second)

The list name for all objects in this table is: `setupRateStatisticsTable`

Name	OID end digits	Syntax	Description
setupRateStatisticsGroup	.5.6.1.1	GroupType	The grouping of Setup Rate statistics

Name	OID end digits	Syntax	Description
setupRateStatisticsGroupIndex	.5.6.1.2	INTEGER	The SNMP index of an element within each grouping
setupRateStatisticsIcmpSetupRate	.5.6.1.3	Counter32	ICMP flow setup rate (flows/sec)
setupRateStatisticsNonTcpSetupRate	.5.6.1.4	Counter32	Protocols other than TCP flow setup rate (flows/sec)
setupRateStatisticsOtherIPSetupRate	.5.6.1.5	Counter32	Protocols other than TCP and UDP setup rate (flows/sec)
setupRateStatisticsTcpSetupRate	.5.6.1.6	Counter32	TCP flows setup rate (flows/sec)
setupRateStatisticsUdpSetupRate	.5.6.1.7	Counter32	UDP flows setup rate (flows/sec)

The list name for all objects in this table is: `usageStatisticsTable`

Name	OID end digits	Syntax	Description
usageStatisticsGroup	.5.7.1.1	GroupType	The grouping of Usage statistics
usageStatisticsGroupIndex	.5.7.1.2	INTEGER	The SNMP index of an element within each grouping
usageStatisticsFinishIcmpFlows	.5.7.1.3	Counter64	ICMP flows finished across the devices
usageStatisticsFinishOtherFlows	.5.7.1.4	Counter64	Other IP flows finished across the devices
usageStatisticsFinishTcpFlows	.5.7.1.5	Counter64	TCP flows finished across the devices
usageStatisticsFinishUdpFlows	.5.7.1.6	Counter64	UDP flows finished across the devices
usageStatisticsInUseFlows	.5.7.1.7	Counter32	Total number of flows in use across the devices
usageStatisticsInUseIcmpFlows	.5.7.1.8	Counter32	Total number of ICMP flows in use across the devices
usageStatisticsInUseOtherFlows	.5.7.1.9	Counter32	Total number of non-TCP, non-UDP, non-ICMP flows in use across the devices

Name	OID end digits	Syntax	Description
usageStatisticsInUseTcpFlows	.5.7.1.10	Counter32	Total number of TCP flows in use across the devices
usageStatisticsInUseUdpFlows	.5.7.1.11	Counter32	Total number of UDP flows in use across the devices
usageStatisticsStartIcmpFlows	.5.7.1.12	Counter64	ICMP flows started across the devices
usageStatisticsStartOtherFlows	.5.7.1.13	Counter64	Other IP flows started across the devices
usageStatisticsStartTcpFlows	.5.7.1.14	Counter64	TCP flows started across the devices
usageStatisticsStartUdpFlows	.5.7.1.15	Counter64	UDP flows started across the devices

CORERO-CMS-SYSTEM-STATUS-MIB


Available for the CMS only. The list name for all objects in this table is: `issues`

Name	OID end digits	Syntax	Description
issueIndex	.6.1.4.1	INTEGER	The issue index
issueType	.6.1.4.2	INTEGER	The issue type: protection (0), devices (1), network (2)
issueDevice	.6.1.4.3	OCTET STRING	The device for which issue was created
issueSegment	.6.1.4.4	OCTET STRING	The segment for which issue was created
issueDescription	.6.1.4.5	OCTET STRING	The issue description
issueSeverity	.6.1.4.6	INTEGER	The issue severity: normal (0), warning (1), error (2)

CMS Web User Interface

For reference information on the CMS Web UI, including descriptions of every onscreen field and button, see your built in CMS help.

To open the CMS built in help

1. Open the CMS Web UI in a browser and log in.
2. On the top menu, click  the help button.

CMS CLI Overview

The SmartWall Central Management Server (CMS) Command Line Interface (CLI) is an alternative method of working with the CMS (rather than using the Web UI in a browser). The CLI has all the functionality of the Web UI plus a few advanced features you may be asked to use by a Corero Support Engineer.

Accessing the CLI

To access the CLI you need to connect to your CMS application using an SSH client:

```
ssh -p 2024 <username>@<ipaddress>
```

CLI Modes

There are two main CLI modes:

- **Operational Mode** – The CMS CLI starts in operational mode, which is used for displaying information about the CMS and the devices that it manages.
- **Configuration Mode** – Type `configure` to enter the mode for changing the configuration of the CMS. You can return to operational mode by typing `exit`.

```
admin@vcms172> configure
Entering configuration mode private
[ok] [2018-02-13 10:40:46]

[edit]
admin@vcms172(config)#
```

View possible completions

When you're writing a CLI command, you can press the tab key at any time to view a list of possible completions. If there is only one possible completion, it is added automatically. In the image below, you can see tab being used twice, first to see the possible Protection Profiles available and then to see the possible configuration options for Inspection Control.

```
admin@vcms172(config)# set policy protection-profile
Possible completions:
  Name used to identify Protection Profile  default
admin@vcms172(config)# set policy protection-profile default inspection-control
Possible completions:
  admin-state           - Enable/disable Inspection Control
  default-inspection-mode - Inspection mode used for destination addresses
                        not described in the overrides entries table
  override-entry        - A list of override entries for inspection control
  white-list-event-logging - (cns-001043) Enable or disable analytics logging
                        for white listed traffic
admin@vcms172(config)# set policy protection-profile default inspection-control
```

Commit a change

Just like using the Web UI, you need to commit a change before it takes effect. To do that, enter the command:

```
commit
```

```
admin@vcms172(config)# set policy protection-profile default inspection-control
override-entry entry1 destination-ip 1.1.1.1
[ok][2018-02-13 11:03:40]

[edit]
admin@vcms172(config)# commit
Commit complete.
[ok][2018-02-13 11:03:49]

[edit]
admin@vcms172(config)#
```

Using pipes

When you're inputting a CLI command, you can modify how the output is displayed by adding a pipe character followed by a display command. For example, if you wanted a command to repeat every 10 seconds you would add `| repeat 10`. To view the statistics for a segment and have the information update every 10 seconds, you could use the command `show statistics segment ntd-1 1 | repeat 10`.

By pressing the tab key after the pipe character, you can see all available pipe modifications available for this command. Below you can see all possible modifications for the segment statistics example command.

```
admin@vcms172> show statistics segment ntd-1 1 |
Possible completions:
count          - Count the number of lines in the output
csv            - Emit table output in CSV format
de-select      - Select columns to not include
display        - Display options
display-level  - Display level
except         - Show only text that does not matches a pattern
find           - Search for the first occurrence of a pattern
linnum        - Enumerate lines in the output
match          - Show only text that matches a pattern
match-all     - All selected filters must match
match-any      - At least one filter must match
more           - Paginate output
nomore         - Suppress pagination
notab          - Suppress table output
repeat         - Repeat show command with a given interval
select         - Select additional columns
sort-by        - Select sorting indices
tab            - Enforce table output
until         - Display until the first occurrence of a pattern
admin@vcms172> show statistics segment ntd-1 1 |
```

Viewing tables

Some information can display differently depending on the size of the CLI window. When you're viewing statistics, a thin CLI window causes the information to display in a list, and a wide CLI window causes the information to display as a table. You can change the window size, or you can use the pipe command to force this behavior:

- `| tab` – to force the table view regardless of window size
- `| no tab` – to force the list view regardless of window size

Example: Using the show command and pipes to view device information

You can view device statistics and information in the Web UI (Network > Devices). You can also use the CLI to view detailed device statistics. The following commands are an example of the most popular commands in this area:

`show configuration devices` – view the configuration of all devices in the CMS. You can also specify a single device e.g. `show configuration devices device ntd-120`.

```
authgroups {
  group default {
    default-map {
      remote-name      admin;
      remote-password  $4$HIU0acQxHJgk2BZrIhVVlg==;
    }
  }
}
device Bypass {
  address          12.12.12.101;
  description      "";
  authgroup        default;
  connect-timeout  5;
  read-timeout     60;
  write-timeout    60;
  type             bypass;
  interfaces {
    interface xe-1/1;
    interface xe-1/2;
    interface xe-1/3;
    interface xe-1/4;
  }
}
device NTD {
  address          12.12.12.102;
  description      "";
  authgroup        default;
  connect-timeout  5;
  read-timeout     60;
  write-timeout    60;
  bypass-mode {
    automatic;
  }
  operating-mode   mitigate;
  type             defense;
  interfaces {
    interface xe-1/1;
    interface xe-1/2;
    interface xe-1/3;
    interface xe-1/4;
  }
}
advanced-settings;
[ok][2018-01-25 18:27:07]
```

`show devices device status` – view the current status of all devices in the CMS. You can also specify a single device e.g. `show devices device ntd-120 status`.

NAME	MODEL	SERIAL NUMBER	CONNECTION STATE	DEPLOYMENT STATE	DEPLOYMENT ACTION	SXOS VERSION	SOFTWARE VERSION	UPTIME	HEALTH
BYPASS1	nba	133155517300005	connected	in-sync	not-in-progress	N/A	8.18.0.0243	7d 1h 29m 54s	normal
NTD1	ntd120	611055518070008	connected	in-sync	not-in-progress	mds418.10.sda2	8.18.0.0999	6d 21h 28m 17s	normal

`show devices device interfaces interface | tab` – view the current status of all interfaces on all devices in a table. You can also specify a single device or single interface e.g `show devices device ntd-120 interfaces interface xe-1/1`.

NAME	NAME	ROLE	MAC ADDRESS	TYPE	OPER STATE	LINK SPEED	LINK DUPLEX	MTU	RECEIVED PACKETS	TRANSMITTED PACKETS	RECEIVED BYTES	TRANSMITTED BYTES	RECEIVED DROPPED PACKETS	RECEIVED ERROR PACKETS	TRANSMITTED ERROR PACKETS	TRANSMITTED DROPPED PACKETS	RESTARTS
BYPASS1	xe-1/1	network	00-00-00-00-00-00	marvell	up	nb10000	full	0	14368077230	3616	010615080236	250412	0	0	0	0	0
	xe-1/2	network	00-00-00-00-00-00	marvell	up	nb10000	full	0	3616	2513313177	250412	160852508844	0	0	0	0	0
	xe-1/3	inspection	00-00-00-00-00-00	marvell	up	nb10000	full	0	21900355	14343021270	1407401708	918011426706	0	0	0	0	0
	xe-1/4	inspection	00-00-00-00-00-00	marvell	up	nb10000	full	0	2408206416	21906419	150250706140	1407405804	0	0	0	0	0
NTD1	xe-1/1	external	00-10-d1-70-0b-f0	mpipe	up	nb10000	full	1500	12782135153	21785693	030856602320	1394280552	0	0	0	0	0
	xe-1/2	internal	00-10-d1-70-0b-f1	mpipe	up	nb10000	full	1500	21785693	2476208823	1394289552	158476065400	0	0	0	0	0
	xe-1/3	external	00-10-d1-70-0b-f2	mpipe	down	unknown	half	0	0	0	0	0	0	0	0	0	0
	xe-1/4	internal	00-10-d1-70-0b-f3	mpipe	down	unknown	half	0	0	0	0	0	0	0	0	0	0

`show segments segment | repeat 10` – view the current status of all segments in the CMS and update the information every 10 seconds. You can also specify a single segment e.g. `show segments segment ntd-120 1`.

DEVICE	ID	SEGMENT	NTD EXTERNAL		NTD INTERNAL		NTD EXTERNAL		NTD INTERNAL		NBA EXTERNAL		NBA INTERNAL		CURRENT OPERATIONS	INBOUND RX RATE	INBOUND TX RATE	OUTBOUND RX RATE	OUTBOUND TX RATE	CURRENT MODE	BYPASS MODE	CURRENT STATE	BYPASS STATE
			INTERFACE	STATUS	LINK	SPEED	INTERFACE	STATUS	LINK	SPEED	INTERFACE	STATUS	LINK	SPEED									
NTD	1	normal	xe-1/1	up	10000	0	xe-1/2	up	10000	0	xe-1/3	up	10000	0	mitigate	2T	0	0	0	0	automatic	disabled	
NTD	2	normal	xe-1/1	down	0	0	xe-1/2	down	0	0	xe-1/3	down	0	0	mitigate	2T	0	0	0	0	not-applicable	not-applicable	

`show statistics segment` – view statistics for all segments in the CMS. You can also specify a single segment e.g. `show statistics segment ntd-120 1`.


```

statistics segment NTD 1
interface-statistics external-port-packet-receive-rate 48998
interface-statistics external-port-bit-receive-rate 25
interface-statistics external-port-packet-transmit-rate 32
interface-statistics external-port-bit-transmit-rate 0
interface-statistics internal-port-packet-receive-rate 32
interface-statistics internal-port-bit-receive-rate 0
interface-statistics internal-port-packet-transmit-rate 160
interface-statistics internal-port-bit-transmit-rate 0
interface-statistics external-port-received-packets 4068849001
interface-statistics external-port-transmitted-packets 7681815
interface-statistics external-port-received-bytes 260406340320
interface-statistics external-port-transmitted-bytes 491638300
interface-statistics internal-port-received-packets 7681815
interface-statistics internal-port-transmitted-packets 265917314
interface-statistics internal-port-received-bytes 491638300
interface-statistics internal-port-transmitted-bytes 17018712288
interface-statistics external-port-ingress-dropped-packets 0
interface-statistics external-port-egress-dropped-packets 0
interface-statistics internal-port-ingress-dropped-packets 0
interface-statistics internal-port-egress-dropped-packets 0
interface-statistics external-port-received-bad-crc-packets 0
interface-statistics internal-port-received-bad-crc-packets 0
interface-statistics external-port-received-oversized-packets 0
interface-statistics internal-port-received-oversized-packets 0
interface-statistics external-port-received-jabber-packets 0
interface-statistics internal-port-received-jabber-packets 0
interface-statistics external-port-transmit-error-packets 0
interface-statistics internal-port-transmit-error-packets 0
statistics segment NTD 2
interface-statistics external-port-packet-receive-rate 0
interface-statistics external-port-bit-receive-rate 0
interface-statistics external-port-packet-transmit-rate 0
interface-statistics external-port-bit-transmit-rate 0
interface-statistics internal-port-packet-receive-rate 0
interface-statistics internal-port-bit-receive-rate 0
interface-statistics internal-port-packet-transmit-rate 0
interface-statistics internal-port-bit-transmit-rate 0
interface-statistics external-port-received-packets 0
interface-statistics external-port-transmitted-packets 0
interface-statistics external-port-received-bytes 0
interface-statistics external-port-transmitted-bytes 0
interface-statistics internal-port-received-packets 0
interface-statistics internal-port-transmitted-packets 0
interface-statistics internal-port-received-bytes 0
interface-statistics internal-port-transmitted-bytes 0
interface-statistics external-port-ingress-dropped-packets 0
interface-statistics external-port-egress-dropped-packets 0
interface-statistics internal-port-ingress-dropped-packets 0
interface-statistics internal-port-egress-dropped-packets 0
interface-statistics external-port-received-bad-crc-packets 0
interface-statistics internal-port-received-bad-crc-packets 0
interface-statistics external-port-received-oversized-packets 0
interface-statistics internal-port-received-oversized-packets 0
interface-statistics external-port-received-jabber-packets 0
interface-statistics internal-port-received-jabber-packets 0
interface-statistics external-port-transmit-error-packets 0
interface-statistics internal-port-transmit-error-packets 0

```

show statistics all rule-statistics – view statistics for all rules in the CMS.

RULE NAME	RULE DESCRIPTION	BLOCK		BLOCK		DETECT		DETECT		DETECT		BLOCK		DETECT		BLOCK		DETECT	
		EVENT	COUNT	PACKET	COUNT	EVENT	COUNT	PACKET	COUNT	BYTE	COUNT	PACKET	RATE	PACKET	RATE	PACKET	RATE	PACKET	RATE
cns-001032	UDP source port 1000 packet (possible UDP amplification attack)	150772	150777	9046820	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cns-001034	UDP source port 111 packet (possible RPC Portmapper amplification attack)	0	0	0	150772	150772	9046320	0	0	0	0	0	0	0	0	0	0	0	0
cns-001039	UDP source port 19 packet (possible CHARGEN amplification attack)	150772	150772	9046320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cns-001042	UDP source port 520 packet (possible RIP amplification attack)	150772	150772	9046320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cns-002023	UDP service flood packet rate to server limited	884910832	884910832	53094601928	0	0	0	0	0	0	0	43427	0	20	0	0	0	0	0
cns-002061	Any non-TCP protocol connection from unknown client sent to destination already under DOS attack	8737323640	8737323640	524230416948	0	0	0	0	0	0	0	346637	0	166	0	0	0	0	0

Note: If you are using the NTD120, specific support can be found [here](#).

CLI Commands

The following tables should help you navigate the CLI. Once you know the rough area you need, use the tab options in the CLI itself to find the specific command you require.

Operational mode command areas

CLI Area	Tasks Available
<code>clear history</code>	Clear history of previous commands
<code>configure</code>	Enter Configuration Mode
<code>exit</code>	Log out and close SSH session
<code>help <command></code>	Display help information about the command
<code>id</code>	Show the ID information for the current user
<code>quit</code>	Log out and close SSH session

CLI Area	Tasks Available
<p><code>request [tab_options]</code></p>	<p>Make system level requests in one of the following areas:</p> <ul style="list-style-type: none"> • <code>alarms [tab_options]</code> – Use the tab options to filter, purge or compress alarms, or use the <code>alarm-list</code> option to select a specific alarm. • <code>analytics [tab_options]</code> – Upload an SSL certificate for the connection to an analytics server or push CMS configuration to the SWA. • <code>clusters [tab_options]</code> – Area not available for this level. • <code>debug [tab_options]</code> – Area not available for this level. • <code>devices [tab_options]</code> – View the live status of devices, request device actions (e.g. sync device, ping device, restart device etc), rename an authentication group, manage device software packages. • <code>file-copy [tab_options]</code> – Download diagnostic files from the CMS or a specified device. • <code>log [tab_options]</code> – View the system or audit logs, using tab options to view specific information if needed. • <code>policy protection-profile <profileName> export remote-uri <uri> remote-password <password></code> – Export a Protection Profile. No other options are available for this level. • <code>rtbh [tab_options]</code> – Manage the black hole address list and test announce/withdraw REST API calls. • <code>snapshots [tab_options]</code> – Create, import and manage existing Snapshots. • <code>statistics [tab_options]</code> – Clear all rule counters or clear counters for a specific rule. • <code>system [tab_options]</code> – Perform CMS system operations, including: manage support account access, log out an active user, import https certificates for Web UI and REST interfaces, manage vNTD licenses, reset the CMS, restart the CMS, upload SecureWatch package, upgrade the CMS, manage software versions. <p>Note: Lists of users in the CLI (such as <code>request system</code> <code>logout user</code>) show two entries for each user. One entry has the username and one has the user's session number, but the login address for both entries is the same. In a user list, an asterisk (*) next to a user indicates</p>

CLI Area	Tasks Available
	that it is you.
<pre>set [tab_options]</pre>	<p>Configure how you interact with the CLI itself using the following commands:</p> <ul style="list-style-type: none"> • <code>autowizard [false true]</code> – Enable or disable automatically asking for mandatory information if it is missing in a command. • <code>complete-on-space [false true]</code> – Enable or disable completing a command on space as well as tab. • <code>display-level <level></code> – Configure the display level for the show command. • <code>history <size></code> – Configure how many commands are stored in history. • <code>idle-timeout <minutes></code> – Configure how long a user must be idle before they are automatically logged out. • <code>ignore-leading-space [false true]</code> – Enable or disable ignoring leading white spaces in commands. • <code>output file <filename/terminal></code> – Copy terminal output to a specified file name or terminal. • <code>paginate [false true]</code> – Enable or disable paginating output from commands. • <code>prompt1 <prompt></code> – Set a different prompt for Operational Mode. • <code>prompt2 <prompt></code> – Set a different prompt for Configuration Mode. • <code>screen length <length> width <width></code> – Configure the height and width of the CLI screen. • <code>show defaults [false true]</code> – Enable or disable showing configuration using default values alongside configuration using edited values. • <code>terminal [generic xterm vt100 ansi linux]</code> – Set the terminal type.

CLI Area	Tasks Available
<p><code>show [tab_options]</code></p>	<p>Make system level requests in one of the following areas:</p> <ul style="list-style-type: none"> • <code>alarms [tab_options]</code> – View the full alarm list or use tab options to view specific information. • <code>analytics [tab_options]</code> – View information on the SSL certificate used for the connection to analytics servers. • <code>clusters [tab_options]</code> – View all Clusters or use tab options to view a specific Cluster. • <code>configuration [tab_options]</code> – View the configured settings for the full CMS or use tab options to view a specific area (e.g. the settings for a specific Protection Profile, a specific device, SNMP configuration etc) • <code>debug [tab_options]</code> – View the number of pending commits to devices. • <code>devices [tab_options]</code> – View current status information about all devices or use tab options to view a specific device. • <code>policy [tab_options]</code> – View information about all Policy options or use tab options to view a specific Protection Profile or Address Group. • <code>rtbh [tab_options]</code> – View the current status of Remote Trigger Black Hole (RTBH) feature. • <code>rules [tab_options]</code> – View information about all rules or use tab options to view information on a specific rule. • <code>segments [tab_options]</code> – View the status of all Segments or use tab options to view a specific segment. • <code>snapshots [tab_options]</code> – View a table of all Snapshots or use tab options to view information on a specific tab option. • <code>statistics [tab_options]</code> – View statistics on all devices or use the tab options to filter first by all, Cluster, device, or Segment and then by the type of statistics you require. • <code>system [tab_options]</code> – View all system information or use tab options to view a specific area (e.g. CMS software versions, system status, vNTD licenses etc)

CLI Area	Tasks Available
	<ul style="list-style-type: none"> • <code>threat-awareness [tab_options]</code> – View the status of Threat Awareness rules by indicating if they are enabled (true) or disabled (false). Use the tab options to narrow down the information by all, cluster or device, and then by a specific rule. • <code>users [tab_options]</code> – View a list of all CMS users currently logged in, including their IP, access method, and log in time. <p>Note: Lists of users in the CLI (such as request system logout user) show two entries for each user. One entry has the username and one has the user's session number, but the login address for both entries is the same. In a user list, an asterisk (*) next to a user indicates that it is you.</p>
<code>top [tab_options]</code>	Exit to top level of Operational Mode or use tab options below to run an Operational Mode command before exiting to top level.

Configuration mode command areas

CLI Area	Tasks Available
<code>clear history</code>	Clear history of previous commands
<code>commit</code>	Commit all outstanding configuration changes. The changes are pushed to relevant devices.

CLI Area	Tasks Available
<code>delete [tab_options]</code>	<p>Delete configuration items from the following areas:</p> <p>Note: Deleting a setting returns the setting to its default value.</p> <ul style="list-style-type: none"> • <code>aaa [tab_options]</code> – Delete configuration from the user management area e.g. local user accounts, external user configuration (LDAP and RADIUS), authentication order and web timeout settings. • <code>alarms</code> – Area not available for this level. • <code>analytics [tab_options]</code> – Delete analytics/syslog servers and delete Address Groups from the IP reporting list. • <code>clusters cluster <clusterName> [tab_options]</code> – Delete a Cluster or use tab options to remove Cluster configuration. • <code>debug</code> – Area not available for this level. • <code>devices [tab_options]</code> – Delete a device, an Authentication Group, an Operating Mode override entry, old device software versions, and device configuration settings. • <code>no-confirm [tab_options]</code> – Provides the same command options as the full delete tree but will never require you to confirm before deleting the parameter. • <code>policy [tab_options]</code> – Delete an Address Group or a Protection Profile, or use the <code>protection-profile <profileName></code> tab options to delete parameters from within a specified Protection Profile e.g. Flex-Rule filters, Source Control entries etc. • <code>rtbh [tab_options]</code> – Delete Remote Trigger Black Hole (RTBH) configuration e.g. DIP thresholds, BGP configuration parameters. • <code>segments segment <deviceName> <segmentID> [tab_options]</code> – Delete Link State Propagation (LSP) configuration from segment. • <code>ssh [tab_options]</code> – Delete stored SSH keys and configuration. • <code>system [tab_options]</code> – Delete SNMP configuration and delete SecureWatch configuration.

CLI Area	Tasks Available
<code>edit [tab_options]</code>	<p>Target one of the following areas for editing. Once you've targeted an area, you can use the configuration mode commands to <code>set</code> or <code>delete</code> options only in that area. Use the <code>exit</code> command to return to the top level.</p> <ul style="list-style-type: none"> • <code>aaa [tab_options]</code> – Edit the user authentication area or use tab options to target a specific part of the aaa area for editing. • <code>alarms</code> – Area not available for this level. • <code>analytics [tab_options]</code> – Edit analytics settings or use tab options to target a specific part of the analytics area for editing. • <code>clusters [tab_options]</code> – Edit a specific cluster. • <code>debug</code> – Area not available for this level. • <code>devices [tab_options]</code> – Edit a specific device or specific part of the devices area e.g. an authentication group, device software versions, operating modes etc. • <code>policy [tab_options]</code> – Edit a specific Protection Profile or Address Group. Alternatively, use further tab options to edit a specific area of a specified Protection Profile e.g. the filters on a specific Flex-Rule. • <code>rtbh [tab_options]</code> – Edit Remote Trigger Black Hole (RTBH) configuration or use tab options to target a specific part of rtbh area for editing. • <code>segments [tab_options]</code> – Edit a specific segment. • <code>ssh [tab_options]</code> – Edit SSH configuration. • <code>system [tab_options]</code> – Edit both SNMP and SecureWatch configuration or use tab options to edit one area.
<code>exit</code>	Exit from this level. If you're already at the top level, exit Configuration Mode and return to Operational Mode. If you have uncommitted changes, you must confirm you want to discard those changes or remain in Configuration Mode and commit those changes before exiting.
<code>help <command></code>	Display help information about the command

CLI Area	Tasks Available
insert <i>[tab_options]</i>	<p>Note: There are other tab options visible, but they are not available for this level.</p> <p>Insert a Flex-Rule filter into the filter list on a Flex-Rule.</p> <pre>policy protection-profile <profileName> flex-rule blocking <flex-rule> filter <newFilterName></pre> <p>Once you enter the new filter name, you need to specify the location for the new filter.</p> <ul style="list-style-type: none"> • after <filterName> • before <filterName> • first • last <p>The autowizard then prompts you to provide a BPF definition for the new filter.</p>
move <i>[tab_options]</i>	<p>Note: There are other tab options visible, but they are not available for this level.</p> <p>Reorder the filter list on a Flex-Rule.</p> <pre>policy protection-profile <profileName> flex-rule blocking <flex-rule> filter <filterName></pre> <p>Once you specify the filter, you need to specify the location for the filter.</p> <ul style="list-style-type: none"> • after <filterName> • before <filterName> • first • last
quit	<p>Exit from this level. If you're already at the top level, exit Configuration Mode and return to Operational Mode. If you have uncommitted changes, you must confirm you want to discard those changes or remain in Configuration Mode and commit those changes before exiting.</p>

CLI Area	Tasks Available
<code>request [tab_options]</code>	<p>Make system level commands in the following areas. Commonly, this includes renaming parameters, managing system level requests requiring importing or exporting of files, and device actions:</p> <ul style="list-style-type: none"> • <code>aaa [tab_options]</code> – Area not available for this level. • <code>alarms [tab_options]</code> – Use the tab options to filter, purge or compress alarms, or use the <code>alarm-list</code> option to select a specific alarm. • <code>analytics [tab_options]</code> – Rename analytics/syslog servers, upload a new SSL certificate for the connection to the analytics servers, or push the CMS configuration to SWA. • <code>clusters cluster <clusterName> rename name <newName></code> – rename a cluster • <code>debug</code> – Area not available for this level. • <code>devices [tab_options]</code> – Request device actions (e.g. sync device, ping device, restart device etc), rename an authentication group, manage device software packages. • <code>file-copy [tab_options]</code> – Download diagnostic files from the CMS or a specified device. • <code>log [tab_options]</code> – View the system or audit logs, using tab options to view specific information if needed. • <code>policy [tab_options]</code> – Perform policy rename and import actions including: import an address group or a protection profile, rename, clone or export a protection profile, rename an address group, rename source control entries, rename inspection control override entries, rename flex-rule filters, rename flex-rule IP tables. • <code>rtbh [tab_options]</code> – Manage the black hole address list and test announce/withdraw REST API calls. • <code>snapshots [tab_options]</code> – Create, import and manage existing Snapshots. • <code>statistics [tab_options]</code> – Clear all rule counters or clear counters for a specific rule.

CLI Area	Tasks Available
	<ul style="list-style-type: none"> <code>system [tab_options]</code> – Perform CMS system operations, including: manage support account access, import https certificates for Web UI and REST interfaces, manage vNTD licenses, reset the CMS, restart the CMS, upload SecureWatch package, manage SNMP v3 users and trap destinations, upgrade the CMS, manage software versions.
<code>revert</code>	Revert all uncommitted changes. Use <code>revert no confirm</code> to skip the confirmation question and revert immediately.
<code>run [tab_options]</code>	<p>Run an Operational Model level command in one of the following areas:</p> <ul style="list-style-type: none"> <code>clear history</code> – Clear history of previous commands. <code>help</code> – Display help information about the command. <code>id</code> – Show the ID information for the current user. <code>request [tab_options]</code> – Run a command from the Operational Mode request area. <code>set [tab_options]</code> – Run a command from the Operational Mode set area. <code>show [tab_options]</code> – Run a command from the Operational Mode show area.

CLI Area	Tasks Available
<p><code>set [tab_options]</code></p>	<p>Set a parameter in one of the following areas to create or edit configuration:</p> <ul style="list-style-type: none"> • <code>aaa [tab_options]</code> – Create or edit local users or external user configuration (LDAP or RADIUS). • <code>alarms</code> – Area not available for this level. • <code>analytics [tab_options]</code> – Add or edit analytics/syslog servers and add Address Groups to the IP Reporting list. • <code>clusters [tab_options]</code> – Create or edit a Cluster. • <code>debug</code> – Area not available for this level. • <code>devices [tab_options]</code> – Add devices or edit device details, add or edit Authentication Groups, manage Operating Modes, manage device software versions. • <code>policy [tab_options]</code> – Create or edit Protection Profiles including defense Policy configuration store by that Protection Profile (e.g. add a Flex-Rule filter, configure a Smart-Rule, edit a Source Control entry). Additionally, create or edit Address Groups. • <code>rtbh [tab_options]</code> – Manage Remote Trigger Black Hole (RTBH) configuration including: setting up BGP configuration, REST API calls, and DIP thresholds. • <code>segments [tab_options]</code> – Connect a Segment to an External Bypass device, enable/disable Link State Propagation (LSP), or edit a Segment's name or description. • <code>ssh [tab_options]</code> – Set private SSH keys and host key verification • <code>system [tab_options]</code> – Configure SNMP settings for the CMS (the securewatch area is not available for this level).

CLI Area	Tasks Available
<code>show [tab_options]</code>	<p>Show a piece of configuration. You can view all the configuration in one of the following areas or use the tab options to narrow down the results:</p> <ul style="list-style-type: none"> • <code>aaa [tab_options]</code> – Show all user configuration or use tab options to view a specific area. • <code>alarms</code> – Area not available for this level. • <code>analytics [tab_options]</code> – Show all analytics and syslog configuration or use tab options to view a specific area. • <code>clusters [tab_options]</code> – Show all Clusters or use tab options to view a specific Cluster. • <code>debug</code> – Area not available for this level. • <code>devices [tab_options]</code> – Show all device configuration or use tab options to view a specific device or area (e.g. Operating Modes, Authentication Groups, device software versions etc). • <code>policy [tab_options]</code> – Show all Policy configuration or use tab options to view a specific Protection Profile or Address Group. • <code>rtbh [tab_options]</code> – Show all Remote Trigger Black Hole (RTBH) configuration or use tab options to view a specific area. • <code>segments [tab_options]</code> – Show all Segment configuration or use tab options to view a specific Segment. • <code>ssh [tab_options]</code> – Show all SSH configuration or use tab options to view a specific area. • <code>statistics</code> – Area not available for this level. • <code>system [tab_options]</code> – Show all SNMP and SecureWatch configuration or use tab options to view a specific area.
<code>status</code>	Shows the user details for the current user
<code>top [tab_options]</code>	Exit to top level of Configuration Mode or use tab options to run a Configuration Mode command before exiting to top level.
<code>validate</code>	Validate the current configuration to confirm it will commit without errors

pCLI Overview

The Provisioning Command Line Interface (pCLI) provides the initial interface for configuring SmartWall components. Once you use the setup wizard to configure the application, you can usually perform all other tasks in the corresponding web interfaces. You can return to the pCLI if you need to edit these basic configuration settings later.

Note: The NTD120 specific commands can be found [here](#).

Accessing the pCLI

You can access the pCLI using a terminal emulator (e.g. Putty) and an SSH connection.

- For all other devices and application, use the following command:

```
ssh -p 2222 <adminUser>@<deviceIP>
```

When the pCLI opens, you must log in with the corresponding password for your admin user credentials. The default username/password is admin/smartwall.

Tip: For virtual editions, you can also access the pCLI by opening the console window for that application.

Using the pCLI

You can use commands to access various wizards which enable you to setup or edit your device/application. For example, `setup network` opens a wizard for setting up your device's network settings like IP address or DNS connection.

Note: The pCLI has an auto-complete function which can help you select a command. Tab to the correct option and press Enter to use that command. To view a full list of possible commands, type `help`.

Once you've completed a wizard, you have three options: to `[A]ccept` changes, `[C]hange`, or `[E]xit` without saving. Type the highlighted letter for the option you want to select.

Note: [If you are using the NTD120, specific support can be found here.](#)

pCLI Commands

There is a pCLI available for the majority of SmartWall products: CMS, SWA, all Defense devices and the NBA (external Bypass device). There are commands which are available in all pCLIs. There are also commands which are unique to specific devices or applications.

Commands available for all applications

pCLI Command	Tasks Available
<code>debug ntpq</code>	Query the NTP daemon.
<code>exit</code>	Log out and close SSH session
<code>help</code>	Show a list of possible pCLI commands

pCLI Command	Tasks Available
quit	Log out and close SSH session
nslookup <dnsName>	Perform a DNS lookup for a specified name. Use Ctrl-C to return to the top level.
packet-dump mgmt	Perform a packet dump (network trace) on the management interface. You may need to analyze packet traffic on the management network when troubleshooting network issues. Use Ctrl-C to return to the top level.
ping <ipAddress>	Perform a network ping to a specified target. This can be used to test connection to a SWA application or connected devices.
reboot	<p>Reboot the application. Following confirmation, you will be logged out of the pCLI and the application will restart.</p> <p>Caution: Route traffic away from devices before rebooting as this can cause link flaps. Defense devices with external Bypass devices will not create a link flap.</p>
setup	Begin the full setup wizard for the application. For example, in a vCMS pCLI, this includes aaa, network, DNS, and time settings.
setup aaa	<p>Setup the authentication configuration. This enables you to change the admin username and password.</p> <p>Caution: Changing the Admin user's username or password will delete all local users created in the application. You can change the Admin user's password using the GUI without affecting the other accounts.</p>
setup dns	Setup the DNS configuration. This enables you to configure the connection to DNS servers and edit the hostname.
setup ip-filter	Enable IP filtering for this application and manage a list of permitted IP addresses who can access the application over the management interface. You can [I]nsert a new IP or [D]elete an existing IP.
setup network	Setup the network configuration for the management interface. This enables you to choose to use DHCP or enter static IP, mask and gateway addresses. You can also configure MTU size. For devices with a secondary interface, you also have the option to enable and configure this in the same way.

pCLI Command	Tasks Available
setup routes	Setup static routing. You can [I]nsert a new route or [D]elete an existing route
setup time	Setup the time configuration. This includes configuring NTP and the local timezone.
show	Show the current network interface configuration and, for vCMS and vSWA, SecureWatch status.
show app-log	View the application log. Use Ctrl-C to return to the top level.
show arp	Show the ARP cache. Use Ctrl-C to return to the top level.
show audit-log	View the CLI audit log. Use Ctrl-C to return to the top level.
show dns	Show the DNS configuration.
show hwclock	Show the current hardware clock time. Note: For virtual applications, this shows the emulated hardware clock time.
show interface	Show the current network interface status.
show netstat	Show the current network connections.
show routes	Show the routing table.
show system-log	View the system log. Use Ctrl-C to return to the top level.
show time	Show the current system time.
show uptime	show uptime – Show the current system uptime.
show version	Show version information. This includes the system UUID, application type, application version, and SXOS version.
shutdown	Shutdown the application. Following confirmation, you will be logged out of the pCLI and the application will shutdown. Caution: Route traffic away from devices before shutting down as this can cause link flaps. Defense devices with external Bypass devices will not create a link flap.

pCLI Command	Tasks Available
support-account disable	Disable the Corero support account. No confirmation is shown unless it is already disabled; then you will see an error.
support-account enable <token>	Enable the Corero support account. Optionally, you can supply the token used to access the account. To generate a random token, leave blank. No confirmation is shown unless it is already disabled; then you will see an error.
support-account status	View the current Corero support account status.
tail app-log	Tail the application log. Use Ctrl-C to return to the top level.
tail audit-log	Tail the CLI audit log. Use Ctrl-C to return to the top level.
tail system-log	Tail the system log. Use Ctrl-C to return to the top level.
time hwclock-sync	Change the hardware clock to match the system time. Note: For virtual applications, this syncs the emulated hardware clock.
time ntp-sync	Synchronize system clock with NTP server. Only successful if you have configured an NTP server for this application (see <code>setup time</code>).
traceroute <ipAddress>	Perform a network traceroute on a specified target. Use Ctrl-C to return to the top level.

CMS: Additional commands

pCLI Command	Tasks Available
app-cli	Launch the application CLI. Type <code>exit</code> to return to the pCLI.
package-install <url>	Install a package from the specified URL (SFTP, FTP, HTTP or HTTPS supported). If the package is verified, it is installed immediately after upload.

pCLI Command	Tasks Available
package-install base64	Install a package from base64-encoded value. Paste the base64 encoded value then press Ctrl-D to complete. If the package is verified, it is immediately installed.
packet-dump secondary	Packet dump on secondary interface. Only available when you have the secondary interface configured (see: <code>setup network</code>). You may need to analyze packet traffic on the secondary network when troubleshooting network issues. Use Ctrl-C to stop and return to the top level.
securewatch disable	Disable the SecureWatch service connection. This command only completes if you have a SecureWatch package installed.
securewatch enable	Enable the SecureWatch service connection. This command only completes if you have a SecureWatch package installed.
setup securewatch	Setup the SecureWatch Proxy configuration. This enables you to use a proxy to connect to SecureWatch over the VPN connection.
show pcli- log	View the pCLI log. Use Ctrl-C to return to the top level.
show securewatch	Show the current SecureWatch status. Use Ctrl-C to return to the top level.
show vpn-log	View the SecureWatch VPN log. Use Ctrl-C to return to the top level. Note: The VPN log is only available once a SecureWatch package is installed.
tail pcli- log	Tail the pCLI log. Use Ctrl-C to return to the top level.
tail vpn-log	Tail the SecureWatch VPN log. Use Ctrl-C to return to the top level. Note: The VPN log is only available once a SecureWatch package is installed.

SWA: Additional commands

pCLI Command	Tasks Available
file-copy diagnostics- package <url>	Download a diagnostic package from the SWA to a specified URL.

pCLI Command	Tasks Available
package-install <url>	Install a package from the specified URL (SFTP, FTP, HTTP or HTTPS supported). If the package is verified, it is installed immediately after upload.
package-install base64	Install a package from base64-encoded value. Paste the base64 encoded value then press Ctrl-D to complete. If the package is verified, it is immediately installed.
packet-dump secondary	Packet dump on secondary interface. Only available when you have the secondary interface configured (see: <code>setup network</code>). You may need to analyze packet traffic on the secondary network when troubleshooting network issues. Use Ctrl-C to stop and return to the top level.
securewatch disable	Disable the SecureWatch service connection. This command only completes if you have a SecureWatch package installed.
securewatch enable	Enable the SecureWatch service connection. This command only completes if you have a SecureWatch package installed.
setup data-disk	Setup the data disk configuration. You must have at least 1GB unpartitioned free space on the disk to complete this operation.
setup http-proxy	Setup the SWA HTTP Proxy configuration. This enables you to access the analytics server using an HTTP proxy.
setup index	Reconfigure the index sizes with respect to overall disk size.
setup securewatch	Setup the SecureWatch Proxy configuration. This enables you to use a proxy to connect to SecureWatch over the VPN connection.
setup service-portal	Setup the service portal connection and enable sending data from SWA.
show data-disk	Show the data disk configuration.
show index	Show the index configuration.
show pcli-log	View the pCLI log. Use Ctrl-C to return to the top level.
show securewatch	Show the current SecureWatch status. Use Ctrl-C to return to the top level.

pCLI Command	Tasks Available
show vpn-log	<p>View the SecureWatch VPN log. Use Ctrl-C to return to the top level.</p> <p>Note: The VPN log is only available once a SecureWatch package is installed.</p>
ssl-certificates forwarder <URI>	<p>Upload and install SWA Forwarder SSL certificates in PKCS#12 format from specified URI. If the certificate is verified, it is installed immediately after upload.</p>
ssl-certificates https <URI>	<p>Upload and install SWA HTTPS SSL certificate in PKCS#12 format from specified URI. If the certificate is verified, it is installed immediately after upload.</p>
tail pcli-log	<p>Tail the pCLI log. Use Ctrl-C to return to the top level.</p> <p>Note: The VPN log is only available once a SecureWatch package is installed.</p>
tail vpn-log	<p>Tail the SecureWatch VPN log. Use Ctrl-C to return to the top level.</p>

vNTD: Additional commands

pCLI Command	Tasks Available
day0 reload	Reload day0 configuration. Only available when there is configuration in day0cfg file.
day0 show	Show day0 configuration. Only available when there is configuration in day0cfg file.
reset-config	Reset application configuration.
show nic	Show NIC information.
watchdog enable	Enable the watchdog.
watchdog disable	Disable the watchdog.
watchdog status	Show the current status of the watchdog.

NTD1100 and NTD280: Additional commands

pCLI Command	Tasks Available
day0 reload	Reload day0 configuration. Only available when there is configuration in day0cfg file.
day0 show	Show day0 configuration. Only available when there is configuration in day0cfg file.
reset-config	Reset application configuration.
show modules	Show module information.
show nic	Show NIC information.
watchdog enable	Enable the watchdog.
watchdog disable	Disable the watchdog.
watchdog status	Show the current status of the watchdog.

NBA: Additional commands

pCLI Command	Tasks Available
bypass-tools	Invoke bypass tools utility. Caution: Always consult your Corero representative before changing these settings.
psoc	Invoke the PSOC utility to complete high level device tasks. Caution: Always consult your Corero representative before changing these settings.
reg-tools	Invoke reg tools utility. Caution: Always consult your Corero representative before changing these settings.
reset-config	Reset application configuration.
restart-port port <number>	Restart a specified port.
reset-port-stats [port <number>]	Reset port statistics for all ports or a specified port.
show console-log	View the console log. Use Ctrl-C to return to the top level.
show port-all [port <number>]	Show all port information for all ports or a specified port.
show port-diags [port <number>]	Show port diagnostics for all ports or a specified port.
show port-sfp [port <number>]	Show port sfp info for all ports or a specified port.
show port-stats [port <number>] [detail]	Show port statistics for all ports or a specified port. You can also append the command with detail to include additional information.
show port-status [port <number>]	Show port status for all ports or a specified port.
show power	Show the current bypass power status.

pCLI Command	Tasks Available
show state	Show the current bypass state.
show status	Show the current bypass status.
tail console-log	Tail the console log. Use Ctrl-C to return to the top level.

CMS REST API Overview

As well as being able to edit Policies through the Web UI and CLI, you can edit some features using the SmartWall Central Management Server REST API. You can access online documentation for the REST API in your browser.

Using the REST API

You can use any tool, that enables you to send http requests to a URL, to interact with the CMS REST API. For example, cURL, the UNIX/Linux command line tool, or Postman, the REST client for Google Chrome. You can also send individual requests using the Swagger REST API documentation web interface. Unlike the CMS Web UI, the REST APIs are single transactions that apply their own commit.

Versions

When a new version of the API is released the old version will be supported at least for the next release. This current version of the REST API is **v8**. Version 5 is still supported.

Available operations

The CMS REST API supports the following HTML operations:

- **GET** – Retrieves and displays information about a known resource or list of resources.
- **PUT** – Creates new resources or replaces existing ones. Any fields that are not specified in the method body will be set to the default, if a default is defined, or set to an empty value.
- **DELETE** – Removes a known resource.
- **PATCH** – Allows the modification of an existing resource. Any fields not specified in the method body will remain unchanged.
- **POST** –Requests actions.

Tip: You can use the REST API to bulk add or bulk delete objects. For example, you could delete multiple Address Groups in one operation.

You can use these methods to perform operations in the following areas:

- Authentication
- BGP Authentication
- Network
- Policy
- Smart-Plugins
- System Analytics

HTML return codes

The CMS REST API supports the following HTML return codes:

Code	Message	Description
200	OK	Your request was completed successfully, and a response is returned.
201	Created	Your requested resource was created. The new resource URI is returned in the "Location" header.
202	Accepted	Your request was accepted but has not been executed (and may not be executed).
204	No Content	Your request was completed successfully but there is no response to return.
400	Bad Request	Your request could not be processed because it contains missing or invalid information (for example a validation error on an input field or a missing required value).
403	Forbidden	You cannot access this resource with the credentials given.
404	Not Found	The resource you requested does not exist.
408	Request Timeout	The request took too long to complete and was rejected by the server.
409	Conflict	The resource you are trying to create already exists.
412	Precondition Failed	The server has failed one of the preconditions of the request.
423	Locked	The resource you are trying to access has been locked.
422	Unprocessable Entity	Unable to process the request because of semantic errors.
500	Generic Server Error	There is an internal server error which has prevented your request being processed.
501	Not Implemented	The server does not recognize the request, most likely because this is a new API operation which has not yet been implemented.

Tip: After you send a request, if you see the HTTP return code "204 No Content", that doesn't mean your request has failed just that the CMS does not have anything to return after success.

Also, when you're performing operations from Swagger, the 404 message "Ancestor instance does not exist" usually means the Protection Profile name you provided does not exist.

Accessing the REST API documentation

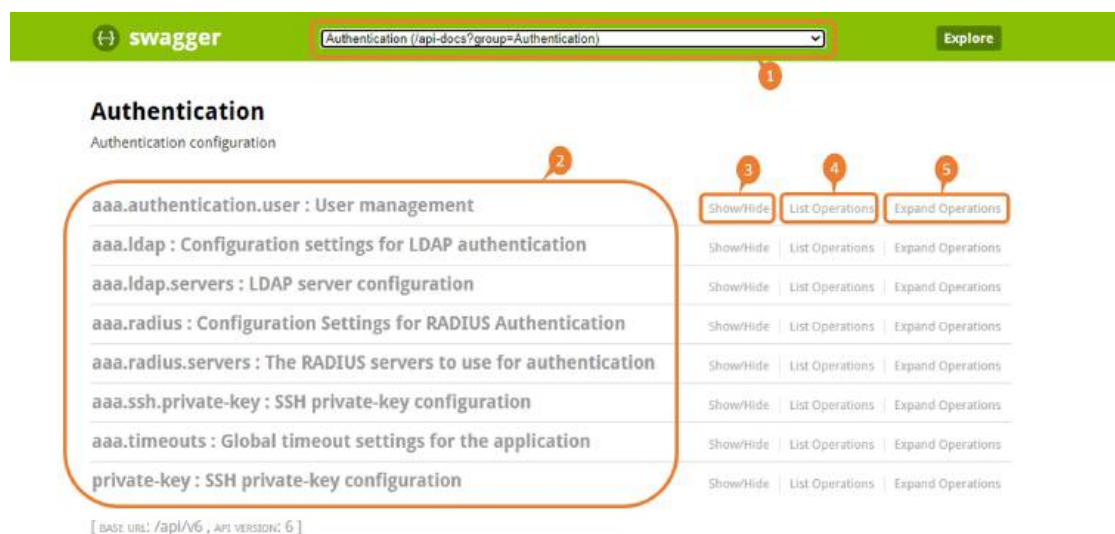
To access the current version of the REST API

1. Open a browser.
2. Type the following URL: **https://<cmsIPaddress>/api**
3. Log in with your CMS user credentials.
4. The Swagger web interface for the current version of the CMS REST API opens. You can see the version number in the URL.

To access other versions of the REST API

1. Open a browser.
2. Type the following URL: **https://<cmsIPaddress>/api/<versionNumber>/swagger-ui.html**. Replacing <versionNumber> with the version number you need to access, e.g. **v4**.
3. Log in with your CMS user credentials.
4. The Swagger web interface for that version of the CMS REST API opens. You can see the version number in the URL.

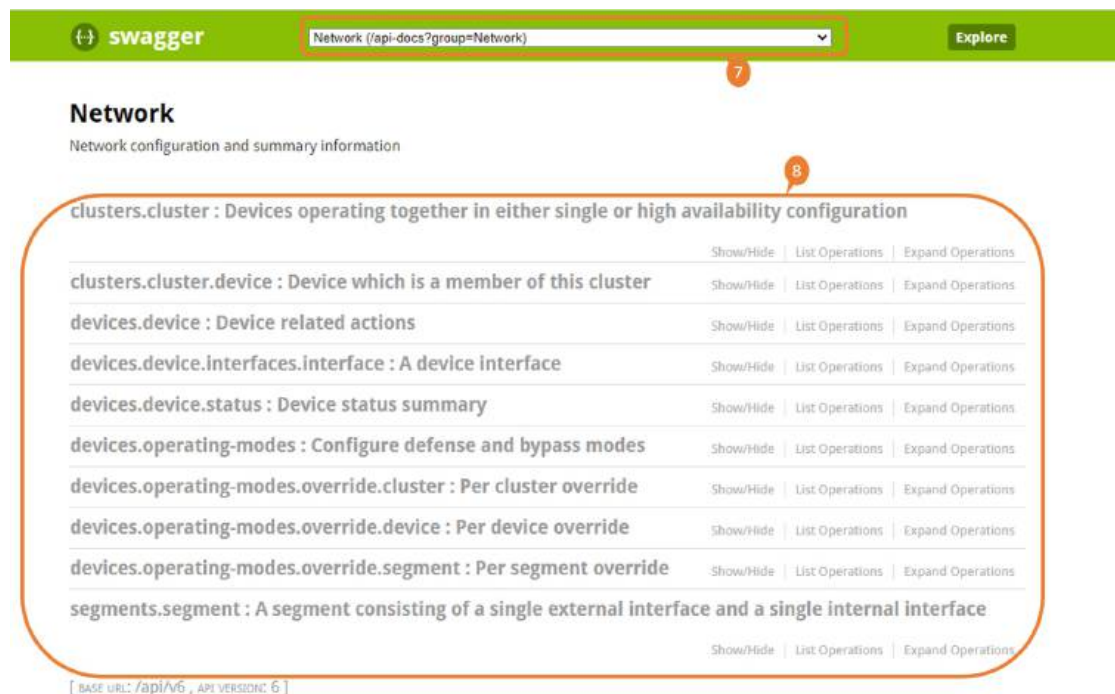
Using the Swagger web interface



When you first open the Swagger web interface, you will be presented with the first group of categories, **Authentication**. Use the drop-down, **(1)**, at the top of the screen to navigate between groups. Each group has a list

of categories (2), in this case the Authentication categories are displayed. The Show/Hide, (3), option will contract and expand the available operations. The List Operations, (4), will show the available operations for the category. The Expand Operations, (5), shows the full swagger detail for the operation.

All of the groups are available in the drop down menu . Select the line for your required group. In this case Network has been selected, (7).




Network
Network configuration and summary information

clusters.cluster : Devices operating together in either single or high availability configuration

Endpoint	Show/Hide	List Operations	Expand Operations
clusters.cluster.device : Device which is a member of this cluster	Show/Hide	List Operations	Expand Operations
devices.device : Device related actions	Show/Hide	List Operations	Expand Operations
devices.device.interfaces.interface : A device interface	Show/Hide	List Operations	Expand Operations
devices.device.status : Device status summary	Show/Hide	List Operations	Expand Operations
devices.operating-modes : Configure defense and bypass modes	Show/Hide	List Operations	Expand Operations
devices.operating-modes.override.cluster : Per cluster override	Show/Hide	List Operations	Expand Operations
devices.operating-modes.override.device : Per device override	Show/Hide	List Operations	Expand Operations
devices.operating-modes.override.segment : Per segment override	Show/Hide	List Operations	Expand Operations
segments.segment : A segment consisting of a single external interface and a single internal interface	Show/Hide	List Operations	Expand Operations

[BASE URL: /api/v6 , API VERSION: 6]

The available categories are then listed, (8). The options on the right hand side allow access to the Swagger statements. Clicking on the List Operations will show the operations that are available for Devices operating together in either single or high availability configuration. By clicking on the operation or Expand Operations will expand to view the API model or models, (10).


Network (/api-docs?group=Network)
Explore

Network

Network configuration and summary information

clusters.cluster : Devices operating together in either single or high availability configuration 10

DELETE /clusters/cluster delete

Parameters

Parameter	Value	Description	Parameter Type	Data Type
body	(required)	body	body	Model

Parameter content type: application/json

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	OK		
204	No Content		
401	Unauthorized		
403	Forbidden		

Try it out!

GET /clusters/cluster list

PATCH /clusters/cluster patchList

DELETE /clusters/cluster/{cluster.name} delete

By adding any required parameters, you can click on Try it out! and operation will be run, showing the response message.

Caution: Click on Try it out! will run the operation on your system. There is no sandbox to openly practice with.

Tips for using Swagger to perform operations:

- For operations where you require a body, click the Example Value to the right of the body field to populate the body field with the example text. You can then replace the placeholder strings with your own values. This ensures the body is formatted correctly.
- Swagger does not stop you entering invalid values in parameters (for example, a string value in a field expecting a number value, like a Smart-Rule Threshold). You will see an error when you perform the operation.
- Once you perform an operation, you will also see a cURL example of the same command.
- If the response body contains a long message, it can be truncated. To see the full message, run the same operation in cURL.
- When Swagger displays large numbers (for example, rule thresholds) they may appear rounded. This issue does not affect the CMS configuration.

- When making a large number of changes quickly via REST, you can customize the timeout for the device commit by specifying an additional header in the request: `Device-Commit-Timeout`. The value should be a uint32, i.e. (0..4294967295) and represents the timeout in milliseconds. If not provided this defaults to 60000 (1 minute).

REST API Examples

The following sections show examples of how to use the REST API in two different REST clients.

Operational examples

Using the Put and Patch commands

Programmable Flex-Rule are reserved for use with integrated systems able to send REST API calls to add or update Flex-Rule Filters as needed by analyzing your incoming attack traffic. To do this, you need to first configure a Programmable Flex-Rule and then you can send operations that add filters to that rule.

Configuring a Programmable Flex-Rule with a packet rate threshold the PUT command is used:

```
curl -k -u admin:smartwall -X PUT --header 'Content-Type: application/json' --header 'Accept: */*' -d '{ \
  "bitRate": { \
    "adminState": "disabled", \
    "rateLimit": 0, \
    "threshold": 0 \
  }, \
  "name": "string", \
  "packetRate": { \
    "adminState": "enabled", \
    "rateLimit": 0, \
    "threshold": 100000 \
  }, \
  "ruleAction": "block" \
}' 'https://10.10.147.210/api/v6/policy/protection-profile/default/flex-rule-blocking/programmable/cns-002501'
```

With the Programmable Flex-Rule now setup a filter can be applied:

```
curl -k -u admin:smartwall -X PUT --header 'Content-Type: application/json' --header 'Accept: */*' -d '{ \
  "adminState": "enabled", \
  "definition": "tcp and dst port 80" \
}' 'https://10.10.147.210/api/v6/policy/protection-profile/default/flex-rule-blocking/programmable/cns-002501/filter/http_filter'
```

To change the filter you can either redefine the whole filter with the new information (PUT) or edit the required field or fields using the PATCH command. In this example we have changed the 'adminstate' to disabled:

```
curl -k -u admin:smartwall -X PATCH --header 'Content-Type: application/json' --header
'Accept: */*' -d '{ \
  "adminState": "enabled", \
}' 'https://10.10.147.210/api/v6/policy/protection-profile/default/flex-rule-
blocking/programmable/cns-002501/filter/http_filter'
```

The PUT command will either create a new resource or replace an existing one. The PATCH command allows the user to edit one or more fields within the resource without replacing it.

Deleting objects from a list

When there is a possible list of objects, you will have two different Delete operations available. One for deleting a single object, and one for deleting multiple objects. For example, in the Swagger documentation:

- **DELETE** – The bulk/multiple delete enables you to write a json list containing all the objects you need to delete. The objects separated by a comma between curly brackets.

```
curl -X DELETE --header 'Content-Type: application/json' --header 'Accept: */*' -d '{ \
  "items": [ \
    { \
      "address": "192.168.1.1" \
    }, \
    { \
      "address": "192.168.1.2" \
    } \
  ] \
}' 'https://10.10.144.10/api/v6/policy/protection-profile/default/source-
control/entry/test/source-ip'
```

- **DELETE** – The Delete command can also be used to specify a single object to be deleted, in this case deleting the IPs end point:

```
curl -X DELETE --header 'Accept: application/x-troff-man'
'https://10.10.144.10/api/v6/policy/protection-profile/default/source-
control/entry/test/source-ip/192.168.1.3'
```

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or Partner Support Service support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the JTAC User Guide located at <https://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <https://www.juniper.net/support/warranty/>.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <https://www.juniper.net/customers/support/>
- Search for known bugs: <https://prsearch.juniper.net/>
- Find product documentation: <https://www.juniper.net/documentation/>
- Find solutions and answer questions using our Knowledge Base: <https://kb.juniper.net/>
- Download the latest versions of software and review release notes: <https://corero.force.com/support>
- Search technical bulletins for relevant hardware and software notifications: <https://kb.juniper.net/InfoCenter/>
- Join and participate in the Juniper Networks Community Forum: <https://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <https://apex.juniper.net/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://entitlementsearch.juniper.net/entitlementsearch/>

Creating a Service Request with JTAC

You can create a service request with JTAC on the Web or by telephone.

- Visit <https://apex.juniper.net/>
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see <https://support.juniper.net/support/requesting-support/>.

Requesting Licenses

The system requires a TDD license key, plus keys for each vNTD, to become fully operational. Juniper devices do not require license keys to support the solution. To obtain the keys, please contact the Corero Customer Services team by one of the following methods:

- Email: Support.Portal@corero.com
- Web: <https://corero.force.com/support>
- Telephone: Dial +1.978.212.1500 -> Select Option 2

GLOSSARY

A

Activation Threshold

In Global Threat Awareness, the Activation Threshold is the rate of the new connections (new IP address or TCP setup) which indicates an attack on your system. When the rate crosses that Threshold, the Global Threat Awareness action is triggered.

See Also: [Global Threat Awareness](#), [Exit Threshold](#), [trigger](#)

Address Group

An Address Group is a set of related IP addresses which you can use (and reuse) in multiple Protection Profiles. In addition to its use in Protection Profiles, the Address Group associated with an IP address can be made visible as part of any Security Event or sFlow syslog messages sent to SmartWall SecureWatch Analytics (SWA). This enables you to perform searches aimed at a specific Address Group. If you associate a name with an individual IP address it can also appear in the messages.

See Also: [Policy](#), [attack mitigation feature](#), [syslog message](#)

admin state

The admin state of a feature or object (e.g. Flex-Rule filter, override entry, etc) can be set to:

- **Enabled** – When triggered the feature or object performs as specified
- **Disabled** – The feature or object cannot be triggered

See Also: [trigger](#), [Flex-Rule filter](#), [override entry](#)

Alarm

An Alarm is created when something happens in the SmartWall Threat Defense System which may require your attention. It tells you what has occurred and where in the system. You can view them in the Alarm Center.

See Also: [SmartWall Threat Defense System](#)

analytics

Analytics is the processing and display of information (sFlow, event logs, and syslog messages) from the SmartWall Central Management Server and SmartWall devices. It can be viewed and analyzed in SmartWall SecureWatch Analytics.

See Also: [SmartWall SecureWatch Analytics](#), [SmartWall Central Management Server](#), [SmartWall device sFlow](#), [events](#), [syslog messages](#)

Analytics Server

A server running the SmartWall SecureWatch Analytics application.

See Also: [SmartWall SecureWatch Analytics](#), [Syslog Server](#)

assets

See: protected assets

attack mitigation feature

Attack mitigation feature is a general name for any of the features that make up a Policy.

See Also: [Policy](#)

attack rules

See: [Packet Rules](#)

attack traffic

Attack traffic is external traffic (coming from the internet) which the Policy has determined is untrustworthy.

See Also: [non-attack traffic](#), [Policy](#)

Authentication Group

An Authentication Group manages the authentication credentials which the SmartWall Central Management Server (CMS) uses to connect with the SmartWall devices.

See Also: [SmartWall device](#), [SmartWall Central Management Server](#)

B

Berkeley Packet Filter syntax

The syntax used to create Flex-Rule filter definitions.

See Also: [Flex-Rule filters](#), [Flex-Rules](#)

Block

See: [Rule Action](#)

Breakout cable

The 4x10Gbit bypass cable enables the NTD1100 to connect to its 100Gbit internal link to a 10Gbit internal network, through up to four, 10Gbit links.

See: [Network Threat Defense device](#)

Bypass device

See: [SmartWall Network Bypass Appliance](#)

Bypass Mode

Some SmartWall devices include Bypass capability which directs all traffic to the internal network before it reaches the Defense device's Policy.

See Also: [SmartWall device](#), [Policy](#), [SmartWall Network Threat Defense](#)

C

CLI

The Command Line Interface of the SmartWall Central Management Server

See Also: [Web UI](#), [SmartWall Central Management Server](#)

Cloud Scrubbing

When massive attacks are identified, they can be mitigated by diverting the traffic through a cloud scrubbing service, the attack traffic is removed and any good traffic is returned.

Cluster

A Cluster is a set of identically configured Defense devices. When you create a new Cluster, you must associate it with a Protection Profile; this Protection Profile contains a Policy which controls how the devices in that Cluster respond to traffic. A single SmartWall Central Management Server (CMS) can control up to 16 Clusters. After installation, the CMS initially has a single default Cluster which is associated with the default Protection Profile and default Authentication Group.

See Also: [Protection Profile](#), [SmartWall device](#), [SmartWall Central Management Server](#)

CMS

See: [SmartWall Central Management Server](#)

cns-admin

See: [local user](#)

cns-defense

See: [local user](#)

cns-monitor

See: [local user](#)

commit

When you commit a change in the CLI or Web UI, you save that change and push that change to any affected SmartWall devices.

See Also: [CLI](#), [Web UI](#), [SmartWall device](#)

Connection State

The Connection State of a device provides information on whether the SmartWall Central Management Server and the device are currently connected. This is aggregated with Deployment State in the Devices table, but visible in the CLI and the Software Upgrade screen.

See Also: [SmartWall device](#), [Deployment State](#), [Deployment Action](#), [CLI](#), [SmartWall Central Management Server](#)

D

DDoS Attack

A distributed denial of service (DDoS) attack is an event in which multiple sources assault a destination server with a volume of traffic that overwhelms that server's ability to respond to any traffic at all, making it unavailable to the legitimate traffic for which it is intended. DDoS attacks can take many different forms and exploit a wide variety of protocol behaviors and design features to achieve their goal of making a server unavailable.

Defense device

See: [SmartWall Network Threat Defense device](#)

Defense Mode

The Defense Mode, tells devices how to handle incoming traffic. It can be one of the following modes:

- **Mitigate** – Inspect the traffic and, if it triggers a rule in an attack mitigation feature, honor that rule action (to block, allow, or detect the packet)
- **Monitor** – Inspect the traffic without dropping any packets. If a packet triggers a Rule Action, send a syslog message indicating the Rule Action but do not block any traffic.
- **Pass-through** – Send all traffic to the internal network without inspecting any packets.

Note: There is a Global Defense Mode for the CMS which you can choose to override for specific Clusters, devices, or Segments.

See Also: [SmartWall device](#), [Segment](#)

definition (Flex-Rule filter)

See: [Flex-Rule filter](#)

Deployment Action

The Deployment Action of a device provides information on whether that device is currently performing a system action.

See Also: [SmartWall device](#), [Connection State](#), [Deployment State](#)

Deployment State

The Deployment state of a device provides information on the status of the Policy on the device. This is aggregated with Connection State in the Device Summary table, but visible on its own in the CLI.

See Also: [SmartWall device](#), [Connection State](#), [Deployment Action](#), [CLI](#), [Policy](#)

Destination-Based Threat Awareness

Destination-Based Threat Awareness identifies when the rate of new connections, to a single destination, and uses a Threshold to identify if it has risen to attack levels. It can then drop untrustworthy connections. If the rate of new connections rises to a dangerously high level, it can use a Rate Limit to drop all connections above the specified rate.

See Also: [Threat Awareness](#), [Global Threat Awareness](#), [Threshold](#), [Rate Limit](#)

Detect

See: [Rule Action](#)

device

See: [SmartWall device](#)

E

event

An event is logged when a rule is triggered in a Defense device. A summary of the events are sent to SmartWall SecureWatch Analytics for analysis.

See also: [rule](#), [trigger](#), [syslog message](#), [SmartWall SecureWatch Analytics](#), [SmartWall device](#)

Exit Threshold

In Global Threat Awareness, the Exit Threshold is the rate of the new connections (new IP address or TCP setup) which indicates there is no longer an attack on your system. When that Threshold is passed, if Threat Awareness mode was active, it is disabled.

See Also: [Global Threat Awareness](#), [Activation Threshold](#), [trigger](#)

external user

A SmartWall Central Management Server (CMS) user who is authenticated using external credentials through LDAP. Their LDAP group is mapped to a local CMS user role.

See also: [local user](#), [SmartWall Central Management Server](#)

F

filter

See: [Flex-Rule filter](#)

filter syntax

See: [Berkeley Packet Filter syntax](#)

Flex-Rules

An attack mitigation feature which enables you to define custom filters which can block or detect specific packets. There are three Flex-Rules you can customize using filters; Block-only, Detect-only, and Programmable.

See Also: [Flex-Rule filter](#), [attack mitigation feature](#)

Flex-Rule filter

You can add a Flex-Rule filter to a Flex-Rule to define a packet type which that Flex-Rule will act on. For example, if a packet matches the definition of a filter on the Block-only Flex-Rule, then that packet is blocked.

See Also: [Flex-Rules](#), [Berkeley Packet Filter syntax](#)

force-sync

The action for returning a device to the in-sync state after an error has pushed it out of sync.

See Also: [in-sync](#), [sync](#), [SmartWall device](#), [Deployment State](#)

G

Global Threat Awareness

Global Threat Awareness enables you to set network level Activation and Exit Thresholds for Threat Awareness mode.

See Also: [Threat Awareness](#), [Destination-Based Threat Awareness](#), [Activation Threshold](#), [Exit Threshold](#)

H

Hitless upgrades

A hitless upgrade provides an option to process a small, application, upgrade without stopping the flow of traffic.

See Also: [Upgrades](#)

I

ICMP Smart-Rule

An ICMP Smart-Rule looks for a flood of packets with ICMP error messages.

See Also: [Smart-Rules](#)

in-sync

The Deployment State of a device when the device Policy is up to date with all changes committed in the CMS.

See Also: [sync](#), [force-sync](#), [SmartWall device](#), [Deployment State](#)

Inspect

See: [Inspection Mode](#)

Inspection Control

An attack mitigation feature which enables you to set a default Inspection Mode for traffic going to your destination IP addresses and set exceptions (called override entries) to that mode for specific destination IP addresses, ranges, and subnets.

See Also: [Inspection Mode](#), [attack mitigation feature](#)

Inspection Mode

The Inspection Mode of each override entry tells the Defense device how to handle traffic going to the specified destination IP addresses in that override entry, and the Default Inspection Mode tells the Defense device how to handle everything else not specified in an override entry. It can be one of four modes:

- **Allowed List** – Allow the traffic into the internal network without any further inspection by the attack mitigation features
- **Blocked List** – Drop the traffic without any further inspection by the attack mitigation features
- **Monitor** – Inspect the traffic without dropping any packets. If a packet triggers a Rule Action, send a syslog message indicating the Rule Action but do not block any traffic.
- **Inspect** – (Default) Treat the traffic as specified by the Defense Mode. If the Defense Mode is Pass-through, traffic is never inspected or subjected to Inspection Control.

See Also: [Inspection Control](#)

L

Link State Propagation

When Link State Propagation is enabled, if one interface in a Segment goes down then the other interface is also brought down. This prevents an external interface from continuing to receive traffic after its linked internal interface has gone down.

See Also: [Segment](#)

local user

A SmartWall Central Management Server (CMS) user who is authenticated using local credentials managed by the CMS. They can be assigned one of three CMS user roles:

- **cns-admin** – The administrative role. An admin user can edit all **Policy**, **Network**, and **System** configurations, including managing users.

- **cns-defense** – A non-administrative role which enables its users to edit all **Policy** options but no Network or System administrative settings
- **cns-monitor** – A primarily read-only role which enables its users to view settings without being able to enact any changes (aside from their own password)

See Also: [external user](#), [SmartWall Central Management Server](#)

M

Management Controller

See: [SmartWall Management Controller](#)

Match Rate Limit

Match Rate Limit is the number of packets that need to match a Flex-Rule filter before it triggers the Rule Action.

See Also: [Flex-Rule](#), [Flex-Rule filter](#), [Rule Action](#)

Mitigate

See: [Defense Mode](#)

Monitor

See: [Defense Mode](#), [Inspection Mode](#)

N

NBA

See: [SmartWall Network Bypass Appliance](#)

non-attack traffic

Non-attack traffic is external traffic (coming from the internet) which the Policy has determined is trustworthy.

See Also: [attack traffic](#), [Policy](#)

Notification

In the SmartWall Central Management Server Web UI, notifications inform you of your successful and unsuccessful operations.

See Also: [SmartWall Central Management Server](#)

NTD

See: [SmartWall Network Threat Defense device](#)

NTD1100

The 100Gbit Defense device. Can also be used on a 10Gbit internal network through the connection of a 4x10Gbit Breakout cable.

See: [SmartWall Network Threat Defense device](#) [Breakout cable](#)

NTD1100-ZPB

The 100Gbit Defense device with an integrated zero power bypass.

See: [SmartWall Network Threat Defensedevice](#)

NTD280

A Defense device which can contain multiple 10Gbit modules.

See: [SmartWall Network Threat Defense device](#)

NTD280-ZPB

A Defense device which can contain multiple 10Gbit modules.

See: [SmartWall Network Threat Defensedevice](#)

NTD120

A 10G Defense device.

See: [SmartWall Network Threat Defense device](#)

O

Off-ramp

When traffic is removed from the path described within the original packet.

On-ramp

When traffic is returned back to the path described within the original packet.

Operating Mode

There are two types of Operating Mode: Defense Mode and Bypass Mode. These are set at a global level but can be overridden for specific Clusters, devices, or Segments.

See Also: [SmartWall device](#), [Segment](#), [Cluster](#), [Defense Mode](#), [Bypass Mode](#)

override entry

In Inspection Control, override entries are specified groups of destination IP addresses which you want the Defense device to handle differently to the default Inspection Mode in Inspection Control.

See Also: [Inspection Control](#), [Inspection Mode](#)

P

Packet Rules

A Packet Rule is an attack mitigation feature which checks the incoming packet to see if it has any anomalies that could indicate it is an attack packet, or if it is one of the common reflection attack packet types. There are two types of Packet Rule:

- **attack rules** – Identifies common traffic types used in reflection attacks
- **validation rules** – Looks for a simple anomaly in a packet which indicates that the packet is either corrupted or not trustworthy.

See Also: [attack mitigation feature](#)

Packet Validation Rules

See: [Packet Rules](#)

Pass-through

See: [Defense Mode](#)

pCLI

The Provisioning Command Line Interface is used for initial configuration of the SmartWall components.

See Also: [setup wizard](#)

Policy

A Policy is a configuration of the attack mitigation features which tells the Defense devices how to handle incoming traffic. Each Policy is contained in a Protection Profile.

See Also: [attack mitigation features](#), [Protection Profile](#)

probation interval

The time between an IP address being identified as untrusted by the Defense device and when it can attempt a new connection.

See Also: [untrusted IP address](#)

protected assets

Destination IP addresses whose traffic travels through the SmartWall Threat Defense System before it reaches them.

See Also: [SmartWall Threat Defense System](#)

Protection Profile

A Protection Profile is a container for a configuration of the attack mitigation features known as a Policy.

See Also: [Policy](#), [attack mitigation features](#)

R

Rate Limit

A Rate Limit, in Smart-Rules, is the rate of traffic which is still allowed through after Threshold has been crossed.

A Rate Limit, in Destination-Based Threat Awareness, is the rate of traffic which triggers the Rate Limit Rule Action which can block traffic above the Rate Limit.

See Also: [Smart-Rules](#), [Threshold](#), [Destination-Based Threat Awareness](#), [Rule Action](#)

reachable

When a device is reachable, it can communicate with the CMS.

See Also: [SmartWall device](#), [SmartWall Central Management Server](#)

Reflection Smart-Rule

A Reflection Smart-Rule looks for a flood of packets with the same source port.

See Also: [Smart-Rules](#)

rule

Every attack mitigation feature is generated from a set of rules. It is these rules which a packet can trigger to be blocked or detected by the Defense device.

See Also: [trigger](#), [Rule Action](#), [event](#), [attack mitigation feature](#)

Rule Action

When a rule is triggered it performs a Rule Action. This is usually one of three actions, but some rules have fewer options:

- **Block** – The Defense device blocks all traffic matching the rule definition
- **Detect** – The Defense device inspects all traffic matching the rule definition and sends event syslog messages, but it does not drop the packets
- **Disabled** – The Threshold is disabled, and the matching traffic is not blocked or detected.

See Also: [trigger](#), [rule](#), [event](#)

S

sample packet

See: [sFlow](#)

SecureWatch Service

The Corero service which constantly monitors your Analytics feed, keeps your Policies optimized for your network and responds immediately to an unmitigated attack.

See Also: [Security Operations Center](#)

Security Operations Center

The hub of the Corero SecureWatch Service.

See Also: [SecureWatch Service](#)

Segment

A Segment is a linked external and internal interface defined from a front-panel port pair on a Defense device.

See Also: [SmartWall Network Threat Defense device](#)

Server Smart-Rule

A Server Smart-Rule looks for a flood of packets with the same destination IP address.

See Also: [Smart-Rules](#)

Service Smart-Rule

A Service Smart-Rule looks for a flood of packets with the same destination port.

See Also: [Smart-Rules](#)

setup wizard

The pCLI commands that assist you when you're setting up a new SmartWall device or application.

See Also: [pCLI](#)

sFlow

Sample traffic taken from the traffic coming into a Defense device and sent to the SmartWall Central Management Server.

See Also: [SmartWall Network Threat Defense device](#), [SmartWall Central Management Server](#)

Smart-Plugins

Smart-Plugins are custom plugin packages that can be loaded into CMS to generate custom syslog messages.

Smart-Rules

An attack mitigation feature which looks for a large number of packets with similar characteristics. Once the number of these packets passes a set threshold, which denotes a flood attack is happening, the Smart-Rule can surgically block just the packets which match those attack characteristics.

See Also: [attack mitigation feature](#), [threshold](#)

SmartWall Central Management Server

The SmartWall Central Management Server (CMS) application is the central hub of the SmartWall Threat Defense System. It is used to define the rules which make up DDoS protection policies, and then push those configurations to all your managed Defense devices, and to send the analytics data to SmartWall SecureWatch Analytics. It can be hosted on a SmartWall Management Controller or as a VM using the SmartWall Central Management Server Virtual Edition.

See Also: [SmartWall Central Management Server Virtual Edition](#), [rule](#), [SmartWall Threat Defense System](#), [SmartWall Network Threat Defense device](#), [SmartWall SecureWatch Analytics](#), [SmartWall Management Controller](#)

SmartWall Central Management Server Virtual Edition

The virtual edition of the SmartWall Central Management Server, hosted as a VM on your own server, rather than on a SmartWall Management Controller.

See Also: [SmartWall Central Management Server](#), [SmartWall Management Controller](#)

SmartWall device

There are two types of SmartWall device: Defense devices and SmartWall Management Controllers. When discussing the SmartWall Central Management Server, SmartWall device most commonly refers to Defense device.

See Also: [SmartWall Central Management Server](#), [SmartWall Management Controller](#), [SmartWall Network Threat Defense device](#)

SmartWall Management Controller

The SmartWall Management Controller is a physical device which you can deploy to centrally manage your Defense devices. It hosts the SmartWall Central Management Server and SmartWall SecureWatch Analytics applications.

See Also: [SmartWall Central Management Server](#), [SmartWall Network Threat Defense device](#), [SmartWall SecureWatch Analytics](#)

SmartWall Network Bypass Appliance

A SmartWall Network Bypass Appliance is a physical device which you can use with a Defense device to ensure no traffic loss in the event of a power failure. The Bypass device sits between the internet and your internal network and, when configured to, sends your traffic to the Defense device and through the Policy. It then receives the traffic back and sends it on to your internal network. In the event of a power failure, the Bypass device sends all traffic directly to your internal network, bypassing the Defense device.

See Also: [SmartWall Network Threat Defense device](#), [Defense Mode](#), [Bypass Mode](#), [Policy](#)

SmartWall Network Threat Defense device

A SmartWall Network Threat Defense device sits between the internet and your internal network, either physically, or logically, inline with the traffic. It uses a Policy to block attack traffic and allow non-attack traffic through to the internal network. It is managed by the SmartWall Central Management Server.

See Also: [SmartWall Central Management Server](#), [attack traffic](#), [non-attack traffic](#)

SmartWall Network Threat Defense Device Virtual Edition

The virtual edition of the physical SmartWall Network Threat Defense device. This can be deployed on your own ESXi or KVM server.

See Also: [SmartWall Network Threat Defense device](#)

SmartWall SecureWatch Analytics

SmartWall SecureWatch Analytics (SWA) is a web portal which stores and indexes events and operational syslog messages from the SmartWall Central Management Server, and displays that information as real-time and historical charts and tables for attack analysis.

See Also: [SmartWall Central Management Server](#), [event](#), [syslog message](#), [SmartWall SecureWatch Analytics Virtual Edition](#)

SmartWall SecureWatch Analytics Virtual Edition

The virtual edition of the SmartWall SecureWatch Analytics, hosted as a VM on your own server, rather than on a SmartWall Management Controller.

See Also: [SmartWall SecureWatch Analytics](#), [SmartWall Management Controller](#)

SmartWall TDS

See: [SmartWall Threat Defense System](#)

SmartWall Threat Defense System

The SmartWall Threat Defense System (SmartWall TDS) is a family of DDoS protection appliances that eliminate DDoS attacks in real-time. It comprises of three distinct components: SmartWall Network Threat Defense devices, the SmartWall Central Management Server, and SmartWall SecureWatch Analytics.

See Also: [SmartWall Central Management Server](#), [SmartWall SecureWatch Analytics](#), [SmartWall Network Threat Defense device](#)

SMC

See: [SmartWall Management Controller](#)

Snapshot

A snapshot is a package which contains the SmartWall Central Management Server configuration from the moment you created it, which you can use to restore the SmartWall Central Management Server to a previous state.

See Also: [SmartWall Central Management Server](#)

Source Control

An attack mitigation feature which enables you to create blocked list and allowed list entries for specific source IP addresses, ranges, and subnets.

See Also: [attack mitigation feature](#)

Source Smart-Rule

A Source Smart-Rule looks for a flood of packets with the same source IP address.

See Also: [Smart-Rules](#)

Support token

A randomly generated code which enables a Support user to access your system for troubleshooting purposes.

See Also: [Support user](#)

Support user

A Corero Support Engineer who you have given access to your system by generating a support token.

See Also: [Support token](#)

SWA

See: [SmartWall SecureWatch Analytics](#)

sync

The action for returning a device to the in-sync state after it has fallen out of sync.

See Also: [in-sync](#), [force-sync](#), [SmartWall device](#), [Deployment State](#)

syslog message

A syslog message contains information on security events, system status, traffic information etc in a compressed form. You can learn to read syslog messages in the **Corero SmartWall Syslog Reference Guide**.

See Also: [analytics](#), [SmartWall SecureWatch Analytics](#), [event](#)

Syslog Server

A server running an application which consumes syslog messages

See Also: [Analytics Server](#), [Syslog messages](#)

T

Threat Awareness

An attack mitigation feature which detects high amounts of traffic and, when one or more traffic thresholds are crossed, enters Threat Awareness Mode where it starts to drop new connections from IP addresses that it cannot confirm are trustworthy.

See Also: [Global Threat Awareness](#), [Destination-Based Threat Awareness](#), [attack mitigation feature](#)

Threat Awareness Mode

See: [Threat Awareness](#)

Threshold

You can set a Threshold to trigger a rule when the matching traffic rate reaches that Threshold value.

See Also: [Smart-Rules](#), [Threat Awareness](#), [trigger](#)

trigger

When an incoming packet matches a rule definition it "triggers" that rule to perform the associated Rule Action.

See Also: [rule](#), [Rule Action](#), [trigger](#)

tuning

Tuning a Policy is the name for configuring the attack mitigation features to optimize their ability to block attack traffic in your network.

See Also: [Policy](#), [attack mitigation feature](#), [attack traffic](#)

U

untrusted IP address

An unknown IP address which does not meet the SmartWall Central Management Server's criteria for trustworthy behavior.

See Also: [probation interval](#), [SmartWall Central Management Server](#)

upgrade package

A file containing an updated software version for the SmartWall Central Management Server or for a SmartWall device.

See Also: [SmartWall device](#), [SmartWall Central Management Server](#)

V

validation rules

See: [Packet Rules](#)

vCMS

See: [SmartWall Central Management Server Virtual Edition](#)

Virtual Editions

The collective name for SmartWall applications which are run as VMs on your own servers.

See Also: [SmartWall SecureWatch Analytics Virtual Edition](#), [SmartWall Central Management Server Virtual Edition](#)

vNTD

See: [SmartWall Network Threat Defense Virtual Edition](#)

vSWA

See: [SmartWall SecureWatch Analytics Virtual Edition](#)

W

Web UI

The browser based version of the SmartWall Central Management Server interface.

See also: [CLI](#), [SmartWall Central Management Server](#)

Z

Zero Power Bypass

A Defense device which can contain multiple 10Gbit modules.

See: [SmartWall Network Threat Defensedevice](#)

