Pulse Policy Secure

Access Control with Fortinet Products

Deployment Guide

Document 2.0

Published December, 2018

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Pulse Policy Secure: Access Control with Fortinet Products

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Contents

Purpose of this Guide

This guide describes how to configure *Pulse Policy Secure (PPS)* to provide Identity- and Alert-based protection for your network using Fortinet's products.

Prerequisites

This guide assumes you are familiar with the use of the following products and their related terminology.

- *Pulse Policy Secure* at version 9.0R3.
- *FortiGate Firewall* at version v6.0.2 build0163 (GA)
- *FortiAuthenticator* at version v 5.5.0, build0366(GA
- *FortiAnalyzer at version v6.0.2-build0205 180813 (GA)*

Identity-Based Access Control with Fortinet Products

This section describes how to integrate *FortiAuthenticator* and *FortiGate Firewall* products with *PPS* to support Identity-based admission control in your network.

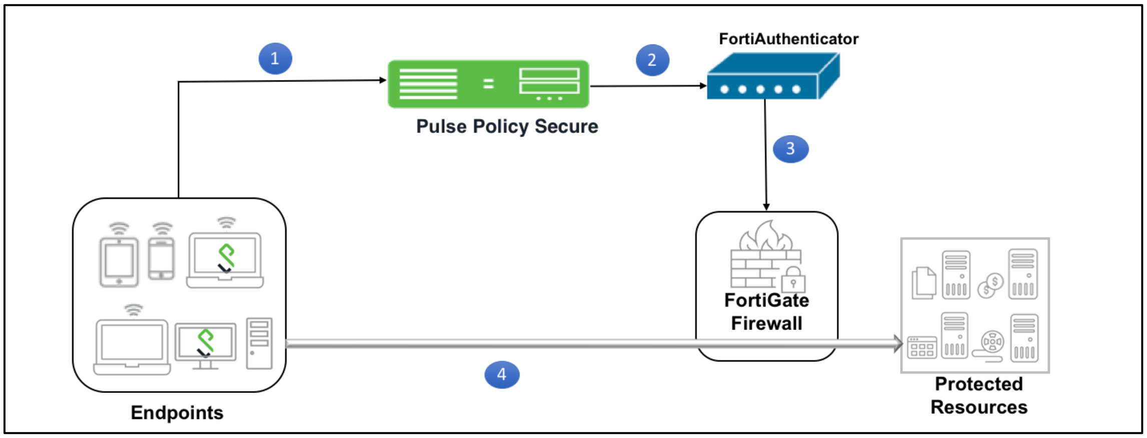
Overview of Identity-Based Access Control with Fortinet Product

Pulse Policy Secure (PPS) integration with the *FortiGate Firewall* provides identity-enabled enforcement with backend authentication and comprehensive compliance checks.

The authentication process is described below:

1) The user is authenticated on *PPS* after validating the host check policy to ensure that the endpoints meets the corporate policy.
2) The syslog sessions are exported to *FortiAuthenticator*.
3) *FortiAuthenticator*, which acts as a syslog server, parses identity information from the syslog message and creates an IP address to username mapping file within *FortiAuthenticator*. This information is shared with *FortiGate Firewall* in the form of a FSSO record.
4) The *FortiGate Firewall* maps the user to a specific resource access policy and then provides the required access to protected resources.

Figure 1: Deployment using PPS, FortiAuthenticator and FortiGate Firewall



For example, you can use this to extend NAC/BYOD (Bring Your Own Device) to perimeter defense. This unifies the access policies that extend from NAC/BYOD systems to firewall perimeter defenses to enable end-to-end enforcement across the network.

Summary of Configuration

To prepare your network to perform identity-based access control using *Pulse Policy Secure*, *FortiAuthenticator* and *FortiGate Firewall*, perform the following tasks:

- Configuring PPS with FortiAuthenticator:
    - Creating a Custom Filter for User Access Logs.
    - Editing a Custom Filter.
    - Configuring the Syslog Server.
- Configuring FortiAuthenticator.
- Configuring the FortiGate Firewall.
- (Optional) Reports and Logging.

The following sections describe each of these steps in detail.

Configuring PPS with FortiAuthenticator

The *PPS* configuration requires defining the *FortiAuthenticator* as the syslog server on *PPS*. The Syslog server uses the filter created in the User Access Log Filters for receiving and parsing the logs.

This section covers the following topics:

- Creating a Custom Filter for User Access Logs with default settings.
- Editing a Custom Filter to enable communication with *FortiAuthenticator*.
- Configuring the Syslog Server.

Creating a Custom Filter for User Access Logs

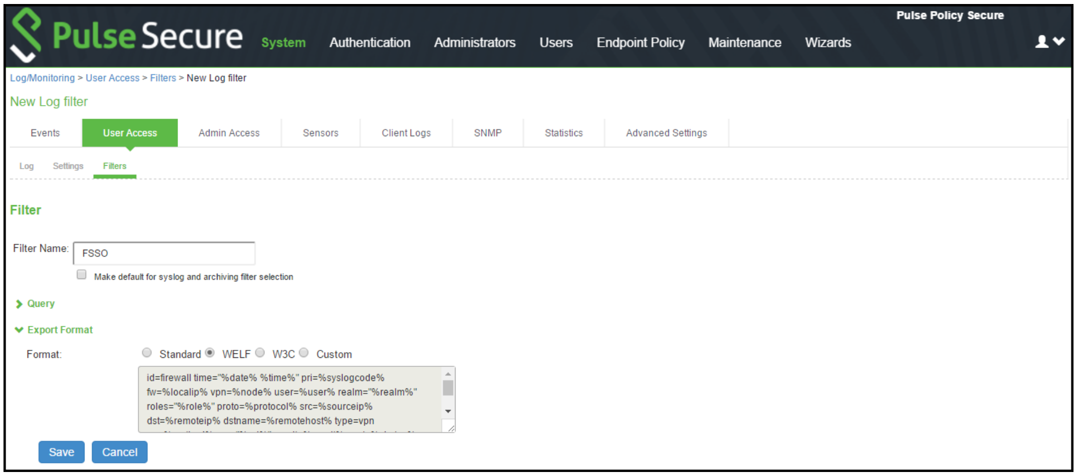
To create a custom filter in *PPS*:

1) Select System > Log/Monitoring > User Access > Filters.
2) Click New Filter.
3) Under Filter, enter the required Filter Name.
4) Under Export Format, select WELF.

NOTE: This selection populates the text box with all parameters for the selected filter. This ensures that it is simple to edit the filter to enable communication with *FortiAuthenticator*, see Editing a Custom Filter.

5) Click **Save** to save the filter.

Figure 2: Creating a Custom Filter



Filter Name: FSSO

□ Make default for syslog and archiving filter selection

Format: ○ Standard ● WELF ○ W3C ○ Custom

```
id=firewall time="%date% %time%" pri=%syslogcode%
fw=%localip% vpn=%node% user=%user% realm="%realm%"
roles="%role%" proto=%protocol% src=%sourceip%
dst=%remoteip% dstname=%remotehost% type=vpn
```

Editing a Custom Filter

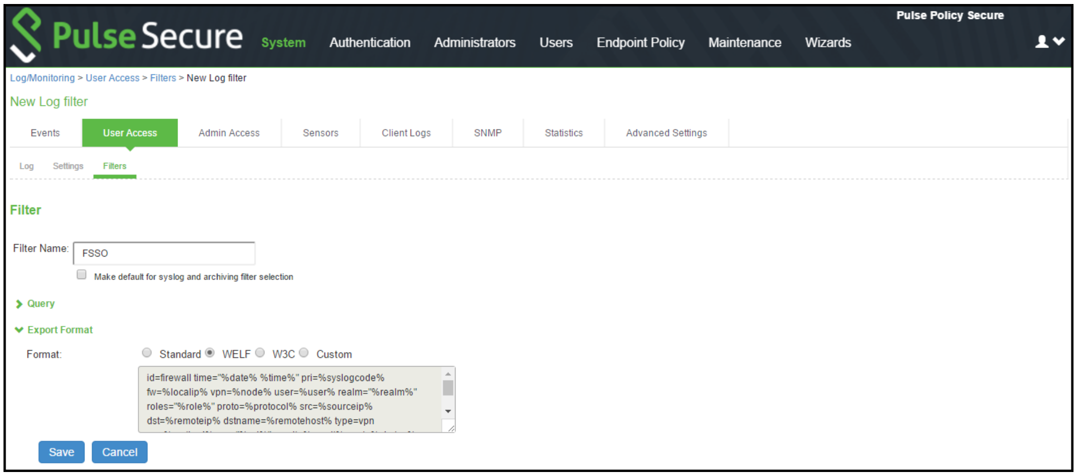
Once you have created a populated custom filter for User Access Logs (see Creating a Custom Filter for User Access Logs), you must update the ID for the filter to enable communication with *FortiAuthenticator*.

To edit a custom filter:

1) Select **System** > **Log/Monitoring** > **User Access** > **Filters**.
2) Click on the filter created in the previous procedure, see Creating a Custom Filter for User Access Logs.
3) Under **Export Format**, select the **Custom** format.
4) In the text box, edit the ID from *"id=firewall"* to *"id=FSSO"*.

   This ID will be used by *FortiAuthenticator* when parsing the syslog events.

   Figure 3: Editing the Filter



Filter Name: FSSO

□ Make default for syslog and archiving filter selection

Format: ○ Standard ● WELF ○ W3C ○ Custom

```
id=firewall time="%date% %time%" pri=%syslogcode%
fw=%localip% vpn=%node% user=%user% realm="%realm%"
roles="%role%" proto=%protocol% src=%sourceip%
dst=%remoteip% dstname=%remotehost% type=vpn
```

5) Click **Save**.

Configuring the Syslog Server

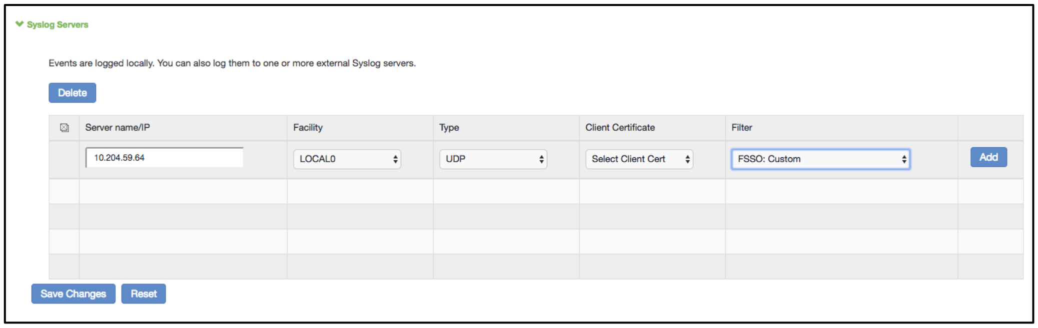
Once you have prepared a custom filter for User Access Logs (see Creating a Custom Filter for User Access Logs), you must configure *PPS* to send logs to the *FortiAuthenticator* syslog server.

NOTE: You must add *FortiAuthenticator* as a syslog server in all the nodes in a clustering environment.

To configure the syslog server:

1) Select **System** > **Log/Monitoring** > **User Access** > **Settings**.
2) Under **Select Events to Log**, retain the default settings.
3) Under **Syslog Servers**, create a syslog server with the following details:
    - **Server name/IP:** Enter the fully qualified domain name or the IP address of the syslog server (that is, *FortiAuthenticator*).
    - **Facility:** Select *LOCAL0* as the facility level.
    - **Type:** Select *UDP* as the connection type.
    - Do not change **Client Certificate**.
    - **Filter:** Select the *FSSO Custom* created filter format.

Figure 4: Configuring Syslog Server



Syslog Servers

Events are logged locally. You can also log them to one or more external Syslog servers.

☒	Server name/IP	Facility	Type	Client Certificate	Filter	
	10.204.59.64	LOCAL0	UDP	Select Client Cert	FSSO: Custom	Add

4) Click **Add** and then click **Save Changes**.

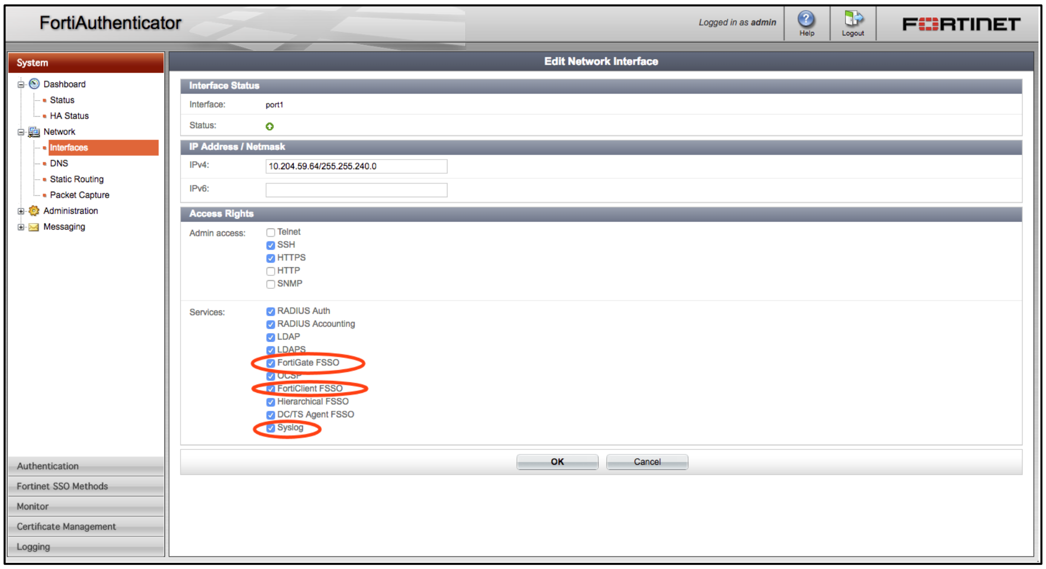
Configuring FortiAuthenticator

You must add PPS as a syslog source in *FortiAuthenticator* to parse the information.

Before you start, ensure you have completed the following tasks:

- Ensure that the *FortiAuthenticator* instance is communicating on the network and is reachable from the *PPS* appliance's management interface.
- Select System > Network > Interfaces, then select the required port and enable the *FortiGate FSSO*, *FortiClient FSSO* and *Syslog* services on *FortiAuthenticator* interface, which communicates with *PPS* and the *FortiGate Firewall*.

Figure 5: Enabling Fortinet Interfaces for a Port



Edit Network Interface

Interface Status

Interface: port1

Status: ●

IP Address / Netmask

IPv4: 10.204.59.64/255.255.240.0

IPv6:

Access Rights

Admin access:
□ Telnet
☑ SSH
☑ HTTPS
□ HTTP
□ SNMP

Services:
☑ RADIUS Auth
☑ RADIUS Accounting
☑ LDAP
☑ LDAPS
☑ FortiGate FSSO
☑ OCSP
☑ FortiClient FSSO
☑ Hierarchical FSSO
☑ DC/TS Agent FSSO
☑ Syslog

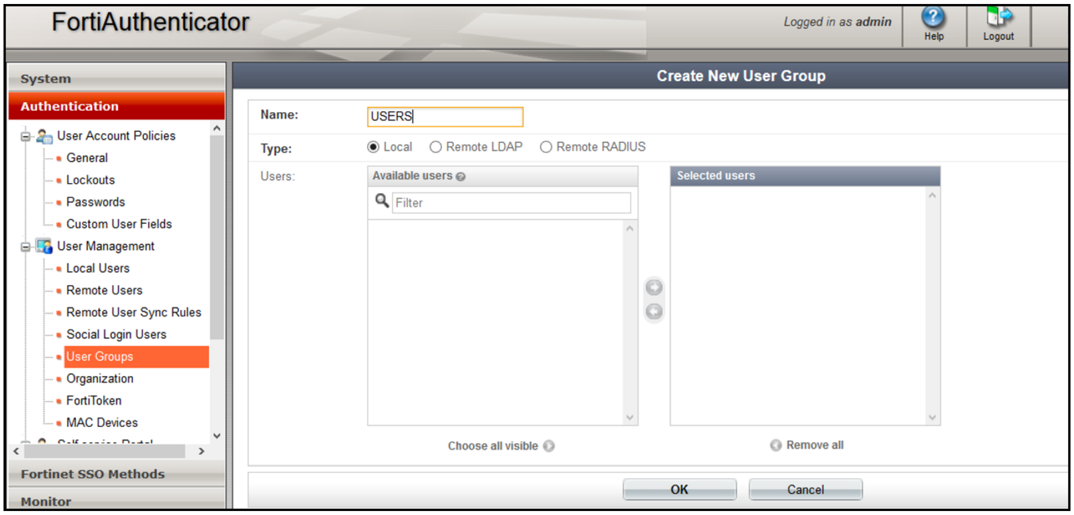
To configure *FortiAuthenticator*:

1) Create a Local user group with a name that matches the name that Pulse Policy Secure will send as the 'Group=' value in your Syslog messages.

   To do this, select Authentication > User Management > User Groups and click Create New. Create the group with the following data:

   - Name: Enter the name that is defined on *PPS*. For example, *Users*.
   - Type: Select *Local*.
   - Click OK.

Figure 6: Creating a User Group



Create New User Group

Name: USERS

Type: ● Local ○ Remote LDAP ○ Remote RADIUS

Users:

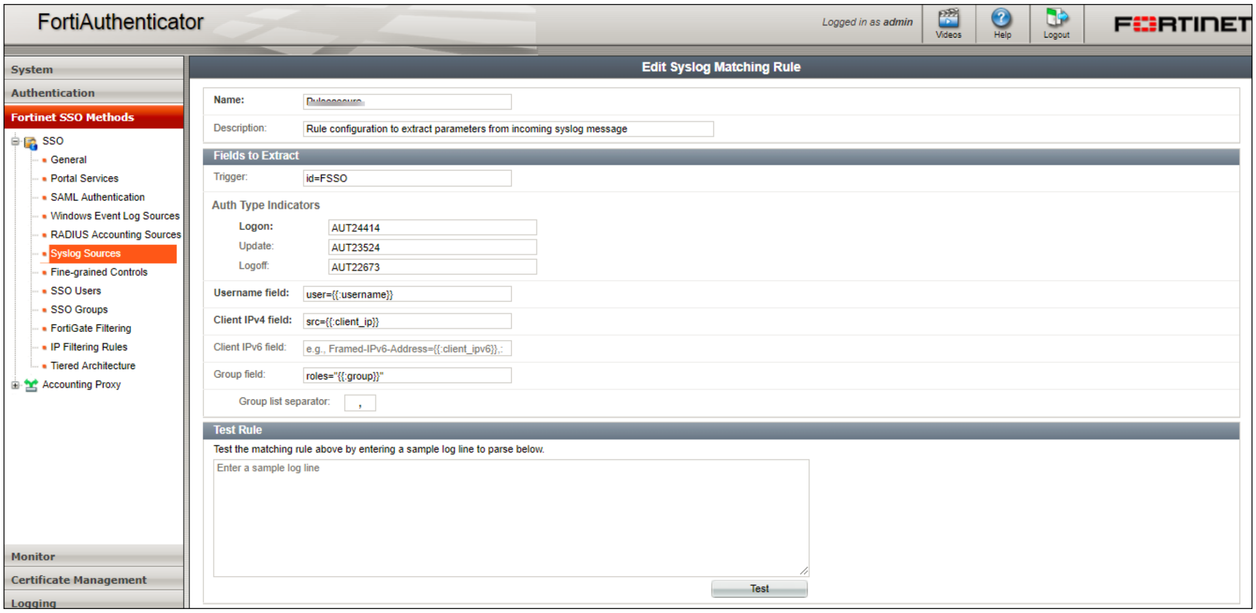
2) Create a Syslog matching rule.

To do this, select Fortinet SSO methods > SSO > Syslog Sources. In the upper right corner, from the View drop down choose matching rules and click Create New and give the following data:

- Name: Enter the name for the syslog Rule.
- Trigger: Enter the filter name created in *PPS*. For example, id=FSSO.
- Auth Type Indicators: Enter strings to differentiate between the types of user activities. For example:
  - Logon: *AUT24803*
  - Update: *AUT23524*
  - Logoff: *AUT22673*
- Username field: Define the semantics of the username field. In this field, *{{:username}}* indicates from where the username is extracted. For example: *user= {{:username}}*.
- Client IP field: Define the semantics of the client IP address. For example: *src={{:client_ip}}*
- Group field: Define the semantics of the group. For example: *roles=" {{: group}}"*

  NOTE: There is a trailing space after Username field, Client IP field, and Group field. The parser requires the trailing space as an end character for each of these fields, and will fail if the trailing space is omitted. Do not remove this space.
- Group List Separator: SSO syslog feed can parse multiple groups if the names are separated by a plus (+) symbol or a comma (,). Use the Group list separator to specify the separator.
- Test Rule: Enter a sample log message into the text box, then select Test to test that the desired fields are correctly extracted.

Figure 7: Create Matching Rule



Edit Syslog Matching Rule

Name: Pulsesecure

Description: Rule configuration to extract parameters from incoming syslog message

Fields to Extract

Trigger: id=FSSO

Auth Type Indicators

Logon: AUT24414

Update: AUT23524

Logoff: AUT22673

Username field: user={{:username}}

Client IPv4 field: src={{:client_ip}}

Client IPv6 field: e.g., Framed-IPv6-Address={{:client_ipv6}},:

Group field: roles="{{:group}}"

Group list separator: ,

Test Rule

Test the matching rule above by entering a sample log line to parse below.

Enter a sample log line

3) Click **OK** to add the new matching rule.

NOTE: For the **Logon** and **Logoff** indicators, the required data will vary, depending on both your installation and your syslog message contents.

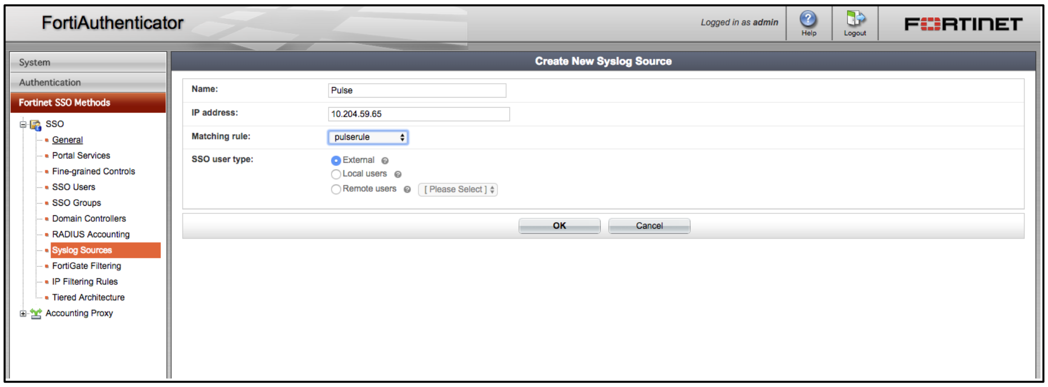
In this example, when a user logs in, the message ID created is *AUT24414* and is considered as a **Logon** event on *FortiAuthenticator*. When the role change happens as part of periodic host check updates, the message ID created by *PPS* is *AUT23524*. A sign-out event is considered a **Logoff** event on *FortiAuthenticator*, and the identity is removed from the user group, and thus fails to match policy. This logic can be altered depending on the customer's design and intentions.

4) Create a Syslog source.

To do this, select **Fortinet SSO methods** > **SSO** > **Syslog Sources**. In the upper right corner, select the **View** drop down, select **Syslog Source** and click **Create New**. Then, specify the following fields:

- **Name:** Enter a name for the Syslog source.
- **IP address:** Enter the IP address of *PPS* server.
- **Matching rule:** Select the matching rule created above.
- **SSO user type:** Select *External* as the user type.

Figure 8: Creating a Syslog Source



Create New Syslog Source

Name:	Pulse
IP address:	10.204.59.65
Matching rule:	pulserule
SSO user type:	● External ○ Local users ○ Remote users [Please Select]

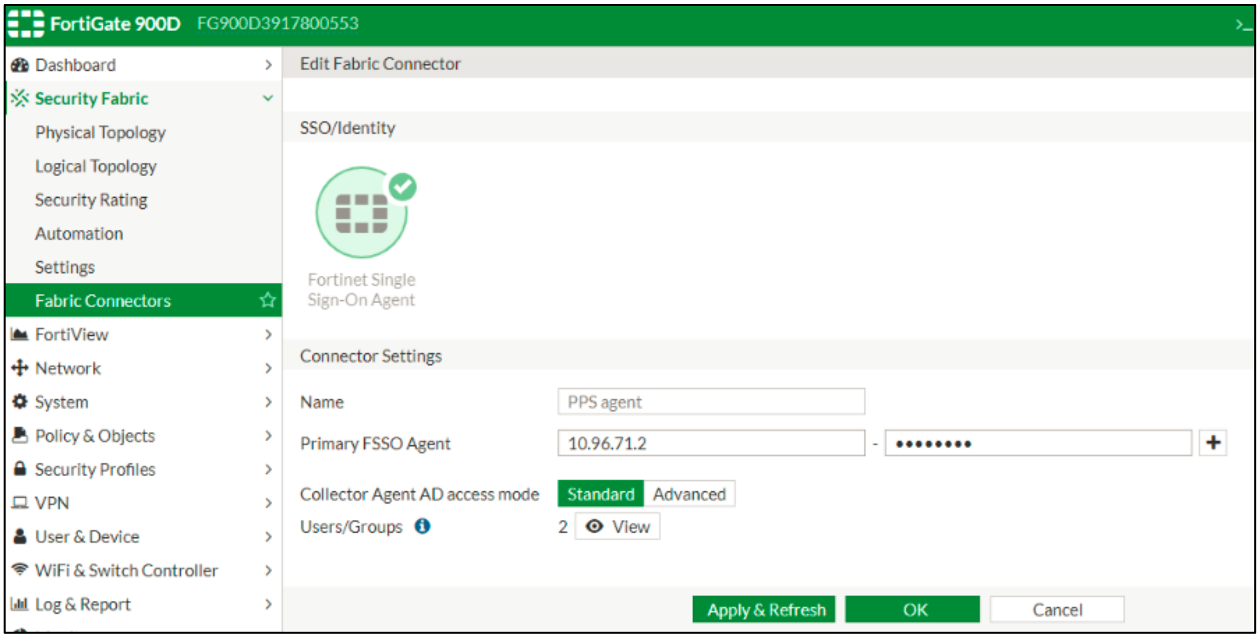
NOTE: You must add all the cluster node IPs (not cluster VIPs) in the *FortiAuthenticator* when using a *PPS* cluster setup.

Configuring the FortiGate Firewall

The *FortiGate Firewall* detects traffic from an endpoint that matches a configured security policy using the *FortiAuthenticator* FSSO record. It determines the role(s) associated with that user, and allows or denies the traffic based on the actions configured in the security policy.

To configure *FortiGate Firewall*:

1) (Applies to Release 6.0.*) Create the *FortiAuthenticator* as an FSSO agent in the *FortiGate* Firewall. To do this, select Fabric Connector > Create New, under SSO/Identity select Fortinet Single Sign-On Agent. Then, specify the following fields:
   - Name: Enter a name for the entry.
   - Primary FSSO Agent: Enter the IP address of the *FortiAuthenticator* appliance, and the password used to communicate with it. This password is the same as the secret key configured on *FortiAuthenticator* in the Fortinet SSO Methods > General section.
   - Click Apply & Refresh to test your configuration. If correct, the Users /Groups area will populate automatically.



Edit Fabric Connector

SSO/Identity

Connector Settings

Name: PPS agent

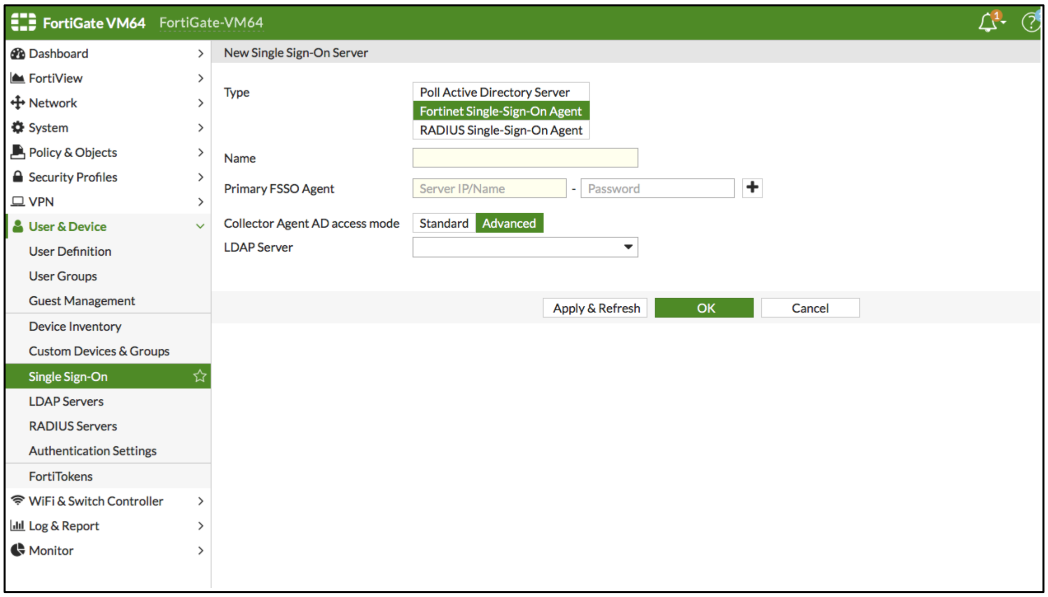
Primary FSSO Agent: 10.96.71.2 - ••••••••

Collector Agent AD access mode: Standard | Advanced

Users/Groups: 2 View

2) (Applies to Release 5.6.*) Create the *FortiAuthenticator* as an FSSO agent in the *FortiGate Firewall*. To do this, select User & Device > Single Sign-On and then click Create New. Then, specify the following fields:
   - Type: Select *Fortinet Single-Sign-On Agent*.
   - Name: Enter a name for the entry.
   - Primary FSSO Agent: Enter the IP address of the *FortiAuthenticator* appliance, and the password used to communicate with it. This password is the same as the secret key configured on *FortiAuthenticator* in the Fortinet SSO Methods > General section.
   - Click Apply & Refresh to test your configuration. If correct, the Users /Groups area will populate automatically.

Figure 10: Creating Single Sign on Server



New Single Sign-On Server

Type: Poll Active Directory Server / **Fortinet Single-Sign-On Agent** / RADIUS Single-Sign-On Agent

Name:

Primary FSSO Agent: Server IP/Name - Password

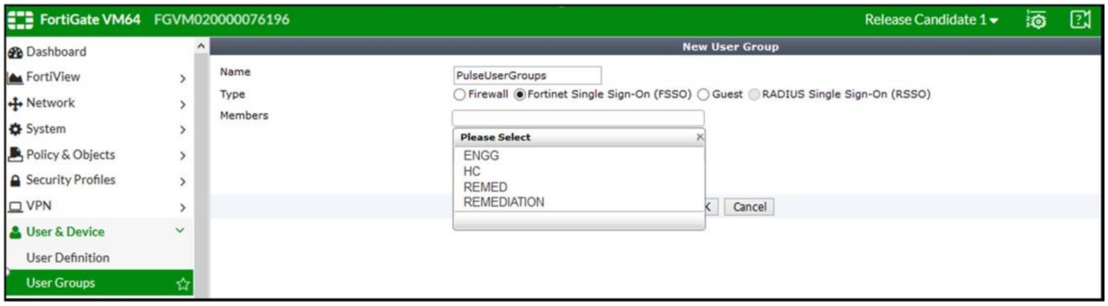
Collector Agent AD access mode: Standard **Advanced**

LDAP Server:

3) Create matching User groups. To do this, select User & Device > User Groups and click Create New. Then, specify the following fields:

- Name: Enter the name of the group. This name will appear in the firewall policy.
- Type: Select *Fortinet Single Sign-On*.
- Under Members, select the matching user group created on *FortiAuthenticator*, and click OK.

Figure 11: Creating User Groups



New User Group

Name: PulseUserGroups

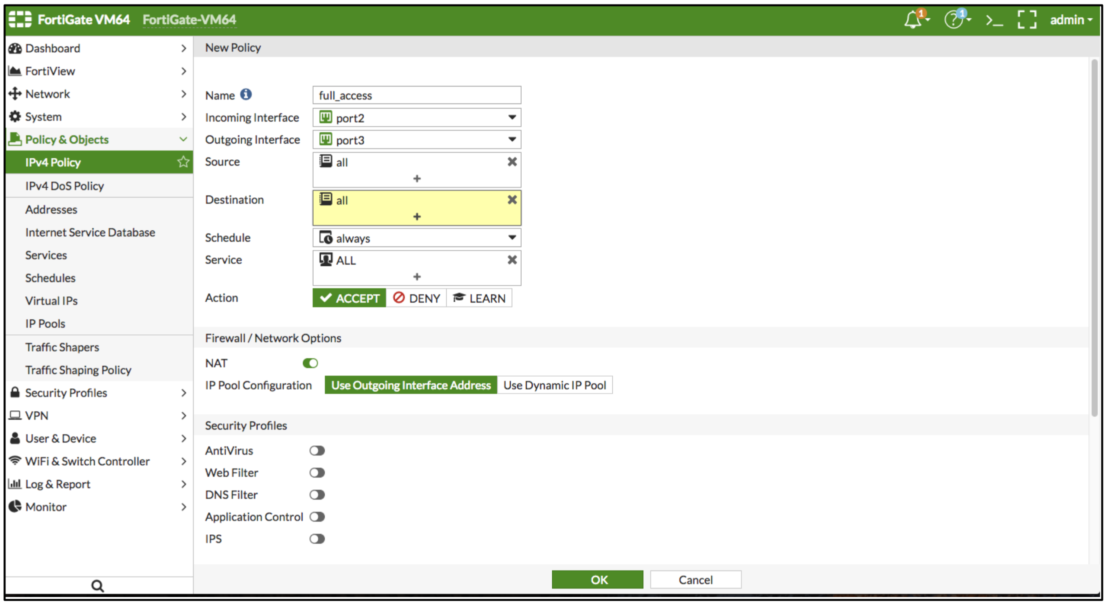
Type: ○ Firewall ● Fortinet Single Sign-On (FSSO) ○ Guest ○ RADIUS Single Sign-On (RSSO)

Members:

Please Select
ENGG
HC
REMED
REMEDIATION

4) Create a firewall policy to use the *PPS* enforcement groups just created. To do this, select **Policy & Objects** > **IPv4 Policy** and click **Create New**. Then, create the policy based on the resource access restrictions to be enforced.

Figure 12: Creating a Firewall Policy



New Policy

Name: full_access
Incoming Interface: port2
Outgoing Interface: port3
Source: all
Destination: all
Schedule: always
Service: ALL
Action: ✓ ACCEPT | DENY | LEARN

Firewall / Network Options

NAT: ●
IP Pool Configuration: Use Outgoing Interface Address | Use Dynamic IP Pool

Security Profiles

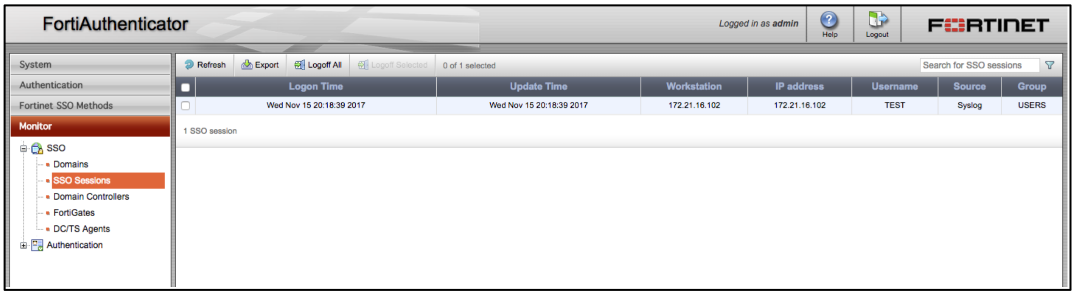
AntiVirus: ○
Web Filter: ○
DNS Filter: ○
Application Control: ○
IPS: ○

Reports and Logging

You can verify that the syslog messages are reaching the *FortiAuthenticator* by doing a packet capture from the *FortiAuthenticator* user interface.

1) Select System > Network > Packet Capture and select the interface which is used to communicate with the *PPS* and click Start Capture. Once packet capture is complete, stop the capture. Then, download the packets and view them using any tool like *WireShark*.
2) To view identity records from the *FortiAuthenticator* user interface, select Monitor > Sessions. The list shows the records parsed through syslog.

   Figure 13: Monitor SSO Sessions



0 of 1 selected

□	Logon Time	Update Time	Workstation	IP address	Username	Source	Group
□	Wed Nov 15 20:18:39 2017	Wed Nov 15 20:18:39 2017	172.21.16.102	172.21.16.102	TEST	Syslog	USERS

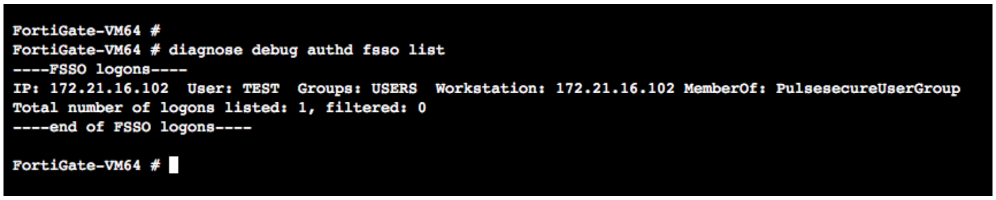
1 SSO session

3) You can monitor the FSSO Sessions on a *FortiGate Firewall* from either its graphical user interface (GUI) or its command-line (CLI) user interface.
   - To do this using the *FortiGate Firewall* CLI, type:

     diag debug auth fsso list

     This command displays identity records received from *FortiAuthenticator*. For example:

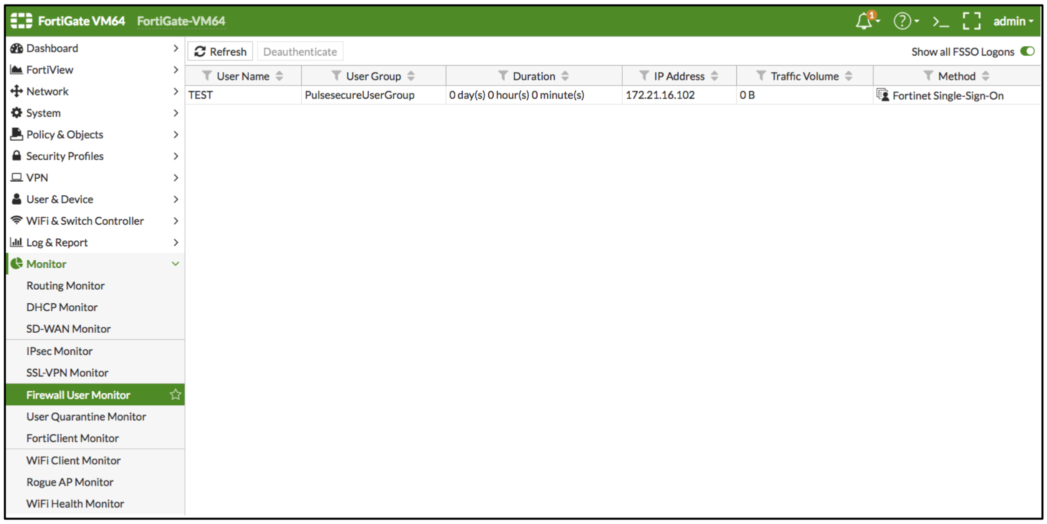
     Figure 14: Monitor the FSSO Sessions from the FortiGate Firewall CLI



```
FortiGate-VM64 #
FortiGate-VM64 # diagnose debug authd fsso list
----FSSO logons----
IP: 172.21.16.102  User: TEST  Groups: USERS  Workstation: 172.21.16.102 MemberOf: PulsesecureUserGroup
Total number of logons listed: 1, filtered: 0
----end of FSSO logons----

FortiGate-VM64 # █
```

   - To do this using the *FortiGate Firewall* GUI, select Monitor > Firewall User Monitor. The list shows all the identity records.

Figure 15: Monitor the FSSO Sessions on FortiGate Firewall



User Name	User Group	Duration	IP Address	Traffic Volume	Method
TEST	PulsesecureUserGroup	0 day(s) 0 hour(s) 0 minute(s)	172.21.16.102	0 B	Fortinet Single-Sign-On

Alert-Based Admission Control with Fortinet Products

This section describes how to integrate *FortiAnalyzer* and *FortiGate Firewall* products with *PPS* to support Alert-based admission control in your network.

Overview of Alert-Based Admission Control with Fortinet Products

Pulse Policy Secure (PPS) integration with network security devices provide user access control based on the threats identified by the network security devices.

The network security device provides detection of threats based on the intrusion prevention system. This helps in detecting unknown threats, and also reduces the number of false alarms.

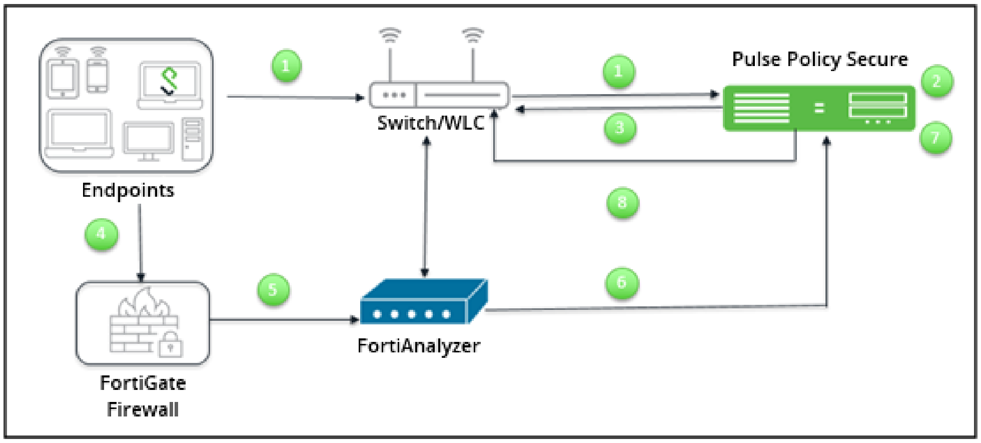
The network security device uses the syslog events mechanism to notify the other devices regarding the network threats. *PPS* also supports dynamically changing the access to the user based on the information received from the network security device.

The admission control user flow is described below:

1) The user connects to *PPS* through the Switch (or Wireless LAN Controller).
2) The user session is created on the *PPS*.
3) The user details are pushed to the Switch for enforcing user access.
4) The *FortiGate Firewall* monitors the user traffic.
5) The *FortiAnalyzer* generates the syslog messages for the user.
6) The syslog message is sent to *PPS* if any suspicious traffic or activity is detected from the user.
7) *PPS* processes the received syslog message and, based on the configured policies, actions are taken.
8) New/Updated details are pushed to Switch for updating the enforcement of the user.

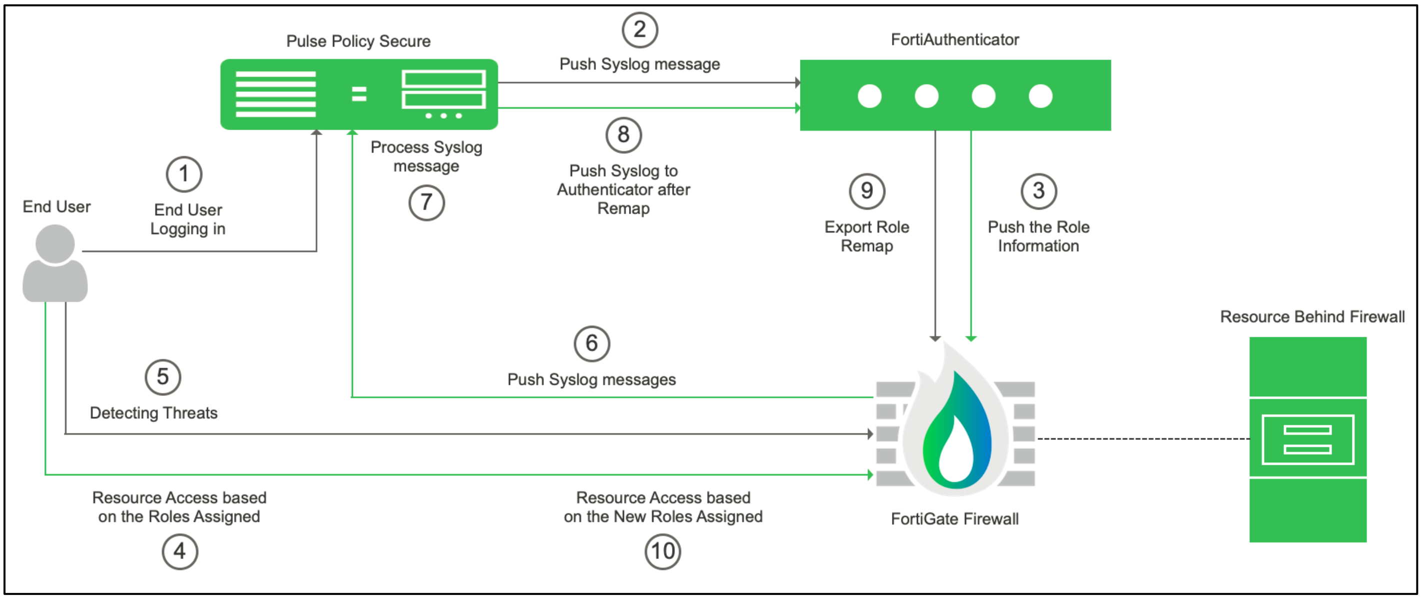
NOTE: The enforcement of the user is also updated on the *FortiGate Firewall*.

Figure 16: Deployment using PPS and Fortinet products



For example, a user is connected to *PPS* and wants to access protected resource which is behind *FortiGate Firewall*. Users get access to the resource, and when the firewall detects a threat from the user, the firewall sends a syslog message and user is removed from the network.

Figure Dynamic Identity Enforcement with Admission Control



The dynamic identity enforcement using admission control user flow is described below:

1) The user connects to *PPS* through the Switch (or Wireless LAN Controller). User is authenticated on PPS after validating the HC policy.
2) The syslog sessions are exported to FortiAuthenticator.
3) Identity information is parsed from the Syslog message and is used to create an IP to username mapping within FortiAuthenticator. This information is shared with FortiGate firewall in the form of a Fortinet Single Sign-On (FSSO) record.
4) The firewall uses this information to either allow or block traffic based on the configured policy
5) FortiGate Firewall Monitors the end user flow and activity and detects attacks/malicious activity at the end user session
6) FortiGate Firewall/Analyser sends a syslog message to PPS for any suspicious traffic or activity detected from end user.
7) PPS process the received syslog message and based on the configured policies, action will be taken for the end user session.
8) PPS exports New Roles to the FortiAuthenticator.
9) The firewall changes users Role based on the information received from Authenticator.
10) User gets access to the protected resources based on the new role assigned.

Summary of Configuration

To prepare your network to use alert-based access control using *Pulse Policy Secure*, *FortiAuthenticator*, *FortiAnalyzer* and *FortiGate Firewall*, perform the following tasks:

- Configuring Network Security Devices with PPS.
- Configuring an Admission Control Template
    - Configuring Admission Control Policies
    - Configuring the Admission Control Client
- Configuring FortiGate Firewall
- Configuring FortiAnalyzer
- Confirming Syslog Forwarding

The following sections describe each of these steps in detail.

Configuring Network Security Devices with PPS

The network security devices are configured with *PPS* for admission access control. A high-level overview of the configuration steps needed to set up and run the integration is described below:

- The Administrator configures the required syslog clients on the *PPS* Admin UI. Each network security device acts as a syslog client on which syslog forwarding is enabled, and *PPS* receives the forwarded syslog messages.
- The Administrator then configures a set of policies that define what actions are to be taken on user sessions, based on the data in the threat events.
- The user defined templates are used to map the data and the predefined variables. The predefined variables in the template are Rule Name, Source IP Address, Source User, and Severity.
- The templates for parsing the syslog messages from *Fortinet Firewall/Analyzer* are available by default. The administrators can also add customised templates for integrating with other network security devices.

This section covers the following topics:

- Configuring an Admission Control Template
- Configuring Admission Control Policies
- Configuring the Admission Control Client

Configuring an Admission Control Template

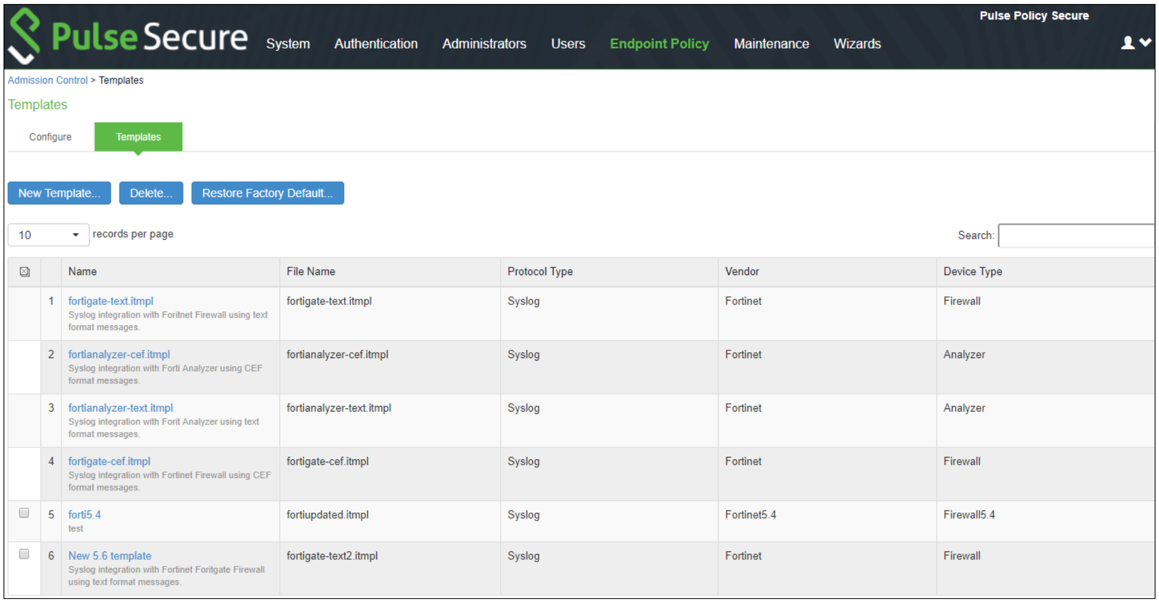
The admission control template provides a list of possible events that can be received from the network security device, along with a regular expression to parse the message. The template also provides possible actions that can be taken for an event.

Only the admission control policy defines the actions to be taken on receipt of an event. The admission control template only provides possible events and possible actions for that event.

To view and add the admission control templates:

1) Select **Endpoint Policy** > **Admission Control** > **Templates**.

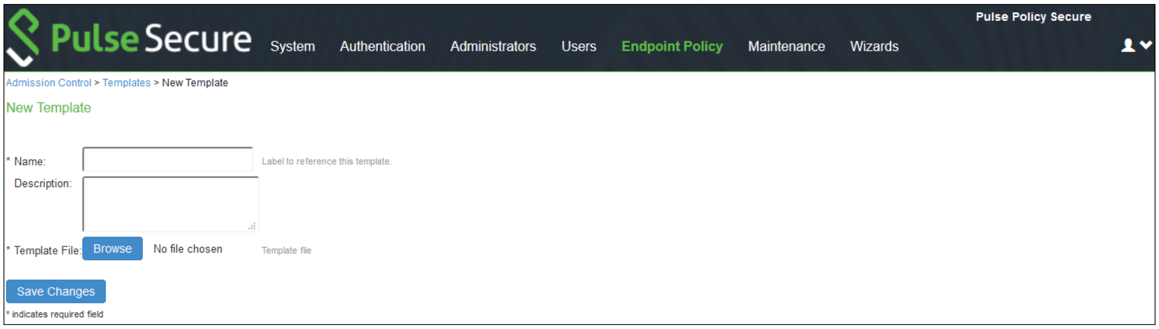
Figure 17: Existing Templates



☒		Name	File Name	Protocol Type	Vendor	Device Type
	1	fortigate-text.itmpl Syslog integration with Foritnet Firewall using text format messages.	fortigate-text.itmpl	Syslog	Fortinet	Firewall
	2	fortianalyzer-cef.itmpl Syslog integration with Forti Analyzer using CEF format messages.	fortianalyzer-cef.itmpl	Syslog	Fortinet	Analyzer
	3	fortianalyzer-text.itmpl Syslog integration with Forit Analyzer using text format messages.	fortianalyzer-text.itmpl	Syslog	Fortinet	Analyzer
	4	fortigate-cef.itmpl Syslog integration with Fortinet Firewall using CEF format messages.	fortigate-cef.itmpl	Syslog	Fortinet	Firewall
☐	5	forti5.4 test	fortiupdated.itmpl	Syslog	Fortinet5.4	Firewall5.4
☐	6	New 5.6 template Syslog integration with Fortinet Foritgate Firewall using text format messages.	fortigate-text2.itmpl	Syslog	Fortinet	Firewall

2) Click **New Template**.

Figure 18: Adding a New Configuration Template



* Name: Label to reference this template.

Description:

* Template File: Browse No file chosen Template file

* indicates required field

3) Enter the template **Name**.
4) Enter a template **Description**.
5) Click **Browse** and select the template file.
6) Click **Save Changes**.

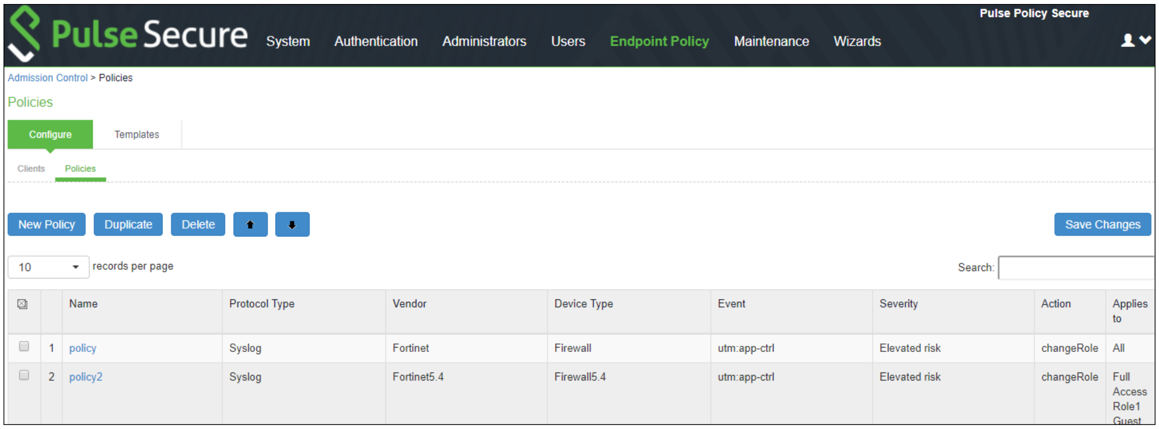
Configuring Admission Control Policies

The admission control policies define the actions that are performed on *PPS* for user sessions. The actions are based on the specific threat event information received from the network security device.

To view and add the new integration policy:

1) Select **Endpoint Policy** > **Admission Control** > **Policies**.

   Figure 19: Configuring Policies



☒		Name	Protocol Type	Vendor	Device Type	Event	Severity	Action	Applies to
□	1	policy	Syslog	Fortinet	Firewall	utm:app-ctrl	Elevated risk	changeRole	All
□	2	policy2	Syslog	Fortinet5.4	Firewall5.4	utm:app-ctrl	Elevated risk	changeRole	Full Access Role1 Guest

2) Click **New Policy**.
3) Enter the policy name.
4) Select the template used by the client. The following templates are available by default for Fortinet:
   - *Fortinet-Analyzer-Syslog-CEF*
   - *Fortinet-Analyzer-Syslog-text*
   - *Fortinet-Firewall-Syslog-CEF*
   - *Fortinet-Firewall-Syslog-text*
5) Under **Rule on Receiving**, select the event type and the severity level. The event types and the severity level are based on the selected template.
6) Under **Count these many times**, enter a number between 1-256.
7) Under **Then perform this action**, select the desired action.
   - *Ignore (log the event):* Received syslog event details are logged on the *PPS* and no specific action is taken.
   - *Terminate user session:* Terminates the user session on the *PPS* for the received messages.
   - *Disable user account:* Terminates the user session and disables the user on the *PPS* for the received messages.
   - *Replace user role with this role:* Changes the roles assigned to the user on *PPS* so that restriction/privileges for the user can be changed.

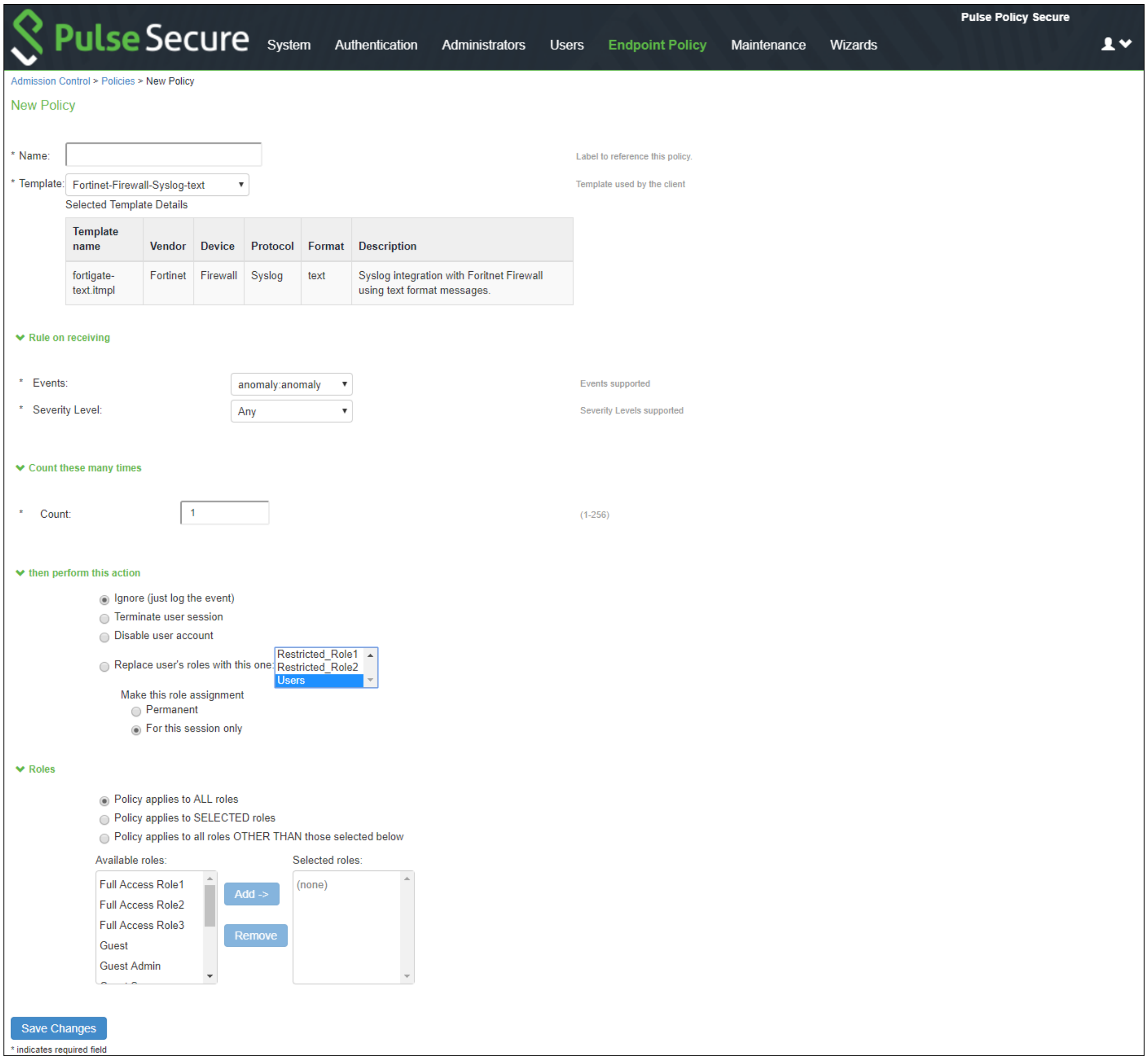
     NOTE: You must specify whether to apply the role assignment permanently or only for the session.

8) Under **Roles**, specify:

- *Policy applies to ALL roles:* Applies the policy to all users.
- *Policy applies to SELECTED roles:* Applies this policy only to users who are mapped to roles in the **Selected** roles list. You must add roles to this list from the **Available** roles list.
- *Policy applies to all roles OTHER THAN those selected below:* Applies this policy to all users except for those who map to the roles in the **Selected** roles list. You must add roles to this list from the **Available** roles list.

9) Click **Save Changes**.

Figure 20: Adding a New Configuration Policy



Admission Control > Policies > New Policy

New Policy

* Name: ______ Label to reference this policy.

* Template: Fortinet-Firewall-Syslog-text ▾ Template used by the client

Selected Template Details

Template name	Vendor	Device	Protocol	Format	Description
fortigate-text.itmpl	Fortinet	Firewall	Syslog	text	Syslog integration with Foritnet Firewall using text format messages.

Rule on receiving

* Events: anomaly:anomaly ▾ Events supported

* Severity Level: Any ▾ Severity Levels supported

Count these many times

* Count: 1 (1-256)

then perform this action

● Ignore (just log the event)
○ Terminate user session
○ Disable user account
○ Replace user's roles with this one: Restricted_Role1 / Restricted_Role2 / Users

Make this role assignment
○ Permanent
● For this session only

Roles

● Policy applies to ALL roles
○ Policy applies to SELECTED roles
○ Policy applies to all roles OTHER THAN those selected below

Available roles: Full Access Role1, Full Access Role2, Full Access Role3, Guest, Guest Admin

Add -> Remove

Selected roles: (none)

Save Changes

* indicates required field

Configuring the Admission Control Client

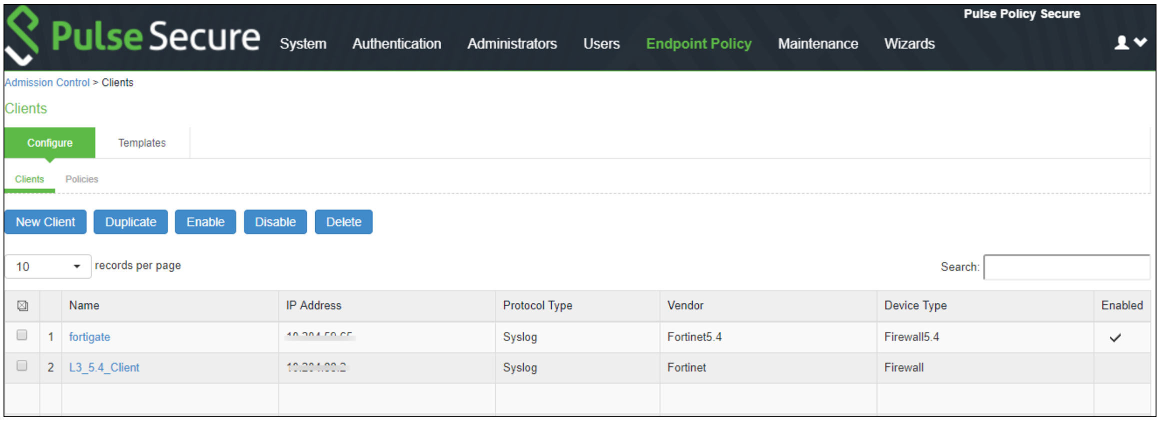
The admission control clients are the network security devices on which the syslog forwarding is enabled. The messages are received by the syslog server module running on *PPS*.

You must add either the *FortiGate Firewall* or the *FortiAnalyzer* as separate clients on *PPS* to enable it to receive the required threat information through syslogs.

To add a client:

1) Select **Endpoint Policy** > **Admission Control** > **Clients**.

Figure 21: Admission Control Client

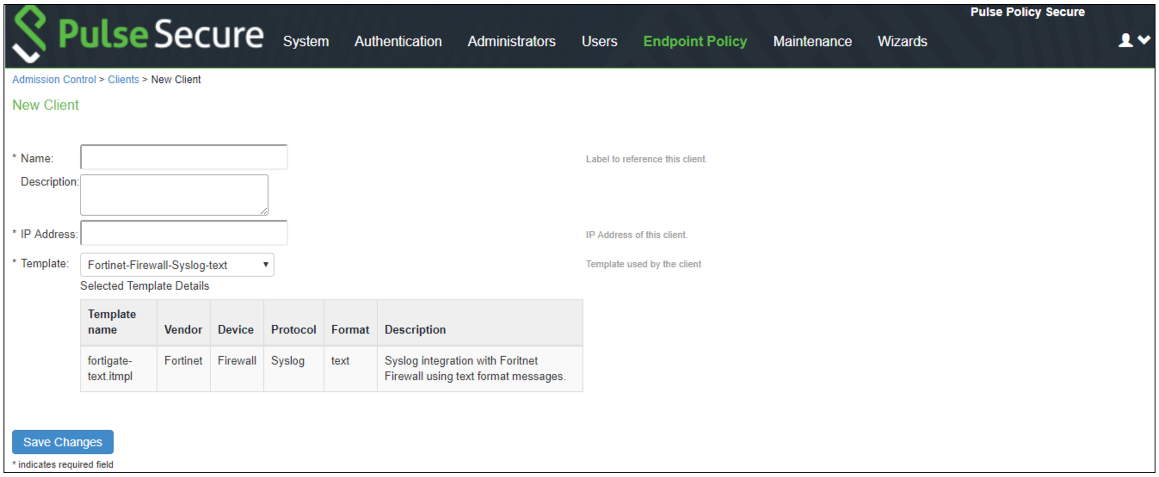


☒		Name	IP Address	Protocol Type	Vendor	Device Type	Enabled
□	1	fortigate	[redacted]	Syslog	Fortinet5.4	Firewall5.4	✓
□	2	L3_5.4_Client	[redacted]	Syslog	Fortinet	Firewall	

2) Click **New Client**.
3) Enter the **Name** of the client that will be added in the *PPS*.
4) Enter a **Description**.
5) Enter the **IP Address** of the client.
6) Select the **Template** for the client.
   - *Fortinet-Analyzer-Syslog-CEF*
   - *Fortinet-Analyzer-Syslog-text*
   - *Fortinet-Firewall-Syslog-CEF*
   - *Fortinet-Firewall-Syslog-text*

7) Click **Save Changes**.

Figure 22: Adding Clients



Admission Control > Clients > New Client

New Client

* Name: Label to reference this client.

Description:

* IP Address: IP Address of this client.

* Template: Fortinet-Firewall-Syslog-text Template used by the client

Selected Template Details

Template name	Vendor	Device	Protocol	Format	Description
fortigate-text.itmpl	Fortinet	Firewall	Syslog	text	Syslog integration with Fortinet Firewall using text format messages.

Save Changes

* indicates required field

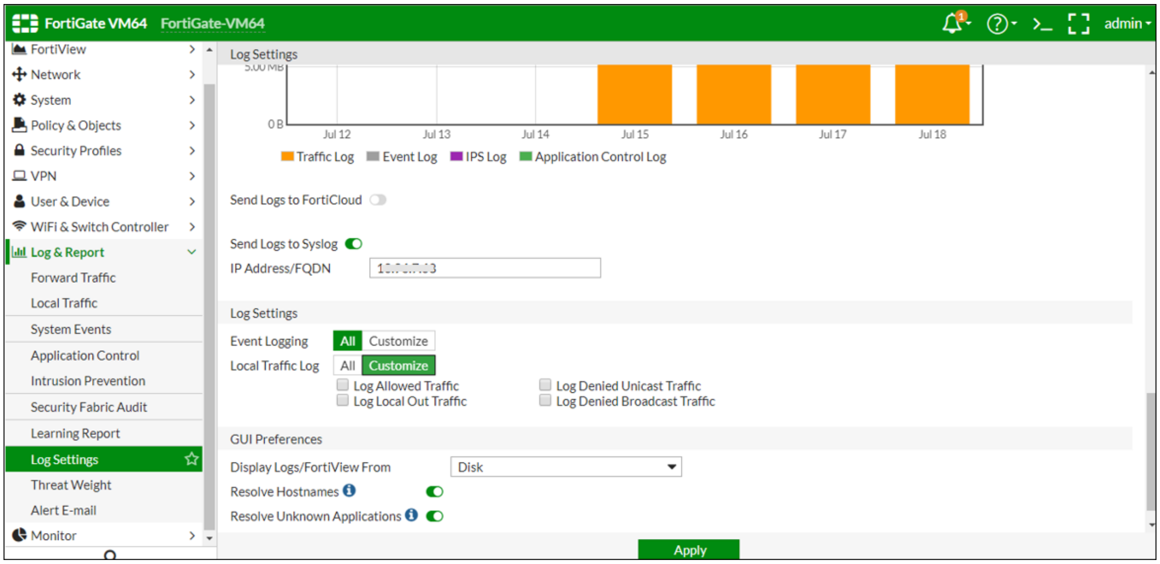
Configuring FortiGate Firewall

Once you have added the *FortiGate Firewall* as a syslog client on *PPS* (see Configuring the Admission Control Client), the *PPS* must be added as a syslog server on the *FortiGate Firewall*.

To configure *FortiGate Firewall*:

1) Select **Log & Report** > **Log Settings**.
2) Enable **Send Logs to Syslog**.
3) Enter the **IP Address/FQDN** of the *PPS* device and click **Apply**. The *PPS* is added as a syslog server.

Figure 23: Log Settings



Log Settings

Send Logs to FortiCloud ○

Send Logs to Syslog ●

IP Address/FQDN [redacted]

Log Settings

Event Logging [✓ All] Customize

Local Traffic Log All [✓ Customize]

□ Log Allowed Traffic □ Log Denied Unicast Traffic

□ Log Local Out Traffic □ Log Denied Broadcast Traffic

GUI Preferences

Display Logs/FortiView From: Disk

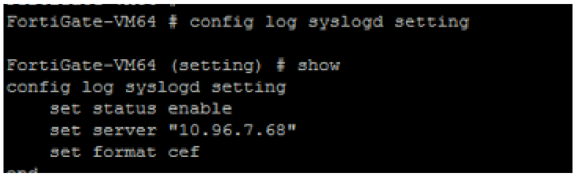
Resolve Hostnames ●

Resolve Unknown Applications ●

Apply

4) The default syslog format is text. You must use the following Command-Line user Interface (CLI) to change the format to CEF.

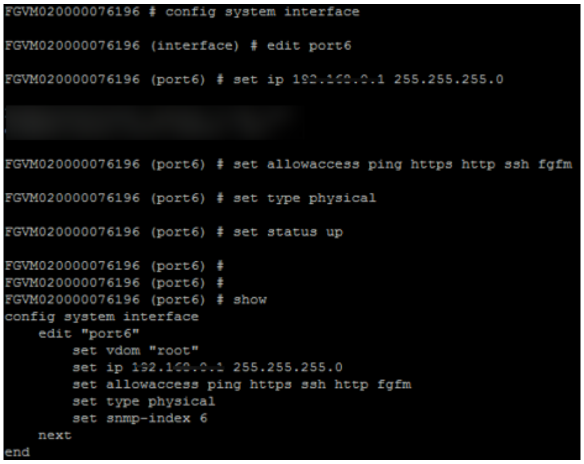
Figure 24: Changing Syslog Format



```
FortiGate-VM64 # config log syslogd setting

FortiGate-VM64 (setting) # show
config log syslogd setting
    set status enable
    set server "10.96.7.68"
    set format cef
```

5) To access the firewall, you must configure the firewall management interface settings from the CLI.

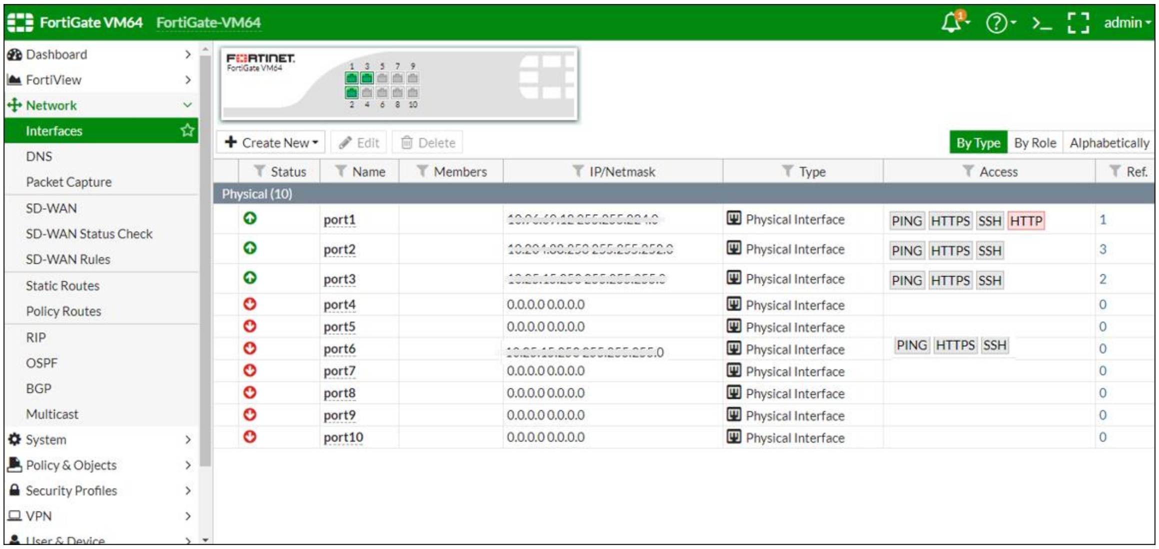
Figure 25: Changing Management Interface Settings



```
FGVM020000076196 # config system interface

FGVM020000076196 (interface) # edit port6

FGVM020000076196 (port6) # set ip [redacted] 255.255.255.0

[redacted]

FGVM020000076196 (port6) # set allowaccess ping https http ssh fgfm

FGVM020000076196 (port6) # set type physical

FGVM020000076196 (port6) # set status up

FGVM020000076196 (port6) #
FGVM020000076196 (port6) #
FGVM020000076196 (port6) # show
config system interface
    edit "port6"
        set vdom "root"
        set ip [redacted] 255.255.255.0
        set allowaccess ping https ssh http fgfm
        set type physical
        set snmp-index 6
    next
end
```

6) Under **Interfaces**, configure the trust and untrust zones.

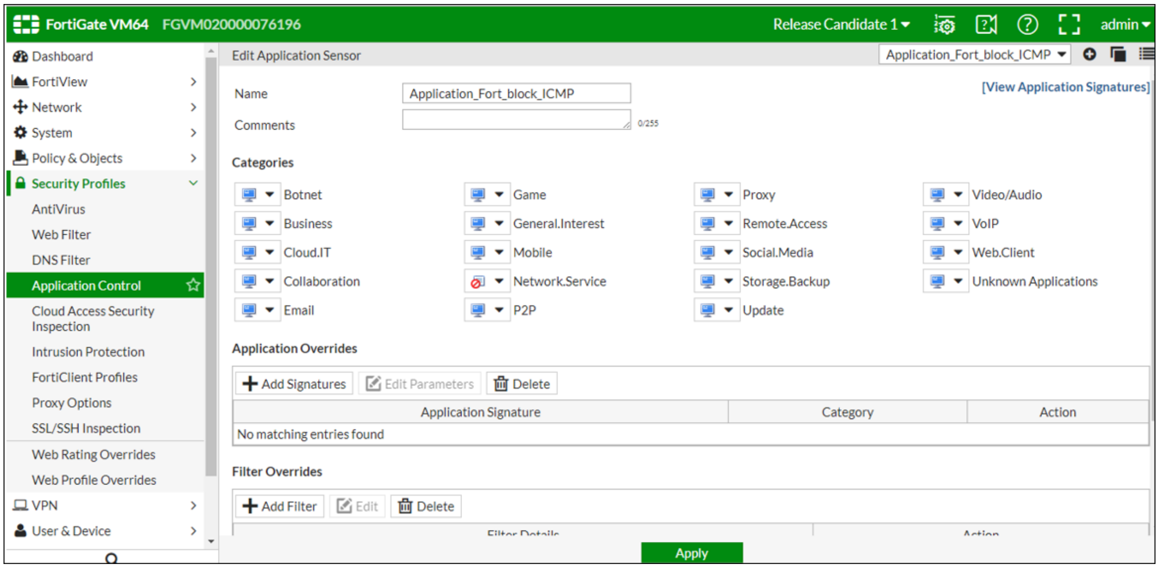
Figure 26: Configuring Trust/Untrust Zones



Status	Name	Members	IP/Netmask	Type	Access	Ref.
Physical (10)						
⬆	port1		[redacted]	Physical Interface	PING HTTPS SSH HTTP	1
⬆	port2		[redacted]	Physical Interface	PING HTTPS SSH	3
⬆	port3		[redacted]	Physical Interface	PING HTTPS SSH	2
⬇	port4		0.0.0.0 0.0.0.0	Physical Interface		0
⬇	port5		0.0.0.0 0.0.0.0	Physical Interface		0
⬇	port6		[redacted]	Physical Interface	PING HTTPS SSH	0
⬇	port7		0.0.0.0 0.0.0.0	Physical Interface		0
⬇	port8		0.0.0.0 0.0.0.0	Physical Interface		0
⬇	port9		0.0.0.0 0.0.0.0	Physical Interface		0
⬇	port10		0.0.0.0 0.0.0.0	Physical Interface		0

7) Under **Security Profiles** > **Application Control**, create a security profile.

Figure 27: Creating Security Profile



Edit Application Sensor

Name: Application_Fort_block_ICMP

Comments: 0/255

Categories

Botnet	Game	Proxy	Video/Audio
Business	General.Interest	Remote.Access	VoIP
Cloud.IT	Mobile	Social.Media	Web.Client
Collaboration	Network.Service	Storage.Backup	Unknown Applications
Email	P2P	Update	

Application Overrides

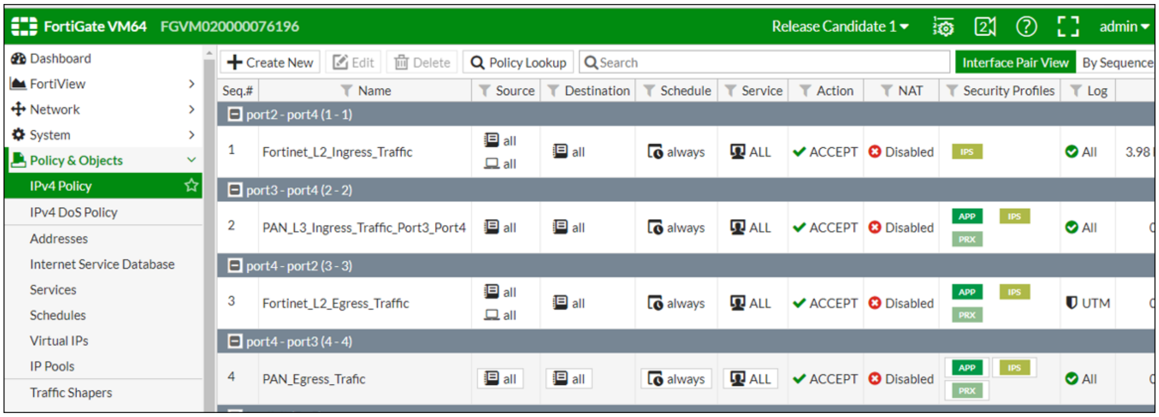
Application Signature	Category	Action
No matching entries found		

Filter Overrides

Filter Details	Action

8) Under **Policy & Objects**, apply policies to desired port.

Figure 28: Applying Policies



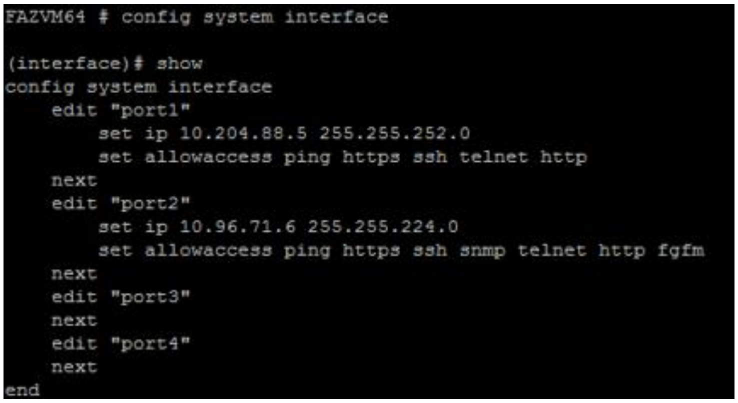
Seq.#	Name	Source	Destination	Schedule	Service	Action	NAT	Security Profiles	Log	
port2 - port4 (1 - 1)										
1	Fortinet_L2_Ingress_Traffic	all all	all	always	ALL	✓ ACCEPT	Disabled	IPS	All	3.98
port3 - port4 (2 - 2)										
2	PAN_L3_Ingress_Traffic_Port3_Port4	all	all	always	ALL	✓ ACCEPT	Disabled	APP IPS PRX	All	
port4 - port2 (3 - 3)										
3	Fortinet_L2_Egress_Traffic	all all	all	always	ALL	✓ ACCEPT	Disabled	APP IPS PRX	UTM	
port4 - port3 (4 - 4)										
4	PAN_Egress_Trafic	all	all	always	ALL	✓ ACCEPT	Disabled	APP IPS PRX	All	

Configuring FortiAnalyzer

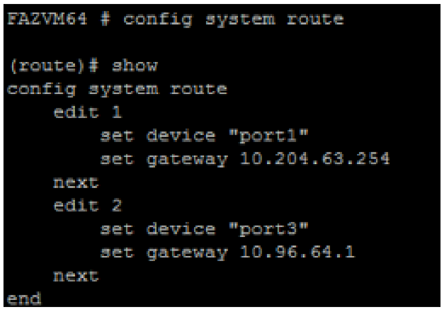
Once you have added the *FortiAnalyzer* as a syslog client on *PPS* (see [Configuring the Admission Control Client]), the *PPS* must be added as a syslog server on the *FortiAnalyzer*.

1) Configure the *FortiAnalyzer* management interface using its Command-Line user Interface (CLI).

Figure 29: Configuring the FortiAnalyzer Management Interface



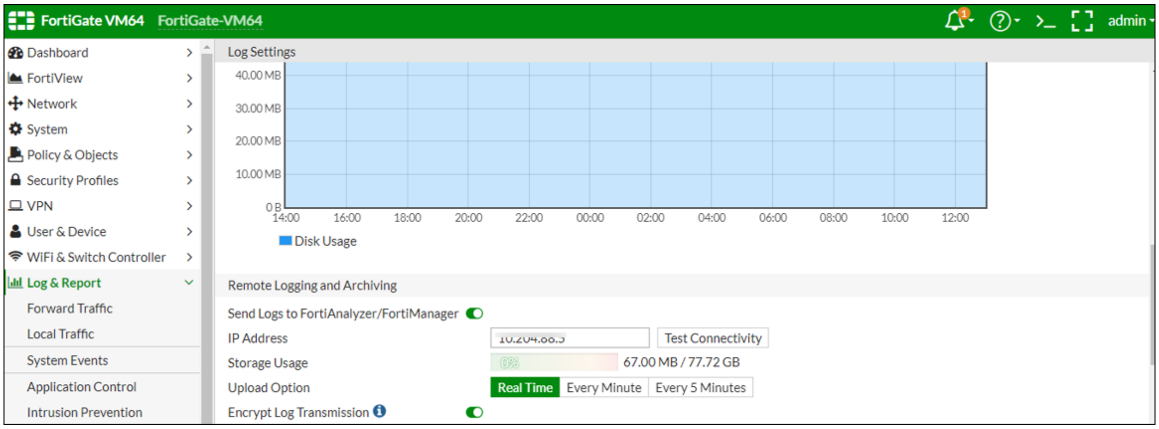
```
FAZVM64 # config system interface

(interface)# show
config system interface
    edit "port1"
        set ip 10.204.88.5 255.255.252.0
        set allowaccess ping https ssh telnet http
    next
    edit "port2"
        set ip 10.96.71.6 255.255.224.0
        set allowaccess ping https ssh snmp telnet http fgfm
    next
    edit "port3"
    next
    edit "port4"
    next
end
```



```
FAZVM64 # config system route

(route)# show
config system route
    edit 1
        set device "port1"
        set gateway 10.204.63.254
    next
    edit 2
        set device "port3"
        set gateway 10.96.64.1
    next
end
```

2) On the *FortiGate Firewall*, under Log & Report, enable Send Logs to FortiAnalyzer/FortiManager to forward the syslog message to *FortiAnalyzer*. Enter the IP Address of the *FortiAnalyzer*.

Figure 30: Forwarding Logs



Remote Logging and Archiving

Send Logs to FortiAnalyzer/FortiManager ●

IP Address 10.204.88.5

Storage Usage 0% 67.00 MB / 77.72 GB

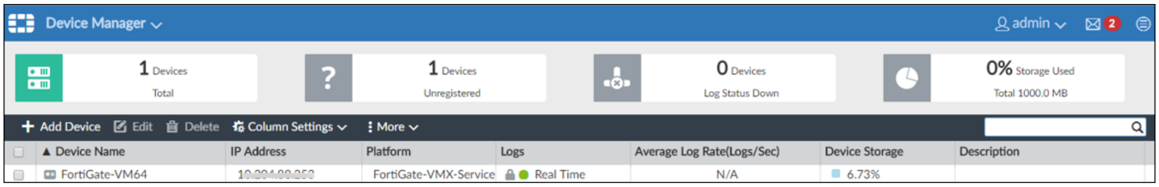
Upload Option [✓ Real Time] Every Minute Every 5 Minutes

Encrypt Log Transmission ●

NOTE: *On FortiGate Firewall, ensure you have configured the security policy's network trust, untrust* zone and apply the policy to desired ports.

3) Under **FortiAnalyzer** > **Device Manager**, click **Add Device** to add the *FortiGate Firewall*.

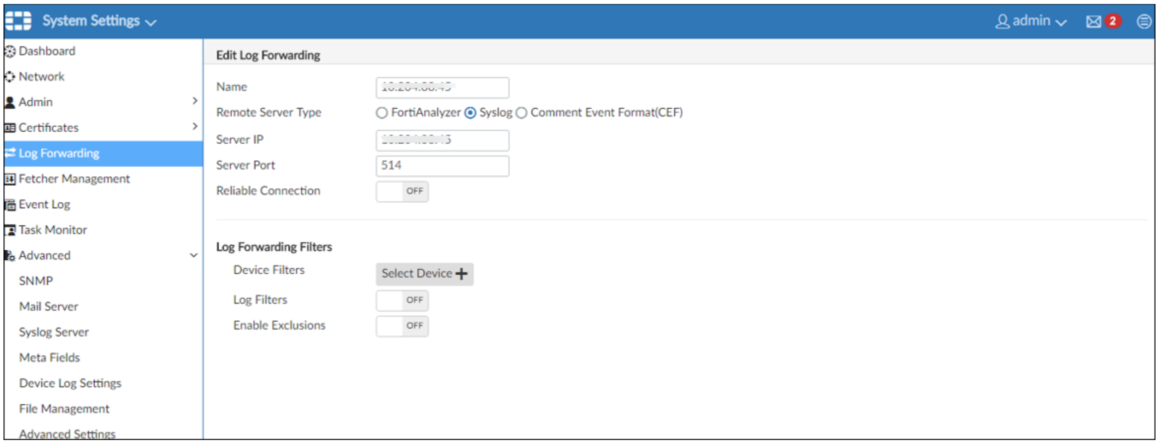
Figure 31: Adding Device



Device Name	IP Address	Platform	Logs	Average Log Rate(Logs/Sec)	Device Storage	Description
FortiGate-VM64	[redacted]	FortiGate-VMX-Service	Real Time	N/A	6.73%	

4) Under **System Settings** > **Log Forwarding** > **Edit Log Forwarding**, enter the IP address of the *PPS* device for log forwarding.

Figure 32: Configuring Log Forwarding



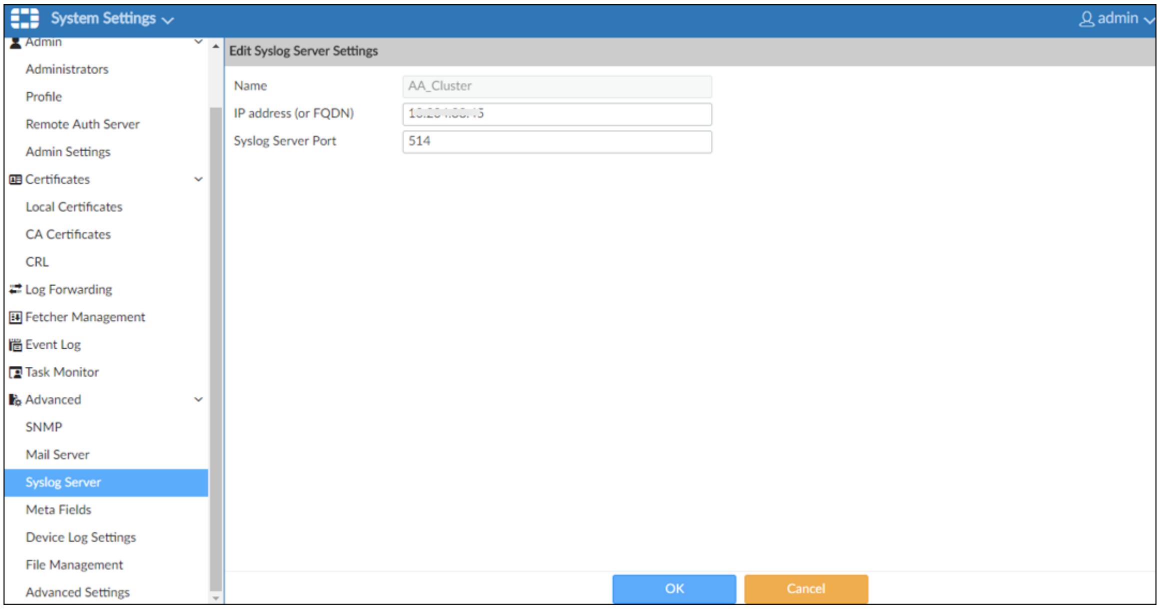
Edit Log Forwarding

Name: [redacted]
Remote Server Type: ○ FortiAnalyzer ● Syslog ○ Comment Event Format(CEF)
Server IP: [redacted]
Server Port: 514
Reliable Connection: OFF

Log Forwarding Filters
Device Filters: Select Device +
Log Filters: OFF
Enable Exclusions: OFF

5) Under **System Settings** > **Advanced** > **Syslog Server**, enter the IP address of *PPS* device.

Figure 33: Configuring Syslog Server Settings



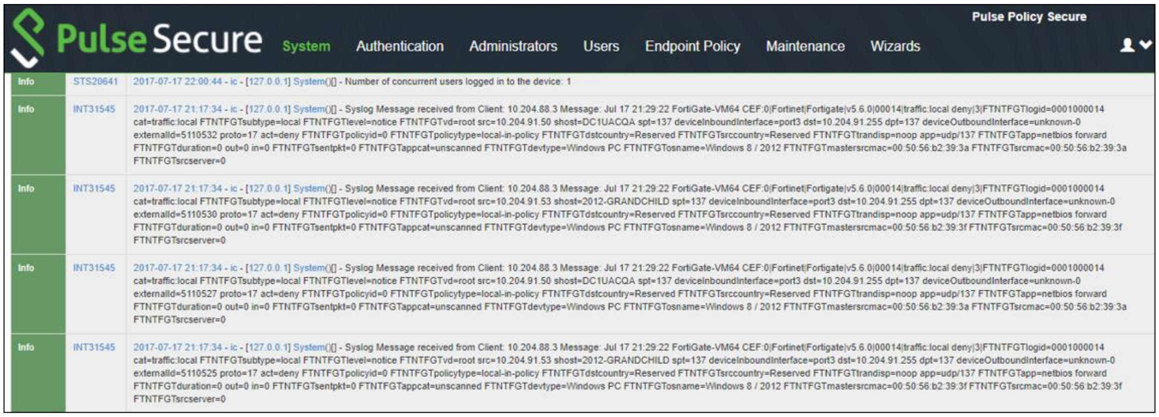
Edit Syslog Server Settings

Name: AA_Cluster
IP address (or FQDN): [redacted]
Syslog Server Port: 514

Confirming Syslog Forwarding

When the network security device detects a threat, the syslogs are forwarded to *PPS*. To verify the event logs have been received on *PPS*, select System > Log/Monitoring > Events > Log.

Figure 34: Viewing Event Logs



```
Info   STS20641   2017-07-17 22:00:44 - ic - [127.0.0.1] System()[] - Number of concurrent users logged in to the device: 1

Info   INT31545   2017-07-17 21:17:34 - ic - [127.0.0.1] System()[] - Syslog Message received from Client: 10.204.88.3 Message: Jul 17 21:29:22 FortiGate-VM64 CEF:0|Fortinet|Fortigate|v5.6.0|00014|traffic:local deny|3|FTNTFGTlogid=0001000014
                  cat=traffic:local FTNTFGTsubtype=local FTNTFGTlevel=notice FTNTFGTvd=root src=10.204.91.50 shost=DC1UACQA spt=137 deviceInboundInterface=port3 dst=10.204.91.255 dpt=137 deviceOutboundInterface=unknown-0
                  externalId=5110532 proto=17 act=deny FTNTFGTpolicyid=0 FTNTFGTpolicytype=local-in-policy FTNTFGTdstcountry=Reserved FTNTFGTsrccountry=Reserved FTNTFGTtrandisp=noop app=udp/137 FTNTFGTapp=netbios forward
                  FTNTFGTduration=0 out=0 in=0 FTNTFGTsentpkt=0 FTNTFGTappcat=unscanned FTNTFGTdevtype=Windows PC FTNTFGTosname=Windows 8 / 2012 FTNTFGTmastersrcmac=00:50:56:b2:39:3a FTNTFGTsrcmac=00:50:56:b2:39:3a
                  FTNTFGTsrcserver=0

Info   INT31545   2017-07-17 21:17:34 - ic - [127.0.0.1] System()[] - Syslog Message received from Client: 10.204.88.3 Message: Jul 17 21:29:22 FortiGate-VM64 CEF:0|Fortinet|Fortigate|v5.6.0|00014|traffic:local deny|3|FTNTFGTlogid=0001000014
                  cat=traffic:local FTNTFGTsubtype=local FTNTFGTlevel=notice FTNTFGTvd=root src=10.204.91.53 shost=2012-GRANDCHILD spt=137 deviceInboundInterface=port3 dst=10.204.91.255 dpt=137 deviceOutboundInterface=unknown-0
                  externalId=5110530 proto=17 act=deny FTNTFGTpolicyid=0 FTNTFGTpolicytype=local-in-policy FTNTFGTdstcountry=Reserved FTNTFGTsrccountry=Reserved FTNTFGTtrandisp=noop app=udp/137 FTNTFGTapp=netbios forward
                  FTNTFGTduration=0 out=0 in=0 FTNTFGTsentpkt=0 FTNTFGTappcat=unscanned FTNTFGTdevtype=Windows PC FTNTFGTosname=Windows 8 / 2012 FTNTFGTmastersrcmac=00:50:56:b2:39:3f FTNTFGTsrcmac=00:50:56:b2:39:3f
                  FTNTFGTsrcserver=0

Info   INT31545   2017-07-17 21:17:34 - ic - [127.0.0.1] System()[] - Syslog Message received from Client: 10.204.88.3 Message: Jul 17 21:29:22 FortiGate-VM64 CEF:0|Fortinet|Fortigate|v5.6.0|00014|traffic:local deny|3|FTNTFGTlogid=0001000014
                  cat=traffic:local FTNTFGTsubtype=local FTNTFGTlevel=notice FTNTFGTvd=root src=10.204.91.50 shost=DC1UACQA spt=137 deviceInboundInterface=port3 dst=10.204.91.255 dpt=137 deviceOutboundInterface=unknown-0
                  externalId=5110527 proto=17 act=deny FTNTFGTpolicyid=0 FTNTFGTpolicytype=local-in-policy FTNTFGTdstcountry=Reserved FTNTFGTsrccountry=Reserved FTNTFGTtrandisp=noop app=udp/137 FTNTFGTapp=netbios forward
                  FTNTFGTduration=0 out=0 in=0 FTNTFGTsentpkt=0 FTNTFGTappcat=unscanned FTNTFGTdevtype=Windows PC FTNTFGTosname=Windows 8 / 2012 FTNTFGTmastersrcmac=00:50:56:b2:39:3a FTNTFGTsrcmac=00:50:56:b2:39:3a
                  FTNTFGTsrcserver=0

Info   INT31545   2017-07-17 21:17:34 - ic - [127.0.0.1] System()[] - Syslog Message received from Client: 10.204.88.3 Message: Jul 17 21:29:22 FortiGate-VM64 CEF:0|Fortinet|Fortigate|v5.6.0|00014|traffic:local deny|3|FTNTFGTlogid=0001000014
                  cat=traffic:local FTNTFGTsubtype=local FTNTFGTlevel=notice FTNTFGTvd=root src=10.204.91.53 shost=2012-GRANDCHILD spt=137 deviceInboundInterface=port3 dst=10.204.91.255 dpt=137 deviceOutboundInterface=unknown-0
                  externalId=5110525 proto=17 act=deny FTNTFGTpolicyid=0 FTNTFGTpolicytype=local-in-policy FTNTFGTdstcountry=Reserved FTNTFGTsrccountry=Reserved FTNTFGTtrandisp=noop app=udp/137 FTNTFGTapp=netbios forward
                  FTNTFGTduration=0 out=0 in=0 FTNTFGTsentpkt=0 FTNTFGTappcat=unscanned FTNTFGTdevtype=Windows PC FTNTFGTosname=Windows 8 / 2012 FTNTFGTmastersrcmac=00:50:56:b2:39:3f FTNTFGTsrcmac=00:50:56:b2:39:3f
                  FTNTFGTsrcserver=0
```

References

- Logging and Reporting Overview: http://help.fortinet.com/fos50hlp/54/Content/FortiOS/fortigate-logging-reporting-54/logs.htm?Highlight=Logging%20and%20Reporting
- Inside FortiOS: Application Control: http://help.fortinet.com/fos50hlp/56/Content/FortiOS/fortiOS-HTML5-v2/InsideFOS/ApplicationControl.htm
- Inside FortiOS: Intrusion Prevention System (IPS): http://help.fortinet.com/fos50hlp/56/Content/FortiOS/fortiOS-HTML5-v2/InsideFOS/IPS.htm