Intrusion Policies

This chapter provides information on managing Snort 3 intrusion policies and access control rule configurations for intrusion detection and prevention.

Overview of Intrusion Policies

Intrusion policies are defined sets of intrusion detection and prevention configurations that inspect traffic for security violations and, in inline deployments, can block or alter malicious traffic. Intrusion policies are invoked by your access control policy and are the system's last line of defense before traffic is allowed to its destination.

At the heart of each intrusion policy are the intrusion rules. An enabled rule causes the system to generate intrusion events for (and optionally block) traffic matching the rule. Disabling a rule stops processing of the rule.

The system delivers several base intrusion policies, which enable you to take advantage of the experience of the Cisco Talos Intelligence Group (Talos). For these policies, Talos sets intrusion and inspector rule states (enabled or disabled), as well as provides the initial configurations for other advanced settings.

Tip System-provided intrusion and network analysis policies are similarly named but contain different configurations. For example, the Balanced Security and Connectivity network analysis policy and the Balanced Security and Connectivity intrusion policy work together and can both be updated in intrusion rule updates. However, the network analysis policy governs mostly preprocessing options, whereas the intrusion policy governs mostly intrusion rules.

If you create a custom intrusion policy, you can:

- Tune detection by enabling and disabling rules, as well as by writing and adding your own rules.
- Use Secure Firewall recommendations to associate the operating systems, servers, and client application protocols detected on your network with rules specifically written to protect those assets.

An intrusion policy can drop matching packets and generate intrusion events. To configure an intrusion or preprocessor drop rule, set its state to Block.

When tailoring your intrusion policy, especially when enabling and adding rules, keep in mind that some intrusion rules require that traffic first be decoded or preprocessed in a certain way. Before an intrusion policy examines a packet, the packet is preprocessed according to configurations in a network analysis policy. If you disable a required inspector, the system automatically uses it with its current settings, although the inspector remains disabled in the network analysis policy web interface.

Caution Because preprocessing and intrusion inspection are so closely related, the network analysis and intrusion policies examining a single packet **must** complement each other. Tailoring preprocessing, especially using multiple custom network analysis policies, is an **advanced** task.

After you configure a custom intrusion policy, you can use it as part of your access control configuration by associating the intrusion policy with one or more access control rules or an access control policy's default action. This forces the system to use the intrusion policy to examine certain allowed traffic before the traffic passes to its final destination. A variable set that you pair with the intrusion policy allows you to accurately reflect your home and external networks and, as appropriate, the servers on your network.

Note that by default, the system disables intrusion inspection of encrypted payloads. This helps reduce false positives and improve performance when an encrypted connection matches an access control rule that has intrusion inspection configured.

Refer to the video for additional support and information - Snort 3 Intrusion Policy Overview.

Prerequisites for Network Analysis and Intrusion Policies

To allow the Snort inspection engine to process traffic for intrusion and malware analysis, you must have the IPS license enabled for the Firewall Threat Defense device.

You must be an Admin user to manage network analysis, intrusion policies, and perform migration tasks.

Create a Custom Snort 3 Intrusion Policy

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 Click **Create Policy**.

Step 3 Enter a unique **Name** and, optionally, a **Description**.

Step 4 Choose the **Inspection Mode**.

The selected action determines whether intrusion rules block and alert (**Prevention** mode) or only alert (**Detection** mode).

Note
Before selecting the prevention mode, you might want block rules to alert only so you can identify rules that cause a lot of false positives.

Step 5 Choose the **Base Policy**.

You can use either a system-provided policy or an existing policy as your base policy.

Step 6 Click **Save**.

The new policy has the same settings as its base policy.

What to do next

To customize the policy, see Edit Snort 3 Intrusion Policies, on page 3.

Edit Snort 3 Intrusion Policies

While editing a Snort 3 policy, all the changes are saved instantaneously. No additional action is required to save the changes.

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 Ensure the **Intrusion Policies** tab is selected.

Step 3 Click **Snort 3 Version** next to the intrusion policy you want to configure.

Step 4 Edit your policy:

- Change the mode—Click the **Mode** drop-down to change the inspection mode.

Caution

The inspection mode is changed only for the Snort 3 version of the policy. The existing inspection mode is retained in the Snort 2 version as is, which means that your Snort 2 and Snort 3 versions of the policy will have different inspection modes. We recommend you to use this option with caution.

- **Prevention**—Triggered Block rules create an event (alert) and drop the connection.
- **Detection**—Triggered Block rules create an alert.

  You can choose the detection mode before going for prevention. For example, before choosing the prevention mode, you might want block rules to alert only, so that you can identify rules that cause a lot of false positives.

Step 5 Click the **Base Policy** layer that defines the intrusion policy's default settings.

- Search rules—Use the search field to filter the display. You can enter the GID, SID, rule message, or reference info. For example, GID:1; SID:9621—to display only rule 1:962, SID:9621,9622,9623—to display multiple rules with different SIDs. You can also click inside the Search text box to choose any of the following options:
  - apply the filters **Action = Alert**, or **Action: Block**
  - apply the **Disabled Rules** filter
  - show **Custom/User Defined Rules**
  - filter by GID, SID, or GID:SID
  - filter by CVE
  - filter by comment
- View filtered rules—Click any of the **Presets** to view rules that are set to alert, block, disabled, and so on.

  Overridden rules indicate the rules where the rule action has been changed from the default action to a different action. Note that, once changed, the rule action status is Overridden even if you change it back to its original default action. However, if you select **Revert to default** from the **Rule Action** drop-down list, the Overridden status is removed.

  Advanced Filters provides filter options based on the Lightweight Security Package (LSP) releases, Classifications of intrusions, and Microsoft Vulnerabilities.
- View rule documentation—Click the rule ID or the **Rule Documentation** icon to display Talos documentation for the rule.
- View a rule details—Click the **Expand Arrow** (›) icon in a rule row to view the rule details.
- Add rule comments—Click **Comment** (💬) under the Comments column to add comments for a rule.

Step 6 **Group Overrides**—Click the **Group Overrides** layer that lists all the categories of rule groups. The top level parent rule groups with Description, Overrides and Enabled Groups, and so on is displayed. Parent rule groups cannot be updated and are read-only. Only the leaf rule groups can be updated. In each rule group, you can traverse up to the last leaf group. Across each group, you can override, include, and exclude rule groups. In the leaf rule groups, you can:

- Search rule groups—Use the search field to enter keywords and search for rule groups.

- In the left panel, you can choose any of the preset filter options to search for rule groups:
    - All—For displaying all rule groups.
    - Excluded—For excluded groups.
    - Included—For included groups.
    - Overridden—For rule group configuration that is overridden.

- Set the security level for a rule group—Navigate to the required rule group on the left pane and click it. Click **Edit** next to the **Security Level** of the rule group to increase or decrease the security level based on system-defined rule settings.

  In the **Edit Security Level** dialog box, you have the option to click **Revert to Default**, which reverts the changes you made.

  The Firewall Management Center automatically changes the action for the rules of the rule group for the configured security level. In the **Rule Overrides** layer, notice the count of Block Rules and Disabled Rules in the **Presets** every time you change the security level.

- You can make bulk changes to the security level to change the security level of all rule groups within a particular rule category. Bulk security level applies to rule groups that have more than one rule group. After a bulk update of rule groups, you can still update the security level of any of the associated rule groups within it.

  There can be **mixed** security levels within rule groups; **mixed** indicates that the child groups contain a mix of security levels within the parent rule group.

- Include or exclude rule groups—The rule groups displayed are the default rule groups associated with the system-provided base intrusion policy. You can include and exclude rule groups from the intrusion policy. An excluded rule group is removed from the intrusion policy and its rules are not applied on the traffic. For information on uploading custom rules in Firewall Management Center, see Add Custom Rules to Rule Groups, on page 26.

  To exclude a rule group:

  a. Navigate the Rule Groups pane and choose the rule group that you want to exclude.

  b. Click the **Exclude** hyperlink on the right-pane.

  c. Click **Exclude**.

  To include a new rule group or multiple rule groups with the uploaded custom rules or a previously excluded rule group:

  a. Click **Add** (+) next to the rule group filter dropdown list.

  b. Choose all the rule groups you want to add by checking the check box next to it.

  c. Click **Save**.

- For a leaf rule group, click the icon under the **Override** column header to see the rule action trail, which describes the sequence of overridden rule actions that can be assigned due to the base policy and group overrides for an intrusion rule. Rule actions can be obtained from either the base policy configurations or the user group override. The user group override takes the priority between the two; priority refers to the final overridden action that is assigned to the rule group.

- Click the rule count (number) under the **Rule Count** column header to see a summary of rules that are part of the rule group.

Step 7 **Recommendations**—Click the **Recommendations** layer if you want to generate and apply Cisco recommended rules. Recommendations use the host database to enable or disable rules, based on known vulnerabilities.

Step 8 **Rule Overrides**—Click the **Rule Overrides** layer to choose any of the presets to view rules, which are set to alert, block, disabled, overridden, rewrite, pass, drop, or reject.

- The **Set By** column shows the default set by state (Base Policy) or modified rule state by Group Overrides, Rule Overrides, or Recommendations. The **Set By** column in **All Rules** (in the left pane) shows the trail of rule action override actions based on priority order. The priority order of rule actions is Rule Override > Recommendations > Group Override > Base Policy.
- Modify **Rule Action**—To modify rule actions, choose either of the following:
  - Bulk edit—Choose one or more rules, then choose the required action from the **Rule Action** drop-down list; and click **Save**.

    Note
    Bulk rule action changes are supported only for the first 500 rules.

  - Single rule edit—Choose the action for the rule from the drop-down list in the **Rule Action** column.

Rule actions are:

- **Block**— Generates event, blocks current matching packet and all the subsequent packets in this connection.
- **Alert**— Generates only events for matching packet and does not drop packet or connection.
- **Disable**—Does not match traffic against this rule. No events are generated.
- **Revert to default**—Reverts to the system default action.
- **Pass**— No events are generated, allows packet to pass without further evaluation by any subsequent Snort rules.

  Note
  The Pass action is available only for custom rules and not for system-provided rules.

- **Drop**— Generates event, drops matching packet and does not block further traffic in this connection.
- **Reject**— Generates event, drops matching packet, blocks further traffic in this connection and sends TCP reset if it is a TCP protocol to source and destination hosts.

  Behavior of reject in different firewall modes and IP address or source or destination in relation to Client or Server: Snort sends RST packets to both client and server in cases of routed, inline, and bridged interfaces. Snort sends two RST packets. RST packet in clients directions will have source set to server’s IP and destination set to client’s IP. RST packet in servers direction will have source set to client’s IP and destination set to server’s IP.

- **Rewrite**— Generates event and overwrites packet contents based on the replace option in the rule.

For IPS rule action logging, see Rule Action Logging, on page 7.

If there is a **React** rule, it is converted to an alert action.

Step 9 Click the **Summary** layer for a holistic view of the current changes to the policy. The policy summary page contains the following information:

- Rule distribution of the policy, that is, active rules, disabled rules, and so on.
- Option to export policy and generate report of the intrusion policy.
- Base policy details.
- Option to generate recommendations.
- Group overrides that shows the list of groups that you have overridden.
- Rule overrides that shows the list of rules that you have overridden.
- In the **Summary** layer, click the ? icon to open a popup window of the Snort helper guide that explains the Snort layering concepts.

To change the base policy, see Change the Base Policy of an Intrusion Policy, on page 8.

Note
You can navigate to **Objects** > **Intrusion Rules** and click the **Snort 3 All Rules** tab and traverse through all the intrusion rule groups. The parent rule group lists the associated child groups and rule count.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Rule Group Reporting

The rule groups are reflected in the intrusion events generated and MITRE tactics and techniques are also called out. There are columns for MITRE tactics and techniques and for non-MITRE rule groups for intrusion events. To access the intrusion events, in Firewall Management Center, go to **Analysis** > **Intrusions** > **Events**, and click the **Table View of Events** tab. You can also view the intrusion event fields in the **Unified Events** viewer. In the **Analysis** tab, click **Unified Events**.

In the **Intrusion Events** page, the following fields are added for rule group reporting. Note that you must explicitly enable the mentioned columns.

- MITRE ATT&CK
- Rule Group

For information about these fields, see the section *Intrusion Event Fields* in the *Cisco Secure Firewall Management Center Administration Guide, 7.3*.

Rule Action Logging

From Firewall Management Center 7.2.0 onwards, in the **Intrusion Events** page, the event in the **Inline Result** column displays the same name as the IPS action applied to the rule, so that you can see the action that was applied on the traffic matching the rule.

For the IPS actions, the following table shows the events that are displayed in the **Inline Result** column of the **Intrusion Events** page and **Action** column for **Intrusion Event Type** in the **Unified Events** page.

IPS Action for Snort 3	Inline Result - Firewall Management Center 7.1.0 and earlier	Inline Result -Firewall Management Center 7.2.0 onwards
Alert	Pass	Alert
Block	Dropped/Would Have Dropped/Partially Dropped	Block/Would Block/Partial Block
Drop	Dropped/Would have dropped	Drop/Would drop
Reject	Dropped/Would have dropped	Reject/Would reject
Rewrite	Allow	Rewrite

Important

- In case of a rule without the “Replace” option, the **Rewrite** action is displayed as **Would Rewrite**.
- The **Rewrite** action would also be displayed as **Would Rewrite** if the "Replace" option is specified, but the IPS policy is in Detection mode or the device is in Inline-TAP/Passive mode.

Note

In case of backward compatibility (Firewall Management Center 7.2.0 managing a Firewall Threat Defense 7.1.0 device), the events mentioned are applicable only to the Alert IPS action where **Pass** is displayed as **Alert** for events. For all the other actions, the events for Firewall Management Center 7.1.0 are applicable.

Change the Base Policy of an Intrusion Policy

You can choose a different system-provided or custom policy as your base policy.

You can chain up to five custom policies, with four of the five using one of the other four previously created policies as its base policy; the fifth must use a system-provided policy as its base.

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 Click **Edit** (✎) next to the intrusion policy you want to configure.

Step 3 Choose a policy from the **Base Policy** drop-down list.

Step 4 Click **Save**.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

View Snort 2 and Snort 3 Base Policy Mapping

Note Snort 2 is not supported on threat defense Version 7.7. For information on Snort 2 features that are supported in versions earlier than 7.7, refer to the Firewall Management Center guide that matches your Firewall Threat Defense version.

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 Ensure the **Intrusion Policies** tab is selected.

Step 3 Click **IPS Mapping**.

Step 4 In the **IPS Policy Mapping** dialog box, click **View Mappings** to view the Snort 3 to Snort 2 intrusion policy mapping.

Step 5 Click **OK**.

Synchronize Snort 2 Rules with Snort 3

To ensure that the Snort 2 version settings and custom rules are retained and carried over to Snort 3, the Firewall Management Center provides the synchronization functionality. Synchronization helps Snort 2 rule override settings and custom rules, which you may have altered and added over the last few months or years, to be replicated on the Snort 3 version. This utility helps to synchronize Snort 2 version policy configuration with Snort 3 version to start with similar coverage.

Note Snort 2 is not supported on threat defense Version 7.7. For information on Snort 2 features that are supported in versions earlier than 7.7, refer to the Firewall Management Center guide that matches your Firewall Threat Defense version.

If the Firewall Management Center is upgraded from 6.7 or earlier to 7.0 or later version, the system synchronizes the configuration. If the Firewall Management Center is a fresh 7.0 or later version, you can upgrade to a higher version, and the system will not synchronize any content during upgrade.

Before upgrading a device to Snort 3, if changes are made in Snort 2 version, you can use this utility to have the latest synchronization from Snort 2 version to Snort 3 version so that you start with a similar coverage.

Note On moving to Snort 3, it is recommended that you manage the Snort 3 version of the policy independently and do not use this utility as a regular operation.

Important

- Only the Snort 2 rule overrides and custom rules are copied to Snort 3 and not the other way around. You may not find a one-to-one mapping of all the intrusion rules in Snort 2 and Snort 3. Your changes to rule actions for rules that exist in both versions are synchronized when you perform the following procedure.
- Synchronization *does not* migrate the threshold and suppression settings of any custom or system-provided rules from Snort 2 to Snort 3.

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 Ensure the **Intrusion Policies** tab is selected.

Step 3 Click **Show Snort 3 Sync status**.

Step 4 Identify the intrusion policy that is out-of-sync.

Step 5 Click the **Sync** icon **Snort out-of-Sync** (➜).

Note
If the Snort 2 and the Snort 3 versions of the intrusion policy are synchronized, then the **Sync** icon is in green**Snort in-Sync** (➜).

Step 6 Read through the summary and download a copy of the summary if required.

Step 7 Click **Re-Sync**.

Note

- The synchronized settings will be applicable on the Snort 3 intrusion engine only if it is applied on a device, and after a successful deployment.
- Snort 2 custom rules can be converted to Snort 3 using the system-provided tool. If you have any Snort 2 custom rules click the Custom Rules tab and follow the on-screen instructions to convert the rules. For more information, see Convert Snort 2 Custom Rules of a Single Intrusion Policy to Snort 3.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Manage Intrusion Policies

On the Intrusion Policy page (**Policies** > **Access Control heading** > **Intrusion**) you can view your current custom intrusion policies, along with the following information:

- Number of access control policies and devices are using the intrusion policy to inspect traffic
- In a multidomain deployment, the domain where the policy was created

Note

Snort 2 is not supported on threat defense Version 7.7. For information on Snort 2 features that are supported in versions earlier than 7.7, refer to the Firewall Management Center guide that matches your Firewall Threat Defense version.

In a multidomain deployment, the system displays policies created in the current domain, which you can edit. It also displays policies created in ancestor domains, which you cannot edit. To view and edit policies created in a lower domain, switch to that domain.

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 Manage your intrusion policy:

- Create — Click **Create Policy**; see Create a Custom Snort 3 Intrusion Policy , on page 3.
- Delete — Click **Delete** (🗑) next to the policy you want to delete. The system prompts you to confirm and informs you if another user has unsaved changes in the policy. Click **OK** to confirm.

  If the controls are dimmed, the configuration belongs to an ancestor domain, or you do not have permission to modify the configuration.
- Edit intrusion policy details — Click **Edit** (✎) next to the policy you want to edit. You can edit the **Name**, **Inspection Mode**, and the **Base Policy** of the intrusion policy.
- Edit intrusion policy settings — Click **Snort 3 Version**; see Edit Snort 3 Intrusion Policies, on page 3.
- Export — If you want to export an intrusion policy to import on another Firewall Management Center, click Export; see the *Exporting Configurations* topic in the latest version of the *Cisco Secure Firewall Management Center Configuration Guide*.
- Deploy — Choose **Deploy** > **Deployment**; see Deploy Configuration Changes.
- Report — Click **Report**; see the *Generating Current Policy Reports* topic in the latest version of the *Cisco Secure Firewall Management Center Configuration Guide*. Generates wo reports, one for each policy version.

Access Control Rule Configuration to Perform Intrusion Prevention

An access control policy can have multiple access control rules associated with intrusion policies. You can configure intrusion inspection for any Allow or Interactive Block access control rule, which permits you to match different intrusion inspection profiles against different types of traffic on your network before it reaches its final destination.

Whenever the system uses an intrusion policy to evaluate traffic, it uses an associated *variable set*. Variables in a set represent values commonly used in intrusion rules to identify source and destination IP addresses and ports. You can also use variables in intrusion policies to represent IP addresses in rule suppressions and dynamic rule states.

Understanding System-Provided and Custom Intrusion Policies

Cisco delivers several intrusion policies with the system. By using system-provided intrusion policies, you can take advantage of the experience of the Cisco Talos Intelligence Group (Talos). For these policies, Talos sets intrusion and preprocessor rule states, as well as provides the initial configurations for advanced settings. You can use system-provided policies as-is, or you can use them as the base for custom policies. Building custom policies can improve the performance of the system in your environment and provide a focused view of the malicious traffic and policy violations occurring on your network.

Connection and Intrusion Event Logging

When an intrusion policy invoked by an access control rule detects an intrusion and generates an intrusion event, it saves that event to the Management Center. The system also automatically logs the end of the connection where the intrusion occurred to the Management Center database, regardless of the logging configuration of the access control rule.

Access Control Rule Configuration and Intrusion Policies

The number of unique intrusion policies you can use in a single access control policy depends on the model of the target devices; more powerful devices can handle more. Every unique **pair** of intrusion policy and variable set counts as one policy. Although you can associate a different intrusion policy-variable set pair with each Allow and Interactive Block rule (as well as with the default action), you cannot deploy an access control policy if the target devices have insufficient resources to perform inspection as configured.

Configure an Access Control Rule to Perform Intrusion Prevention

You must be an Admin, Access Admin, or Network Admin to perform this task.

Procedure

Step 1 In the access control policy editor, create a new rule or edit an existing rule; see the *Access Control Rule Components* topic in the latest version of the *Cisco Secure Firewall Management Center Configuration Guide*.

Step 2 Ensure the rule action is set to **Allow**, **Interactive Block**, or **Interactive Block with reset**.

Step 3 Click **Inspection**.

Step 4 Choose a system-provided or a custom intrusion policy, or choose **None** to disable intrusion inspection for traffic that matches the access control rule.

Step 5 If you want to change the variable set associated with the intrusion policy, choose a value from the **Variable Set** drop-down list.

Step 6 Click **Save** to save the rule.

Step 7 Click **Save** to save the policy.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Tune Intrusion Policies Using Rules

This chapter provides information on custom rules in Snort 3, intrusion rule action, intrusion event notification filters in an intrusion policy, converting Snort 2 custom rules to Snort 3, and adding rule groups with custom rules to an intrusion policy.

Overview of Tuning Intrusion Rules

You can configure rule states and other settings for shared object rules, standard text rules, and inspector rules.

You enable a rule by setting its rule state to Alert or to Block. Enabling a rule causes the system to generate events on traffic matching the rule. Disabling a rule stops processing of the rule. You can also set your intrusion policy so that a rule set to Block generates events on, and drops, matching traffic.

You can filter rules to display a subset of rules, enabling you to select the exact set of rules where you want to change rule states or rule settings.

When an intrusion rule or rule argument requires a disabled inspector, the system automatically uses it with its current configuration even though it remains disabled in the network analysis policy's web interface.

Note We recommend that you do not modify shared object rules and you only enable or disable these rules for your threat defense device. To create custom Snort rules, contact Cisco support.

Intrusion Rule Types

An intrusion rule is a specified set of keywords and arguments that the system uses to detect attempts to exploit vulnerabilities in your network. As the system analyzes network traffic, it compares packets against the conditions specified in each rule, and triggers the rule if the data packet meets all the conditions specified in the rule.

An intrusion policy contains:

- *intrusion rules*, which are subdivided into *shared object rules* and *standard text rules*
- *inspector rules*, which are associated with a detection option of the packet decoder or with one of the inspectors included with the system

The following table summarizes attributes of these rule types:

Table 1: Intrusion Rule Types

Type	Generator ID (GID)	Snort ID (SID)	Source	Can Copy?	Can Edit?
shared object rule	3	lower than 1000000	Cisco Talos Intelligence Group (Talos)	yes	limited

Type	Generator ID (GID)	Snort ID (SID)	Source	Can Copy?	Can Edit?
standard text rule	1 (Global domain or legacy GID)	lower than 1000000	Talos	yes	limited
	1000 - 2000 (descendant domain)	1000000 or higher	Created or imported by user	yes	yes
preprocessor rule	decoder- or preprocessor-specific	lower than 1000000	Talos	no	no
		1000000 or higher	Generated by the system during option configuration	no	no

You cannot save changes to any rule created by Talos, but you can save a copy of a modified rule as a custom rule. You can modify either variables used in the rule or rule header information (such as source and destination ports and IP addresses). In a multidomain deployment, rules created by Talos belong to the Global domain. Administrators in descendant domains can save local copies of the rules, which they can then edit.

For the rules it creates, Talos assigns default rule states in each default intrusion policy. Most preprocessor rules are disabled by default and must be enabled if you want the system to generate events for preprocessor rules and, in an inline deployment, drop offending packets.

Prerequisites for Network Analysis and Intrusion Policies

To allow the Snort inspection engine to process traffic for intrusion and malware analysis, you must have the IPS license enabled for the Firewall Threat Defense device.

You must be an Admin user to manage network analysis, intrusion policies, and perform migration tasks.

Custom Rules in Snort 3

You can create a custom intrusion rule by importing a local rule file. The rule file can either have a `.txt` or `.rules` extension. The system saves the custom rule in the local rule category, regardless of the method you used to create it. A custom rule must belong to a rule group. However, a custom rule can be a part of two or more groups as well.

When you create a custom intrusion rule, the system assigns it a unique rule number, which has the format `GID:SID:Rev`. The elements of this number are:

- **GID**—Generator ID. For custom rules, it is not necessary to specify the GID. The system automatically generates the GID based on whether you are in the Global domain or a sub-domain while uploading the rules. For all standard text rules, this value is 2000 for a Global domain.
- **SID**—Snort ID. Indicates whether the rule is a local rule of a system rule. When you create a new rule, assign a unique SID to the rule.

  SID numbers for local rules start at 1000000, and the SID for each new local rule is incremented by one.

- **Rev**—The revision number. For a new rule, the revision number is one. Each time you modify a custom rule the revision number should be incremented by one.

In a custom standard text rule, you set the rule header settings and the rule keywords and arguments. You can use the rule header settings to focus the rule to only match traffic using a specific protocol and traveling to or from specific IP addresses or ports.

To check whether a SID is enabled or disabled, verify the entries in the snort.lua file located in the `./file-contents/ngfw/var/sf/detection_engines/<id>/ips/<id>` directory.

- If the SID is disabled by default, no entry will be present in the file.
- If the SID is manually enabled, you will see an entry with **enable:yes**.
- If the SID is disabled after being manually enabled, the entry remains in the file and will display **enable:no**.

Note

- Snort 3 custom rules cannot be edited. Ensure that custom rules have a valid classification message for `classtype` within the rule text. If you import a rule without a classification or wrong classification, then delete and recreate the rule.
- You can create custom intrusion rules using Snort 3. However, support for tuning and troubleshooting these rules is not available currently.
- The *classtype* in a Snort rule assigns a classification to the rule indicating the type of attack that is associated with an event. A priority level of 1-4 is also associated with each *classtype*. However, the priority level for certain *classtypes* on the Threat Defense device do not match the open-source Snort *classtype* priority levels that are mentioned in the Snort documentation. For example, *tcp-connection* has a priority of 4 in open-source Snort while a priority of 3 is assigned to it on the Threat Defense device.

Sensitive Data Detection in Snort 3

Sensitive data such as social security numbers, credit card numbers, emails, and so on may be leaked onto the internet, intentionally or accidentally. Sensitive data detection is used to detect and generate events on possible sensitive data leakage. Events are generated only if there is a transfer of significant amount of Personally Identifiable Information (PII) data. Sensitive data detection can mask PII in the output of events.

sd_pattern Option

Use the `sd_pattern` IPS option to detect and filter PII. This information includes credit card numbers, U.S. Social Security numbers, phone numbers, and email addresses. A regular expression (regex) syntax is available for defining your own PII.

The sd_pattern option has the following settings:

- Pattern—An implicit, required setting that specifies the regular expression to look for in the PDU. The regex must be written in PCRE syntax.
- Threshold—An explicit, optional setting that specifies the number of matches in the PDU required to generate an event.

  The `sd_pattern` as IPS rule option is available in Snort with no requirements for additional inspectors. The rule option's syntax is:

```
sd_pattern: "<pattern>"[, threshold <count>];
```

For example:

```
sd_pattern:"credit_card", threshold 2;
```

Built-in Patterns

There are five built-in patterns for sensitive data. To use the built-in patterns in the "pattern" setting, you must specify the name of the PII type that needs to be matched and the necessary regex is substituted for it. The PII name and regex mappings or patterns are described as follows:

- credit_card—

  ```
  \d{4}\D?\d{4}\D?\d{2}\D?\d{2}\D?\d{3,4}
  ```

- us_social—

  ```
  [0-8]\d{2}-\d{2}-\d{4}
  ```

- us_social_nodashes—

  ```
  [0-8]\d{8}
  ```

- Email—

  ```
  [a-zA-Z0-9!#$%&'*+\/=?^_`{|}~-]+(?:\.[a-zA-Z0-9!#$%&'*+\/=?^_`{|}~-]+)*@(?:[a-zA-Z0-9]
  (?:[a-zA-Z0-9-]*[a-zA-Z0-9])?\.)+[a-zA-Z0-9](?:[a-zA-Z0-9-]*[a-zA-Z0-9])?
  ```

- us_phone—

  ```
  (?:\+?1[-\.\s]?)?\(?([2-9][0-8]\d)\)?[-\.\s]([2-9]\d{2})[-\.\s](\d{4})
  ```

PII Name	Pattern
credit_card	`\d{4}\D?\d{4}\D?\d{2}\D?\d{2}\D?\d{3,4}`
us_social	`[0-8]\d{2}-\d{2}-\d{4}`
us_social_nodashes	`[0-8]\d{8}`
Email	`[a-zA-Z0-9!#$%&'*+\/=?^_`{\|}~-]+(?:\.[a-zA-Z0-9!#$%&'*+\/=?^_`{|}~-]+)*@(?:[a-zA-Z0-9](?:[a-zA-Z0-9-]*[a-zA-Z0-9])?\.)+[a-zA-Z0-9](?:[a-zA-Z0-9-]*[a-zA-Z0-9])?`
us_phone	`(?:\+?1[-\.\s]?)?\(?([2-9][0-8]\d)\)?[-\.\s]([2-9]\d{2})[-\.\s](\d{4})`

Masking for data matching these patterns only work with system-provided rules or built-in patterns for Credit Cards, U.S. Social Security numbers, emails, and U.S. phone numbers. Masking does not work for custom rules or user-defined PII patterns. Rules are available in the Lightweight Security Package (LSP) for sensitive data, gid:13. By default, they are not enabled in any system-provided policy.

The sensitive data rules in LSP cover all built-in patterns and have the following threshold values:

- credit_card: 2
- us_social: 2
- us_social_nodashes: 20
- email: 20
- us_phone: 20

You can use the sd_pattern option to create custom rules and modify existing rules. To do this, use the Snort 3 intrusion policy interface.

An example of a rule with sd_pattern with a custom pattern and threshold:

alert tcp (sid: 1000000001; sd_pattern:"[\w-\.]+@([\w-]+\.)+[\w-]{2,4}",threshold 4; msg: "email, threshold 4")

Examples

An example of custom rules using sensitive data detection:

Rule with built-in pattern:

```
alert tcp (
        msg:"SENSITIVE-DATA Email";
        flow:only_stream;
        pkt_data;
        sd_pattern:"email", threshold 5;
        service:http, smtp, ftp-data, imap, pop3;
        gid:2000;
        sid:1000001;
)
```

Rule with custom pattern

```
alert tcp (
        msg:"SENSITIVE-DATA US phone numbers";
        flow:only_stream;
        file_data;
        sd_pattern:"+?3?8?(0[\s\.-]\d{2}[\s\.-]\d{3}[\s\.-]\d{2}[\s\.-]\d{2})", threshold
2;
        service:http, smtp, ftp-data, imap, pop3;
        gid:2000;
        sid:1000002;
)
```

Here are some more examples of complete Snort IPS rules with built-in sensitive data patterns:

- alert tcp (sid:1; msg:"Credit Card"; sd_pattern:"credit_card", threshold 2;)
- alert tcp (sid:2; msg:"US Social Number"; sd_pattern:"us_social", threshold 2;)
- alert tcp (sid:3; msg:"US Social Number No Dashes"; sd_pattern:"us_social_nodashes", threshold 2;)
- alert tcp (sid:4; msg:"US Phone Number"; sd_pattern:"us_phone", threshold 2;)
- alert tcp (sid:5; msg:"Email"; sd_pattern:"email", threshold 2;)

Disabling data masking is not supported in the Secure Firewall Management Center and Secure Firewall Device Manager.

For information how to add custom rules to rule groups, see Add Custom Rules to Rule Groups, on page 26.

View Snort 3 Intrusion Rules in an Intrusion Policy

You can adjust how rules are displayed in the intrusion policy. You can also display the details for a specific rule to see rule settings, rule documentation, and other rule specifics.

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 Click **Snort 3 Version** next to the policy.

Step 3 While viewing the rules, you can:

- Filter the rules.
- Choose a rule group to see rules related to that group.
- View an intrusion rule's details.
- View rule comments.
- View rule documentation.

See Edit Snort 3 Intrusion Policies, on page 3 for details on performing these tasks.

Intrusion Rule Action

Intrusion rule action allows you to enable or disable the rule within an individual intrusion policy, as well as specify which action the system takes if monitored conditions trigger the rule.

The Cisco Talos Intelligence Group (Talos) sets the default action of each intrusion and inspector rule in each default policy. For example, a rule may be enabled in the Security over Connectivity default policy and disabled in the Connectivity over Security default policy. Talos sometimes uses a rule update to change the default action of one or more rules in a default policy. If you allow rule updates to update your base policy, you also allow the rule update to change the default action of a rule in your policy when the default action changes in the default policy you used to create your policy (or in the default policy it is based on). Note, however, that if you have changed the rule action, the rule update does not override your change.

When you create an intrusion rule, it inherits the default actions of the rules in the default policy you use to create your policy.

Intrusion Rule Action Options

In an intrusion policy, you can set a rule's action to the following values:

Alert

You want the system to detect a specific intrusion attempt and generate an intrusion event when it finds matching traffic. When a malicious packet crosses your network and triggers the rule, the packet is sent to its destination and the system generates an intrusion event. The malicious packet reaches its target, but you are notified through the event logging.

Block

You want the system to detect a specific intrusion attempt, drop the packet containing the attack, and generate an intrusion event when it finds matching traffic. The malicious packet never reaches its target, and you are notified through the event logging.

Disable

You do not want the system to evaluate matching traffic.

Note

Choosing either the **Alert** or **Block** options enables the rule. Choosing **Disable** disables the rule.

We **strongly** recommend that you **do not** enable all the intrusion rules in an intrusion policy. The performance of your managed device is likely to degrade if all rules are enabled. Instead, tune your rule set to match your network environment as closely as possible.

Set Intrusion Rule Action

Intrusion rule actions are policy-specific.

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 Click **Snort 3 Version** next to the policy you want to edit.

Tip
This page shows the total number of:

- disabled rules
- enabled rules set to Alert
- enabled rules set to Block
- overridden rules

Step 3 Choose the rule or rules where you want to set the rule action.

Step 4 Choose one of the rule actions from the **Rule Action** drop-down list. See Edit Snort 3 Intrusion Policies, on page 3 for more information about the different rule actions.

Step 5 Click **Save**.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Intrusion Event Notification Filters in an Intrusion Policy

The importance of an intrusion event can be based on frequency of occurrence, or on source or destination IP address. In some cases you may not care about an event until it has occurred a certain number of times. For example, you may not be concerned if someone attempts to log into a server until they fail a certain number of times. In other cases, you may only need to see a few occurrences to know there is a widespread problem. For example, if a DoS attack is launched against your web server, you may only need to see a few occurrences of an intrusion event to know that you need to address the situation. Seeing hundreds of the same event only overwhelms your system.

Intrusion Event Thresholds

You can set thresholds for individual rules to limit the number of times the system logs and displays an intrusion event based on how many times the event is generated within a specified time period. This can prevent you from being overwhelmed with a large number of identical events. You can set thresholds per shared object rule, standard text rule, or inspector rule.

Set Intrusion Event Thresholds

To set a threshold, first specify the thresholding type.

Table 2: Thresholding Options

Option	Description
Limit	Logs and displays events for the specified number of packets (specified by the Count argument) that trigger the rule during the specified time period. For example, if you set the type to **Limit**, the **Count** to `10`, and the **Seconds** to `60`, and 14 packets trigger the rule, the system stops logging events for the rule after displaying the first 10 that occur within the same minute.
Threshold	Logs and displays a single event when the specified number of packets (specified by the Count argument) trigger the rule during the specified time period. Note that the counter for the time restarts after you hit the threshold count of events and the system logs that event. For example, you set the type to **Threshold**, **Count** to `10`, and **Seconds** to `60`, and the rule triggers 10 times by second 33. The system generates one event, then resets the Seconds and Count counters to 0. The rule then triggers another 10 times in the next 25 seconds. Because the counters reset to 0 at second 33, the system logs another event.
Both	Logs and displays an event once per specified time period, after the specified number (count) of packets trigger the rule. For example, if you set the type to **Both**, **Count** to two, and **Seconds** to `10`, the following event counts result: • If the rule is triggered once in 10 seconds, the system does not generate any events (the threshold is not met) • If the rule is triggered twice in 10 seconds, the system generates one event (the threshold is met when the rule triggers the second time) • If the rule is triggered four times in 10 seconds, the system generates one event (the threshold is met when the rule triggers the second time, and following events are ignored)

Secondly, specify tracking, which determines whether the event threshold is calculated per source or destination IP address.

Table 3: Thresholding IP Options

Option	Description
Source	Calculates event instance count per source IP address.
Destination	Calculates event instance count per destination IP address.

Finally, specify the number of instances and time period that define the threshold.

Table 4: Thresholding Instance/Time Options

Option	Description
Count	The number of event instances per specified time period per tracking IP address required to meet the threshold.
Seconds	The number of seconds that elapse before the count resets. If you set the threshold type to **limit**, the tracking to **Source IP**, the **count** to `10`, and the **seconds** to `10`, the system logs and displays the first 10 events that occur in 10 seconds from a given source port. If only 7 events occur in the first 10 seconds, the system logs and displays those; if 40 events occur in the first 10 seconds, the system logs and displays 10, then begins counting again when the 10-second time period elapses.

Note that you can use intrusion event thresholding alone or in any combination with rate-based attack prevention, the `detection_filter` keyword, and intrusion event suppression.

Tip You can also add thresholds from within the packet view of an intrusion event.

Set Threshold for an Intrusion Rule in Snort 3

You can set a single threshold for a rule from the Rule Detail page. Adding a threshold overwrites any existing threshold for the rule. The threshold you set for an intrusion rule is applied to each packet thread. However, the configuration is fully applied only within the context of a unique flow. There may be more alerts on different network flows, but there will not be fewer alerts than the configured number.

Procedure

Step 1 Choose **Objects** > **Intrusion Rules**.

Step 2 Click **Snort 3 All Rules** tab.

Step 3 From an intrusion rule's Alert Configuration column, click the **None** link.

Step 4 Click **Edit** (✎).

Step 5 In the Alert Configuration window, click the **Threshold** tab.

Step 6 From the **Type** drop-down list, choose the type of threshold you want to set:

- Choose **Limit** to limit notification to the specified number of event instances per time period.
- Choose **Threshold** to provide notification for each specified number of event instances per time period.
- Choose **Both** to provide notification once per time period after a specified number of event instances.

Step 7 Choose **Source** or **Destination** in the **Track By** field to indicate whether you want the event instances tracked by source or destination IP address.

Step 8 Enter the number of event instances you want to use as your threshold in the **Count** field.

Step 9 Enter a number that specifies the time period, in seconds, for which event instances are tracked in the **Seconds** field.

Step 10 Click **Save**.

Refer to the video Snort 3 Suppression and Threshold for additional support and information.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

View and Delete Intrusion Event Thresholds

To view or delete an existing threshold setting for a rule, use the Rules Details view to display the configured settings for a threshold and see if they are appropriate for your system. If they are not, you can add a new threshold to overwrite the existing values.

Procedure

Step 1 Choose **Objects** > **Intrusion Rules**.

Step 2 Click **Snort 3 All Rules** tab.

Step 3 Choose the rule with a configured threshold as shown in the **Alert Configuration** column (the **Alert Configuration** column displays **Threshold** as a link for the rule).

Step 4 To remove the threshold for the rule, click **Threshold** link in the **Alert Configuration** column.

Step 5 Click **Edit** (✎).

Step 6 Click **Threshold** tab.

Step 7 Click **Reset**.

Step 8 Click **Save**.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Intrusion Policy Suppression Configuration

You can suppress intrusion event notification when a specific IP address or range of IP addresses triggers a specific rule or inspector. This is useful for eliminating false positives. For example, if you have a mail server that transmits packets that look like a specific exploit, you might suppress event notification for that event when it is triggered by your mail server. The rule triggers for all packets, but you only see events for legitimate attacks.

Intrusion Policy Suppression Types

Note that you can use intrusion event suppression alone or in any combination with rate-based attack prevention, the `detection_filter` keyword, and intrusion event thresholding.

Tip You can add suppressions from within the packet view of an intrusion event. You can also access suppression settings by using the **Alert Configuration** column on the intrusion rules editor page (**Objects** > **Intrusion Rules**, click **Snort 3 All Rules**).

Set Suppression for an Intrusion Rule in Snort 3

You can set one or more suppressions for a rule in your intrusion policy.

Before you begin

Ensure you create the required network objects to be added for source or destination suppression.

Procedure

Step 1 Choose **Objects** > **Intrusion Rules**.

Step 2 Click **Snort 3 All Rules** tab.

Step 3 Click the **None** link in the intrusion rule's Alert Configuration column,.

Step 4 Click **Edit** (✎).

Step 5 From the **Suppressions** tab, click the add icon **Add** (+) next to any of the following options:

- Choose **Source Networks** to suppress events generated by packets originating from a specified source IP address.
- Choose **Destination Networks** to suppress events generated by packets going to a specified destination IP address.

Step 6 Select any of the preset networks in the **Network** drop-down list.

Step 7 Click **Save**.

Step 8 (Optional) Repeat the last three steps if required.

Step 9 Click **Save** in the Alert Configuration window.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

View and Delete Suppression Conditions

You may want to view or delete an existing suppression condition. For example, you can suppress event notification for packets originating from a mail server IP address because the mail server normally transmits packets that look like exploits. If you then decommission that mail server and reassign the IP address to another host, you should delete the suppression conditions for that source IP address.

Procedure

Step 1 Choose **Objects** > **Intrusion Rules**.

Step 2 Click **Snort 3 All Rules** tab.

Step 3 Choose the rule for which you want to view or delete suppressions.

Step 4 Click **Suppression** in the **Alert Configuration** column.

Step 5 Click **Edit** (✎).

Step 6 Click **Suppressions** tab.

Step 7 Remove the suppression by clicking **Clear** (✕) next to the suppression.

Step 8 Click **Save**.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Add Intrusion Rule Comments

You can add comments to rules in your intrusion policy. Comments added this way are policy-specific; that is, comments you add to a rule in one intrusion policy are not visible in other intrusion policies.

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 Click **Snort 3 Version** next to the policy you want to edit.

Step 3 In the right side of the page where all the rules are listed, choose the rule where you want to add a comment.

Step 4 Click **Comment** (💬) under the **Comments** column.

Step 5 In the **Comments** field, enter the rule comment.

Step 6 Click **Add Comment**.

Step 7 Click **Save**.

Tip

The system displays a **Comment** (💬) next to the rule in the Comments column.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Snort 2 Custom Rules Conversion to Snort 3

If you are using custom rules, make sure you are prepared to manage that rule set for Snort 3 prior to conversion from Snort 2 to Snort 3. If you are using a rule set from a third-party vendor, contact that vendor to confirm that their rules will successfully convert to Snort 3 or to obtain a replacement rule set written natively for Snort 3. If you have custom rules that you have written yourself, familiarize with writing Snort 3 rules prior to conversion, so you can update your rules to optimize Snort 3 detection after conversion. See the links below to learn more about writing rules in Snort 3.

- https://blog.snort.org/2020/08/how-rules-are-improving-in-snort-3.html

- https://blog.snort.org/2020/10/talos-transition-to-snort-3.html

You can refer to other blogs at https://blog.snort.org/ to learn more about Snort 3 rules.

Important Snort 2 network analysis policy (NAP) settings *cannot* be copied to Snort 3 automatically. NAP settings have to be manually replicated in Snort 3.

Convert all Snort 2 Custom Rules across all Intrusion Policies to Snort 3

Procedure

Step 1 Choose **Objects** > **Intrusion Rules**.

Step 2 Click **Snort 3 All Rules** tab.

Step 3 Ensure **All Rules** is selected in the left pane.

Step 4 Click the **Tasks** drop-down list and choose:

- **Convert Snort 2 rules and import**—To automatically convert all the Snort 2 custom rules across all the intrusion policies to Snort 3 and import them into Firewall Management Center as Snort 3 custom rules.
- **Convert Snort 2 rules and download**—To automatically convert all the Snort 2 custom rules across all the intrusion policies to Snort 3 and download them into your local system.

Step 5 Click **OK**.

Note

- If you selected **Convert and import** in the previous step, then all the converted rules are saved under a newly created rule group **All Snort 2 Converted Global** under **Local Rules**.
- If you selected **Convert and download** in the previous step, then save the rules file locally. You can review the converted rules in the downloaded file and later upload them by following the steps in Add Custom Rules to Rule Groups, on page 26.

Refer to the video Converting Snort 2 Rules to Snort 3 for additional support and information.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Convert Snort 2 Custom Rules of a Single Intrusion Policy to Snort 3

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 In the **Intrusion Policies** tab, click **Show Snort 3 Sync status**.

Step 3 Click the **Sync** icon **Snort out-of-Sync** (➔) of the intrusion policy.

Note

If the Snort 2 and the Snort 3 versions of the intrusion policy are synchronized, then the **Sync** icon is in green**Snort in-Sync** (➔). It indicates that there are no custom rules to be converted.

Step 4 Read through the summary and click the **Custom Rules** tab.

Step 5 Choose:

- **Import converted rules to this policy**—To convert the Snort 2 custom rules in the intrusion policy to Snort 3 and import them into Firewall Management Center as Snort 3 custom rules.
- **Download converted rules**—To convert the Snort 2 custom rules in the intrusion policy to Snort 3 and download them into your local system. You can review the converted rules in the downloaded file and later upload the file by clicking the upload icon.

Step 6 Click **Re-Sync**.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Add Custom Rules to Rule Groups

Uploading custom rules in the Firewall Management Center adds the custom rules that you have created locally to the list of all the Snort 3 rules.

Procedure

Step 1 Choose **Objects** > **Intrusion Rules**.

Step 2 Click **Snort 3 All Rules** tab.

Step 3 Click the **Tasks** drop-down list.

Step 4 Click **Upload Snort 3 Rules**.

Step 5 Drag and drop the `.txt` or `.rules` file that contains the Snort 3 custom rules that you have created.

Step 6 Click **OK**.

Note

If there are any errors in the selected file, then you cannot proceed further. You can download the error file and **Replace File** link to upload version 2 of the file, after fixing the errors.

Step 7 Associate rules to a rule group to add the new rules to that group.

You can also create a new custom rule group (by clicking the **Create New Custom Rule Group** link) and then add the rules to the new group.

Note
If there are no existing local rule groups, then proceed by clicking **Create New Custom Rule Group to proceed**. Enter a **Name** for the new rule group and click **Save**.

Step 8 Choose either of the following:

- **Merge Rules** to merge the new rules that you are adding with the existing rules in the rule group.
- **Replace all rules in the group with file contents** to replace all the exiting rules with the new rules that you are adding.

Note
If you chose more than one rule group in the previous step, then only the **Merge Rules** option is available.

Step 9 Click **Next**.

Review the summary to know the new rule IDs that are being added and optionally download it.

Step 10 Click **Finish**.

Important The rule action of all the uploaded rules is in the disabled state. You have to change them to the required state to ensure the rules are active.

What to do next

- Uploading custom rules in the Firewall Management Center adds the custom rules that you have created to the list of all the Snort 3 rules. To enforce these custom rules on the traffic, add and enable these rules in the required intrusion policies. For information on adding rule groups with custom rules to an intrusion policy, see Add Rule Groups with Custom Rules to an Intrusion Policy, on page 27. For information on enabling custom rules, see Manage Custom Rules in Snort 3, on page 28.
- Deploy configuration changes; see Deploy Configuration Changes.

Add Rule Groups with Custom Rules to an Intrusion Policy

Custom rules that are uploaded in the system have to be enabled in an intrusion policy to enforce those rules on the traffic. After uploading custom rules on Firewall Management Center, add the rule group with the new custom rules in the intrusion policy.

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 In the **Intrusion Policies** tab, click the **Snort 3 Version** of the intrusion policy.

Step 3 Click **Add** (+) next to the Rule Groups search bar.

Step 4 In the **Add Rule Groups** window, click the **Expand Arrow** (›) icon next to a rule group to expand the local rule group.

Step 5 Check the check box next to the uploaded custom rules group.

Step 6 Click **Save**.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Manage Custom Rules in Snort 3

Custom rules that are uploaded in the system have to be added to an intrusion policy and enabled to enforce those rules on the traffic. You can enable the uploaded custom rules across all policies or selectively on individual policies.

Follow the steps to enable custom rules in one or many intrusion policies:

Procedure

Step 1 Choose **Objects** > **Intrusion Rules**.

Step 2 Click **Snort 3 All Rules** tab.

Step 3 Expand **Local Rules**.

Step 4 Select the required rule group.

Step 5 Select the rules by checking the check boxes next to them.

Step 6 Select **Per Intrusion Policy** from the **Rule Actions** drop-down list.

Step 7 Choose:

- **All Policies**—to have the same rule actions for all the rules to be added.
- **Per Intrusion Policy**—to have different rule actions for each intrusion policy.

Step 8 Set the rule actions:

- If you selected All Policies in the previous step, then select the required rule action from the **Select Override state** drop-down list.
- If you selected Per Intrusion Policy in the previous step, then select the **Rule Action** against the policy name. To add more policies, click **Add Another**.

Step 9 Optionally, add a comment in the **Comments** text box.

Step 10 Click **Save**.

What to do next

Deploy the changes on the device. See, Deploy Configuration Changes.

Delete Custom Rules

Procedure

Step 1 Choose **Objects** > **Intrusion Rules**.

Step 2 Click **Snort 3 All Rules** tab.

Step 3 Expand **Local Rules** in the left pane.

Step 4 Check the check boxes of the rules you want to delete.

Step 5 Ensure that the rule action for all the rules that you select is **Disable**.

If required, follow the steps below to disable the rule action for multiple selected rules:

a) From the **Rule Actions** drop-down box, select **Per Intrusion Policy**.
b) Select **All Policies** radio button.
c) Select **Disable** from the **Select Override state** drop-down list.
d) Click **Save**.
e) Check the check boxes of the rules you want to delete.

Step 6 From the **Rule Actions** drop-down list, select **Delete**.

Step 7 Click **Delete** in the Delete Rules pop-up window.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Delete Rule Groups

Before you begin

Exclude the rule group you want to delete from all intrusion policies where you have included it. For steps on excluding a rule group from an intrusion policy, see Edit Snort 3 Intrusion Policies, on page 3.

Procedure

Step 1 Choose **Objects** > **Intrusion Rules**.

Step 2 Click **Snort 3 All Rules** tab.

Step 3 Expand **Local Rules** in the left pane.

Step 4 Select the rule group to be deleted.

Step 5 Ensure the rule action for all the rules in the group is set to **Disable** before proceeding.

If the rule action for any of the rules is anything other than **Disable**, then you cannot delete the rule group. If required, follow the steps below to disable the rule action for all the rules:

a) Check the check box below the **Rule Actions** drop-down list to select all the rules in the group.
b) From the **Rule Actions** drop-down box, select **Per Intrusion Policy**.
c) Select **All Policies** radio button.
d) Select **Disable** from the **Select Override state** drop-down list.
e) Click **Save**.

Step 6 Click the **Delete** (🗑) next to the rule group.

Step 7 Click **OK** in the Delete Rule Group pop-up window.

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Recommended Rules

This chapter provides an insight into Secure Firewall recommended rules and generating and applying Secure Firewall recommended rules.

Snort 3 Rule Changes in LSP Updates

During regular Snort 3 Lightweight Security Package (LSP) updates, an existing system-defined intrusion rule may be replaced with a new intrusion rule. There could be possibilities of a single rule being replaced with multiple rules, or multiple rules being replaced with a single rule. This occurs when better detection is possible for which rules are combined or expanded. For better management, some existing system-defined rules may also be removed as a part of the LSP update.

To get notifications for changes to any *overridden* system-defined rules during LSP updates, ensure that the **Retain user overrides for deleted Snort 3 rules** check box is checked.

To navigate to the **Retain user overrides for deleted Snort 3 rules** check box, click **System** (⚙) > **Configuration** > **Intrusion Policy Preferences**.

By default this check box is checked. When this check box is checked, the system retains the rule overrides in the new replacement rules that are added as a part of the LSP update. The notifications are shown in the **Tasks** tab under the Notifications icon that is located next to **System** (⚙).

Overview of Secure Firewall Recommended Rules

You can use intrusion rule recommendations to target vulnerabilities associated with host assets detected in the network. For example, operating systems, servers, and client application protocols. This allows you to tailor your intrusion policy to the specific needs of your monitored network.

The system makes an individual set of recommendations for each intrusion policy. It typically recommends rule state changes for standard text rules and shared object rules. However, it can also recommend changes for inspector and decoder rules.

When you generate rule state recommendations, you can use the default settings or configure advanced settings. Advanced settings allow you to:

- Redefine which hosts on your network the system monitors for vulnerabilities
- Influence which rules the system recommends based on rule overhead
- Specify whether to generate recommendations to disable rules

You can also choose to use the recommendations immediately or review the recommendations (and affected rules) before accepting them.

Choosing to use recommended rule states adds a read-only Secure Firewall Recommendations layer to your intrusion policy, and subsequently choosing not to use recommended rule states removes the layer.

You can schedule a task to generate recommendations automatically based on the most recently saved configuration settings in your intrusion policy.

The system does not change rule states that you set manually such as:

- Manually setting the states of specified rules *before* you generate recommendations prevents the system from modifying the states of those rules in the future.
- Manually setting the states of specified rules *after* you generate recommendations overrides the recommended states of those rules.

Tip The intrusion policy report can include a list of rules with rule states that differ from the recommended state.

While displaying the recommendation-filtered Rules page, or after accessing the Rules page directly from the navigation panel or the Policy Information page, you can manually set rule states, sort rules, and take any of the other actions available on the Rules page, such as suppressing rules, setting rule thresholds, and so on.

Note The Cisco Talos Intelligence Group (Talos) determines the appropriate state of each rule in the system-provided policies. If you use a system-provided policy as your base policy, and you allow the system to set your rules to the Secure Firewall recommended rule state, the rules in your intrusion policy match the settings recommended for your network assets.

Prerequisites for Network Analysis and Intrusion Policies

To allow the Snort inspection engine to process traffic for intrusion and malware analysis, you must have the IPS license enabled for the Firewall Threat Defense device.

You must be an Admin user to manage network analysis, intrusion policies, and perform migration tasks.

Generate New Secure Firewall Recommendations in Snort 3

Generate the Secure Firewall recommendations for the intrusion policy and then follow the steps that are listed here to create new recommended rule settings in Snort 3. Rule overheads are interpreted as **security levels** based on the threshold policies selected by you in Snort 3. Recommended action is based on the selected security level and if it is higher than the base policy, then the recommendation is not just limited to generating the events.

Prior to setting the Secure Firewall recommendations you should ask which of the three points listed below closely matches the goal:

- Increased Protection —Enable additional rules based on vulnerabilities found in the host database and do not automatically disable any rules. This will likely result in a larger rule set.
- Focused Protection—Enable additional rules and disable existing rules based on vulnerabilities found in the host database. This can increase or decrease the number of rules depending on vulnerabilities discovered.
- Higher Efficiency—Use the currently enabled rule set and disable any rules for vulnerabilities not found in the host database. This will likely result in a smaller enabled rule set.

Based on the response, the recommendation actions are as follows:

- Set recommendations to the next highest security level, and uncheck the disable rules.
- Set recommendations to the next highest security level, and check the disable rules.
- Set recommendations to the current security level, and check the disable rules.

Before you begin

Secure Firewall recommendations have the following requirements:

- Ensure that hosts are present in the system to generate recommendations.
- Protected networks configured for recommendations should map to the hosts present in the system

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

Step 2 Click the **Snort 3 Version** button of the intrusion policy.

Step 3 Click the **Recommendations (Not in Use)** layer to configure the rule recommendations. Click **Start**.

In the Secure Firewall Rule Recommendations window you can set the following:

- **Security Level**: Click to select the security level. Optionally, you can check the **Accept Recommendation to Disable Rules** checkbox to disable rules that are not enabled at the input security level and in protected networks. Only enable this option if you need to trim your rule set due to a high number of alerts or to improve inspection performance. The security levels are:

  - Security level 1: Connectivity Over Security

    No Impact—No new rules are enabled and no existing rules are disabled. To increase the protection, select a higher security level.

    Lower Security (checkbox is checked)—All rules are disabled except for the rules in the Connectivity Over Security ruleset that match potential vulnerabilities on discovered hosts. It is recommended instead to adjust the Base Policy.

  - Security level 2: Balanced Security Over Connectivity

    No Impact—No new rules are enabled and no existing rules are disabled. To increase the protection, select a higher security level.

    Higher Efficiency(checkbox is checked)—Keeps existing rules that match potential vulnerabilities on discovered hosts and disables rules for vulnerabilities not found on the network.

  - Security level 3: Security Over Connectivity

    Increased Security—Enables additional rules that match potential vulnerabilities on discovered hosts based on the Maximum Detection ruleset.

    Focused Security(checkbox is checked)—Enables additional rules that match vulnerabilities on discovered hosts based on the Security Over Connectivity ruleset, while disabling existing rules that do not match potential vulnerabilities on discovered hosts.

  - Security level 4 : Maximum Detection

    Increased Security—Enables additional rules that match potential vulnerabilities on discovered hosts based on the Security Over Connectivity ruleset.

    Focused Security (checkbox is checked)—Enables additional rules that match vulnerabilities on discovered hosts based on the Maximum Detection ruleset, while disabling existing rules that do not match potential vulnerabilities on discovered hosts.

    Note
    Maximum Detection enables a very high number of rules and may impact performance. We recommend you to review and test this setting before deploying into a production environment.

- **Protected Networks**: Specifies the monitored networks or individual hosts to examine for recommendations. You can select one or more system or custom defined network objects from the drop-down list. By default, any IPv4 or IPv6 networks are selected, if no selection is done.

  Important
  The Secure Firewall Rule Recommendations depend on network discovery. Protected Networks apply to any hosts discovered within the ranges configured in your Network Discovery policy. For more information, see the chapter Network Discovery Policies in the *Cisco Secure Firewall Management Center Device Configuration guide*.

  Click the **Add +** button to create a new network object of type Host or Network and click **Save**.

Step 4 Generate and apply recommendations:

- **Generate**: Generates the recommendations for an intrusion policy. This action lists the rules under Recommended Rules (Not in use).
- **Generate and Apply**: Generates and applies the recommendations for an intrusion policy. This action lists the rules under Recommended Rules (In use).

Recommendations are generated successfully. A new recommendation tab appears with all the recommended rules with their corresponding recommended actions. Rule action preset filters are also available for this tab, in addition with new recommendations.

Step 5 You can verify the recommendations and then choose to apply them accordingly:

- **Accept**—Applies the previously generated recommendations for an Intrusion policy.
- **Refresh**—Regenerates and updates the rule recommendations for an Intrusion policy.
- **Edit**—It opens the Recommendations dialog box, you can provide the recommendation input values and then generate the recommendations.
- **Remove All**—Revert or remove the applied recommended rules from the policy and also removes the recommendation tab.

Under **All Rules**, there is a Recommended Rules section which displays the recommended rules.

Note
Final action for an Intrusion rule is applied based on the rule action priority order and following is the rule action priority order:

Rule Override > Generated Recommendations > Group Override > Base Policy Default Action

For enabled recommendations, Firewall Management Center considers the current state: group overrides, base policy, and recommendation configurations and priority order of actions is:

pass > block > reject > drop > rewrite > alert

What to do next

Deploy configuration changes; see Deploy Configuration Changes.

Mitigate Threats Using MITRE Framework in Snort 3 Intrusion Policies

About MITRE ATT&CK Framework

The MITRE ATT&CK Framework is a comprehensive knowledge base that outlines the tactics, techniques, and procedures (TTPs) used by threat actors to compromise systems. It organizes these TTPs into matrices for different operating systems and platforms, mapping each attack stage (tactics) to specific methods (techniques). Each technique includes information about execution, procedures, defenses, detections, and real-world examples.

Note See https://attack.mitre.org for additional information about MITRE ATT&CK.

The management center uses the MITRE ATT&CK Framework to enhance threat detection and response, incorporating the following capabilities:

- Intrusion events include TTPs, allowing administrators to manage traffic with greater granularity by grouping rules according to vulnerability type, target system, or threat category.
- Select malware events use TTPs, enhancing the ability to detect and respond to threats.

Benefits of MITRE Framework

- MITRE Tactics, Techniques, and Procedures (TTPs) are added to intrusion events, which enable administrators to act on traffic, based on the MITRE ATT&CK framework. This enables administrators to view and handle traffic with more granularity, and group rules by vulnerability type, target system, or threat category.
- You can organize intrusion rules according to the MITRE ATT&CK framework. This allows you to customize policies according to specific attacker tactics and techniques.

Sample Business Scenario for MITRE Network

A large corporate network uses Snort 3 as its primary intrusion detection and prevention system. In a rapidly evolving threat landscape, adoption of robust network security measures is necessary and important. Network administrators need to know if the configured policies are finding traffic of interest and if they are tracking a known attack group. For example, you may want to know if adversaries are attempting to take advantage of a weakness in your systems or applications in order to cause unanticipated behavior. The weakness in the system can be a bug, a glitch, or a design vulnerability. The applications may be websites, databases, standard services, such as Server Message Block (SMB) or Secure Shell (SSH), network device administration and management protocols or applications, such as web servers and related services.

The insights provided by the MITRE framework provides administrators with a more precise opportunity to specify protection for specific assets and protect their network from specific threat groups.

Prerequisites for MITRE Framework

- You must be running Secure Firewall Management Center and Secure Firewall Threat Defence Version 7.3.0 or later with Snort 3.
- You must have at least one intrusion policy. See Create a Custom Snort 3 Intrusion Policy , on page 3.

View and Edit Your Snort 3 Intrusion Policy

Procedure

Step 1 Choose **Policies** > **Access Control heading** > **Intrusion**.

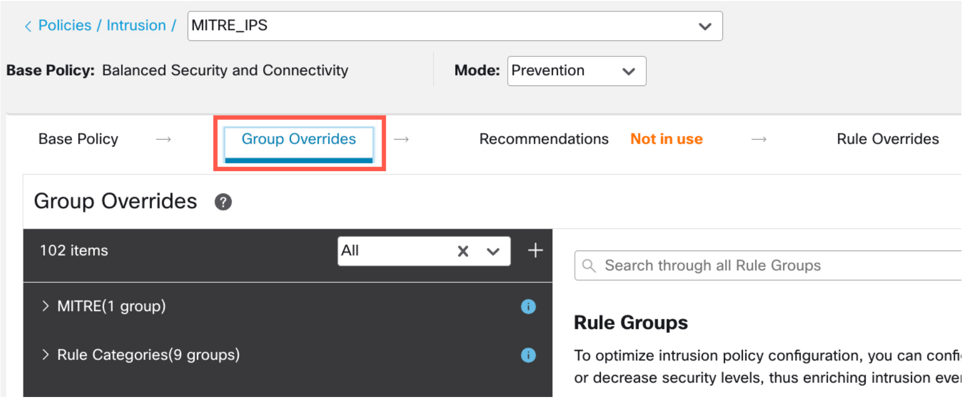
Step 2 Ensure that the **Intrusion Policies** tab is chosen.

Step 3 Click **Snort 3 Version** next to the intrusion policy that you want to view or edit.

Step 4 Close the Snort helper guide that is displayed.

Step 5 Click the **Group Overrides** layer.

This layer lists all the categories of rule groups in an hierarchical structure. You can drill down to the last leaf rule group under each rule group.



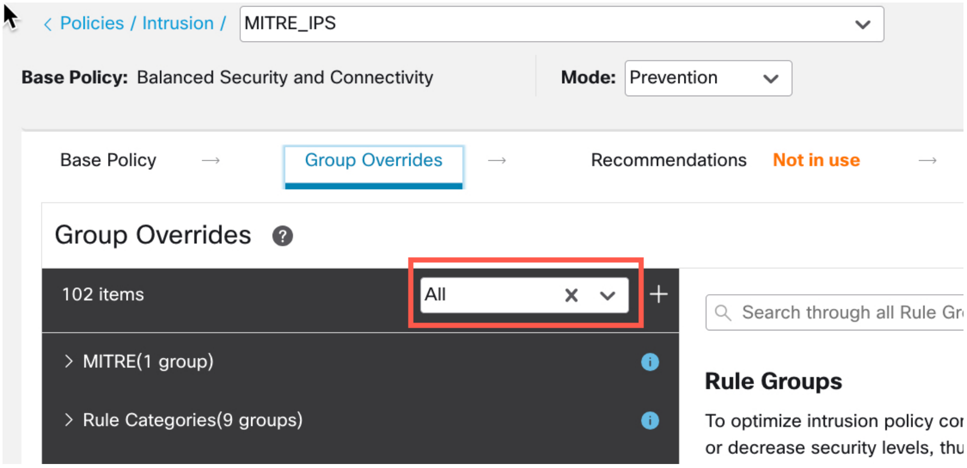
Policies / Intrusion / MITRE_IPS

Base Policy: Balanced Security and Connectivity

Mode: Prevention

Base Policy
Group Overrides
Recommendations
Not in use
Rule Overrides
Group Overrides
102 items
All
Search through all Rule Groups
MITRE(1 group)
Rule Categories(9 groups)
Rule Groups
To optimize intrusion policy configuration, you can confi
or decrease security levels, thus enriching intrusion eve

Step 6 Under **Group Overrides**, ensure that **All** is chosen in the drop-down list, so that all the rule groups for the corresponding intrusion policy are visible in the left pane.



Policies / Intrusion / MITRE_IPS

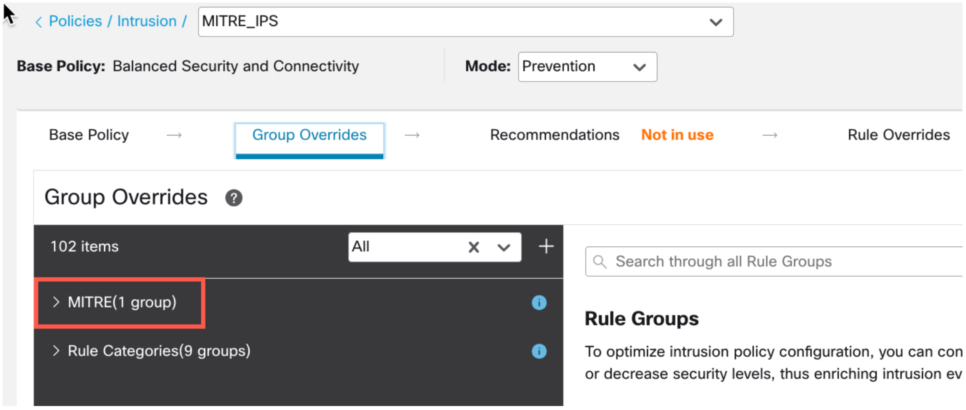
Base Policy: Balanced Security and Connectivity

Mode: Prevention

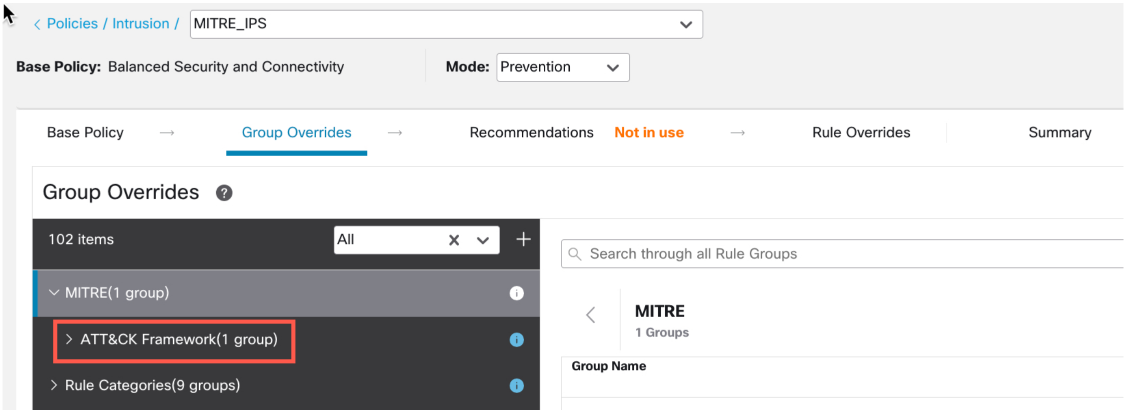
Base Policy
Group Overrides
Recommendations
Not in use
Group Overrides
102 items
All
Search through all Rule Gr
MITRE(1 group)
Rule Categories(9 groups)
Rule Groups
To optimize intrusion policy cor
or decrease security levels, thu

Step 7 Click **MITRE** in the left pane.

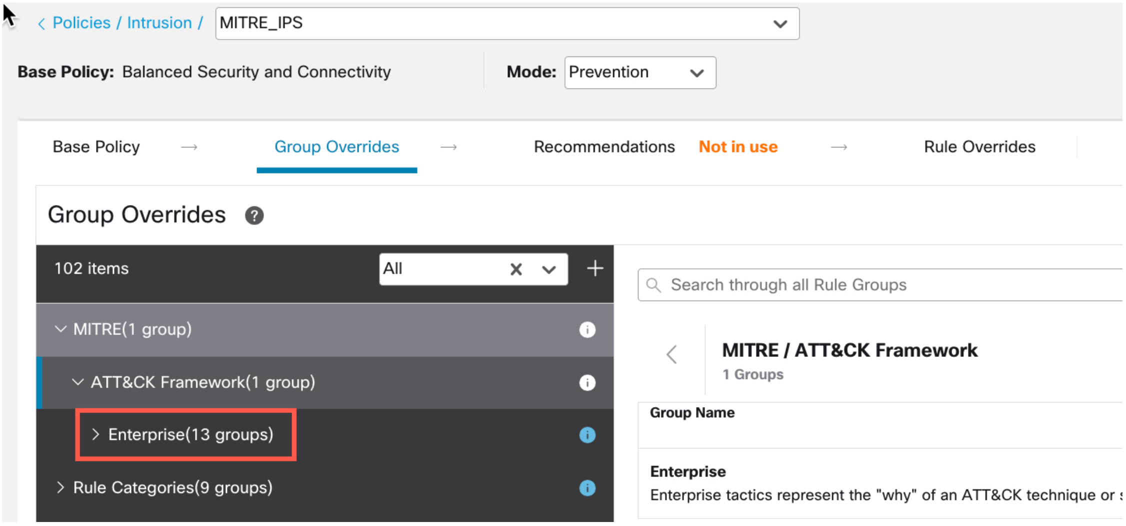
Note
Depending on your specific requirements, you can choose the **Rule Categories** rule group or any other rule group and subrule groups under it. All the rule groups use the MITRE framework.


Policies / Intrusion / MITRE_IPS
Base Policy: Balanced Security and Connectivity
Mode: Prevention
Base Policy
Group Overrides
Recommendations
Not in use
Rule Overrides
Group Overrides
102 items
All
MITRE(1 group)
Rule Categories(9 groups)
Search through all Rule Groups
Rule Groups
To optimize intrusion policy configuration, you can con
or decrease security levels, thus enriching intrusion ev

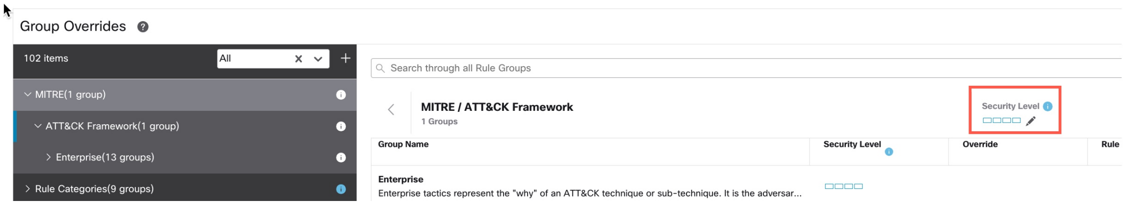
Step 8 Under **MITRE**, click **ATT&CK Framework** to drill down.


Policies / Intrusion / MITRE_IPS
Base Policy: Balanced Security and Connectivity
Mode: Prevention
Base Policy
Group Overrides
Recommendations
Not in use
Rule Overrides
Summary
Group Overrides
102 items
All
MITRE(1 group)
ATT&CK Framework(1 group)
Rule Categories(9 groups)
Search through all Rule Groups
MITRE
1 Groups
Group Name

Step 9 Under **ATT&CK Framework**, click **Enterprise** to expand it.


Policies / Intrusion / MITRE_IPS
Base Policy: Balanced Security and Connectivity
Mode: Prevention
Base Policy
Group Overrides
Recommendations
Not in use
Rule Overrides
Group Overrides
102 items
All
MITRE(1 group)
ATT&CK Framework(1 group)
Enterprise(13 groups)
Rule Categories(9 groups)
Search through all Rule Groups
MITRE / ATT&CK Framework
1 Groups
Group Name
Enterprise
Enterprise tactics represent the "why" of an ATT&CK technique or

Step 10 Click the **Edit** (✎) icon next to the **Security Level** of the rule group to make bulk changes to the security level of all the associated rule groups under the **Enterprise** rule group category.

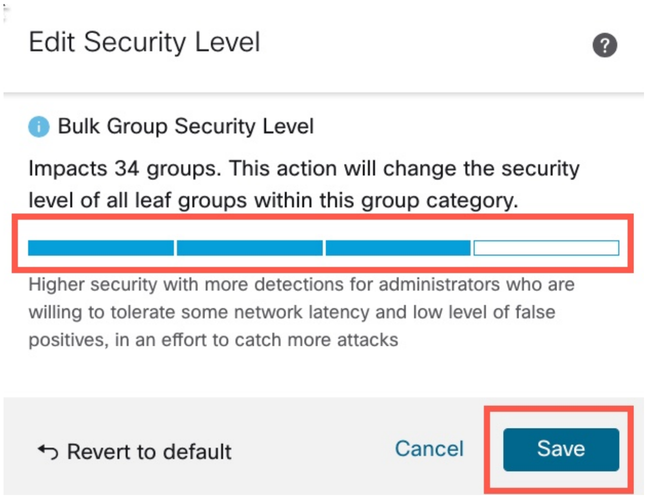

Group Overrides
102 items
All
MITRE(1 group)
ATT&CK Framework(1 group)
Enterprise(13 groups)
Rule Categories(9 groups)
Search through all Rule Groups

MITRE / ATT&CK Framework
1 Groups

Security Level □□□□

Group Name	Security Level	Override	Rule
Enterprise Enterprise tactics represent the "why" of an ATT&CK technique or sub-technique. It is the adversar...	□□□□		

Step 11 In the **Edit Security Level** window, choose a **Security Level** (in this example, **3**), and click **Save**.


Edit Security Level

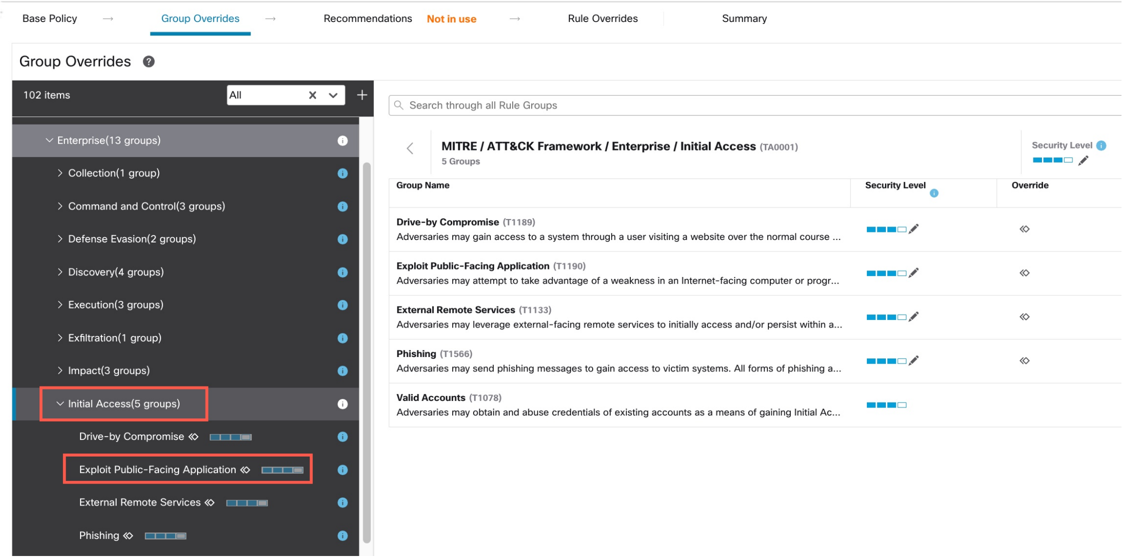
Bulk Group Security Level

Impacts 34 groups. This action will change the security level of all leaf groups within this group category.

Higher security with more detections for administrators who are willing to tolerate some network latency and low level of false positives, in an effort to catch more attacks

Step 12 Under **Enterprise**, click **Initial Access** to expand it.

Step 13 Under **Initial Access**, click **Exploit Public-Facing Application**, which is the last leaf group.

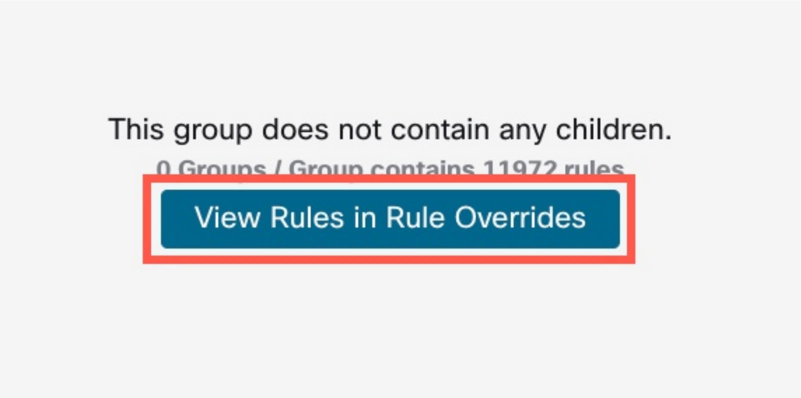


MITRE / ATT&CK Framework / Enterprise / Initial Access (TA0001)
5 Groups

Security Level ■■■□

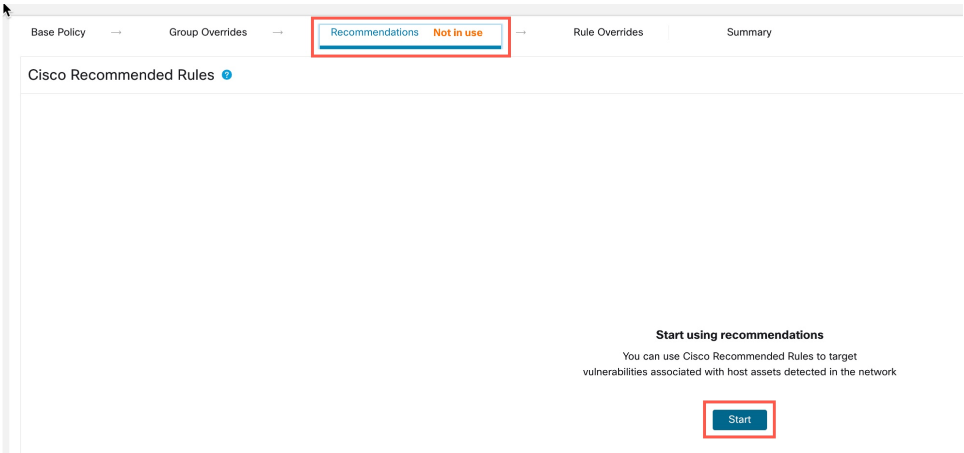
Group Name	Security Level	Override
Drive-by Compromise (T1189) Adversaries may gain access to a system through a user visiting a website over the normal course ...	■■■□	◇
Exploit Public-Facing Application (T1190) Adversaries may attempt to take advantage of a weakness in an Internet-facing computer or progr...	■■■□	◇
External Remote Services (T1133) Adversaries may leverage external-facing remote services to initially access and/or persist within a...	■■■□	◇
Phishing (T1566) Adversaries may send phishing messages to gain access to victim systems. All forms of phishing a...	■■■□	◇
Valid Accounts (T1078) Adversaries may obtain and abuse credentials of existing accounts as a means of gaining Initial Ac...	■■■□	

Step 14 Click **View Rules in Rule Overrides** to view the different rules, rule details, rule actions, and so on, for the different rules. You can change the rule actions for one or multiple rules in the **Rule Overrides** layer.


This group does not contain any children.

0 Groups / Group contains 11972 rules

Step 15 Click the **Recommendations** layer and then click **Start** to start using Cisco-recommended rules. You can use the intrusion rule recommendations to target the vulnerabilities that are associated with the host assets detected in the network. For more information, see Generate New Secure Firewall Recommendations in Snort 3, on page 32.

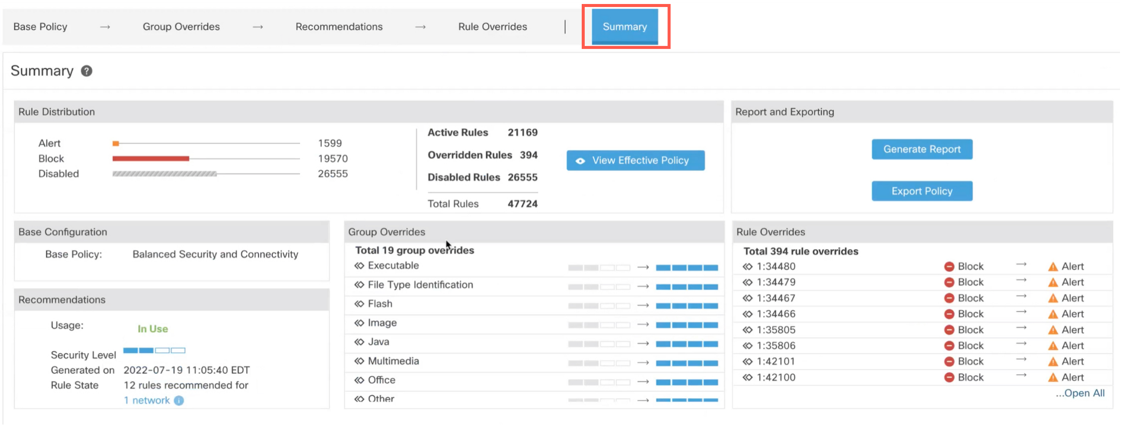


Cisco Recommended Rules

Start using recommendations

You can use Cisco Recommended Rules to target vulnerabilities associated with host assets detected in the network

Step 16 Click the **Summary** layer for a holistic view of the current changes to the policy. Based on the rule overrides, security-level changes, and generation of Cisco-recommended rules, you can view the rule distribution of the policy, group overrides, rule overrides, rule recommendations, and so on, to verify your changes.



Base Policy → Group Overrides → Recommendations → Rule Overrides | Summary

Summary

Rule Distribution

Alert	1599
Block	19570
Disabled	26555

Active Rules	**21169**
Overridden Rules	**394**
Disabled Rules	**26555**
Total Rules	**47724**

Report and Exporting

Generate Report
Export Policy

Base Configuration

Base Policy: Balanced Security and Connectivity

Recommendations

Usage: In Use

Security Level
Generated on 2022-07-19 11:05:40 EDT
Rule State 12 rules recommended for 1 network

Group Overrides

Total 19 group overrides

- Executable
- File Type Identification
- Flash
- Image
- Java
- Multimedia
- Office
- Other

Rule Overrides

Total 394 rule overrides

1:34480	Block	→	Alert
1:34479	Block	→	Alert
1:34467	Block	→	Alert
1:34466	Block	→	Alert
1:35805	Block	→	Alert
1:35806	Block	→	Alert
1:42101	Block	→	Alert
1:42100	Block	→	Alert

What to do next

Deploy your intrusion policy to detect and log events that are triggered by the Snort rules. See Deploy Configuration Changes.

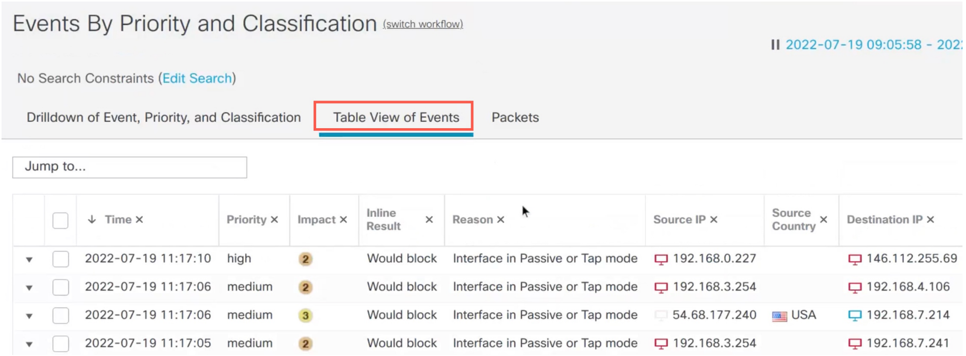
View Intrusion Events

You can view the MITRE ATT&CK techniques and rule groups in the intrusion events on the **Classic Event Viewer** and **Unified Event Viewer** pages. Talos provides mappings from Snort rules (GID:SID) to MITRE ATT&CK techniques and rule groups. These mappings are installed as part of the Lightweight Security Package (LSP).

Procedure

Step 1 Click **Analysis** and select **Events** under **Intrusions**.

Step 2 Click the **Table View of Events** tab.



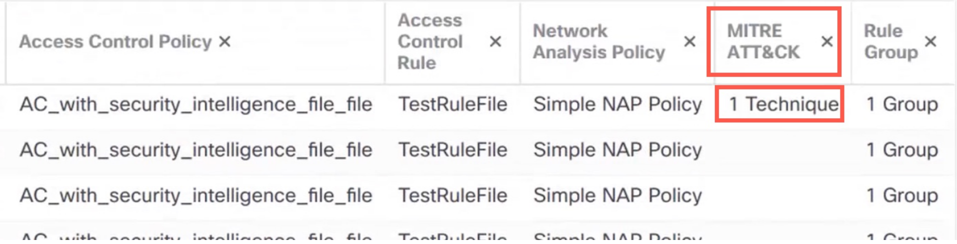
Events By Priority and Classification (switch workflow)

II 2022-07-19 09:05:58 - 202

No Search Constraints (Edit Search)

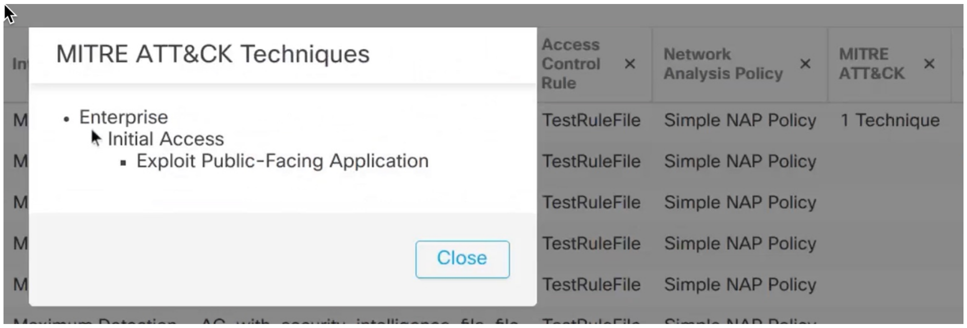
		↓ Time ×	Priority ×	Impact ×	Inline Result ×	Reason ×	Source IP ×	Source Country ×	Destination IP ×
▾	□	2022-07-19 11:17:10	high	2	Would block	Interface in Passive or Tap mode	192.168.0.227		146.112.255.69
▾	□	2022-07-19 11:17:06	medium	2	Would block	Interface in Passive or Tap mode	192.168.3.254		192.168.4.106
▾	□	2022-07-19 11:17:06	medium	3	Would block	Interface in Passive or Tap mode	54.68.177.240	USA	192.168.7.214
▾	□	2022-07-19 11:17:05	medium	2	Would block	Interface in Passive or Tap mode	192.168.3.254		192.168.7.241

Step 3 Under **MITRE ATT&CK**, you can see the techniques for an intrusion event. Click **1 Technique** to view the MITRE ATT&CK techniques.



Access Control Policy ×	Access Control Rule ×	Network Analysis Policy ×	MITRE ATT&CK ×	Rule Group ×
AC_with_security_intelligence_file_file	TestRuleFile	Simple NAP Policy	1 Technique	1 Group
AC_with_security_intelligence_file_file	TestRuleFile	Simple NAP Policy		1 Group
AC_with_security_intelligence_file_file	TestRuleFile	Simple NAP Policy		1 Group
AC_with_security_intelligence_file_file	TestRuleFile	Simple NAP Policy		1 Group

In this example, **Exploit Public-Facing Application** is the technique.



MITRE ATT&CK Techniques

- Enterprise
  - Initial Access
    - Exploit Public-Facing Application

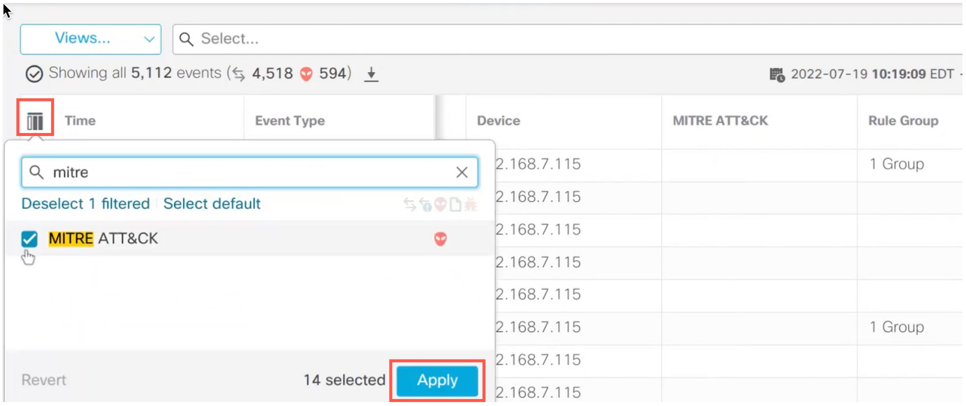
Close

Access Control Rule ×	Network Analysis Policy ×	MITRE ATT&CK ×
TestRuleFile	Simple NAP Policy	1 Technique
TestRuleFile	Simple NAP Policy	
TestRuleFile	Simple NAP Policy	
TestRuleFile	Simple NAP Policy	
TestRuleFile	Simple NAP Policy	

Step 4 Click **Close**.

Step 5 Click **Analysis** and select **Unified Events**.

Step 6 If not enabled, click the column selector icon to enable the **MITRE ATT&CK** and **Rule Group** columns.



Views... | Select...

Showing all 5,112 events (4,518 594) — 2022-07-19 10:19:09 EDT

Columns: Time | Event Type | Device | MITRE ATT&CK | Rule Group

mitre

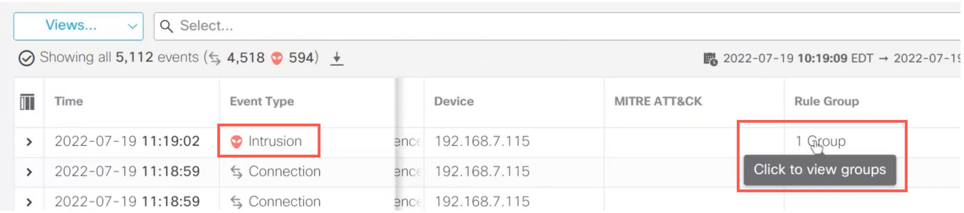
Deselect 1 filtered   Select default

☑ MITRE ATT&CK

Revert   14 selected   Apply

Device	MITRE ATT&CK	Rule Group
2.168.7.115		1 Group
2.168.7.115		
2.168.7.115		
2.168.7.115		
2.168.7.115		
2.168.7.115		1 Group
2.168.7.115		
2.168.7.115		

Step 7 In this example, the intrusion event is triggered by an event that is mapped to one rule group. Click **1 Group** under the **Rule Group** column.



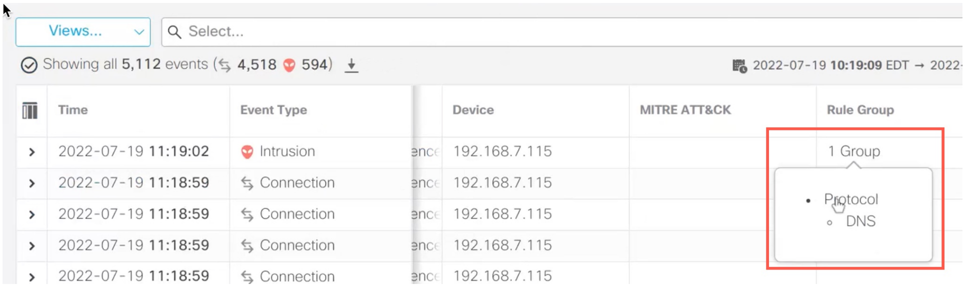
Views... | Select...

Showing all 5,112 events (4,518 594) — 2022-07-19 10:19:09 EDT → 2022-07-1

	Time	Event Type	Device	MITRE ATT&CK	Rule Group
›	2022-07-19 11:19:02	Intrusion	192.168.7.115		1 Group
›	2022-07-19 11:18:59	Connection	192.168.7.115		
›	2022-07-19 11:18:59	Connection	192.168.7.115		

Click to view groups

Step 8 You can view **Protocol**, which is the parent rule group, and the DNS rule group under it. Choose **Protocol** > **DNS** to search for all the intrusion events that have at least one rule group that is .

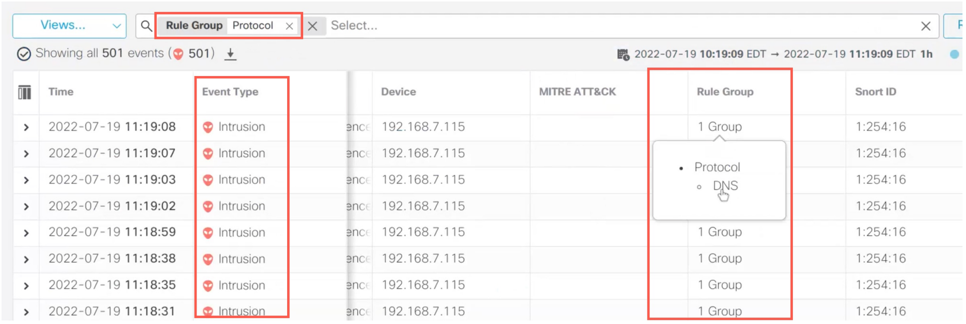


Showing all 5,112 events (⇆ 4,518 🛡 594) ⭳ 2022-07-19 10:19:09 EDT → 2022-

	Time	Event Type		Device	MITRE ATT&CK	Rule Group
›	2022-07-19 11:19:02	🛡 Intrusion	enc	192.168.7.115		1 Group
›	2022-07-19 11:18:59	⇆ Connection	enc	192.168.7.115		
›	2022-07-19 11:18:59	⇆ Connection	enc	192.168.7.115		
›	2022-07-19 11:18:59	⇆ Connection	enc	192.168.7.115		
›	2022-07-19 11:18:59	⇆ Connection	enc	192.168.7.115		

- Protocol
  - DNS

The search results are displayed.



Showing all 501 events (🛡 501) ⭳ 2022-07-19 10:19:09 EDT → 2022-07-19 11:19:09 EDT 1h

	Time	Event Type		Device	MITRE ATT&CK	Rule Group	Snort ID
›	2022-07-19 11:19:08	🛡 Intrusion	enc	192.168.7.115		1 Group	1:254:16
›	2022-07-19 11:19:07	🛡 Intrusion	enc	192.168.7.115			1:254:16
›	2022-07-19 11:19:03	🛡 Intrusion	enc	192.168.7.115			1:254:16
›	2022-07-19 11:19:02	🛡 Intrusion	enc	192.168.7.115			1:254:16
›	2022-07-19 11:18:59	🛡 Intrusion	enc	192.168.7.115		1 Group	1:254:16
›	2022-07-19 11:18:38	🛡 Intrusion	enc	192.168.7.115		1 Group	1:254:16
›	2022-07-19 11:18:35	🛡 Intrusion	enc	192.168.7.115		1 Group	1:254:16
›	2022-07-19 11:18:31	🛡 Intrusion	enc	192.168.7.115		1 Group	1:254:16

- Protocol
  - DNS

Additional References

- Intrusion Policy in Snort 3
- Edit Snort 3 Intrusion Policies, on page 3
- MITRE Information in Malware Events