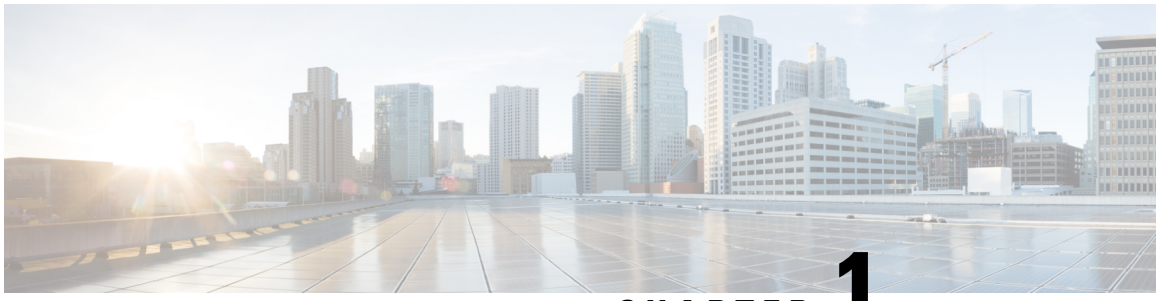
# Cisco Security Analytics and Logging (On Premises) v2.0 and v3.0: Firewall Event Integration Guide

**First Published:** 2021-05-26

**Last Modified:** 2022-03-14

**Americas Headquarters**
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883



CHAPTER 1

# Introduction



## Overview

This guide explains how to configure Cisco Security Analytics and Logging (On Premises) to store your Firewall event data for increased storage at a larger retention period. By deploying Cisco Secure Network Analytics (formerly Stealthwatch) appliances, and integrating them with your Firewall deployment, you can export your event data to a Secure Network Analytics appliance.

You can then:

- Store events on the Firepower Management Center (FMC) and events on the Secure Network Analytics deployment.
- Specify this remote data source to view these events in the FMC.
- Review your event data from the Cisco Secure Network Analytics Manager (formerly Stealthwatch Management Console) Web App UI using the Event Viewer.
- Cross-launch from the FMC UI to the Event Viewer to view additional context on the information from which you cross-launched.

**Note** If you want to store Firewall event data in the Cisco cloud, as opposed to on-premises, see the Cisco Security Analytics and Logging (SaaS) documentation for more information.

## Supported Event Types

- FTD Security Events
  - Connection
  - Intrusion
  - File and Malware
- FTD Data Plane Events (Multi-node deployment only)

- ASA Events (Multi-node deployment only)

# Concepts and Architecture

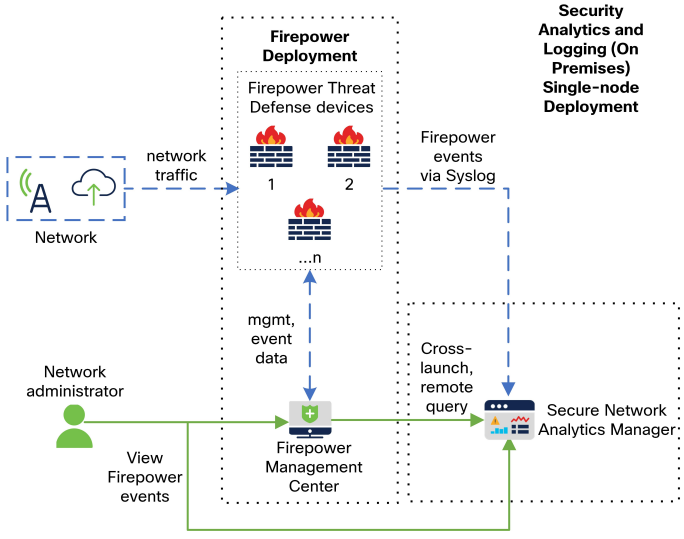
In a Security Analytics and Logging (OnPrem) deployment, you can use a Secure Network Analytics appliance to store data from another Cisco product deployment, such as a Firepower appliance deployment. In the case of the Firepower deployment, you can export your Firepower Security Events and data plane events from your Firepower Threat Defense devices managed by a Firepower Management Center to a Manager to store that information. In the Security Analytics and Logging (OnPrem) app v3.0.0, we added the ability to export events from your ASA devices via syslog to a Manager.

You have two options for Secure Network Analytics deployment:

- Single-node - Deploy a standalone Manager to receive and store events, and from which you can review and query events
- Multi-node - Deploy a Cisco Secure Network Analytics Flow Collector to receive events, a Cisco Secure Network Analytics Data Store (containing 3 Cisco Secure Network Analytics Data Nodes) to store events, and a Manager from which you can review and query events

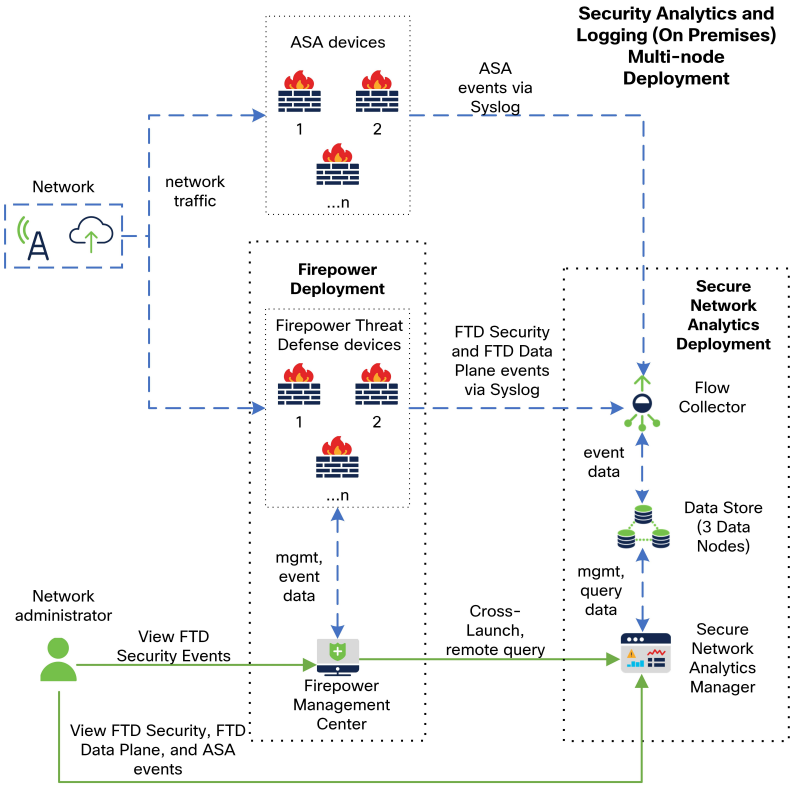
**Note** We support installing the app on an Manager as a standalone appliance (Single-node), or an Manager that manages a Flow Collector and 3 Data Nodes (Multi-node). You cannot install the app on an Manager if it manages one or more Flow Collectors without managing 3 Data Nodes. See Troubleshooting, on page 33 for more information.

See the following diagram for an example of a Single-node deployment with a Manager:

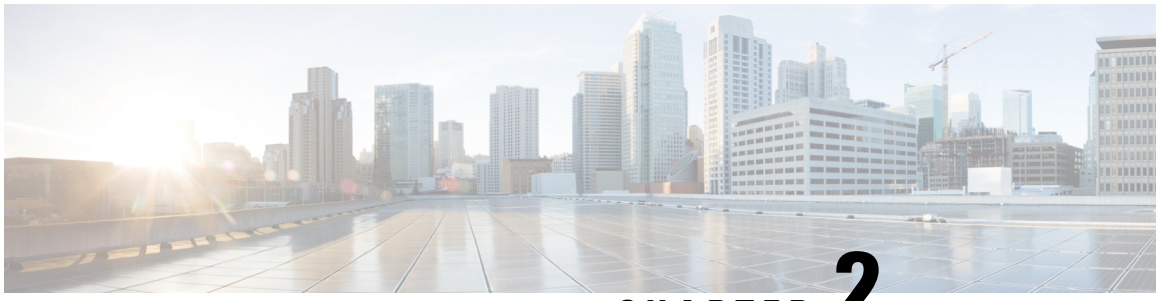



In this deployment, the Firepower Threat Defense devices send Firepower events to the Manager, and the Manager stores these events. From the Firepower Management Center UI, users can cross-launch to the Manager to view more information about the stored events. They can also query remotely the events from the Firepower Management Center.

See the following diagram for an example of a Multi-node deployment with a Manager, 3 Data Nodes, and a Flow Collector:




In this deployment, the Firepower Threat Defense and ASA devices send Firewall events to the Flow Collector. The Flow Collector sends the events to the Data Store (3 Data Nodes) for storage. From the Firepower Management Center UI, users can cross-launch to the Manager to view more information about the stored events. They can also query remotely the events from the Firepower Management Center.



CHAPTER 2

# Deployment



## Requirements and Best Practices

The following lists the requirements and best practices for deploying Security Analytics and Logging (OnPrem) to store your Firewall event data.

**Firewall Appliances**

You must deploy the following Firewall appliances:

| Solution Component | Required Version | Licensing for Cisco Security Analytics and Logging (On Premises) | Notes |
|---|---|---|---|
| Firepower Management Center (hardware or virtual) | v7.0+<br>For Firepower Management Center running earlier versions, see https://cisco.com/go/sal-on-prem-docs. | none | • can deploy one Manager per Firepower Management Center, and optionally one Flow Collector and one Data Store (3 Data Nodes) |
| Firepower managed devices | v7.0+ using the wizard<br>Firepower Threat Defense v6.4 or later using syslog<br>NGIPS v6.4 using syslog | none | |

| Solution Component | Required Version | Licensing for Cisco Security Analytics and Logging (On Premises) | Notes |
|---|---|---|---|
| ASA devices | v9.12+ | none | • supported on Security Analytics and Logging (OnPrem) app v3.0.0+ and Secure Network Analytics v7.4.0+ Multi-node deployment |

### Secure Network Analytics Appliances

You have the following options for deploying Secure Network Analytics:

- Single-node - Deploy only a Manager to ingest and store events, and review and query events
- Multi-node - Deploy a Flow Collector to ingest events, Data Store to store events, and Manager to review and query events

**Note** You cannot deploy a mix of Secure Network Analytics hardware and Secure Network Analytics VE appliances.

*Table 1: Single-node*

| Solution Component | Required Version | Licensing for Security Analytics and Logging (OnPrem) | Notes |
|---|---|---|---|
| Manager | Secure Network Analytics v7.3.1+ | none | • can deploy either an Manager 2210 hardware appliance or Manager Virtual Edition (VE) appliance<br>• can receive events from multiple Firepower Threat Defense devices, all managed by one Firepower Management Center<br>• must install the Security Analytics and Logging (OnPrem) app for event ingest, and for viewing Firewall events in the Manager Web App |
| Security Analytics and Logging (OnPrem) app | Security Analytics and Logging (OnPrem) app v2.0+ | Logging and Troubleshooting Smart License, based on GB/day | Install this app on the Manager and configure to enable event ingest |

*Table 2: Multi-node*

| Solution Component | Required Version | Licensing for Security Analytics and Logging (OnPrem) | Notes |
|---|---|---|---|
| Manager | Secure Network Analytics v7.3.2+ | none | • can deploy either an Manager 2210 hardware appliance or Manager Virtual Edition (VE) appliance<br>• must install theSecurity Analytics and Logging (OnPrem) app for event ingest, and for viewing Firewall events in the Manager Web App |
| Flow Collector | Secure Network Analytics v7.3.2+ | none | • can deploy either a Flow Collector 4210 hardware appliance or Flow Collector VE appliance<br>• can receive events from multiple Firepower Threat Defense devices, all managed by one Firepower Management Center<br>• can receive ASA events from multiple ASA devices (v7.4+) |
| Data Store (3 Data Nodes) | Secure Network Analytics v7.3.2+ | none | • can deploy either a Data Store 6200 (3 Data Nodes) hardware or Data Store VE (3 Data Nodes VE)<br>• can store Firewall events received by the Flow Collector |

| Solution Component | Required Version | Licensing for Security Analytics and Logging (OnPrem) | Notes |
|---|---|---|---|
| Security Analytics and Logging (OnPrem) app | Security Analytics and Logging (OnPrem) app v2.0+ | Logging and Troubleshooting Smart License, based on GB/day | Install this app on the Manager and configure to enable event ingest |

In addition to these components, you must make sure that all of the appliances can synchronize time using NTP.

If you want to remotely access the Firepower or Secure Network Analytics appliances' consoles, you can enable access over SSH.

# Secure Network Analytics Licensing

You can use Security Analytics and Logging (OnPrem) for 90 days without a license in Evaluation Mode. To continue using Security Analytics and Logging (OnPrem) after the 90 day period, you must obtain a Logging and Troubleshooting Smart License for Smart Licensing, based on the GB per day you anticipate sending in syslog data from your Firewall deployment to your Secure Network Analytics appliance.

**Note** For license calculation purposes, the amount of data is reported to the nearest whole GB, truncated. For example, If you send 4.9 GB in a day, it is reported as 4 GB.

See the Secure Network Analytics Smart Software Licensing Guide for more information on licensing your Secure Network Analytics appliances.

# Secure Network Analytics Resource Allocation

Secure Network Analytics offers the following ingest rates when deployed for Security Analytics and Logging (OnPrem):

- a hardware or virtual edition (VE) Single-node deployment can ingest up to roughly 20k events per second (EPS) on average, with short bursts of up to 35k EPS
- a virtual edition (VE) Multi-node deployment can ingest up to roughly 50k EPS on average, with short bursts of up to 175k EPS
- a hardware Multi-node deployment can ingest up to roughly 100k EPS on average, with short bursts of up to 350k EPS

Based on the allocated hard drive storage, you can store the data for several weeks or months. These estimates are subject to various factors, including network load, traffic spikes, and information transmitted per event.

**Note** At higher EPS ingest rates, the Security Analytics and Logging (OnPrem) app may drop data. In addition, if you send all event types, instead of only connection, intrusion, file, and malware events, the app may drop data as your overall EPS rises. Review the log files in this case; see Troubleshooting, on page 33 for more information.

### Single-node VE Recommendations

For optimum performance, allocate the following resources if you deploy a Manager VE:

| Resource | Recommendation |
|---|---|
| CPUs | 12 |
| RAM | 64 GB |
| Hard drive storage | 2 TB |

Based on the storage space that you allocate, you can store your data for roughly the following time frames on a Single-node deployment:

| Average EPS | Average Daily Events | Estimated Retention Period for 1 TB Storage | Estimated Retention Period for 2 TB Storage | Estimated Retention Period for 4 TB Storage |
|---|---|---|---|---|
| 1,000 | 86.5 million | 250 days | 500 days | 1000 days |
| 5,000 | 430 million | 50 days | 100 days | 200 days |
| 10,000 | 865 million | 25 days | 50 days | 100 days |
| 20,000 | 1.73 billion | 12.5 days | 25 days | 50 days |

When the Manager reaches maximum storage capacity, it deletes the oldest data first to make room for incoming data.

**Note** We have tested the Manager VE with these resource allocations for this estimated ingest and storage period. You may note unanticipated errors due to insufficient resource allocation if you do not assign enough CPUs or RAM to the virtual appliance. If you increase the storage allocation beyond 4 TB, you may note unanticipated errors due to insufficient resource allocation.

### Multi-node Recommendations

For optimum performance, allocate the following resources if you deploy a Manager VE, Flow Collector VE, and Data Store VE:

***Table 3: Manager VE***

| Resource | Recommendation |
|---|---|
| CPUs | 8 Intel Xeon, minimum 2.29 GHz |
| RAM | 64 GB |
| Hard drive storage | 480 GB |

*Table 4: Flow Collector VE*

| Resource | Recommendation |
|---|---|
| CPUs | 8 Intel Xeon, minimum 2.29 GHz |
| RAM | 70 GB |
| Hard drive storage | 480 GB |

*Table 5: Data Nodes VE (as part of a Data Store)*

| Resource | Recommendation |
|---|---|
| CPUs | 12 Intel Xeon, minimum 2.29 GHz per Data Node |
| RAM | 32 GB per Data Node |
| Hard drive storage | 5 TB per Data Node VE, or 15 TB total across 3 Data Nodes |

Based on the storage space that you allocate, you can store your data for roughly the following time frames on your Multi-node deployment:

| Average EPS | Average Daily Events | Virtual | Hardware |
|---|---|---|---|
| 1,000 | 86.5 million | 1,500 days | 3,000 days |
| 5,000 | 430 million | 300 days | 600 days |
| 10,000 | 865 million | 150 days | 300 days |
| 20,000 | 1.73 billion | 75 days | 150 days |
| 25,000 | 2.16 billion | 60 days | 120 days |
| 50,000 | 4.32 billion | 30 | 60 days |
| 75,000 | 6.48 billion | Not supported | 40 days |
| 100,000 | 8.64 billion | Not supported | 30 days |

When the Data Store reaches maximum storage capacity, it deletes the oldest data first to make room for incoming data.

**Note** We have tested these virtual appliances with these resource allocations for this estimated ingest and storage period. You may note unanticipated errors due to insufficient resource allocation if you do not assign enough CPUs or RAM to the virtual appliance. If you increase the storage allocation beyond 4 TB, you may note unanticipated errors due to insufficient resource allocation.

# Communication Ports

The following table lists the communication ports you must open for the Security Analytics and Logging (OnPrem) integration for a Single-node deployment.

| From (Client) | To (Server) | Port | Protocol or Purpose |
|---|---|---|---|
| External internet (NTP server) | FMC, FTD devices, and Manager | 123/UDP | NTP time synchronization, all to the same NTP server |
| User workstations | FMC and Manager | 443/TCP | Logging into the appliances' web interfaces over HTTPS using a web browser |
| FTD devices managed by a FMC | Manager | 8514/UDP | Syslog export from the FTD devices, ingest to the Manager |
| FMC | Manager | 443/TCP | remote query from FMC to the Manager |

The following table lists the communication ports you must open for the Security Analytics and Logging (OnPrem) integration for a Multi-node deployment. In addition, see the Data Store Hardware Deployment and Configuration Guide or the Data Store Virtual Edition Deployment and Configuration Guide for the ports you must open for your Secure Network Analytics deployment.

| From (Client) | To (Server) | Port | Protocol or Purpose |
|---|---|---|---|
| External internet (NTP server) | FMC, FTD devices, Manager, Flow Collector, and Data Store | 123/UDP | NTP time synchronization, all to the same NTP server |
| user workstations | FMC and Manager | 443/TCP | Logging into the appliances' web interfaces over HTTPS using a web browser |
| FTD devices managed by a FMC | Flow Collector | 8514/UDP | Syslog export from the FTD devices, ingest to Flow Collector |
| ASA devices | Flow Collector | 8514/UDP | Syslog export from ASA devices, ingest to Flow Collector |
| FMC | Manager | 443/TCP | Remote query from the FMC to the Manager |

# Configuration Overview

The following describes the high-level steps for configuring your deployment to store event data.

Review these tasks before starting your deployment.

| Component and Task | Steps |
|---|---|
| Deploy Single-node | You have the following options:<br>• Deploy a Manager 2210 to your network, and perform initial configuration, including assigning an eth0 management interface IP address and other information. See the x2xx Series Hardware Installation Guide and Secure Network Analytics System Configuration Guide for more information.<br>• Download the Manager VE ISO, and deploy the Manager VE to your hypervisor. Perform initial configuration, and assign an eth0 management interface IP address and other information. See the Secure Network Analytics Virtual Edition Installation Guide for more information.<br>See Single-node Deployment and Configuration for more information. |
| Deploy Multi-node | You have the following options:<br>• Deploy a hardware Manager, Flow Collector, and 3 Data Nodes to your network. Perform initial configuration for each appliance, and initialize the Data Store. See x2xx Series Hardware (with Data Store) Appliance Installation Guide for more information.<br>• Download the Manager VE ISO, Flow Collector VE ISO, and Data Node ISO. Deploy one Manager VE, one Flow Collector VE, and 3 Data Nodes VE to your hypervisor. Perform initial configuration for each appliance, and initialize the Data Store. See Virtual Edition (with Data Store) Appliance Installation Guide for more information.<br>See Multi-node Deployment and Configuration for more information. |
| Download and install the Security Analytics and Logging (OnPrem) app on your Manager, and configure your Secure Network Analytics deployment to receive and store Firewall events. | • On the Manager, go to App Manager in Central Management and download the app. Configure it to receive events from Firepower devices.<br>• See the Security Analytics and Logging (OnPrem) release notes and app help for more information on using the app.<br>See Manager Configuration for more information. |

| Component and Task | Steps |
|---|---|
| Configure the Firepower Management Center to send events to Security Analytics and Logging (OnPrem) | You have the following options:<br>• Configure the Firepower Management Center to send events to your Secure Network Analytics appliance. See Configure the Wizard in FMC, on page 17 if your devices are running Firepower 7.0+, or For Managed Devices Running Versions Earlier than 7.0, Use Syslog, on page 19.<br>• Configure Data Plane event logging using the Configure Firepower Management Center to Send Events to Secure Network Analytics using Syslog section.<br>• Reduce logging load on the Firepower Management Center using the Stop Storing Low-Priority Connection Events on the FMC section. |
| Configure ASA devices to send events to Security Analytics and Logging (OnPrem) | • Configure your ASA devices to send events to your Secure Network Analytics appliance. See ASA Devices Configuration, on page 24.<br>• ASA events are supported on Security Analytics and Logging (OnPrem) app v3.0.0+ and Secure Network Analytics v7.4.0+ Multi-node deployment. |
| Review Next Steps | Review the Next Steps:<br>• Review the Firepower online help for more information. See Work in the FMC with Connection Events Stored on a Secure Network Analytics Appliance<br>• Review the Manager Web App online help for more information on how to use Secure Network Analytics. |

# Single-node Deployment and Configuration

### Before you begin

- Ensure that you have deployed a Manager to your network, and that the management IP address is reachable by both your FMC's management IP address and your FTD device's management IP addresses. Note the management IP address for further configuration. See the Secure Network Analytics Virtual Edition Installation Guide for more information.
- Ensure that you register your Secure Network Analytics product instance. The Manager VE license is automatically added to your account after registration. See the Secure Network Analytics Smart Software Licensing Guide for more information.

### Procedure

Follow the instructions in the Secure Network Analytics Virtual Edition Installation Guide to deploy your Manager VE, or the x2xx Series Hardware Installation Guide and Secure Network Analytics System Configuration Guide if you are deploying a Manager 2210.

**Note** We support installing the app on an Manager as a standalone appliance (Single-node), or an Manager that manages a Flow Collector and 3 Data Nodes (Multi-node). You cannot install the app on an Manager if it manages one or more Flow Collectors without managing 3 Data Nodes. See Troubleshooting, on page 33 for more information.

# Multi-node Deployment and Configuration

**Important** After you choose to configure your Manager or Flow Collector for use with Security Analytics and Logging (OnPrem), you cannot update the appliance's configuration to change this. You must RFD the appliance if you select the wrong choice. Enable this only if you plan to use Secure Network Analytics for Security Analytics and Logging (OnPrem) to store your Firewall event information.

### Before you begin

- Ensure that you have deployed a Manager, Flow Collector, and 3 Data Nodes (v7.3.2+) to your network, that the Flow Collector management IP address is reachable by your Firepower Threat Defense devices' management IP addresses, and that the Manager management IP address is reachable by your Firepower Management Center's management IP address. Note the management IP address for further configuration.
- Ensure that you register your Secure Network Analytics product instance. The Manager VE license is automatically added to your account after registration. See the Secure Network Analytics Smart Software Licensing Guide for more information.

### Procedure

Follow the instructions in x2xx Series Hardware (with Data Store) Appliance Installation Guide to deploy your Secure Network Analytics hardware appliances, or Virtual Edition (with Data Store) Appliance Installation Guide to deploy your Secure Network Analytics virtual appliances.

**Note** We support installing the app on an Manager as a standalone appliance (Single-node), or an Manager that manages a Flow Collector and 3 Data Nodes (Multi-node). You cannot install the app on an Manager if it manages one or more Flow Collectors without managing 3 Data Nodes. See Troubleshooting, on page 33 for more information.

# Manager Configuration

To configure your Secure Network Analytics deployment for Security Analytics and Logging (OnPrem), install the Security Analytics and Logging (OnPrem) app on the Manager. This configures your Manager to receive events from your Firewall devices.

**Note** We support installing the app on an Manager as a standalone appliance (Single-node), or an Manager that manages a Flow Collector and 3 Data Nodes (Multi-node). You cannot install the app on an Manager if it manages one or more Flow Collectors without managing 3 Data Nodes. See Troubleshooting, on page 33 for more information.

# Installing the Security Analytics and Logging (OnPrem) App

Install the Security Analytics and Logging (OnPrem) app on your Manager. See the Security Analytics and Logging (OnPrem) Release Notes for more information.

### Procedure

**Step 1** Log in to your Cisco Smart Account at https://software.cisco.com, or contact your administrator, to download the Security Analytics and Logging (OnPrem) app.

**Step 2** Log in to your Manager.

**Step 3** Click the **Global Settings** icon.

**Step 4** Select **Central Management**.

**Step 5** Click the **App Manager** tab.

**Step 6** Click **Browse**.

**Step 7** Follow the on-screen prompts to upload the app file.

### What to do next

- Configure the FMC to send events to your Secure Network Analytics appliance. See Configure the Wizard in FMC, on page 17 if your devices are running Firepower 7.0+, or For Managed Devices Running Versions Earlier than 7.0, Use Syslog, on page 19.
- Configure your ASA devices to send events to your Secure Network Analytics appliance. See ASA Devices Configuration, on page 24.

**Caution** Uninstalling the Security Analytics and Logging (OnPrem) app removes all related information, including Firewall event data, from your Manager. If you have a Single-node deployment, it also removes the standalone Manager restriction. After you uninstall the Security Analytics and Logging (OnPrem) app, you can then manage one or more Flow Collectors with your standalone Manager as part of a traditional Secure Network Analytics deployment to inspect traffic.

# Firepower Configuration

When you configure Firepower for Security Analytics and Logging (OnPrem), you have the following options:

- If your Firepower Threat Defense devices are running Firepower 7.0+, use the configuration wizard. See Configure the Wizard in FMC for more information.
- If your Firepower Threat Defense devices are running Firepower 6.4 to 6.8, manually configure syslog export. See For Managed Devices Running Versions Earlier than 7.0, Use Syslog, on page 19 for more information.

# Configure the Wizard in FMC

This procedure sets up the integration for all the FMC users.

### Before you begin

- Your system must be working as expected and generating the events you want to send.
- Set up your Secure Network Analytics and Security Analytics and Logging (OnPrem) products to be ready to receive event data.
- You must have one of the following user roles:
  - Admin
  - Analyst
  - Security Analyst
- If you are currently using syslog to send events to Secure Network Analytics from device versions that support sending events directly, disable syslog for those devices (or assign those devices an access control policy that does not include syslog configurations) to avoid duplicate events on the remote volume.
- Gather the following:
  - The hostname or IP address of your Manager.
  - (If you are using a Flow Collector to aggregate multiple Secure Network Analytics appliances for extended storage capacity) The IP address of your Flow Collector. (You cannot use hostname for this setting.)
  - Credentials for an account on your Secure Network Analytics appliance that has administrator privileges.

    These credentials are NOT stored on the FMC; they are used once in order to establish a read-only analyst API account for the FMC on the Manager. A dedicated account is not needed for this; you can use your own admin credentials.

    You may be logged out of the Manager during the registration process; complete any work in progress before starting this wizard.
  - SSL certificate from your Manager, if you prefer not to use the "trust on first use" option.

### Procedure

**Step 1** In the FMC, go to **System > Logging > Security Analytics and Logging**.

**Step 2** Click an option to use a standalone Secure Network Analytics appliance (Single-node) or a Flow Collector (Multi-node) for extended storage capacity.

**Step 3** Complete the wizard.

If you see any field with a red box around it, hover over the field to see an error message.

**Step 4** Deploy your changes to managed devices.

### What to do next

- If you are using the Security Analytics and Logging (OnPrem) app v3.0.0+ and Secure Network Analytics v7.4.0+ Multi-node deployment, enable sending Data Plane events using the Configure Firepower Management Center to Send Events to Secure Network Analytics using Syslog section.
- If your FMC manages supported devices running versions earlier than 7.0, see For Managed Devices Running Versions Earlier than 7.0, Use Syslog, on page 19.
- After you have confirmed that events are successfully being stored on your Secure Network Analytics appliance, allow time to pass until you are certain that all events stored on your FMC are also available remotely. Then see Stop Storing Low-Priority Connection Events on the FMC, on page 23.

**Note** If you need to change any of these configurations, run the wizard again. If you disable the configuration or run the wizard again, all settings except the account credentials are retained.

# Configure Firepower Management Center to Send Events to Secure Network Analytics using Syslog

The following describes how to configure the FMC to send event data to Secure Network Analytics using syslog, in the UI options in appliance Platform Settings Policy.

**Note** Data Plane events are supported on the Security Analytics and Logging (OnPrem) app v3.0.0+ and Secure Network Analytics v7.4.0+ Multi-node deployment.

### Before you begin

- Make sure you enable sending Data Plane event logging to Secure Network Analytics using the Configure the Wizard in FMC in the FMC.

### Procedure

**Step 1** Enable logging.

a) Go to **Syslog > Logging Setup > Basic Logging Settings**.

b) Check the **Enable Logging** check box.

**Step 2** Configure logging trap.

a) Go to **Syslog** > **Logging Destinations**.
b) Click **+ Add Logging Destination**.
c) For **Logging Destionation**, select **Syslog Servers**.
d) For **Event Class**, select **Filter on Severity**.
e) Choose any severity.

**Step 3** Configure logging facility.

a) Go to **Syslog** > **Syslog Settings** > **Facility**.
b) For **Facility**, select **default = LOCAL4(20)**.

# For Managed Devices Running Versions Earlier than 7.0, Use Syslog

If your FMC manages devices running version 6.4 or later, you can run the wizard described in this document to enable viewing the events on the FMC and cross-launching from FMC into Secure Network Analytics, then configure your system to use syslog to send events to Security Analytics and Logging (OnPrem) from pre-7.0 FTD devices.

## Configuration Overview: Sending Events from FTD Devices On Earlier Versions

To configure your Firepower deployment for Security Analytics and Logging (OnPrem), perform the following:

- Verify that your Firepower object names, such as policy and rule names, do not contain commas, as this may cause issues. Use other special characters instead, such as hyphens.
- Note the Firepower Management Center management IP address and the Firepower Threat Defense devices management IP addresses. See the Firepower documentation for more information.
- Create a network host object with your Secure Network Analytics ingest appliance management IP address
- Configure your Firepower Threat Defense device to export syslog over UDP to the Secure Network Analytics ingest appliance
- Optionally restrict the exported syslog to only connection, intrusion, file, and malware events to improve performance
- Enable your access control policy to log to syslog
- Configure logging connection, intrusion, file, and malware events to syslog.

**Note** If you export unsupported event types to the appliance, it drops these events and does not store them. However, the events count towards your overall exported events per second (EPS). Removing these events from the export can reduce your overall exported EPS and improve overall performance.

**Note** If you want to send different event types to different syslog destinations, contact Cisco Support.

# Create a Network Host Object

### Before you begin

- Log into the Firepower Management Center web interface as an Admin, Access Admin, or Network Admin.

### Procedure

**Step 1** Select **Objects** > **Object Management**.

**Step 2** Choose **Network** from the list of object types.

**Step 3** Choose **Add Object** from the Add Network drop-down list.

**Step 4** Enter an object **Name**, such as *csal-sw-appliance* or another descriptive name.

**Step 5** Enter a **Description**, such as *Security Analytics and Logging (OnPrem) Secure Network Analytics appliance for event export* or another description.

**Step 6** In the **Network** field, enter your Manager's *eth0* management IP address.

**Step 7** Click **Save**.

# Configure Firepower Threat Defense Settings to Export syslog to Secure Network Analytics

### Procedure

**Step 1** From the Firepower Management Center web interface, select **Devices** > **Platform Settings** and create or edit a Firepower Threat Defense policy associated with your Firepower Threat Defense device.

**Step 2** In the left navigation pane, click **Syslog**.

**Step 3** Click **Syslog Servers** and click **Add** to add a new syslog server (in this case, the Secure Network Analytics appliance).

**Step 4** Select *csal-sw-appliance* from the **IP Address** drop-down list.

**Step 5** Select the *UDP* **Protocol**.

**Step 6** Enter **Port** *8514*.

**Step 7** Under **Reachable By**, check **Device Management Interface**.

**Step 8** Click **Syslog Settings**.

**Step 9** Check **Enable Timestamp on Syslog Messages**.

**Step 10** Select the *RFC 5424 (yyyy-MM-ddTHH:mm:ssZ)* **Timestamp Format**. Security Analytics and Logging (OnPrem) requires the RFC 5424 timestamp format.

**Step 11** Click **Logging Setup**.

**Step 12** Check **Log messages in Cisco EMBLEM format (UDP only)**.

## Optionally Configure Firepower Threat Defense Settings to Export only Connection, Intrusion, File, and Malware Events

If you want to limit the exported syslog to only connection, intrusion, file, and malware events, and regulate the sent events per second to improve performance, you can configure a syslog event list in the Firepower Threat Defense settings.

**Note** If you send all event types, instead of only connection, intrusion, file, and malware events, the app may drop data as your overall EPS rises. Review the log files in this case; see Troubleshooting, on page 33 for more information.

Add the following message IDs to your event list:

***Table 6:***

| Message ID | Event Type |
|---|---|
| 430001 | Intrusion event |
| 430002 | Connection event logged at beginning of connection |
| 430003 | Connection event logged at end of connection |
| 430004 | File event |
| 430005 | Malware event |

**Procedure**

**Step 1** From your Firepower Threat Defense policy, in the left navigation pane, click **Syslog**.
**Step 2** Click **Event Lists**.
**Step 3** Click **Add**.
**Step 4** Enter a descriptive **Name**, such as *SecurityAnalyticsandLogging*. Note that spaces are not allowed.
**Step 5** Click **Message ID**.
**Step 6** Click **Add**.
**Step 7** Enter *430001-430005* in the **Message ID** field.
**Step 8** Click **OK**.
**Step 9** Click **OK**.
**Step 10** **Save** your settings.

## Enable syslog Export per Access Control Policy

You configure each access control policy to use the Firepower Threat Defense syslog settings that you configured in the previous procedure.

**Procedure**

**Step 1** From the access control policy, select **Logging**.

**Step 2** Check **FTD 6.3 and later: Use the syslog settings configured in the FTD Platform Settings policy deployed on the device**.

**Step 3** Click **Save**.

## Enable Connection Event Logging to syslog per Access Control Rule

You enable connection event logging to syslog at the access control rule level.

**Procedure**

**Step 1** From the Firepower Management Center web interface, click **Policies > Access Control** and edit your access control policy.

**Step 2** Click the **Edit** ( ) icon next to a rule where you want to configure connection event logging.

**Step 3** Click the **Logging** tab.

**Step 4** Specify whether you want to **Log at Beginning of Connection** or **Log at End of Connection**. To optimize performance, log either the beginning or the end of any connection, but not both.

**Step 5** If you will log file events, select **Log Files**.

**Step 6** Enable **Syslog Server**.

Verify that the rule is "**Using default syslog configuration in Access Control Logging**." Do not enable overrides.

**Step 7** Click **Save**.

**Step 8** Repeat steps 1-6 for each access control rule for which you want to enable connection event logging to syslog.

**Step 9** If you have finished your Firepower configuration, you can now go to **Deploy > Deployment** and deploy the policy to managed devices. The changes are not active until you deploy them. Otherwise, continue Firepower configuration.

## Enable File and Malware Event Logging to syslog

You enable file and malware event logging to syslog at the access control policy level. In addition, each access control rule must have an associated file policy to generate file and malware events.

**Procedure**

**Step 1** From the Firepower Management Center web interface, click **Policies > Access Control**, and edit your access control policy.

**Step 2** Click the **Logging** tab.

**Step 3** Check **Send Syslog messages for File and Malware events** to enable file and malware event logging.

Verify that the rule is "**Using default syslog configuration in Access Control Logging**." Do not enable overrides.

**Step 4** Click **Save**.

**Step 5** For each access control rule associated with the file policy, follow the instructions in Enable Connection Event Logging to syslog per Access Control Rule to ensure that your Firepower deployment logs file events to syslog.

**Step 6** If you have finished your Firepower configuration, you can now go to **Deploy > Deployment** and deploy the policy to managed devices. The changes are not active until you deploy them. Otherwise, continue Firepower configuration.

## Enable Intrusion Event Logging to syslog

You enable intrusion event logging to syslog at the intrusion policy level. In addition, each access control rule must have an associated intrusion policy to generate intrusion events.

### Procedure

**Step 1** From the web interface, click **Policies > Access Control > Intrusion** to navigate to your intrusion policy.

**Step 2** Click the **Edit** icon next to the intrusion policy where you want to configure logging.

**Step 3** Click **Advanced Settings > Syslog Alerting > Enabled**.

**Step 4** Click **Back**.

**Step 5** Click **Policy Information** in the left navigation pane.

**Step 6** Click **Commit Changes**.

**Step 7** If you have finished your configuration, you can now go to **Deploy > Deployment** and deploy the policy to managed devices. The changes are not active until you deploy them. Otherwise, continue configuration.

# Stop Storing Low-Priority Connection Events on the FMC

The vast majority of connection events are not associated with identified threats. You can choose not to store this large volume of events on your FMC.

Events that are not stored on your FMC do not count against the maximum flow rate for your FMC appliance, as specified in the data sheet at https://www.cisco.com/c/en/us/products/collateral/security/%20firesight-management-center/datasheet-c78-736775.html.

The following connection events are considered high priority and are always stored on the FMC, even if you disable storage of connection events:

- Security events
- Connection events associated with intrusion events
- Connection events associated with file events
- Connection events associated with malware events

Not storing low priority connection events on your FMC allows you to allocate more storage space to other event types, increasing your time window for investigating threats. This setting does not affect statistics collection.

This setting applies to events from all devices managed by this FMC.

### Before you begin

**Caution** This procedure will immediately permanently delete all connection events currently stored on your FMC.

Before performing this procedure, ensure that all low priority connection events that you want to keep already exist on your Secure Network Analytics appliance. Generally, we recommend enabling this option some time after you have confirmed that your FMC is successfully sending events to Secure Network Analytics.

### Procedure

**Step 1** There are two ways to stop storing low priority connection events on the FMC:

Both methods have the same effect.

- After you complete the wizard to send events to Security Analytics and Logging (OnPrem), go to **System > Logging > Security Analytics and Logging**, enable the option to **Store Fewer Events on FMC**.
- Go to **System > Configuration > Database**, look for the **Connection Database** section, and set **Maximum Connection Events** to zero (`0`).

  Setting this value to anything other than 0 counts all low priority connection events toward the maximum flow rate. This setting does not affect connection summaries.

**Step 2** Save your changes.

### What to do next

Increase the storage limits for all other event types on the **System > Configuration > Database** page.

# ASA Devices Configuration

The ASA system logs provide you with information for monitoring and troubleshooting the ASA devices. For list of ASA event types, see Cisco ASA Series Syslog Messages.

**Note** ASA event storage is supported on the Security Analytics and Logging (OnPrem) app v3.0.0+ and Secure Network Analytics v7.4.0+ Multi-node deployment.

To have ASA send the syslog events to Security Analytics and Logging (OnPrem), you must configure logging on the ASA device:

- Enable logging
- Configure output destination to Secure Network Analytics Flow Collector

**Note** EMBLEM logging format and secure logging are not supported for Security Analytics and Logging (OnPrem).

# CLI Commands to Send Syslog Events from ASA Devices

Use the following configuration commands to send syslog messages for security events from ASA devices to Security Analytics and Logging (OnPrem).

### Before you begin

- Review the requirements and prerequisites section.
- Confirm that your ASA devices can reach your Flow Collector.
- Obtain the Flow Collector IP address and port number from Central Management on your Manager.

### Procedure

**Step 1** Enable logging:

**logging enable**

**Example:**

```
ciscoasa(config)# logging enable
```

**Step 2** Specify which syslog messages should be sent to syslog server (Flow Collector):

**logging trap** {*severity_level* | *message_list*}

**Example:**

You can specify the severity level number (1 through 7) or name of the syslog messages to send to Flow Collector:

```
ciscoasa(config)# logging trap errors
```

**Example:**

Alternatively, you can specify a custom message list that identifies the syslog messages to send to Flow Collector:

```
ciscoasa(config)# logging list specific_event_list message 106100
ciscoasa(config)# logging list specific_event_list message 302013-302018
ciscoasa(config)# logging trap specific_event_list
```

**Step 3** Configure the ASA to send messages to Flow Collector:

**logging host** *interface_name syslog_ip* [**protocol**/*port*]

**Example:**

```
ciscoasa(config)# logging host management 209.165.201.3 17/8514
```

**Note**

a. For the syslog ip and port, specify the Flow Collector IP and the corresponding syslog port number (for instructions, refer to the Before you begin section).

b. Specify *17* to denote UDP protocol.

**Step 4** (Optional) Configure timestamp format in Syslog messages:

**logging timestamp** *{rfc5424}*

**Example:**

```
ciscoasa(config)# logging timestamp
ciscoasa(config)# logging timestamp rfc5424
```

The timestamp format specified in RFC5424 is yyyy-MM-THH:mm:ssZ, where the letter Z indicates the UTC time zone.

**Note** RFC5424 is supported only from ASA 9.10(1).

**Step 5** (Optional) Configure ASA to display syslog messages with device ID:

**logging device-id** {**cluster-id** | **context-name** | **hostname** | **ipaddress** *interface_name* [**system**] | **string** *text*}

**Example:**

```
ciscoasa(config)# logging device-id context-name
```

EMBLEM logging format is not supported for this integration. Hence, the syslog server uses the device ID to identify the syslog generator. You can specify only one type of device ID for syslog messages.

# ASDM Configuration to Send Syslog Events from ASA Devices

Use the following procedure to configure ASDM to send ASA syslog messages for security events to Security Analytics and Logging (OnPrem).

### Before you begin

- Review the requirements and prerequisites section.
- Confirm that your ASA devices can reach your Flow Collector.
- Obtain the Flow Collector IP address and port number from Central Management on your Manager.

### Procedure

**Step 1** Log in to ASDM.

**Step 2** Enable logging.

a) Click **Configuration** > **Device Management** > **Logging** > **Logging Setup**.

b) Check the **Enable logging** check box to turn on logging.

**Note** This integration does not support EMBLEM format. Hence, ensure that the **Send syslogs in EMBLEM** check box is not selected.

**Step 3** Configure the logging filter settings for the syslog server (Flow Collector).

a) Choose **Configuration** > **Device Management** > **Logging** > **Logging Filters**.

b) From the table, select **Syslog Servers**, and then click **Edit**.

c) In the **Edit Logging Filters** dialog box, select one of the following logging filter settings:

To filter the syslog messages based on the severity levels, click **Filter on severity**, and then choose the severity level.

**Note** ASA generates system log messages with severity levels up to the specified level.

OR

To filter the syslog messages based on the message IDs, click **Use event list**. You can choose an event list that is created with the required syslog message IDs, or click **New** to create a list with the syslog messages IDs or range of IDs.

d) Save your settings.

**Step 4** Configure the external syslog server with your Flow Collector address and port.

a) Choose **Configuration** > **Device Management** > **Logging** > **Syslog Server**.

b) Click **Add** to add a new syslog server.

c) In the **Add Syslog Server** dialog box, specify the following:

- **Interface**—The interface that will be used to communicate to the syslog server.
- **IP Address**—The Flow Collector IP obtained from Central Management on your Manager.
- **Protocol**—Select UDP.
- **Port**—The corresponding Flow Collector syslog port (8514 by default).

**Note** The **Log messages in Cisco EMBLEM format** check box is available if you selected UDP. This integration does not support EMBLEM format. Hence, ensure that this check box is not selected.

**Step 5** Click **Save** to apply changes to the configuration.

# CSM Configuration to Send Syslog Events from ASA Devices

Use the following procedure to configure Cisco Security Manager (CSM) to send ASA syslog messages for security events to Security Analytics and Logging (OnPrem).

### Before you begin

- Review the requirements and prerequisites section.
- Confirm that your ASA devices can reach your Flow Collector.
- Obtain the Flow Collector IP address and port number from Central Management on your Manager.
- EMBLEM logging format and secure logging are not supported for this integration.

### Procedure

**Step 1** Log in to **Configuration Manager** window of Cisco Security Manager.

**Step 2** Enable syslog logging.

a) To access the Syslog Logging Setup page, do one of the following:

- (Device view) Choose **Platform** > **Logging** > **Syslog** > **Logging Setup** from the Policy selector.
- (Policy view) Choose **Router Platform** > **Logging** > **Syslog** > **Logging Setup** from the Policy Type selector. Select an existing policy or create a new one.

b) In the Syslog Logging Setup page, check the **Enable Logging** check box to turn on syslog logging. Click **Save**.

**Note** This integration does not support EMBLEM format. Hence, ensure that the **Send syslogs in EMBLEM** check box is not selected.

**Step 3** Configure the logging filter settings for the syslog server (Flow Collector).

a) Choose **Platform** > **Logging** > **Syslog** > **Logging Filters** from the Policy selector.

b) From the table, select **Syslog Servers** under the **Logging Destination** column, and then click **Edit**. If the Syslog Servers object is not found, click **Add Row**.

c) In the **Add/Edit Logging Filters** dialog box, select one of the following logging filter settings:

- To filter the syslog messages based on the severity levels, click **Filter on severity**, and then choose the severity level.

  **Note** ASA generates system log messages with severity levels up to the specified level.

- To filter the syslog messages based on the message IDs, click **Use event list** and from the drop-down list, select the event list of your choice.

  **Note** The drop-down list will be blank if you have not defined any event list. You must define at least one event list (**Platform** > **Logging** > **Syslog** > **Event Lists**).

d) Save your settings.

**Step 4** (Optional) Configure logging parameters:

a) (Device view) Choose **Platform** > **Logging** > **Syslog** > **Server Setup**.
b) To configure timestamp format in syslog messages, check the **Enable Timestamp on Each Syslog Message** check box, and then check the **Enable Timestamp Format(rfc5424)** check box.

**Note** RFC5424 is supported only from ASA 9.10(1).

c) (Optional) Configure ASA to display syslog messages with device ID:

- **Interface**—Click this radio button and select an interface of the ASA device.
- **User Defined ID**—Click this radio button and enter a desired name to be added to all syslog messages of the ASA device.
- **Host Name**—Click this radio button to display syslog messages with the device hostname.

**Note** The syslog server uses the device ID to identify the syslog generator. You can specify only one type of device ID for syslog messages.

d) Click **Save**.

**Step 5** Configure the external logging server to which the syslog messages are to be sent.

a) To access the Syslog Servers page, do one of the following:

- (Device view) Select **Platform** > **Logging** > **Syslog Servers** from the Policy selector.
- (Policy view) Select **Router Platform** > **Logging** > **Syslog Servers** from the Policy Type selector. Select an existing policy or create a new one.

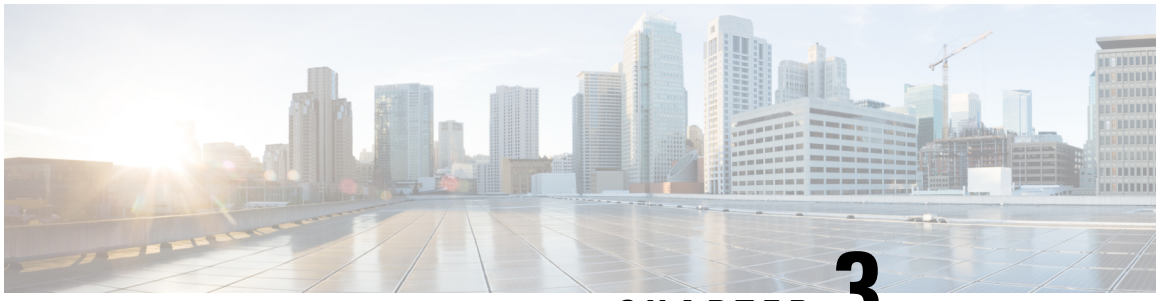
b) Click **Add** to add a new syslog server.
c) In the **Add/Edit Syslog Server** dialog box, specify the following:

- **Interface**—The interface that is used to communicate to the syslog server
- **IP Address**—The Flow Collector IP obtained from Central Management on your Manager.
- **Protocol**—Select UDP.
- **Port**—The corresponding Flow Collector syslog port (8514 by default).

**Note** The **Log messages in Cisco EMBLEM format** check box is available if you selected UDP. This integration does not support EMBLEM format. Hence, ensure that this check box is not selected.

d) Click **OK** to save your configuration and close the dialog box. The syslog server you defined is displayed in the table.

**Step 6** Submit and deploy the configuration changes.



CHAPTER 3

# Next Steps



## Next Steps

After you configure your Firewall devices to send event data to your Secure Network Analytics appliance as part of Security Analytics and Logging (OnPrem), you can take the following steps:

- Review the FMC online help.
- Review the Manager Web App online help to learn more about Secure Network Analytics.

## Work in the FMC with Connection Events Stored on a Secure Network Analytics Appliance

If your devices are sending connection events to a Secure Network Analytics appliance using Security Analytics and Logging (OnPrem), you can view and work with these remotely stored events in the FMC's event viewer and context explorer, and include them when generating reports. You can also cross-launch from an event in the FMC to view related data on your Secure Network Analytics appliance.

By default, the system automatically selects the appropriate data source based on the time range you specify. If you want to override the data source, use this procedure.

**Important** When you change the data source, your selection persists across all of the relevant analytics features that rely on the event data source, including reports, until you change it, even after you sign out. Your selection does not apply to other FMC users.

The selected data source is used for low-priority connection events only. All other event types (intrusion, file, and malware events; connection events associated with those events; and Security Intelligence events) are displayed regardless of data source.

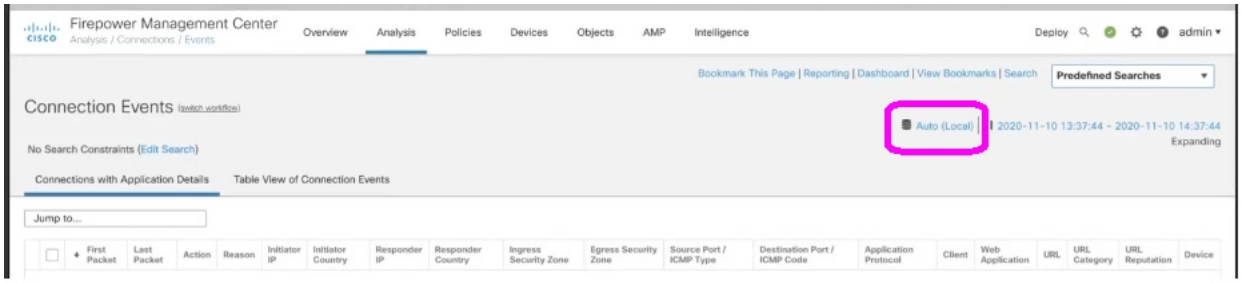
### Before you begin

You have used the wizard to send connection events to Security Analytics and Logging (OnPrem).

### Procedure

**Step 1** In the FMC web interface, navigate to a page that displays connection event data, such as **Analysis > Connections > Events**.

**Step 2** Click the data source displayed here and select an option:




**Caution** If you select **Local**, the system displays only the data available on the FMC, even if local data is not available for the entire time range selected. You will not be notified that this situation is occurring.

**Step 3** (Optional) To view related data directly in your Secure Network Analytics appliance, right-click (in the unified event viewer, click) a value such as an IP address or domain and choose a cross-launch option.

# Investigate Events Using Cross-launch

When viewing events in theFMC, you can right-click certain event data (for example, an IP address) and view related data in Manager.

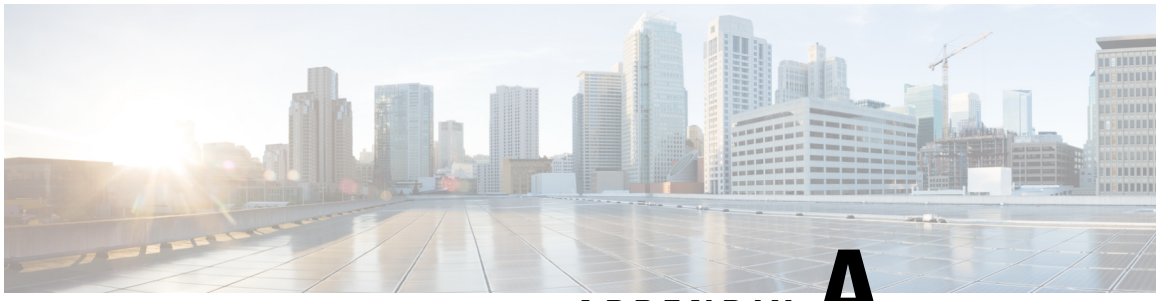
### Procedure

**Step 1** Navigate to one of the following pages in the FMC that shows events:

- A dashboard (**Overview > Dashboards**), or
- An event viewer page (any menu option under the Analysis menu that includes a table of events).

**Step 2** Right-click the event field of interest and choose the Security Analytics and Logging (OnPrem) cross-launch resource. The Manager opens in a separate browser window. You may be prompted for a username and password if you are not already logged in. It may take some time for the query to be processsed, depending on the amount of data to be queried, speed of and demand on the Manager, and so on.

**Step 3** Sign into the Manager.



APPENDIX A

# Troubleshooting



# Troubleshooting

### Security Analytics and Logging (OnPrem) General Troubleshooting Information

On the Manager VE, the following log files contain troubleshooting information related to Security Analytics and Logging (OnPrem):

- `/lancope/var/logs/containers/sal.log` - general app logging information
- `/lancope/var/logs/sal_preinstall.log` - information specific to the App installation process
- `/lancope/var/logs/containers/svc-db-ingest.log` - information specific to event ingestion and the database

### Incorrect Security Analytics and Logging (OnPrem) Configuration During System Configuration/First Time Setup

#### For Multi-node Configuration

When you perform initial system configuration on a Manager or Flow Collector, the First Time Setup wizard allows you to configure your Secure Network Analytics appliance to work with a Data Store, and for Security Analytics and Logging (OnPrem). You **must** select Yes for both selections on the Manager and Flow Collector, or your Secure Network Analytics deployment will not store your Firewall event information.

If you configure either selection with No, you cannot change this configuration. You must either RFD your appliance, restoring factory default settings, or in the case of a virtual edition appliance, deploy a new appliance, to properly configure Security Analytics and Logging (OnPrem).

#### For Singe-node Configuration

When you perform intial system configuration on a Manager, the First Time Setup wizard allows you to configure your Manager for Security Analytics and Logging (OnPrem). You **must** select No for when you are asked to configure the Manager to work with a Data Store.

If you select Yes, you cannot change this configuration. You must either RFD your appliance, restoring factory default settings, or in the case of a virtual edition appliance, deploy a new appliance, to properly configure Security Analytics and Logging (OnPrem).

### Security Analytics and Logging (OnPrem) App Install Failure on Single-node Deployment (Managed Flow Collectors)

We support installing the app on an Manager as a standalone appliance (Single-node), or an Manager that manages a Flow Collector and 3 Data Nodes (Multi-node). You cannot install the app on a Manager if it manages one or more Flow Collectors and does not manage a Data Store. If you attempt to install the app in this situation, then the installation fails. To verify that this is the cause, review the log file at `/lancope/var/logs/sal_preinstall.log`. If you see the following message or similar, then the installation detected a managed Flow Collector:

```
Checking flow collectors...
1 Flow Collector(s) detected
Flow Collector(s) are present in inventory -- aborting installation.
```

To install the app, remove all managed Flow Collectors from the Central Manager Appliance Inventory, then try again.

**Caution** Uninstalling the Security Analytics and Logging (OnPrem) app removes all related information, including event data, from your Manager, and removes the standalone Manager restriction. After you uninstall the Security Analytics and Logging (OnPrem) app, you can then manage one or more Flow Collectors with your Manager as part of a traditional Secure Network Analytics deployment to inspect traffic.

### Security Analytics and Logging (OnPrem) App Dropping Events

The app may drop events in the following situations:

- You export all event types in syslog, instead of only connection, file, malware, and intrusion events
- Your average events per second (EPS) ingest rate exceeds 20k
- Your burst EPS ingest rate exceeds 35k for an extended period of time

Review the information in the `/lancope/var/logs/containers/sal.log` log file to determine whether the app is dropping events. Search the file for entries containing "`events_dropped:`".

Contact Cisco Support if this behavior persists.

### Security Analytics and Logging (OnPrem) App Crash

If the Security Analytics and Logging (OnPrem) app crashes (due to an excessive ingest rate, for example), restart the Manager. This also restarts the app.