



# FortiAnalyzer - Cookbook

Version 5.4.0



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# TABLE OF CONTENTS

Change Log		
ntroduction		
FortiAnalyzer recipes		
FortiAnalyzer Analyzer-Collector configuration	5	
Setting up the Collector		
Setting up the Analyzer	8	
Results	10	
Adding FortiAnalyzer to the Security Fabric	10	
Connecting the External FortiGate and the FortiAnalyzer	11	
Configuring OSPF routing to the FortiAnalyzer	12	
Allowing internal FortiGates to access the FortiAnalyzer	12	
Sending log information to the FortiAnalyzer		
Review Results	14	
Log data migration from an old to new FortiAnalyzer	14	
Migrating prerequisites	15	
Setting up the aggregation client	15	
Setting up the aggregation server		
Running aggregation in the client CLI		
Checking the aggregation progress on the client		
Rebuilding the database		
Debugging log aggregation		
Replacing FortiGate HA pairs with logging enabled		
Replacing the primary unit	17	

# **Change Log**

Date	Change Description
2019-05-06	Initial release.

FortiAnalyzer Cookbook Fortinet Technologies Inc.

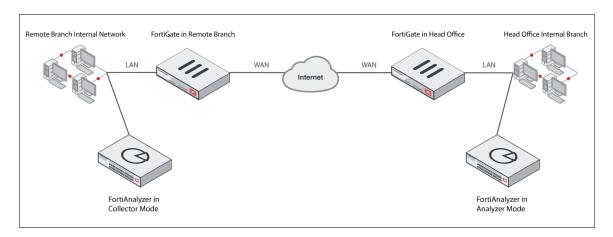
# Introduction

FortiAnalyzer units securely aggregate log data from Fortinet security appliances, allowing you to quickly analyze and visualize network threats, inefficiencies, and usage. FortiAnalyzer is one of several versatile Fortinet Management Products that provide a diversity of deployment types, growth flexibility, advanced customization through APIs, and simple licensing.

# FortiAnalyzer recipes

- FortiAnalyzer Analyzer-Collector configuration on page 5
- Adding FortiAnalyzer to the Security Fabric on page 10
- Log data migration from an old to new FortiAnalyzer on page 14
- Replacing FortiGate HA pairs with logging enabled on page 16

# FortiAnalyzer Analyzer-Collector configuration



This example illustrates how to set up FortiAnalyzer *Analyzer* and *Collector* modes and make them work together to increase the overall performance of log receiving, analysis, and reporting.

FortiAnalyzer provides two operation modes: *Analyzer* and *Collector*. Analyzer mode is the default mode that supports the full FortiAnalyzer features, while the primary task of a Collector is receiving logs from connected devices and uploading the logs to an Analyzer. Instead of writing logs to the database, the Collector retains the logs in their original (binary) format and sends the logs to the Analyzer. The following table shows a comparison of the supported features of the Analyzer and Collector modes.

FortiAnalyzer Feature	Analyzer Mode	Collector Mode
FortiView	Yes	No
Event Monitor	Yes	No

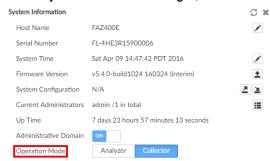
FortiAnalyzer Feature	Analyzer Mode	Collector Mode
Reports	Yes	No
Log View	Yes	Compressed logs only; indexed logs not available.
Device Manager	Yes	Yes
System Settings	Yes	Yes

In this example, Company A has a branch network with a FortiGate and a FortiAnalyzer 400E deployed in Collector mode. In its head office, Company A has another FortiGate and FortiAnalyzer 3000D deployed in Analyzer mode. Collector mode forwards the FortiGate logs in the remote branch to the Analyzer in the head office for data analysis and report generation. The Collector will also be used to archive logs.

# **Setting up the Collector**

#### To set up the Collector:

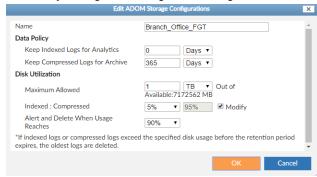
- 1. Configure the operation mode.
  - a. Go to System Settings > Dashboard.
  - **b.** In the System Information widget, select Collector as the Operation Mode.



**2.** Go to *Device Manager* and click the *Storage Used* tab in the quick status bar to check the storage policy of the Collector.



- 3. Configure the storage policy of the Collector.
  - To edit the date policy when ADOMs are enabled:
    - i. Go to System Settings > All ADOMs.
    - ii. Double click the ADOM your Analyzer/Collector belongs to.
    - iii. On the Edit ADOM Storage Configurations page, edit the log storage policy.
  - To edit the storage settings when ADOMs are disabled:
    - i. Go to System Settings > Dashboards.
    - **ii.** In the *System Information widget*, click the *edit* icon for *Log Storage Policy*. In the *Edit Log Storage Policy* dialog box, change the settings.



**4.** You can use the default admin account of the Analyzer or create a custom administrator account on the Analyzer. The Collector will need to provide the login credentials of this administrator account to get authenticated by the Analyzer for log aggregation.

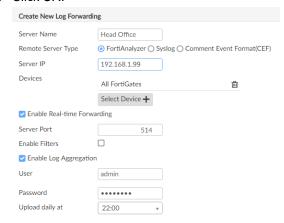


For the Collector, you should allocate most of the disk space for *compressed* logs. You should keep the compressed logs long enough to meet the regulatory requirements of your organization. After this initial configuration, you can monitor the storage usage and adjust it as you go.

#### To configure log forwarding:

- 1. On the Collector, go to System Settings > Log Forwarding. Click Create New.
- 2. Set the following settings:
  - Set Server Name to a name you prefer.
  - Set Remote Server Type to FortiAnalyzer.
  - Set Server IP to the IP address of the Analyzer to which this Collector will forward logs.
  - Click Select Device and select the FortiGate device of the branch office.
  - Select both Enable Real-time Forwarding and Enable Log Aggregation.
  - Provide the username and password of the Administrator account of the Analyzer.

#### 3. Click OK.





We recommend that you enable real-time forwarding to optimize performance. If you want the Collector to upload content files, which include DLP (data leak prevention) files, antivirus quarantine files, and IPS (intrusion prevention system) packet captures, you should also enable Log Aggregation so the Collector will send content files to the Analyzer at a scheduled time.



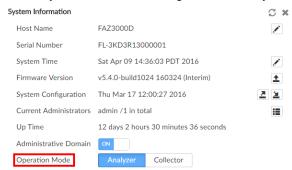
Log forwarding is enabled by default. If you cannot see *System Settings > Log Forwarding* in the GUI, you will have to enable it first. Go to *System Settings > Dashboard*. In the CLI Console widget, enter the following CLI commands:

```
config system admin setting
    set show-log-forwarding enable
end
```

# Setting up the Analyzer

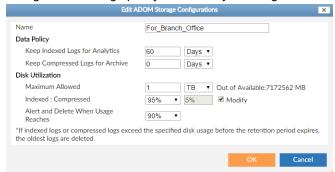
#### To set up the Analyzer:

- 1. Configure the operation mode.
  - Go to System Settings > Dashboard.
  - **b.** In the System Information widget, select Analyzer as the Operation Mode.



2. Go to *Device Manager* and click the *Storage Used* tab in the quick status bar to check the storage policy of the Analyzer.

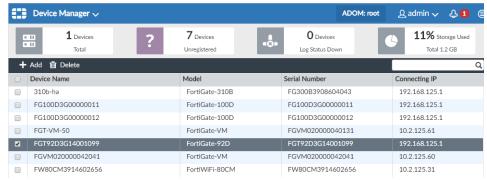
3. Configure the storage policy of the Analyzer using the corresponding instructions above for the Collector.





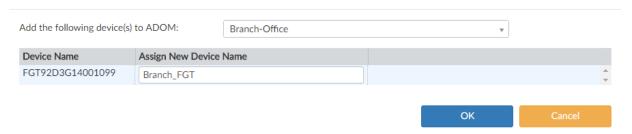
For the Analyzer, you should allocate most of the disk space for *indexed* logs. You may want to keep the indexed logs for 30-90 days. After this initial configuration, you can monitor the storage usage and adjust it as you go.

- 4. Add the branch office FortiGate to the Analyzer.
  - a. Go to Device Manager and click Unregistered Device in the quick status bar.



- **b.** Select the FortiGate device, and click *Add*.
- c. In the Add Device dialog box, select the ADOM you want to add to the FortiGate device (if ADOM is disabled, select root), and give the device a name. Once the FortiGate device is added, you can see it under the Device Total tab.

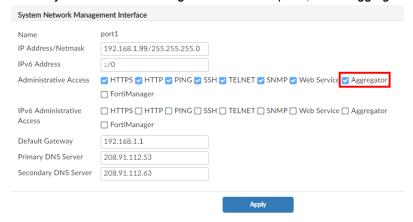
#### Add Device



- 5. Make sure that the log aggregation service is enabled on the Analyzer.
  - **a.** Go to System Settings > Dashboard.
  - **b.** In the CLI Console widget, enter the following commands:

```
config system aggregation-service
    set accept-aggregation enable
end
```

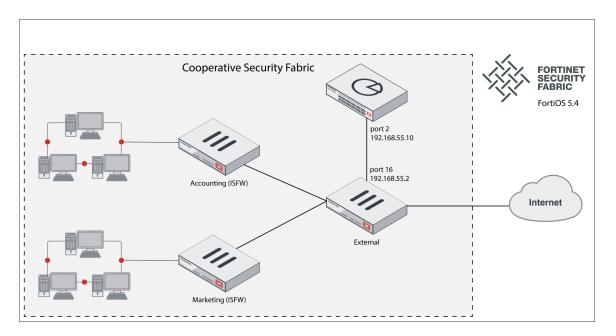
- 6. Make sure the Analyzer interface receiving the logs allows aggregator access.
  - a. Go to System Settings > Network.
  - b. In the System Network Management Interface pane, select Aggregator under Administrator Access.



#### Results

At this point, the Collector will start to forward logs to the Analyzer. Log in to the Analyzer GUI and go to *Log View*. Select the branch office FortiGate device from the device list, and select *Real-time Log* from the *Tools* dropdown. You will see real-time logs arriving from the branch office FortiGate.

# Adding FortiAnalyzer to the Security Fabric



In this recipe, you will add a FortiAnalyzer to a network that is already configured as a Cooperative Security Fabric (CSF). This will simplify network logging by storing and displaying all log information in one place.

In this example, a FortiGate called *External* is the upstream FortiGate. There are also two ISFWs, called *Accounting* and *Marketing*. OSPF routing is used between the FortiGates in the CSF.

### To add FortiAnalyzer to the Security Fabric:

- 1. Connect the External FortiGate and the FortiAnalyzer.
- 2. Configure OSPF routing to the FortiAnalyzer.
- 3. Allow internal FortiGates to access the FortiAnalyzer.
- 4. Send log information to the FortiAnalyzer.
- 5. Review results.

# Connecting the External FortiGate and the FortiAnalyzer

In this example, the External FortiGate's port 16 will connect to port 2 on the FortiAnalyzer.

#### To connect the External FortiGate and FortiAnalyzer:

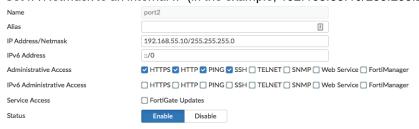
- 1. On the External FortiGate, go to Network > Interfaces and edit port 16.
- 2. Set an IP/Network Mask for the interface (in the example, 192.168.55.2).



Configure Administrative Access to allow FortiTelemetry, required for communication between devices in the CSF.

Configure other services as required.

- 4. On the FortiAnalyzer, go to System Settings > Network, select All Interfaces, and edit port2.
- **5.** Set IP/Netmask to an internal IP (in the example, 192.168.55.10/255.255.255.0).

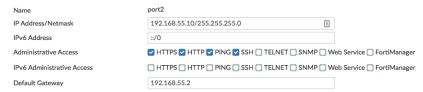


**6.** Connect the *External* FortiGate and the FortiAnalyzer.

On the FortiAnalyzer, go to System Settings > Network.

Port 2 is now shown as the management interface.

7. Add a Default Gateway, using the IP address of the External FortiGate's port 16.



# Configuring OSPF routing to the FortiAnalyzer

#### To configure OSPF routing to the FortiAnalyzer:

- 1. On the External FortiGate, go to Network > OSPF.
- 2. Click Create New to create a new network.
- **3.** Set *IP/Netmask* to 192.168.55.0/255.255.255.0 (the subnet that includes FortiAnalyzer's port 2) and *Area* to 0.0.0.0.



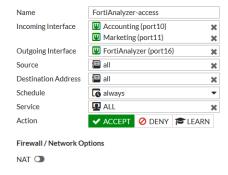
# Allowing internal FortiGates to access the FortiAnalyzer

#### To allow internal FortiGates to access the FortiAnalyzer:

- 1. On the External FortiGate, go to System > Feature Select.
- 2. Under Additional Features, select Multiple Interface Policies.



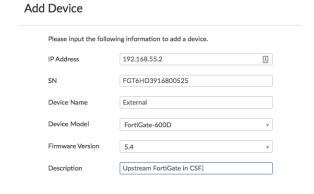
- 3. Go to *Policy & Objects > IPv4 Policy* and create a policy allowing the internal FortiGates (*Accounting* and *Marketing*) to access the FortiAnalyzer.
- **4.** Do *not* enable *NAT*.



# Sending log information to the FortiAnalyzer

#### To send log information to the FortiAnalyzer:

- 1. On the FortiAnalyzer, go to *Device Manager* and add a device.
- Enter all information about the External FortiGate, then select Next.
   The FortiAnalyzer will now add the device, and the External FortiGate will be listed on the FortiAnalyzer.



**3.** On the External FortiGate, go to Log & Report Settings. Under Remote Logging and Archiving, enable Send Logs to FortiAnalyzer/FortiManager.



**4.** Enter the IP Address of the FortiAnalyzer.

In the example image above, logs are set to be uploaded in *Realtime* because there is no bandwidth limitations. Also, since log traffic is occurring within the CSF, encryption is not enabled.

5. Select Test Connectivity to view information about the connection.



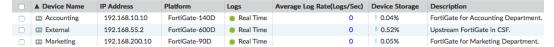
**6.** Under GUI Preferences, select Display Logs From FortiAnalyzer.



7. Repeat this process on both the Accounting and Marketing FortiGates.

#### **Review Results**

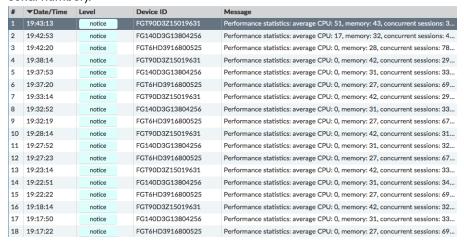
All three FortiGates are listed in the FortiAnalyzer's Device Manager.



 Go to FortiView > System > System Events. Events from all FortiGates in the CSF are shown, allowing you to have a complete view of the network.



You can select a type of system event, such as System performance statistics, to view information about the
individual events. Events are shown from all three FortiGates (the Device ID shown for each FortiGate is that unit's
serial number).



# Log data migration from an old to new FortiAnalyzer

This example illustrates how to migrate logs from an old FortiAnalyzer to a new FortiAnalyzer.



When migrating logs, the firmware version must be the same. For example, if you are migrating logs from an old FortiAnalyzer running 5.2 to a new FortiAnalyzer running 5.4, you must upgrade the 5.2 FortiAnalyzer to 5.4 firmware before aggregating and migrating logs to the new 5.4 FortiAnalyzer.

### Migrating prerequisites

#### To migrate prerequisites:

- 1. Make the old and new FortiAnalyzer the same firmware version. 5.4.0 or later is preferred.
- 2. Migrate the Device Manager settings from the old FortiAnalyzer to the new one.
- **3.** Enable the GUI display by using the following command:

```
conf sys admin setting > show-device-import-export: enable
```

- 4. In the old FortiAnalyzer, export the Device List from the Device Manager.
- **5.** In the new FortiAnalyzer, *import* the Device List from the Device Manager.

# Setting up the aggregation client



For FortiAnalyzer 5.6.0 and later, Log Aggregation is only available from the CLI.

#### To set up the aggregation client in the CLI:

```
config system aggregation-client
edit 1
set mode aggregation
set agg-user [ENTER ADMIN USER FOR NEW FORTIANALYZER]
set agg-password [ENTER PASSWORD FOR NEW FORTIANALYZER]
set agg-time 1 [LOG AGGREGATION START TIME]
set server-ip [ENTER NEW FORTIANALYZER IP ADDRESS]
next
end
```

# Setting up the aggregation server

#### To set up the aggregation server in the CLI:

1. Use the following command in the CLI:

```
config system aggregation-service
    set accept-aggregation enable
end
```

**2.** After running the command, take note of the *Instance ID*. You will need to enter the Instance ID when running the aggregation command in the client CLI.



Log Aggregation is not supported on all FortiAnalyzer models. Check your specific device's datasheet.

# Running aggregation in the client CLI

You can initiate log aggregation via the GUI or the CLI console.

#### To initiate log aggregation in the GUI:

- 1. Go to System > Log Forwarding.
- **2.** Select Aggregation Profile.
- 3. Click Aggregate Now.

#### To initiate log aggregation in the CLI:

```
exec log-aggregation all
```

# Checking the aggregation progress on the client

#### To check the aggregation progress on the client:

- **1.** On the old FortiAnalyzer, go to *System Settings > Event Log*.
- **2.** When the log aggregation is completed, the following message will be displayed: Log aggregation session completed.

# Rebuilding the database

If you are migrating a large amount of logs, you will need to rebuild the database after log aggregation.

#### To rebuild the database:

```
exec sql-local rebuild-db
```

# **Debugging log aggregation**

#### To debug log aggregation:

```
dia debug application log-aggregate 255 dia deb en
```

# Replacing FortiGate HA pairs with logging enabled

This recipe describes how to replace the primary and secondary FortiGate units in a high-availability (HA) pair, that are sending logs to FortiAnalyzer, when the connection to FortiAnalyzer goes down.

When the FortiGate units in an HA pair are synchronized and added to FortiAnalyzer, two members are displayed in the HA Cluster list in FortiAnalyzer.



In this example, FGT 60D4614007024 is the primary unit, but the connection to FortiAnalyzer is down.

### Replacing the primary unit

In FortiAnalyzer, do not delete the original primary FortiGate unit; if you do, you will lose logs associated with the device being replaced. Instead, add the new primary FortiGate unit to the *HA Cluster* list.



You can delete the original primary FortiGate unit at a later time, when the logs are no longer needed.



The FortiAnalyzer GUI displays three units in the *HA Cluster* list. It appears that the original FortiGate unit remains the primary unit in the HA cluster.

However, the new primary FortiGate unit in the HA cluster informs FortiAnalyzer which of the three units is the master.



If you would like to see the new primary FortiGate unit as the current device, change the device name in the FortiAnalyzer. If the unit being replaced was the original master, the cluster's device name may show the serial number of this device. If you wish, you can edit the cluster to reflect the serial number of the new device.



The process is the same if you want to replace the secondary unit in an HA pair.





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