Administration Guide

FortiDeceptor 6.1.0

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August 20, 2025
FortiDeceptor 6.1.0 Administration Guide
50-610-1129270-20250820

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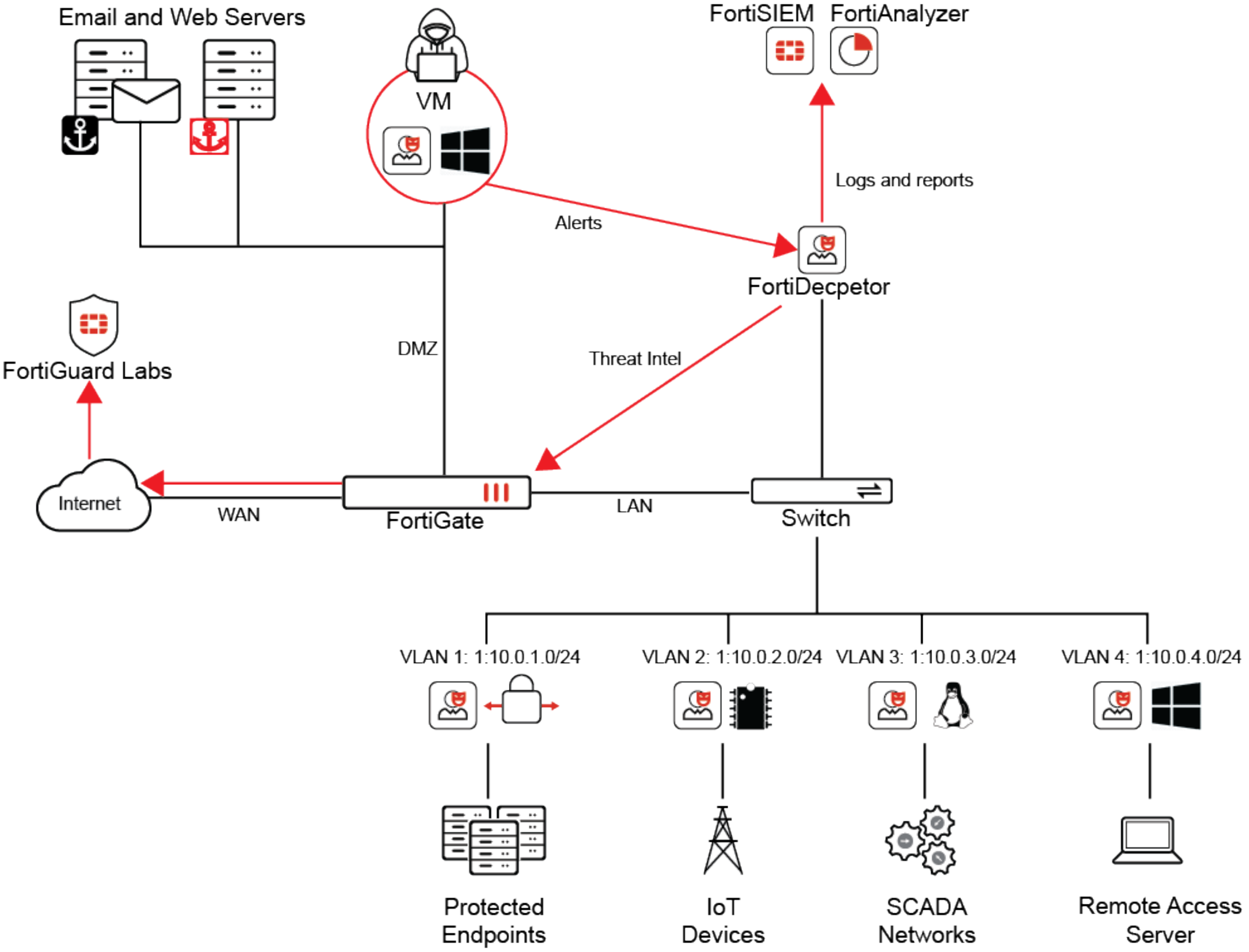
Change Log

Date	Change Description
2025-02-24	Initial release.
2025-03-10	Added Integrate with Cisco ISE ANC policy on page 378
2025-03-20	Added Integration with Splunk Watch List on page 382 and Deploy the Windows 10 decoy with Active Directory (AD) on page 391.
2025-04-14	Updated Integrate with FortiGate 6.0.3 to 7.2.3 over REST-API on page 343
2025-04-28	Updated Integration with Microsoft ATP on page 314.
2025-05-09	Updated Default port information on page 16.
2025-06-27	Added Activating Windows 7/10 licenses after exceeding the activation limit on page 276.
205-08-20	Added Edge appliance manager on page 41.

Introduction

FortiDeceptor creates a network of Decoy VMs to lure attackers and monitor their activities on the network. When attackers attack Decoy VMs, their actions are analyzed to protect the network.



Key features of FortiDeceptor include:

- **Deception OS**: Windows, Linux, SCADA OS, IoT OS, VoIP OS, ERP OS, Medical OS, SSL-VPN OS, EV2023 OS or POS OS images are available to create Decoy VMs.
- **Decoy VMs**: Decoy VMs that behave like real network assets can be deployed via FortiDeceptor.
- **Deception Lures**: Deception Lures are services, applications, or users added to a Decoy VM to simulate a real user environment.
- **FortiDeceptor token package**: Install a FortiDeceptor token package to add breadcrumbs on real endpoints and lure an attacker to a Decoy VM. Tokens are normally distributed within the real endpoints and other IT assets on the network to maximize the deception surface. Use tokens to influence attackers' lateral movements and activities. Examples of what you can use in a token include: cached credentials, database connections, network share, data files, and configuration files.

- **Monitor the hacker's actions**: Monitor *Incidents*, *Events*, and *Campaign*.
  - An *Event* represents a single action. For example, a login-logout event on a victim host.
  - An *Incident* represents all actions on all actions taken by a hacker on a single decoy/victim host. Examples include, a login-logout, file system change, a registry modification, and a website visit on a single victim host.
  - A *Campaign* represents the hacker's lateral movement. All related *Incidents* are a *Campaign*. For example, an hacker logs on to a system using the credentials found on another system.
- **Log Events**: Log all FortiDeceptor system events.

Set up FortiDeceptor

Use the following checklist to verify you have completed all of the general configuration tasks.

	Task	Description
□	Connect to the GUI	Connect the administration interface to a management computer with an Ethernet cable, then configure the management computer to be on the same subnet as the internal interface of the FortiDeceptor unit.
□	Change the administrator password	You are required to create a create strong password the first time you log into FortiDeceptor.
□	Change the system hostname	Change the full host name in the *System Information* widget.
□	Connect to the CLI	If necessary, connect to the CLI console.
□	Configure the system time	Configure the FortiDeceptor system time manually or synchronize with an NTP server from the *System Information* widget.
□	Upload the license file to FortiDeceptor	Go to *Dashboard > System Information* widget, click *Upload License* beside *Firmware License*.
□	Review the default port information	FortiDeceptor reserves Port1 for device management. The other ports are used to deploy deception decoys.
□	Configure Central Management on the manager	Configure the Central Management console to manage remote FortiDeceptor appliances including Decoy VMs deployment, system configuration, and incident alert monitoring.
□	Access control list	Review domains used by the FortiDeceptor FortiGuard page to add to the allow lists of your firewalls and proxies.

Connect to the GUI

Use the GUI to configure and manage FortiDeceptor.

To connect to the FortiDeceptor GUI:

1. Using an Ethernet cable, connect the management computer to FortiDeceptor's port1.
2. Configure the management computer to be on the same subnet as the internal interface of the FortiDeceptor unit:
   - Change the IP address of the management computer to `192.168.0.2`.
   - Change the IP address of the network mask to `255.255.255.0`.
3. Go to `https://192.168.0.99`.
4. Type `admin` in the *Name* field, leave the *Password* field blank, and click *Login*.
   You can now proceed with configuring your FortiDeceptor unit.

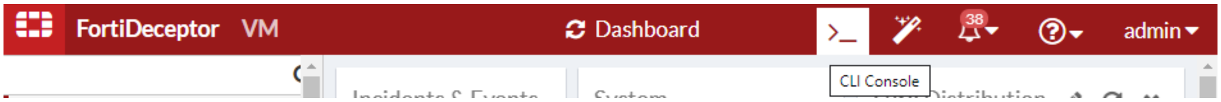
If the network interfaces have been configured differently during installation, the URL and administrative access protocols might not be in their default state.

Connect to the CLI

You can use CLI commands to configure and manage FortiDeceptor.

To connect to the FortiDeceptor CLI:

1. In the FortiDeceptor banner at the top, click the *CLI Console* icon.



   The *CLI Console* pane opens.
2. If necessary, click *Connect* and enter your username and password.
   The *CLI Console* pane has icons to disconnect from the CLI console, clear console text, download console text, copy console text, open the CLI console in its own window, and close the console.
3. To close the CLI console, click the *Close* icon.

Change the system hostname

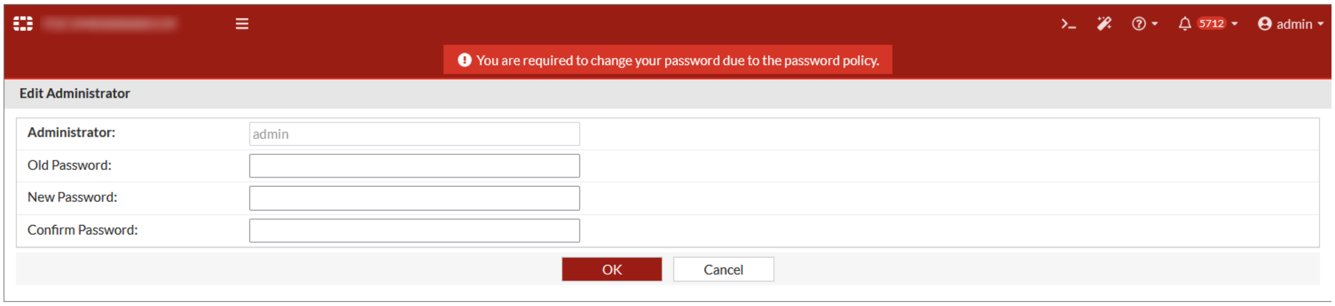
The *System Information* widget displays the full host name. You can change the FortiDeceptor host name.

To change the host name:

1. Go to *Dashboard*, *System Information* widget.
2. Click *Change* beside *Host Name*.
3. In the *New Name* field, type a new host name.
   The hostname can start with a character or digit, and cannot end with a hyphen. A-Z, a-z, 0-9, or hyphen are allowed (case-sensitive). Other symbols, punctuation, or white space are not allowed.
4. Click *Apply*.

Change the administrator password

The first time you log into FortiDeceptor you will be prompted to change the administrator password. Passwords must be 8-60 characters long, and contain only upper/lower-case letters, numbers and special characters *!#$%()*.



[redacted]

You are required to change your password due to the password policy.

Edit Administrator

Administrator:	admin
Old Password:	
New Password:	
Confirm Password:	

For information about resetting the admin password in a FortiDeceptor appliance, see Maintainer account in Maintainer account on page 281.

To change the password of the logged in administrator:

1. In the FortiDeceptor banner at the top, click the username and select *Change Password*.
2. Change the password and click *OK*.

To change the administrator password in the Administrators page:

1. Go to *System* > *Administrators*.
2. Select an administrator and click *Edit*.
3. Change the password and click *OK*.

To change the administrator password with the CLI:

Run the following command:

```
passwd
```

Example:

```
> passwd

Old password: *************

New password: *************

Confirm password: *************

Successfully changed password, please re-login with the new password.
```

Configure the system time

You can change the FortiDeceptor system time in the *Dashboard*. You can configure the FortiDeceptor system time manually or synchronize with an NTP server.

To configure the system time:

1. Go to *Dashboard* > *System Information* widget and click *Change* beside *System Time*.
2. Select the *Time Zone* and wait for the widget to refresh.
3. Check that the *System Time* is correct. If necessary, click *Set Time* and manually set the time and date.
4. Click *Apply*.
   You might need to log in again.

If the time is not correct, we recommend configuring the NTP server for time synchronization.

Upload license file to FortiDeceptor

To upload the license to FortiDeceptor:

1. Go to *Dashboard* > *System Information* widget, click *Upload License* beside *Firmware License*.
2. Locate the license and click *Submit*.

Default port information

FortiDeceptor treats Port1 as reserved for device management. The other ports are used to deploy deception decoys.

The following table list the default open ports for each FortiDeceptor interface.

FortiDeceptor default ports:

Configure the FortiDeceptor management IP address on port1.

Port (Interface)	Default Open Ports
Port1	TCP ports 22 (SSH) and 443 (GUI). FortiGuard Distribution Servers (FDS) use TCP port 443 or 8890 for download. FortiDeceptor uses a random port picked by the kernel. FortiGuard Web Filtering servers use TCP port 443 or UDP port 53 or 8888. FortiDeceptor uses a random port picked up by the kernel. FortiDeceptor deception VM download uses TCP port 443 for download. FortiDeceptor uses a random port picked by the kernel. FortiDeceptor Manager is required to open port 8443 **from** the client (remote appliance) to the FortiDeceptor Manager.

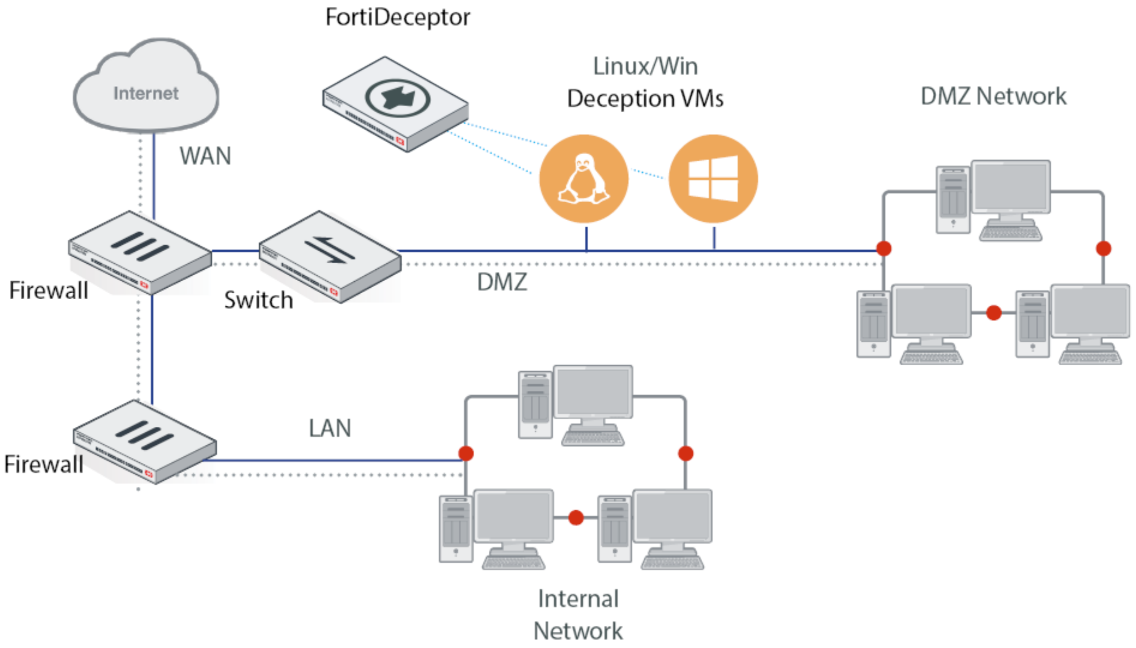
Port (Interface)	Default Open Ports
	FortiDeceptor Manager is required to have access to *virustotal.com* over port 443 for malware analysis based on MD5 request.
Port2 to port8	Each FortiDeceptor port can be directly connected to a specific VLAN or use the network trunk to communicate with multiple VLANs from a single interface. In DMZ mode, no service listens. In regular mode, the token communication service listens on the deployment network. The token communication uses HTTPS protocol. The default port is 1443.

The default port for FortiDeceptor VM is 443. To add SSH or another port, go to *Network >Interfaces > port1> Edit*.

DMZ Mode

Deploy a FortiDeceptor hardware unit or VM in the Demilitarized Zone (DMZ). You can monitor attacks on the DMZ network when FortiDeceptor is installed in the DMZ network.

DMZ mode is useful when you want to deploy decoys to a segment of the network that hosts critical services. When a threat actor attacks a server and attempts to move laterally inside the DMZ segment they are detected by the decoys without exposing the decoys on the Internet.



Limitations of the DMZ Mode

The DMZ Mode in FortiDeceptor functions like regular mode with the following exceptions:

- When DMZ mode is enabled, the banner displays *DMZ-MODE*.
- In *Deception > Deployment Network*, *Deception Monitor IP/Mask* is hidden. See Deployment Network on page 108.
- In *Deception > Decoy & Lure Status* in the Deception Status view, the Attack Test selection is disabled.
- Decoy VMs are limited to one deployment Interface. For information about IP address range, see Deployment Wizard on page 114.

To enable DMZ mode in the CLI:

```
dmz-mode -e
```

To disable DMZ mode in the CLI:

```
dmz-mode -d
```

Enabling or disabling the DMZ mode removes all previous configurations including Decoy VMs, lures, and tokens. Deception OS is not removed.

JSON API

FortiDeceptor provides a Representational State Transfer (REST) API for interaction with system components. Programs communicate with the REST API over HTTP, the same protocol your web browser uses to interact with web pages.

The REST-API authentication is based on a token generated by the FortiDeceptor.

The FortiDeceptor API has the following capabilities:

- Get the decoy deployment template list.
- Deploy decoys based on the decoy template configuration and the deployment network configuration (both STATIC and DHCP IP).
- Get a decoy deployment status.
- Stop/start the deployed decoys.
- Get incident alerts based on filter requests like time range (last minutes/hours/days) / service name/decoy name.

The *FortiDeceptor JSON API Reference* guide is available in the Fortinet Developer Network (FNDN). To access the guide, log in to FNDN and enter `FortiDeceptor` in the *Search* field.

Fortinet Developer Network is a subscription-based community. For more information about FNDN, visit Fortinet Worldwide Developer Community.

Access control list

The following list provides the domains used by the FortiDeceptor FortiGuard page. We recommend adding these domains to the allow lists of your firewalls and proxies.

- fdcvm.fortinet.net
- globalupdate.fortinet.net
- securewf.fortiguard.net
- usupdate.fortinet.net
- ussecurewf.fortiguard.net
- service.fortiguard.net
- usservice.fortiguard.net

Depending your requirements, we recommend safe-listing access to some or all of the following FQDNs for your internal network and internet facing gateway:

FortiDeceptor	• Deception OS • Outbreak package
Fortinet	• Gobal FortiGuard services • USG FortiGuard services • Global Webfilter services • USG Webfilter services

Deploy Decoy VM

Use the *Deception* pages to deploy Decoy VMs on your network. When a hacker gains unauthorized access to Decoy VMs, their movements can be monitored to understand how they attack the network.

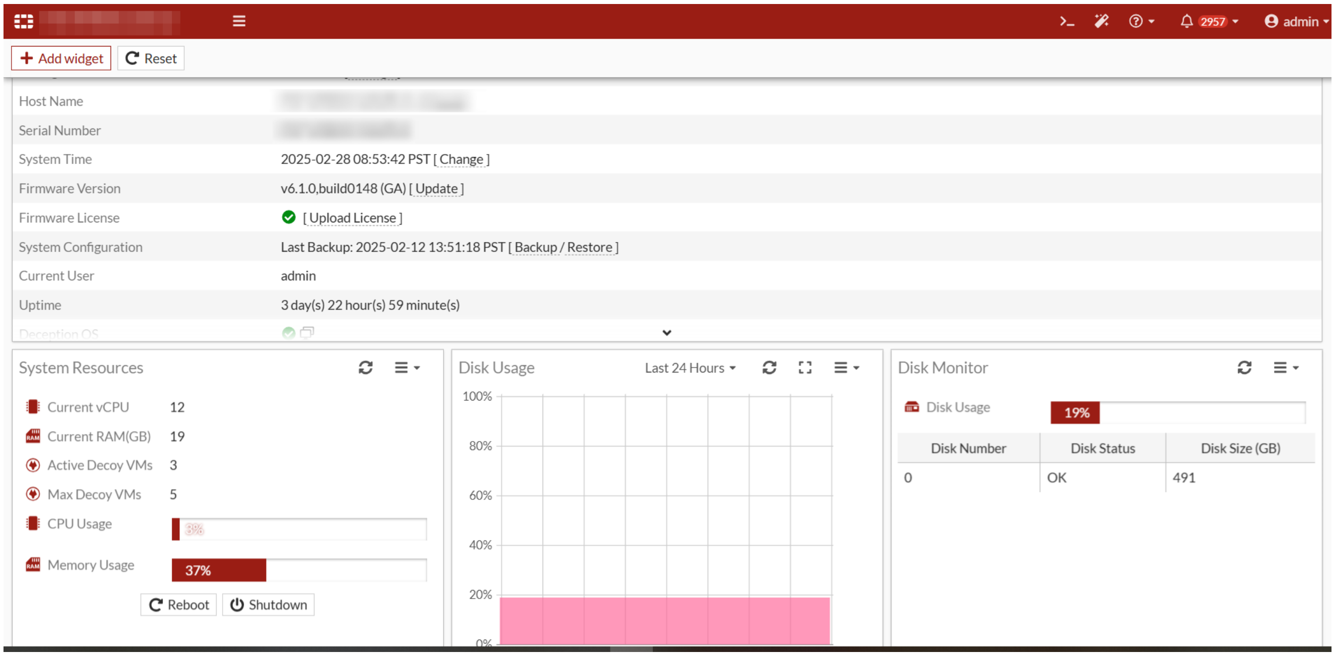
To use FortiDeceptor to monitor the network:

Task	Location in GUI	More information
Check the Deception OS is available	Go to Deception > Deception OS	See Deception OS on page 107.
Auto-detect or specify the network where the Decoy VMs are deployed	Go to *Deception* > *Deployment Network*	See Deployment Network on page 108.
Deploy the Decoy VM on the network	Go to *Deception* > *Deployment Wizard*	See Deployment Wizard on page 114.
Deploy the Decoy VM join or change domain	Go to *Deception* > *Deployment Wizard* or *Decoy Status*	See Deployment Wizard on page 114 and Decoy Status on page 130.
Start or stop the deployed Decoy VMs, or download the FortiDeceptor token package to manually install it on computers	Go to *Deception* > *Decoy Status*	See Decoy Status on page 130.
Specify the IP address that is to be considered safe	Go to *Deception* > *Safe List*	See Safe List on page 138. This is useful when you want to log in to the deployment network without being flagged as an attacker.
View and work with lure resources	Go to *Deception* > *Lure Resources*	See Lure Resources on page 111.

For more information, see Deception deployment best practices on page 210.

Dashboard

The *Dashboard* contains system information widgets that allow you to monitor the performance of the FortiDeceptor. The Dashboard also includes widgets that provide an overview of incidents and events over the last 24 hours to 7 days. You can customize the Dashboard by adding and removing widgets.



Host Name	[redacted]
Serial Number	[redacted]
System Time	2025-02-28 08:53:42 PST [Change]
Firmware Version	v6.1.0,build0148 (GA) [Update]
Firmware License	✓ [Upload License]
System Configuration	Last Backup: 2025-02-12 13:51:18 PST [Backup / Restore]
Current User	admin
Uptime	3 day(s) 22 hour(s) 59 minute(s)
Deception OS	

System Resources

Current vCPU	12
Current RAM(GB)	19
Active Decoy VMs	3
Max Decoy VMs	5
CPU Usage	3%
Memory Usage	37%

Disk Number	Disk Status	Disk Size (GB)
0	OK	491

The following widgets are available:

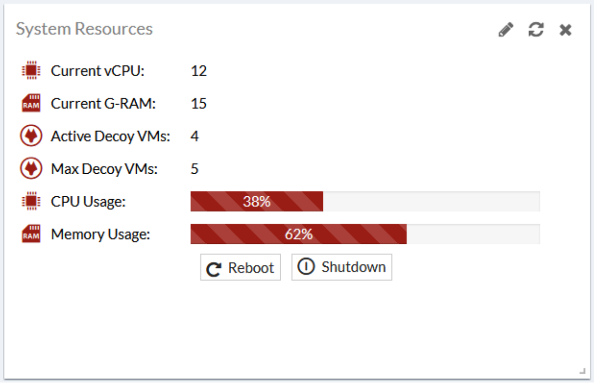
Widget	Description
System Resources	Hardware requirements benchmark for FortiDeceptor Virtual appliances only. This widget provides real-time guidelines for system performance and increasing vCPU & RAM resources during deployment and ongoing maintenance. The widget also provides the overall Real-time usage status of the CPU and memory.
System Information	Basic information about the FortiDeceptor system, such as the serial number, system up time, and license status information.
License Information	The list of VM license keys and their expiry dates.
Disk Monitor	For hardware models: • The RAID level and status, disk usage, and disk management information. For VM models: • Disk usage.
Incidents by Severity	Information about the number of incidents and events, and their level of severity.
Incidents & Events Count	Number of events occurring each day.

Widget	Description
Decoy Distribution by Template	Number of decoys displayed as a pie-chart showing the OS such as Windows or Ubuntu.
Service Distribution	Number of decoys deployed displayed a pie-chart showing the type of service such as SSH, SAMBA, SMB, SCADA, RDP, HTTP, HTTPS, IIS (HTTP, HTTPS), or MSSQL.
Incidents by Service	Information about the number and types of incidents, such as SMB, HTTP, TCP, and so on.
Top 10 Attackers by Incidents	The top 10 attackers by the number of incidents.
Top 10 Attackers by Events	The top 10 attackers by the number of events.
Global Incidents Distribution	Displays the number of Attackers by country on a global map.
Top 10 IPS attacks	Displays the top 10 IPS attackers by the number of events.
Bandwidth	Displays Inbound and outbound bandwidth for the specific port. The most recent inbound / outbound bandwidth is also displayed.
Disk Usage	The current disk usage and the remaining available disk capacity as a percentage.
Memory Usage	The current memory usage as percentage
CPU usage	The current CPU usage as a percentage.

For information about adding widgets, see Customizing the dashboard on page 35.

System Resources

The *System Resources* widget displays basic information about the FortiDeceptor system, such as the serial number, system up time, and license status information. Use the *System Resources* to reboot or shutdown the unit.



System Resources

Current vCPU: 12

Current G-RAM: 15

Active Decoy VMs: 4

Max Decoy VMs: 5

CPU Usage: 38%

Memory Usage: 62%

This *System Resources* widget displays the following information:.

Current vCPU	The current number of vCPUs.

Current G-RAM	The current amount of RAM in GB.
Active Decoy VMs	The current number of active decoy VMs.
Max Decoy VMs	The maximum number of decoy VMs.
CPU Usage	The CPU usage as a percentage.
Memory Usage	The memory usage as a percentage.

Reboot or shut down the unit

To avoid potential configuration or hardware problems, always use the GUI or CLI to reboot or shut down FortiDeceptor.

To reboot the FortiDeceptor unit:

1. Go to *Dashboard* > *System Resources*.
2. Click *Reboot*.
3. Enter a reason for the reboot in the *Reason* field.
4. Click *OK*.

After reboot, the FortiDeceptor VM initialization requires approximately 30 minutes. The Decoy VM icon in the *System Information* widget shows a warning sign until the process completes.

When FortiDeceptor boots or reboots, the following critical event log message is normal:

The VM system is not running and might need more time to start up. Please check system logs for more details. If needed, please reboot system.

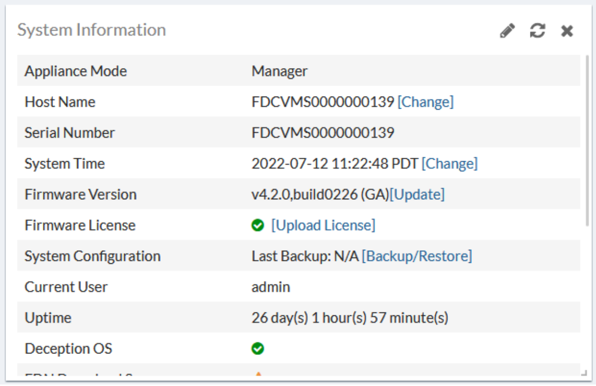
After upgrading FortiDeceptor to a new firmware version, the system might clean up data and a *Database is not ready* message displays. The clean up time depends on the size of historical data.

To shut down the FortiDeceptor unit:

1. Go to *Dashboard* > *System Resources*.
2. Click *Shutdown*.
3. Enter a reason for the shutdown in the *Reason* field.
4. Click *OK*.

System Information

The *System Information* widget displays information about the FortiDeceptor device. Use this widget to configure the device host name, update the firmware version, upload a license or back up the system configuration.



System Information

Appliance Mode	Manager
Host Name	FDCVMS0000000139 [Change]
Serial Number	FDCVMS0000000139
System Time	2022-07-12 11:22:48 PDT [Change]
Firmware Version	v4.2.0,build0226 (GA)[Update]
Firmware License	✓ [Upload License]
System Configuration	Last Backup: N/A [Backup/Restore]
Current User	admin
Uptime	26 day(s) 1 hour(s) 57 minute(s)
Deception OS	✓

This widget displays the following information and options.

Appliance Mode	The mode of the appliance: Manager, Client, or standalone.
Appliance CM Status	Optional for client appliance. Display the status in Central Management. See Central Management on page 37.
Appliance CM Live Time	Optional for client appliance. The last live timestamp in Central Management. See Central Management on page 37.
Host Name	The name assigned to this FortiDeceptor unit. Click *Change* to edit the FortiDeceptor host name.
Serial Number	Serial number of this FortiDeceptor unit. The serial number is unique to the FortiDeceptor unit and does not change with firmware upgrades. The serial number is used for identification when connecting to the FortiGuard server.
System Time	The current time on the FortiDeceptor internal clock or NTP server. Click *Change* to configure the system time. See Configure the system time on page 16.
Firmware Version	Version and build number of the firmware installed on the FortiDeceptor unit. To update the firmware, you must download the latest version from the Fortinet Customer Service & Support portal. Click *Update* or *UPDATE AVAILABLE* and select the firmware image to load from the local hard disk or network volume. For information, see Update FortiDeceptor firmware on page 25.
Firmware License	To load a firmware license, click *Upload License* and select a license file. See Upload license file to FortiDeceptor on page 16.
System Configuration	Date and time of the last system configuration backup. Click *Backup/Restore* to go to the *System Recovery* page. See Back up or restore the system configuration on page 26.
Current User	The administrator that is currently logged into the system.

Uptime	Duration that the FortiDeceptor unit has been running since it booted up.
Deception OS	Deception OS license activation and initialization status. Displays a green check mark if the Deception OS is activated and initialized. A *Caution* icon is displayed if the Deception OS is initializing or having issues. Hover you mouse over the status icon to view detailed information. For more information, see *Log > All Events*. To go to *Deception > Deception OS* to see the images available on FortiDeceptor, click *Update* or *UPDATE AVAILABLE*. After purchase, download the license file from the Fortinet Customer Service & Support portal. Then click *Upload License* to select the license file. The system reboots and activates the newly-installed Deception OS.
FDN Download Server	Shows if the FDN download server is accessible. When the FDN download server is inaccessible, no update packages are downloaded.
Web Filtering Server	Shows if the web filtering query server is accessible.
Antivirus DB Contract	Brief information about this contract.
Antivirus Engine Contract	Brief information about this contract.
IDS Engine/DB Contract	Brief information about this contract.
Web Filtering Contract	Brief information about this contract.
ARAE Engine Contract	Brief information about this contract.
Custom VM Contract	Brief information about this contract. This is displayed when FortiDeceptor is running a v1 license.
SSL VPN Contract	Brief information about this contract. These is displayed when FortiDeceptor is running a v4 license.
Traffic Tunnels	Displays the ports for the on-premise Manager or DaaS. When FDC-100G/VME are connected to DaaS and tunnels are established, you can hover over the tunnels to show the *Uplink* and *Downlink* tunnel traffic volume from the (re)connection establishment to the last reported period. This field is only available in Edge devices.

To change the Host Name:

1. Go to *Dashboard > System Information* widget.
2. Click *Change*. The *Edit Host Name* page opens.
3. In the *New Name* field, enter the new Host Name and click Apply.

Update FortiDeceptor firmware

It is best practice to keep your current major release up-to-date with patch releases. Only upgrade to a new major release or version if you need specific functionality offered in that release. For more details, refer to the *FortiDeceptor Release Notes* or contact Technical Support."

Before any firmware update, complete the following:

- Download the FortiDeceptor firmware image and Release Notes document from the Fortinet Customer Service & Support portal. Review the Release Notes, including the special notices, upgrade information, product integration and support, and resolved and known issues.
- Back up your configuration file. It is highly recommended that you create a system backup file and save it to your management computer. You can also schedule the system to back up system configurations to a remote server. See, Back up or restore the system configuration on page 26.
- Plan a maintenance window for the firmware update. If possible, consider setting up a test environment to check that the update does not negatively impact your network.

To update the FortiDeceptor firmware:

1. Go to *Dashboard*.
2. In the *System Information* widget beside *Firmware Version*, click *Update Available*. The *FortiDeceptor Upgrade* opens.
3. Select the firmware.

Tab	Description
All Upgrades	All of the available firmware releases are displayed, each release contains a hyperlink to the release notes. Click the *Release Notes* link to review the release information. If there are no new updates, *The firmware is up to date* is displayed. 1. To upgrade, select the desired firmware, and click *Upgrade* 2. Click *OK* in the confirmation dialog. The system will restart automatically.
File Upload	1. Next to *Firmware image file*, drag and drop the image file you downloaded from the Fortinet Customer Service & Support portal, or click *Choose a file* to upload the image. 2. Click *Upgrade*.

When the update is complete, test your FortiDeceptor device to ensure that the update was successful.

Back up or restore the system configuration

We recommend that your regular maintenance includes system backups. Always backup before upgrading firmware or making major system configuration changes. Save configuration backups to a management computer in case you need to restore the system after a network event.

The FortiDeceptor configuration file is in binary format and manual editing is not supported.

To back up the FortiDeceptor configuration to your local management computer:

1. Go to *Dashboard* > *System Information* > *System Configuration*.
2. Click *Backup*.
3. In the *Password* field, enter a password.

4. In the *Confirm Password* field, re-enter the password
5. Click *Backup* to save your backup file.

To restore the FortiDeceptor configuration:

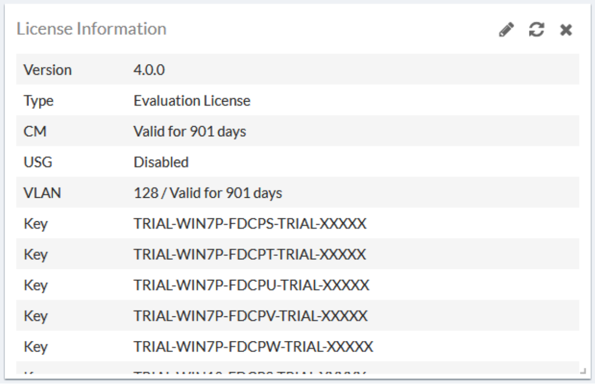
1. Go to *Dashboard* >*System Information* > *System Configuration*.
2. Click *Restore*.
3. In the *Password* field, enter the password for the backup file.
4. Next to *Restore file*, drag and drop the backup file, or click *Choose File* to upload the backup file from your management computer.
5. Click *Restore* to load the backup file.

When the system configuration restore process completes, the login page appears.

When you perform a system restore, all configurations are replaced with the backup data. The system reboots automatically to complete the restore. Only the backup configuration file from the previous or the current release is supported. Some configurations may not be restored for backup files that were saved from previous versions and restored on the current version.

License Information

The License Information widget displays the license version, type, expiration dates and license key.



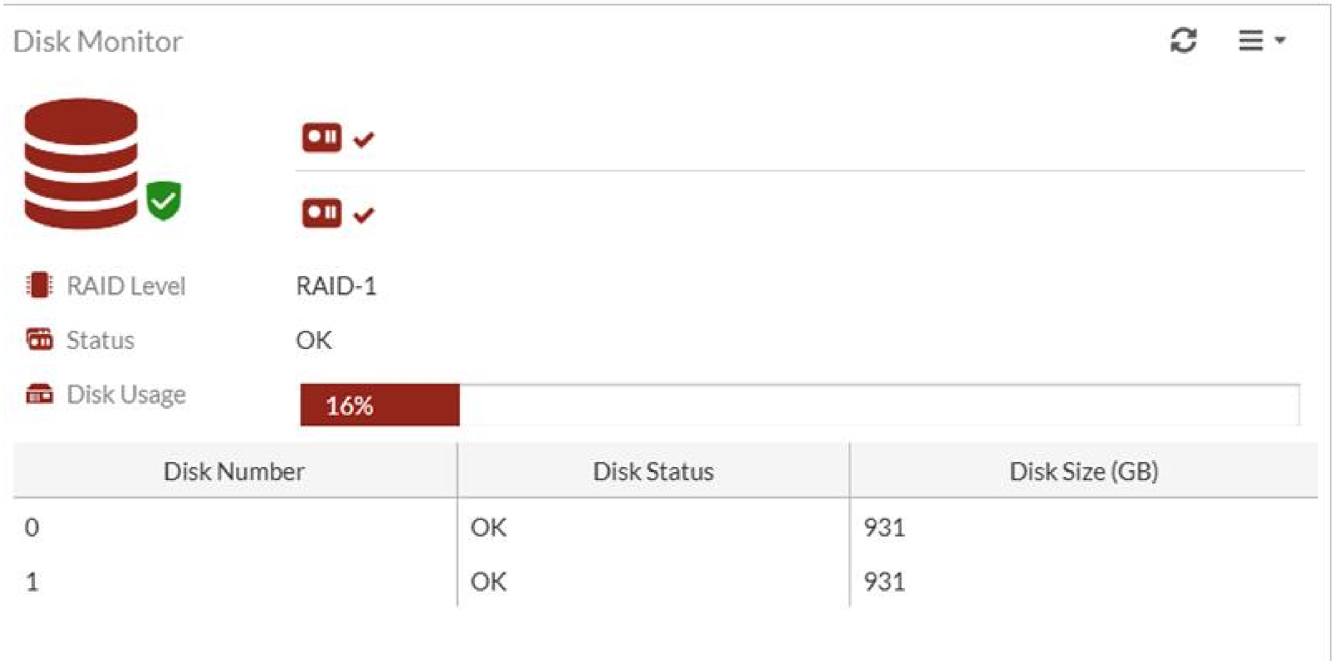
License Information

Version	4.0.0
Type	Evaluation License
CM	Valid for 901 days
USG	Disabled
VLAN	128 / Valid for 901 days
Key	TRIAL-WIN7P-FDCPS-TRIAL-XXXXX
Key	TRIAL-WIN7P-FDCPT-TRIAL-XXXXX
Key	TRIAL-WIN7P-FDCPU-TRIAL-XXXXX
Key	TRIAL-WIN7P-FDCPV-TRIAL-XXXXX
Key	TRIAL-WIN7P-FDCPW-TRIAL-XXXXX

Disk Monitor

This *Disk Monitor* is available for both FortiDeceptor hardware-based and VM models.

Hardware disk monitor:



Disk Monitor

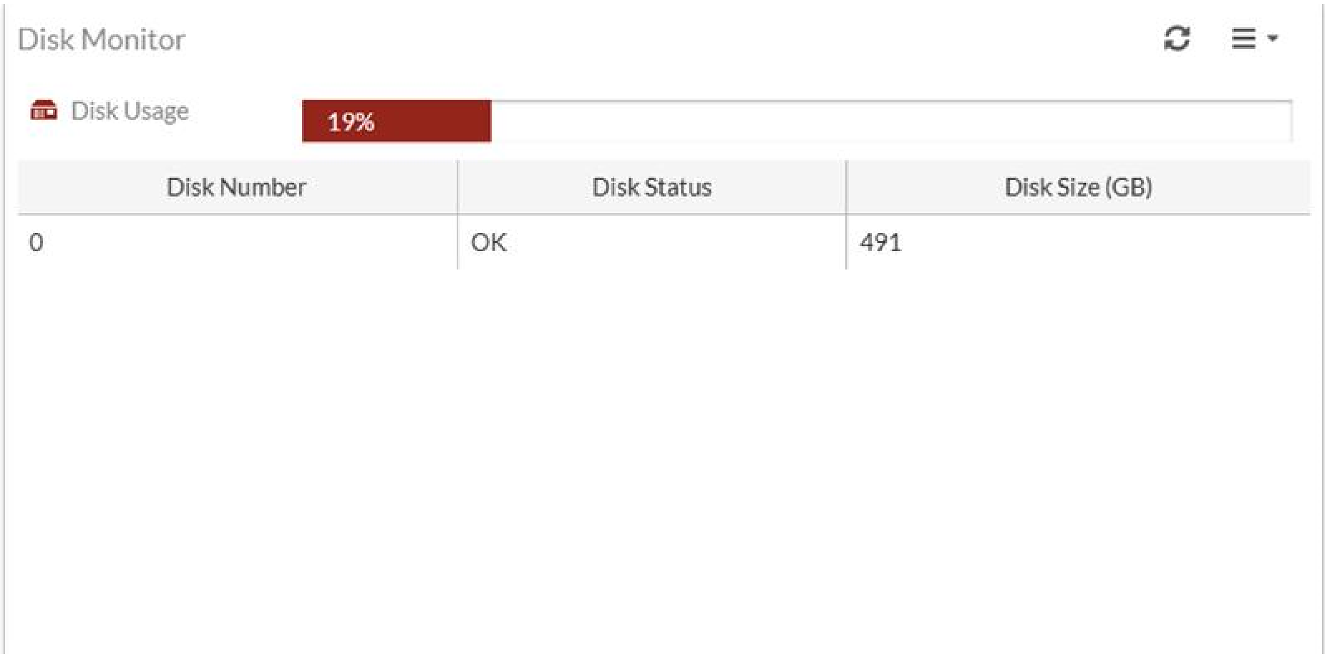
✓

✓

RAID Level	RAID-1
Status	OK
Disk Usage	16%

Disk Number	Disk Status	Disk Size (GB)
0	OK	931
1	OK	931

VM disk monitor:



Disk Monitor

Disk Usage	19%

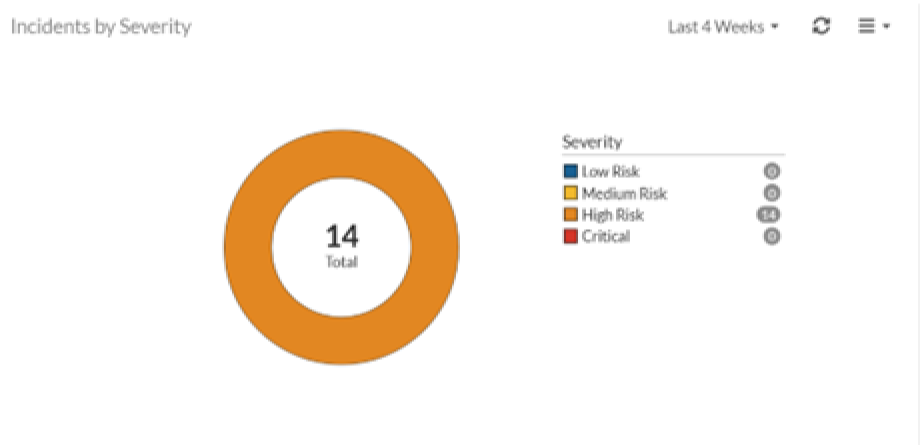
Disk Number	Disk Status	Disk Size (GB)
0	OK	491

This *Disk Monitor* displays the following information:

RAID Level	The RAID level. This information is not available in the VM Disk Monitor.
Disk Status	The disk status.
Disk Usage	The current level of disk usage as a percentage.
Disk Number	The disk number.
Disk Size	The disk size in GB.

Incidents by Severity

This *Incidents & Events Distribution* widget displays the number of incidents and events by risk level as a pie chart. Hover the pie chart to see the number of Incidents or Events and their percentage.

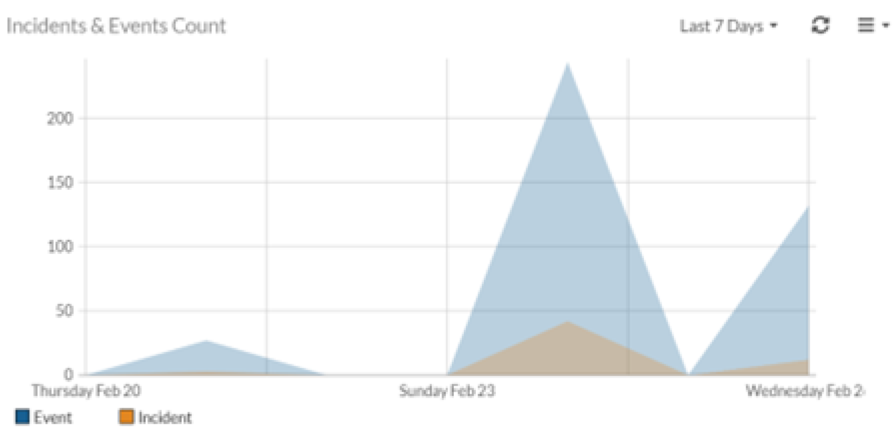


The *Incidents & Events Distribution* widget shows following risk level information:

Unknown	*Incident* or *Event* where the risk level is unknown. Entries are in grey.
Low Risk	*Incident* or *Event* where the risk level is low. Entries are in green.
Medium Risk	*Incident* or *Event* where the risk level is medium. Entries are in yellow.
High Risk	*Incident* or *Event* where the risk level is high. Entries are in orange.
Critical	*Incident* or *Event* where the risk level is critical. Entries are in red.

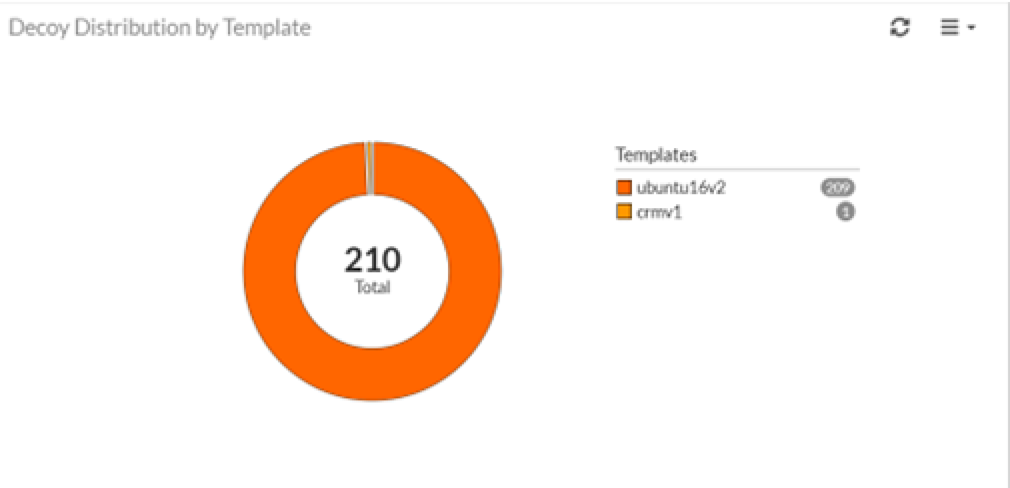
Incidents and Events Count

The *Incidents and Events Count* widget displays the number of Incidents and Events as a chart. The Events are in blue and the Incidents are in orange. Hover over the chart to view the counts by date. To filter the chart, click *Event* or *Incident* in the legend.

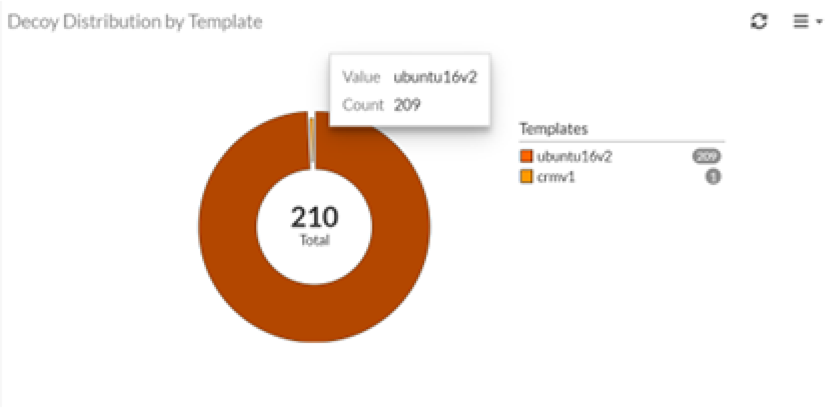


Decoy Distribution by Template

The *Decoy Distribution by Template* widget displays the number and percentage of Decoy VMs by OS as a pie chart. Hover over a piece of the chart to view the distribution by percentage. To filter the chart by OS, click the OS name in the chart legend.



Click a piece of the chart to isolate a Decoy VM from the chart.



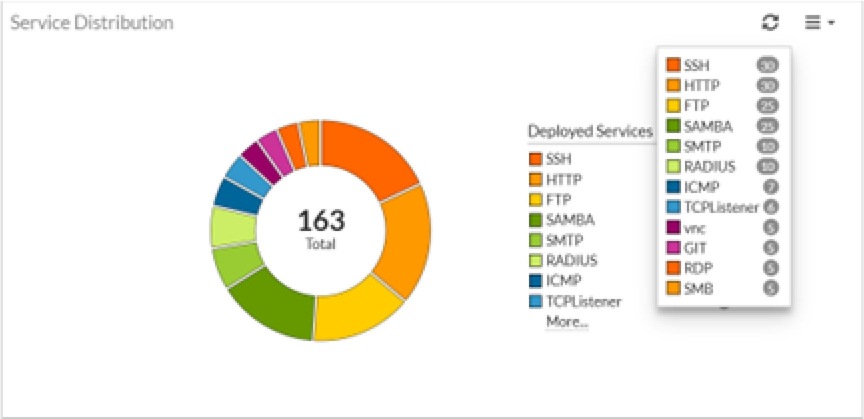
Supported OS types:

The *Decoy Distribution by OS* widget displays the distribution for the following OS types:

Ubuntu, Windows, SCADAV3, SSLVPN, Medical, ERP, POS, IoT, SAP and EV2023 OS.

Service Distribution

The *Service Distribution* widget displays the number of lures deployed as a pie chart. Hover of a piece of chart to view the number and percentage of decoys by service. To filter the chart, click the service name in the legend.



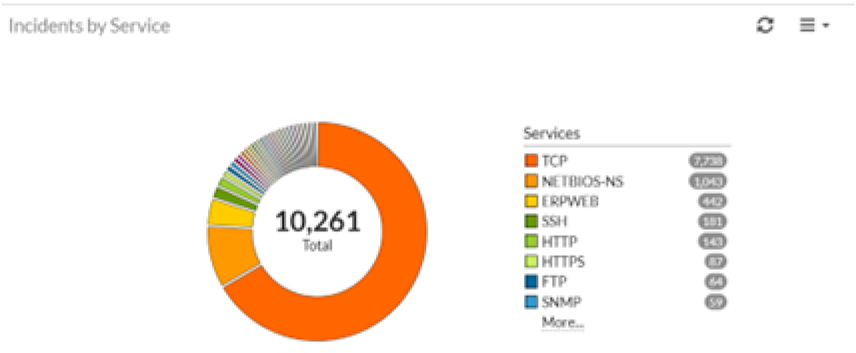
Supported services

The *Lure Distribution* widget displays information for of decoy images using the following services:

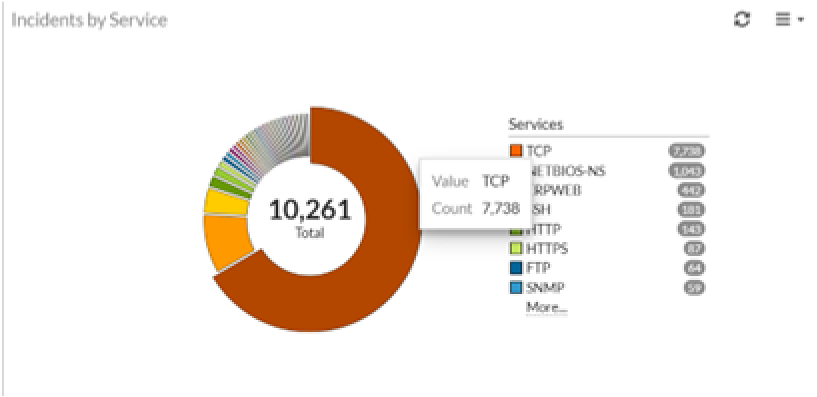
SSH, SAMBA, SMB, TCPLISTENER, NBNSSpoofSpotter, RDP, HTTP, FTP, TFTP, SNMP, MODBUS, S7COMM, BACNET, IPMI, TRICONEX, Guardian-AST, IEC104, MSSQL, IIS, GIT, ENIP, Infusion Pump Telnet, CDP, Infusion Pump FTP, POS-WEB, ERP-WEB, PACS, PACS-WEB, DICOM, SSLVPN, DNP3, Telnet, Printer-WEB, JETDIRECT, IP CAMERA-WEB, UPNP, RTSP, SAP WEB, SAP ROUTER, SAP DISPATCHER , TP-LINK WEB and CWMP

Incidents by Service

The *Incidents by Service* widget displays the number of incidents by service as a pie chart. Hover over a section of chart to view the percentage by service. To filter the chart by service, click the service name in the chart legend.



Click the pie chart to highlight a service from the chart.



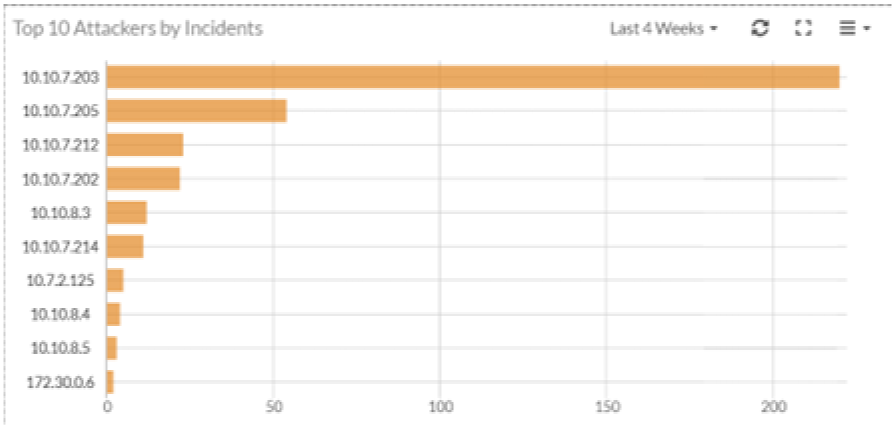
Supported services

Incidents Distribution by Service widget displays incidents occurring for the following services:

SSH, SAMBA, SMB, RDP, SWIFT Lite2, HTTPS, HTTP, FTP, TFTP, SNMP, MODBUS, S7COMM, BACNET, IPMI, TRICONEX, GUARDIAN-AST, IEC104, HTTPS, PACSWEB, POSWEB, AST, IPCAMERA, JETIRECT, TELNET, SSLVPN, KAMSTRUP, DICOM, ENIP, UPNP_HTTP, GIT, RTSP, PRINTER, DNP3, SAP_DISPATCHER, SAP_WEB_HTTPS, SAP_WEB,SAP_ROUTER,NETBIOS-NS, and ERPWEB

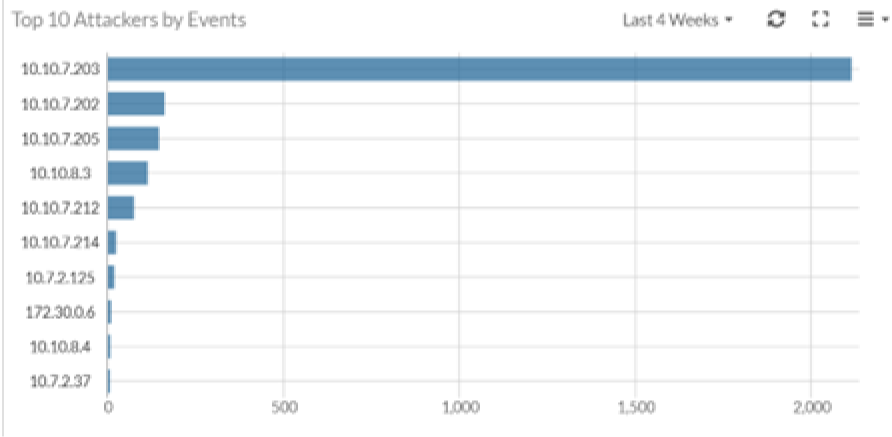
Top 10 Attackers by Incidents

The *Top 10 Attackers by Incidents* widget displays the top ten attackers by the number of incidents as well as the attacker's IP address. Hover over a bar in the chart to view the number of incidents by IP.



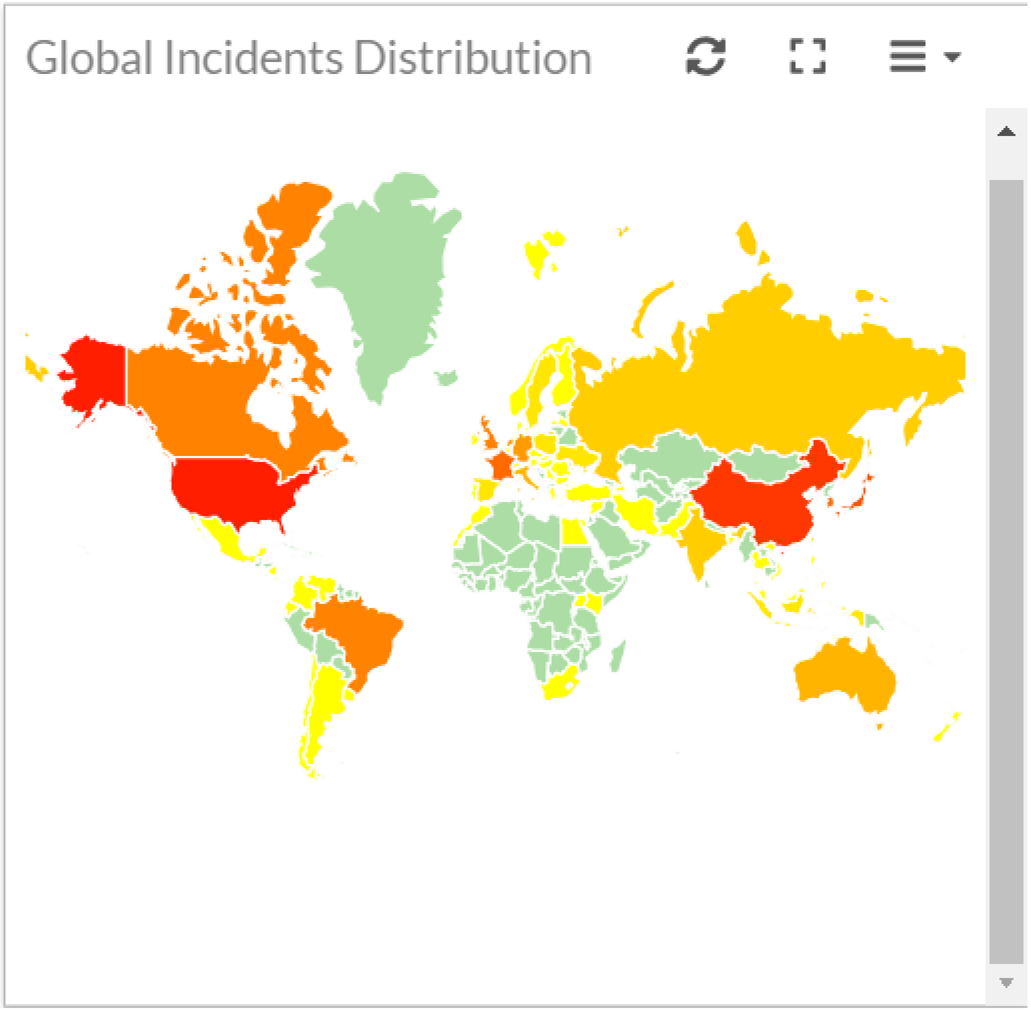
Top 10 Attackers by Events

The *Top 10 Attackers by Events* widget displays the top ten attackers by the number of events as well as the attacker's IP address. Hover over a bar in the chart to view the number of events.



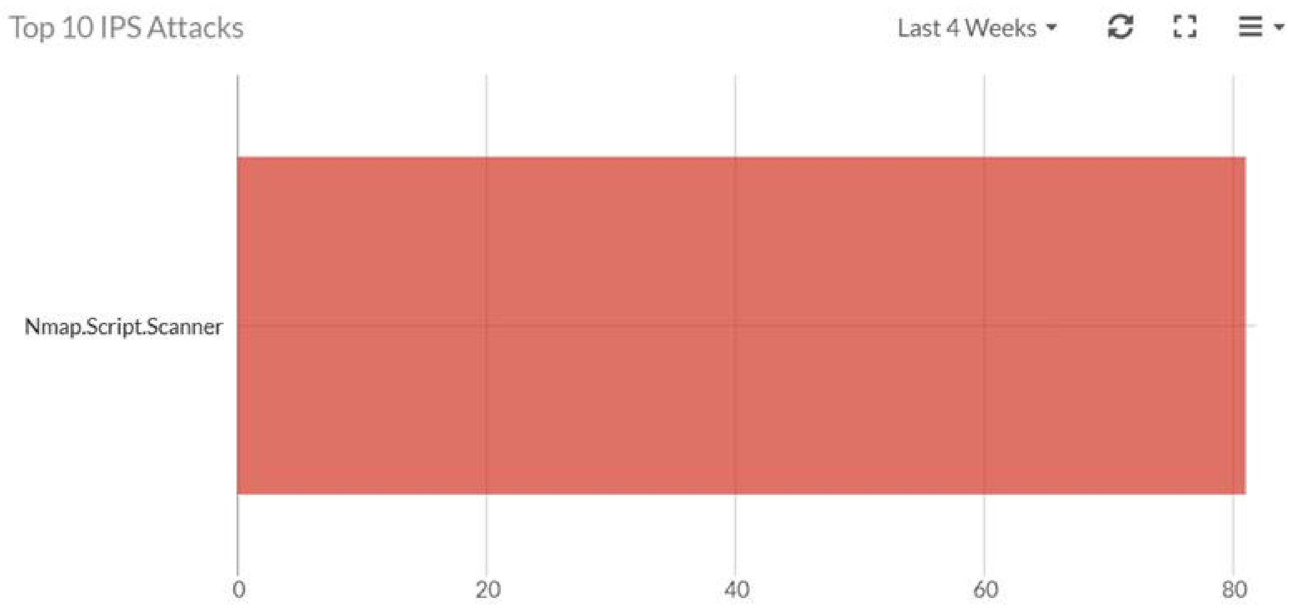
Global Incidents Distribution

The *Global Incidents Distribution* widget displays the number of attackers by country on a global map. Hover over each country to see the number of attackers from each country.



Top 10 IPS Attacks

The *Top 10 IPS Attacks* widget displays the IPS attack name and number of events for the selected time period (24 hours, 7 Days, or 4 weeks).



Customizing the dashboard

You can select which widgets to display on the Dashboard and where they are located on the page. You can also configure the time period and refresh interval for individual widgets.

Dashboard toolbar

The dashboard toolbar is located near the bottom of the pages. You can perform the following tasks:

- Click *Add Widget*to add a widget to the dashboard.

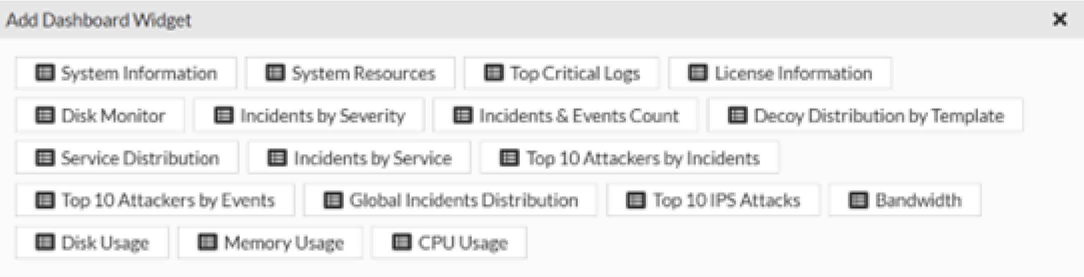
  +

- Click *Reset*to restore the dashboard settings. This will remove any widgets you added to Dashboard and revert any changes you made to the widget settings.

  ↻

To add a widget to the Dashboard:

1. Click the Add icon. The *Widget Selection* dialog opens.



2. Select the widget you want to add to the Dashboard.

Widget toolbar

The widget tools are located in the widget header.

- Select the hamburger menu to access options for resizing the widget, configuring the widget title and refresh interval, or removing the widget. The widgets setting will vary depending on the widget.

  ☰ ▾

- Click *Refresh Data* to refresh the widget data.
  ⟳

Download diagnostic data

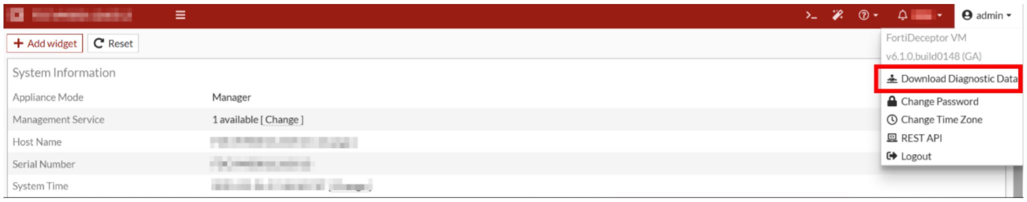
You can use the CLI to enable FortiDeceptor to collect, package and encrypt debug logs. These debug logs can then be downloaded to your device as a `pkg` file with the GUI.

To enable diagnostic data collection:

- Run the following CLI command: `diagnose collect enable`

To download diagnostic data:

- In the banner, click the help icon (**?**) and select *Download Diagnostic Data*. The `pkg` file is downloaded to your device.



System Information

Appliance Mode	Manager
Management Service	1 available [Change]
Host Name	[redacted]
Serial Number	[redacted]
System Time	[redacted]

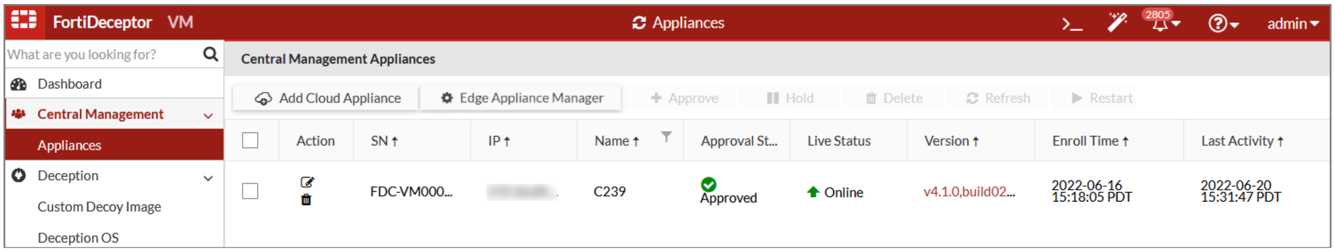
Central Management

Central Management allows you to manage remote FortiDeceptor appliances including Decoy VM deployments, system configuration, and incident alert monitoring.

You can configure a FortiDeceptor hardware or VM appliance to be a Management Device or Remote Client. The Management Device has deception capabilities. You can use the Management Device to deploy decoys and lures to the Remote Clients on the network.

Network communication requirements

Communication between:	From:
Management device and regular client appliance	Client to manager port1 IP and 8443 port
Management device and cloud client appliance	Management device to cloud client port1 public IP and 8443 port



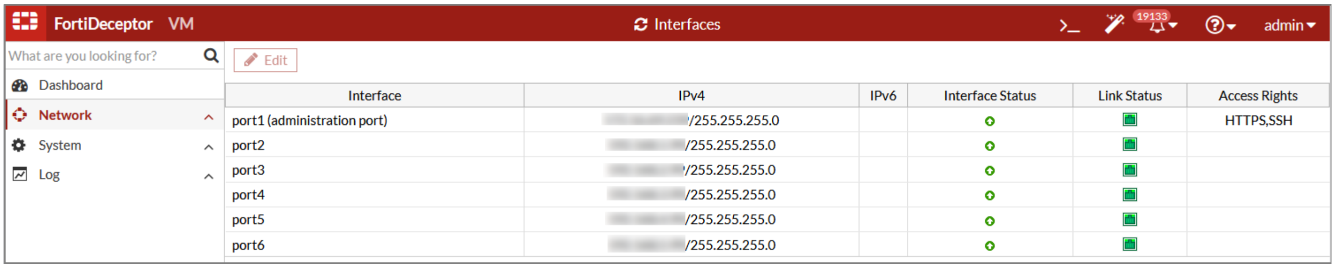
□	Action	SN ↑	IP ↑	Name ↑	Approval St...	Live Status	Version ↑	Enroll Time ↑	Last Activity ↑
□		FDC-VM000...	[redacted]	C239	✓ Approved	Online	v4.1.0,build02...	2022-06-16 15:18:05 PDT	2022-06-20 15:31:47 PDT

Use the buttons in the *Central Management Appliances* pane to manage Remote Clients.

Button	Description
Approve	Allow the selected clients to participate in Central Management.
Hold	Pause the selected clients’ participation in Central Management.
Delete	Pause the selected clients and then permanently delete related data in the Manage Device's local database, including OS, network settings, decoys, and lures. This action does not: • Delete or change any data in the Remote Client. • Change incident and campaign data generated in the past.
Refresh	Force re-sync all data between manager and selected clients.
Restart	Send signal to selected clients to reboot.

Remote Client

When a FortiDeceptor is managed as a Remote Client the navigation pane will only displays the *Network*, *System* and *Log* modules.



Interface	IPv4	IPv6	Interface Status	Link Status	Access Rights
port1 (administration port)	[redacted]/255.255.255.0		○	🟩	HTTPS,SSH
port2	[redacted]/255.255.255.0		○	🟩	
port3	[redacted]/255.255.255.0		○	🟩	
port4	[redacted]/255.255.255.0		○	🟩	
port5	[redacted]/255.255.255.0		○	🟩	
port6	[redacted]/255.255.255.0		○	🟩	

To prevent access to a Remote Client outside the Central Management or other trusted IP addresses, go to System > Administrators. See Administrators on page 172.

When the Remote Client is a cloud device, configure the trusted host with the Management Device's IP to ensure only the Management Device can access itself.

On the Management Device, configure the trusted host with regular client IPs to ensure regular clients can access Management Device.

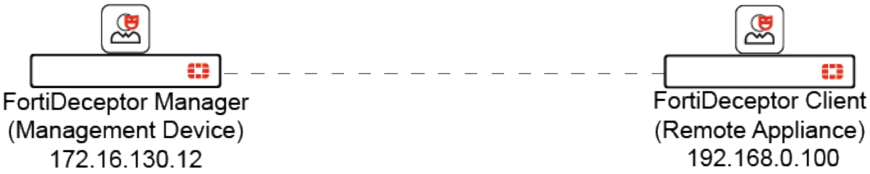
When you deploy a decoy or network, select the local or Remote Client name. Use the local configuration to deploy decoys and lures from the Management Device.

Configuring Central Management

To configure Central Management:

1. Enable Central Management on the Management Device.
2. Enable Central Management the Remote Client.
3. Approve the Remote Client on the Management Device.
4. Configure the Remote Client with the Management Device.

The tasks below are based on the following topology:



To enable Central Management on the Management Device:

```
cm -sc -mM -nManager -a<password>
```

Example:

```
cm -sc -mM -nManager -a1234567890
```

To enable Central Management on the Remote Client:

> Before configuring FortiDeceptor as a Remote Client, perform a `factory reset` and basic network configuration to avoid data incompatibility between the Management Device and Remote Client. For more information on manager and client configuration, see the *CLI Reference*.

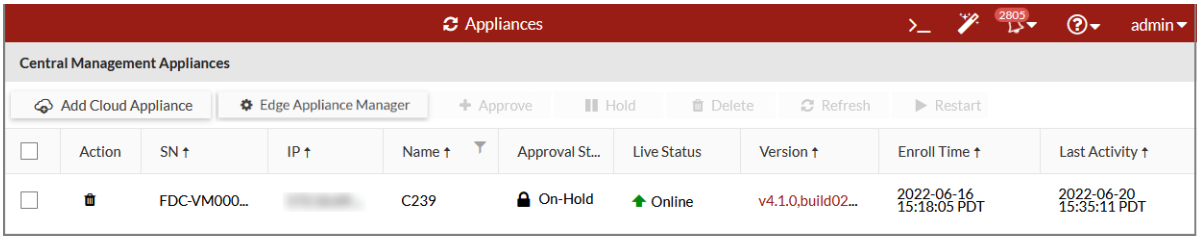
```
cm -sc -mC -nAppliance1 -a<password> -i<manager_ip_address>
```

Example:

```
cm -sc -mC -nAppliance1 -a1234567890 -i172.16.130.12
```

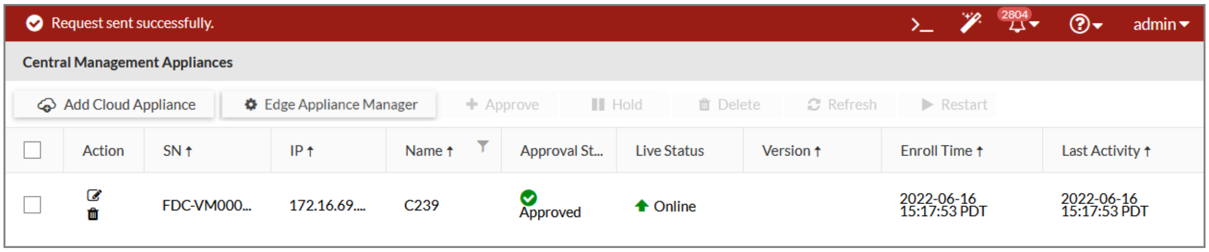
To approve a Remote Client with the Management Device:

1. On the Management Device, go to *Central Management* > *Appliances*. The *Approval Status* for the Remote Client will display *On-Hold*.



□	Action	SN ↑	IP ↑	Name ↑	Approval St...	Live Status	Version ↑	Enroll Time ↑	Last Activity ↑
□	🗑	FDC-VM000...	[redacted]	C239	On-Hold	Online	v4.1.0,build02...	2022-06-16 15:18:05 PDT	2022-06-20 15:35:11 PDT

2. Select the appliance and click *Approve*. The *Approval Status* changes to *Approved*.



□	Action	SN ↑	IP ↑	Name ↑	Approval St...	Live Status	Version ↑	Enroll Time ↑	Last Activity ↑
□	✎ 🗑	FDC-VM000...	172.16.69....	C239	✓ Approved	Online		2022-06-16 15:17:53 PDT	2022-06-16 15:17:53 PDT

To configure the Remote Client with the Management Device:

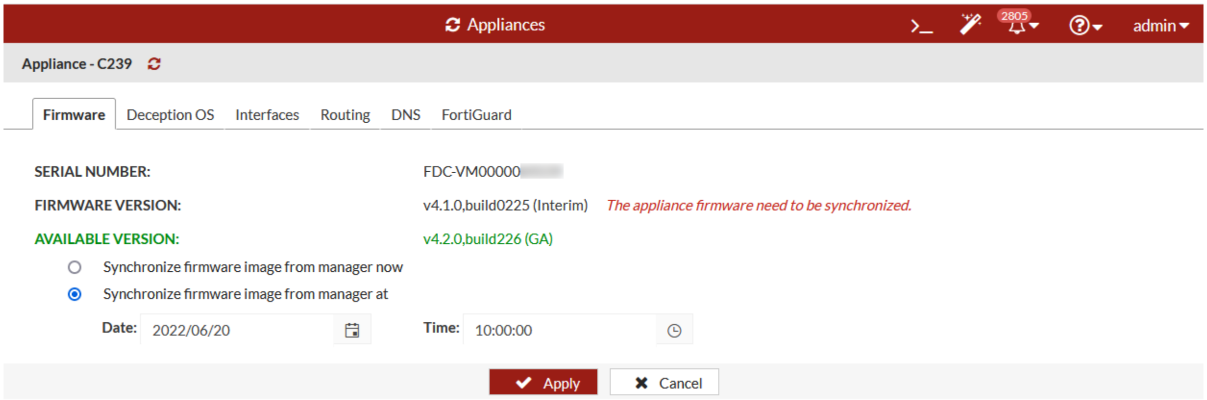
1. On the Management Device, go to *Central Management* > *Appliances*.
2. In the *Action* column, click the *Config* icon ✎. The Appliance - <name> page displays the following tabs.

<table>
<tr><td><b>Firmware</b></td><td>Push FortiDeceptor firmware updates and upgrades to the Remote Client. Synchronization can be immediate or scheduled.</td></tr>
<tr><td><b>Deception OS</b></td><td>Push deception VM images from the Management Device to the Remote Client. Synchronization can be immediate or scheduled.
<table>
<tr><td><b>Status</b></td><td>Current status of deception OS image.</td></tr>
<tr><td><b>Name</b></td><td>Name of deception OS.</td></tr>
<tr><td><b>OS Type</b></td><td>Type of this deception OS.</td></tr>
</table>
</td></tr>
</table>

	VM Type Category of this deception OS. **Lures** Lure services can be provided by this deception OS.
Interfaces	Configure the Remote Client network interfaces.
Routing	Configure the Remote Client network routing table.
DNS	Configure the Remote Client DNS configuration.
FortiGuard	Configure the Remote Client FortiGuard configuration.

3. To synchronize the firmware, click the *Firmware* tab and select one of the following options and then click *Apply*:

Synchronize firmware image from manager now	Click to synchronize the firmware immediately.
Synchronize firmware image from manager at	Click to schedule the synchronization.



SERIAL NUMBER: FDC-VM00000[redacted]

FIRMWARE VERSION: v4.1.0,build0225 (Interim) *The appliance firmware need to be synchronized.*

AVAILABLE VERSION: v4.2.0,build226 (GA)

○ Synchronize firmware image from manager now

● Synchronize firmware image from manager at

Date: 2022/06/20 Time: 10:00:00

To remove a client from Central Management:

1. On the Remote Client, run the following CLI command:
   ```
   cm -sc -mN
   ```
   After a client leaves Central Management, its status on the manager changes to *Offline*.
2. On the Management Device, select that client and click *Delete*.

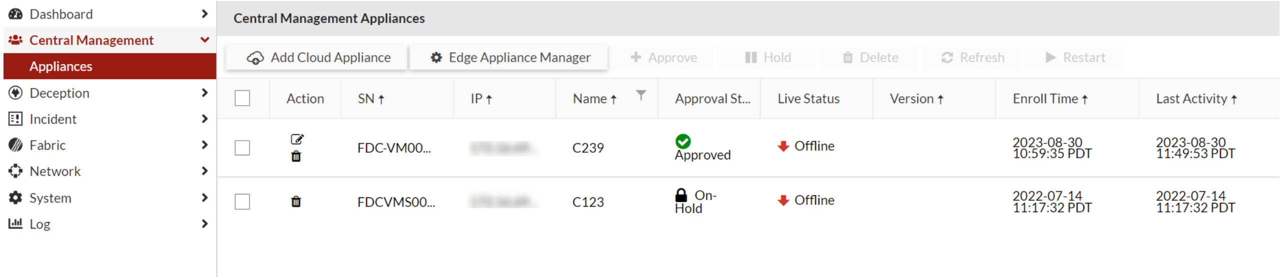
To remove the Management Device from Central Management:

1. On the Management Device, run the following CLI command:
   ```
   cm -sc -mN
   ```

Adding a cloud appliance

To add a cloud appliance:

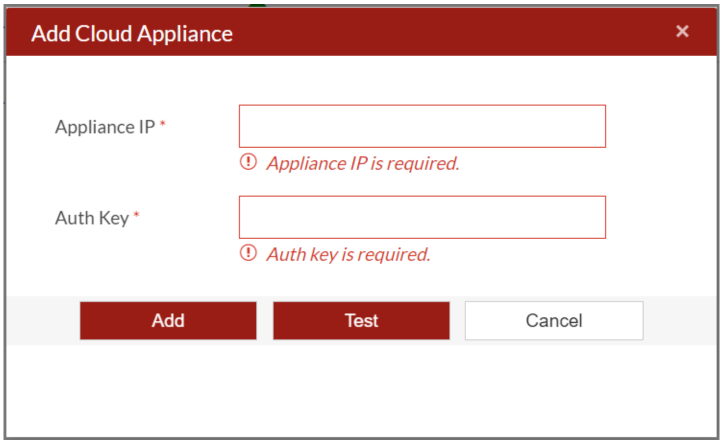
1. On the cloud client, get the appliance auth key.
   a. Go to *Dashboard* > *Status*.
   b. In the *System Information* widget go to *Appliance auth key*. Copy the key or click *Generate* to create a new one.
2. On the management device, go to *Central Management* > *Appliances*.
3. In the toolbar, click *Add Cloud Appliance*. The *Add Cloud Appliance* dialog opens.



Central Management Appliances

□	Action	SN ↑	IP ↑	Name ↑	Approval St...	Live Status	Version ↑	Enroll Time ↑	Last Activity ↑
□		FDC-VM00...	[redacted]	C239	✓ Approved	Offline		2023-08-30 10:59:35 PDT	2023-08-30 11:49:53 PDT
□		FDCVMS00...	[redacted]	C123	On-Hold	Offline		2022-07-14 11:17:32 PDT	2022-07-14 11:17:32 PDT

4. Enter the *Appliance IP* and *Auth Key* from Step 1.



Appliance IP *

Appliance IP is required.

Auth Key *

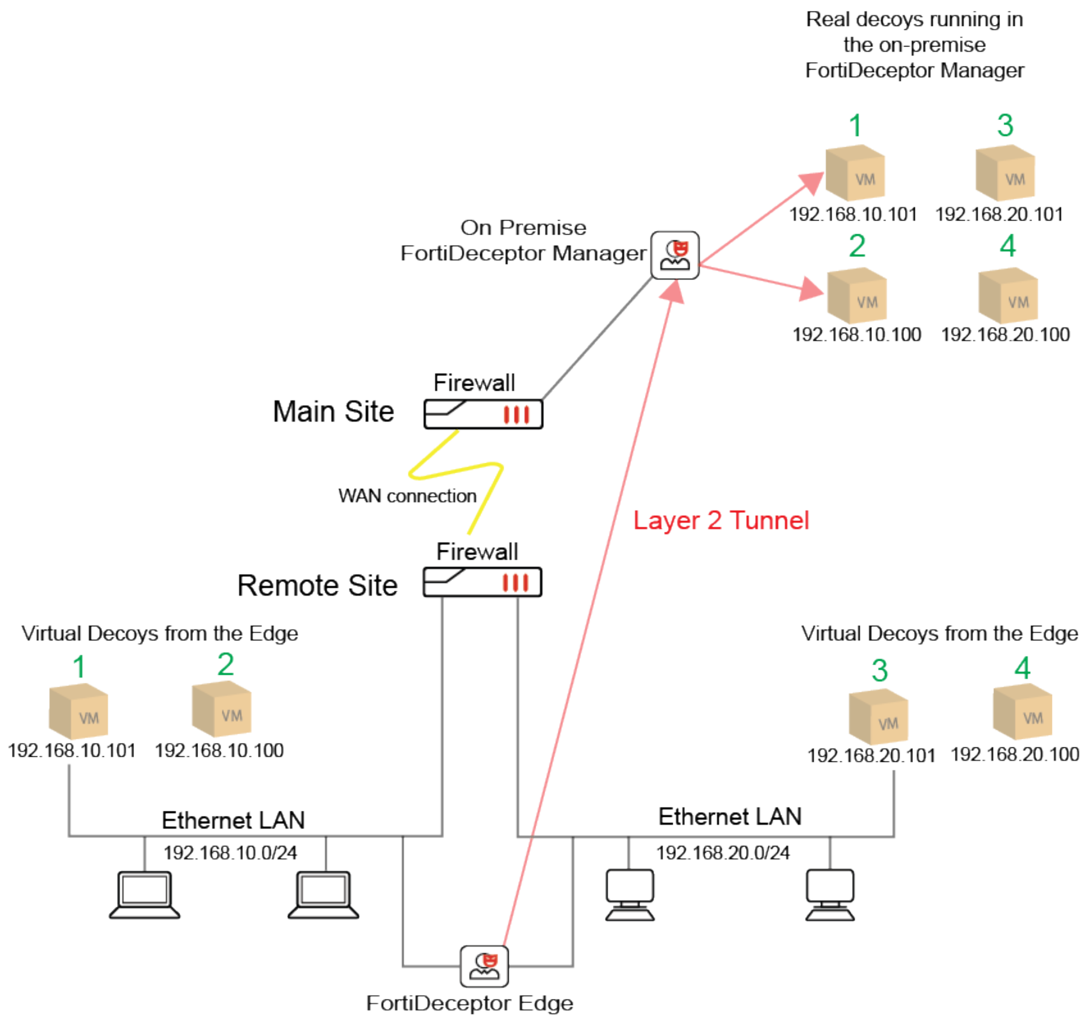
Auth key is required.

5. (Optional) Click *Test* to test the connection.
6. Click *Add*. The appliances is added to the table in the *Appliances* page.

Edge appliance manager

Topology

The following topology shows a network with an on-premise FortiDeceptor connected to a FortiDeceptor Edge appliance by a Layer 2 tunnel. The Layer 2 tunnel is a private tunnel protocol similar to SSL/TLS. The FortiDeceptor Layer 2 tunnel is embedded with its own authentication and encryption methods as well as heartbeat checks on top of SSL/TLS.



To configure the Edge appliance manager:

1. On the management device, do one of the following:
   - Go to *Dashboard* > *Status*. In the *System Information* widget, locate *Edge Appliance Manager* and click *Change*.
   - Go to *Central Management* > *Appliances* and click *Edge Appliance Manager*.

   The *Add Edge Appliance Manager dialog opens*.
2. Configure the Edge appliance and click *Save*.

Interface	Select a port from the list.
Port	Enter the port. The default is 9443.
Auth Key	Copy the existing key or click *Generate new key*.

3. On the client device, go to *Dashboard* > *Status*.
4. In the *System Information* widget, locate *Appliance Manager* and click *Change*.
5. On the client device, configure the *Appliance Manager* settings, and click *Save*.

Type	Select *Manager On Premise* or *DaaS Cloud*.

IP/Domain	Enter the Manager IP or domain.
Port	Enter the port. The default is 9443.
Auth Key	Enter the Auth Key.

Limitations of connecting to EDGE clients

Please consider the following limitations when connecting EDGE clients to an on-promise FortiDeceptor with Central Management.

- EDGE clients are supported in FDC-1000G, FDC-1000F, VM manager and FortiDeceptor DaaS
- The EDGE layer-2 tunnel terminates directly on the FortiDeceptor Central Management unit. This means the decoys for the EDGE client need to be hosted on the Central Management unit itself.
- Every EDGE client requires an exclusive decoy for its VLAN segment.
- The manager can host up to 20 decoy instances, and each instance can support approximately 20 decoy IP addresses. This means that even with 20 edge devices, each device can still be assigned multiple decoys.

Deception

Use the *Deception* module to customize, deploy, and monitor decoys.

This section includes the following topics:

- Deception OS on page 107

  View the deception OSes available for creating Decoy VMs. You can also upload a deception OS package or synchronize the deception OS list.

- Custom Decoy Image on page 44

  Create custom OS images for the decoy. FortiDeceptor supports Decoy Customization with a purchased FDC Custom Decoy Subscription.

- Deployment Network on page 108

  Set up a monitoring interface in a VLAN or a subnet.

- Lure Resources on page 111

  View the current lure, upload resources such as Word and PDF files to automatically generate lures, and import a user name list from an LDAP server.

- Deployment Wizard on page 114

  Create and deploy Decoy VMs on your network. Decoy VMs appear as real endpoints to hackers and can collect valuable information about attacks

- Decoy Status on page 130

  Monitor the status of the Decoys on your network.

- Deception Token on page 132

  Use a FortiDeceptor token package to add breadcrumbs on real endpoints and lure an attacker to a Decoy VM.

- Deployment Map on page 135

  View the entire network showing real endpoints and decoy VMs.

- Asset Discovery on page 137

  Generate Asset Inventory by passively fingerprinting the OS and other parameters for the assets in OT/IT/IoT networks.

- Safe List on page 138

  Add an IP address that is considered legitimate without generating an Event or Incident when accessing decoys.

Custom Decoy Image

For most deployments, the built-in decoys provided with FortiDeceptor are sufficient and easy to deploy. However, you also have the option to create a decoy from your gold image using the custom decoy feature available with the subscription license.

FortiDeceptor v6.1.0 supports the following OS types:

OS	OS version		
	Language	Supported versions	Notes
Windows	English	Windows 10	Supports custom MSSQL
		Windows 11 version 23H2	• Supports custom MSSQL • FortiDeceptor v6.1.0 does not support Windows 11 version 24H2.
	French	Windows 10	Supports custom MSSQL
Windows Server	**Language**	**Supported versions**	**Notes**
	English	• Windows Server 2016 • Windows Server 2019 • Windows Server 2022	• Supports custom MSSQL • Supports custom IIS Service
	French	French Windows Server 2016	• Supports custom MSSQL • Supports custom IIS Service
RedHat Enterprise Linux	• RedHat Enterprise Linux 7.9 • RedHat Enterprise Linux 8.8 • RedHat Enterprise Linux 8.10 • RedHat Enterprise Linux 9.4		
Ubuntu	• Ubuntu 20.04		

Overview of implementing Decoy Customization:

1. Order the FortiDeceptor Custom Decoy Subscription for FortiDeceptor hardware appliance only.
   The Decoy Customization subscription is for FortiDeceptor hardware appliances only. This subscription license is already included in the FortiDeceptor VM bundle.
2. Install FortiDeceptor.
   After installing FortiDeceptor with the Decoy Customization subscription, the *Help* menu in the toolbar will display an option for the *Custom Decoy Image Cookbook*.
3. Follow the instructions in the *Customization Cookbook*. The high-level instructions are:
   a. Upload an ISO image.
   b. Install ARAE engine on image.
   c. Use the Deployment Wizard to install the customized decoy.

Customize the deception base OS image

Overview of customizing the deception base OS image:

1. Import Windows ISO image.
2. Customize VM image.
3. Deploy custom image.

Import Windows ISO image

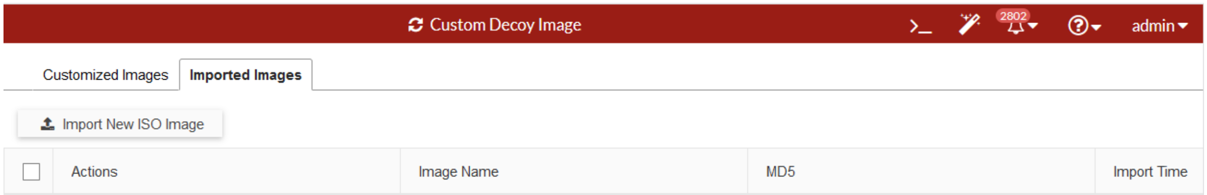
Before importing an ISO image into FortiDeceptor, ensure you have completed the following:

- Purchased a FortiDeceptor Custom Decoy Subscription
  The FortiDeceptor Custom Decoy Subscription bundle (for FDC1000G, FDR100G, FDC-VMS) includes the custom decoy feature and does not require a license.

  The FortiDeceptor Custom Decoy license is required if you are using the old perpetual license (for FDC-VM and FDC1000F). This license is no longer being sold but is maintained for customers.
- Set up an ISO image with the licenses for your environment. For example, if you want to allow Active Domain (AD) accounts to access decoys, configure the settings on the AD servers, such as create dummy accounts, and so on.

To import an ISO image using the Imported Images page:

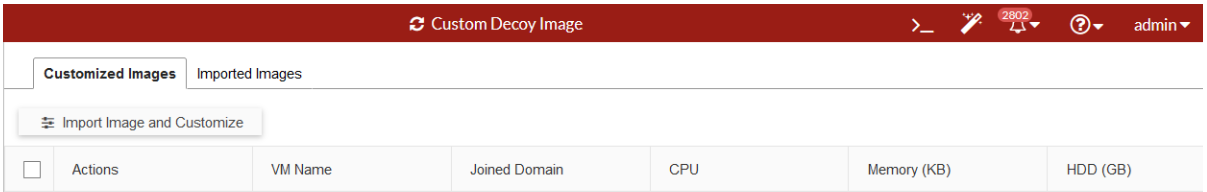
1. Go to *Deception* > *Custom Decoy Image* and click the *Imported Images* tab.



2. Click *Import New ISO Image*.
3. Click *Choose a file* or drag and drop an image file into that pane.

To import an ISO image using the Customized Images page:

1. Go to *Deception* > *Custom Decoy Image* and click the *Customized Images* tab.



2. Click *Import Image and Customize*.
3. Click *Choose a file* or drag and drop an image file into that pane.

To delete an ISO image:

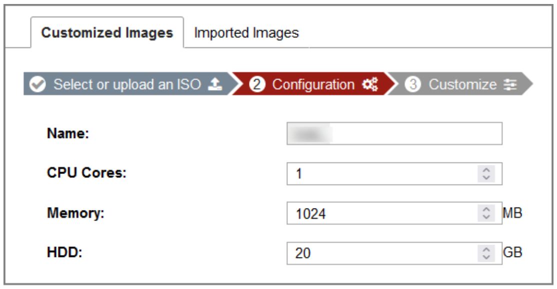
1. Go to *Deception* > *Custom Decoy Image* and click the *Imported Images* tab.
2. Select one or more images and then click *Delete*.

Customize VM image

To initialize the VM instance:

1. Go to *Deception > Custom Decoy Image* and click the *Customized Images* tab.
2. Click *Import Image and Customize*. The custom image wizard opens.
3. In the *Select an imported ISO image* dropdown list, select an ISO image. Then click *Next*.
4. In the *Configuration* step, specify the following and then click *Next*.

Name	Upper and lowercase letters and numbers totaling under 48 characters.	
CPU Cores	1–4 cores.	
Memory	1024–8192 MB.	
Storage	25 GB or more	
Deploy Network	**Port1**	Default
	PortX	Select the deployment network. Ensure the specified IP is not already in use and that the following settings align with the PortX configuration: • IP/Mask • Gateway • DNS



Name: [redacted]

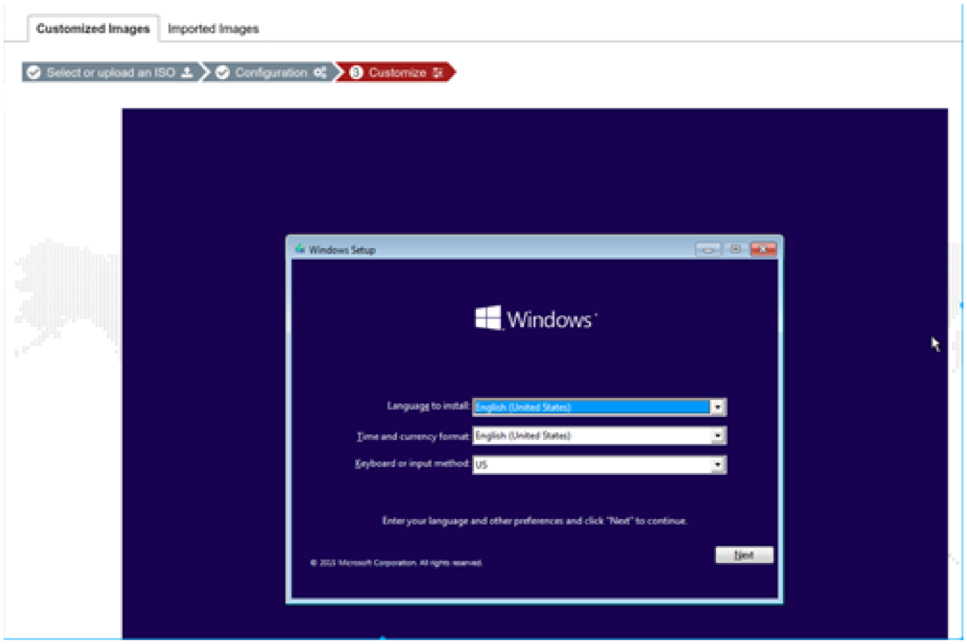
CPU Cores: 1

Memory: 1024 MB

HDD: 20 GB

This configuration is applied to the VM instance for customizing the image, This configuration is **not** applied to decoys.

5. In the *Customize* step, install the OS from the ISO image.



Language to install: English (United States)

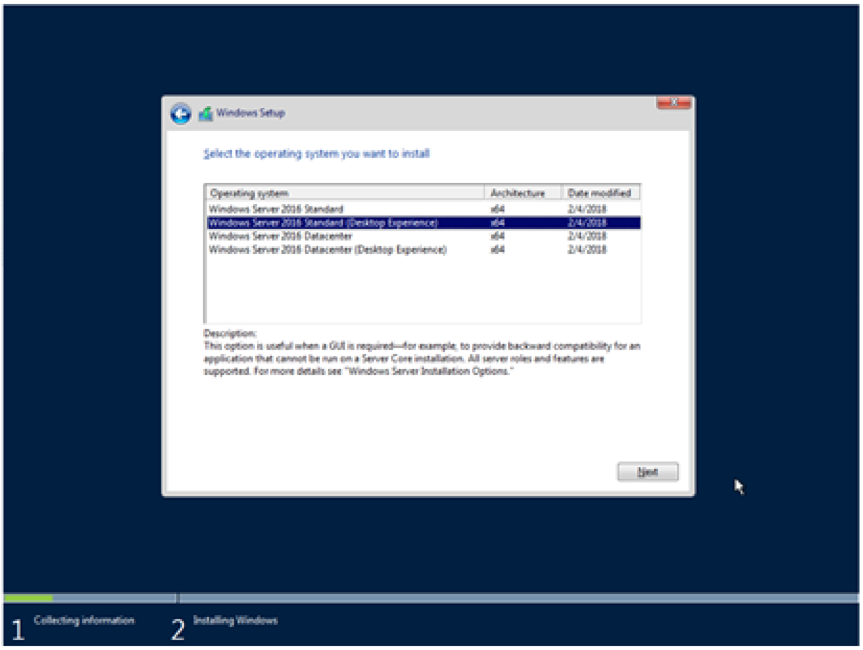
Time and currency format: English (United States)

Keyboard or input method: US

Enter your language and other preferences and click "Next" to continue.

© 2015 Microsoft Corporation. All rights reserved.

Follow the prompts until the installation is complete.



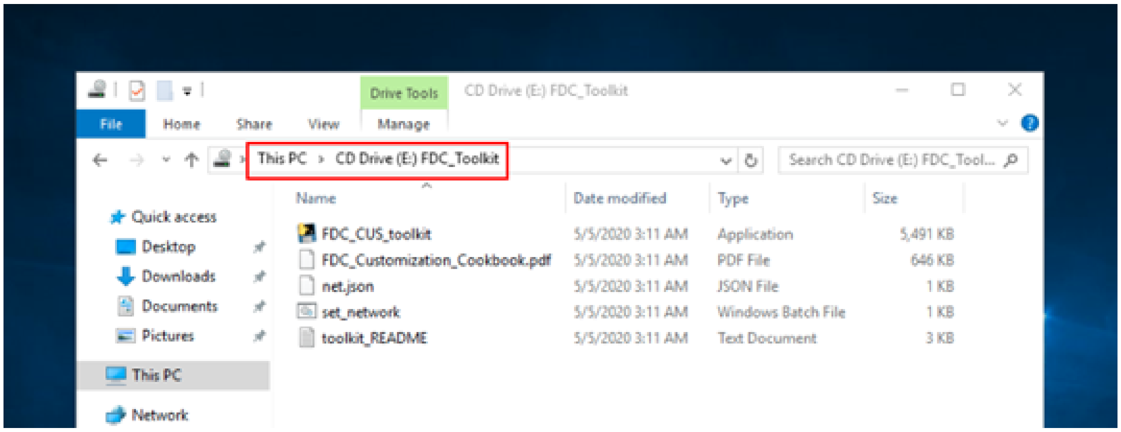
Select the operating system you want to install

Operating system	Architecture	Date modified
Windows Server 2016 Standard	x64	2/4/2018
Windows Server 2016 Standard (Desktop Experience)	x64	2/4/2018
Windows Server 2016 Datacenter	x64	2/4/2018
Windows Server 2016 Datacenter (Desktop Experience)	x64	2/4/2018

Description:
This option is useful when a GUI is required—for example, to provide backward compatibility for an application that cannot be run on a Server Core installation. All server roles and features are supported. For more details see "Windows Server Installation Options."

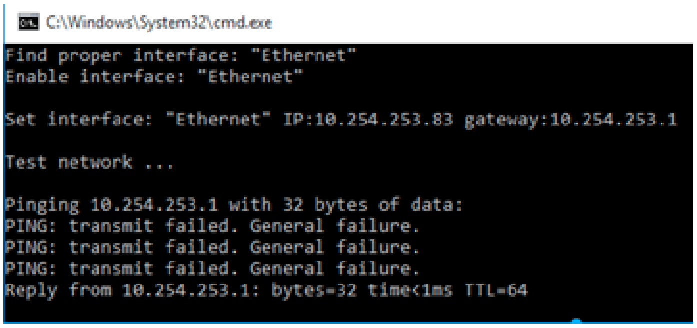
To customize the VM:

1. Ensure the OS is installed and then log in with an admin account.
2. In Windows Explorer, locate the *FDC_Toolkit* folder and read the instructions in *toolkit_README.txt*.



Name	Date modified	Type	Size
FDC_CUS_toolkit	5/5/2020 3:11 AM	Application	5,491 KB
FDC_Customization_Cookbook.pdf	5/5/2020 3:11 AM	PDF File	646 KB
net.json	5/5/2020 3:11 AM	JSON File	1 KB
set_network	5/5/2020 3:11 AM	Windows Batch File	1 KB
toolkit_README	5/5/2020 3:11 AM	Text Document	3 KB

3. Configure the network using one of the following options.
   - Right-click *set_network.bat* and then click *Run as Administrator*.
   - Follow the instructions in *net.json* to configure the IP address, gateway, and DNS in Windows *Control Panel* > *Network and Internet* > *Network Connections*.



```
Find proper interface: "Ethernet"
Enable interface: "Ethernet"

Set interface: "Ethernet" IP:10.254.253.83 gateway:10.254.253.1

Test network ...

Pinging 10.254.253.1 with 32 bytes of data:
PING: transmit failed. General failure.
PING: transmit failed. General failure.
PING: transmit failed. General failure.
Reply from 10.254.253.1: bytes=32 time<1ms TTL=64
```

10.254.253.0/24 set by the script is the internal NAT IP address that is temporarily used by the customization VM to allow downloading files and accessing other network resources via the FortiDeceptor default route.

To customize the system for Windows 2016:

1. Ensure your license is activated.
2. If you are using Windows 2016, enter the following commands in the PowerShell window to prevent lure configuration failures in the Decoy Deployment wizard.

```
secedit /export /cfg c:\secpol.cfg
(gc C:\secpol.cfg).replace("PasswordComplexity = 1", "PasswordComplexity = 0") | Out-
     File C:\secpol.cfg
secedit /configure /db c:\windows\security\local.sdb /cfg c:\secpol.cfg /areas
     SECURITYPOLICY
rm -force c:\secpol.cfg -confirm:$false
```

To customize the system for standalone Windows Server 2016:

1. Go to *Server Manager* > *Tools* > *Local Security Policy*. The *Local Security Policy* directory opens.
2. In the *Security Settings* folder, go to *Account Policies* > *Password Policy* folder, and double-click *Password must meet complexity requirements*.
3. Select *Disabled* and then click *OK*.
4. Open a Command Prompt as an Administrator and type the following command to update the group policy:
   ```
   gpupdate /force
   ```
   You should get the following response:
   ```
   C:Users\Administrator>gpupdate /force
   Updating policy...
   Computer policy update has completed successfully.
   ```

To customize the system for Server 2016 Domain Controller :

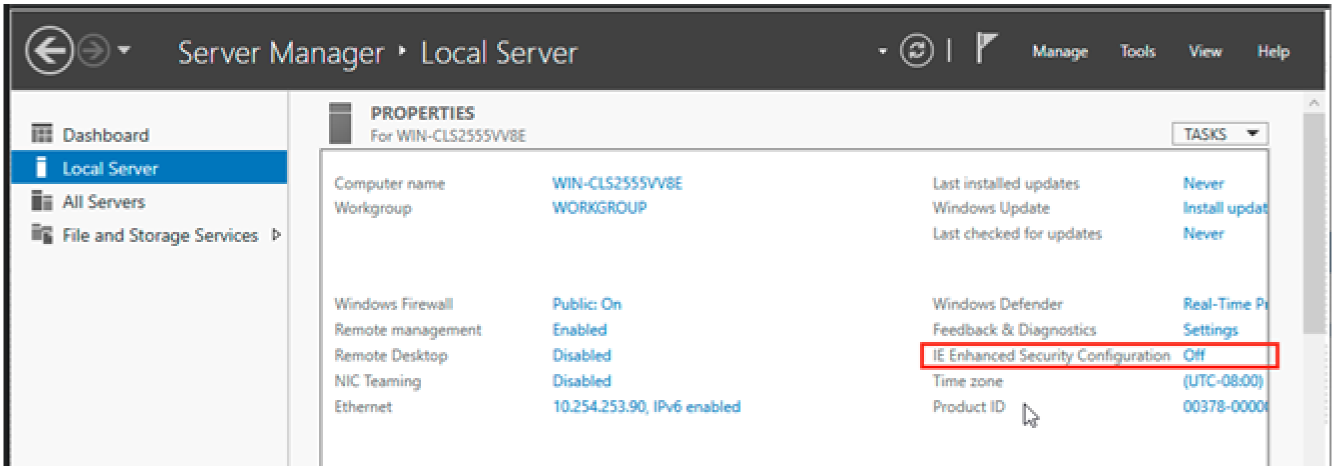
1. In the *Domain Controller*, go to *Server Manager* > *Tools* > *Group Policy Management*.
2. Right-click *Default Domain Policy* and click *Edit*. The *Group Policy Management Editor* opens.
3. In the *Computer Configuration* folder, go to *Policies* > *Windows Settings* > *Security Settings\Account Policies* > *Password Policy* > *Password must meet complexity requirements*.
4. Select *Disabled* and click *OK*.
5. Open a Command Prompt as Administrator and type the following command to update the group policy:
   ```
   gpupdate /force
   ```

Optional: Install the Microsoft SQL Server

The following SQL Server versions are supported.

- SQL Server 2016: https://www.microsoft.com/en-us/download/details.aspx?id=56840
- SQL Server 2017: https://www.microsoft.com/en-us/download/details.aspx?id=55994
- SQL Server 2019: https://www.microsoft.com/en-us/sql-server/sql-server-downloads
- QL Server 2022: https://www.microsoft.com/en-ca/sql-server/sql-server-downloads
- SQL Server Management Studio for SQL server management and customization. https://aka.ms/ssmsfullsetup

If you are downloading with Internet Explorer, it is recommended you disable *IE Enhanced Security Configuration*.



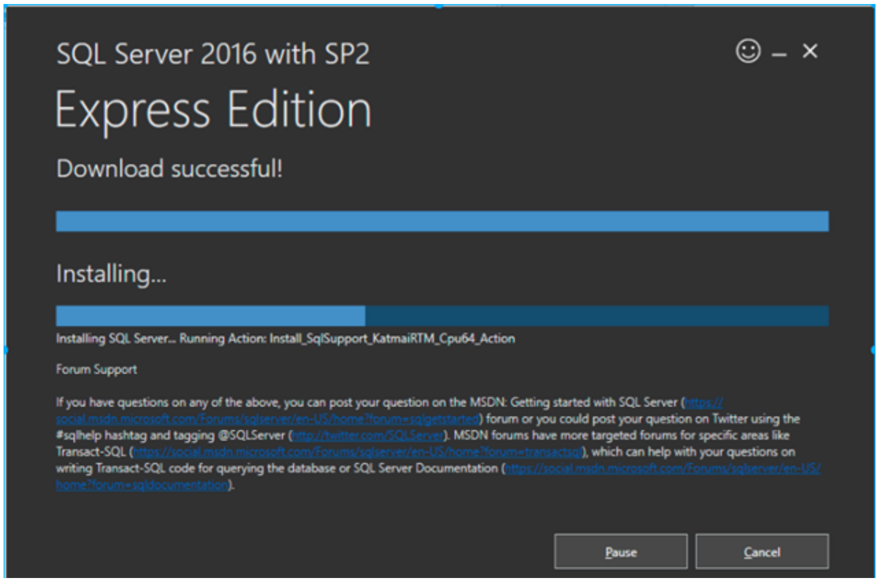
PROPERTIES
For WIN-CLS2555VV8E

Computer name	WIN-CLS2555VV8E	Last installed updates	Never
Workgroup	WORKGROUP	Windows Update	Install updat
		Last checked for updates	Never
Windows Firewall	Public: On	Windows Defender	Real-Time P
Remote management	Enabled	Feedback & Diagnostics	Settings
Remote Desktop	Disabled	IE Enhanced Security Configuration	Off
NIC Teaming	Disabled	Time zone	(UTC-08:00)
Ethernet	10.254.253.90, IPv6 enabled	Product ID	00378-0000

Since there is no desktop for Windows Server core OS, you must download the installation file on another computer and then use SMB to install the SQL Server.

To install SQL server:

1. Download and install the SQL server on another computer.



SQL Server 2016 with SP2

Express Edition

Download successful!

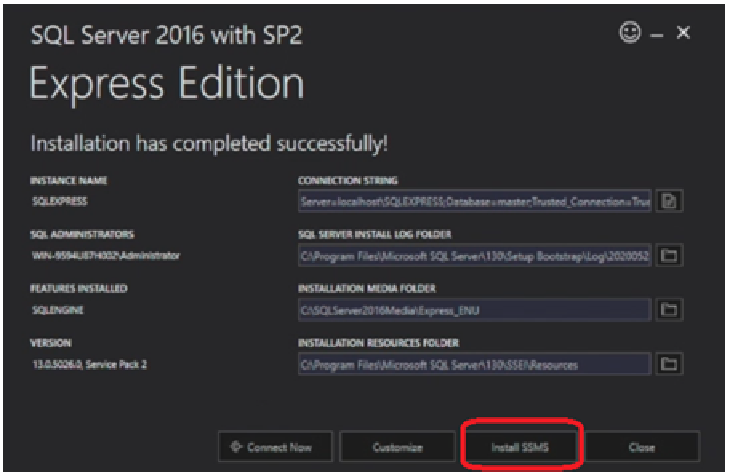
Installing...

Installing SQL Server... Running Action: Install_SqlSupport_KatmaiRTM_Cpu64_Action

Forum Support

If you have questions on any of the above, you can post your question on the MSDN: Getting started with SQL Server (https://social.msdn.microsoft.com/Forums/sqlserver/en-US/home?forum=sqlgetstarted) forum or you could post your question on Twitter using the #sqlhelp hashtag and tagging @SQLServer (http://twitter.com/SQLServer). MSDN forums have more targeted forums for specific areas like Transact-SQL (https://social.msdn.microsoft.com/Forums/sqlserver/en-US/home?forum=transactsql), which can help with your questions on writing Transact-SQL code for querying the database or SQL Server Documentation (https://social.msdn.microsoft.com/Forums/sqlserver/en-US/home?forum=sqldocumentation).

2. When the SQL Server installation is complete, click *Install SMSS* to download and install the SQL Server Management Studio to manage and customize the SQL Server.



SQL Server 2016 with SP2

Express Edition

Installation has completed successfully!

INSTANCE NAME
SQLEXPRESS

SQL ADMINISTRATORS
WIN-9594U87H002\Administrator

FEATURES INSTALLED
SQLENGINE

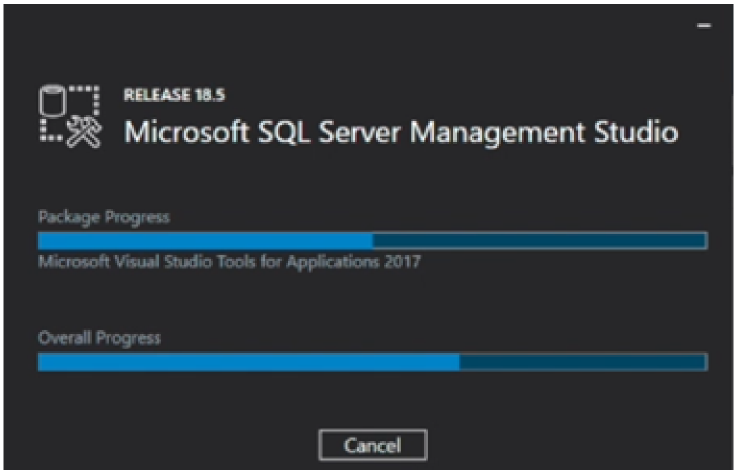
VERSION
13.0.5026.0, Service Pack 2

CONNECTION STRING
Server=localhost\SQLEXPRESS;Database=master;Trusted_Connection=Tru

SQL SERVER INSTALL LOG FOLDER
C:\Program Files\Microsoft SQL Server\130\Setup Bootstrap\Log\2020052

INSTALLATION MEDIA FOLDER
C:\SQLServer2016Media\Express_ENU

INSTALLATION RESOURCES FOLDER
C:\Program Files\Microsoft SQL Server\130\SSEI\Resources



RELEASE 18.5

Microsoft SQL Server Management Studio

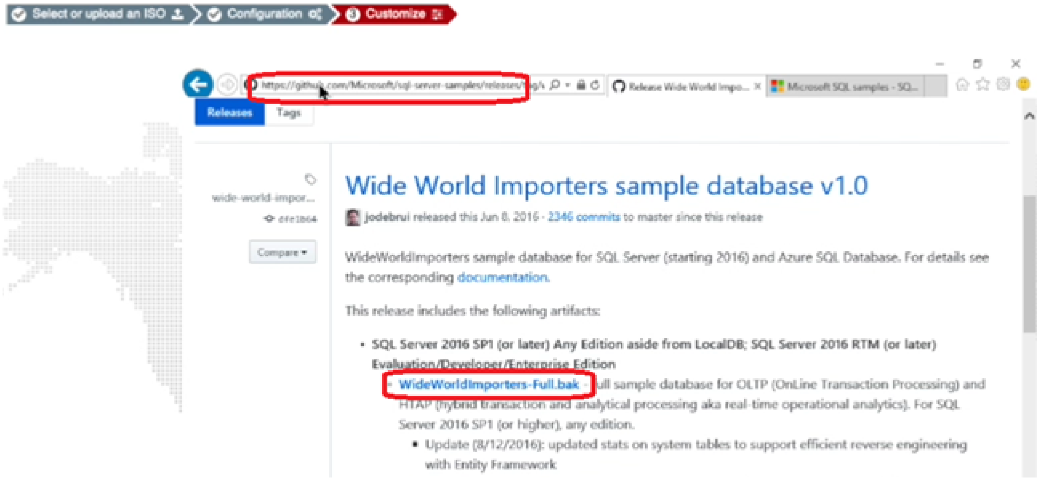
Package Progress

Microsoft Visual Studio Tools for Applications 2017

Overall Progress

To further customize the SQL database:

1. Download a sample database from https://github.com/Microsoft/sql-server-samples/releases/download/wide-world-importers-v1.0/WideWorldImporters-Full.bak.


Select or upload an ISO
Configuration
3 Customize
https://github.com/Microsoft/sql-server-samples/releases/tag/
Release Wide World Impo...
Microsoft SQL samples - SQ...
Releases
Tags
wide-world-impor...
Compare

Wide World Importers sample database v1.0

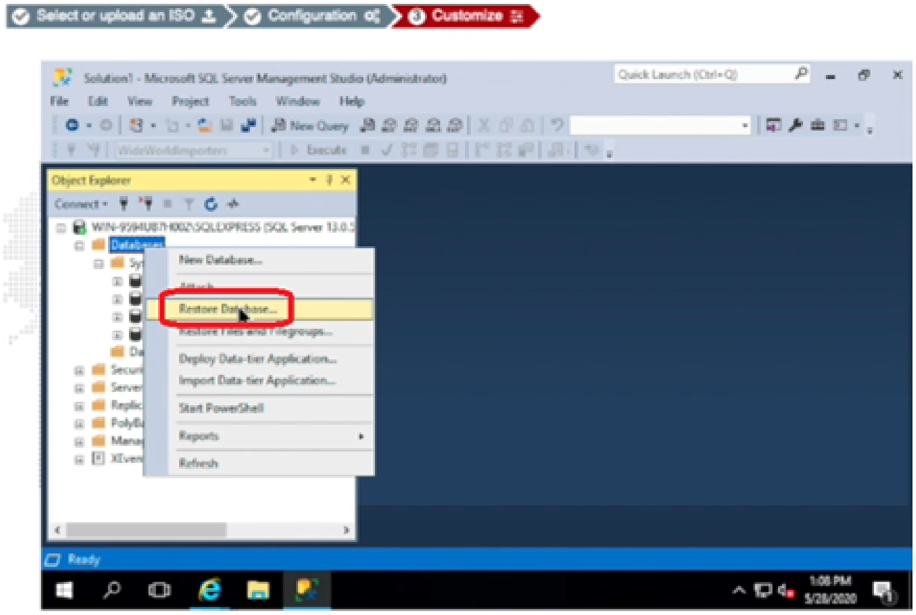
jodebrui released this Jun 8, 2016 · 2346 commits to master since this release

WideWorldImporters sample database for SQL Server (starting 2016) and Azure SQL Database. For details see the corresponding documentation.

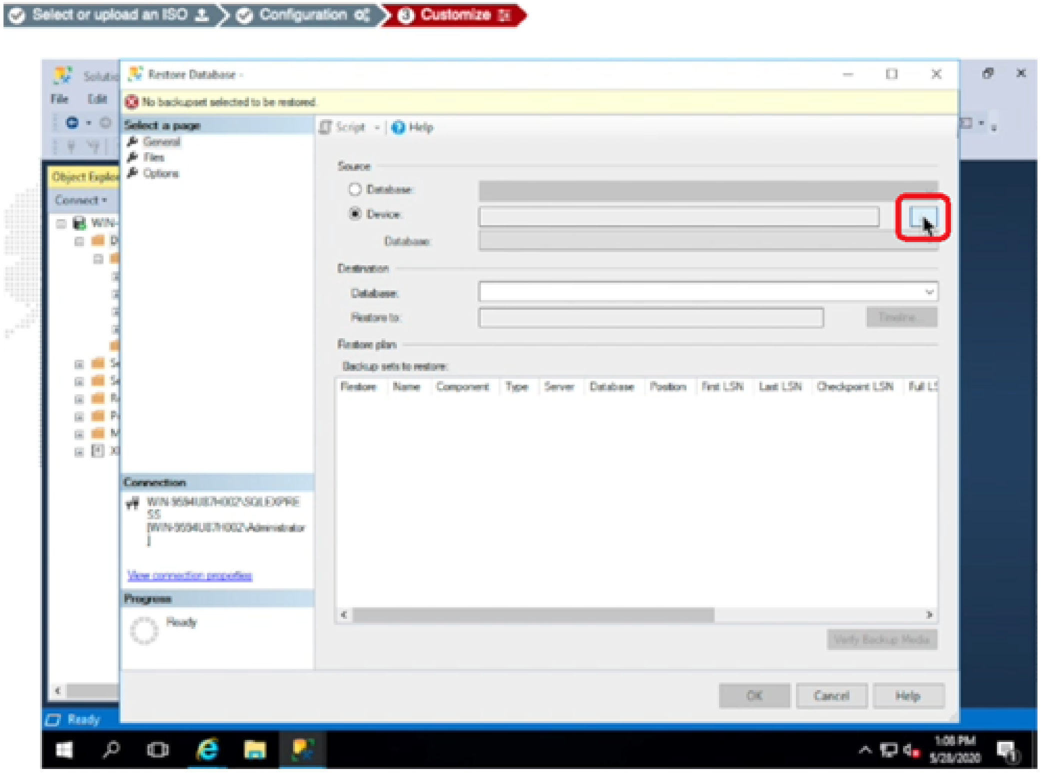
This release includes the following artifacts:

- SQL Server 2016 SP1 (or later) Any Edition aside from LocalDB; SQL Server 2016 RTM (or later) Evaluation/Developer/Enterprise Edition
  - WideWorldImporters-Full.bak - full sample database for OLTP (OnLine Transaction Processing) and HTAP (hybrid transaction and analytical processing aka real-time operational analytics). For SQL Server 2016 SP1 (or higher), any edition.
    - Update (8/12/2016): updated stats on system tables to support efficient reverse engineering with Entity Framework

2. In the FortiDeceptor Customize Decoy console, open SQL Server Management Studio.
3. Right-click the database object and select *Restore Database*.

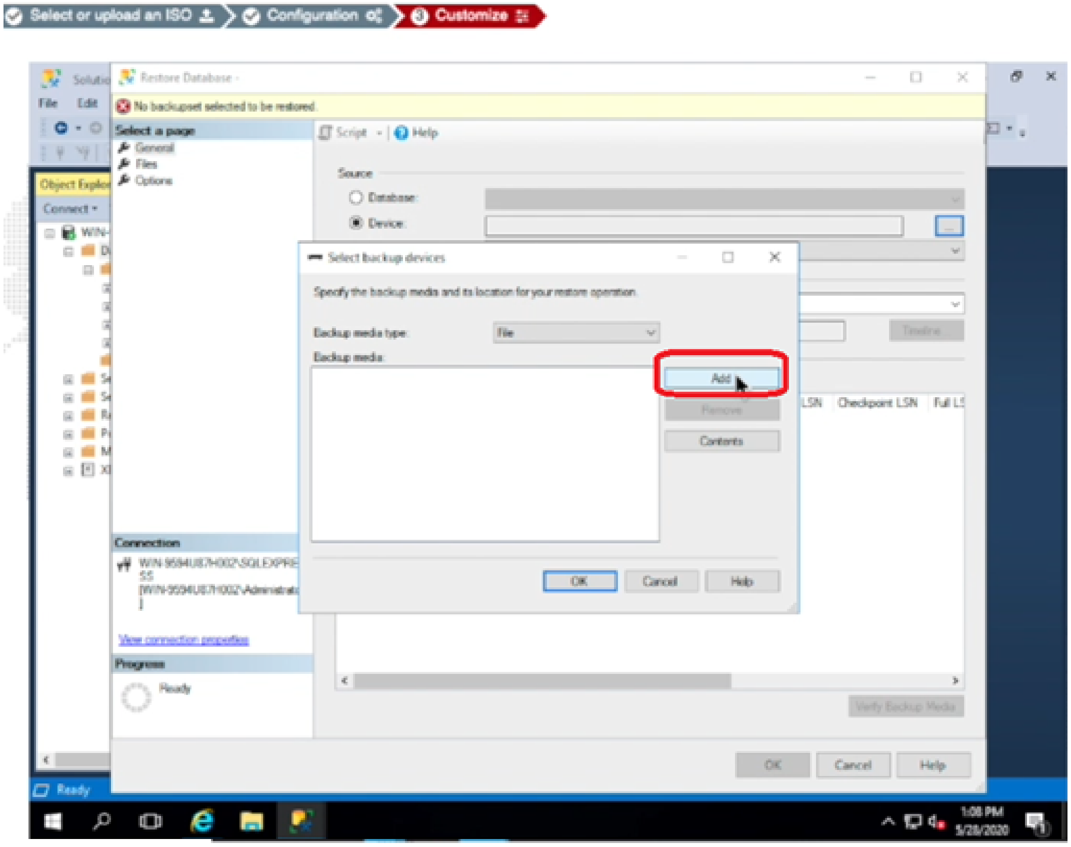


4. Locate and add the sample DB you downloaded.



No backupset selected to be restored.

WIN-9594U87H002\SQLEXPRESS
[WIN-9594U87H002\Administrator]

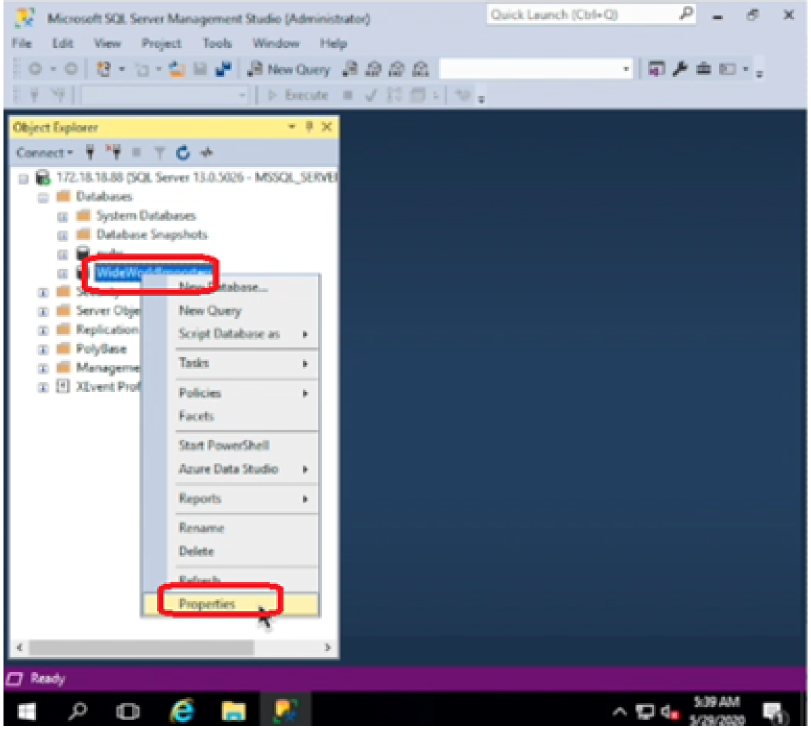


No backupset selected to be restored.

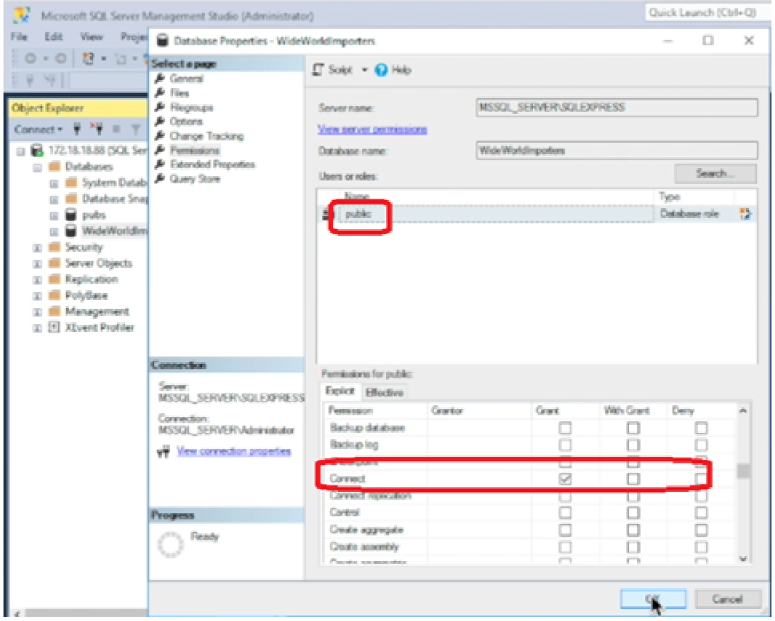
Specify the backup media and its location for your restore operation.

WIN-9594U87H002\SQLEXPRESS
[WIN-9594U87H002\Administrator]

5. When the sample DB is restored, right-click that DB and select *Properties* to change access permission to make the decoy DB more attractive to attackers.



6. Give *Grant* permission to *Select* and *Connect*.



Server name: MSSQL_SERVER\SQLEXPRESS

Database name: WideWorldImporters

Users or roles:

Name	Type
public	Database role

Permissions for public:

Explicit | Effective

Permission	Grantor	Grant	With Grant	Deny
Backup database		□	□	□
Backup log		□	□	□
Checkpoint		□	□	□
Connect		☑	□	□
Connect replication		□	□	□
Control		□	□	□
Create aggregate		□	□	□
Create assembly		□	□	□

Server:
MSSQL_SERVER\SQLEXPRESS

Connection:
MSSQL_SERVER\Administrator

7. Close SQL Server Management Studio.
8. Verify that your DB is up using the command `netstat -an | findstr 1433`.
9. The listening port on the SQL Express Database is disabled by default. To enable the port:
   a. Click *Start* > *Programs* > *Microsoft SQL Server 20XX* and select *SQL Server Configuration Manager*.
   b. Select *SQL Server Network Configuration*.
   c. Double-click *Protocols for SQLEXPRESS*

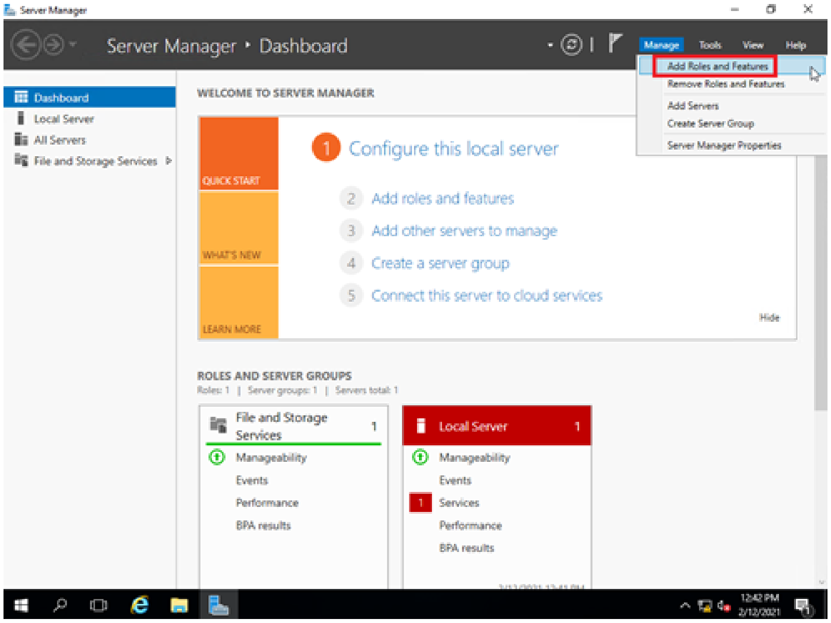
d. Right-click *TCP/IP* and select *Properties*. If necessary, first enable *TCP/IP*.
e. Scroll down to *IPAll* and verify *TCP Dynamic Ports* is blank and that *TCP Port* is set to *1433*.
f. Click *OK*.

Optional: Install Internet Information Service (IIS)

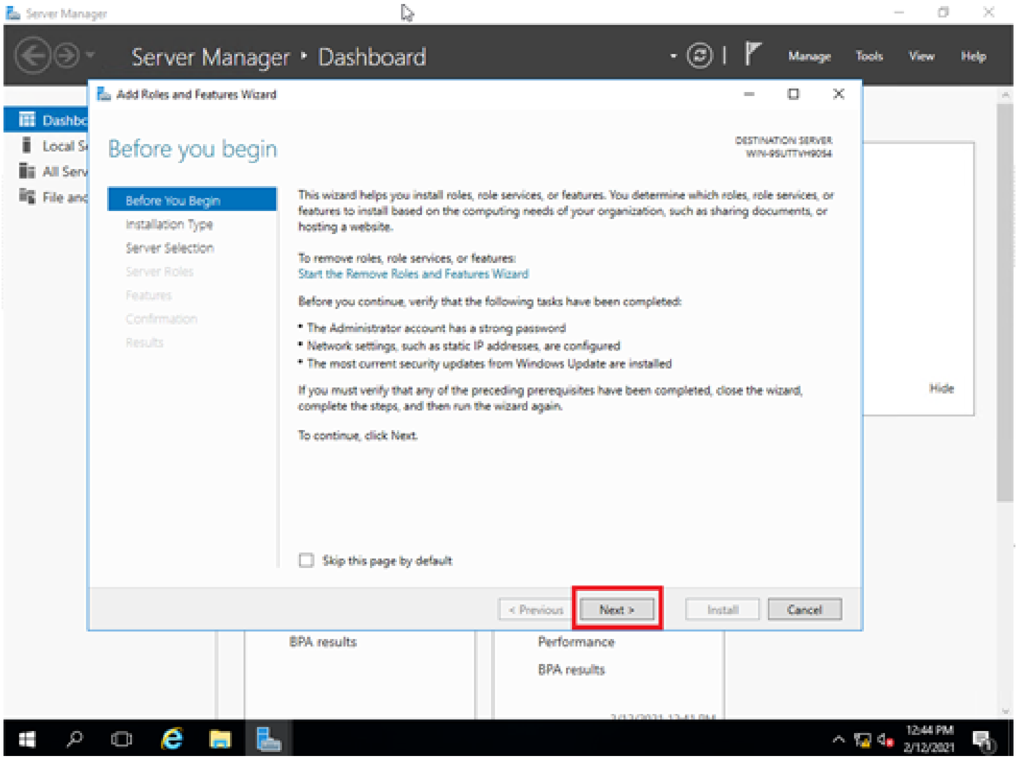
IIS 10 is supported on Windows Server 2016/2019/2022.

To add the IIS role and service:

1. Go to *Server Manager >Dashboard*.
2. Click *Manage > Add Roles and Features*.



3. On the *Before you begin* page, click *Next*.



Before you begin

This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website.

To remove roles, role services, or features:
Start the Remove Roles and Features Wizard

Before you continue, verify that the following tasks have been completed:

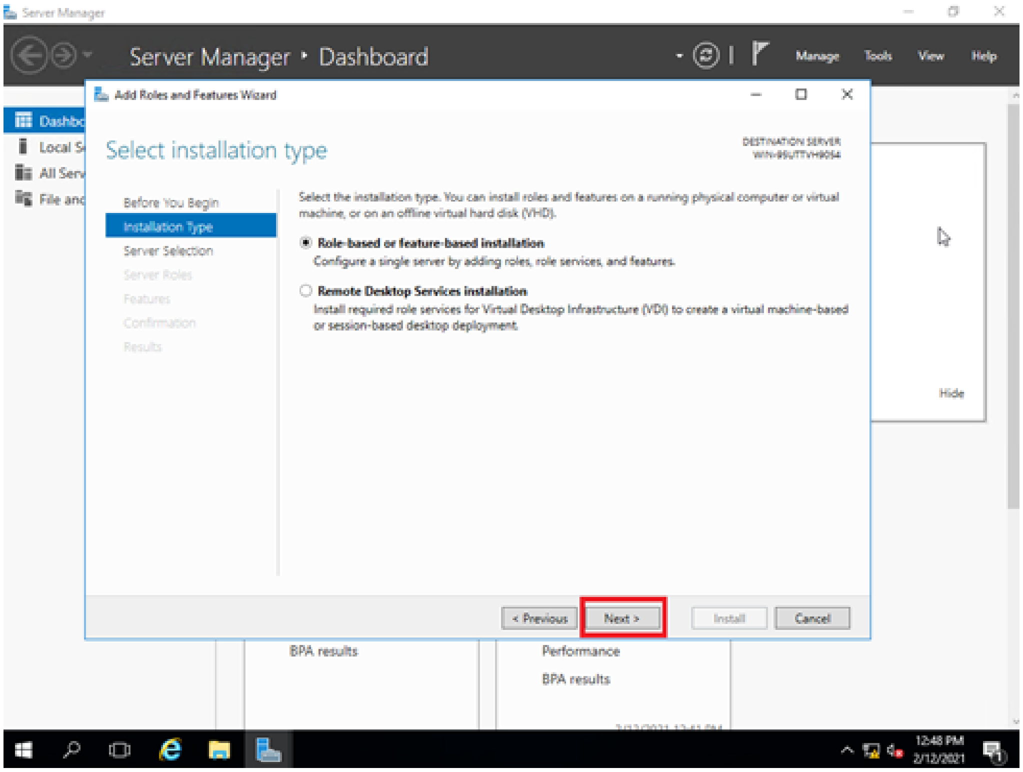
- The Administrator account has a strong password
- Network settings, such as static IP addresses, are configured
- The most current security updates from Windows Update are installed

If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again.

To continue, click Next.

□ Skip this page by default

4. On the *Select installation type* page, click *Next*.



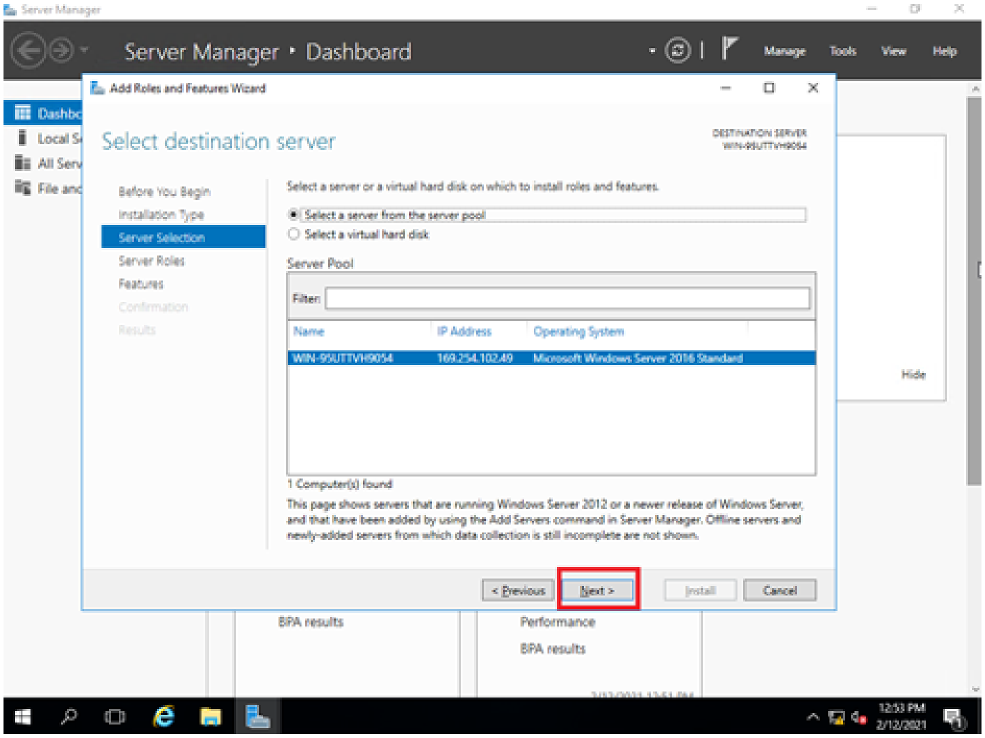
Select installation type

Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).

● **Role-based or feature-based installation**
Configure a single server by adding roles, role services, and features.

○ **Remote Desktop Services installation**
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

5. On the *Select destination server* page, click *Next*.



Select destination server

DESTINATION SERVER
WIN-9SUTTVH9054

Select a server or a virtual hard disk on which to install roles and features.

● Select a server from the server pool
○ Select a virtual hard disk

Server Pool

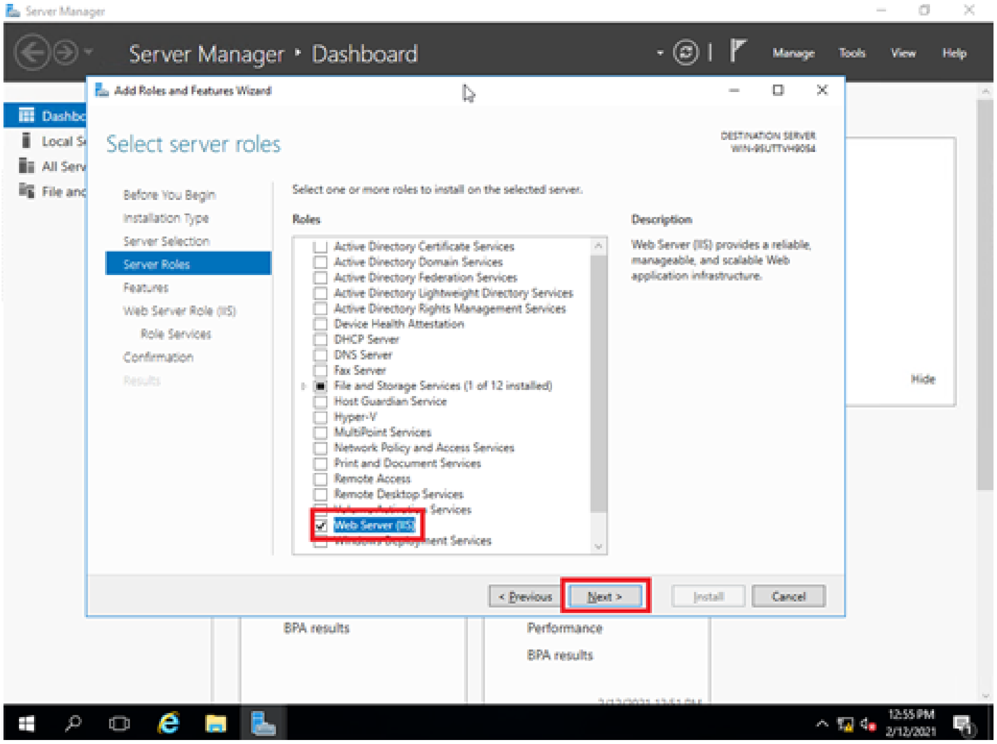
Filter:

Name	IP Address	Operating System
WIN-9SUTTVH9054	169.254.102.49	Microsoft Windows Server 2016 Standard

1 Computer(s) found

This page shows servers that are running Windows Server 2012 or a newer release of Windows Server, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

6. On the *Select server roles* page, click *Web Server (IIS)*.



Select server roles

DESTINATION SERVER
WIN-9SUTTVH9054

Select one or more roles to install on the selected server.

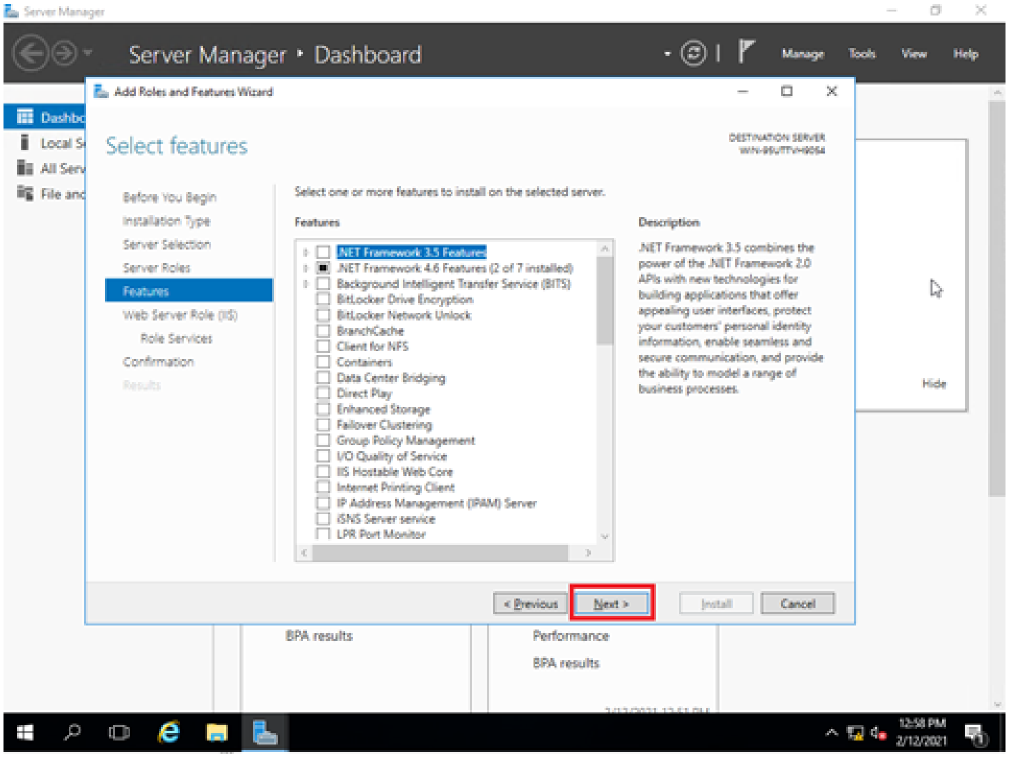
Roles

- ☐ Active Directory Certificate Services
- ☐ Active Directory Domain Services
- ☐ Active Directory Federation Services
- ☐ Active Directory Lightweight Directory Services
- ☐ Active Directory Rights Management Services
- ☐ Device Health Attestation
- ☐ DHCP Server
- ☐ DNS Server
- ☐ Fax Server
- ■ File and Storage Services (1 of 12 installed)
- ☐ Host Guardian Service
- ☐ Hyper-V
- ☐ MultiPoint Services
- ☐ Network Policy and Access Services
- ☐ Print and Document Services
- ☐ Remote Access
- ☐ Remote Desktop Services
- ☐ Volume Activation Services
- ☑ Web Server (IIS)
- ☐ Windows Deployment Services

Description

Web Server (IIS) provides a reliable, manageable, and scalable Web application infrastructure.

7. In the pop-up dialog box, click *Add Features*.
8. On the *Select features* page, click *Next*.



Select features

DESTINATION SERVER
WIN-85UTTVH8054

Select one or more features to install on the selected server.

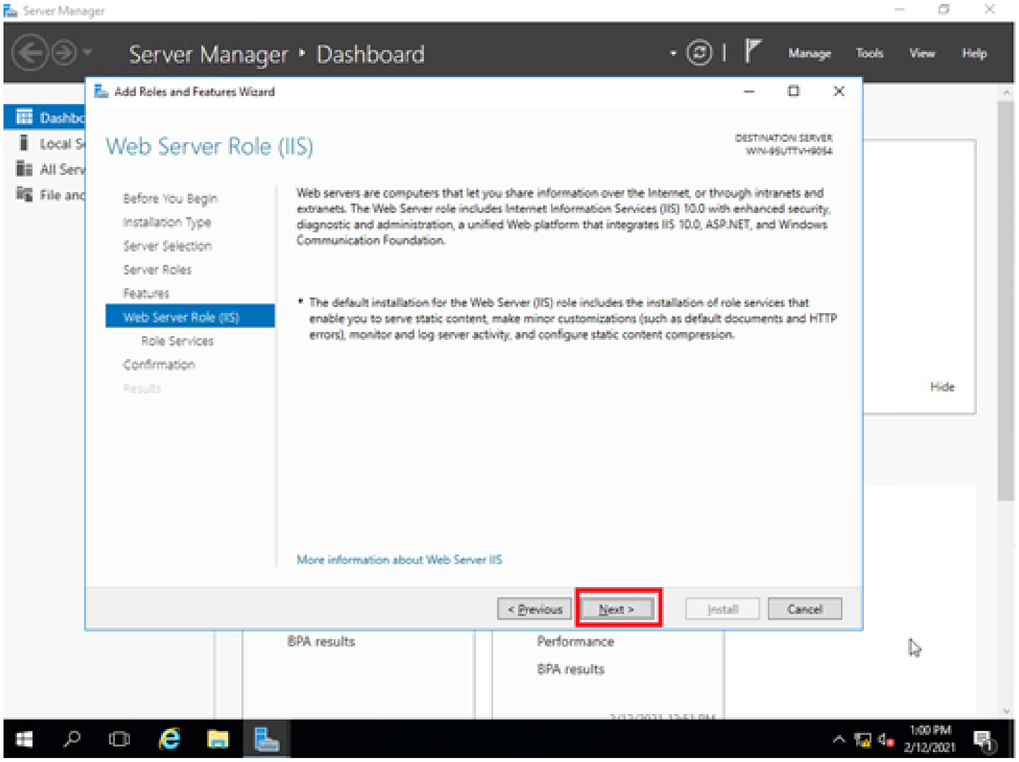
Features

- □ .NET Framework 3.5 Features
- ■ .NET Framework 4.6 Features (2 of 7 installed)
- □ Background Intelligent Transfer Service (BITS)
- □ BitLocker Drive Encryption
- □ BitLocker Network Unlock
- □ BranchCache
- □ Client for NFS
- □ Containers
- □ Data Center Bridging
- □ Direct Play
- □ Enhanced Storage
- □ Failover Clustering
- □ Group Policy Management
- □ I/O Quality of Service
- □ IIS Hostable Web Core
- □ Internet Printing Client
- □ IP Address Management (IPAM) Server
- □ iSNS Server service
- □ LPR Port Monitor

Description

.NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.

9. On the *Web Server Role (IIS)* page, click *Next*.



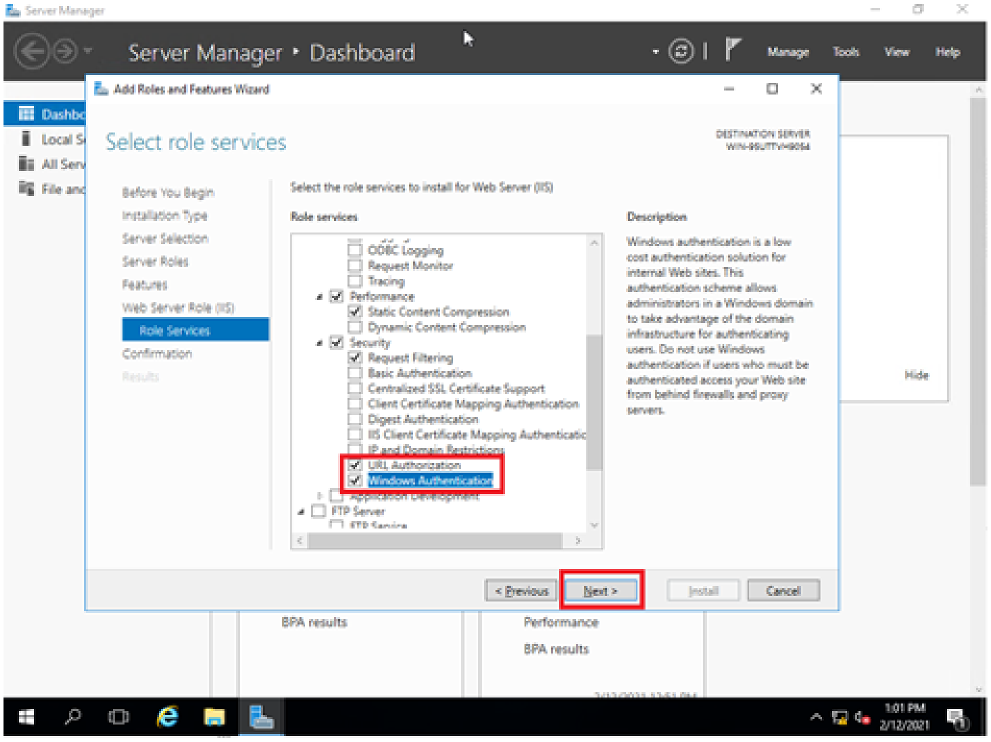
Web Server Role (IIS)

DESTINATION SERVER
WIN-85UTTVH8054

Web servers are computers that let you share information over the Internet, or through intranets and extranets. The Web Server role includes Internet Information Services (IIS) 10.0 with enhanced security, diagnostic and administration, a unified Web platform that integrates IIS 10.0, ASP.NET, and Windows Communication Foundation.

- The default installation for the Web Server (IIS) role includes the installation of role services that enable you to serve static content, make minor customizations (such as default documents and HTTP errors), monitor and log server activity, and configure static content compression.

10. On the *Select role services* page, enable *URL Authorization* and *Windows Authentication*, then click *Next*.



Select role services

Select the role services to install for Web Server (IIS)

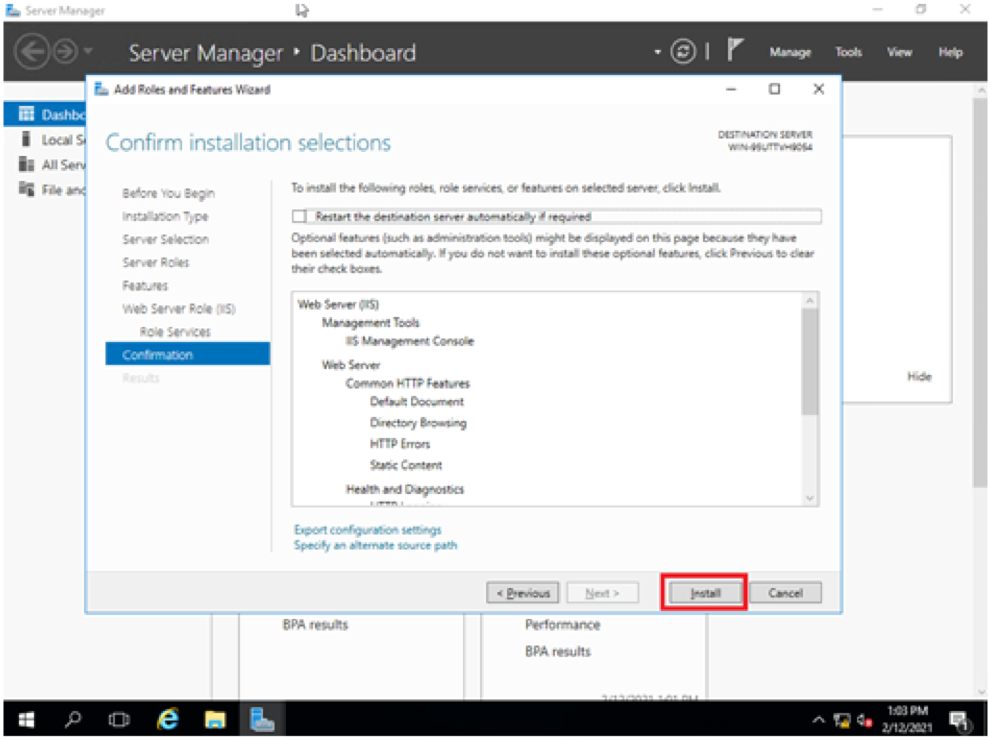
Role services

- ☐ ODBC Logging
- ☐ Request Monitor
- ☐ Tracing
- ☑ Performance
  - ☑ Static Content Compression
  - ☐ Dynamic Content Compression
- ☑ Security
  - ☑ Request Filtering
  - ☐ Basic Authentication
  - ☐ Centralized SSL Certificate Support
  - ☐ Client Certificate Mapping Authentication
  - ☐ Digest Authentication
  - ☐ IIS Client Certificate Mapping Authenticatic
  - ☐ IP and Domain Restrictions
  - ☑ URL Authorization
  - ☑ Windows Authentication
- ☐ Application Development
- ☐ FTP Server
  - ☐ FTP Service

Description

Windows authentication is a low cost authentication solution for internal Web sites. This authentication scheme allows administrators in a Windows domain to take advantage of the domain infrastructure for authenticating users. Do not use Windows authentication if users who must be authenticated access your Web site from behind firewalls and proxy servers.

11. On the *Confirm installation selections* page, click *Install*.



Confirm installation selections

To install the following roles, role services, or features on selected server, click Install.

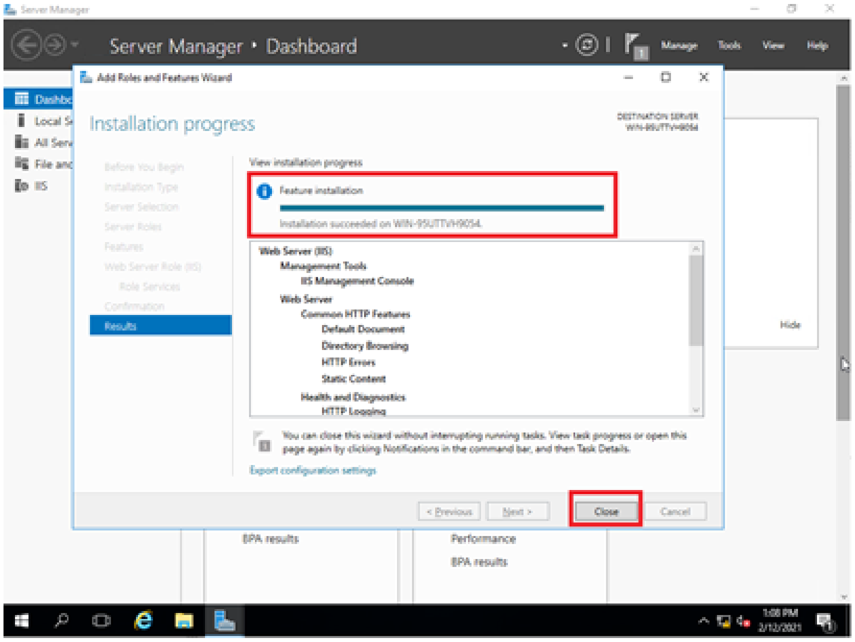
☐ Restart the destination server automatically if required

Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.

```
Web Server (IIS)
    Management Tools
        IIS Management Console
    Web Server
        Common HTTP Features
            Default Document
            Directory Browsing
            HTTP Errors
            Static Content
        Health and Diagnostics
```

Export configuration settings
Specify an alternate source path

12. Wait for the installation to finish, then check the results and click *Close*.



Installation succeeded on WIN-95UTTVH9054.

```
Web Server (IIS)
    Management Tools
        IIS Management Console
    Web Server
        Common HTTP Features
            Default Document
            Directory Browsing
            HTTP Errors
            Static Content
        Health and Diagnostics
            HTTP Logging
```

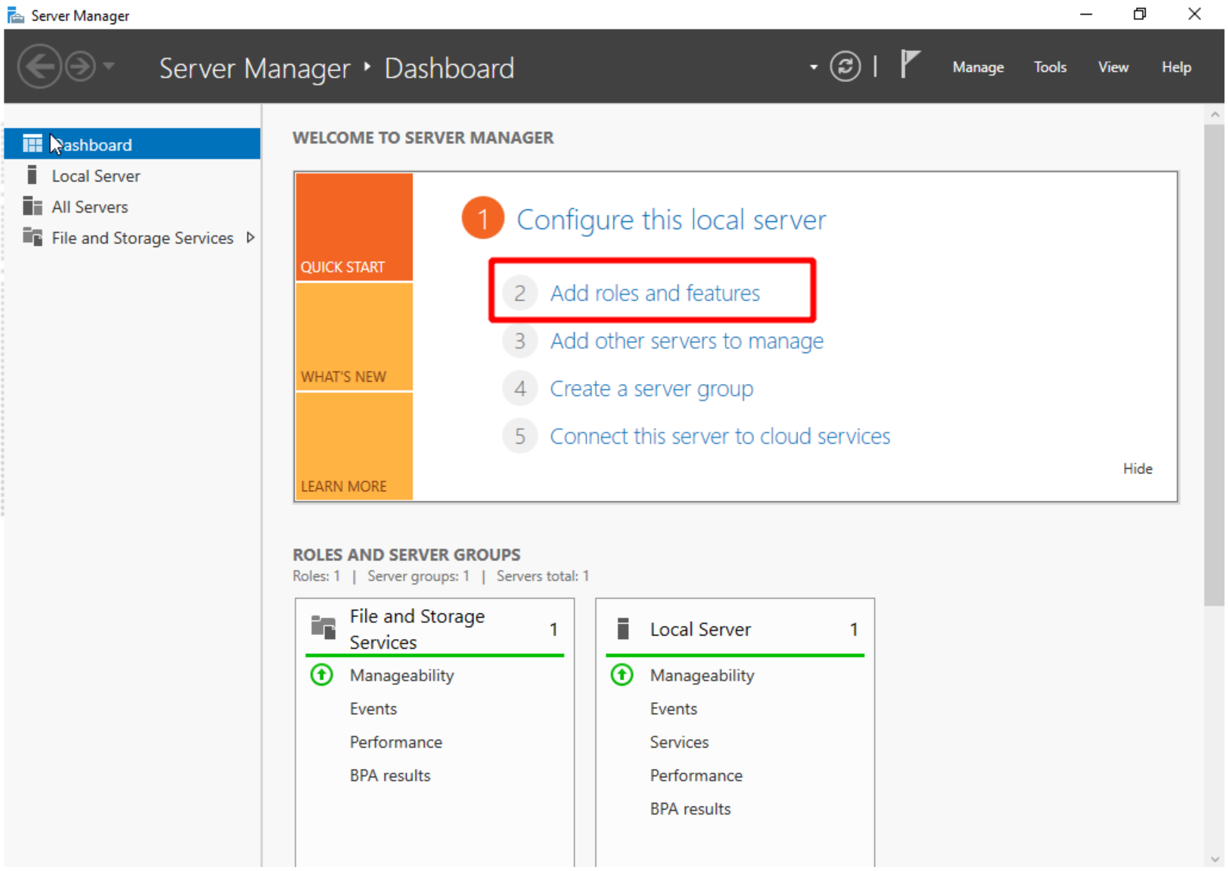
You can close this wizard without interrupting running tasks. View task progress or open this page again by clicking Notifications in the command bar, and then Task Details.

Optional: Turn on Active Directory (AD) controller

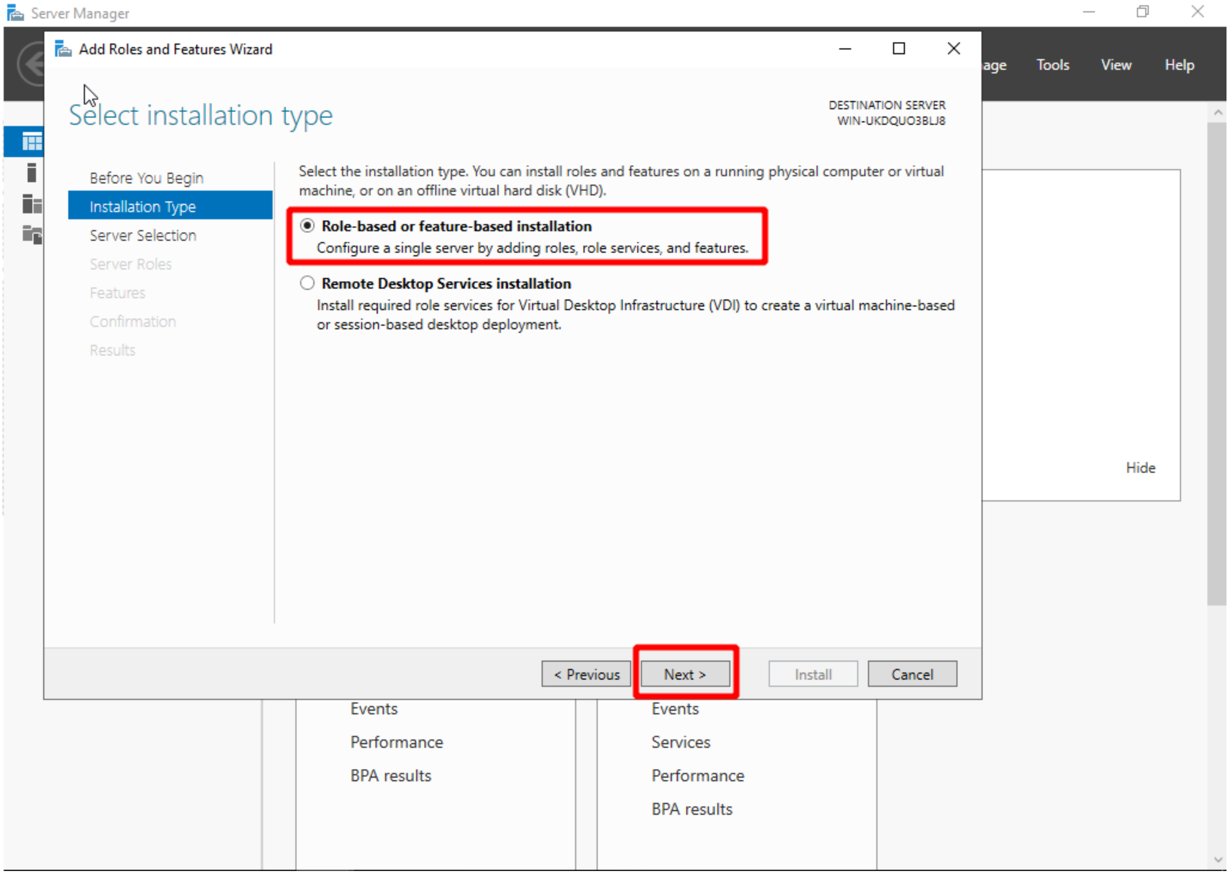
If an image is customized as an *Active Directory (AD)* controller and deployed as a decoy, any endpoint attempting to join this decoy domain will initiate an LDAP authentication request. This interaction will be detected and logged as an LDAP-related incident.

1. Setup the new domain controller for the new domain forest.

1. Install Active Directory Domain Services and DNS Servers
   a. Open the Server Manager go to *Dashboard* > *Roles Summary* > *Add roles and features*.



b. Select *Role-bases or Feature-based installation*.



Server Manager

Add Roles and Features Wizard

Select installation type

DESTINATION SERVER
WIN-UKDQUO3BLJ8

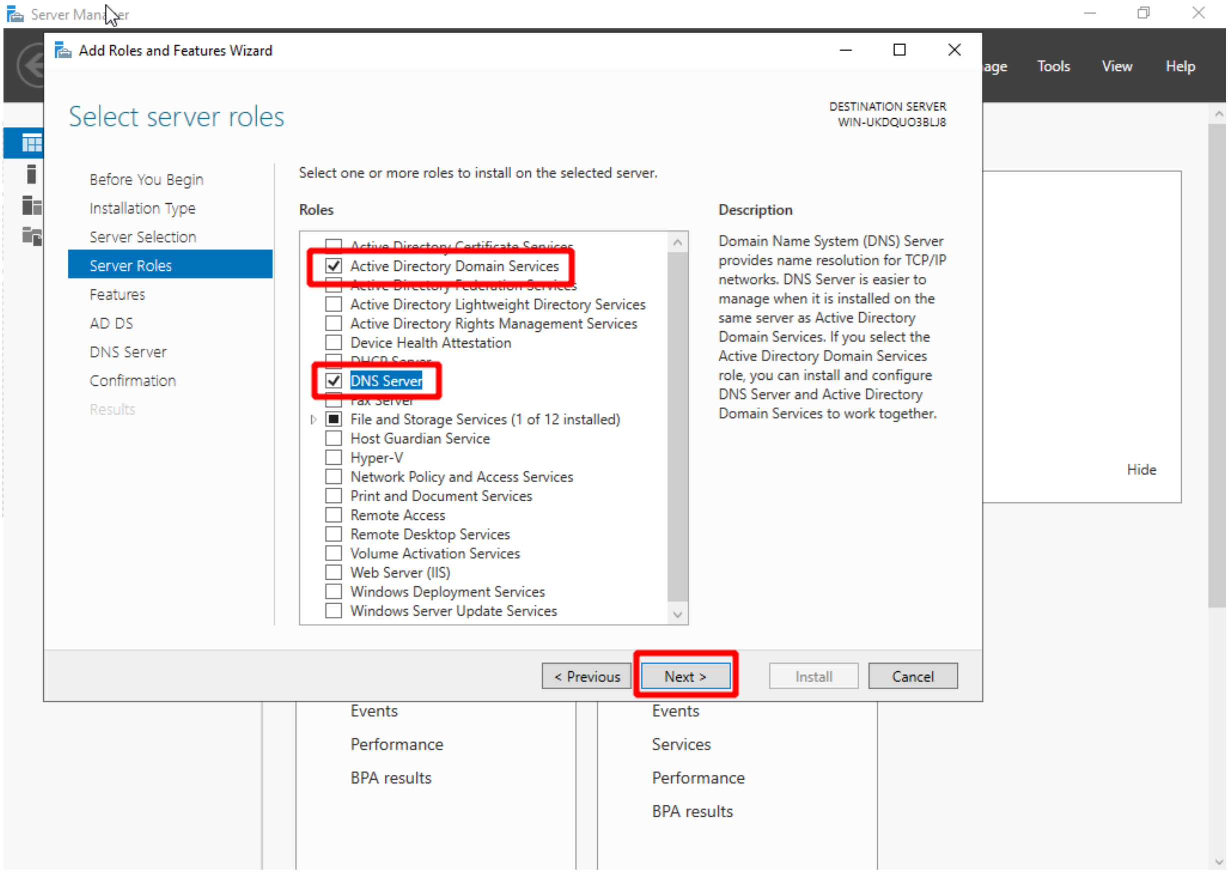
Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).

● **Role-based or feature-based installation**
Configure a single server by adding roles, role services, and features.

○ **Remote Desktop Services installation**
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

c. Click *Server Role* and select *Active Directory Domain Services* and *DNS*, then click *Next*.

Do not select DNS if you intend to use a standalone DNS server.



Select server roles

DESTINATION SERVER
WIN-UKDQUO3BLJ8

- Before You Begin
- Installation Type
- Server Selection
- Server Roles
- Features
- AD DS
- DNS Server
- Confirmation
- Results

Select one or more roles to install on the selected server.

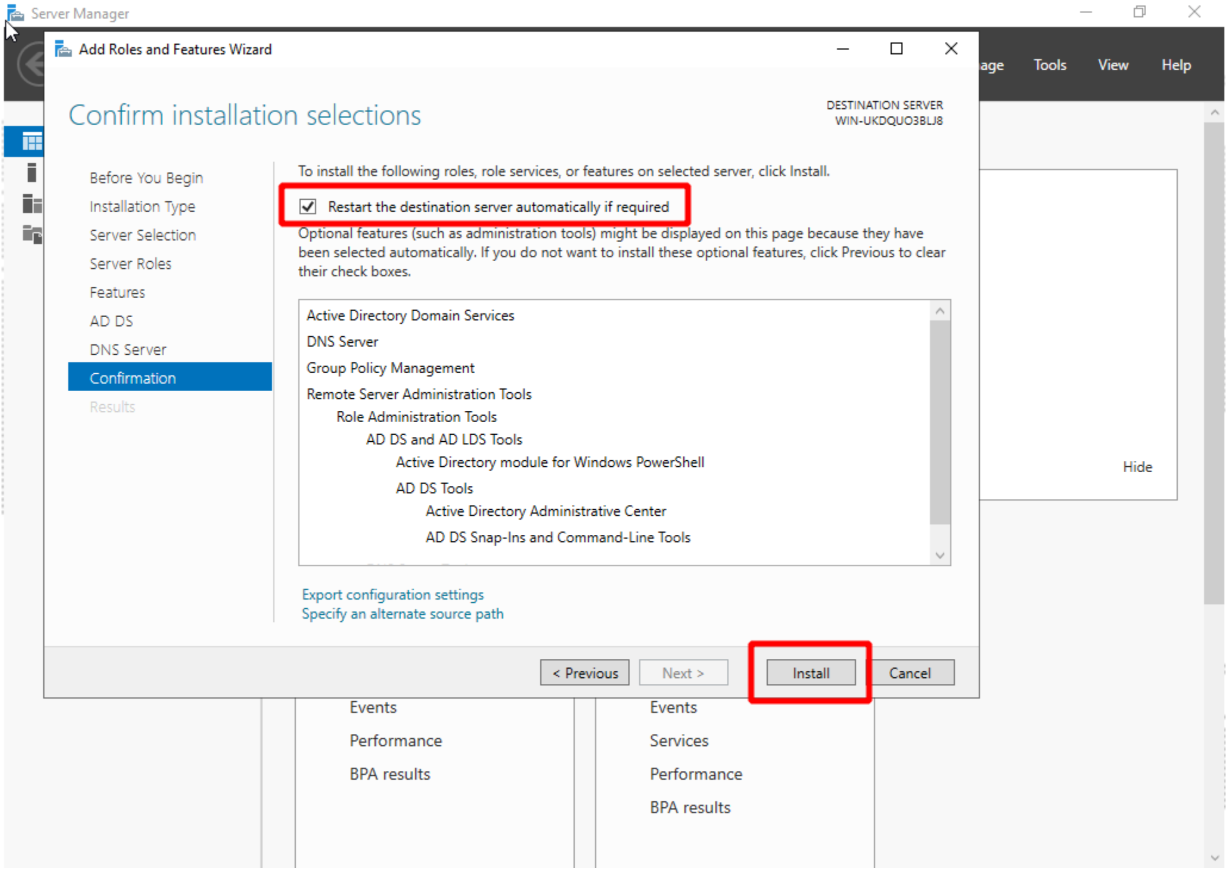
Roles

- □ Active Directory Certificate Services
- ☑ Active Directory Domain Services
- □ Active Directory Federation Services
- □ Active Directory Lightweight Directory Services
- □ Active Directory Rights Management Services
- □ Device Health Attestation
- □ DHCP Server
- ☑ DNS Server
- □ Fax Server
- ■ File and Storage Services (1 of 12 installed)
- □ Host Guardian Service
- □ Hyper-V
- □ Network Policy and Access Services
- □ Print and Document Services
- □ Remote Access
- □ Remote Desktop Services
- □ Volume Activation Services
- □ Web Server (IIS)
- □ Windows Deployment Services
- □ Windows Server Update Services

Description

Domain Name System (DNS) Server provides name resolution for TCP/IP networks. DNS Server is easier to manage when it is installed on the same server as Active Directory Domain Services. If you select the Active Directory Domain Services role, you can install and configure DNS Server and Active Directory Domain Services to work together.

d. Keep clicking *Next* until you reach the *Confirmation* page. Select *Restart the destination server automatically if required*, and click *Install*.



Confirm installation selections

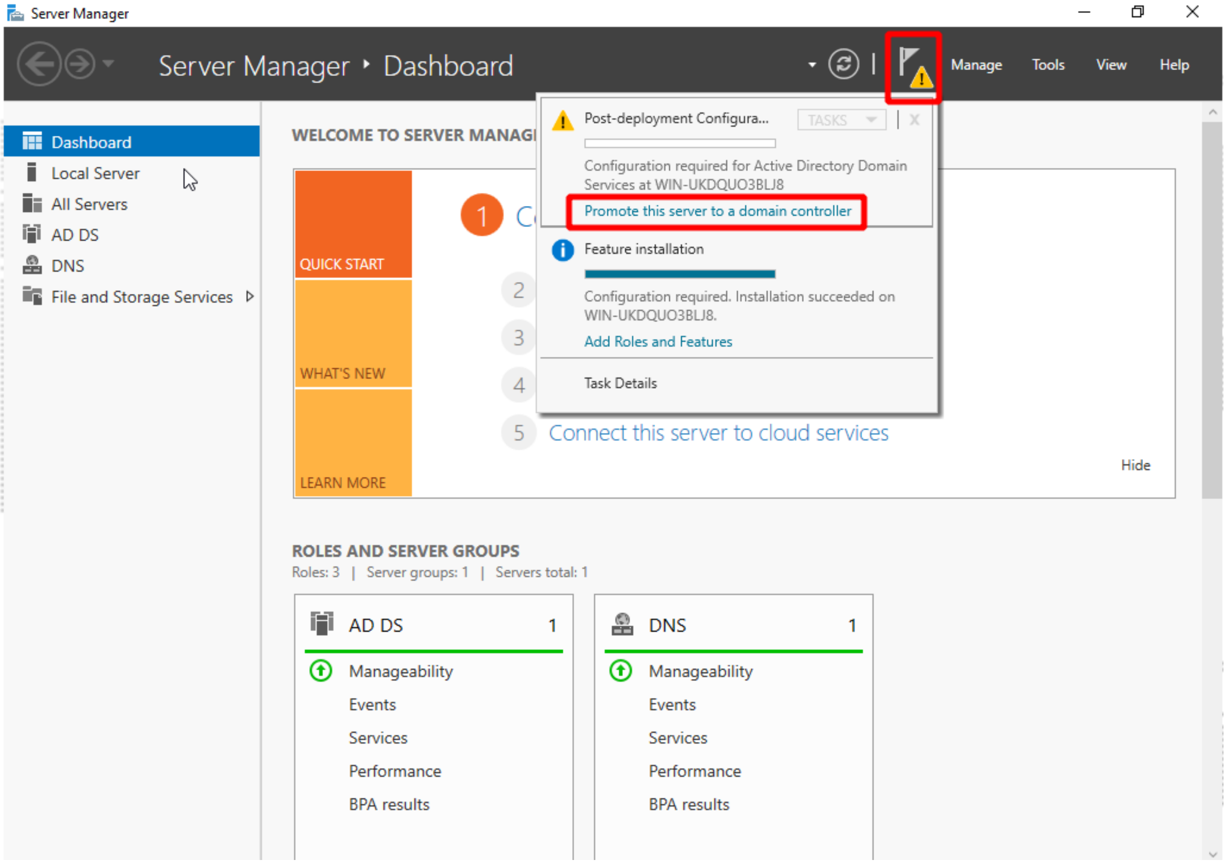
To install the following roles, role services, or features on selected server, click Install.

☑ Restart the destination server automatically if required

Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.

Active Directory Domain Services
DNS Server
Group Policy Management
Remote Server Administration Tools
    Role Administration Tools
        AD DS and AD LDS Tools
            Active Directory module for Windows PowerShell
            AD DS Tools
                Active Directory Administrative Center
                AD DS Snap-Ins and Command-Line Tools

2. Promote the server into a domain controller.
    a. Click the notification flag next to the *Manage* menu and click *Promote this server to a domain controller*. The configuration wizard opens.



Post-deployment Configura...

Configuration required for Active Directory Domain Services at WIN-UKDQUO3BLJ8

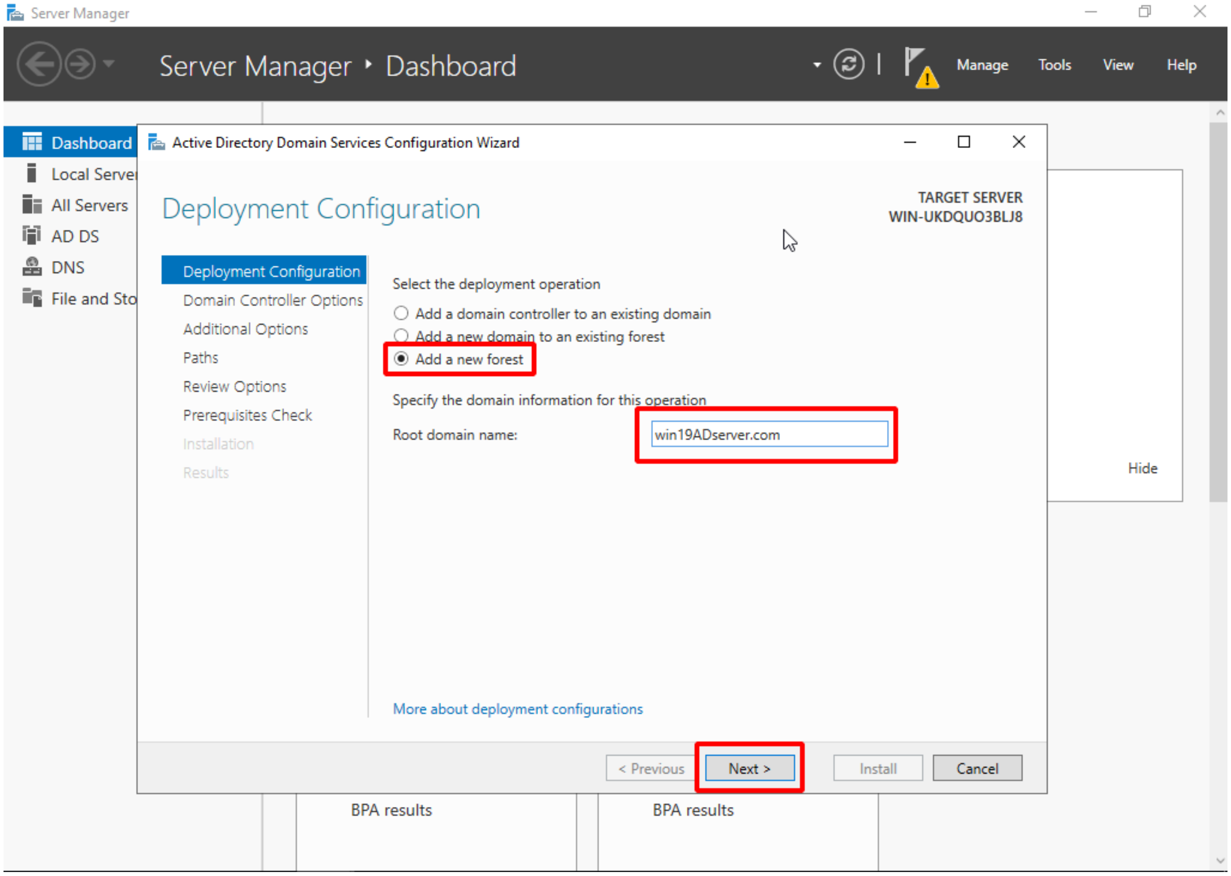
Promote this server to a domain controller

Feature installation

Configuration required. Installation succeeded on WIN-UKDQUO3BLJ8.

Add Roles and Features

b. In *Deployment Configuration*, select *Add a new forest* and enter the *Root domain name*.



Active Directory Domain Services Configuration Wizard

Deployment Configuration

TARGET SERVER
WIN-UKDQUO3BLJ8

Select the deployment operation

○ Add a domain controller to an existing domain

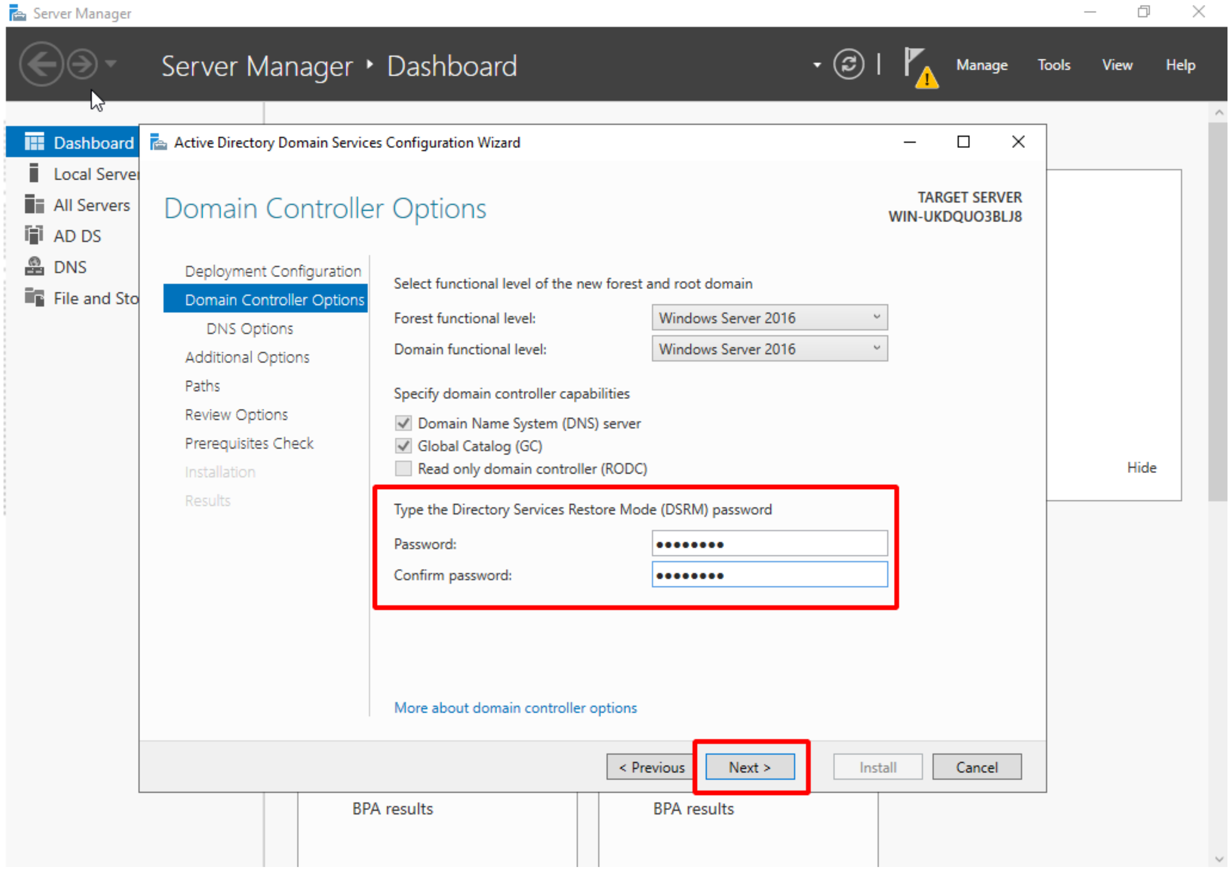
○ Add a new domain to an existing forest

● Add a new forest

Specify the domain information for this operation

Root domain name: win19ADserver.com

c. In *Domain Controller Options*, enter a password for the domain.



Domain Controller Options

TARGET SERVER
WIN-UKDQUO3BLJ8

Select functional level of the new forest and root domain

Forest functional level: Windows Server 2016

Domain functional level: Windows Server 2016

Specify domain controller capabilities

☑ Domain Name System (DNS) server

☑ Global Catalog (GC)

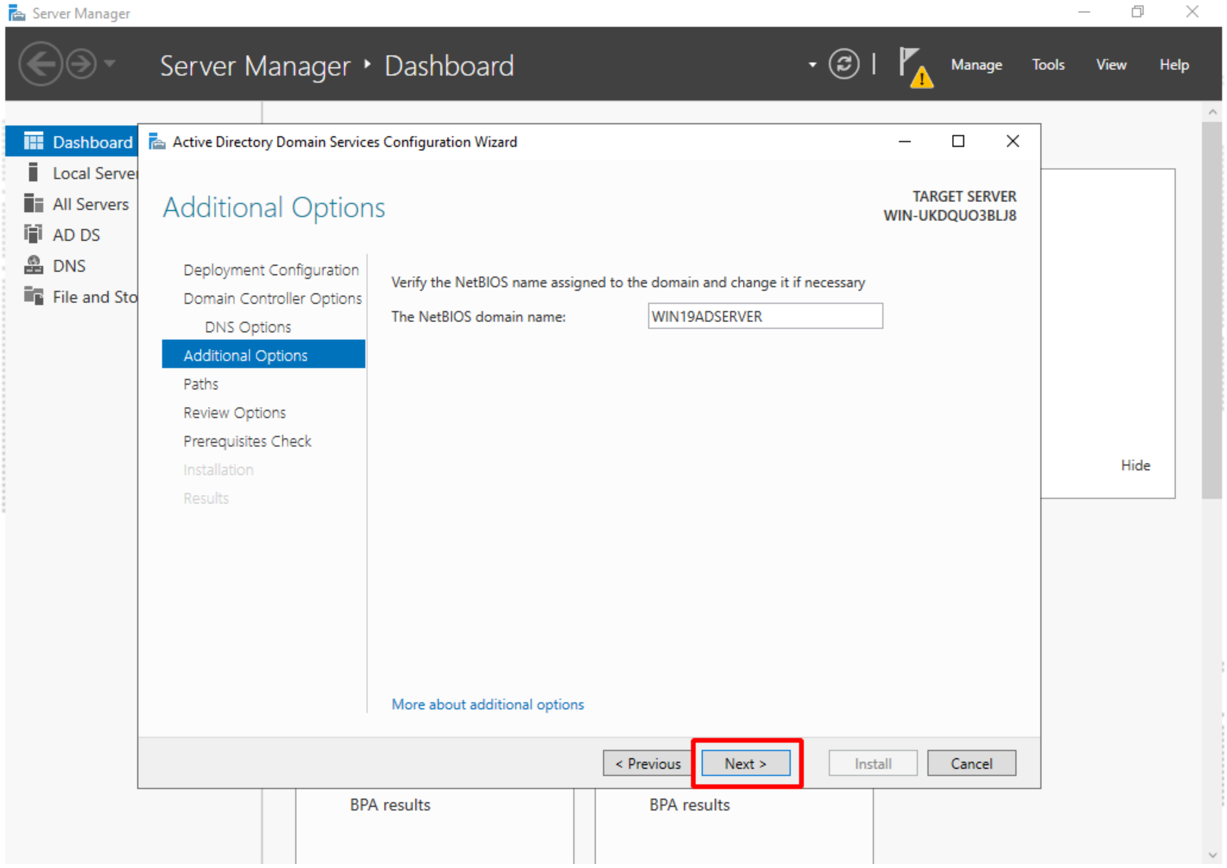
□ Read only domain controller (RODC)

Type the Directory Services Restore Mode (DSRM) password

Password: ••••••••

Confirm password: ••••••••

d. In *Additional Options*, enter a NetBIOS name for your domain (the default name is recommended).



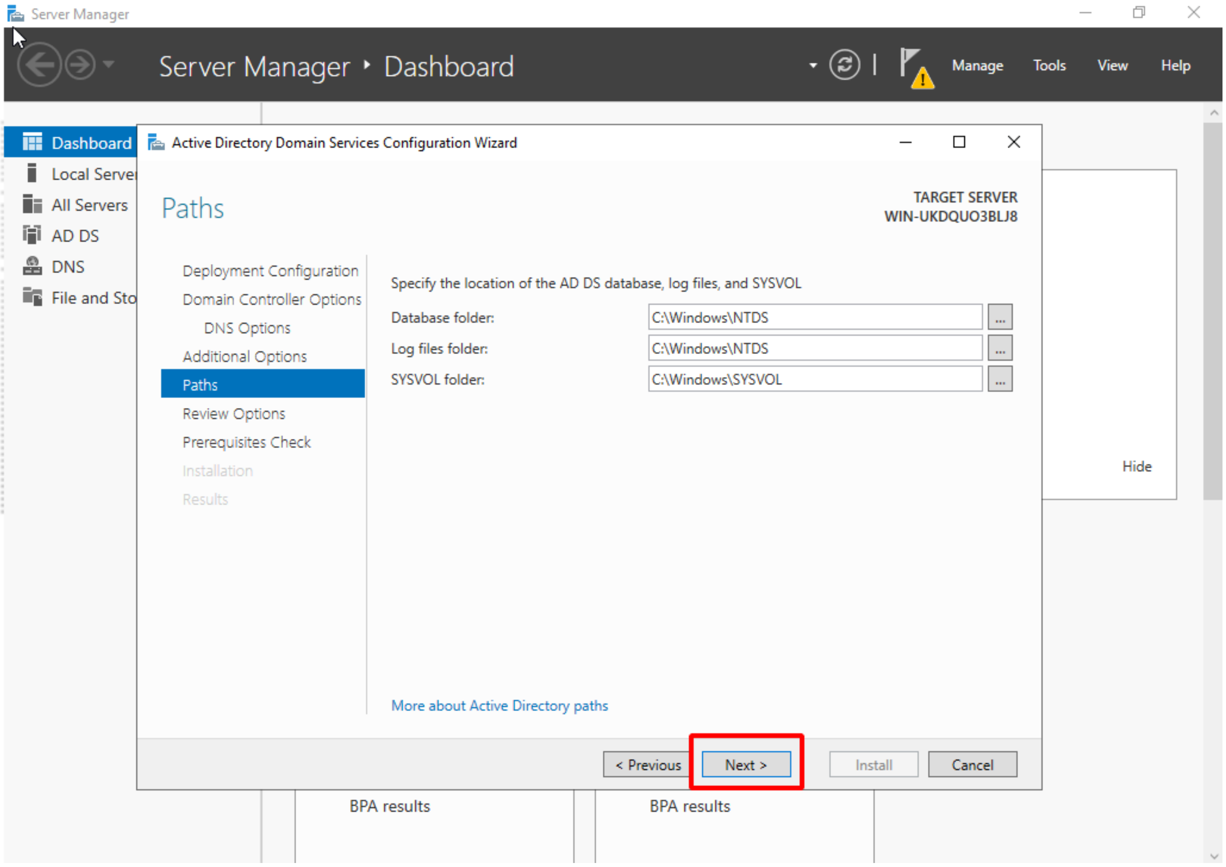
Additional Options

TARGET SERVER
WIN-UKDQUO3BLJ8

Verify the NetBIOS name assigned to the domain and change it if necessary

The NetBIOS domain name: WIN19ADSERVER

e. In *Paths*, select the folder where your database, log files, and SYSVOL will be stored (the default folder is recommended), then click *Next*.



Active Directory Domain Services Configuration Wizard

Paths

TARGET SERVER
WIN-UKDQUO3BLJ8

Specify the location of the AD DS database, log files, and SYSVOL

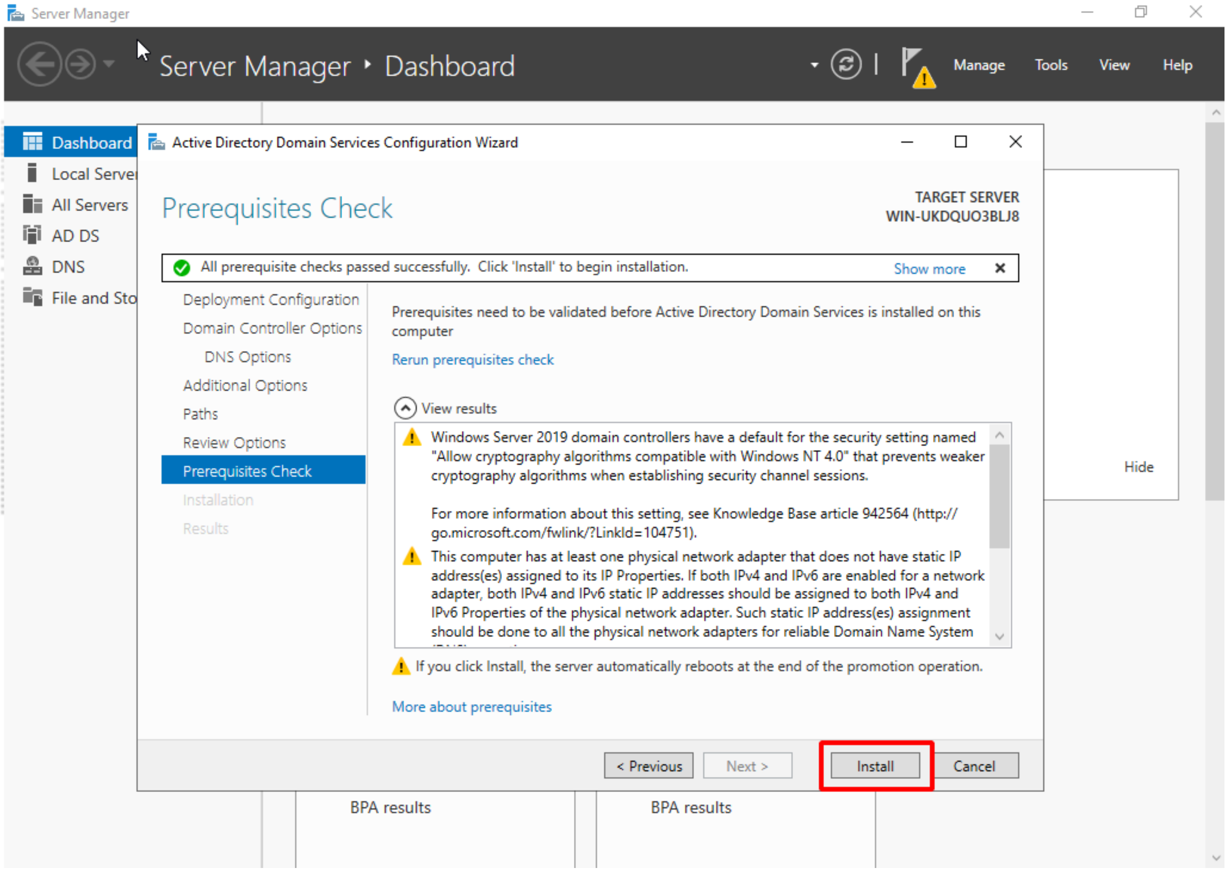
Database folder: C:\Windows\NTDS

Log files folder: C:\Windows\NTDS

SYSVOL folder: C:\Windows\SYSVOL

More about Active Directory paths

f. Wait for a check-mark to appear and then click *Install*.



Active Directory Domain Services Configuration Wizard

Prerequisites Check

TARGET SERVER
WIN-UKDQUO3BLJ8

All prerequisite checks passed successfully. Click 'Install' to begin installation.

Prerequisites need to be validated before Active Directory Domain Services is installed on this computer

Rerun prerequisites check

View results

Windows Server 2019 domain controllers have a default for the security setting named "Allow cryptography algorithms compatible with Windows NT 4.0" that prevents weaker cryptography algorithms when establishing security channel sessions.

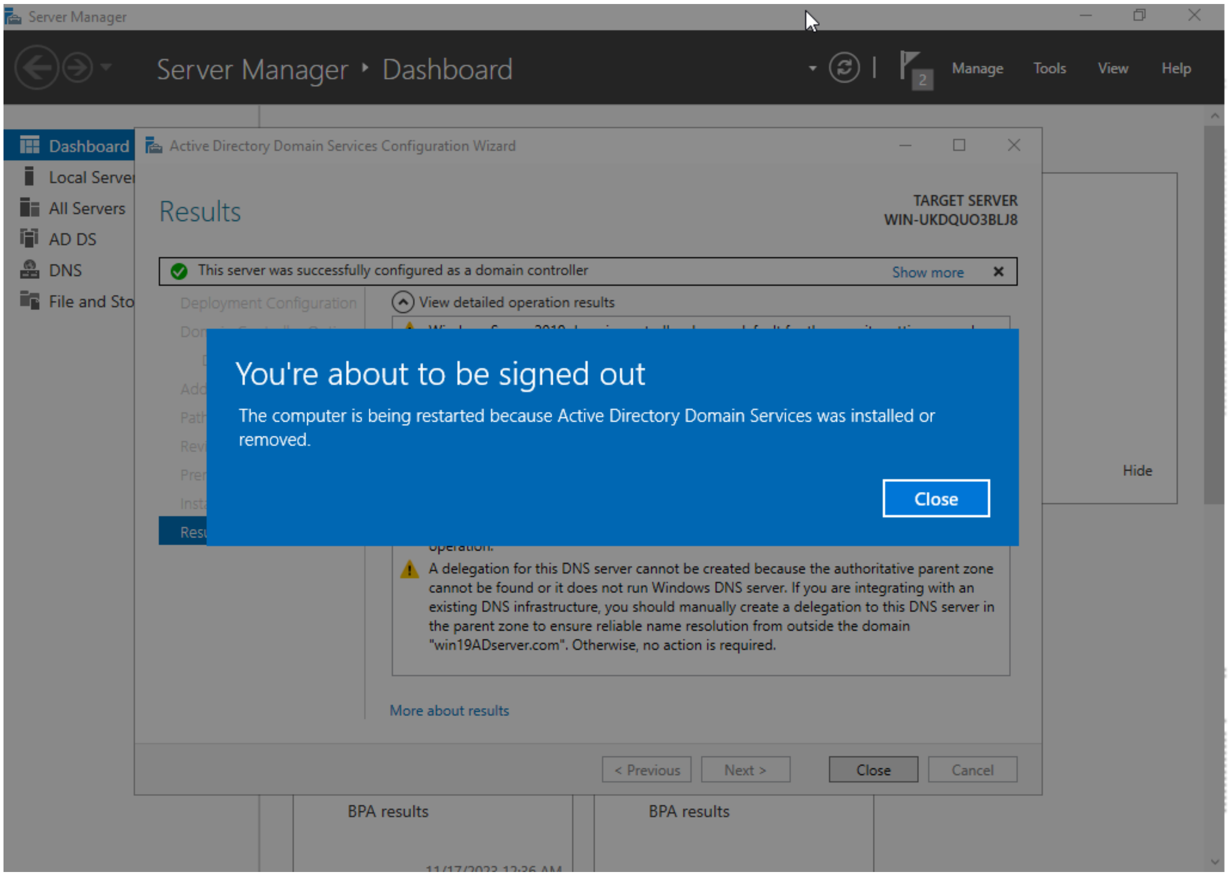
For more information about this setting, see Knowledge Base article 942564 (http://go.microsoft.com/fwlink/?LinkId=104751).

This computer has at least one physical network adapter that does not have static IP address(es) assigned to its IP Properties. If both IPv4 and IPv6 are enabled for a network adapter, both IPv4 and IPv6 static IP addresses should be assigned to both IPv4 and IPv6 Properties of the physical network adapter. Such static IP address(es) assignment should be done to all the physical network adapters for reliable Domain Name System

If you click Install, the server automatically reboots at the end of the promotion operation.

More about prerequisites

g. The PC will restart.



Results

TARGET SERVER
WIN-UKDQUO3BLJ8

This server was successfully configured as a domain controller

View detailed operation results

You're about to be signed out

The computer is being restarted because Active Directory Domain Services was installed or removed.

Close

A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found or it does not run Windows DNS server. If you are integrating with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain "win19ADserver.com". Otherwise, no action is required.

More about results

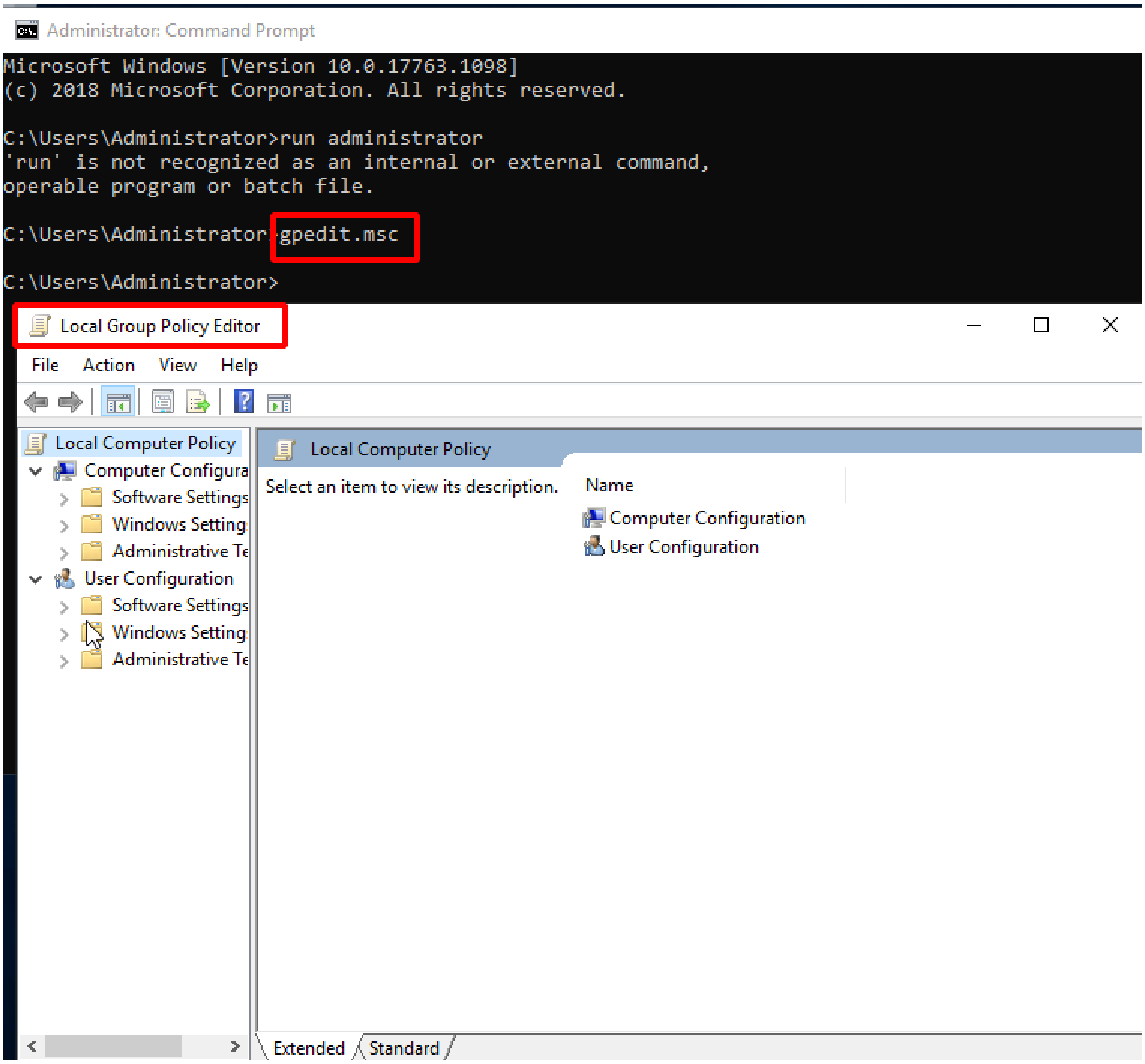
2. Set up the DNS server

Configure the server according to your requirements. A standalone DNS server can be used.

- To add more endpoints to this domain, you may want to configure the DNS forward rule to allow these endpoints to resolve public domains.
- To use a standalone DNS server, *DNS server* should not be installed in Step 1.
- The endpoint may use two DNS servers, one for the local domain, and another for public domains.

3. Add *Remote Desktop Users* to the *Allow log on through Remote Desktop Services Properties* policy

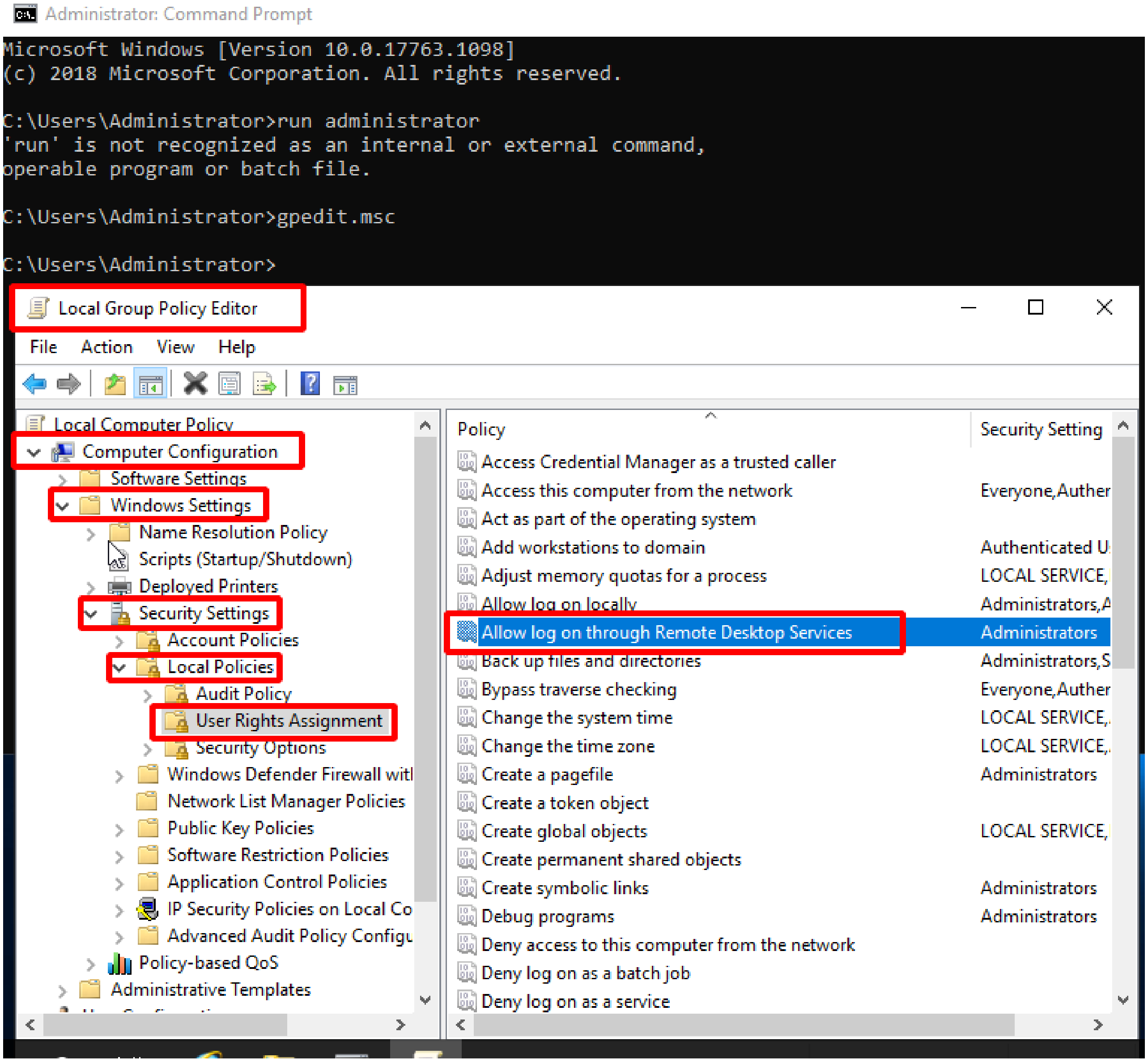
1. Open a command window as an administrator, then enter `gpedit.msc` to open the local group policy.



```
Microsoft Windows [Version 10.0.17763.1098]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>run administrator
'run' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Administrator>gpedit.msc

C:\Users\Administrator>
```

2. Go to *Computer Configuration\Windows Settings\Security Settings\Local Policies\User Rights Assignment\Policy*

Name: Allow log on through Remote Desktop Services.



Administrator: Command Prompt

```
Microsoft Windows [Version 10.0.17763.1098]
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C:\Users\Administrator>run administrator
'run' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Administrator>gpedit.msc

C:\Users\Administrator>
```
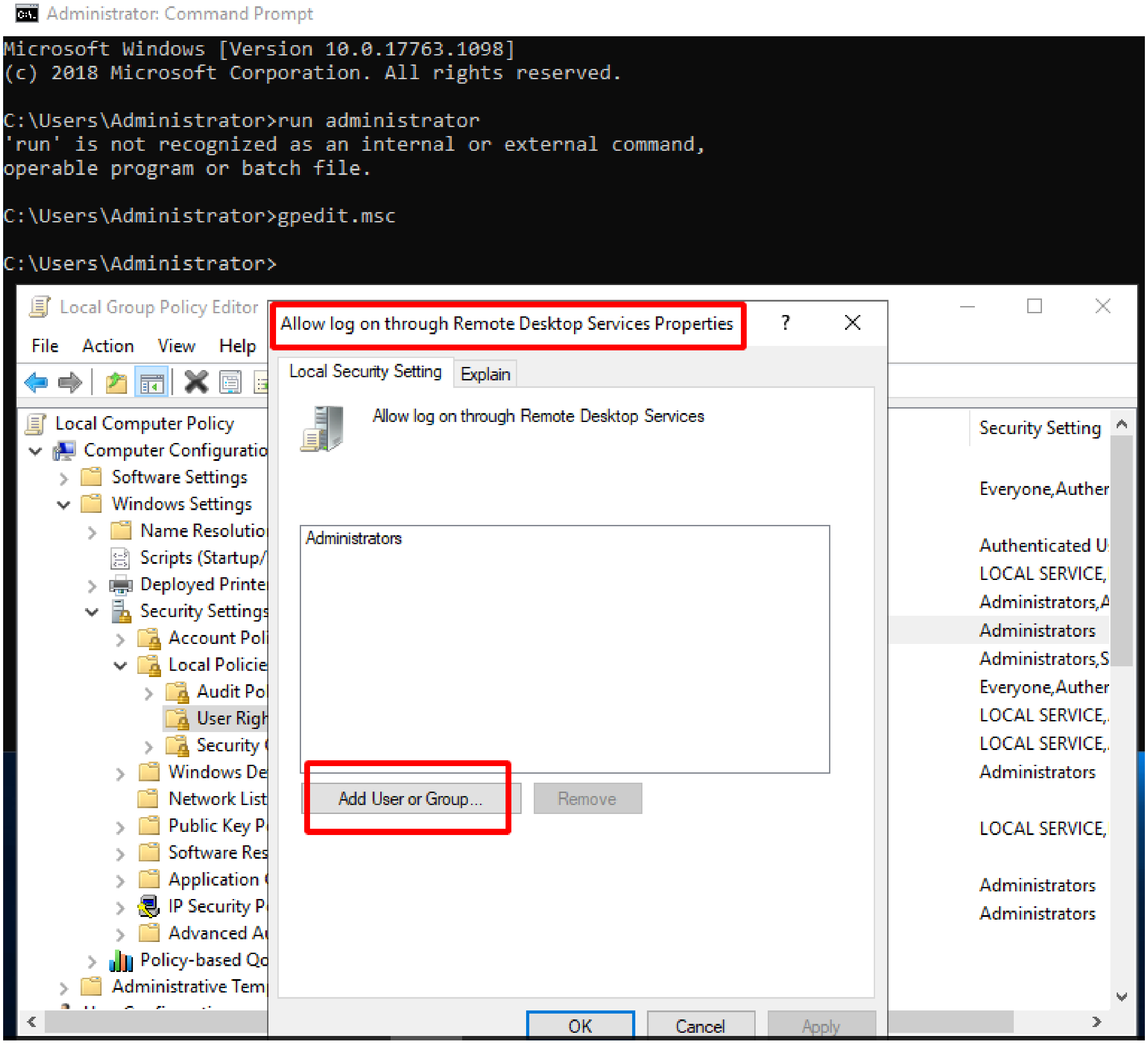

Local Group Policy Editor

Policy	Security Setting
Access Credential Manager as a trusted caller	
Access this computer from the network	Everyone,Auther
Act as part of the operating system	
Add workstations to domain	Authenticated U
Adjust memory quotas for a process	LOCAL SERVICE,
Allow log on locally	Administrators,A
Allow log on through Remote Desktop Services	Administrators
Back up files and directories	Administrators,S
Bypass traverse checking	Everyone,Auther
Change the system time	LOCAL SERVICE,.
Change the time zone	LOCAL SERVICE,.
Create a pagefile	Administrators
Create a token object	
Create global objects	LOCAL SERVICE,
Create permanent shared objects	
Create symbolic links	Administrators
Debug programs	Administrators
Deny access to this computer from the network	
Deny log on as a batch job	
Deny log on as a service	

3. Select *Add User or Group of Allow log on through Remote Desktop Services policy*.



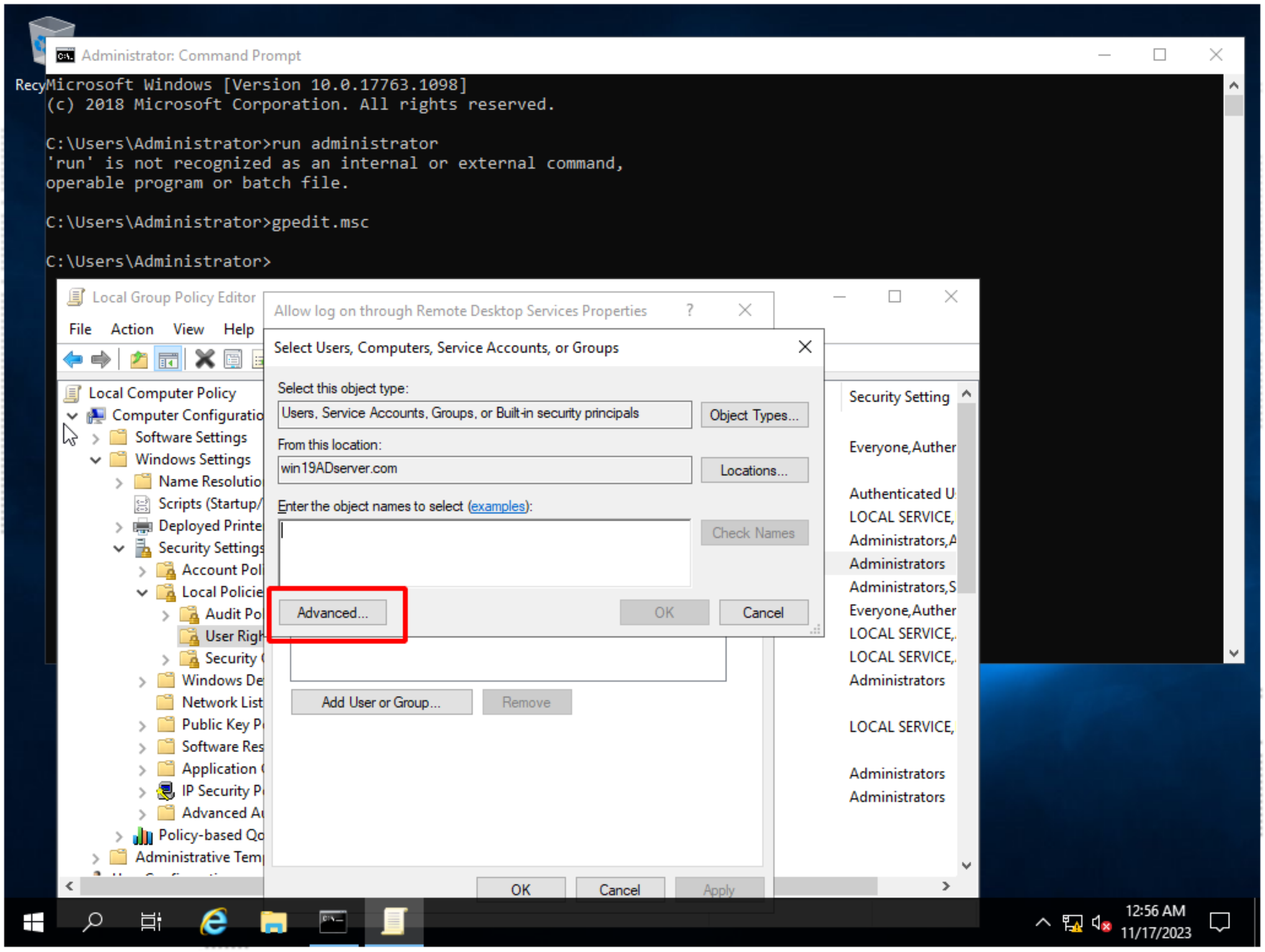
```
Microsoft Windows [Version 10.0.17763.1098]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>run administrator
'run' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Administrator>gpedit.msc

C:\Users\Administrator>
```

Allow log on through Remote Desktop Services Properties

Allow log on through Remote Desktop Services

Administrators

4. Click *Advanced*.



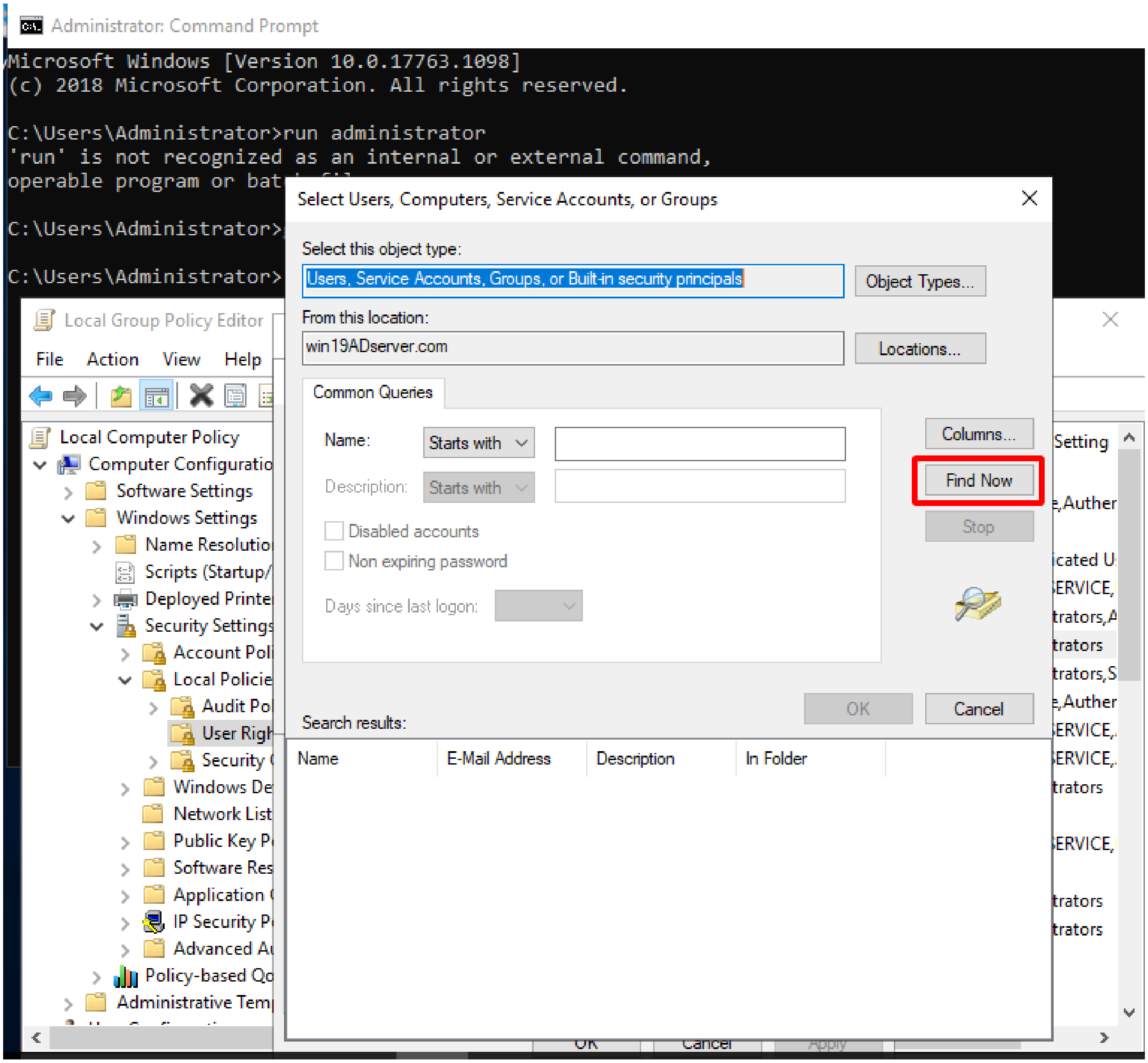
```
Microsoft Windows [Version 10.0.17763.1098]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>run administrator
'run' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Administrator>gpedit.msc

C:\Users\Administrator>
```

Select this object type:
Users, Service Accounts, Groups, or Built-in security principals

From this location:
win19ADserver.com

Enter the object names to select (examples):

5. Click *Find Now.*

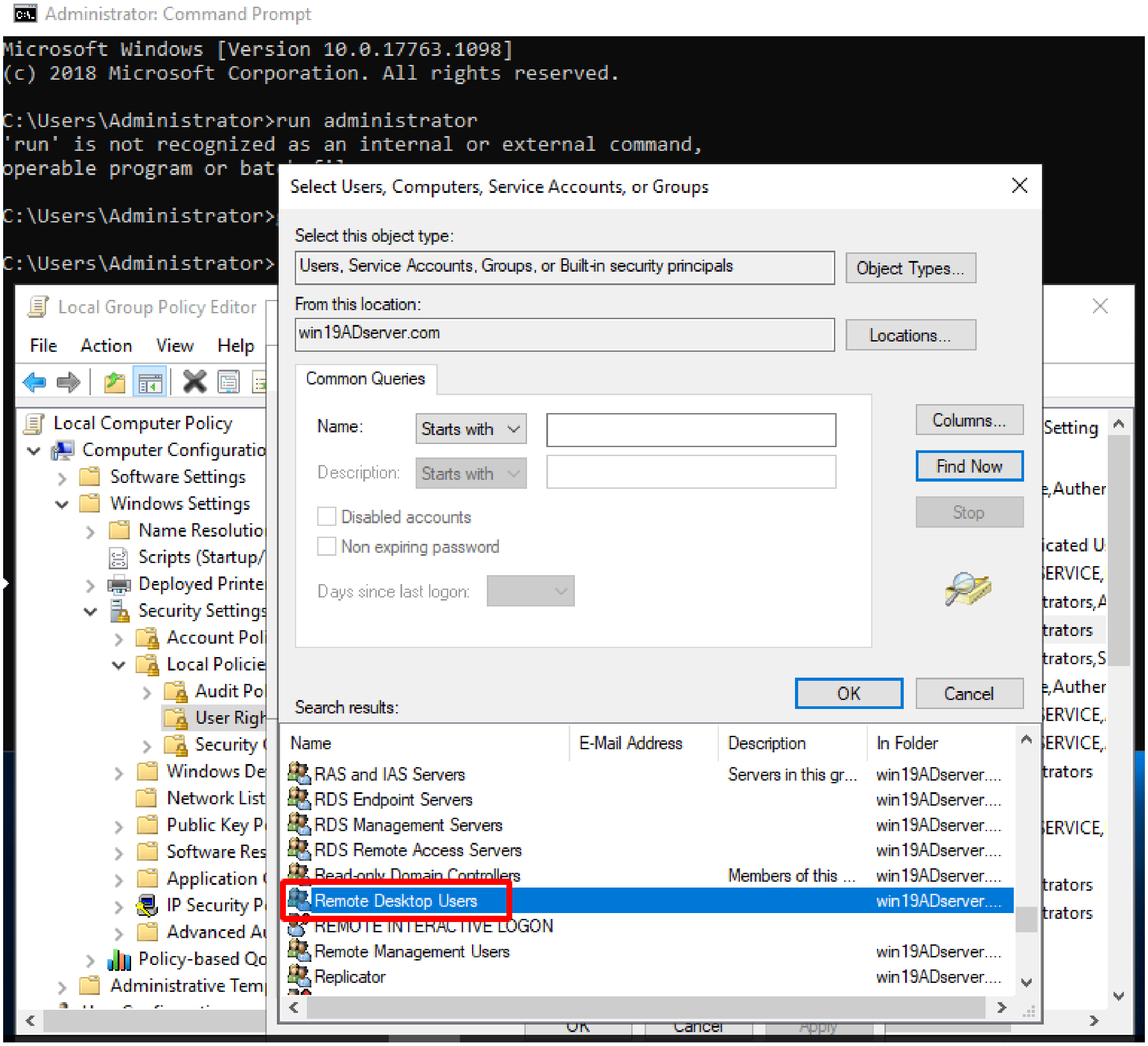


```
Microsoft Windows [Version 10.0.17763.1098]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>run administrator
'run' is not recognized as an internal or external command,
operable program or bat

C:\Users\Administrator>

C:\Users\Administrator>
```

Select this object type: Users, Service Accounts, Groups, or Built-in security principals

From this location: win19ADserver.com

6. Add *Remote Desk User group*.



```
Microsoft Windows [Version 10.0.17763.1098]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>run administrator
'run' is not recognized as an internal or external command,
operable program or bat

C:\Users\Administrator>

C:\Users\Administrator>
```

Select Users, Computers, Service Accounts, or Groups

Select this object type:
Users, Service Accounts, Groups, or Built-in security principals

From this location:
win19ADserver.com

Common Queries

Name: Starts with

Description: Starts with

□ Disabled accounts

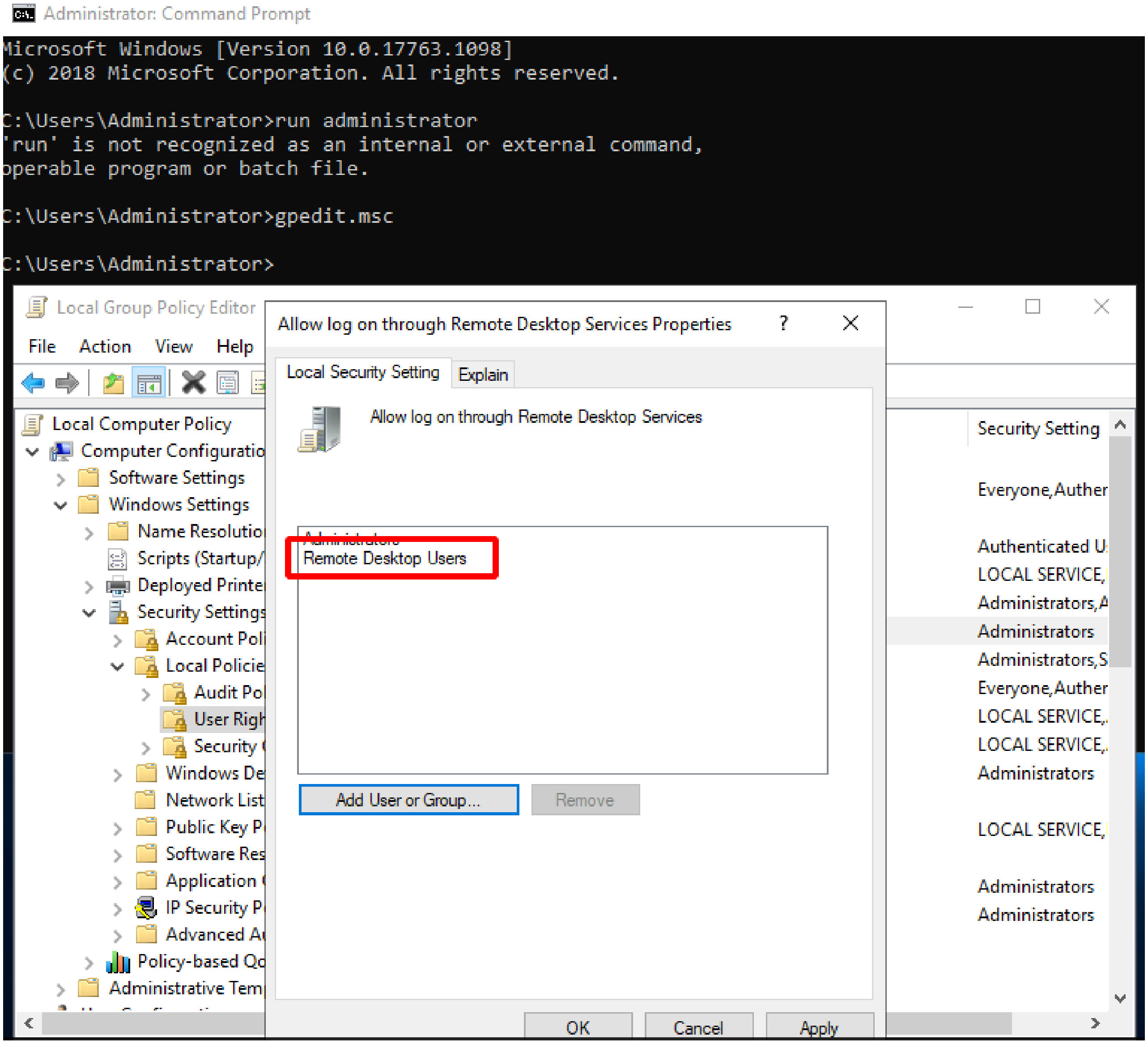
□ Non expiring password

Days since last logon:

Search results:

Name	E-Mail Address	Description	In Folder
RAS and IAS Servers		Servers in this gr...	win19ADserver....
RDS Endpoint Servers			win19ADserver....
RDS Management Servers			win19ADserver....
RDS Remote Access Servers			win19ADserver....
Read-only Domain Controllers		Members of this ...	win19ADserver....
Remote Desktop Users			win19ADserver....
REMOTE INTERACTIVE LOGON			
Remote Management Users			win19ADserver....
Replicator			win19ADserver....

7. *Remote Desktop Users* is added.



Administrator: Command Prompt

```
Microsoft Windows [Version 10.0.17763.1098]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>run administrator
'run' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Administrator>gpedit.msc

C:\Users\Administrator>
```

Allow log on through Remote Desktop Services Properties

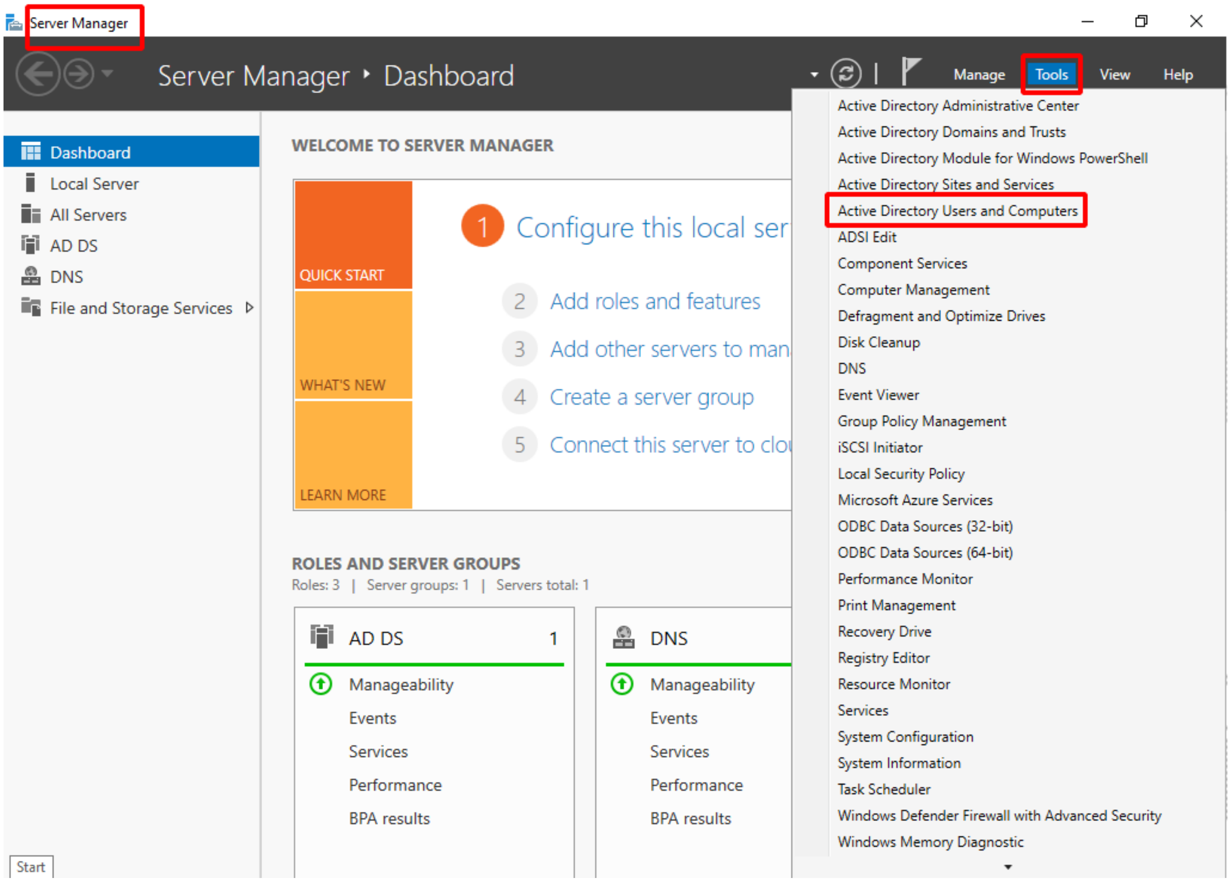
Local Security Setting | Explain

Allow log on through Remote Desktop Services

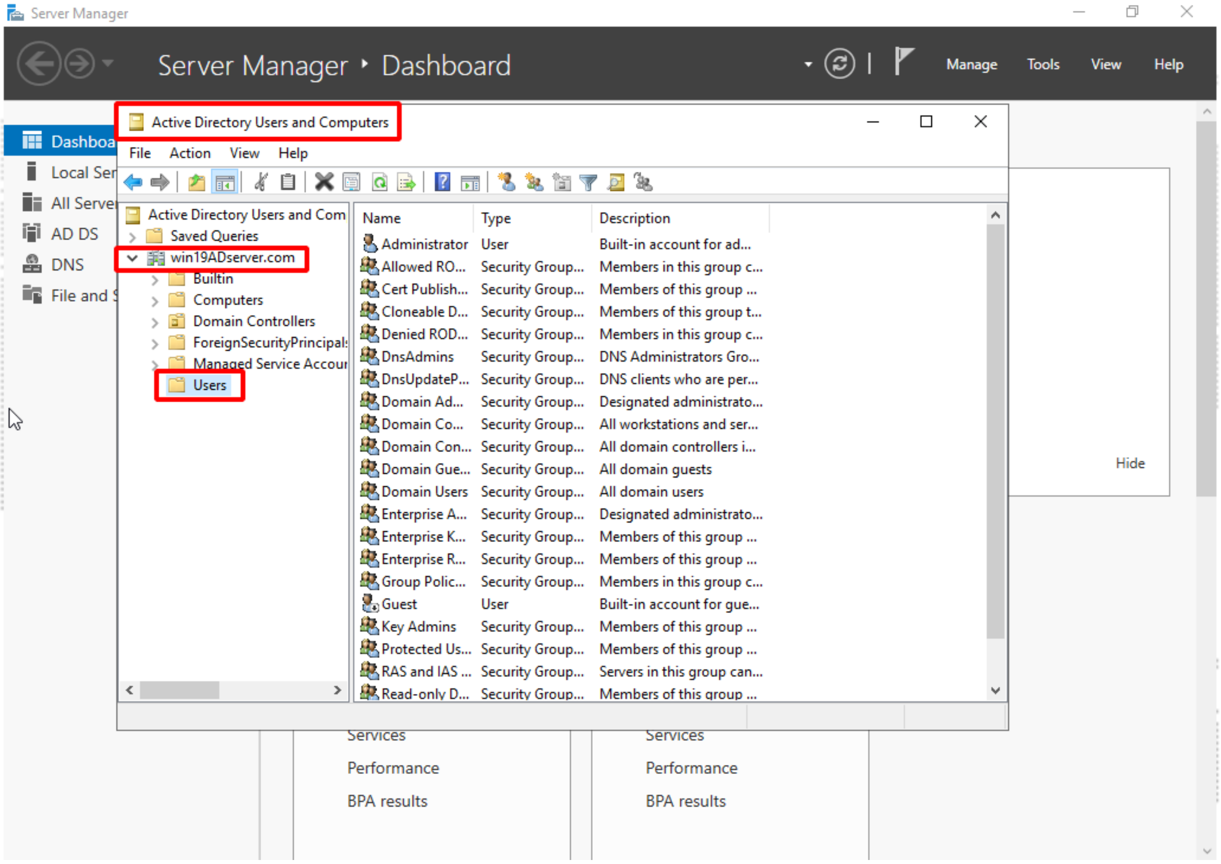
Administrators
Remote Desktop Users

4. (Optional) Add AD Users to the Remote Desk User group

1. Add Active Directory Users
   a. In the Server Manager, click *Tools* > *Active Directory Users and Computers*.

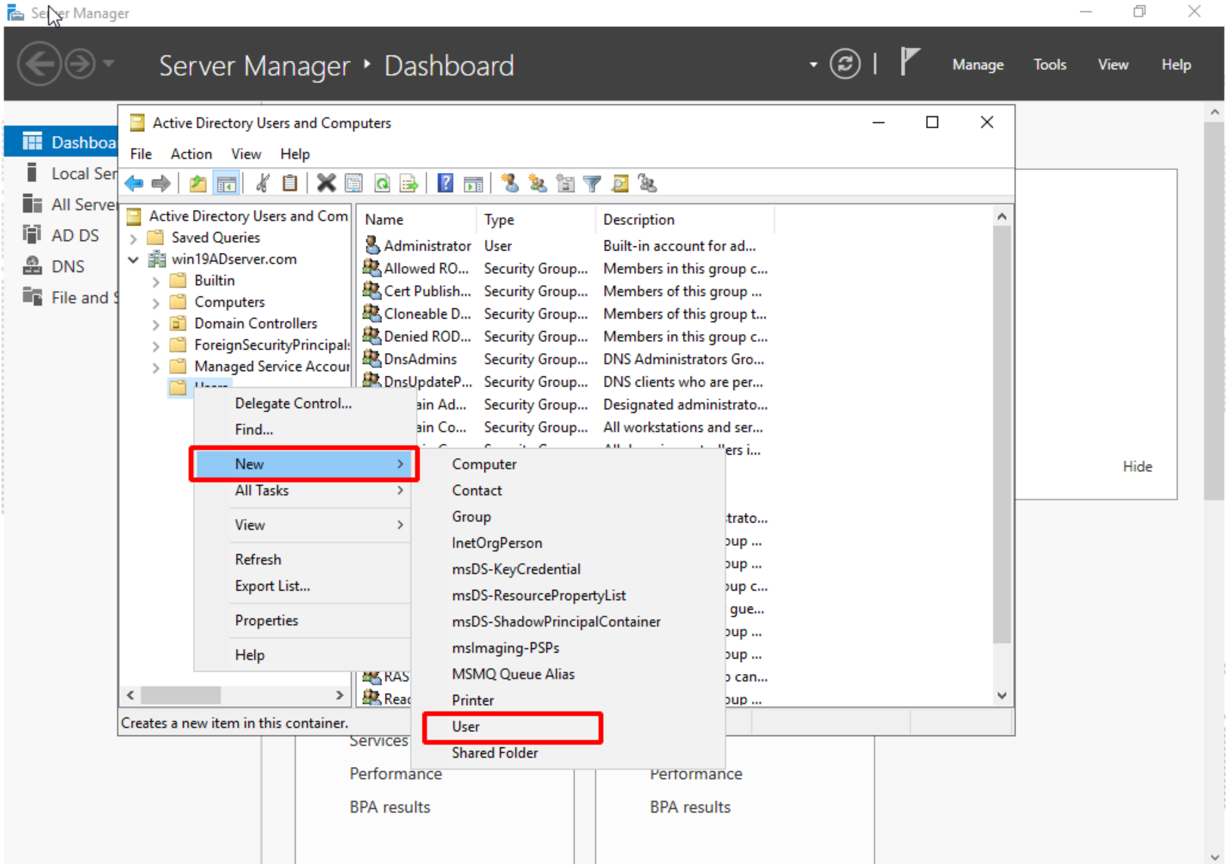


b. Right-click the domain name and open the *Users* folder.



Name	Type	Description
Administrator	User	Built-in account for ad...
Allowed RO...	Security Group...	Members in this group c...
Cert Publish...	Security Group...	Members of this group ...
Cloneable D...	Security Group...	Members of this group t...
Denied ROD...	Security Group...	Members in this group c...
DnsAdmins	Security Group...	DNS Administrators Gro...
DnsUpdateP...	Security Group...	DNS clients who are per...
Domain Ad...	Security Group...	Designated administrato...
Domain Co...	Security Group...	All workstations and ser...
Domain Con...	Security Group...	All domain controllers i...
Domain Gue...	Security Group...	All domain guests
Domain Users	Security Group...	All domain users
Enterprise A...	Security Group...	Designated administrato...
Enterprise K...	Security Group...	Members of this group ...
Enterprise R...	Security Group...	Members of this group ...
Group Polic...	Security Group...	Members in this group c...
Guest	User	Built-in account for gue...
Key Admins	Security Group...	Members of this group ...
Protected Us...	Security Group...	Members of this group ...
RAS and IAS ...	Security Group...	Servers in this group can...
Read-only D...	Security Group...	Members of this group ...

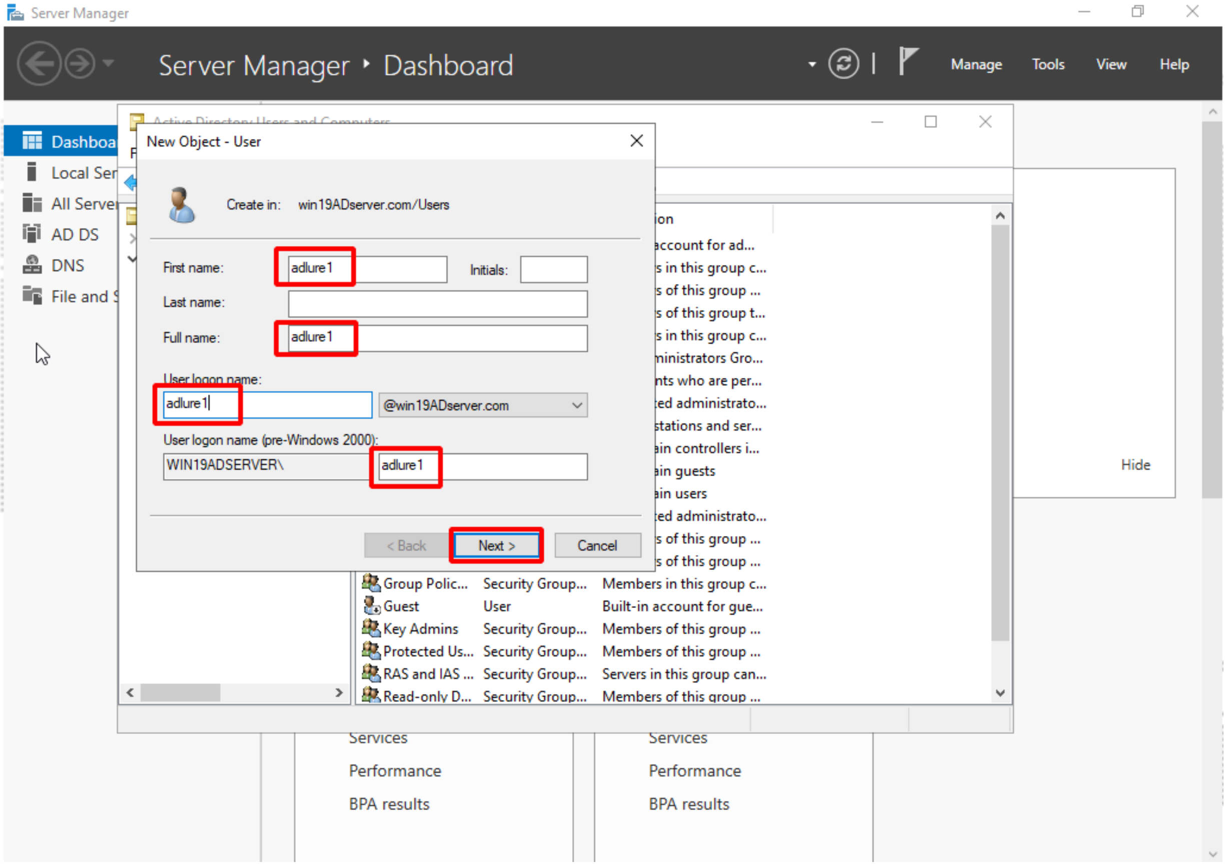
c. Right-click the *Users* folder and select *New* > *User*.



Name	Type	Description
Administrator	User	Built-in account for ad...
Allowed RO...	Security Group...	Members in this group c...
Cert Publish...	Security Group...	Members of this group ...
Cloneable D...	Security Group...	Members of this group t...
Denied ROD...	Security Group...	Members in this group c...
DnsAdmins	Security Group...	DNS Administrators Gro...
DnsUpdateP...	Security Group...	DNS clients who are per...
ain Ad...	Security Group...	Designated administrato...
ain Co...	Security Group...	All workstations and ser...

Creates a new item in this container.

d. Enter the AD user name and click *Next*.



New Object - User

Create in: win19ADserver.com/Users

First name: adlure1

Initials:

Last name:

Full name: adlure1

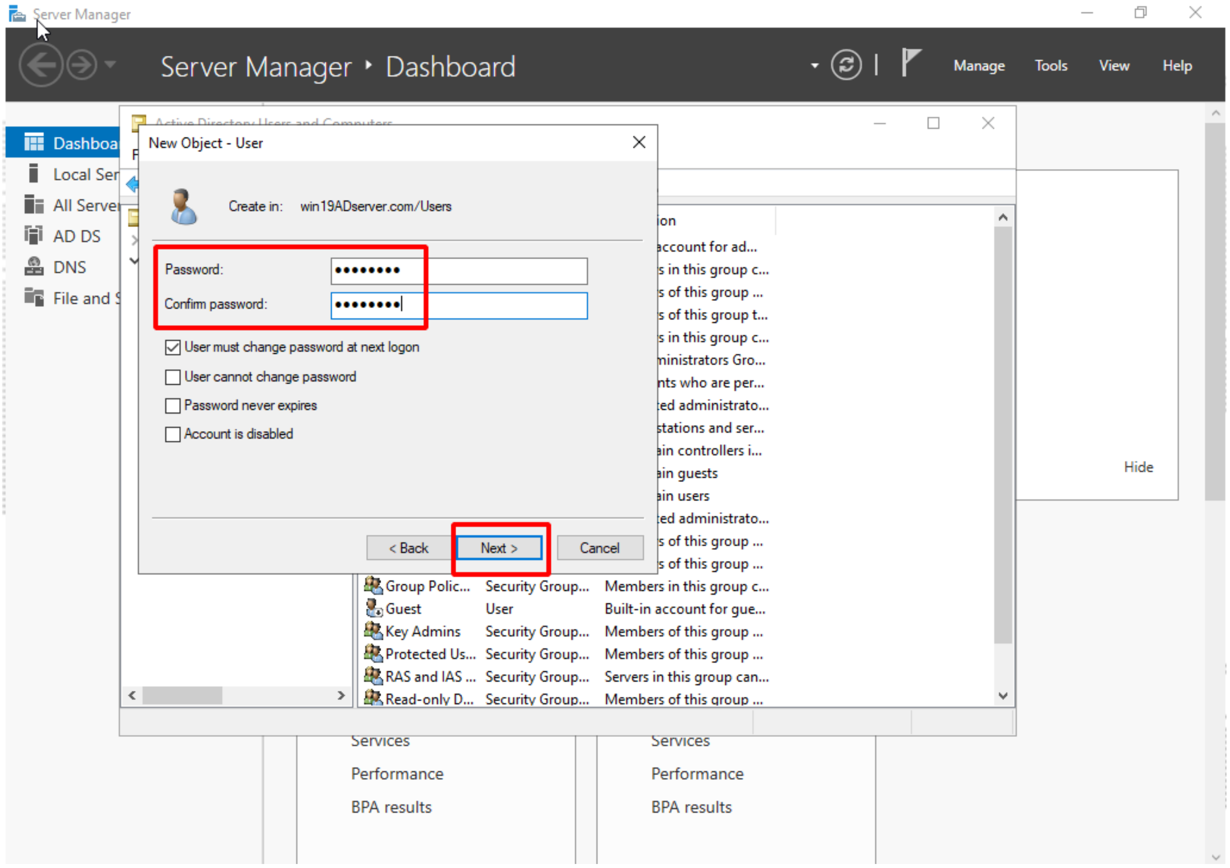
User logon name: adlure1 @win19ADserver.com

User logon name (pre-Windows 2000): WIN19ADSERVER\ adlure1

Server Manager
Server Manager ‣ Dashboard
Manage
Tools
View
Help
Dashboard
Local Server
All Servers
AD DS
DNS
File and Storage Services
Active Directory Users and Computers
< Back
Next >
Cancel
Group Polic... Security Group... Members in this group c...
Guest User Built-in account for gue...
Key Admins Security Group... Members of this group ...
Protected Us... Security Group... Members of this group ...
RAS and IAS ... Security Group... Servers in this group can...
Read-only D... Security Group... Members of this group ...
Hide
Services
Performance
BPA results
Services
Performance
BPA results

e. Enter the AD user password and click *Next*.

- Disable *User must change password at next logon*.
- Enable *User cannot change password* and *Password never expires*.



New Object - User

Create in: win19ADserver.com/Users

Password: ••••••••

Confirm password: ••••••••

☑ User must change password at next logon

☐ User cannot change password

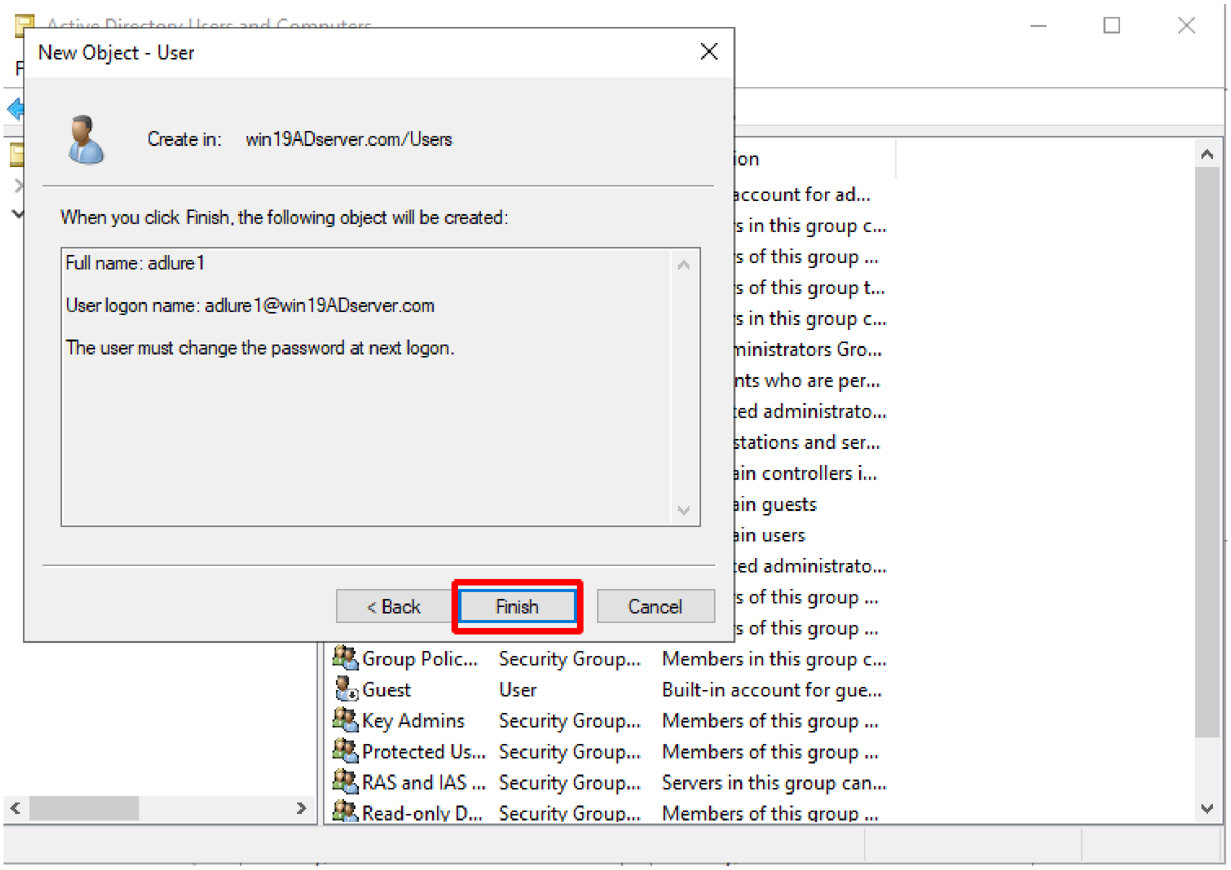
☐ Password never expires

☐ Account is disabled

< Back | Next > | Cancel

		ion
		account for ad...
		s in this group c...
		s of this group ...
		s of this group t...
		s in this group c...
		ninistrators Gro...
		nts who are per...
		ed administrato...
		stations and ser...
		ain controllers i...
		ain guests
		ain users
		ed administrato...
		s of this group ...
		s of this group ...
Group Polic...	Security Group...	Members in this group c...
Guest	User	Built-in account for gue...
Key Admins	Security Group...	Members of this group ...
Protected Us...	Security Group...	Members of this group ...
RAS and IAS ...	Security Group...	Servers in this group can...
Read-only D...	Security Group...	Members of this group ...

f. Click *Finish*.



New Object - User

Create in: win19ADserver.com/Users

When you click Finish, the following object will be created:

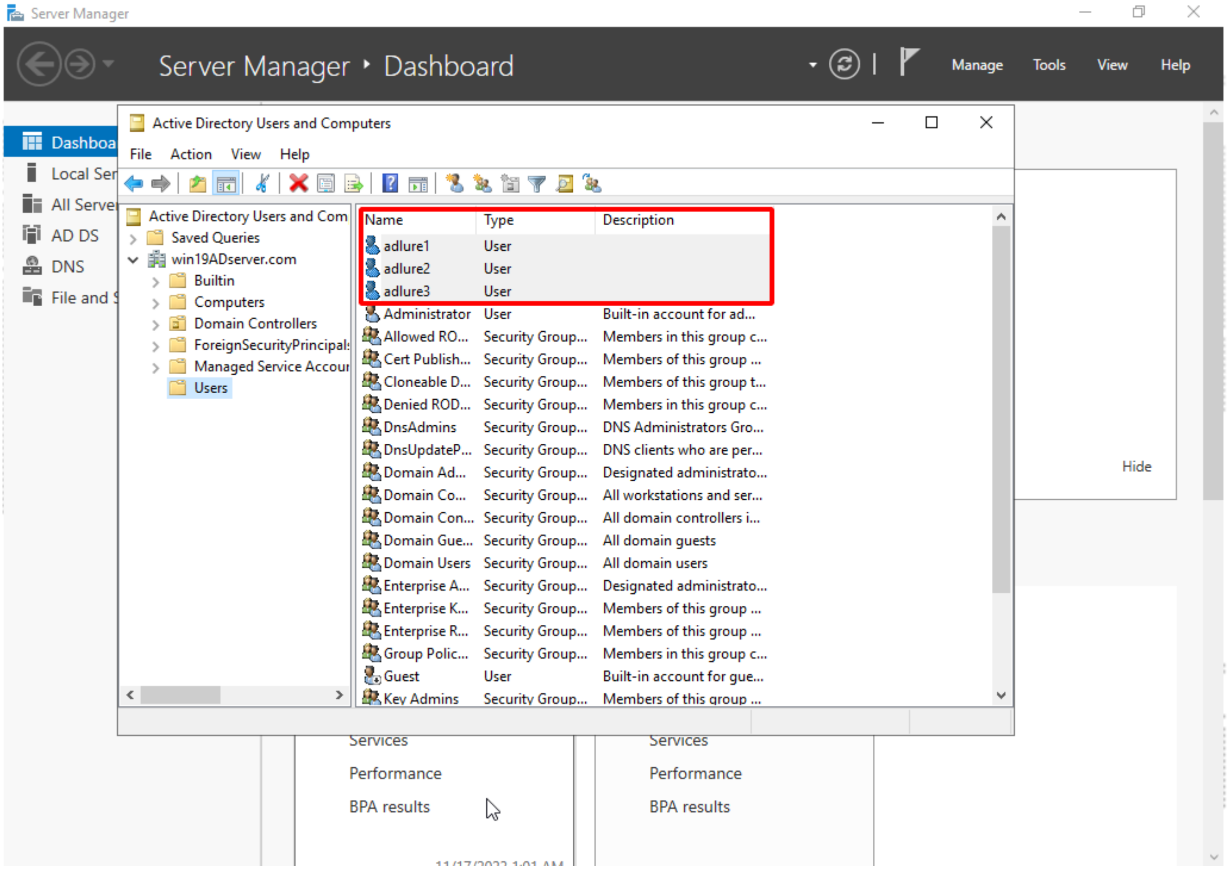
Full name: adlure1

User logon name: adlure1@win19ADserver.com

The user must change the password at next logon.

Active Directory Users and Computers
< Back
Finish
Cancel
Group Polic... Security Group... Members in this group c...
Guest User Built-in account for gue...
Key Admins Security Group... Members of this group ...
Protected Us... Security Group... Members of this group ...
RAS and IAS ... Security Group... Servers in this group can...
Read-only D... Security Group... Members of this group ...

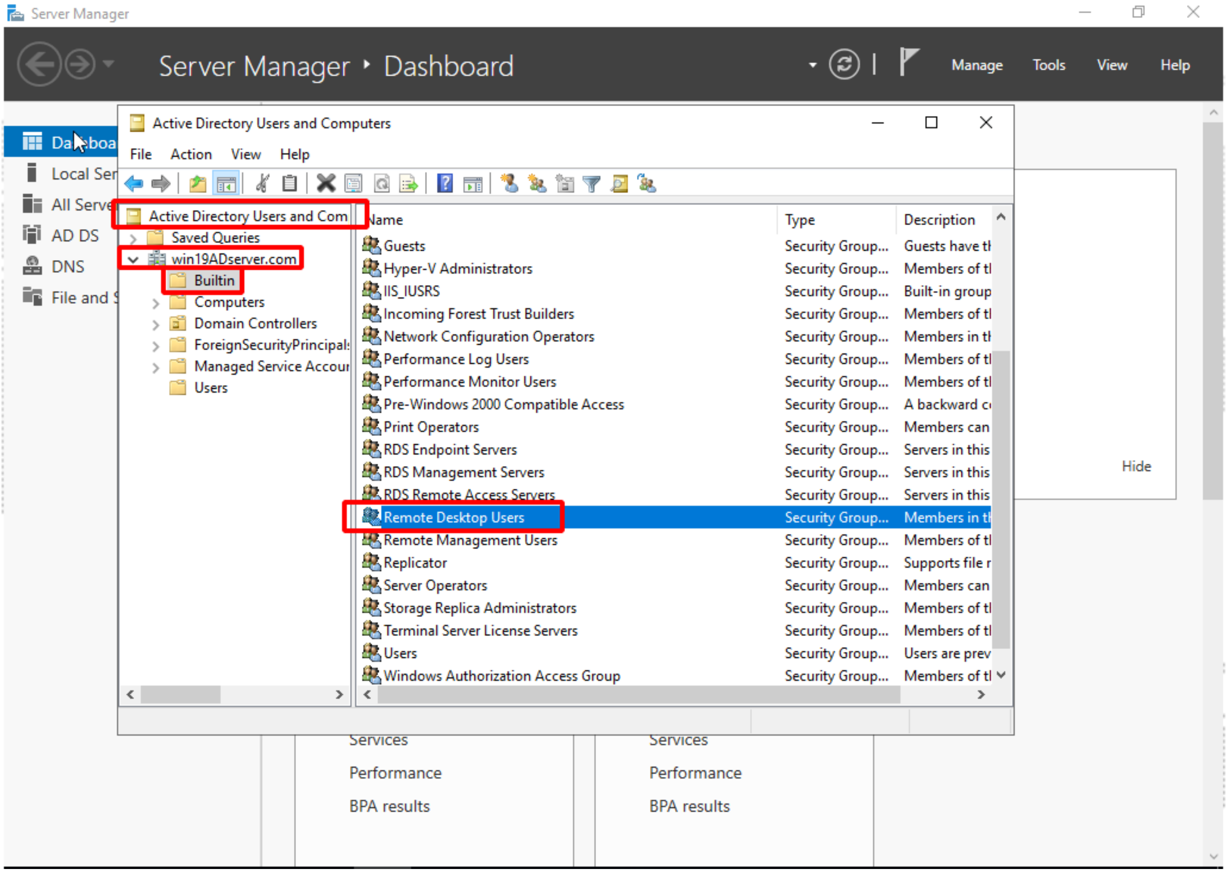
g. The AD Users are added.



Name	Type	Description
adlure1	User	
adlure2	User	
adlure3	User	
Administrator	User	Built-in account for ad...
Allowed RO...	Security Group...	Members in this group c...
Cert Publish...	Security Group...	Members of this group ...
Cloneable D...	Security Group...	Members of this group t...
Denied ROD...	Security Group...	Members in this group c...
DnsAdmins	Security Group...	DNS Administrators Gro...
DnsUpdateP...	Security Group...	DNS clients who are per...
Domain Ad...	Security Group...	Designated administrato...
Domain Co...	Security Group...	All workstations and ser...
Domain Con...	Security Group...	All domain controllers i...
Domain Gue...	Security Group...	All domain guests
Domain Users	Security Group...	All domain users
Enterprise A...	Security Group...	Designated administrato...
Enterprise K...	Security Group...	Members of this group ...
Enterprise R...	Security Group...	Members of this group ...
Group Polic...	Security Group...	Members in this group c...
Guest	User	Built-in account for gue...
Key Admins	Security Group...	Members of this group ...

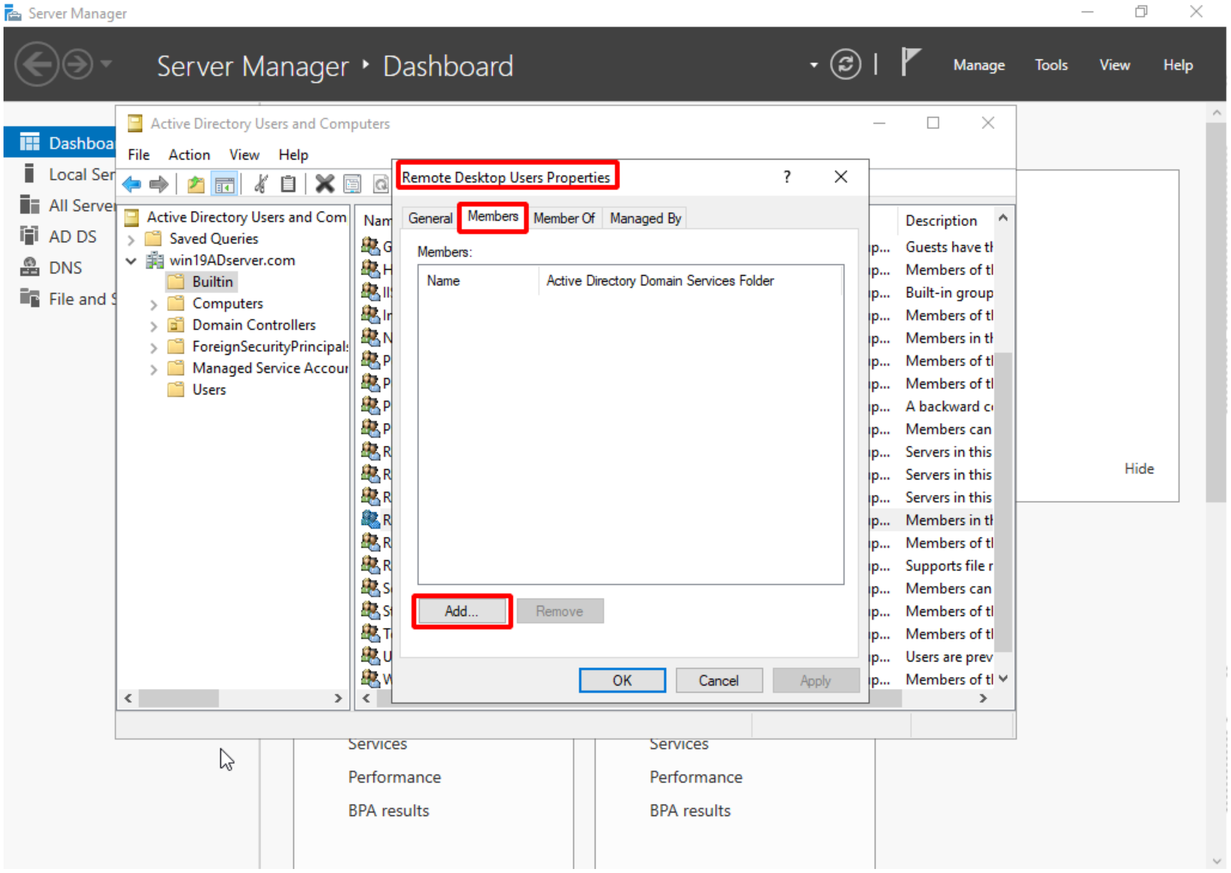
2. Add the new AD users to the Remote Desk User group.

   a. In the Server Manager, go to *Tools > Active Directory Users and Computers >{domain name} > Builtin > Remote Desk User group*.

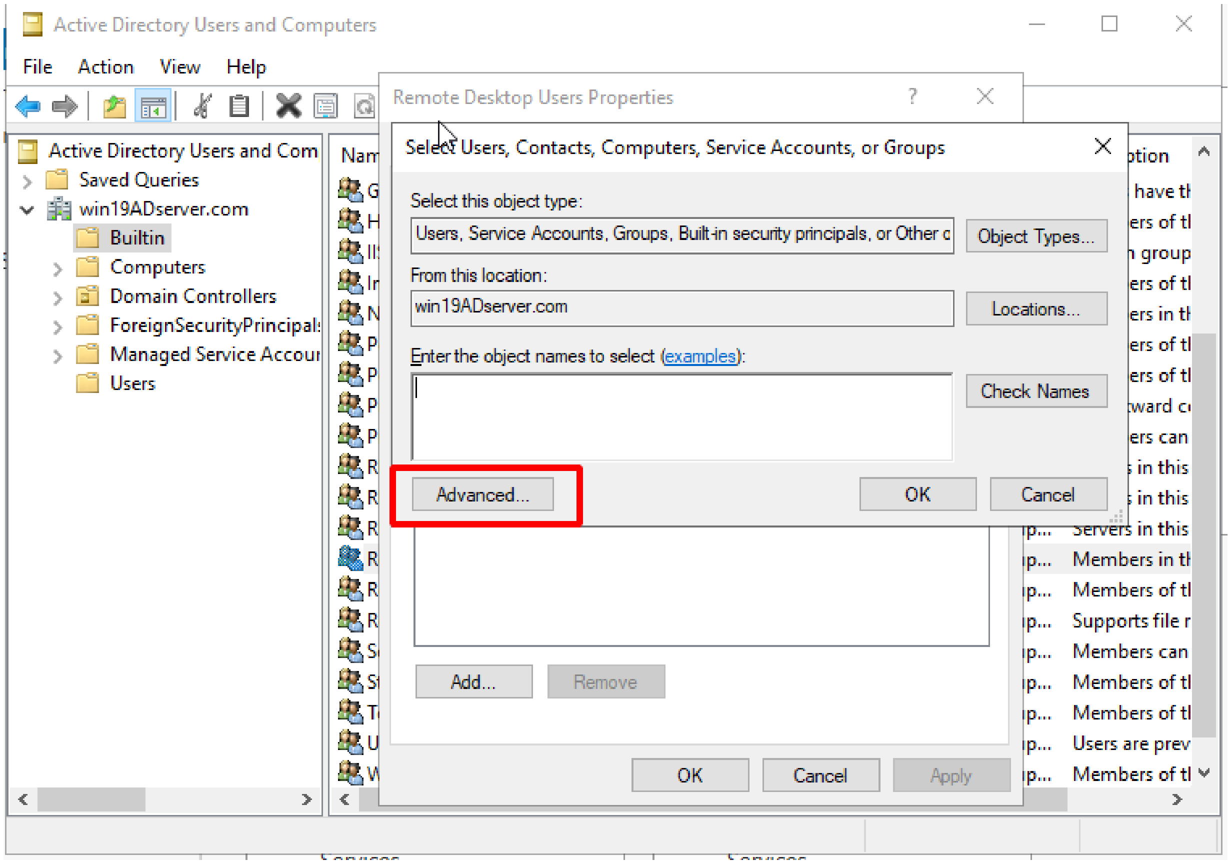


Name	Type	Description
Guests	Security Group...	Guests have tl
Hyper-V Administrators	Security Group...	Members of tl
IIS_IUSRS	Security Group...	Built-in group
Incoming Forest Trust Builders	Security Group...	Members of tl
Network Configuration Operators	Security Group...	Members in tl
Performance Log Users	Security Group...	Members of tl
Performance Monitor Users	Security Group...	Members of tl
Pre-Windows 2000 Compatible Access	Security Group...	A backward cı
Print Operators	Security Group...	Members can
RDS Endpoint Servers	Security Group...	Servers in this
RDS Management Servers	Security Group...	Servers in this
RDS Remote Access Servers	Security Group...	Servers in this
Remote Desktop Users	Security Group...	Members in tl
Remote Management Users	Security Group...	Members of tl
Replicator	Security Group...	Supports file r
Server Operators	Security Group...	Members can
Storage Replica Administrators	Security Group...	Members of tl
Terminal Server License Servers	Security Group...	Members of tl
Users	Security Group...	Users are prev
Windows Authorization Access Group	Security Group...	Members of tl

b. Double-click *Remote Desk User group*, click the *Members* tab and click *Add*.



c. Click *Advanced*.



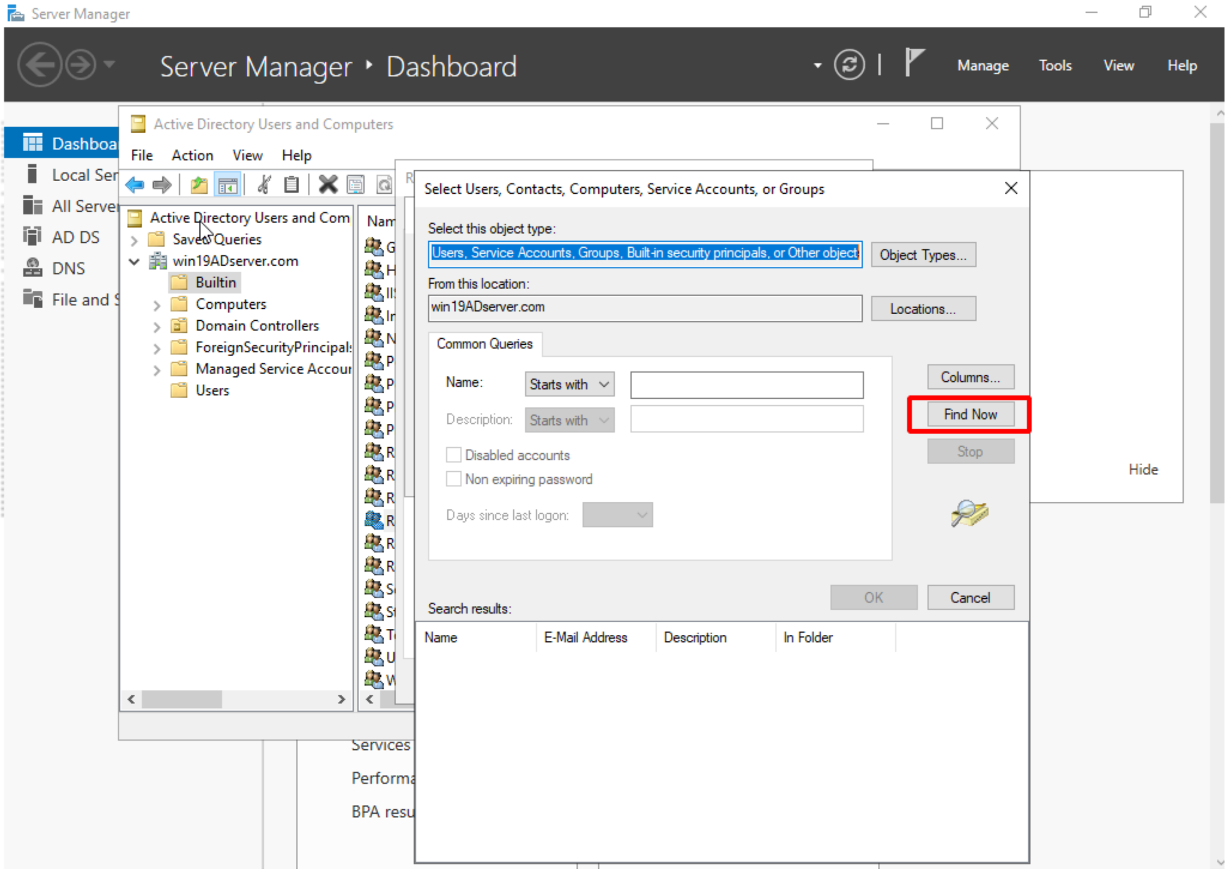
Select Users, Contacts, Computers, Service Accounts, or Groups

Select this object type:
Users, Service Accounts, Groups, Built-in security principals, or Other c

From this location:
win19ADserver.com

Enter the object names to select (examples):

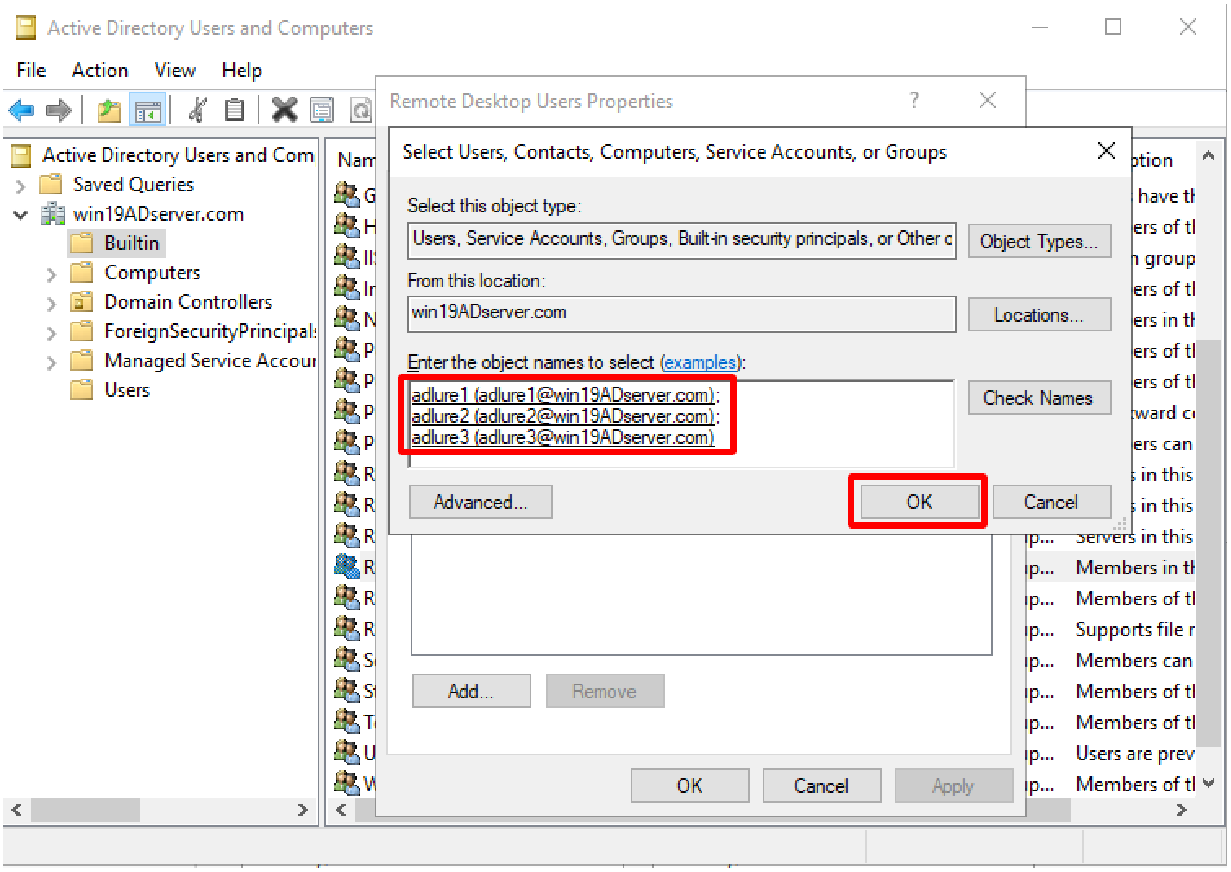
d. Click *Find Now* and choose the AD users you would like to add to the Remote Desk User group.



Select this object type: Users, Service Accounts, Groups, Built-in security principals, or Other objects

From this location: win19ADserver.com

e. Click *OK*.



Select Users, Contacts, Computers, Service Accounts, or Groups

Select this object type:

Users, Service Accounts, Groups, Built-in security principals, or Other c

Object Types...

From this location:

win19ADserver.com

Locations...

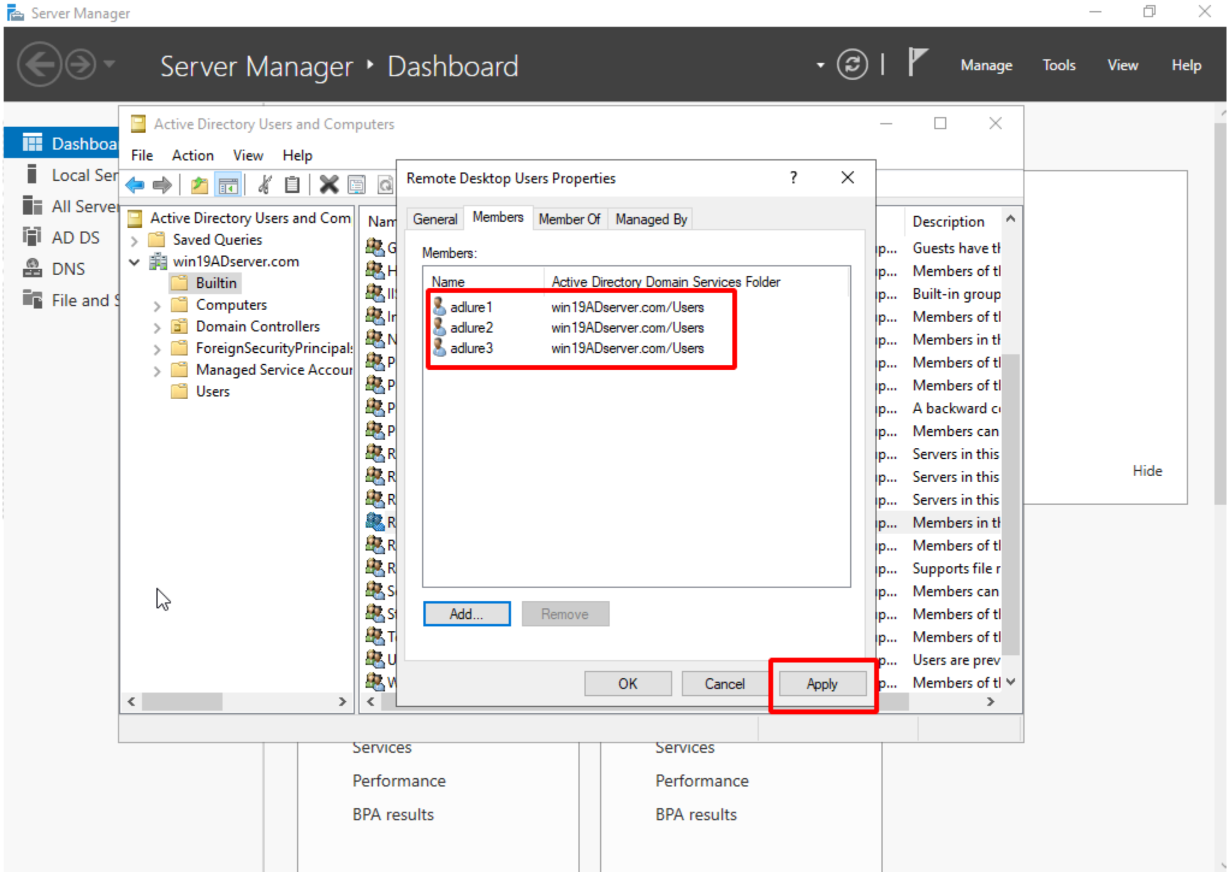
Enter the object names to select (examples):

adlure1 (adlure1@win19ADserver.com);
adlure2 (adlure2@win19ADserver.com);
adlure3 (adlure3@win19ADserver.com)

Check Names

Advanced... OK Cancel

f. The AD users are added to the Remote Desk User group. Click *Apply*.

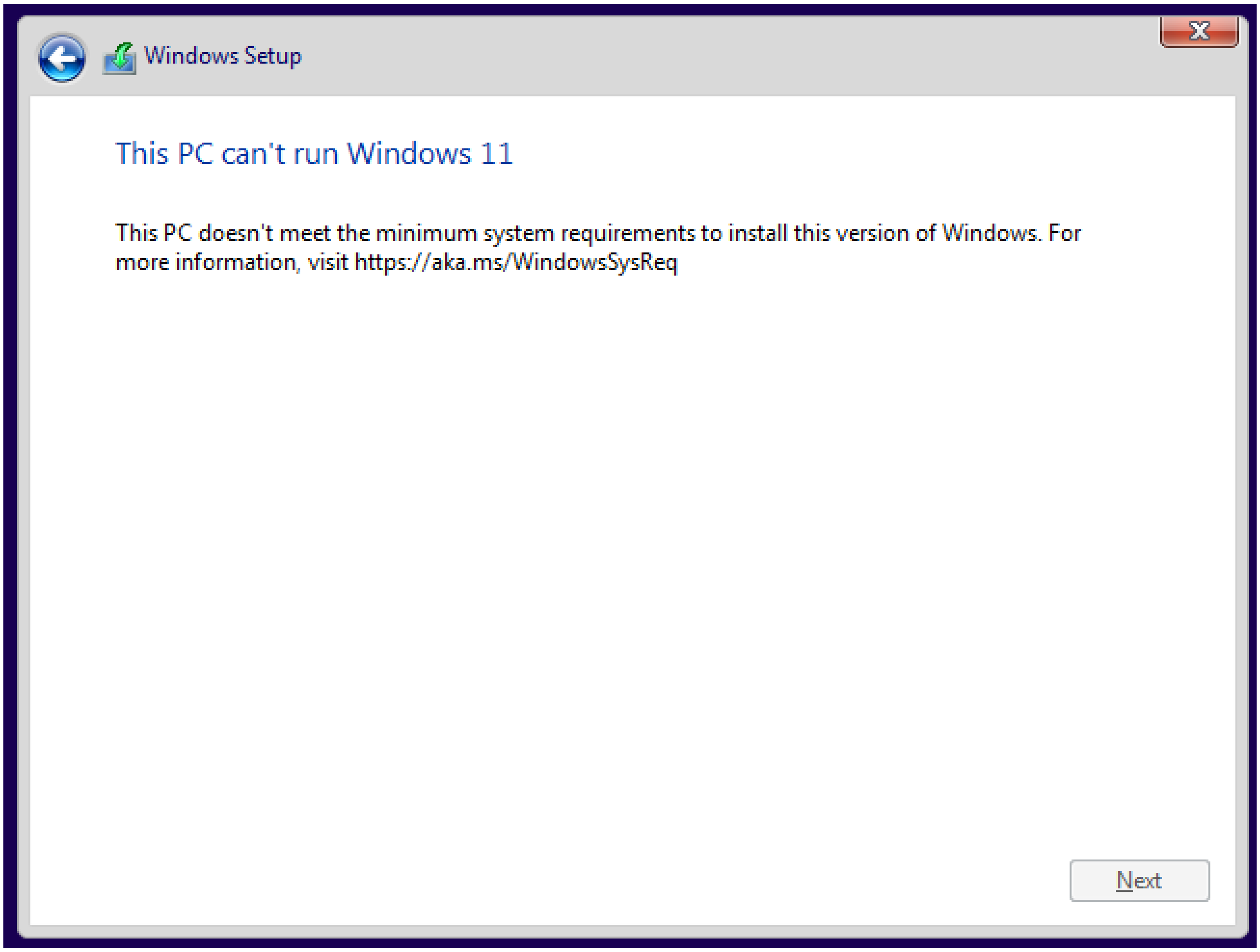


Name	Active Directory Domain Services Folder
adlure1	win19ADserver.com/Users
adlure2	win19ADserver.com/Users
adlure3	win19ADserver.com/Users

Custom OS Windows 11

- Windows 11 23H2 is supported.
- Windows 11 24H2 is not supported.

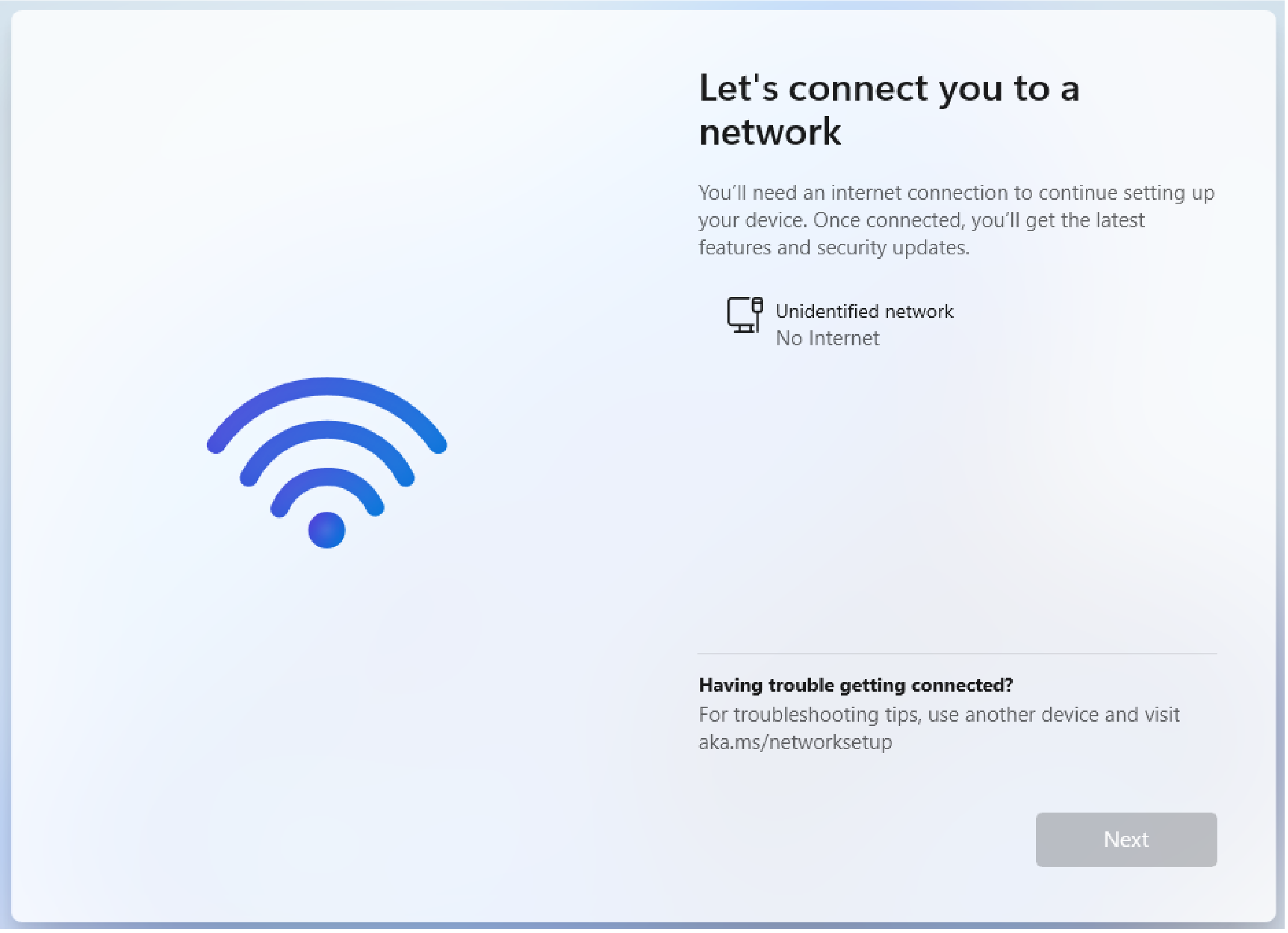
The Windows 11 (64-bit) operating system is similar to the Windows 10 service. However, its graphical user interface (GUI) restricts CPU cores, memory, and storage. Since Windows 11 (64-bit) requires more resources, you may encounter the following messages:



This PC can't run Windows 11

This PC doesn't meet the minimum system requirements to install this version of Windows. For more information, visit https://aka.ms/WindowsSysReq

You may also be blocked on the following OOBE page.



Let's connect you to a network

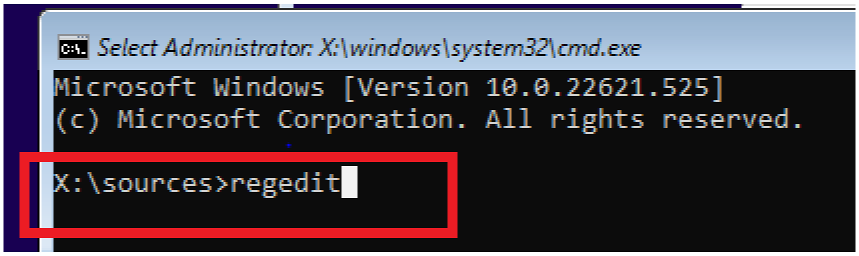
You'll need an internet connection to continue setting up your device. Once connected, you'll get the latest features and security updates.

Unidentified network
No Internet

Having trouble getting connected?
For troubleshooting tips, use another device and visit aka.ms/networksetup

To run Set Bypass TPM and SecureBoot check:

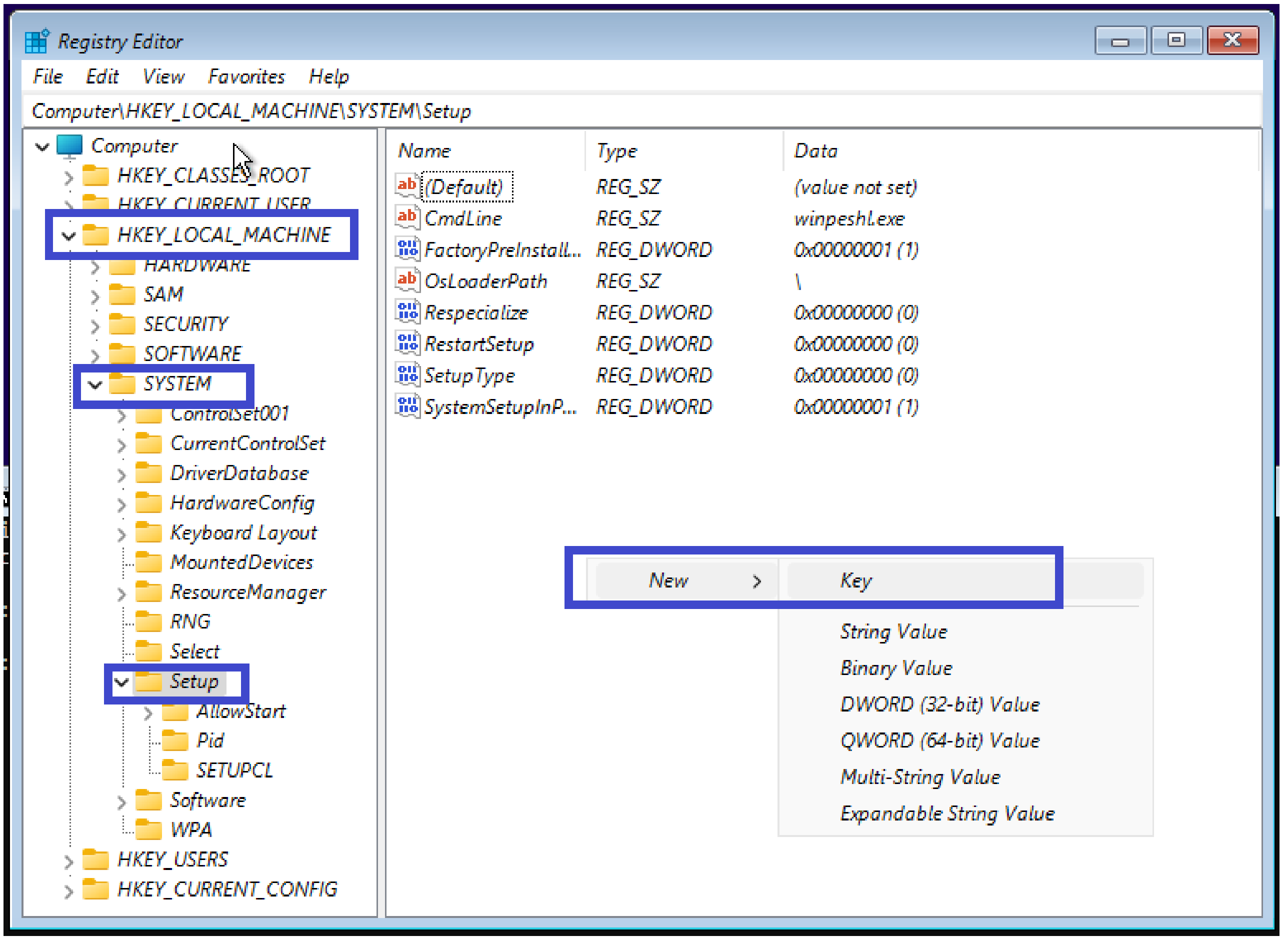
1. Boot off of your Windows 11 install disk.
2. Press SHIFT + F10 to launch the command prompt (If this does not work, you can try SHIFT + F10 +FN).
3. Enter `regedit` and press Enter.



Select Administrator: X:\windows\system32\cmd.exe

```
Microsoft Windows [Version 10.0.22621.525]
(c) Microsoft Corporation. All rights reserved.

X:\sources>regedit
```

4. Go to *HKEY_LOCAL_MACHINE > SYSTEM> Setup*. Right-click the folder to add a new key folder called `LabConfig`.

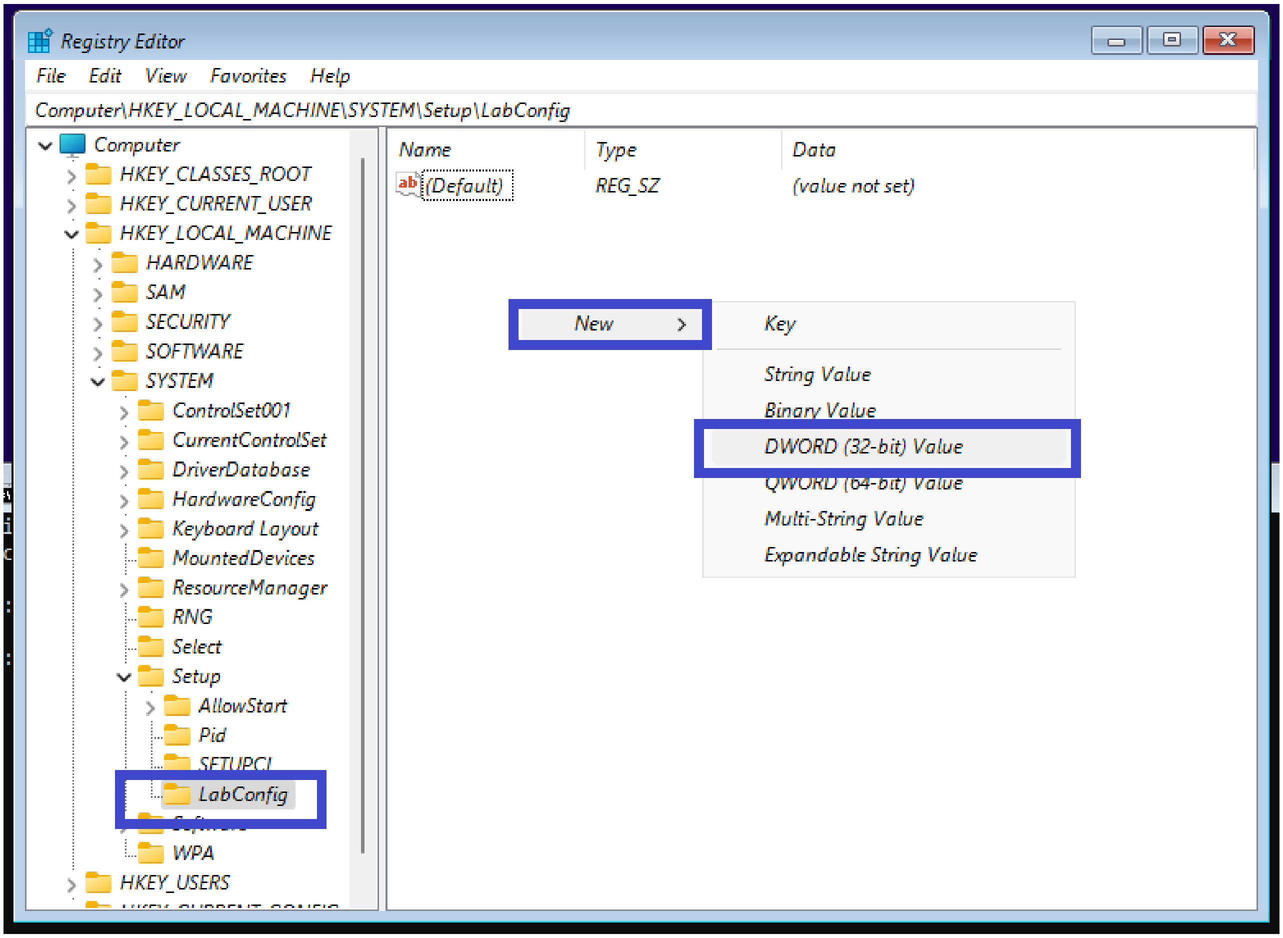


Computer\HKEY_LOCAL_MACHINE\SYSTEM\Setup

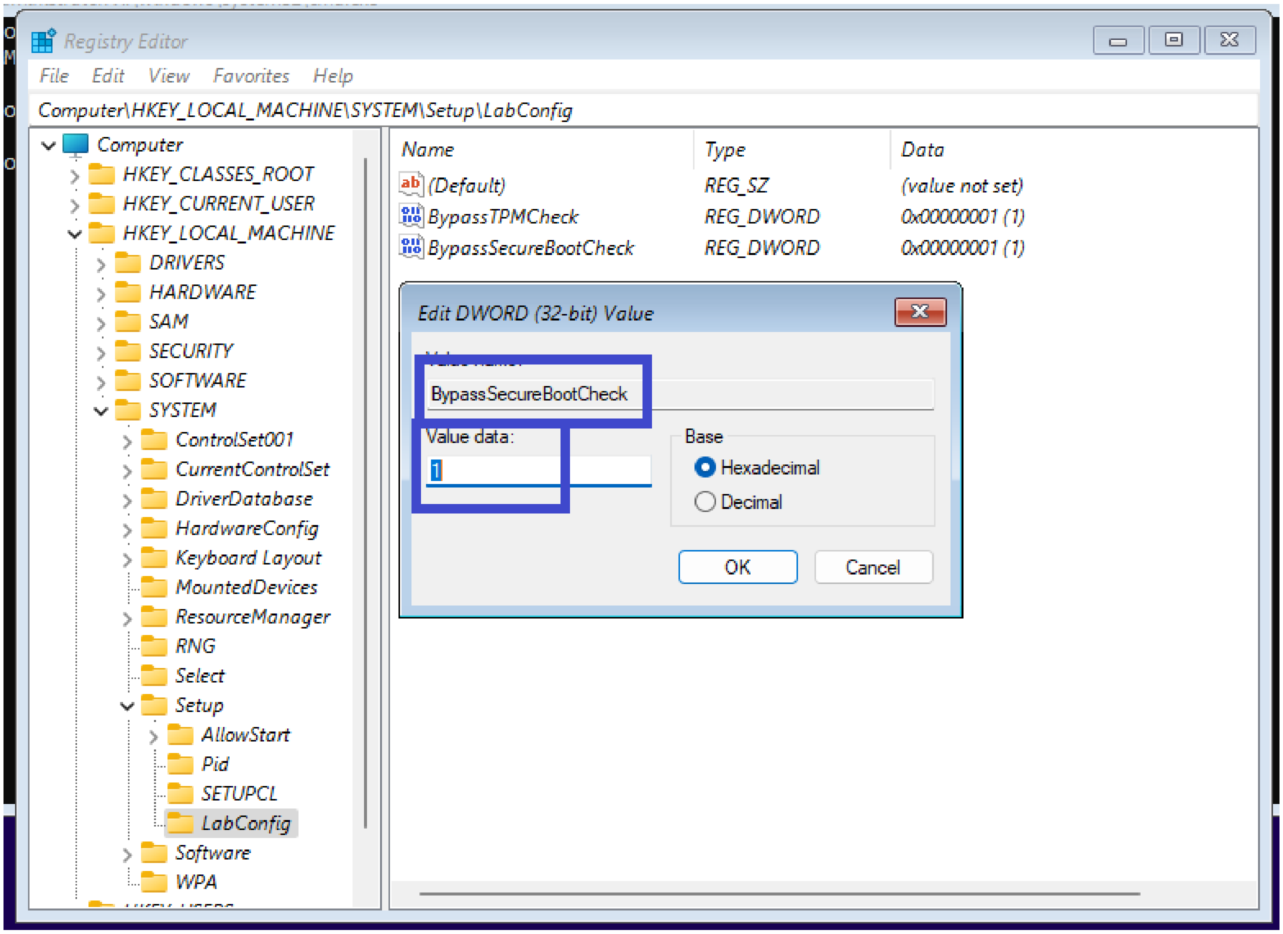
Name	Type	Data
(Default)	REG_SZ	(value not set)
CmdLine	REG_SZ	winpeshl.exe
FactoryPreInstall...	REG_DWORD	0x00000001 (1)
OsLoaderPath	REG_SZ	\
Respecialize	REG_DWORD	0x00000000 (0)
RestartSetup	REG_DWORD	0x00000000 (0)
SetupType	REG_DWORD	0x00000000 (0)
SystemSetupInP...	REG_DWORD	0x00000001 (1)

5. Add new value named `BypassTPMCheck`.

6. In the *LabConfig* folder, type *REG_DWORD*", set it to *1*.



7. In the *LabConfig* folder, add a new value called *BypassSecureBootCheck* then type *REG_DWORD*, and set it to *1*.



Computer\HKEY_LOCAL_MACHINE\SYSTEM\Setup\LabConfig

Name	Type	Data
(Default)	REG_SZ	(value not set)
BypassTPMCheck	REG_DWORD	0x00000001 (1)
BypassSecureBootCheck	REG_DWORD	0x00000001 (1)

Edit DWORD (32-bit) Value

Value name: BypassSecureBootCheck

Value data: 1

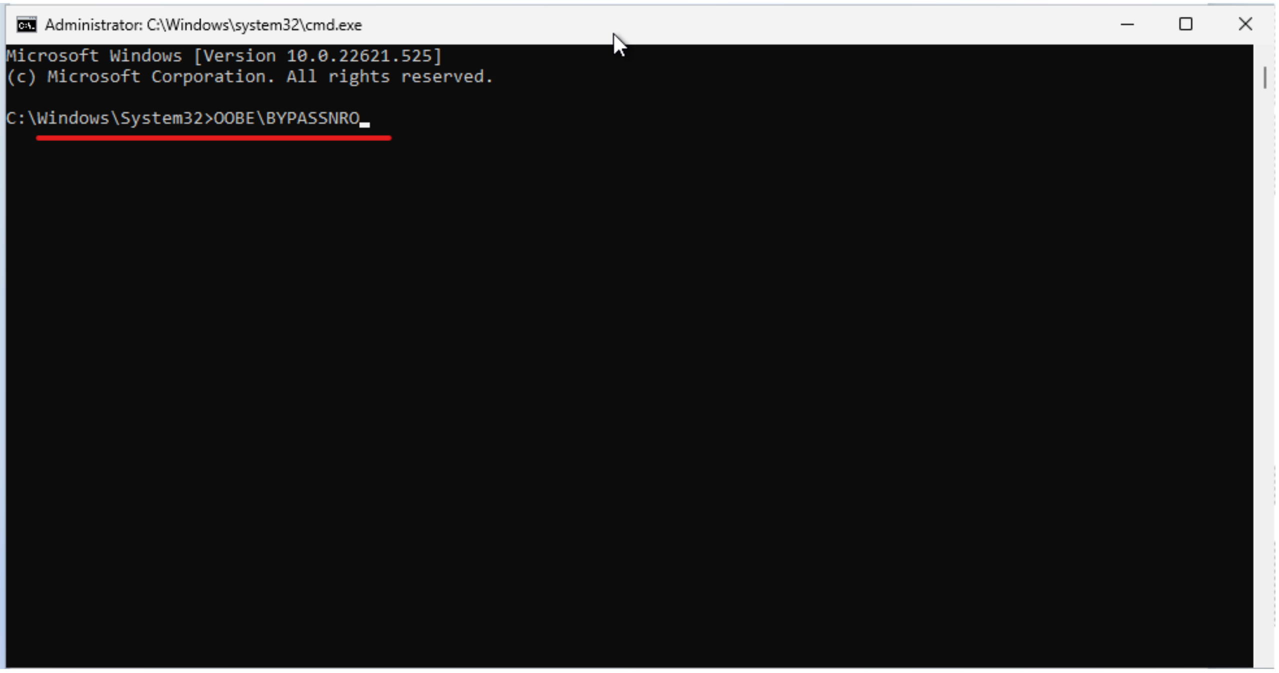
Base: ● Hexadecimal ○ Decimal

OK Cancel

You can set the RAM larger or equal to 4G during configuration, but If the RAM is less than 4G, you can add another new value called *BypassRAMCheck* to the *LabConfig* folder, and type *REG_DWORD*, and set to *1.*

To set the bypass network setup during OOBE:

1. Press SHIFT + F10 or SHIFT +Fn+ F10 to launch the command prompt when asked to setup network
2. Enter "`OOBE\BYPASSNRO`" and press Enter.



```
Microsoft Windows [Version 10.0.22621.525]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>OOBE\BYPASSNRO_
```

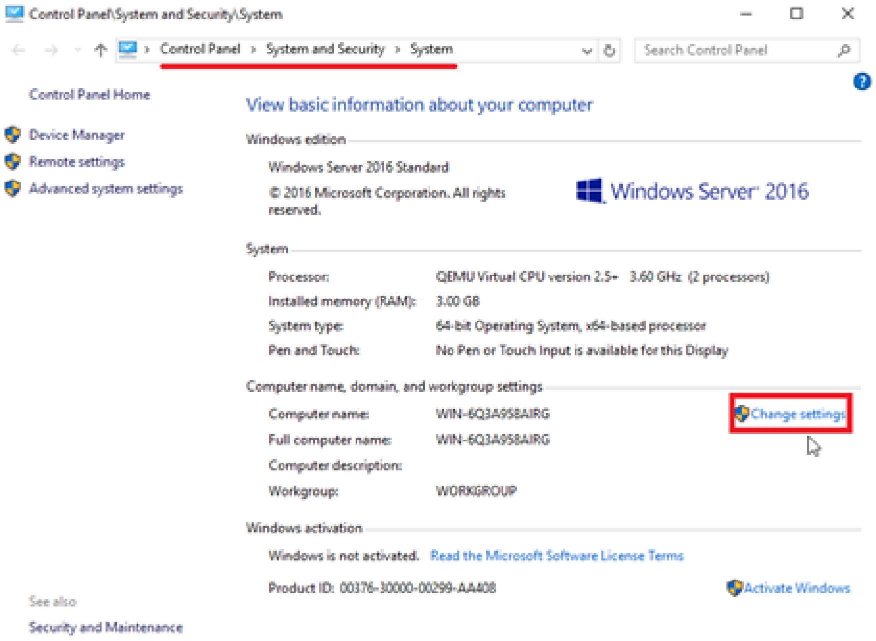
Join a domain

Before joining a custom Windows OS to a domain, change its DNS server to the DNS server of the domain.

This task is optional.

To join a domain:

1. Go to *Control Panel* > *System and Security* > *System* and click *Change settings*.



View basic information about your computer

Windows edition

Windows Server 2016 Standard

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System

Processor: QEMU Virtual CPU version 2.5+ 3.60 GHz (2 processors)

Installed memory (RAM): 3.00 GB

System type: 64-bit Operating System, x64-based processor

Pen and Touch: No Pen or Touch Input is available for this Display

Computer name, domain, and workgroup settings

Computer name: WIN-6Q3A958AIRG

Full computer name: WIN-6Q3A958AIRG

Computer description:

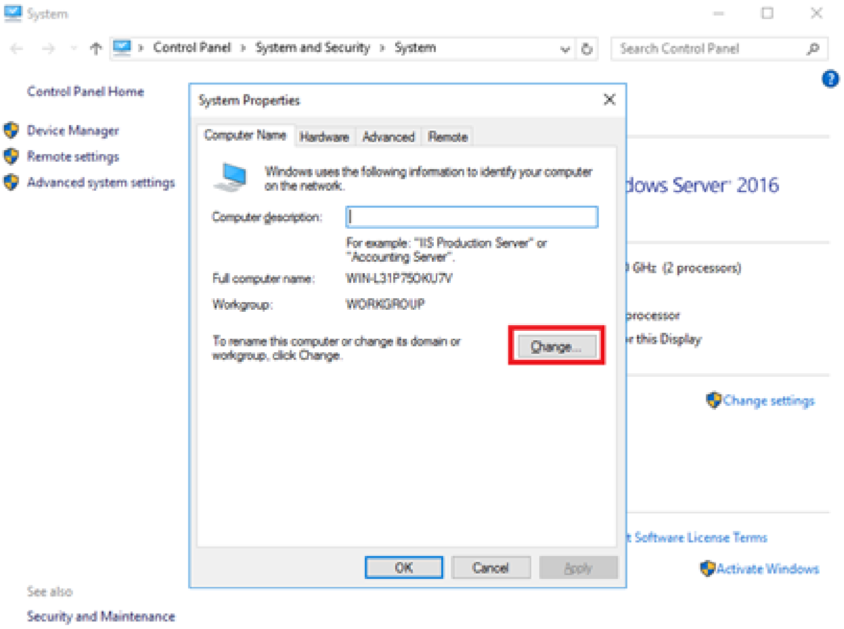
Workgroup: WORKGROUP

Windows activation

Windows is not activated. Read the Microsoft Software License Terms

Product ID: 00376-30000-00299-AA408

2. On the *System Properties* dialog box, click *Change*.



Windows uses the following information to identify your computer on the network.

Computer description:

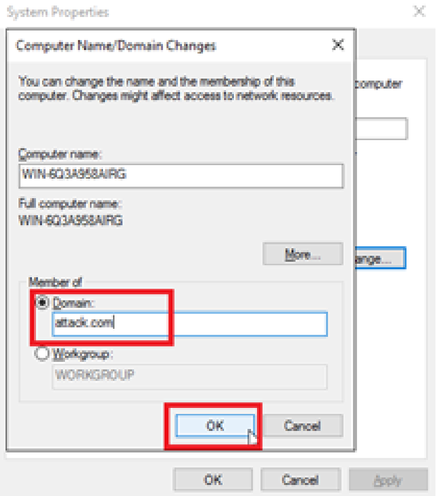
For example: "IIS Production Server" or "Accounting Server".

Full computer name: WIN-L31P75OKU7V

Workgroup: WORKGROUP

To rename this computer or change its domain or workgroup, click Change.

3. Enter the *Domain* and click *OK*.



System Properties

Computer Name/Domain Changes

You can change the name and the membership of this computer. Changes might affect access to network resources.

Computer name: WIN-6Q3A958AIRG

Full computer name: WIN-6Q3A958AIRG

Member of

● Domain: attack.com

○ Workgroup: WORKGROUP

4. Click *Close* and restart the computer to join the domain.

Install the FortiDeceptor customization toolkit

When system customization is complete, right-click *FDC_CUS_toolkit.exe* and select *Run as Administrator* and wait for the installation to finish.

Another option is to run the CLI command `FDC_CUS_toolkit.exe` as an administrator.

Save the custom image

When the customization status in the GUI displays *Ready*, click *Start* -> *Power* > *Shut down* to shut down Windows and then click *Save* to save this image.

If the Windows Server is connected to a domain, there may not be a Power option in the GUI. In this case, run the command `shutdown /s /t 1 /f` as administrator.

It might take several minutes to save the entire image. When the image is saved, the page lists the image in *Customized Images*.

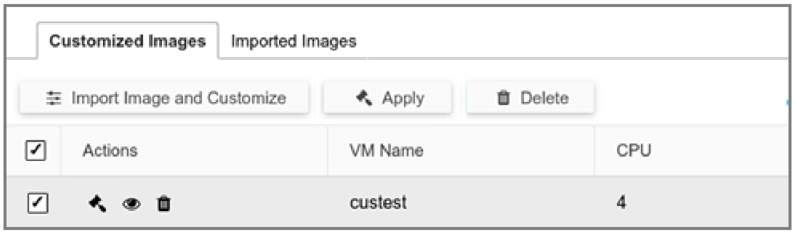
In *Deception* > *Customization*, the *Customized Images* tab lists the custom images.

The *Actions* column has icons for you to view logs, apply the image, or delete the image.

Deploy custom image

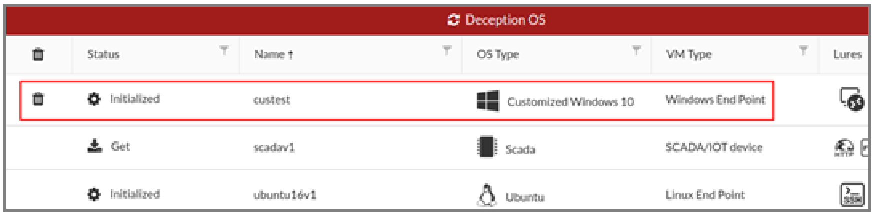
To apply a custom image:

1. Go to *Deception* > *Custom Decoy Image* and click the *Customized Images* tab.
2. Select a custom image and click the *Apply* button or click the *Apply* icon 🔨 beside a custom image.



☑	Actions	VM Name	CPU
☑	🔨 👁 🗑	custest	4

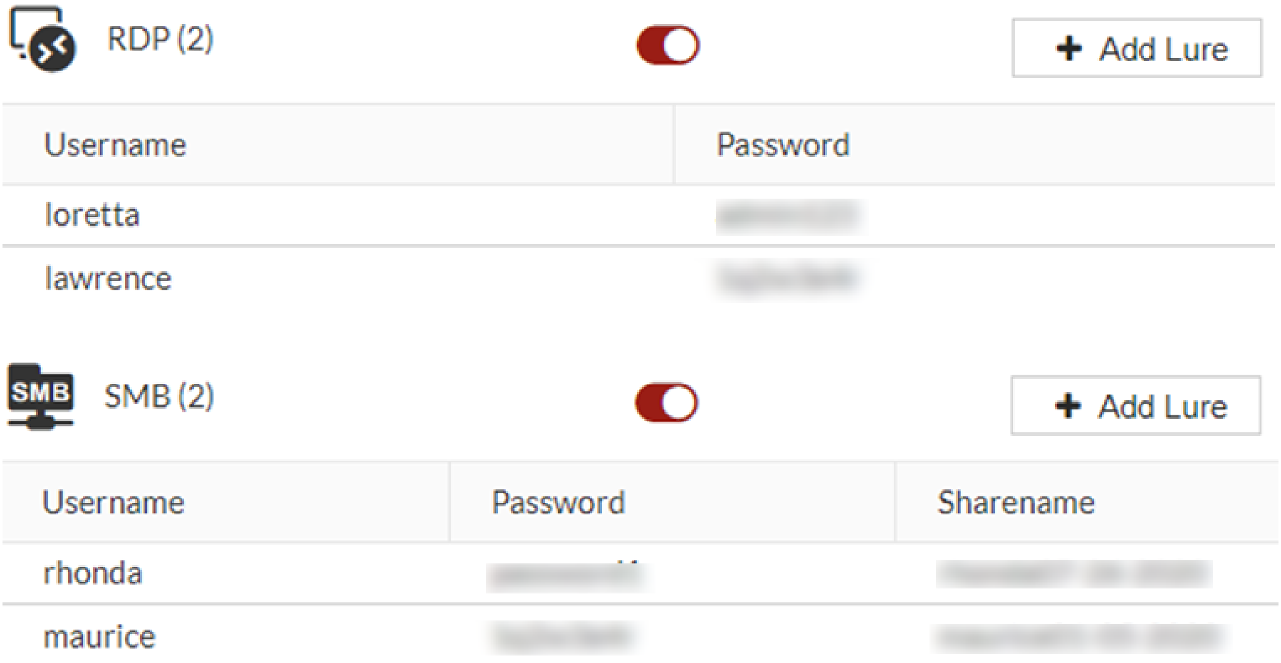
It might take a few minutes to apply the custom image. When applied, the custom image is listed in *Deception* > *Deception OS*.



🗑	Status	Name ↑	OS Type	VM Type	Lures
🗑	Initialized	custest	Customized Windows 10	Windows End Point	
	Get	scadav1	Scada	SCADA/IOT device	
	Initialized	ubuntu16v1	Ubuntu	Linux End Point	

To deploy decoys with custom images–generic image:

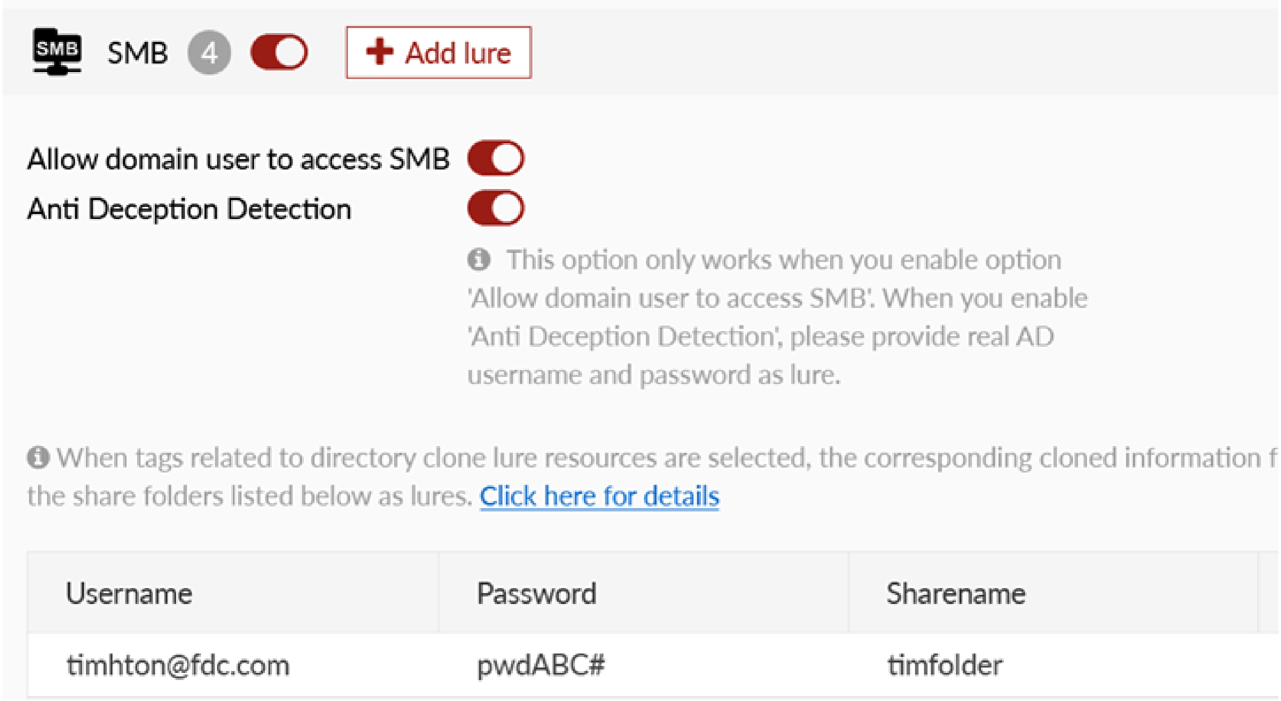
1. Go to *Deception* > *Deployment Wizard*.
2. Click a custom image and deploy it like a standard decoy.
3. Select whether to domain users to access RDP and SMB.
   For normal users:



Username	Password
loretta	[redacted]
lawrence	[redacted]

Username	Password	Sharename
rhonda	[redacted]	[redacted]
maurice	[redacted]	[redacted]

For domain users:



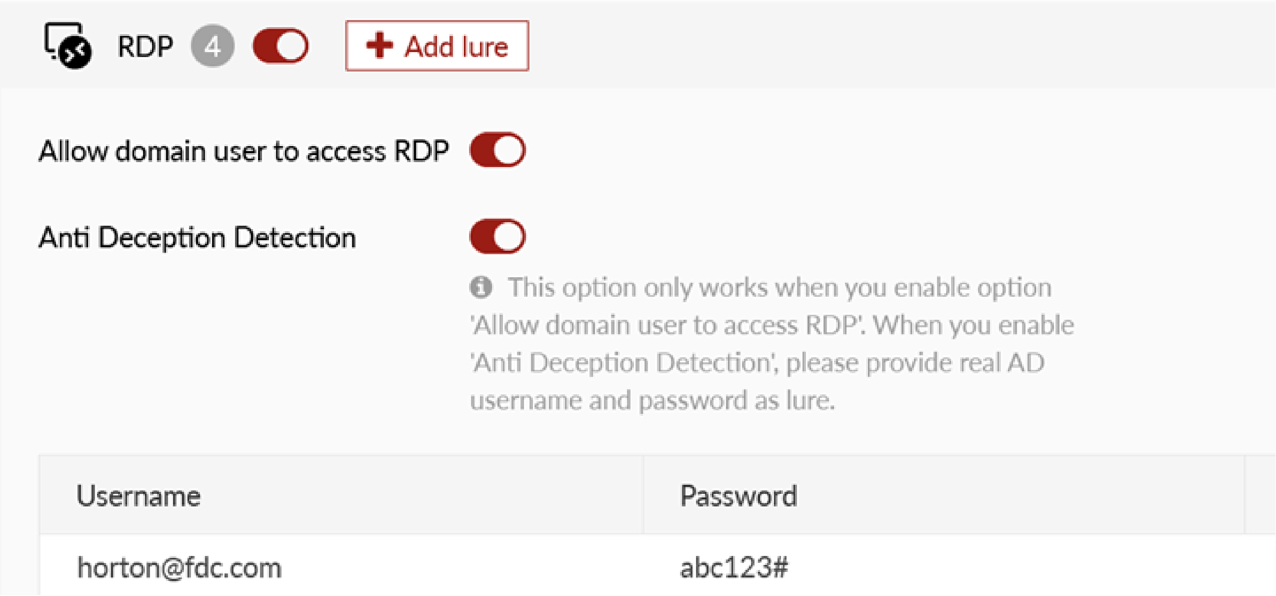
Allow domain user to access SMB ●

Anti Deception Detection ●

ℹ This option only works when you enable option 'Allow domain user to access SMB'. When you enable 'Anti Deception Detection', please provide real AD username and password as lure.

ℹ When tags related to directory clone lure resources are selected, the corresponding cloned information f the share folders listed below as lures. Click here for details

Username	Password	Sharename
timhton@fdc.com	pwdABC#	timfolder



Allow domain user to access RDP

Anti Deception Detection

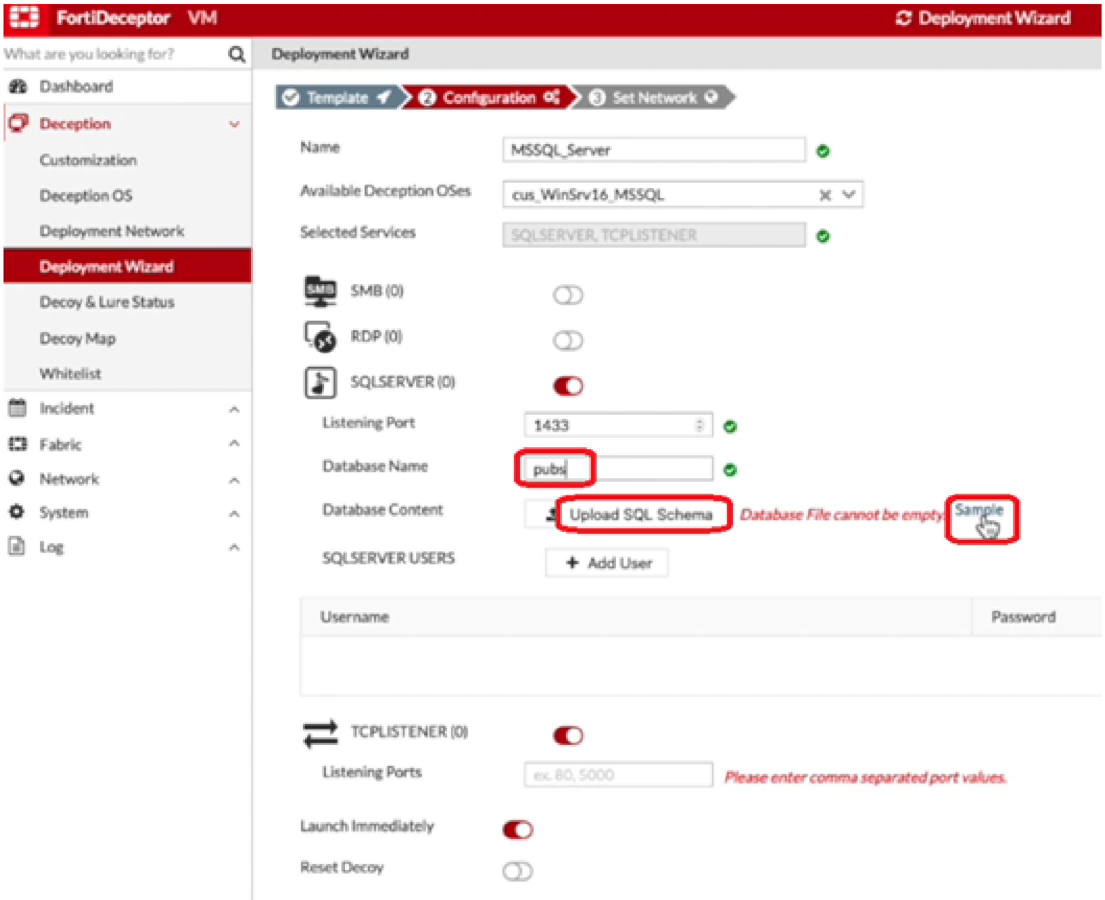
This option only works when you enable option 'Allow domain user to access RDP'. When you enable 'Anti Deception Detection', please provide real AD username and password as lure.

Username	Password
horton@fdc.com	abc123#

We highly recommend enabling RDP and SMB services for decoys joined in the domain and not set in any local lure accounts. Many domains have different policies for account name and password which may cause the decoy to fail to initialize.

To deploy decoys with custom images–SQL Server:

1. Go to *Deception* > *Deployment Wizard*.
2. Click a custom SQL server image.



Name: MSSQL_Server

Available Deception OSes: cus_WinSrv16_MSSQL

Selected Services: SQLSERVER, TCPLISTENER

Listening Port: 1433

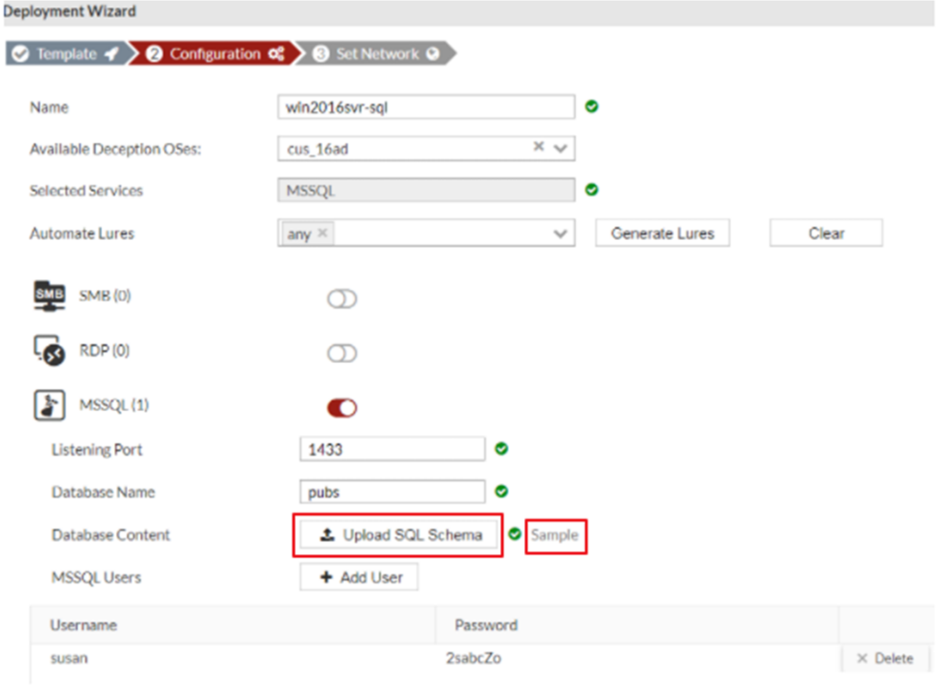
Database Name: pubs

Database Content: Database File cannot be empty

Listening Ports: ex. 80, 5000 Please enter comma separated port values.

3. (Optional) Click *Sample* to download a sample *.sql* file.

4. Click *Upload SQL Schema* to upload your own custom *.sql* file .



Name: win2016svr-sql

Available Deception OSes: cus_16ad

Selected Services: MSSQL

Automate Lures: any

SMB (0)

RDP (0)

MSSQL (1)

Listening Port: 1433

Database Name: pubs

Database Content

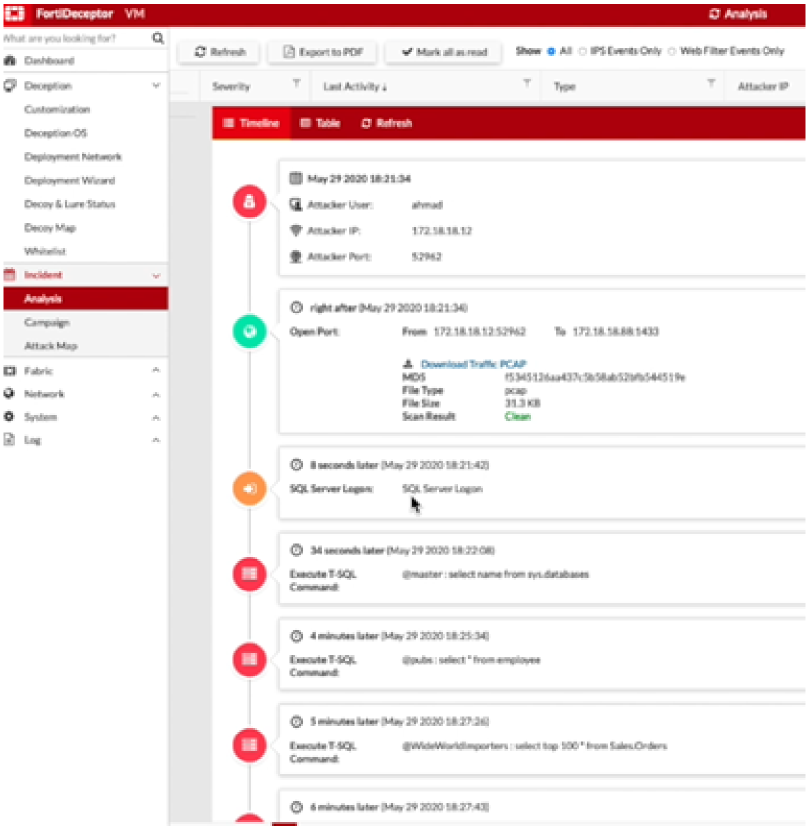
MSSQL Users

Username	Password
susan	2sabcZo

To generate SQL alerts:

1. You can generate SQL alerts using the `SQLCMD` tool or using `WideWorldImporters`.
   - To use `SQLCMD`, run the following commands.
     ```
     sqlcmd -S "IP Address" -U "username" -P "password"
     use WideWorldImporters;
     SELECT name
     from SYSOBJECTS
     WHERE
     xtype = 'U'
     go
     ```
   - To use `WideWorldImporters`, run the following commands.
     ```
     use WideWorldImporters;
     select top 100 * from Sales.Orders;
     go
     ```

The *Incident* > *Analysis* page displays the alerts for the SQL server attack.



May 29 2020 18:21:34
Attacker User: ahmad
Attacker IP: 172.18.18.12
Attacker Port: 52962

right after (May 29 2020 18:21:34)
Open Port: From 172.18.18.12:52962 To 172.18.18.88:1433
Download Traffic PCAP
MD5 f5345126aa437c5b58ab52bfb544519e
File Type pcap
File Size 31.3 KB
Scan Result Clean

8 seconds later (May 29 2020 18:21:42)
SQL Server Logon: SQL Server Logon

34 seconds later (May 29 2020 18:22:08)
Execute T-SQL Command: @master : select name from sys.databases

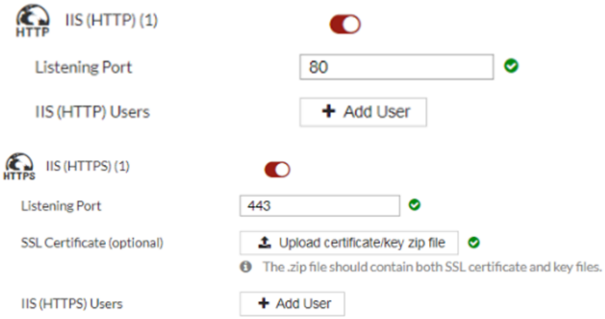
4 minutes later (May 29 2020 18:25:34)
Execute T-SQL Command: @pubs : select * from employee

5 minutes later (May 29 2020 18:27:26)
Execute T-SQL Command: @WideWorldImporters : select top 100 * from Sales.Orders

6 minutes later (May 29 2020 18:27:43)

To deploy decoys with custom images–IIS (HTTP/HTTPS):

1. Go to *Deception* > *Deployment Wizard*.
2. Click a custom IIS image.

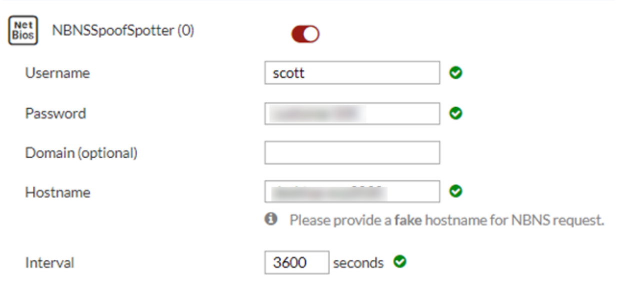


IIS (HTTP) (1)
Listening Port 80
IIS (HTTP) Users

IIS (HTTPS) (1)
Listening Port 443
SSL Certificate (optional)
The .zip file should contain both SSL certificate and key files.
IIS (HTTPS) Users

To deploy decoys with custom images–NBNSSpoofSpotter:

1. Go to *Deception* > *Deployment Wizard*.
2. Click a custom NBNSSpoofSpotter image.



NBNSSpoofSpotter (0)

Username: scott ✓

Password: [redacted] ✓

Domain (optional):

Hostname: [redacted] ✓

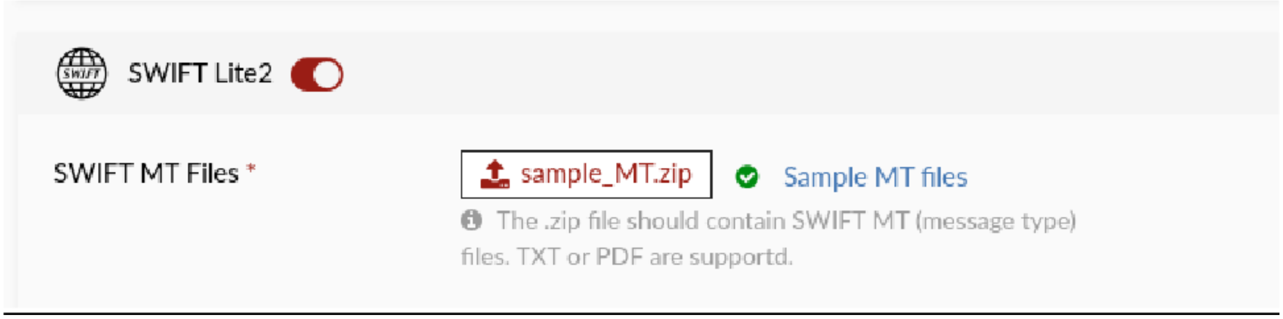
Please provide a **fake** hostname for NBNS request.

Interval: 3600 seconds ✓

NBNSSpoofSpotter feature detects attacks using the *Responder* tool and includes a link to https://github.com/SpiderLabs/Responder with more information about the attack.

To Deploy decoys with custom images-SWIFT Lite2

1. Go to *Deception* > *Deployment Wizard*.
2. Click *SWIFT Lite2 service.*
3. Upload the MT Files.



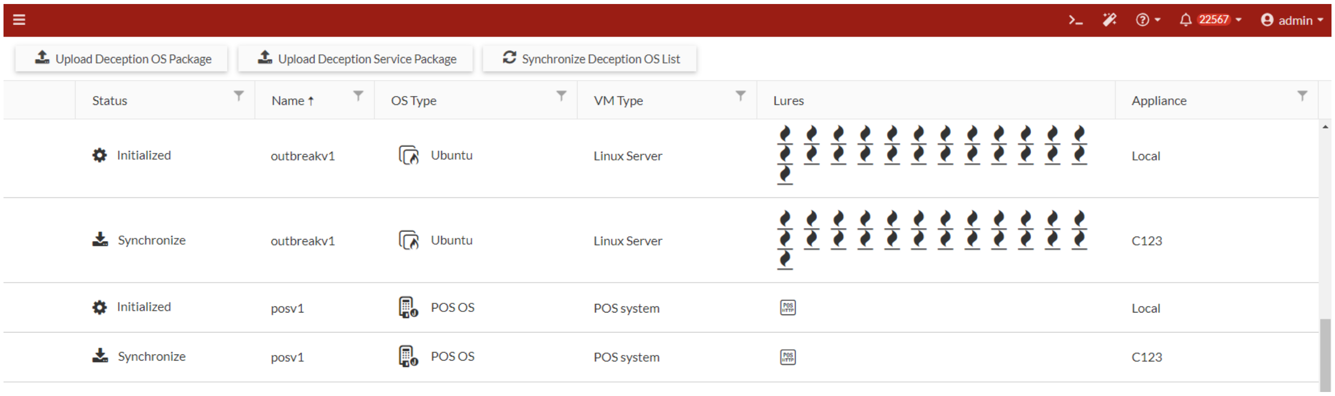
SWIFT Lite2

SWIFT MT Files *: sample_MT.zip ✓ Sample MT files

The .zip file should contain SWIFT MT (message type) files. TXT or PDF are supportd.

Deception OS

The *Deception OS* page displays the deception OS or deception packages available for creating Decoy VMs. Use this page to upload a deception OS package or to synchronize the deception OS list.



22567
admin
Upload Deception OS Package
Upload Deception Service Package
Synchronize Deception OS List

Status	Name ↑	OS Type	VM Type	Lures	Appliance
Initialized	outbreakv1	Ubuntu	Linux Server		Local
Synchronize	outbreakv1	Ubuntu	Linux Server		C123
Initialized	posv1	POS OS	POS system		Local
Synchronize	posv1	POS OS	POS system		C123

The *Deception OS* page displays the following in formation:

Column	Description
Status	Status of the Deception OS.
Name	Name of the Deception OS.
OS Type	Operating System type.
VM Type	VM type of the Deception OS endpoint.
Lures	Lures used by the Decoy VM such as: SSH, SAMBA, SMB, RDP,CDP TCPLISTENER, HTTP, NBNSSpoofSpotter, FTP, TFTP, SNMP, MODBUS, S7COMM, BACNET, IPMI, TRICONEX, Guardian-AST, IEC104, DNP3, ENIP, KAMSTRUP, Infusion Pump (Telnet), Infusion Pump (FTP), PACS, PACS-WEB, DICOM server, POS-WEB, ERP-WEB, SSLVPN, ScadaBR (HTTP), SRTP, Tomcat (HTTP, HTTPS), MariaDB and Elastic Search(HTTP).

To upload a deception OS or service package:

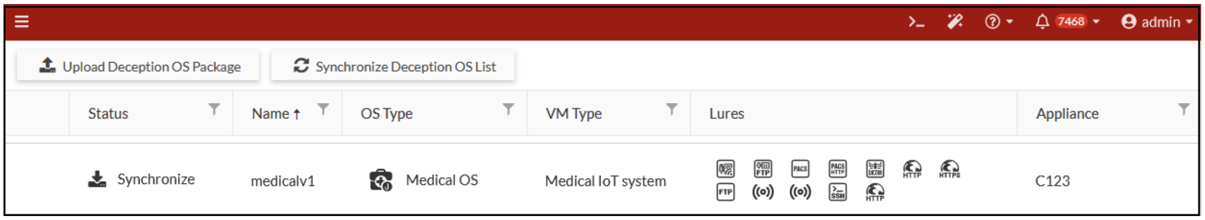
1. Go to *Deception* > *Deception OS*.
2. Click *Upload Deception OS Package* or *Upload Deception Service Package*.
3. Click *Choose a file* or drag and drop the file onto the field.

To synchronize the list:

Click *Synchronize Deception OS List*.

To install a Deception OS on a device:

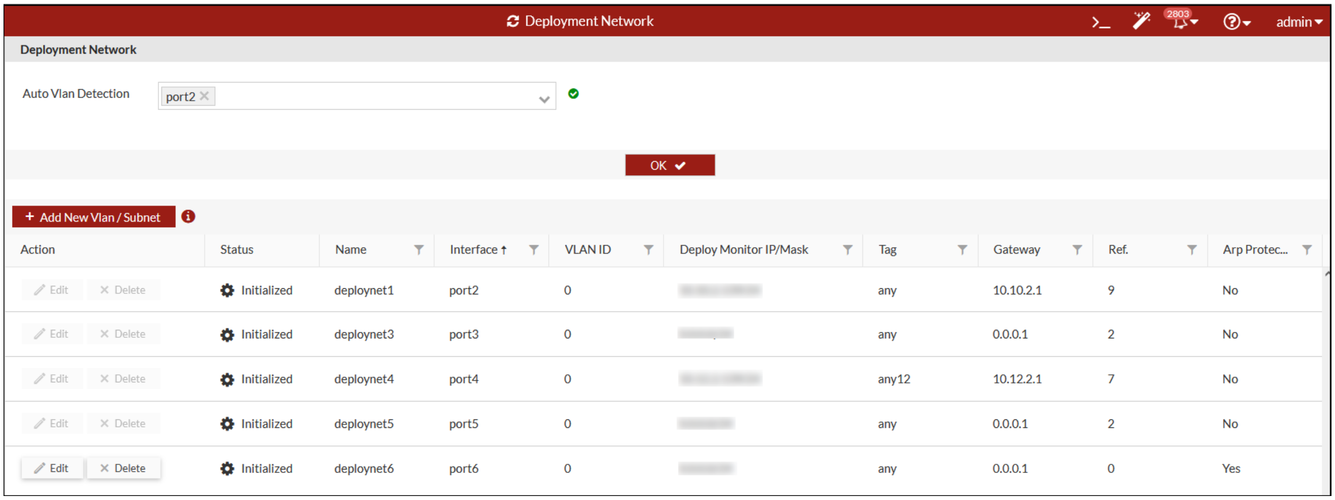
In the *Status* column, click the Synchronize button next to the OS name.



Status	Name ↑	OS Type	VM Type	Lures	Appliance
Synchronize	medicalv1	Medical OS	Medical IoT system		C123

Deployment Network

Use the *Deployment Network* page to set up a monitoring interface into a VLAN or a subnet.



Auto Vlan Detection: port2

Action	Status	Name	Interface ↑	VLAN ID	Deploy Monitor IP/Mask	Tag	Gateway	Ref.	Arp Protec...
Edit Delete	Initialized	deploynet1	port2	0	[redacted]	any	10.10.2.1	9	No
Edit Delete	Initialized	deploynet3	port3	0	[redacted]	any	0.0.0.1	2	No
Edit Delete	Initialized	deploynet4	port4	0	[redacted]	any12	10.12.2.1	7	No
Edit Delete	Initialized	deploynet5	port5	0	[redacted]	any	0.0.0.1	2	No
Edit Delete	Initialized	deploynet6	port6	0	[redacted]	any	0.0.0.1	0	Yes

The *Deployment Network* page displays the following information:

Action	Click *Edit* to edit the VLAN or subnet entry. The *Edit* button is visible only after the entry is saved. Click *Delete* to remove a VLAN or Subnet.
Appliance	The *Appliance* column is visible when the FortiDeceptor operates as a manager appliance in CM mode, and displays a list of all available appliances.
Status	Status of the IP address, such as if it is initialized.
Name	Name of the VLAN or subnet.
Interface	The port that connects to the VLAN or subnet.
VLAN ID	The VLAN's unique integer ID is displayed when *Tagged Interface* is selected in the VLAN/Subnet settings. If *Tagged Interface* is not selected , the system will consider it an untagged VLAN/Subnet and will display *Untagged*.

Deploy Monitor IP/Mask	The monitor IP provides the dynamic content for the online token, collects the token installation information, and acts as the probing client for active asset discovery when auto-deployment is triggered.
Tag	The tag for the VLAN or subnet.
Gateway	The gateway IP address of the deployment network.
ARP Protection	Indicates ARP Protection is enabled (*Yes*) or disabled (*No*).

Setting up the deployment network

To add a VLAN or subnet to FortiDeceptor:

1. Go to *Deception* > *Deployment Network*.
2. Enable *Auto VLAN Detection* to automatically detect the VLANs on your network.
   Auto VLAN detection allows FortiDeceptor to detect the available VLANs on the deployment network interface and display them in the GUI. You can select and add the VLANs for the deployment of Decoys later.
3. Select the *Detection Interface* and click *OK*. You can select multiple ports.

4. Click *Add New VLAN/Subnet* to manually add a VLAN or a subnet. Configure the following settings:

Name	Name of the VLAN or subnet.
Interface	The port that connects to the VLAN or subnet.
Tagged Interface	Select to enable VLAN tag. Default is untagged. As of version 5.3.0, when configuring a tagged network on an interface, subsequent VLANs or subnets added to the same interface must also be tagged. Conversely, if the initial VLAN or subnet added is untagged, all subsequent ones on the same interface must be untagged as well.
VLAN ID	The VLAN ID must be an integer between 1 and 4096, and unique among the tagged VLANs on the same interface.
Deploy Monitor	The IP address to monitor. The deploy monitor IP/Mask should be an IP address (e.g. 192.168.1.2/24) and should not be a gateway address (e.g. 192.168.1.1/24) or a subnet (e.g. 192.168.1.0/24). You must use the following guidelines to set the monitor IP/mask: • Interface name must be unique among all network IP/masks. • VLAN ID must be unique among the tagged VLANs on the same interface. • The monitor IP/mask must not conflict with any existing deception IP addresses. • The monitor IP/mask is suggested to be unique among all the VLANs and subnets.
Gateway	The gateway IP address of the deployment network.
ARP Protection	Select to enable ARP poisoning detection. ARP Protection is disabled by default. Upgrading FortiDeceptor will disable this setting.
Tag	You can specify a tag for the VLAN or subnet.
Ref	The number of objects referring to this object.

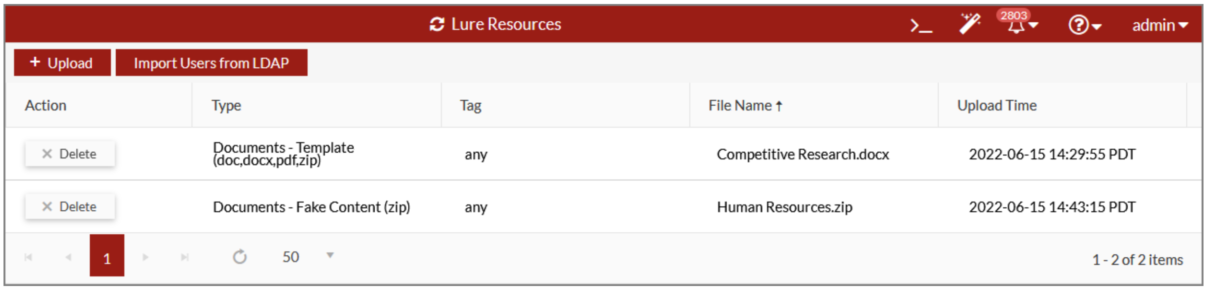
Each *VLAN/Subnet* with a network mask of */24* and higher is counted as one seat of the VLAN license.

Each *VLAN/Subnet* with a network mask less than */24* is counted as two seats of the VLAN license.

5. Click *Save*.

Lure Resources

Use the *Lure Resources* page to view the current lure, upload resources such as Word and PDF files to automatically generate lures, and import a user name list from an LDAP server.



Action	Type	Tag	File Name ↑	Upload Time
✕ Delete	Documents - Template (doc,docx,pdf,zip)	any	Competitive Research.docx	2022-06-15 14:29:55 PDT
✕ Delete	Documents - Fake Content (zip)	any	Human Resources.zip	2022-06-15 14:43:15 PDT

1 - 2 of 2 items

Uploading lure resources

Upload a lure resource to automatically generate lures. There are two types of lure resource:

- **Documents**: Word and PDF files that generate authentic directories and files over the Decoy network shares.
- **Credential**: Username (with password) list files that generate authentic credentials access to the network Decoys.

To upload a lure resource:

1. Go to *Deception* > *Lure Resources*.
2. Click *Upload*. The *Upload New Lure Resource* dialog opens.
3. From the *Lure Type* dropdown, select the lure type.

Credential - Fake Users (txt)	Upload a list file with fake users and passwords Click the *Service Preference* field to select the services to be used by the fake users.
Documents - Template (docx,pdf,zip)	Upload files as a template. FortiDeceptor will insert content to build honey docs.
Documents - Fake Content (zip)	Upload Zip Word Document (.docx), PDF, Excel (.xlsx,.xlsm,.xltm,.xltx) then upload .zip file directly to FortiDeceptor.
Credential – AWS Key (txt)	Upload a list file with AWS users and passwords. Requirements: • Create AWS IAM users with no permissions. (Without real AWS user, the AWS platform will not generate a log that indicates the user access.) • Upload a text file with the correct AWS Region, AWS Access Key ID, AWS Secret Access in the format below. `AWS Access Key ID:AWS Secret Access:AWS Region:AWSusername` For more information, see Deploying AWS deception keys on page 248.
Credential – Azure Keys (txt)	Upload a list file with Azure Application IDs and Tenant IDs.

	Requirements:
	• Register Azure Application to get Application ID and Tenant ID.
	• Upload a text file with the correct Azure Application IDs, Tenant IDs in the format below.
	`Application ID:display name:Tenant ID`
	For example,
	`35739ab1-0682-783a-88b3-722eb2ef51f1:MyAzureApplication:933b88cd-1b19-02a1-8dcf-1b21dabc61ba`
	For more information, see .Deploying Azure deception keys on page 257.

Certificate – Azure Certificate (pem,crt,cer)	Upload a certificate with private Key and certificate.
	For example,
	`-----BEGIN PRIVATE KEY-----`
	`<private_key>`
	`-----END PRIVATE KEY-----`
	`-----BEGIN CERTIFICATE-----`
	`<certificate>`
	`-----END CERTIFICATE-----`
	For more information, see .Deploying Azure deception keys on page 257.

Directory Clone	Clone the file server directory or any server that hosts files you would like to clone. The *Lure Resources* will store the file structure as a `.txt` file. When *Directory-Clone* is selected as a *Tag* in the Deployment Wizard, a button appears near the SMB/SAMBA service with an option to view the whole directory. **NOTE**: Avoid entering any drive letter (e.g., *C*:) in the *Directory Path*, as this may cause an error.

The *Credential - Fake Users (txt)* and *Documents - Template (doc,docx,pdf,zip)* options include sample files to help you create a resource.

4. Enter an optional *Tag*, such as *any*.
5. In the *Resource File* field, click *Choose a file* to upload the resource, or drag and drop it onto the field.
6. Click *Save*.

Importing users from LDAP

To import an LDAP user list:

1. Go to *Deception* > *Lure Resources*.
2. Click *Import Users from LDAP*.

3. Configure the import settings.

Version	Select the version from the dropdown.
Bind DN	Username used to connect to the LDAP service on the specified LDAP Server.
LDAP URL	Enter the LDAP URL using the following format: `[protocol///]host[:port][/basedn[?attribute,...][?scope][?filter]]`
Bind Password	Enter the Bind DN's password.
CA Certificates	Select a certificate from the dropdown.
Search Limit	Search sub-tree depth.
TCP Timeout	Enter the TCP connection timeout in seconds.
Search Timeout	Enter the search timeout in seconds.
SASL Bind User	The username to authenticate a DN on the directory server using SASL.
SASL Bind Mechanism	The username and password for authentication.
Tag	Enter a tag for the import.
Scheduler Type	Select One Time or Recurring
Scheduler Timezone	Select the timezone.
Scheduler Start	Select the scheduler start time.
Scheduler End	Select the scheduler end time.
Scheduler Interval	Select the Interval including *Daily*, *Weekly* or *Monthly*.
Days	Select the day.
Time	Select the time.

4. Click *Save*.

Lure resources only import the *Name* field at this time.

Examples: Import Users from LDAP

Open LDAP example:

```
"dn": "uid=test,o=org,dc=example,dc=com",
"url": "ldap://192.168.0.100/o=org,dc=example,dc=com?uid?sub?(objectclass=*)",
"password": "password"
```

Windows AD example:

```
"version": "3",
"dn": "cn=users,cn=usergroup,dc=example,dc=com",
"url": "ldap://192.168.0.100/cn=usergroup,dc=example,dc=com?sAMAccountName?sub?
      (objectClass=user)",
"password": "password"
```

Support is offered if the format of the tree can parse `uid/sAMAccountName` in the search results. Ensure the URL queries the proper data.

Example: Import from MSAD only users with username "fortinet*"

```
"version": "3",
"dn": "cn=users,cn=usergroup,dc=example,dc=com",
"url": "ldap://192.168.0.100/cn=usergroup,dc=example,dc=com?sAMAccountName?sub?(&
      (objectClass=user)(sAMAccountName=fortinet*))",
"password": "password"
```

Example: Import from MSAD only users which are member of group "sales"

```
"version": "3",
"dn": "cn=users,cn=usergroup,dc=example,dc=com",
"url": "ldap://192.168.0.100/cn=usergroup,dc=example,dc=com?sAMAccountName?sub?(&
      (ObjectClass=user)(memberOf=CN=sales,CN=usergroup,DC=example,DC=com))",
"password": "password"
```

Deployment Wizard

Use the *Deployment Wizard* to create and deploy Decoy VMs on your network. Decoy VMs appear as real endpoints to hackers and can collect valuable information about attacks.

To deploy Decoys on the network:

1. Go to *Deception* > *Deployment Wizard*.
2. Click + *Create a new decoy* to add a Decoy VM.
3. Configure the following:

Name	Specify the name of the deployment profile. Maximum 15 characters using A-Z, a-z, 0-9, dash, or underscore. No duplicate profile names.
Appliance Name	Destination of the Decoy VM. This can be local (manager) or remote client (remote appliance). This column only shows in Central Management mode on manager.
Available Deception OSes	Select a Deception OS. The OS you select determines the services that are available.
Available Deception Decoys	Select a deception decoy. This option is only available in SCADAV3/IoT, Ubuntu16v2, Ubuntu18v1, VoIPv1, Medicalv1 and EV2023 deception OSes. The decoy you select determines the options in the *Selected Services* dropdown. See Available Deception OSes, Decoys and Selected Services on page 117.

Selected Services	Select a service based on the Deception OS. See Available Deception OSes, Decoys and Selected Services on page 117.
Automate Lures	Select one or more tag names to automate lure generation and to generate related contents. Selecting *any* and *all* generate random content. Click *Generate Lures* to automatically generate lures and list them in the panes below. Click *Clear* to delete the lures on this page.

4. If applicable, click *Generate lures* or *Add Lure* for the service and configure the lure settings. See, Lure Settings on page 122.
5. To launch the decoy VM immediately, scroll to the bottom of the page and enable *Launch Immediately*.
6. To reset the decoy VM after it detects incidents, enable *Reset Decoy* and specify the *Reset Interval* value in seconds.
7. In the *HTTP/HTTPS Merge Time Window* field, enter a range between 0-300 seconds. The default is 30 seconds.

When the time difference between last activity of the first HTTP request and the first activity of next HTTP request is less than the configured time, FortiDeceptorwill merge the activities into the same HTTP incident.

8. Enable *Block Outgoing Traffic* to block outgoing traffic.

This option is only supported ion in Windows, Centos, Ubuntu, and Redhat decoys.

9. Toggle on *Enable Windows Defender* to enable customized windows defender.

This setting is only available in customized Windows decoys (Win7, Win10, and Win10-21). This toggle does not appear in Linux and Ubuntu decoys.

10. In the *Monitor Admin Behaviors for* field, enter the number of minutes to trigger the reset. Enter `0` to shutdown the decoy immediately after admin activities are found. The decoy will re-launch in approximately 30 seconds.

Configure this option for deployments with the RDP service is enabled.

11. Click *Next*. The *Set Network* tab opens.
12. Configure the network IP and Hostname. You can enter up to two DNS IP addresses.

DNS	Enter the network IP address. You must set Domain DNS server IP to be the 1st DNS when custom Windows decoys are in the domain(s).

DNS2	(Optional) Enter a second network IP address. Two DNS IP addresses are not supported in t FortiGate SSLVPN decoy deployments.
Hostname	Enter the hostname for the network. If you choose to join the domain, please provide a unique hostname that complies with Windows policy and is distinct from the original hostname set during the customization stage. The *Hostname* cannot conflict with decoy names.
Domain	(Optional) Enter the AD domain that the decoy will join. The DNS IP must be consistent with the specified domain. If a customized image has already joined Domain A during customization and needs to join Domain B during the decoy deployment stage, both Domain A and Domain B IPs must be entered in the *DNS* and *DNS2* fields.
Domain Account	(Optional) Enter the domain and account.
Domain Password	(Optional) Enter the domain password.
Organization Unit	(Optional) Add the decoy to a specific Organization Unit. Use the *Distinguished Name* format. For example, *OU=ouName,DC=fdc,DC=net*

13. Click *Deploy Into Network*.
14. Select the *Deploy Interface*. Set this to the VLAN or subnet added in Deployment Network on page 108
15. Configure the following settings in the *Add Interface for Decoy* pane:

Addressing Mode	Select *Static* or *DHCP*. *Static* allows you to configure the IP address for all the decoys. *DHCP* allows the decoys to receive IP address from the DHCP server. If you select *DHCP*, *IP Count* is automatically set to 1 and all other fields are not applicable.
Network Mask	This field is set automatically.
Gateway	Specify the gateway.
MAC Address OUI	The first three octets of the MAC address for the device vendor. Only the xx:xx:xx format is supported.
IP Count	Specify the number of IP addresses to be assigned, up to 24 (for both STATIC and DHCP).
Min	The minimum IP address in the IP range.
Max	The maximum IP address in the IP range.
IP Ranges	Specify the IP range between *Min* and *Max*.

16. Click *Done*.
17. To deploy the decoys on the network, click *Deploy*.
18. To save this as a template in *Deception* > *Deployment Wizard*, click *Template*.

For deception strategies and examples, see Deployment best practices checklist on page 233 and Deception decoy best practices on page 228

Available Deception OSes, Decoys and Selected Services

The following table shows the *Available Deception OSes* and their corresponding *Available Deception Decoys* and *Selected Services* in the *Deployment Wizard*.

The *Available Deception Decoys* are only available for SCADAV3/IoT, Ubuntu16v2, Ubuntu18v1, VoIPv1, Medicalv1 and EV2023 deception OSes. The decoy you select determines the available *Selected Services*.

Available Deception OSes	Available Deception Decoys	Selected Services
centosv1		SSH, SAMBA, STMP, HTTP, HTTPS, GIT, TCPListener. ICMP, FTP, RADIUS
fgt601v1		SSLVPN
fgt601v3		SSLVPN
crmv1		ERP-WEB

Available Deception OSes	Available Deception Decoys	Selected Services
scadav3	Liebert Spruce UPS	TFTP, SNMP, HTTP
	Schneider Power Meter - PM5560	SNMP, BACNET, HTTP, DNP3, ENIP
	MOXA NPORT 5110	SNMP, Telnet, HTTP, MOXA
	Rockwell 1769-L35E Ethernet Port	SNMP, ENIP, HTTP
	GE PLC 90	SNMP, HTTP, SRTP
	Kamstrup 382	KAMSTRUP
	Siemens S7-200 PLC	HTTP, TFTP, SNMP, MODBUS, S7COMM
	VAV-DD BACnet controller	SNMP, BACNET
	Niagra4 Station	SNMP, HTTP, BACNET
	Schneider EcoStruxure BMS server	SNMP, HTTP, TRICONEX, BACNET
	Rockwell PLC	HTTP, TFTP, SNMP, ENIP
	NiagaraAX Station	SNMP, HTTP, BACNET
	Rockwell 1769-L16ER/B LOGIX5316ER	SNMP, ENIP, HTTP
	Guardian-AST	Guardian-AST
	Schneider SCADAPack 333E	SNMP, DNP3, Telnet
	Siemens S7-300 PLC	TFTP, SNMP, IEC104
	IPMI Device	HTTP, FTP, SNMP, IPMI
	Siemens S7-1500 PLC	HTTP, TFTP, SNMP, IEC104, PROFINET
	Phoenix contact AXC 1050	HTTP, SNMP, PROFINET, FTP
	PowerLogic ION7650	SNMP, MODBUS, DNP3, HTTP
	Ascent Compass MNG	HTTP, FTP, SNMP, IPMI, BACNET
	C-More HMI	SNMP, HTTP, FTP, HTTPS
	Modicon M241	TFTP, SNMP, MODBUS, ENIP, HTTP
	Modicon M580	TFTP, SNMP, MODBUS, ENIP, HTTP
	Emerson iPro by Dixell	SNMP, MODBUS, HTTP
	Lantronix XPORT V1.8	SNMP, HTTP, Lantronix Discovery Protocol
	Lantronix XPORT V2.0	SNMP, HTTP, Lantronix Discovery Protocol

Available Deception OSes	Available Deception Decoys	Selected Services
Ubuntu16v1		SSH, SAMBA, SMTP, TCPListner, HTTP, HTTPS, GIT, ICMP, FTP, RADIUS, vnc
ubuntu16v2	Elastic Search	Elastic Search
	ESXI Decoy	SSH, HTTP, HTTPS
	Linux Decoy	SSH, SAMBA, SMTP, TCPListener, HTTP, HTTPS, GIT, ICMP, FTP, RADUIS, vnc
	Mac Decoy	SSH, vnc
Ubuntu18v1	Citrix ADC Decoy	HTTP, HTTPS
	Citrix Application Delivery Management Decoy	HTTP, HTTPS
	Citrix Endpoint Management Decoy	HTTP, HTTPS
	Citrix Receiver Decoy	HTTP, HTTPS
	Elastic Search	Elastic Search
	ESXI Decoy	SSH, HTTP, HTTPS
	Linux Decoy	SSH, SAMBA, SMTP, HTTP, HTTPS, GIT, TCPListener, ICMP, FTP, RADIUS, vnc
	MySql MariaDB Decoy	MariaDB, SSH
	Nginx Decoy	HTTP, HTTPS
	ScadaBR Decoy	ScadaBR
	Tomcat Decoy	HTTP, HTTPS, SSH
	TrueNAS Decoy	SSH, SAMBA, HTTP, HTTPS, SNMP
	Webmin Decoy	HTTP, HTTPS
	NGINX	HTTP, HTTPS
	Citrix (ADC Decoy/Application Delivery Management Decoy/Endpoint Management Decoy/Receiver Decoy)	HTTP, HTTPS
win7x64v1		RDP, SMB, SMTP, TCPListener, NBNSSpoofSpotter
Custom Windows 2016/2019/2022		RDP, SMB, IIS, MSSQL,TCPListener, NBNSSpoofSpotter, ICMP, FTP, SWIFT Lite2
Custom Windows 10/11		RDP, SMB, MSSQL, SMTP, TCPListener, NBNSSpoofSpotter, ICMP, SWIFT Lite2, FTP

Available Deception OSes	Available Deception Decoys	Selected Services
Custom French Windows 10		RDP, SMB, MSSQL, HTTP/HTTPS, SMTP, TCPListener, NBNSSpoofSpotter, ICMP, SWIFT
Custom French Windows 2016		RDP, SMB, MSSQL, IIS, HTTP/HTTPS, SMTP, TCPListener, NBNSSpoofSpotter, ICMP, SWIFT
Custom Redhat Linux		HTTP, HTTPS, GIT, SAMBA, SSH, SMTP, TCPListener, FTP, RADIUS, ICMP
Custom Ubuntu 20.04.6 Server		SSH, SAMBA, SMTP, HTTP, HTTPS, GIT, TCPListener, ICMP, FTP, RADIUS
win7x64v1		RDP, SMB, SMTP, TCPListener, NBNSSpoofSpotter, ICMP, FTP
win10ltsc2021v1		RDP, SMB, SMTP, TCPListener, NBNSSpoofSpotter, ICMP, SWIFT Lite2, FTP
win10v1		RDP, SMB, SMTP, TCPListener, NBNSSpoofSpotter, ICMP, SWIFT Lite2, FTP (joining AD domain is supported)
***outbreakv1**	Spring4Shell	Spring4Shell Spring4Shell services need time to download. There may be a delay displaying these services in the *Deception OS* and *Deployment Wizard* pages after the *outbreakv1* OS is installed.
	Log4j2	Log4j2 Log4j2 services need time to download. There may be a delay displaying these services in the *Deception OS* and *Deployment Wizard* pages after the *outbreakv1* OS is installed.
posv1		POS-WEB

Available Deception OSes	Available Deception Decoys	Selected Services
iotv1	Lexmark Printer Decoy	SNMP, Jetdirect, Printer-WEB
	HP Printer Decoy	SNMP, Jetdirect, Printer-WEB
	Cisco Router Decoy	Telnet, HTTP, SNMP, CDP
	Brother MFC Printer	SNMP, Jetdirect, Printer-WEB
	TP-LINK Router Decoy	TP-LInk WEB, CWMP
	IP Camera Decoy	IP Camera-WEB, UPnP, SNMP, RTSP
	SWIFT VPN Gateway	Telnet, HTTPS
	HP Switch Decoy	SNMP, Telnet, CDP, HTTP
	MikroTik Decoy	SNMP, Telnet, CDP, HTTP
	NetGear MR60 Router Decoy	UPNP, SNMP, HTTP
medicalv1	PACS Decoy	Infusion Pump (Telnet), Infusion Pump (FTP)
	SPACECOM Decoy	HTTP, HTTPS, FTP, CAN bus Protocol, SSH
	INFUSOMAT Decoy	HTTP, HTTPS, FTP, CAN bus Protocol, B.BRAUN
sapv1		SAP ROUTER, SAP DISPATCHER, SAP WEB
voipv1	4G/5G 3GPP	NextEPC WEB, SCTP & GTP-C, GTP-U
	MQTT	MQTT WEB, CoAP
	SIP	SIP
	XMPP	XMPP WEB
EV2023		HTTP, HTTPS

***Outbreakv1**: When a cybersecurity incident/attack/event occurs that has large ramifications for the cybersecurity industry and affects numerous organizations, *FortiGuard Outbreak Alerts* will be the mechanism for communicating important information to Fortinet's customers and partners. These Outbreak Alerts will help you understand what happened, the technical details of the attack and how organizations can protect themselves from it and others like it. The FortiDeceptor Deception VM called *Outbreakv1* provides the outbreak vulnerabilities that the *FortiGuard Outbreak Alerts* cover. For example, you can deploy a network decoy based on *FortiGuard Outbreak Alerts* such as *Spring4Shell* and *Log4j2*.

fgt601v1 / fgt601v3 comparison chart

	fgt601v1	fgt601v3
Support models	FGT-60E, FGT-100F, FGT-1500D, FGT-2000E, FGT-3700D	FGT-60F, FGT-100F, FGT-1500D, FGT-2000E, FGT-3700D, FGT-60F-DMZ, FGT-100F-DMZ, FGT-1500D--DMZ, FGT-2000E-DMZ, FGT-3700D-

	fgt601v1	fgt601v3
		DMZ
Incidents reported	All logins are recorded.	DMZ models: • Only imported LDAP user logins are recorded as an incident. All other events, including connection, url, logins are dropped. • Login incident only have sslvpn login events. • Only monitored users login will be reported as incidents All other models are the same as fgt601v1.
OUI	E0:23:FF, 90:6C:AC, E8:1C:BA	E0:23:FF, 90:6C:AC, E8:1C:BA
Deployment wizard	Automate Lures	DMZ models: • Monitored Users Supports the reserve subnet function.

Lure Settings

The lure settings will vary depending on the service. The character limits and requirements in FortiDeceptor may differ from the requirements implemented in the service.

Character restrictions and guidelines

Lure setting	Service	Requirements
Hostname	Windows: NBNSSpoofSpotter SAP DISPATCHER	Maximum of 15 characters. Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-) and underscores (_) are supported.
Client Number	SAP DISPATCHER	Alphanumeric characters (A-Z, a-z, 0-9), periods (.), commas (,), hyphens (-), underscores (_), and spaces are supported.

Lure setting	Service	Requirements
Database Name	MariaDB	Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-) and underscores (_) are supported.
DICOM Listening Port	Medical	Enter a value between 1-65535. Default is 4242.
DICOM Server Name	Medical	Maximum of 16 characters. Name cannot begin with a digit. Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-) and underscores (_) are supported.
Domain (optional)	Windows: NBNSSpoofSpotter	Alphanumeric characters (A-Z, a-z, 0-9) and periods (.), are supported.
DSN Description	Windows: ODBC lure	Maximum of 256 characters. Alphanumeric characters (A-Z, a-z, 0-9), special characters (.-_!@(~)?:|+;*/'") and spaces are supported.
DSN Name	Windows: ODBC lure	Maximum of 32 characters. Alphanumeric characters (A-Z, a-z, 0-9), periods (.), hyphens (-), underscores (_), and spaces are supported.
ES Cluster Name	Elastic Search	Alphanumeric characters (A-Z, a-z, 0-9), periods (.), hyphens (-), underscores (_), and spaces are supported.

Lure setting	Service	Requirements
ES Node Name	Elastic Search	Alphanumeric characters (A-Z, a-z, 0-9), periods (.), hyphens (-), underscores (_), and spaces are supported.
FTP Banner	SCADAV3, Ubuntu, Centos, Windows	Alphanumeric characters (A-Z, a-z, 0-9), Periods (.), hyphens (-), underscores (_), and spaces are supported.
HTTP Listening Port	Ubuntu, Centos, Tomcat, Tomcat, EV2023, customized Windows Services 2016/2019/2022	Enter a value between 1-65535. • Ubuntu, Centos: Default is 80. • Tomcat: Default is 9200.
HTTPS Listening Port	Ubuntu, Centos, Tomcat, EV2023, customized Windows Services 2016/2019/2022	Enter a value between 1-65535. • Ubuntu, Centos: Default is 443 • Tomcat: Default is 9200
HTTPS SSL Certificate	Ubuntu, Centos, Tomcat, EV2023, customized Windows Services 2016/2019/2022	Optional. Upload using default settings is supported. Certification ZIP Requirements: • The certificate and key file must have the exact same file names (excluding the extension). • The ZIP file must be "single-layer," containing only the two files without any sub-folders. • A trusted certificate is required for the Honeydocs token package to communicate with FortiDeceptor.

Lure setting	Service	Requirements
Instance Name	SAP DISPATCHER	Alphanumeric characters (A-Z, a-z, 0-9), periods (.), commas (,), hyphens (-), underscores (_), and spaces are supported.
Interval(sec)	Windows: NBNSSpoofSpotter	Enter a value between 60-3600.
Listening Port	ERP (CRM), POS, SAP Router, SAP DISPATCHER, TP-LINK, CWMP, ScadaBR,MariaDB, Elastic Search(HTTP)	Enter a value between 1-65535. • ERP (CRM), POS, and TP-LINK: Default is 80. • SAP Router: Default is 3299 • SAP DISPATCHER: Default is 3200 • CWMP: Default is 7547 • ScadaBR: Default is 9090 • MariaDB: Default is 3306 • Elastic Search (HTTP): Default is 9200
Listening Port Over HTTPS	SAP WEB	Enter a value between 1-65535. Default is 443
Location	SCADAV3	Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-), period (,), comma (,), underscores (_) and space are supported
Module type	SCADAV3	Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-), underscores (_), and spaces are supported.

Lure setting	Service	Requirements
MQTT WEB port	VoIP	Enter a value between 1-65535. Default is 18083.
PACS Listening Port	Medical	Enter a value between 1-65535. Default is 80.
PACS System Name	Medical	Maximum of 16 characters. Name cannot start with a digit. Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-), and underscores (_) are supported.
Page title	SCADAV3	Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-), underscores (_), and spaces are supported.
Password	Windows: RDP & SMB, Ubuntu and Centos: SSH & SAMBA, RADIUS, NBNSSpoofSpotter French Windows:RDP, SMB, MSSQL, HTTP/HTTPS, SMTP, FTP GIT Users, ERP (CRM), Medical, POS, FortiGate, Cisco Router (Telnet/HTTP), HP Printer (HTTP), IP Camera (HTTP), Centos, SAP Router, SAP WEB, Brother MFC Printer (HTTP), Lexmark Printer (HTTP), TP-LINK	Maximum of 32 characters. Alphanumeric characters (A-Z, a-z, 0-9) and special characters (- ! @ # $ (~) ^ & ? <> : | + ; * / , . " ' _) are supported. The password is optional in *GIT repository import*.
Plant Identification	SCADAV3	Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-), underscores (_), and spaces are supported.
PLC name	SCADAV3	Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-), underscores (_), and spaces are supported.
Repository Name	GIT Users	Maximum of 100 characters.

Lure setting	Service	Requirements
		Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-) and underscores (_) are supported.
Serial number	SCADAV3	Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-), underscores (_), and spaces are supported.
Serial number for ENIP	SCADAV3	Only 0-9 allowed
Sharename	French Windows:RDP, SMB, MSSQL, HTTP/HTTPS, SMTP, FTP Windows:RDP & SMB, Ubuntu Centos-SSH & SAMBA Centos	This option is only available for SAMBA (Ubuntu) or SMB (Windows). Enter a Sharename between 3-63 characters. Alphanumeric characters (a-z, 0-9) and hyphens are supported.
SID	SAP DISPATCHER	Alphanumeric characters (A-Z, a-z, 0-9), periods (.), commas (,), hyphens (-), underscores (_), and spaces are supported.
SIP port	VoIP	Enter a value between 1-65535. TCP Default is 5060, 5061. UDP Default is 5060.
SMTP Banner	Windows, Ubuntu, Centos	Alphanumeric characters (A-Z, a-z, 0-9), periods (.), hyphens (-), underscores (_), and spaces are supported.
SMTP Domain	Windows, Ubuntu, Centos	Alphanumeric characters (A-Z, a-z, 0-9) and periods (.), and hyphens (-) are supported.

Lure setting	Service	Requirements
SNMP	SCADAV3, Cisco Router (Telnet/HTTP), HP Printer (HTTP), IP Camera (HTTP), Brother MFC Printer (HTTP), Lexmark Printer (HTTP)	Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-) and underscores (_) are supported.
SNMP Banner	SCADAV3, Ubuntu, Centos	Alphanumeric characters (A-Z, a-z, 0-9), hyphens (-), underscores (_), and spaces are supported.
SSH Banner	Ubuntu, Centos	Alphanumeric characters (A-Z, a-z, 0-9), periods (.), hyphens (-), underscores (_), and spaces are supported.
SSLVPN Bookmarks Name	FortiGate	Maximum of 15 characters. Alphanumeric characters (A-Z, a-z, 0-9), periods (.), hyphens (-), underscores (_), and spaces are supported. **Note**: This option was removed from the fgtv3 DMZ model.
SSLVPN Bookmarks URL	FortiGate	Required field. Alphanumeric characters (A-Z, a-z, 0-9), spaces, and special characters (-@#~?:./_=) are supported. **Note**: This option was removed from the fgtv3 DMZ model.
SSLVPN Listening Port	FortiGate	Enter a value between 1-65535. Default is 10443.
TCP Banner	Windows: TCP Listener Ubuntu, Centos	Alphanumeric characters (A-Z, a-z, 0-9), periods (.), hyphens (-), underscores (_), and spaces are supported.

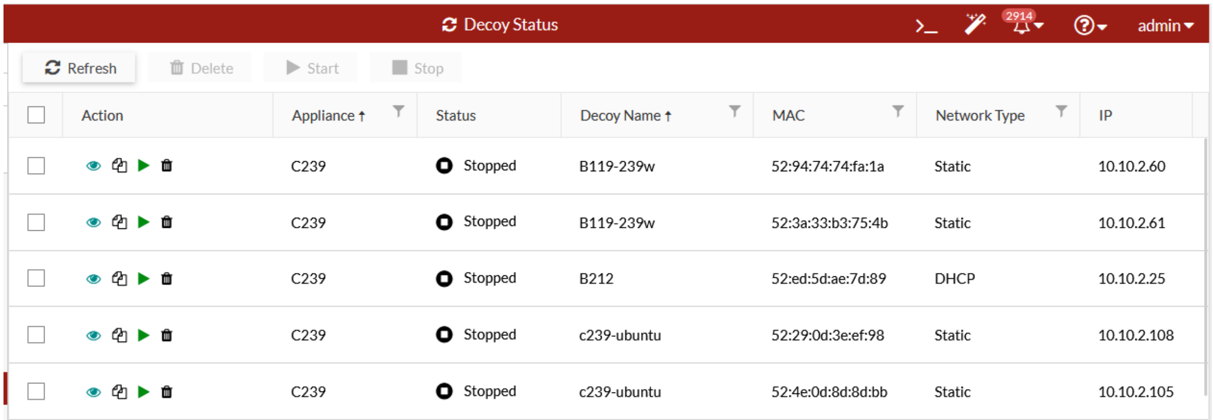
Lure setting	Service	Requirements
TCP Listener	Windows: TCP Listener Ubuntu, Centos	Separate multiple ports with a comma (,).
Telnet	SCADAV3	Telnet username password is the same as ERP
Token	GitHub repository import	Alphanumeric characters (A-Z, a-z, 0-9), and periods (.) are supported.
Update or Cancel	Windows: RDP & SMB, Ubuntu and Centos: SSH & SAMBA	Click *Update* to save the username and password. Click *Cancel* to discard the username and password. Click *Delete* to delete an existing lure.
URL	GitHub repository import	Required field. Alphanumeric characters (A-Z, a-z, 0-9), spaces, and special characters (-@#~?:./_=) are supported.
Username	LINK Windows (FTP/NBNSSpoofSpotter/RDP/SMB/SMTP), Ubunbu and Centos (Elastic Search/FTP/GIT/HTTP/HTTPS/MariaDB/RADIUS/SAMBA/SMTP), CRM (ERP-WEB), FortiGate (SSLVPN), Brother MFC Printer (HTTP), Cisco Router (HTTP/Telnet), HP Printer (HTTP), HP Switch (HTTP), IP Camera (HTTP), Lexmark Printer (HTTP), TP-LINK Router (HTTP), Medical (B.BRAUN/FTP/HTTP/HTTPS/Telnet), POS (HTTP), SAP (HTTP), Schneider SCADAPack 333E (Telnet), Phoenix contact AXC 1050 (FTP)	Maximum of 32 characters. Alphanumeric characters (a-z, 0-9), hyphens (-) and underscores (_) are supported. Usernames should start with letters or underscores (_) and could end with dollar sign ($).
	Ubuntu and Centos (SSH), Medical (SSH),	Maximum of 32 characters Alphanumeric characters (a-z, 0-9), hyphens (-) and underscores (_) are supported.

Lure setting	Service	Requirements
		Usernames should start with letters or underscores (_) and could end with dollar sign ($).
XMPP WEB port	VoIP	Enter a value between 1-65535.Default is 5280.

Decoy Status

The *Decoy Status* page shows the status of the Decoys on your network. Use the page to start, stop or delete a decoy. You can also view the decoy's configuration details and copy the decoy template.

We recommend operating Decoy VMs with the same status for expected behavior.



□	Action	Appliance	Status	Decoy Name	MAC	Network Type	IP
□		C239	Stopped	B119-239w	52:94:74:74:fa:1a	Static	10.10.2.60
□		C239	Stopped	B119-239w	52:3a:33:b3:75:4b	Static	10.10.2.61
□		C239	Stopped	B212	52:ed:5d:ae:7d:89	DHCP	10.10.2.25
□		C239	Stopped	c239-ubuntu	52:29:0d:3e:ef:98	Static	10.10.2.108
□		C239	Stopped	c239-ubuntu	52:4e:0d:8d:8d:bb	Static	10.10.2.105

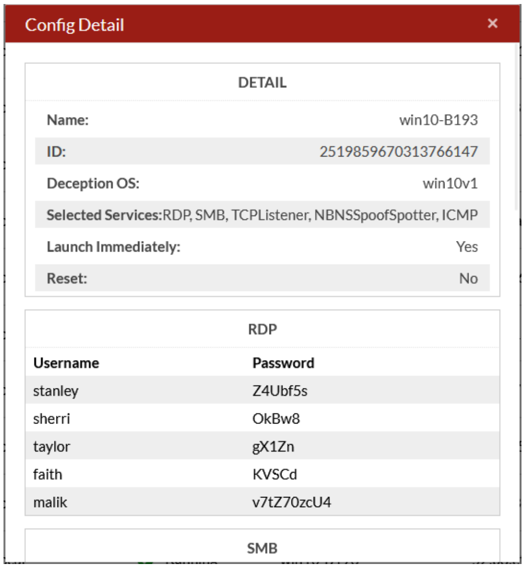
The *Decoy Status* page displays the following information:

Status	The status of the decoy can be *Initializing*, *Running*, *Stopped*, or *Cannot Start*. If the Decoy VM cannot start, hover over the VM to see the reason.
Decoy Name	Name of the decoy.
Initialize Time and Start Time	The decoy's initialization time and its last start time.
OS	Operating system of the decoy.
VM	The name of the Decoy VM.
IP	The IP address of the Decoy VM.
Services	List of services enabled. Hover over an icon to see a text list.
Network Type	Shows if the IP address is *Static* or *DHCP*.

DNS	DNS of the Decoy VM.
Gateway	Gateway of the Decoy VM.

To view the decoy configuration details:

1. Go to *Deception* > *Decoy Status* and select a decoy.
2. In the *Action* column, click *View Details*. The *Config Detail* page opens.



Config Detail

DETAIL

Name:	win10-B193
ID:	2519859670313766147
Deception OS:	win10v1
Selected Services:	RDP, SMB, TCPListener, NBNSSpoofSpotter, ICMP
Launch Immediately:	Yes
Reset:	No

RDP

Username	Password
stanley	Z4Ubf5s
sherri	OkBw8
taylor	gX1Zn
faith	KVSCd
malik	v7tZ70zcU4

SMB

To copy a decoy the Deployment Wizard:

1. Go to *Deception* > *Decoy Status* and select a decoy.
2. Click *Copy to Template* . The template is copied to the *Deployment Wizard*.

To delete Decoy VMs:

1. Go to *Deception* > *Decoy Status* and select one more decoys.
2. In the *Action* column, click *Delete* .
3. Click *OK*.

To start a Decoy VM:

1. Go to *Deception* > *Decoy Status* and select one more decoys that are stopped.
2. In the *Action* column, click *Start* ▶.

To stop a Decoy VM:

1. Go to *Deception* > *Decoy Status* and select one more decoys that are running.
2. In the toolbar, click *Stop*. The decoy status changes to *Stopped* ■ .

To edit a Decoy VM:

1. Go to *Deception* > *Decoy Status* and select a decoy with any status.
2. In the toolbar, click *Edit*. The decoy can also be modified in the *Deploy Decoy* page.
3. Edit and updated the decoy domain. A decoy that is:
    - Not joined to a domain can be configured to join a domain.
    - Joined to a domain can be configured to leave the domain.
    - Joined to Domain A can be reconfigured to join Domain B. This requires entering the DNS addresses for both Domain A and Domain B in *Deployment Wizard* > *Set Network* > *DNS/DNS2* (the order does not matter).

Starting in version 6.1, the default deception OS, Windows 10v1, also supports joining an AD domain. In previous versions, only customized images with AD domain could join the same AD domain when deploying a decoy. The procedure remains the same.

Deception Token

Use a FortiDeceptor token package to add breadcrumbs on real endpoints and lure an attacker to a Decoy VM. Tokens are normally distributed within real endpoints and other IT assets on the network to maximize the deception surface.

For information about using FortiDeceptor to generate a deception lure package based on the decoy service configuration, see Deploying tokens using AD GPO logon script on page 243.

The following token types are available:

Token type	Description
SMB (hidden mapped network disk)	Map the shared directory to a remote decoy that acts as file server while the shared disk is hidden. The username and password are saved in the Windows Vault (Credentials Manager). SMB remote folders are Windows folders.
SAMBA (hidden mapped network disk)	Same as SMB but for Linux SAMBA shares. SAMBA remote folders are Linux folders.
RDP (Remote Desktop)	The username, password and the windows Decoy IP are saved in the Windows Vault (Credentials Manager). Additionally, it creates RDP shortcuts in `%USERPROFILE%\Documents`. The file name format is `rdp_USERNAME_IP.rdp` and created files are hidden. The RDP Lure username and password are saved in Windows Vault.
SSH (Secure Shell)	Create a hidden Putty shortcut in `%USERPROFILE%\Documents`. Support AD lure users in dynamically logging into the AD domain server daily when enable Anti Deception Detection feature
Credential Cache Lure	In Domain environment, add a new credentials entry to the real desktop or server process `lsass.exe`.

Token type	Description
	When *Anti Deception Detection* and *Allow domain user to access RDP/SMB* are enabled, AD lure users can dynamically log into the AD doman server on a daily basis.
HoneyDocs	Add fake files (Word, PDF, Excel) to Windows directories. The default is to the most recent folder. You can specify the location in the Windows directory. Please use the Linux decoy to deploy the HoneyDocs token campaign.
ODBC	The ODBC lure saves a DSN connection string using the Trusted Connection mechanism. To deploy an effective ODBC token, the following is required: • Deploy with domain DNS and SQL SERVER service based on a custom windows image joining a domain. See, *Custom Decoy Image on page 44* > *To deploy decoys with custom images–SQL Server*. • Install ODBC lures into domain user accounts that are on the same domain as the custom Windows server.
SAP token	Add fake SAP configuration files to Windows SAP installation path that contains decoy IP and other SAP related configuration data.
AWS Key	Add a JSON file including AWS Keys to Windows directories. You can specify the location in the Windows directory. The default location is the most recent folder.
Azure Key	Add a JSON file including Azure Keys to Windows directories. You can specify the location in the Windows directory. The default location is the most recent folder. You can also specify a certificate with Azure Keys in the same directory.

To create a FortiDeceptor token campaign:

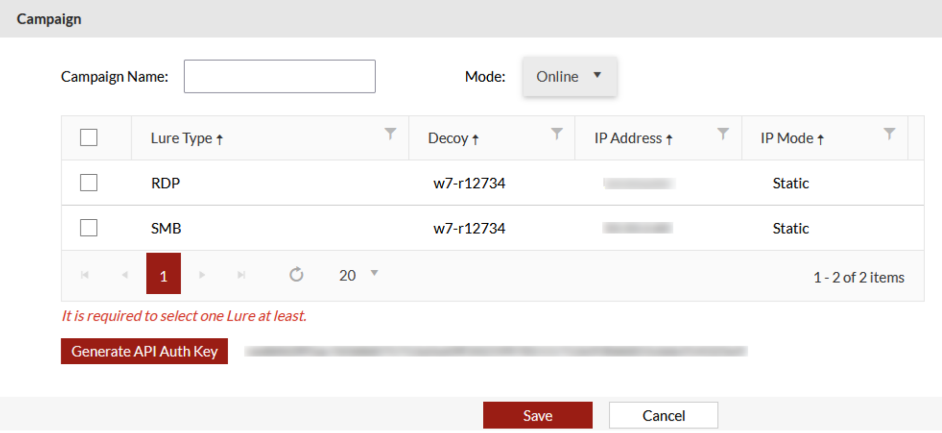
1. Go to *Deception* > *Deception Token* > *Token Campaign*.
2. Click +*Campaign*.
3. Configure the campaign *Name* and *Mode*.

Name	Enter the campaign name.
Mode	• **Offline**: The complete Deception Tokens package will be downloaded from the FDC manager and copied to the endpoint using the external distribution system like the A/D logon script for deployment. • **Online**: A light Deception Tokens package will download from the FDC manager and copied to the endpoint using the external distribution system like the A/D logon script. The package will have the binary file and one configuration file that points to the endpoint to download the deception campaign from the FDC manager over a secure port. Use *Online* mode to change the campaign at any time on the FortiDeceptor server. Any changes you make will be applied to the endpoint.

4. Select the lures. At least one lure must be selected.

> You can only select lures with valid Static IP addresses.
>
> The related decoys must have a status of *Initialized*, *Stopped*, *Running*, or *Failed*. We recommend keeping the related decoys with a status of Running for successful lure deployment.

5. (Optional) Click *Generate API Auth Key* to generate an API key.
6. Click *Save*.



Campaign

Campaign Name:

Mode: Online ▾

☐	Lure Type ↑	Decoy ↑	IP Address ↑	IP Mode ↑
☐	RDP	w7-r12734	[redacted]	Static
☐	SMB	w7-r12734	[redacted]	Static

1 20 ▾ 1 - 2 of 2 items

It is required to select one Lure at least.

Generate API Auth Key [redacted]

Save Cancel

To view campaign list:

1. Go to *Deception* > *Deception Token*.
2. Select a campaign from the list. In the column:
   - Click *Edit* ✎ to edit the campaign.
   - Click *Delete* 🗑to delete the campaign.
   - Click *Download* ⤓ to download the campaign.

To deploy FortiDeceptor token campaign on an existing endpoint:

1. Download FortiDeceptor token campaign package
2. Copy the downloaded FortiDeceptor token campaign package to an endpoint such as a Windows or Linux endpoint.
3. Unzip the FortiDeceptor token campaign package.
4. In the OS folder, follow the instructions in README.txt file to install the token package.
   - **Windows**: Open the windows folder, and double-click the *windows_token.exe* to run it.
   - **Ubuntu**: Open Terminal and run python script *./ubuntu_token.py*.
5. In the OS folder, uninstall the token campaign package.
   - By default, the new token installation process will automatically clear the lure information before installing the new ones.

When the FortiDeceptor token package is installed on a real Windows or Ubuntu endpoint, it increases the deception attack surface and lures the attacker to a Decoy VM

To review Token Deployment Status:

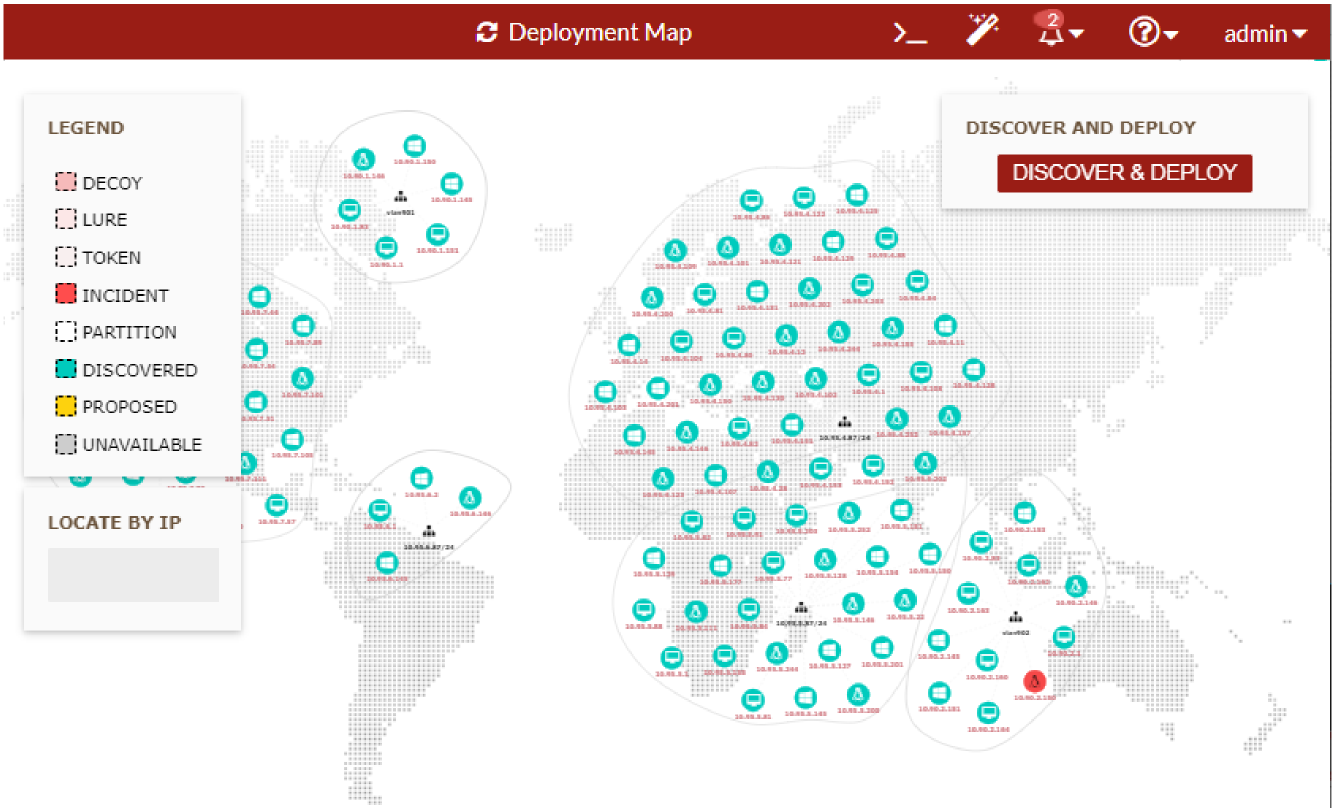
1. Go to *Deception* > *Deception Token* > *Token Deployment Status*.
2. Expand the *Endpoint Name* to view the *Deployment Details* for the endpoint.

Starting in version 6.1, decoy lures configured on a network with a monitor IP of 0.0.0.0/XX will be automatically grayed out and unavailable for selection in token campaigns, ensuring successful token installation.

Deployment Map

The *Deployment Map* is a visual representation of the entire network showing real endpoints and decoy VMs. Click a node on the map to view its details. Use *Discover & Deploy* to detect the OSes for all the assets on the network and automatically deploy decoys for those OSes.

If you know the IP of an endpoint or partition, you can search for it with the *Locate By IP* box.



The nodes on the map are color-coded by importance:

Node	Color	Description
Partition	White	Click the node to view the Network Partition ID, Interface port, and subnet.

Node	Color	Description
Incident	Red	A glowing red node indicates the decoys have been attacked. Click the node to view the Decoy ID, view incidents in the *Analysis* page.
Decoy	Pink	Click to start or stop the, view its configuration, save the decoy as a template, or delete it.
Lure	Coral	Click to view the Decoy type, Service, and data such as the username and password.
Endpoint	Green	Click to view the IP, MAC address, and OS.
Proposed	Yellow	Click a yellow node to edit its settings, generate lures, duplicate, or delete it.
Unavailable	Grey	FortiDeceptor cannot retrieve data for the asset.

Discover & Deploy

Use *Discover & Deploy* to detect the OSes for the assets on the network. After the OSes are discovered, FortiDeceptor will attempt to create decoys to auto-fit the assets in the network.

Discover & Deploy requires specific Monitor IPs for the *Deployment Network*. See, Deployment Network on page 108.

To discover OSes and auto-deploy decoys:

1. Click *Discover & Deploy*. The *Discovery & Deployment* dialog opens.
2. Configure the discover settings.

Select Networks to Scan	Select the ports on the network you want to discover.
Add Deployment Network	Click to open the *Add New Vlan/Subnet* dialog. See Deployment Network on page 108.
Additional TCP Scan Port	Enter the additional scan ports. The default scan ports are 21, 22, 23, 25, 53, 69, 80, 110, 135, 137, 1378, 139, 143, 443, 445, 993, 995, 1433, 3306, 3389, 5900, 8080.
Decoys per VLAN/Subnet	Enter the number of decoys per VLAN based on the asset discovery results.

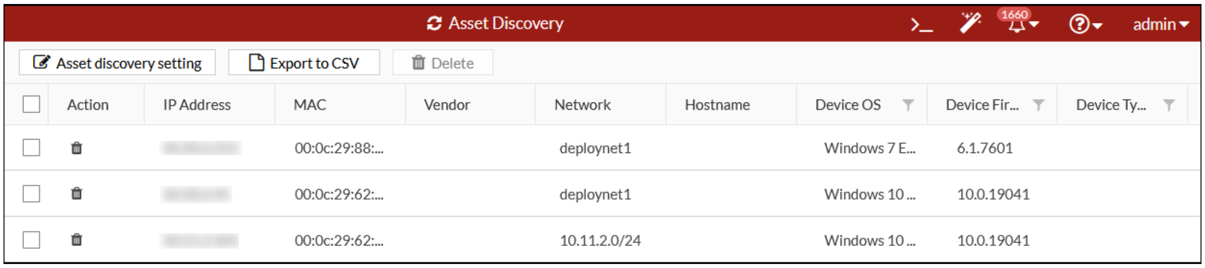
3. Click *Discover* and wait a few minutes for the system to complete the discovery. The results are displayed.

OS Covered	The OSes FortiDeceptor can cover with a suitable decoy for auto-deployment.
Total auto-deploy decoys	The number of decoys that are suitable for auto-deployment.
Total coverage	The percentage of assets that will be covered by the deployment.
Download assets list CSV	Click to download the asset list as CSV file.

4. Click *Accept & Deploy*. FortiDeceptor deploys the decoys.

Asset Discovery

The *Asset Discovery* module generates Asset Inventory by passively fingerprinting the OS and other parameters for the assets in OT/IT/IoT networks. This improves threat visibility for the networks and helps with optimizing decoy placement.



□	Action	IP Address	MAC	Vendor	Network	Hostname	Device OS	Device Fir...	Device Ty...
□	🗑	[redacted]	00:0c:29:88:...		deploynet1		Windows 7 E...	6.1.7601	
□	🗑	[redacted]	00:0c:29:62:...		deploynet1		Windows 10 ...	10.0.19041	
□	🗑	[redacted]	00:0c:29:62:...		10.11.2.0/24		Windows 10 ...	10.0.19041	

The Asset Discovery page displays the following information:

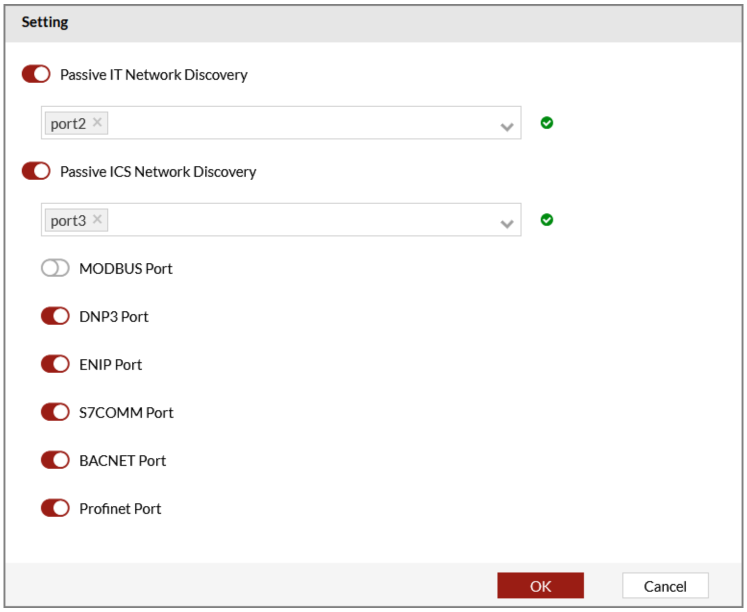
Action	Click *Delete* to remove the asset.
IP Address	The IP address of the asset.
MAC	The MAC address of the asset.
Vendor	The vendor identified by the asset MAC address.
Network	The network this asset was discovered.
Hostname	The hostname of the asset.
Device OS	The Device OS of the asset.
Device Firmware	The firmware version of the asset.
Device Type	The type of the asset.

To enable Asset Discovery:

1. Go to *Deception > Asset Discovery*.
2. Click *Asset discovery setting*.
3. Enable the following the settings:

Passive IT Network Discovery	Enable to allow FortiDeceptor to identify common IT devices such as servers, laptops, and routers by sniffing network traffic.

	Select all the ports connected to the network for discovery.
Passive ICS Network Discovery	Enable to allow FortiDeceptor to identify industrial control devices such as PLC controllers. Select all the ports connected to the network and ICS protocols for discovery. The available protocols are, MODBUS, DNP3, ENIP, S7comm/S7comm plus, BACNET, Profinet, FINS, ATG, Kamstrup, Moxa, IEC104, FL-net, GE-EGD, GE-SRTP, Triconex and PCOM.



Setting

● Passive IT Network Discovery

port2 × ✓

● Passive ICS Network Discovery

port3 × ✓

○ MODBUS Port

● DNP3 Port

● ENIP Port

● S7COMM Port

● BACNET Port

● Profinet Port

4. Click *OK*.

To delete multiple assets at the same time:

1. Select the assets you want to delete.
2. In the toolbar, click *Delete*.

To export the asset details as a CSV file:

In the toolbar, click *Export CSV*.

Safe List

Use the *Deception* > *Safe List* page to add an IP address that is considered legitimate so that it does not generate an *Event* or *Incident* when accessing decoys. For example, the IP address of a monitoring system that is polling the network.

The Safe list page displays the following information:

Name	The safe list name.

IP/Mask	Specify the IP address or subnet from where the connection originates.
Source Ports	Specify the source ports from where the connection originates.
Destination Ports	Specify the destination ports on the network where the connection terminates.
Appliance	This column indicates the source of the safelist, either local (manager) or remote (remote appliance). It is only visible when the manager operates in Central Management mode.
Decoy	Specify the name of the decoy for which you want to apply the safelist rule.
Status	Indicates the status of the safelist rule (*Enabled* or *Disabled*).
Block All	Enforces Network Access Control based on the specified IP address or subnet in the IP/Mask field, along with the designated Appliance and Decoy. When enabled, all traffic originating from the specified IP address or subnet that matches the designated Appliance and Decoy will be blocked.

Safe list rules:

As of version 6.1, the relationship between destination ports and services has changed from *and* to *or*. You may need to update your existing safe list rules to achieve the same results when using version 6.1.

To add a new Safe List IP address:

1. Go to *Deception > Safe List*.
2. Click *Add New Safe List IP*
3. Coinfigure the safe list settings and click *OK*.

Enable	Select *Enable* to activate the safe list.
Name	Enter a description of the list. For example, *Safe_Network*.
IP/Mask	Enter the IP address or subnet from where the connection originates.
Block All	Enforces Network Access Control based on the specified IP address or subnet in the IP/Mask field, along with the designated Appliance and Decoy. When enabled, all traffic originating from the specified IP address or subnet that matches the designated Appliance and Decoy will be blocked. When *Block ALL* is active, traffic that meets all criteria specified in the safe list rule does not trigger an Event or Incident when accessing decoys. Instead, it produces a `matched safe list rule` log. However, if the *Destination Ports* or *Services* fields do not match, an Incident is logged with the keyword `Safe list` and a corresponding syslog with keyword `Operation=Safe_List`. In both cases, the traffic is blocked.

Source Ports	Enter the source ports from where the connection originates.
Destination Ports	Enter the destination ports on the network where the connection terminates.
Services	Select the name of the services used to connect to the network.
Appliance	Select an appliance from the list.
Decoy	Select the decoy name for you want to apply the safe list rule.

Incident

The *Incident* module displays the incidents and attacks detected by FortiDeceptor.

This section contains information about the following topics:

- Analysis on page 141
  View incidents and related events detected by FortiDeceptor
- Campaign on page 143
  View attacks and related events detected by FortiDeceptor.
- Attack Map on page 145
  View ongoing attacks and related events detected by FortiDeceptor.

Analysis

The *Analysis* page displays the list of incidents detected by FortiDeceptor. Use this page to generate the *Incidents Report* PDF. The *Incidents Report* can be generated one at time, or you can schedule the report to generate on a recurring basis. You can also export incidents list as a CSV file.

When you expand an incident to the view the details, the incident is marked as *read*. Newly-detected incidents are in bold to indicate they are unread. To refresh the data click the *Refresh* button in the toolbar.

You can configure the table settings by hovering over the left-side of the table header and clicking the gear icon ⚙.

The *Analysis* page displays the following information:

<table>
<tr><td><b>Last Activity</b></td><td>Date and time of the last activity.</td></tr>
<tr><td><b>Start</b></td><td>Date and time when the attack started.</td></tr>
<tr><td><b>Severity</b></td><td>Severity of the event.</td></tr>
<tr><td><b>Events</b></td><td>Show the event number of the Incident</td></tr>
<tr><td><b>Protocol</b></td><td>Network protocol the attacker used to perform the attack.</td></tr>
<tr><td><b>Type</b></td><td><table>
<tr><th>Event Type</th><th>Triggered By</th></tr>
<tr><td><b>Connection</b></td><td>1. Port scan (SYNConnection).
2. Ping.
3. SYN connection.
4. Access to the service with no other interaction like accessing a web server without entering any credentials.</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td>
<table>
<tr><th>Event Type</th><th>Triggered By</th></tr>
<tr><td><b>Reconnaissance</b></td><td>1. Port scan (Full TCP Connection).
2. Access the decoy network share and browse files.
3. Access the decoy web application and browse the web application.
4. Access decoy FTP server and browse files.</td></tr>
<tr><td><b>Interaction</b></td><td>1. The attacker accesses the decoy and passes the log in phase.
2. Attacker logs into a decoy and runs commands inside the session like RDP.</td></tr>
<tr><td><b>Infection</b></td><td>1. Attacker copies files to the decoy.
2. Attacker accesses the decoy and downloads files from the internet.
3. The attacker runs an exploit against the decoy and injects a binary file.</td></tr>
</table>
</td></tr>
<tr><td><b>Appliance</b></td><td>In CM mode, this column displays the name of the appliance where the victim decoy is deployed.</td></tr>
<tr><td><b>Attacker User</b></td><td>Attacker username.</td></tr>
<tr><td><b>Attacker Password</b></td><td>Password used by the attacker.</td></tr>
<tr><td><b>Attacker MAC</b></td><td>Attacker MAC address.</td></tr>
<tr><td><b>Attacker IP</b></td><td>Attacker IP address and domain name.</td></tr>
<tr><td><b>Attacker Port</b></td><td>Port where the attack originated.</td></tr>
<tr><td><b>Victim IP</b></td><td>IP address of the victim.</td></tr>
<tr><td><b>Victim Port</b></td><td>Port of the victim.</td></tr>
<tr><td><b>Decoy ID</b></td><td>Unique ID of the Decoy VM.</td></tr>
<tr><td><b>Decoy Name</b></td><td>Decoy name of the victim.</td></tr>
<tr><td><b>ID</b></td><td>ID of the incident.</td></tr>
</table>

The infected files captured by the decoy are saved as a password protected .zip file you can download. The password for the file is `FortiDeceptor`.

To generate the Incidents Report:

1. Go to *Incidents* > *Analysis*.
2. In the toolbar, click *PDF Report*.

3. Configure the report settings.

Mail Address	Enter the destination email for the report.
Scheduler Type	Select *One Time* or *Recurring*.
User Timezone	This setting cannot be modified. It is consistent with the system Time Zone setting.
Generate report for data From	For one time reports, select the report start date and time.
Generate report for data To	For one time reports, select the report end date and time.
Scheduler Timezone	For recurring reports, select the scheduled timezone.
Scheduler Start	For recurring reports, select the schedule start date and time.
Scheduler End	For recurring reports, select the schedule end date and time.
Scheduler Interval	Select *Daily*, *Weekly*, or *Monthly*.
Days	For Weekly reports, select the day of the week to generate the report. For Monthly reports, select the date to generate the report.
Time	Select the time to generate the report for the selected day.

4. Click *Generate*.

For recurring reports, the report generation is delayed by approximately 30 minutes.

To export the Incidents list a CSV file:

- In the toolbar, click *Export to CSV*.

It may take some time to export the report depending on the number of incidents in the list.

To filter the Incident table:

- In the *Search* field at the top-right of the page, click the plus sign and select a filterable column. Use the date picker to select the date range and click *Apply*.
- Hover over a column heading and click the filter icon.

Campaign

The *Campaign* page displays a list of attacks detected by FortiDeceptor. An attack consists of multiple incidents.

You can configure the table settings by hovering over the left-side of the table header and clicking the gear icon ⚙.

The *Campaign* page displays the following information:

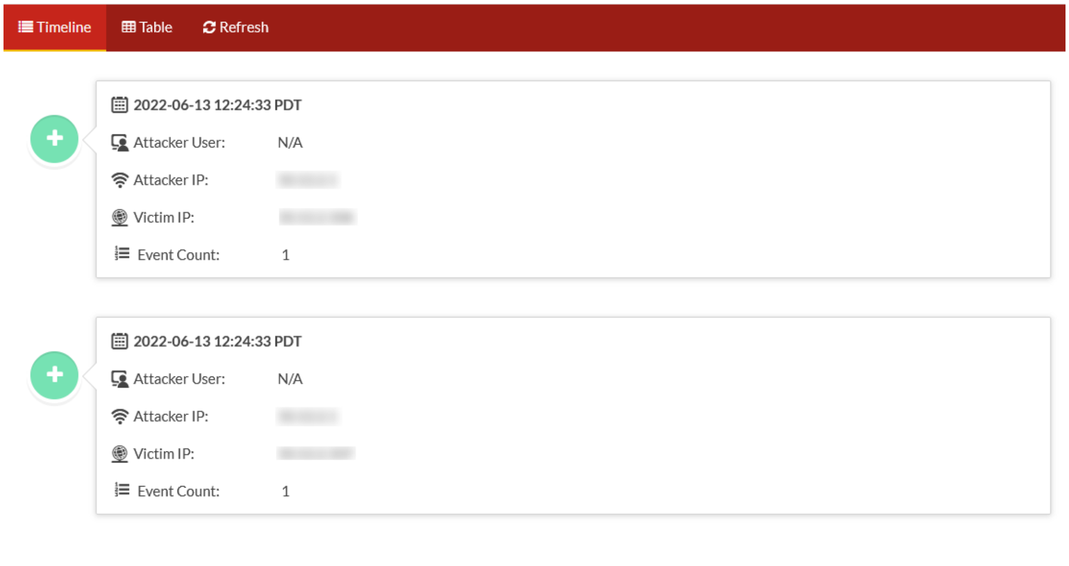
Last Activity	Date and time of the last activity.
Start	Date and time when the attack started.
Severity	Severity of the event.
Incidents	The number of incidents for this campaign.
Attacker IP	IP mask of the attacker.
Victim IP	The IP mask of the victim.
ID	ID of the campaign record.

To filter the Campaign table:

- In the *Search* field at the top-right of the page, click the plus sign and select a filterable column. Use the date picker to select the date range and click *Apply*.
- Hover over a column heading and click the filter icon.

To view the attack details:

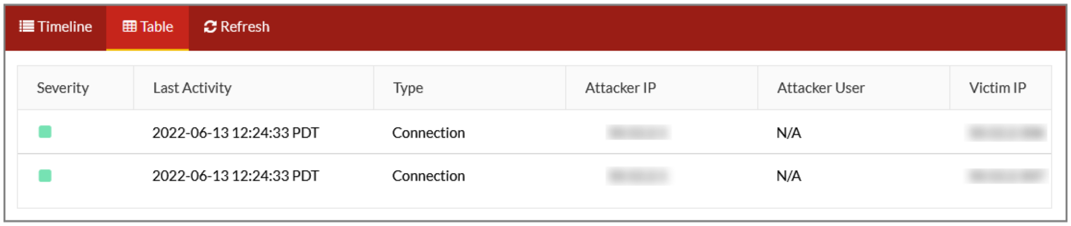
1. Go to *Incident > Campaign*.
2. Expand an attack in the list. The campaign *Timeline* is displayed.



2022-06-13 12:24:33 PDT
Attacker User: N/A
Attacker IP: [redacted]
Victim IP: [redacted]
Event Count: 1

2022-06-13 12:24:33 PDT
Attacker User: N/A
Attacker IP: [redacted]
Victim IP: [redacted]
Event Count: 1

3. Click table to view the attack *Severity*, *Last Activity*, *Type*, *Attacker IP*, *Attacker User*, *Victim IP*, and *Victim Port*.

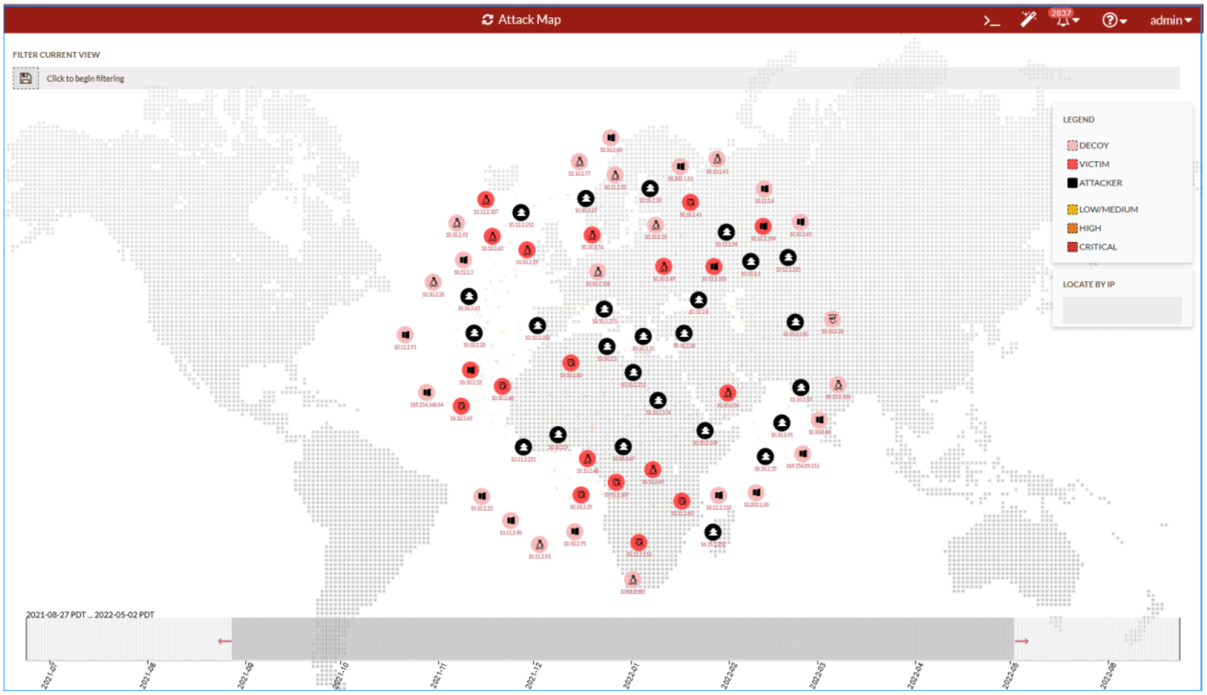


Severity	Last Activity	Type	Attacker IP	Attacker User	Victim IP
🟩	2022-06-13 12:24:33 PDT	Connection	[redacted]	N/A	[redacted]
🟩	2022-06-13 12:24:33 PDT	Connection	[redacted]	N/A	[redacted]

4. (Optional) Click *Refresh* to refresh the data.

Attack Map

The *Attack Map* is a visual representation of the entire network showing real endpoints, Decoy VMs, and ongoing attacks.



The nodes on the map are color-coded by severity.

Node	Color	Description
Decoy	Pink	Click to view the *Name*, *MAC address*, *IP*, *DNS*, and Gateway.
Victim	Red	Click to view the attack history including *Attacker*, *Start Time* and *Incident ID*. When a node is both Victim and Attacker, the node will appear as Attacker.
Attacker	Black	Click to view the attacker's history including *Attacker*, *Start Time* and *Incident ID*.

To filter the Attack Map by IP:

1. Under *Filter Current View*, click in inside *Click to begin filtering*. The options menu is displayed.
2. Select one of the following options:
   - *Attacker IP*
   - *Victim IP*

- *Decoy IP*

3. Enter the IP address. FortiDeceptor sorts the nodes on the map.

To save the current view of the map:

Under *Filter Current View*, click the *Save View* icon .

To filter the map by date:

Drag the red arrows at the bottom of the page to set the start and end dates.

To search for a node by IP:

In the *Locate by IP box*, enter the IP address.

MITRE ICS

The *MITRE ICS* matrix provides an overview of the tactics and techniques in the *ATT&CK for the ICS* Knowledge Base. ATT&CK for ICS is a Knowledge Base used to describe an adversary's actions during an attack. The *MITRE ICS* page visually aligns individual techniques under the tactics where they can be applied. Some techniques span more than one tactic because they can be used for different purposes.

MITRE ICS is relevant to IoT/OT networks. To identify the network, you will need to tag each FortiDeceptor appliance.

To tag MITRE ICS a FortiDeceptor client with the CLI:

```
set tag ICS
```

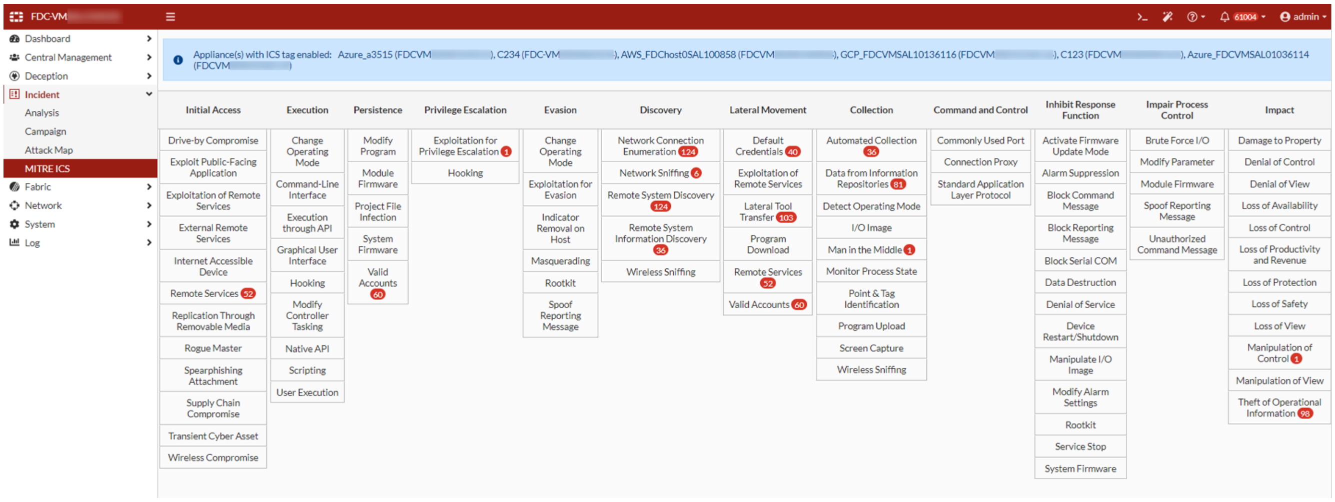
To remove a tag from a FortiDeceptor client with the CLI:

```
unset tag
```

Viewing the MITRE ICS matrix

After the FortiDeceptor appliance is tagged, go to *Incident > MITRE ICS* to view the matrix. The matrix displays the *Tactics* as columns and the *Techniques* as tiles. Management devices display a blue banner at the top of the matrix that shows the tagged appliances in the network. Standalone devices do not display the banner. When an incident meets the Tactic criteria, the Technique tile displays a red dot with the number of incidents.

To view the MITRE ICS incidents, click a *Technique* tile in the *Tactics* column.



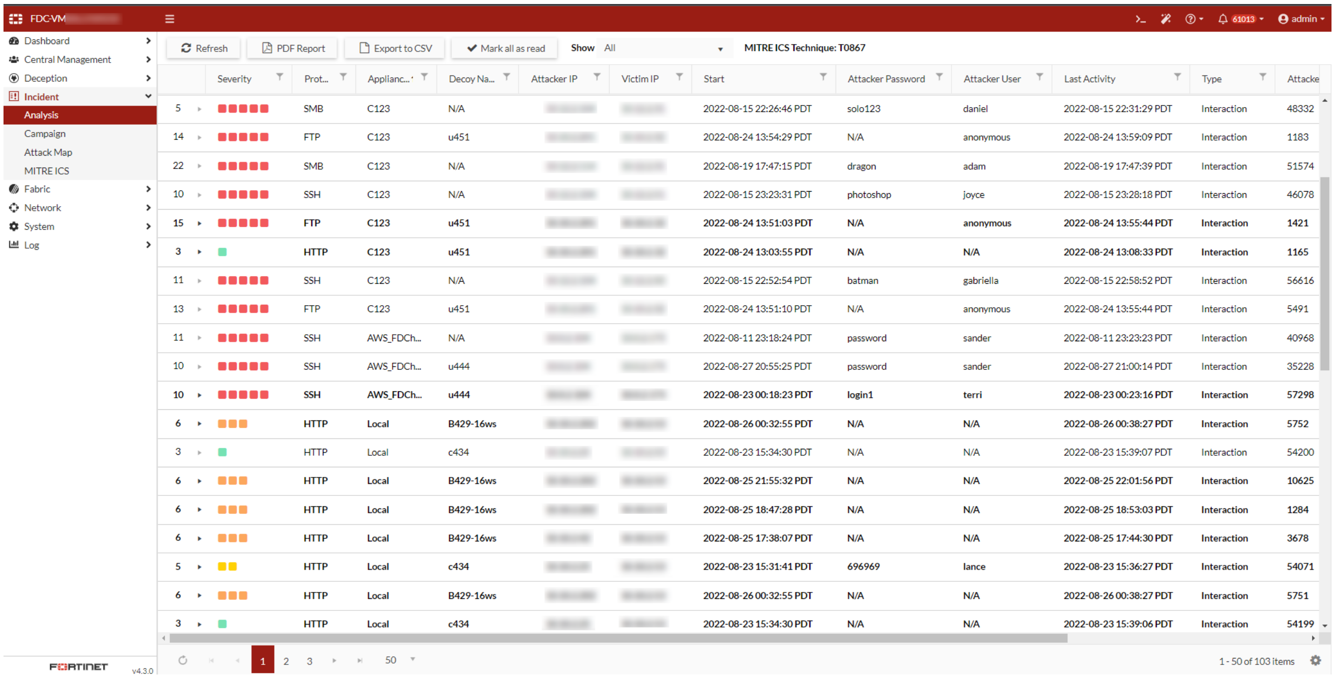
Appliance(s) with ICS tag enabled: Azure_a3515 (FDCVM[redacted]), C234 (FDC-VM[redacted]), AWS_FDChost0SAL100858 (FDCVM[redacted]), GCP_FDCVMSAL10136116 (FDCVM[redacted]), C123 (FDCVM[redacted]), Azure_FDCVMSAL01036114 (FDCVM[redacted])

Initial Access	Execution	Persistence	Privilege Escalation	Evasion	Discovery	Lateral Movement	Collection	Command and Control	Inhibit Response Function	Impair Process Control	Impact
Drive-by Compromise	Change Operating Mode	Modify Program	Exploitation for Privilege Escalation 1	Change Operating Mode	Network Connection Enumeration 124	Default Credentials 40	Automated Collection 36	Commonly Used Port	Activate Firmware Update Mode	Brute Force I/O	Damage to Property
Exploit Public-Facing Application	Command-Line Interface	Module Firmware	Hooking	Exploitation for Evasion	Network Sniffing 6	Exploitation of Remote Services	Data from Information Repositories 81	Connection Proxy	Alarm Suppression	Modify Parameter	Denial of Control
Exploitation of Remote Services	Execution through API	Project File Infection		Indicator Removal on Host	Remote System Discovery 124	Lateral Tool Transfer 103	Detect Operating Mode	Standard Application Layer Protocol	Block Command Message	Module Firmware	Denial of View
External Remote Services	Graphical User Interface	System Firmware		Masquerading	Remote System Information Discovery 36	Program Download	I/O Image		Block Reporting Message	Spoof Reporting Message	Loss of Availability
Internet Accessible Device	Hooking	Valid Accounts 60		Rootkit	Wireless Sniffing	Remote Services 52	Man in the Middle 1		Block Serial COM	Unauthorized Command Message	Loss of Control
Remote Services 52	Modify Controller Tasking			Spoof Reporting Message		Valid Accounts 60	Monitor Process State		Data Destruction		Loss of Productivity and Revenue
Replication Through Removable Media	Native API						Point & Tag Identification		Denial of Service		Loss of Protection
Rogue Master	Scripting						Program Upload		Device Restart/Shutdown		Loss of Safety
Spearphishing Attachment	User Execution						Screen Capture		Manipulate I/O Image		Loss of View
Supply Chain Compromise							Wireless Sniffing		Modify Alarm Settings		Manipulation of Control 1
Transient Cyber Asset									Rootkit		Manipulation of View
Wireless Compromise									Service Stop		Theft of Operational Information 98
									System Firmware		

After you click a technique, you are redirected to the *Incidents* > *Analysis* page. The *Analysis* page displays the incidents that meet conditions for the technique you selected.

The MITRE ICS page is only available in the FortiDeceptor appliances tagged with *set tag ICS*.

In the image below, the *Analysis* page displays the incidents that match *MITRE ICS Technique: T0867*.



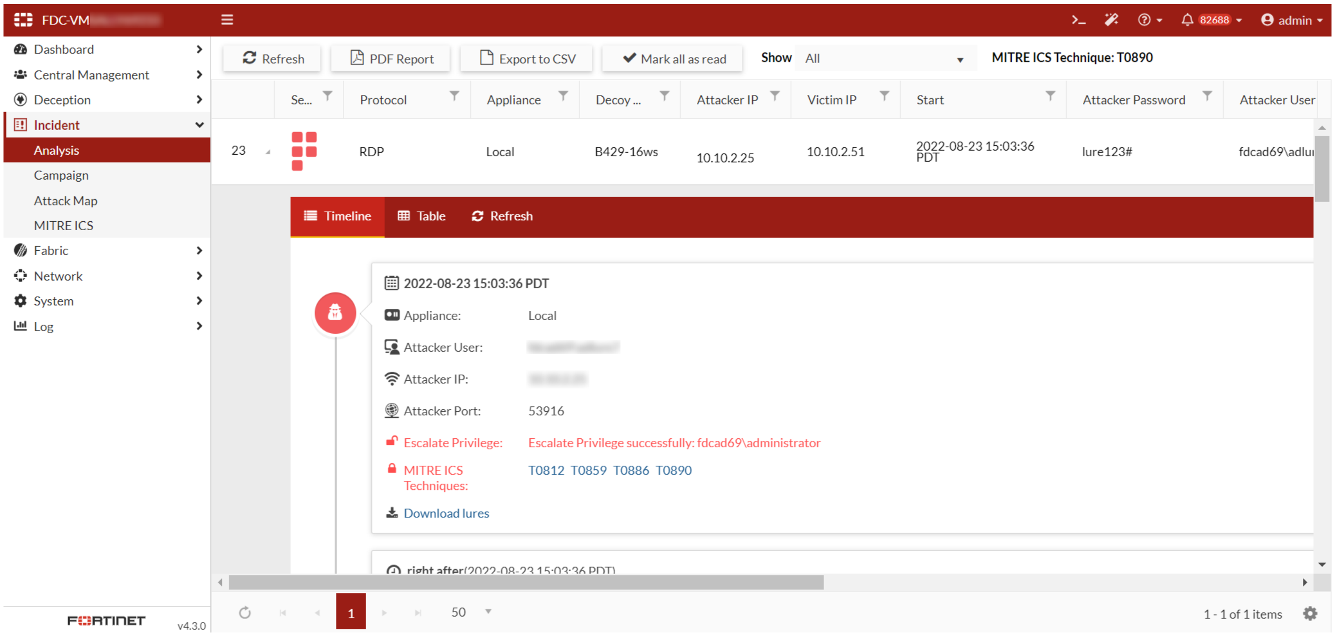
MITRE ICS Technique: T0867

	Severity	Prot...	Applianc...	Decoy Na...	Attacker IP	Victim IP	Start	Attacker Password	Attacker User	Last Activity	Type	Attacke
5	🟥🟥🟥🟥🟥	SMB	C123	N/A	[redacted]	[redacted]	2022-08-15 22:26:46 PDT	solo123	daniel	2022-08-15 22:31:29 PDT	Interaction	48332
14	🟥🟥🟥🟥🟥	FTP	C123	u451	[redacted]	[redacted]	2022-08-24 13:54:29 PDT	N/A	anonymous	2022-08-24 13:59:09 PDT	Interaction	1183
22	🟥🟥🟥🟥🟥	SMB	C123	N/A	[redacted]	[redacted]	2022-08-19 17:47:15 PDT	dragon	adam	2022-08-19 17:47:39 PDT	Interaction	51574
10	🟥🟥🟥🟥🟥	SSH	C123	N/A	[redacted]	[redacted]	2022-08-15 23:23:31 PDT	photoshop	joyce	2022-08-15 23:28:18 PDT	Interaction	46078
15	🟥🟥🟥🟥🟥	FTP	C123	u451	[redacted]	[redacted]	2022-08-24 13:51:03 PDT	N/A	anonymous	2022-08-24 13:55:44 PDT	Interaction	1421
3	🟩	HTTP	C123	u451	[redacted]	[redacted]	2022-08-24 13:03:55 PDT	N/A	N/A	2022-08-24 13:08:33 PDT	Interaction	1165
11	🟥🟥🟥🟥🟥	SSH	C123	N/A	[redacted]	[redacted]	2022-08-15 22:52:54 PDT	batman	gabriella	2022-08-15 22:58:52 PDT	Interaction	56616
13	🟥🟥🟥🟥🟥	FTP	C123	u451	[redacted]	[redacted]	2022-08-24 13:51:10 PDT	N/A	anonymous	2022-08-24 13:55:44 PDT	Interaction	5491
11	🟥🟥🟥🟥🟥	SSH	AWS_FDCh...	N/A	[redacted]	[redacted]	2022-08-11 23:18:24 PDT	password	sander	2022-08-11 23:23:23 PDT	Interaction	40968
10	🟥🟥🟥🟥🟥	SSH	AWS_FDCh...	u444	[redacted]	[redacted]	2022-08-27 20:55:25 PDT	password	sander	2022-08-27 21:00:14 PDT	Interaction	35228
10	🟥🟥🟥🟥🟥	SSH	AWS_FDCh...	u444	[redacted]	[redacted]	2022-08-23 00:18:23 PDT	login1	terri	2022-08-23 00:23:16 PDT	Interaction	57298
6	🟧🟧🟧	HTTP	Local	B429-16ws	[redacted]	[redacted]	2022-08-26 00:32:55 PDT	N/A	N/A	2022-08-26 00:38:27 PDT	Interaction	5752
3	🟩	HTTP	Local	c434	[redacted]	[redacted]	2022-08-23 15:34:30 PDT	N/A	N/A	2022-08-23 15:39:07 PDT	Interaction	54200
6	🟧🟧🟧	HTTP	Local	B429-16ws	[redacted]	[redacted]	2022-08-25 21:55:32 PDT	N/A	N/A	2022-08-25 22:01:56 PDT	Interaction	10625
6	🟧🟧🟧	HTTP	Local	B429-16ws	[redacted]	[redacted]	2022-08-25 18:47:28 PDT	N/A	N/A	2022-08-25 18:53:03 PDT	Interaction	1284
6	🟧🟧🟧	HTTP	Local	B429-16ws	[redacted]	[redacted]	2022-08-25 17:38:07 PDT	N/A	N/A	2022-08-25 17:44:30 PDT	Interaction	3678
5	🟨🟨	HTTP	Local	c434	[redacted]	[redacted]	2022-08-23 15:31:41 PDT	696969	lance	2022-08-23 15:36:27 PDT	Interaction	54071
6	🟧🟧🟧	HTTP	Local	B429-16ws	[redacted]	[redacted]	2022-08-26 00:32:55 PDT	N/A	N/A	2022-08-26 00:38:27 PDT	Interaction	5751
3	🟩	HTTP	Local	c434	[redacted]	[redacted]	2022-08-23 15:34:30 PDT	N/A	N/A	2022-08-23 15:39:06 PDT	Interaction	54199

1 2 3 50

1 - 50 of 103 items

Click an attack to view its details. Scroll down to the *MITRE ICS Techniques* field to view the techniques linked to the attack. Click a *TXXX* link to view a description of technique in the *ATT&CK for the ICS* Knowledge Base.



FDC-VM[redacted]

Dashboard
Central Management
Deception
Incident
Analysis
Campaign
Attack Map
MITRE ICS
Fabric
Network
System
Log

v4.3.0

Refresh | PDF Report | Export to CSV | Mark all as read | Show All | MITRE ICS Technique: T0890

	Se...	Protocol	Appliance	Decoy ...	Attacker IP	Victim IP	Start	Attacker Password	Attacker User
23		RDP	Local	B429-16ws	10.10.2.25	10.10.2.51	2022-08-23 15:03:36 PDT	lure123#	fdcad69\adlu

Timeline | Table | Refresh

2022-08-23 15:03:36 PDT

Appliance: Local

Attacker User: [redacted]

Attacker IP: [redacted]

Attacker Port: 53916

Escalate Privilege: Escalate Privilege successfully: fdcad69\administrator

MITRE ICS Techniques: T0812 T0859 T0886 T0890

Download lures

right after(2022-08-23 15:03:36 PDT)

1 | 50 | 1 - 1 of 1 items

Fabric

Use the *Fabric* pages to manage and configure FortiGate information for integration with FortiDeceptor. This includes blocking settings and Security Fabric status information. Blocking from FortiGate is an API call from FortiDeceptor which allows instant quarantine from FortiGate once an incident is detected. The quarantined IP is under user quarantine in the FortiGate GUI.

This section includes the following topics:

- Detection Devices on page 149
  Configure the third-party malware detection devices for FortiDeceptor integration.
- Quarantine Integration on page 151

  Configure the quarantine devices for FortiDeceptor integration.
- Quarantine Status on page 165

  Status of blocked IP addresses.
- IOC Export on page 166

  Export the IOC file in CSV format for a specified time period.

Detection Devices

The *Detection Devices* page allows you to configure integrations with FortiSandbox, Cuckoo Sandbox, and Virus Total devices.

FortiSandbox

The integration between FortiDeceptor and FortiSandbox will provide a complete static and dynamic analysis against malicious code captured by the network decoys. The malware analysis report will be available on the FortiDeceptor admin console.

To configure integration with FortiSandbox:

1. Go to *Fabric* > *Detection Devices*.
2. Enable *FortiSandbox*.
3. Configure the following parameters:

Type	Select *Appliance* or *Cloud*.
IP/URL	Type the FortiSandbox appliance or cloud IP address or URL
Port	Type the FortiSandbox API port. Default is 443.
Username	Type the API username for the FortiDeceptor appliance. You can configure the

	API username in FortiSandbox.
Password	Type the API password for the FortiDeceptor appliance. You can configure the API password in FortiSandbox.
Token Access	Type the Token for FortiSandbox Cloud. You can find this in FortiSandbox Cloud CLI with the following command: `login-token`
User ID	Type the FortiSandbox Cloud User ID.

4. Click the *Test* button to ensure the API connection is working properly.
5. Click *Save* to store the configuration

Cuckoo Sandbox

The integration between FortiDeceptor and Cuckoo Sandbox will provide a complete static and dynamic analysis against malicious code captured by the network decoys. The malware analysis report will be available on the FortiDeceptor admin console.

To configure integration with Cuckoo Sandbox:

1. Go to *Fabric* > *Detection Devices*.
2. Enable *Cuckoo Sandbox* .
3. Configure the following parameters:

Name	The Fabric connector name
IP/URL	Type the Cuckoo Sandbox IP address or URL
Port	Type the Cuckoo SandboxAPI port. (default is 1337)
API Token	Type the API Token located in the Cuckoo Sandbox's configuration file.

4. Click on the *Test* button to ensure the API connection is working properly.
5. Click *Save* to store the configuration

Virus Total

The integration between FortiDeceptor and the well-known Virus Total service allows the submission of suspicious files (MD5) for malware analysis. When integrated, Virus Total detection ratios will be displayed in the incident analysis alert Workflow for relevant events.

Virus Total engages with multiple service providers to perform the same file inspection. Some service providers return a score of *0*, meaning it is not malware, whereas other providers return a score of *1*, meaning it is malware. Virus Total then returns a ratio such as *15/36* that indicates *15* out of *36* service providers determined the file is malware.

To configure integration with VirusTotal:

1. Join the VirusTotal Community.
2. In your personal settings section find your personal API key in your personal settings section.
3. Go to *Fabric* > *Detection Devices*.

4. Enable *VirusTotal*.
5. In *VT API Key* field enter the your Virus Total personal API key.
6. Click *Save*.

Quarantine Integration

FortiDeceptor on FortiGate Security Fabric topology map

Security Fabric integration allows FortiDeceptor and deception decoys to be visible through the Fabric network topology map.

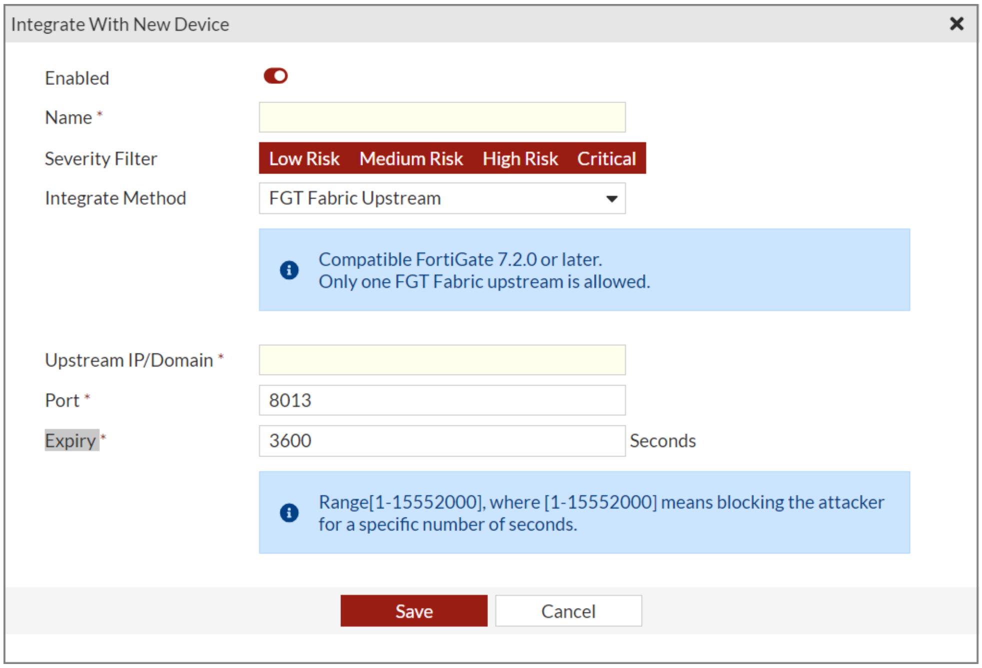
To configure Security Fabric integration, enter the upstream device IP in Port in FortiDeceptor. Next you will add the FortiDeceptor fabric connector in FortiGate.

To configure FortiGate for Security Fabric integration in FortiDeceptor:

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration*.
2. Click *Quarantine integration with new device*. The Integrate With New Device pane opens.

3. Configure the FortiGate fabric integration and click *Save*.

Enabled	Enable.
Name	Enter a name for the integration.
Severity Filter	Select *Low Risk*, *Medium Risk*, *High Risk* or *Critical*.
Integrate Method	Select *FGT Fabric Upstream*.
Upstream IP/Domain	Enter the FortiGate IP address.
Port	Enter the FortiGate connector port.
Expiry	Enter the quarantine expiry time.



Integrate With New Device

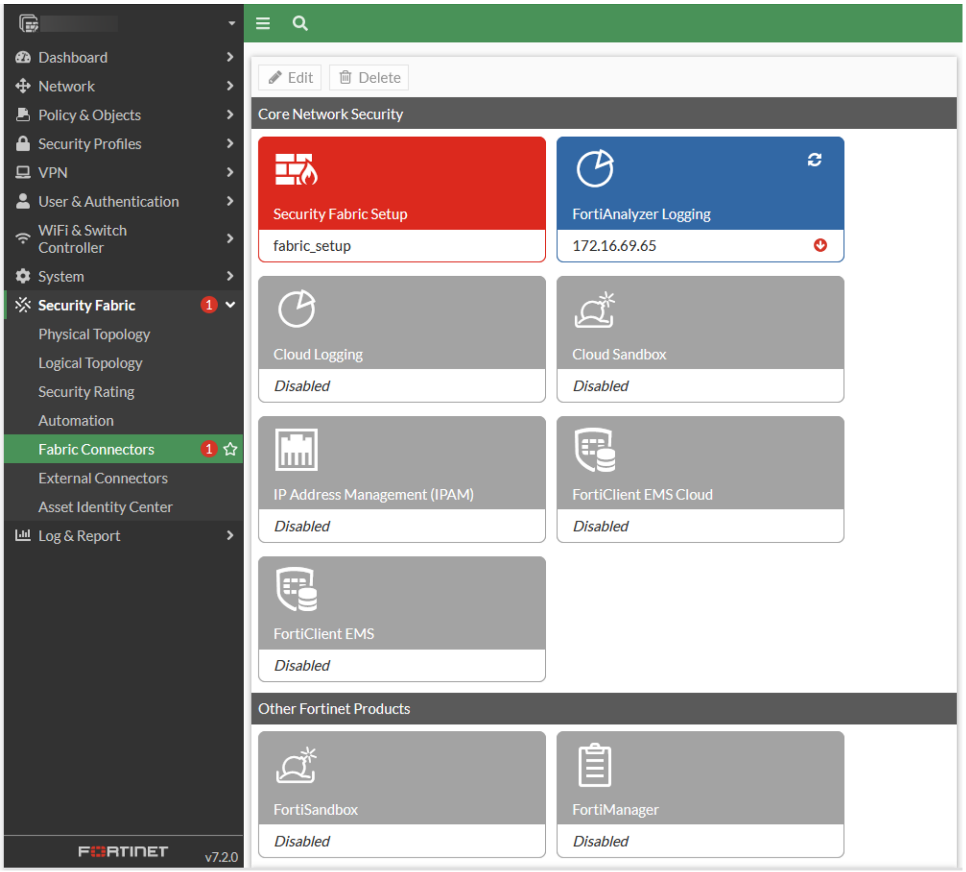
Enabled	
Name *	
Severity Filter	Low Risk, Medium Risk, High Risk, Critical
Integrate Method	FGT Fabric Upstream
Upstream IP/Domain *	
Port *	8013
Expiry *	3600 Seconds

Compatible FortiGate 7.2.0 or later.
Only one FGT Fabric upstream is allowed.

Range[1-15552000], where [1-15552000] means blocking the attacker for a specific number of seconds.

To add the FortiDeceptor fabric connector in FortiGate:

1. In FortiGate, log in as an admin and go to *Security Fabric > Fabric Connectors*.
2. Add the FortiDeceptor connector for this integration. For information, see Configuring other Security Fabric devices > FortiDeceptor in the *FortiGate Administration Guide*.



Core Network Security

Security Fabric Setup: fabric_setup

FortiAnalyzer Logging: 172.16.69.65

Cloud Logging: *Disabled*

Cloud Sandbox: *Disabled*

IP Address Management (IPAM): *Disabled*

FortiClient EMS Cloud: *Disabled*

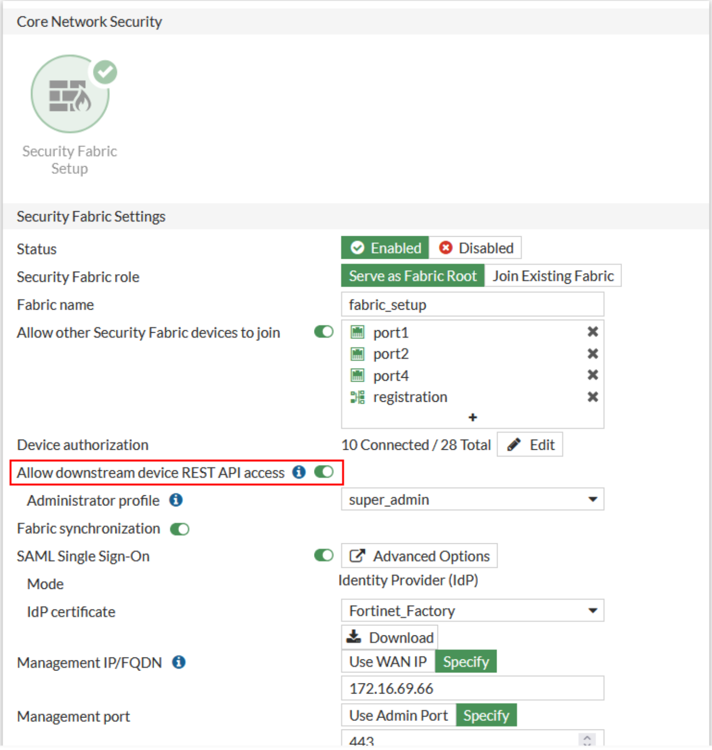
FortiClient EMS: *Disabled*

Other Fortinet Products

FortiSandbox: *Disabled*

FortiManager: *Disabled*

When configuring the Fabric Connector in FortiGate, you must enable *Allow downstream device REST API*.



Core Network Security

Security Fabric Settings

Status	Enabled / Disabled
Security Fabric role	Serve as Fabric Root / Join Existing Fabric
Fabric name	fabric_setup
Allow other Security Fabric devices to join	port1 port2 port4 registration
Device authorization	10 Connected / 28 Total Edit
Allow downstream device REST API access	
Administrator profile	super_admin
Fabric synchronization	
SAML Single Sign-On	Advanced Options
Mode	Identity Provider (IdP)
IdP certificate	Fortinet_Factory Download
Management IP/FQDN	Use WAN IP / Specify 172.16.69.66
Management port	Use Admin Port / Specify 443

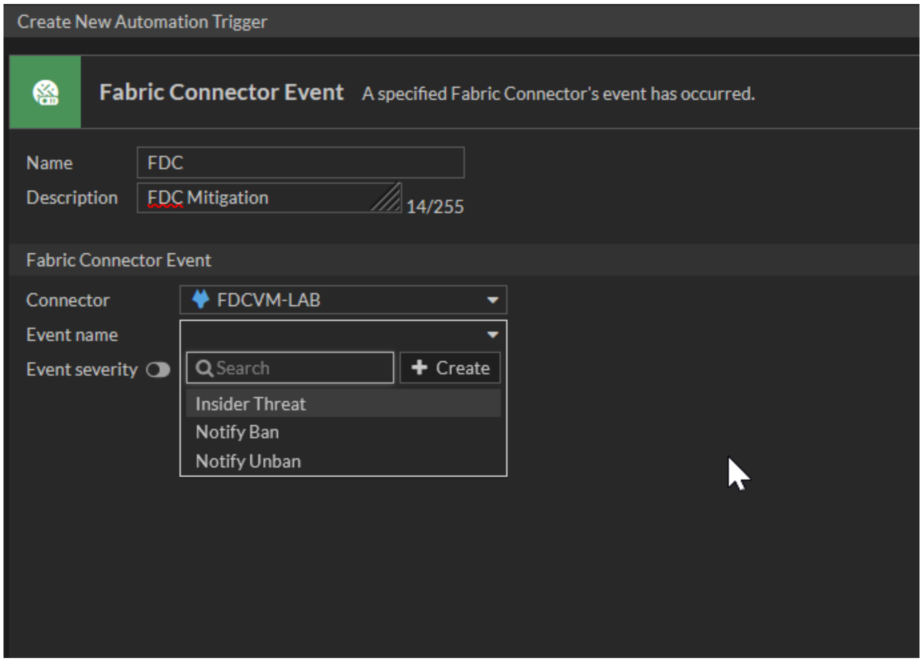
FortiDeceptor supports the CSF protocol that triggers automatic mitigation-isolation of the infected endpoint from the network and prevents the attack from moving laterally.

The CSF integration provides access to more fabric devices for isolation like FortiSwitch through the FortiGate.

SAML support between FortiGate WEB-UI to FortiDeceptor to allows SSO login from FortiGate to FortiDeceptor.

Cooperative Security Fabric (CSF), also known as a Fortinet Security Fabric, spans across an entire network linking different security sensors and tools together to collect, coordinate, and respond to malicious behavior in real time. CSF can be used to coordinate the behavior of different Fortinet products in your network, including FortiGate, FortiAnalyzer, FortiClient, FortiSandbox, FortiAP, FortiSwitch, and FortiClient Enterprise Management Server (EMS).

3. To trigger automatic mitigation using the CSF:
   - a. In FortiGate, log in as an admin and go to *Security Fabric* > *Automation*.
   - b. Click *Trigger* > *Create New*.
   - c. Configure the *Fabric Connector Event*:
     - i. Enter the *Name* of the event.
     - ii. Enter a *Description* of the event.
     - iii. Select a *FDC* appliance from the connector menu.
     - iv. Select an event.
     - v. Select the *Event Severity*.
     - vi. Click *OK*.



Create New Automation Trigger

Fabric Connector Event A specified Fabric Connector's event has occurred.

Name: FDC

Description: FDC Mitigation 14/255

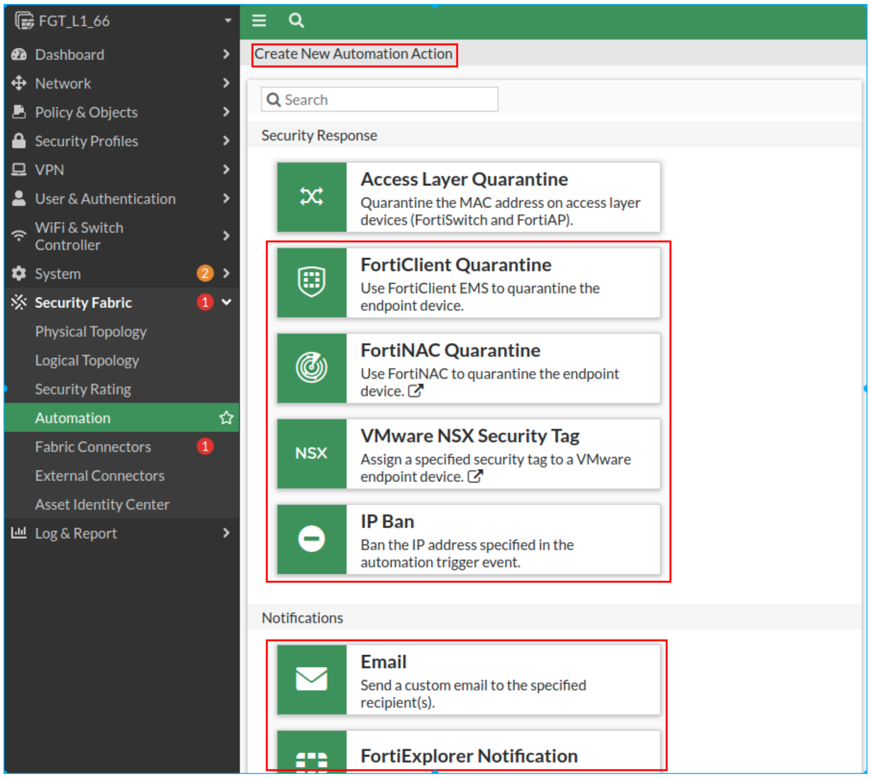
Fabric Connector Event

Connector: FDCVM-LAB

Event name:

Event severity

4. In the same screen, go to *Action* > *Create New* and choose any mitigation response you would like to execute once the FortiDeceptor pushes an incident alert to FortiGate.



Create New Automation Action

Security Response

Access Layer Quarantine
Quarantine the MAC address on access layer devices (FortiSwitch and FortiAP).

FortiClient Quarantine
Use FortiClient EMS to quarantine the endpoint device.

FortiNAC Quarantine
Use FortiNAC to quarantine the endpoint device.

VMware NSX Security Tag
Assign a specified security tag to a VMware endpoint device.

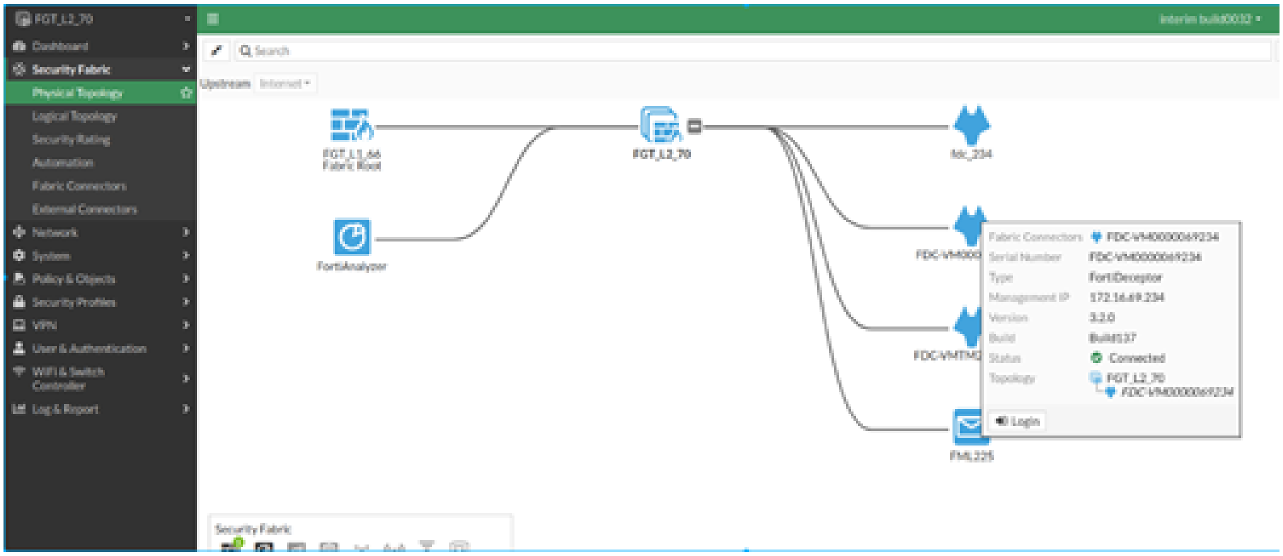
IP Ban
Ban the IP address specified in the automation trigger event.

Notifications

Email
Send a custom email to the specified recipient(s).

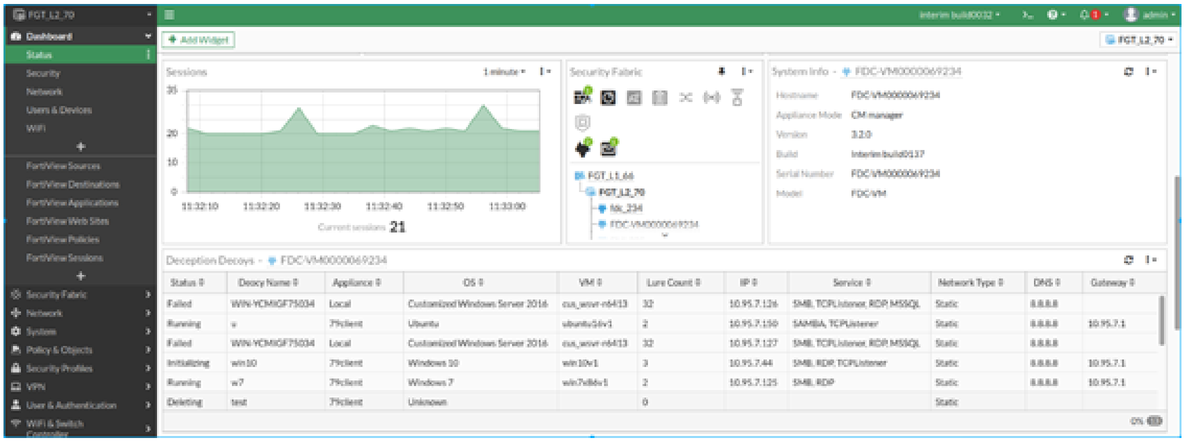
FortiExplorer Notification

5. In FortiGate, go to *Security Fabric* > *Physical Topology* to verify that the FortiDeceptor is on the topology map.



Fabric Connectors	FDC-VM0000069234
Serial Number	FDC-VM0000069234
Type	FortiDeceptor
Management IP	172.16.69.234
Version	3.2.0
Build	Build537
Status	Connected
Topology	FGT_L2_70 FDC-VM0000069234

6. In FortiGate, go top *Dashboard* > *Status* to view FortiDeceptor information and deception decoys configuration status.



Hostname	FDC-VM0000069234
Appliance Mode	CM manager
Version	3.2.0
Build	Interim build0137
Serial Number	FDC-VM0000069234
Model	FDC-VM

Status	Decoy Name	Appliance	OS	VM	Lure Count	IP	Service	Network Type	DNS	Gateway
Failed	WIN-YCMIGF75034	Local	Customized Windows Server 2016	cus_wsvr-r6413	32	10.95.7.126	SMB, TCPListener, RDP, MSSQL	Static	8.8.8.8	
Running	u	79client	Ubuntu	ubuntu16v1	2	10.95.7.150	SAMBA, TCPListener	Static	8.8.8.8	10.95.7.1
Failed	WIN-YCMIGF75034	Local	Customized Windows Server 2016	cus_wsvr-r6413	32	10.95.7.127	SMB, TCPListener, RDP, MSSQL	Static	8.8.8.8	
Initializing	win10	79client	Windows 10	win10v1	3	10.95.7.44	SMB, RDP, TCPListener	Static	8.8.8.8	10.95.7.1
Running	w7	79client	Windows 7	win7x86v1	2	10.95.7.125	SMB, RDP	Static	8.8.8.8	10.95.7.1
Deleting	test	79client	Unknown		0			Static		

FortiDeceptor integration for threat response mitigation

Use *Fabric* > *Quarantine Integration* to view and configure FortiGate and other device settings for integration with FortiDeceptor. Integration uses REST APIs, XML APIs, or webhooks. When decoys are accessed, FortiDeceptor makes quarantine calls and attackers are immediately quarantined on the device for further analysis.

The following information is displayed:

Action	Click *Edit* to edit the integration settings. Click *Delete* to delete the device.
Enabled	Shows if the device is enabled or disabled.
Status	Device status.
Name	Alias of the integrated device.
Integrate Method	• A/D Connector Isolation • AWS Keys • Aruba ClearPass • Azure Keys • CheckPoint-FW-Isolation • Cisco-ISE • Cisco-ISE ANC Policy • CrowdStrike-Isolation • FGT Fabric Upstream • FGT-REST-API • FGT-REST-API-TOKEN • FGT-WEBHOOK • FNAC-WEBHOOK • FortEDR-Isolation • FSM-Watch-List • FortiClient-EMS • GEN-WEBHOOK • IR Collector (see, Integrate Windows IR collector on page 367) • Microsoft-ATP

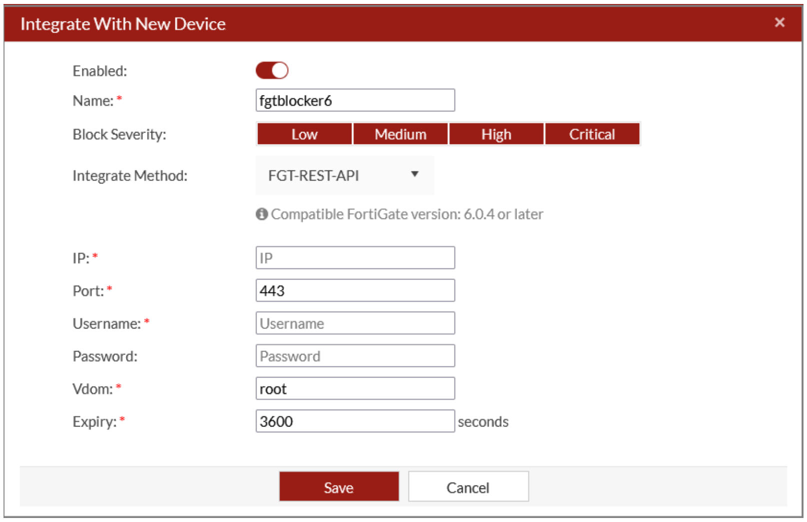
	• PAN-XMLAPI • SSH Connector • SentinelOne Isolation • Splunk-Watch-List • Windows Network Isolation
Severity	Security level. The selected level and all levels above it are blocked. For example, if you select *Medium*, then when any attack reaches medium, high, or critical levels, the attacker IP address is blocked. If you select *Critical*, then only the critical level is blocked.
Detail	Device integration details.

To integrate a device:

1. Go to *Fabric* > *Integration Devices*.
2. Click *Quarantine Integration With New Device*.

3. Configure the device for integration. Then click *Save*.

Enabled	Enable or disable this device.
Name	Specify a name for this device.
Severity Filter	Select *Low Risk*, *Medium Risk*, *High Risk* or *Critical*. The selected level and all levels above it are blocked. For example, if you select *Medium*, then when any attack reaches medium, high, or critical levels, the attacker IP address is blocked. If you select *Critical*, then only the critical level is blocked.
Appliance	Option for Central Management manager device to integrate the incidents from the specified appliances only.
Integrate Method	The integration method of this device: • FGT-REST-API (Default) • FGT-WEBHOOK • PAN-XMLAPI • GEN-WEBHOOK • FNAC-WEBHOOK • Windows Network Isolation • FortEDR-Isolation • Cisco-ISE • Microsoft-ATP • CrowdStrike-Isolation • FSM-Watch-List Different integration methods have different settings. To view the settings for each integration type, see Integrate Method settings on page 159
IP or Device IP	IP address of the integrated device.
Port	Port number of the integrated device API service. Default is 8443.
Username and Password	Username and password of the integrated device.
VDOM	For FortiGate devices, the default access VDOM.
Verify SSL	Enable to verify SSL.
Expiry	Default blocking time in second. Default is 3600 seconds.



Integrate With New Device

Enabled: ●

Name: * fgtblocker6

Block Severity: Low Medium High Critical

Integrate Method: FGT-REST-API

Compatible FortiGate version: 6.0.4 or later

IP: * IP

Port: * 443

Username: * Username

Password: Password

Vdom: * root

Expiry: * 3600 seconds

Integrate Method settings

A/D Connector Isolation

Hostname	IP address or Hostname of the Active Directory (AD) server.
Port	Port number used for connecting to the AD server.
Username	Valid AD service account with a minimum of *account operators* access.
Password	Password for your AD user.

Base DN	The base, or node from where the search should start.
	All connector operations are carried out using the Base DN as a root to the AD organization tree. You can restrict the AD lookup by providing appropriate filters in this parameter.
	Some examples are as follows:
	`DC=fdc,DC=com`
	`OU=workstation,DC=fdc,DC=com`
	`OU=Finance,OU=workstation,DC=fdc,DC=com`

Bind DN	The fully distinguished name, which is used to bind to the AD server.
Use TLS	Specifies whether SSL and TLS. SSL is used by default.
Limit	The number of quarantine attackers per 24 hours.

Aruba ClearPass

Server URL	The Aruba ClearPass URL or IP address.
Client ID	Client ID of the Aruba ClearPass application which is used to access Aruba ClearPass.

Auth Type	Select *Username/Password* or *Client Secret*.
Username	If the *Auth Type* is *Username/Password*, enter the Aruba ClearPass username.
Password	If the *Auth Type* is *Username/Password*, enter the Aruba ClearPass password.
Client Secret	If the *Auth Type* is *Client Secret*, enter the Aruba ClearPass client secret.
Verify SSL	Enable to verify Secure Sockets Layer.
Expiry	Default blocking time in seconds. Default is 3600 seconds

AWS Keys

AWS Region	AWS region to access the AWS CloudTrail.
AWS Access Key ID	ID of the AWS Access Key to access AWS services.
AWS Secret Access Key	Key of the AWS Secret Access to access AWS services.
Verify SSL	Specifies whether the SSL certificate for the server is to be verified or not. By default, this option is set as *True*.

Azure Keys

Client ID	Also called *Application ID;Unique ID* of the Microsoft Entra application.
Client Secret	Client Secret of the Microsoft Entra application that is used to create an authentication token required to access the API.
Tenant ID	Tenant ID provided for your Microsoft Entra.
Verify SSL	Specifies whether the SSL certificate for the server is to be verified or not. By default, this option is set as *True*.

CheckPoint-FW-Isolation

Compatible CheckPoint version: R81 build392 or later

IP/URL	IP address or URL of the integrated device.
Port	Port number of the integrated device API service. Default is 443.
IP Block Policy(Network Group Name)	Enter the Network Group Name.
Username	Username of the integrated device.
Password	Password of the integrated device.
Verify SSL	Enable to verify Secure Sockets Layer.
Install Policy After Publish	Enable to install the policy after it is published.

Cisco-ISE

Compatible Cisco ISE version: 2.7 or later.

Server URL/IP	The Cisco server URL and IP address.
Port	Port number of the integrated device API service. Default is 9060.
Username	Username of the integrated device.
Password	Password of the integrated device.
Verify SSL	Enable to verify SSL.
Expiry	Default blocking time in seconds. Default is 3600 seconds.

Cisco-ISE ANC Policy

Compatible Cisco ISE version: 2.7 or later.

Server URL/IP	The Cisco server URL and IP address.
Port	Port number of the integrated device API service. Default is 9060.
ANC Policy	ANC policy name.
Username	Username of the integrated device.
Password	Password of the integrated device.
Verify SSL	Enable to verify SSL.
Expiry	Default blocking time in seconds. Default is 3600 seconds.

CrowdStrike-Isolation

Server URL	CrowdStrike server URL.
Client ID	Client ID of the Crowdstrike application which is used to access CrowdStrike isolation service.
Client Secret	Secret string of the Crowdstrike application which is used to access CrowdStrike isolation service.
Verify SSL	Enable to verify SSL.
Expiry	Default blocking time in seconds. Default is 3600 seconds.

FGT-REST-API

Compatible FortiGate version: 6.0.4 or later

IP	IP address of the integrated device.
Port	Port number of the integrated device API service. Default is 443.
Username	Username of the integrated device.
Password	Password of the integrated device.
VDOM	For FortiGate devices, the default access VDOM. The default VDOM is root.

Expiry	Default blocking time in second. Default is 3600 seconds.

FGT-WEBHOOK

Compatible FortiGate version: 6.4.0 or later

Block Action	**Expiry**	Default blocking time in seconds. Default is 3600 seconds.
	URL	Enter the request API URI.
	Authorization	Enter the API key.
Unblock Action	**Expiry**	Default blocking time in seconds. Default is 3600 seconds.
	URL	Enter the request API URI.
	Authorization	Enter the API key.

FNAC-WEBHOOK

Compatible FortiNAC version: 8.8.2.1714 or later.

IP:	IP address of the integrated device.
Port:	Port number of the integrated device API service. Default is 443.
Authorization Token:	The FortiNAC-WEBHOOK authorization token generated by FNAC.
Expiry:	Default blocking time in seconds. Default is 3600 seconds.

FortiEDR-Isolation

Compatible FortiEDR version: 5.0.2.305 or later.

IP	IP address of the integrated device.
Port	Port number of the integrated device API service. Default is 443.
Organization\Username	The FortiEDR organization and username.
Password	Password of the integrated device.
Expiry	Default blocking time in seconds. Default is 3600 seconds.

FSM-Watch-List

Compatible FortiSIEM version: 6.3.3 or later

IP	IP address of the integrated device.
Port	Port number of the integrated device API service. Default is 443.

Username:	Username of the integrated device.
Password:	Password of the integrated device.
Organization	Type the organization name for the integration device.
Verify SSL	Enable to verify SSL.
Watch-List Name	Type Watch-List Name as defined in FortiSIEM.
Lure Users-Manual Mode	Type the other lures you want to watch.
Polling Time Interval	Default polling time in seconds. Default is 3600 seconds.

FortiClient-EMS

IP	IP address of the integrated device.
Port	Port number of the integrated device API service. Default is 443.
Client ID	ClientID of the integrated device.
Client Secret	Client Secret of the integrated device.
VDOM	The default VDOM is default.
Expiry	Default blocking time in second. Default is 3600 seconds.

GEN-WEBHOOK

Compatible FortiNAC version: 8.8 or later (Firmware: 8.8.2.1714)

Block Action:	**Expiry**	Default blocking time in seconds. Default is 3600 seconds.
	Http Method	Select GET, POST, PUT, or PATCH
	URL	Enter the request API URI.
	Authorization	Enter the API key.
	HTTP Header	Select Empty, Hacker-IP, Hacker-MAC, or Expiry-Time.
	HTTP Data	Select Empty, Hacker-IP, Hacker-MAC, or Expiry-Time.
Unblock Action:	**Http Method**	Select GET, POST, PUT, or PATCH
	URL	Enter the request API URI.
	Authorization	Enter the API key.
	HTTP Header	Select Empty, Hacker-IP, Hacker-MAC, or Expiry-Time.
	HTTP Data	Select Empty, Hacker-IP, Hacker-MAC, or Expiry-Time.

IR Collector

Domain	The device domain.
Username	Username of the integrated device.
Password	Password of the integrated device.
Limit	The number of collections per endpoint per 24 hour.

Microsoft-ATP

Server URL	Service base URI to connect and perform the automated operations. For example, https://api.securitycenter.microsoft.com.
Client ID	Client ID of the Azure application that is used to access Windows Defender ATP
Client Secret	Secret string that the application (used to access Windows Defender ATP) uses to prove its identity
Tenant ID	Tenant ID of the Azure application
Verify SSL	Enable to verify SSL.
Expiry	Default blocking time in seconds. Default is 3600 seconds.

PAN-XMLAPI

Compatible PAN-device version: 10.0.0 or later

Device IP	IP address of the integrated device.
Port	Port number of the integrated device API service. Default is 443.
Username	Username of the integrated device.
Password	Password of the integrated device.
Vsys	The virtual system which is configured on PAN
Policy Index	Select *Top* or *Bottom*.
Expiry	Default blocking time in seconds. Default is 3600 seconds.

SentinelOne Isolation

Server URL	SentinelOne server URL.
API Token	The SentinelOne authorization token.
API Version	The version of the SentinelOne API.
Verify SSL	Enable to verify SSL.
Expiry	Default blocking time in seconds. Default is 3600 seconds.

SSH Connector

SSH Credentials	**Username**	Username of the integrated device.
	Password	Password of the integrated device.
SSH Certificate	**Username**	Username of the integrated device.
	Generate Certificate	Generate SSH Keys for download and import to integrated device.

Windows Network Isolation

Domain	The device domain.
Username	Username of the integrated device.
Password	Password of the integrated device.

Quarantine Status

The *Fabric* > *Quarantine Status* page displays the status of blocked and quarantined IP addresses. It also lets you manually block or unblock devices. The following options are available:

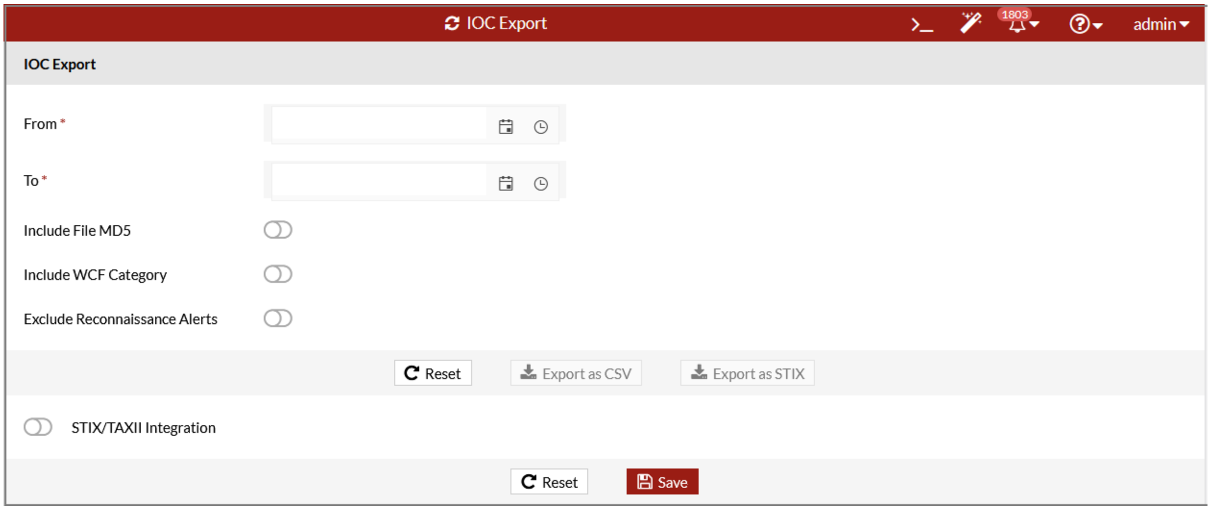
Refresh	Refresh the page to get the latest data.
Block	Manually send a blocking request for the selected attacker IP addresses.
Unblock	Manually send an unblocking request for the selected attack IP addresses.

The following information is displayed:

Attacker IP	IP addresses of blocked attacker.
Start	Start time of blocking behavior.
End	End time of blocking behavior.
Type	Blocking type, manual, or automatic quarantine.
Integrated Device	Alias of the device which blocks the *Attacker IP* address. This is the *Name* field in *Fabric* > *Integration Devices*.
Time Remaining	The remaining blocking time.
Status	Current status of the attacker.
Message	Additional message for the quarantine operation.

IOC Export

The *IOC Export* page allows you to export the IOC file in CSV or STIX format for a specified time period. The CSV file can be processed by third party Threat Intelligence Platforms. The file contains the TimeStamp, Incident ID, Attacker IP, related files, and WCF (Web Content Filtering) events. You can include MD5 checksums, WCF category, and reconnaissance alerts.



To export the IOC as a CSV file:

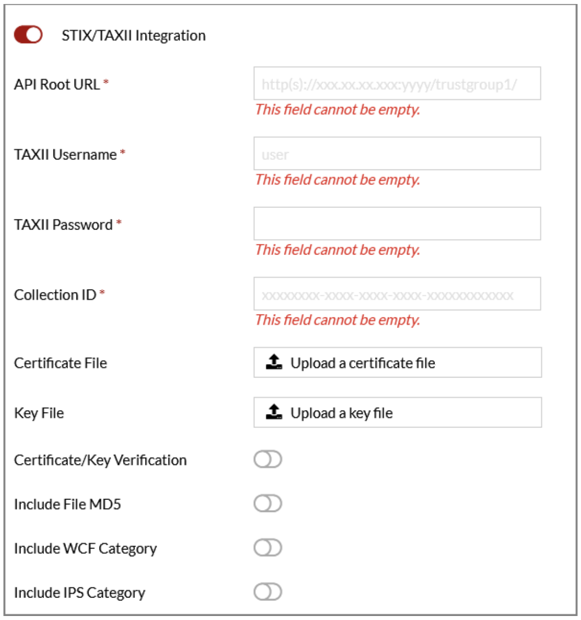
1. Go to *Fabric > IOC Export*.
2. Specify the date range by setting the date and time in the *From* and *To* fields.
3. (Optional) Include or exclude the following files and alerts:
   - *Include File MD5*
   - *Include WCF Category*
   - *Exclude Reconnaissance Alerts*
4. Click *Export as CSV*

To Push the IOC over STIX/TAXII server

1. Go to *Fabric > IOC Export*.
2. Specify the date range by setting the date and time in the *From* and *To* fields.
3. Enable *STIX/TAXII Integration*.
4. Configure the export settings:

API Root URL	Enter the API Root URL.
TAXII Username	Enter the TAXII username.
TAXII Password	Enter the TAXII password.
Collection ID	Enter the Collection ID.
Certificate File	Click Upload a certificate file to upload the certificate file.

Key File	Click to upload the API key file.
Certificate/Key Verification	Enable Certificate/Key Verification.
Include File MD5	Enable to include the MD5 file.
Include WCF Category	Enable to include the WCF category.
Include IPS Category	Enable to include the IPS category.



● STIX/TAXII Integration

API Root URL *	http(s)://xxx.xx.xx.xxx:yyyy/trustgroup1/ *This field cannot be empty.*
TAXII Username *	user *This field cannot be empty.*
TAXII Password *	 *This field cannot be empty.*
Collection ID *	xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx *This field cannot be empty.*
Certificate File	Upload a certificate file
Key File	Upload a key file
Certificate/Key Verification	○
Include File MD5	○
Include WCF Category	○
Include IPS Category	○

5. Click *Export as STIX* to push the export over the protocol in real time.

Network

The *Network* page provides interface, DNS, and routing management options.

This section includes the following topics:

- Interfaces
- System DNS
- System Routing

Interfaces

To view and manage interfaces, go to *Network* > *Interfaces*. All of the columns in the table are searchable and support custom filters.

This page displays the following information and options:

Interface	The interface name and description. Failover IP is listed under this field with the descriptor: *(cluster external port)*.
port1 (administration port)	Port1 is hard-coded as the administration interface. You can enable or disable SSH rights on port1. HTTPS is enabled by default and cannot be disabled. You can use port1 for Device mode although a different, dedicated port is recommended.
port2	Decoy VM deployment.
port3	Decoy VM deployment.
port4	Decoy VM deployment.
port5/port6	Decoy VM deployment.
port7/port8	Decoy VM deployment.
IPv4	The IPv4 IP address and subnet mask of the interface.
IPv6	The IPv6 IP address and subnet mask of the interface.
Interface Status	The state of the interface: • Interface up • Interface down • Interface is being used by sniffer
Link Status	The link status: • Link up • Link down
Access Rights	The access rights associated with the interface. HTTPS is enabled by default on port1. You can enable SSH access on port1.

Edit	Select the interface and click *Edit* in the toolbar to edit the interface.

To filter the columns in the table:

1. Click the plus sign in the Search field. The *Filterable Columns* menu opens.

   ⊕

2. Select a column in the list to *Resize to Contents*, *Group By This column* or create a custom filter.
3. Click *Apply*.

To show or hide columns in the table:

1. Hover the header row until the *Configure Table* icon appears.

   ⚙

2. Click *Configure Table*. The *Best Fit Columns* menu opens.
3. Select the columns to appear in the table and click *Apply*.
4. To restore the default table, click *Reset Table*.

To edit an interface:

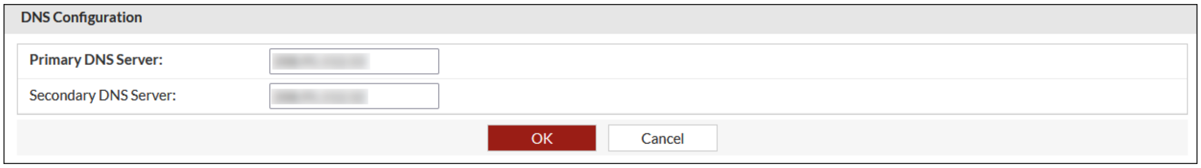
1. Select the *IPv4* or *IPv6* address of an interface name and click *Edit* in the toolbar.
2. Edit the *IP Address / Netmask*. The Confirmation dialog opens.
3. (Optional) Change the *Interface Status*.
4. In the *IP Address / Netmask* pane, update the IPv4 and IPv6 address.
5. Click *OK*.

To edit administrative access:

1. Select *port1 (administration port)* and click *Edit* in the toolbar.
2. Edit the *Access Rights*.
   HTTPS is enabled by default. You can also enable SSH support.
3. If necessary, edit the *IP Address / Netmask*.
4. Click *OK*.

System DNS

You can configure the primary and secondary DNS server addresses in *Network* > *System DNS*.



DNS Configuration

Primary DNS Server:	[redacted]
Secondary DNS Server:	[redacted]

To configure the System DNS:

1. Go to Network > System DNS.
2. In the *Primary DNS Server* and *Secondary DNS Server* fields, enter the address of the primary and secondary servers.

System Routing

Use the *Network > System Routing* page to manage static routes of your FortiDeceptor device. All of the columns in the table are searchable and support custom filters.

The following options are available:

Create New	Create a new static route.
Edit	Edit the selected static route.
Delete	Delete the selected static route.

The following information is displayed:

IP/Mask	IP address and subnet mask.
Gateway	Gateway IP address.
Device	The interface associated with the static route.

To create a new static route:

1. Click *Create New*.
2. Enter the *Destination IP* address, *Mask*, and *Gateway*.

You can enter the *Destination IP/Mask* in the format `192.168.1.2/255.255.255.0`, `192.168.1.2/24`, or `fe80:0:0:0:0:0:c0a8:1fe`.

3. Select a *Device* (or interface).
4. Click *OK*.

To edit a static route:

1. Select a Static Route
2. Click *Edit*.
3. Edit the destination IP address and mask, gateway, and device (or interface) as required.
4. Click *OK* to apply the edits to the static route.

To delete a static route or routes:

1. Select one or more Static Routes.
2. Click *Delete*.

3. Confirm the deletion.

To filter the columns in the table:

1. Click the plus sign in the Search field. The *Filterable Columns* menu opens.

   ⊕

2. Select a column in the list to *Resize to Contents*, *Group By This column* or create a custom filter.
3. Click *Apply*.

To show or hide columns in the table:

1. Hover the header row until the *Configure Table* icon appears.

   ⚙

2. Click *Configure Table*. The *Best Fit Columns* menu opens.
3. Select the columns to appear in the table and click *Apply*.
4. To restore the default table, click *Reset Table*.

System

Use the *System* pages to manage and configure the basic system options for FortiDeceptor. This includes administrator configuration, mail server settings, and maintenance information.

This section includes the following topics:

Administrators	Configure administrator user accounts.
Admin Profile	Configure admin profiles to define admin privileges.
Certificates	Configure CA certificates.
LDAP Servers	Configure LDAP servers.
RADIUS Servers	Configure RADIUS servers.
Mail Server	Configure the mail server.
SNMP	Configure SNMP.
FortiGuard	Configure FortiGuard settings and upgradeable packages.
FDC License	Upload license files and input confirmation ID.
Settings	Configure the idle timeout or reset all widgets to their default state.
Login Disclaimer	Configure the Login Disclaimer.
Table Customization	Define columns and order of *Incident* and *Event* tables.

Administrators

Use the *System* > *Administrators* page to configure administrator user accounts.

If the admin user's Admin Profile does not have *Read Write* privilege under *System* > *Admin Profiles*, the user can only view and edit their own information.

The following options are available:

Create New	Create a new administrator account.
Edit	Edit the selected entry.
Delete	Delete the selected entry.
Test Login	Test the selected user's login settings. If an error occurs, a debug message appears.

The following information is displayed:

Name	The administrator account name.

Type	The administrator type: • **Local**: User information is stored in the FortiDeceptor local database and authenticated locally by FortiDeceptor. • **LDAP**: User information is stored in the remote LDAP server. A copy of the username is stored in the FortiDeceptor local database (without password and other information), and is authenticated remotely by the LDAP server. See, LDAP Servers on page 180. • **RADIUS**: User information is stored in the remote RADIUS server. A copy of the username is stored in the FortiDeceptor local database (without password and other information), and is authenticated remotely by the RADIUS server. See, RADIUS Servers on page 181. • **Fabric SSO**: User information is managed by Security Fabric and authentication is handled through the Security Fabric (eg. FortiGate). See, *FortiDeceptor on FortiGate Security Fabric topology map* in Quarantine Integration on page 151. • **SAML SSO**: User information is stored in an external identity provider (IdP) and authentication is performed via SAML-based single sign-on (SSO) (eg. FortiGate). See, Single Sign-On on page 182. **NOTE**: For Single Sign-On (SSO), user information is stored in a remote Identity Provider (IdP) server. No user information is stored locally. Instead, FortiDeceptoracts as a Service Provider (SP). When a login request is received, FortiDeceptor redirects the request via SAML protocol to the IdP to complete the authentication. See Single Sign-On on page 182.
Profile	The Admin Profile the user belongs to.

To create a new user:

1. Log in using an account with *Read/Write* access and go to *System* > *Administrators*.
2. Click *Create New*.

3. Configure the following:

Administrator	Name of the administrator account. The name must be 1 to 30 characters using upper-case letters, lower-case letters, numbers, or the underscore character (_) for *Local* and LDAP administrators. The character limit for RADIUS server administrators is 64 characters.
Password, Confirm Password	Password of the account. The password must be 6 to 64 characters using upper-case letters, lower-case letters, numbers, or special characters. This field is available when *Type* is set to *Local*.
Type	SSelect *Regular Admin*, *Local*, *LDAP*, *RADIUS*, *Fabric SSO* or *SAML SSO*.
LDAP Server	When *Type* is *LDAP*, select an *LDAP Server*. For more information, see LDAP Servers on page 180.
RADIUS Server	When *Type* is *RADIUS*, select a *RADIUS Server*. For more information, see RADIUS Servers.
Regular Admin	When *Type* is *Regular Admin*, the user will have almost all the same privileges of a *Super admin*, but cannot see or can change the Super Admin user profile. Only Super Admin and Regular Admin accounts can choose the Regular Admin type to create a new Regular Admin. When a Regular Admin logs in, they will not see the Super User account. Regular Admins can see and edit all other users. Regular Admins have access to the same Menu items and CLI Commands settings as a Super Admin.
Fabric SSO	If a user logs in with a Fabric SSO account without setting the admin profile, the default *Fabric SSO* profile will be used automatically. You can customize a Fabric SSO user's profile from all profile types except Super Admin. After successful authentication, FortiDeceptor determines the user's access permissions based on the assigned profile. Fabric SSO usernames are prefixed with *FABRIC_*, and this prefix is enforced by the system.
SAML SSO	If a user logs in with a SAML SSO account without setting the admin profile, the default *Fabric SSO* profile will be used automatically. You can customize a Fabric SSO user's profile from all profile types except Super Admin. After successful authentication, FortiDeceptor determines the user's access permissions based on the assigned profile. Fabric SSO usernames are prefixed with *SAML_*, and this prefix is enforced by the system.
Push notification to mobile if applicable	Enable FortiToken push notifications for mobile devices. This option is available when *Type* is *RADIUS*.
Admin Profile	Select the Admin Profile.
Timezone	Configure the user timezone. You can also use the admin dropdown menu.
Trusted Host 1, Trusted Host 2, Trusted Host 3	Enter up to three IPv4 trusted hosts. Only users from trusted hosts can access FortiDeceptor.

Trusted IPv6 Host 1, Trusted IPv6 Host 2, Trusted IPv6 Host 3	Enter up to three IPv6 trusted hosts. Only users from trusted hosts can access FortiDeceptor.
Comments	Enter an optional comment.

Setting trusted hosts for administrators limits the computers an administrator can use to log into FortiDeceptor. When you identify a trusted host, FortiDeceptor only accepts the administrator's login from the configured IP address or subnet. Attempts to log in with the same credentials from another IP address or subnet are dropped.

4. Click *OK*.

To edit a user account:

1. Log in using an account with *Read/Write* access and go to *System* > *Administrators*.
2. Select and account and click *Edit*.
   Only the *admin* user can edit its own settings.
   You must enter the old password before you can set a new password.
3. Edit the account and click *OK*.

To delete one or more user accounts:

1. Log in using an account with *Read/Write* access and go to *System* > *Administrators*.
2. Select the user account you want to delete.
3. Click *Delete* and confirm that you want to delete the user.

To test LDAP or RADIUS logins:

1. Log in using an account with *Read/Write* access and go to *System* > *Administrators*.
2. Select an LDAP or RADIUS user to test.
3. Click *Test Login*.
4. Enter the user password.
5. Click *OK*.
   If an error occurs, a debug message appears.

When a remote RADIUS server is configured for two-factor authentication, RADIUS users must enter a FortiToken code or the code from email/SMS to complete login or to test login.

Admin Profiles

Use administrator profiles to control administrator access privileges to system features. When you create an administrator account, you assign a profile to the account.

You cannot modify or delete the following predefined administrator profiles:

- *Read Write* has access to all functionality. This includes creating, editing, and deleting administrator profiles
- *Read only* has read-only access.

The *Menu Access* section has the following settings:

None	User cannot view or make changes to that page.
Read Only	User can view but not make any change to that page, except session-related user settings such as Table Customization, Dashboard, or Attack Map filter.
Read Write	User can view and make changes to that page.
Super Admin	User cannot view or make changes to that page.
Regular Admin	User cannot view or make changes to that page.

The *CLI Commands* section has the following settings:

None	User cannot execute CLI commands.
Execute	User can execute CLI commands.

To create an Administrator Profile:

1. Go to *System* > *Admin Profiles*.
2. Select the *Profile Name*.
3. Click *Create New*.
4. Specify the *Profile Name*.
5. If you wish, add a *Comment*.

6. Specify the privileges for *Menu Access*:

Dashboard	Dashboard
Central Management	Appliances
Deception	• Custom Decoy Image • Deception OS • Deployment Network • Deployment Wizard • Decoy Status • Deployment Map • Asset Discovery • Safe List • Lure Resources • Deception Token
Incident	• Analysis • Campaign • Attack Map
Fabric	• Integration Devices • Quarantine Status • IOC Export • Detection Devices
Network	• Interfaces • System DNS • System Routing
System	• Administrators • Admin Profiles • Certificates • LDAP Servers • RADIUS Servers • Mail Server • SNMP • Login Disclaimer • FortiGuard • FDC License • System Settings • Table Customization
Log	• All Events • Log Servers
REST API	• Decoy • Attack

7. Specify the privileges for *CLI Commands*:

Configuration	• Set

	• Unset
System	• Reboot • Shutdown • Reset Configuration • Factory Reset • Firmware Upgrade • Reset Widgets • IP Tables • test-network • usg-license • Set Confirm ID for Windows VM • List VM License • Show VM Status • VM reset • DC Image Status • Set Maintainer • Set Timeout for Remote Auth • Data Purge • Log Purge • DMZ Mode • FDN Package Information • Fabric Binding • Central Management Settings
Utilities	• TCP Dump • Trace Route
Diagnostics	• Diagnose

8. Click *Save*.

Certificates

Use this page to import, view, and delete certificates. Certificates are used for secure connection to an LDAP server, system HTTPS, and SSH services. FortiDeceptor has one default certificate named *firmware*.

FortiDeceptor does not support generating certificates. FortiDeceptor supports importing certificates for SSH and HTTPS access using `.crt`, `PKCS12`, or `.pem` format.

The following options are available:

Import	Import a certificate.
Service	Configure specific certificates for HTTP and SSH servers.
View	View the selected CA certificate details.
Delete	Delete the selected certificate.

The following information is displayed:

Name	Name of the certificate.
Subject	Subject of the certificate.
Status	The certificate status, active or expired.
Service	HTTPS or SSH service that is using this certificate.

To import a certificate:

1. Go to *System* > *Certificates*.
2. Click *Import*.
3. Enter the *Certificate Name*.
4. If you want to import a password protected PKCS12 certificate, select *PKCS12 Format*.
5. Click *Choose File* and locate the certificate and key files on your management computer.
6. Click *OK* to import the certificate.

To view a certificate:

1. Go to *System* > *Certificates*.
2. Select a certificate and click *View*.
   The following information is available:

Certificate Name	Name of the certificate.
Status	Certificate status.
Serial number	Certificate serial number.
Issuer	Issuer of the certificate.
Subject	Subject of the certificate.
Effective date	Date and time that the certificate became effective.
Expiration date	Date and time that the certificate expires.

To delete a CA certificate:

1. Go to *System* > *Certificates*.
2. Select the certificate you want to delete.
3. Click *Delete* and confirm you want to delete the certificate.

You cannot delete the *firmware* certificate.

LDAP Servers

FortiDeceptor supports remote authentication of administrators using LDAP servers. To use this feature, configure the server entries in FortiDeceptor for each authentication server in your network.

If you have configured LDAP support and require users to authenticate using an LDAP server, FortiDeceptor contacts the LDAP server for authentication. To authenticate with FortiDeceptor, the user enters a user name and password. FortiDeceptor sends this user name and password to the LDAP server. If the LDAP server can authenticate the user, FortiDeceptor authenticates the user. If the LDAP server cannot authenticate the user, FortiDeceptor refuses the connection.

Due to the security enhancement requirement, FortiDeceptor requires peer servers to use strong cipher algorithm for certificates.

The following options are available:

Create New	Add an LDAP server.
Edit	Edit the selected LDAP server.
Delete	Delete the selected LDAP server.

The following information is displayed:

Name	LDAP server name.
Address	LDAP server address.
Common Name	LDAP common name.
Distinguished Name	LDAP distinguished name.
Bind Type	LDAP bind type.
Connection Type	LDAP connection type.

To create a new LDAP server:

1. Go to *System > LDAP Servers*.
2. Click *Create New*.

3. Configure the following settings:

Name	A unique name to identify the LDAP server.
Server Name/IP	IP address or FQDN of the LDAP server.
Port	The port for LDAP traffic. The default port is 389.
Common Name	Common name identifier of the LDAP server. Most LDAP servers use `cn`. Some servers use other common name identifiers such as `uid`.
Distinguished Name	Distinguished name used to look up entries on LDAP servers. The distinguished name reflects the hierarchy of LDAP database object classes above the common name identifier.
Bind Type	The type of binding for LDAP authentication: • *Simple* • *Anonymous* • *Regular*
Username	When the *Bind Type* is set to *Regular*, enter the user name.
Password	When the *Bind Type* is set to *Regular*, enter the password.
Enable Secure Connection	Use a secure LDAP server connection for authentication.
Protocol	When *Enable Secure Connection* is selected, select *LDAPS* or *STARTTLS*.
CA Certificate	When *Enable Secure Connection* is selected, select a *CA Certificate*.

4. Click *OK*.

RADIUS Servers

FortiDeceptor supports remote authentication of administrators using RADIUS servers. To use this feature, configure the server entries in FortiDeceptor for each authentication server in your network.

If you have configured RADIUS support and require users to authenticate using a RADIUS server, FortiDeceptor contacts the RADIUS server for authentication. To authenticate with FortiDeceptor, the user enters a user name and password. FortiDeceptor sends this user name and password to the RADIUS server. If the RADIUS server can authenticate the user, FortiDeceptor authenticates the user. If the RADIUS server cannot authenticate the user, FortiDeceptor refuses the connection.

The following options are available:

Create New	Add a RADIUS server.
Edit	Edit the selected RADIUS server.
Delete	Delete the selected RADIUS server.

The following information is displayed:

Name	RADIUS server name.
Primary Address	Primary server IP address.
Secondary Address	Secondary server IP address.
Port	Port used for RADIUS traffic. The default port is 1812.
Type	Select either *FortiAuthenticator* or *Other* from the dropdown.
Auth Type	The authentication type the RADIUS server requires. Select *Any*, *PAP*, *CHAP*, or *MSv2*. *Any* means FortiDeceptor tries all authentication types.
Primary Secret	Primary RADIUS server secret.
Secondary Secret	Secondary RADIUS server secret.
NAS IP	NAS IP address.

To add a RADIUS server:

1. Go to *System* > *RADIUS Servers*.
2. Click *Create New*.
3. Configure the following settings:

Name	A unique name to identify the RADIUS server.
Primary Server Name/IP	IP address or FQDN of the primary RADIUS server.
Secondary Server Name/IP	IP address or FQDN of the secondary RADIUS server.
Port	Port for RADIUS traffic. The default port is 1812.
Auth Type	Authentication type the RADIUS server requires. Select *Any*, *PAP*, *CHAP*, or *MSv2*. *Any* means FortiDeceptor tries all authentication types.
Primary Secret	Primary RADIUS server secret.
Secondary Secret	Secondary RADIUS server secret.
NAS IP	NAS IP address.

4. Click *OK*.

Single Sign-On

Go to *System* > *Single sign-on* to allow administrators to log into FortiDeceptor with a single ID. User information is stored in a remote Identity Provider (IdP) server. No user information is stored locally. Instead, FortiDeceptoracts as a

Service Provider (SP). When a login request is received, FortiDeceptor redirects the request via SAML protocol to the IdP to complete the authentication.

To enable Single Sign-On:

1. Go to *System* > *Single sign-on* and click *Enable* . The Single Sign-On settings are displayed.
2. Configure the Single Sign-On settings and click *Apply*.

Service Provider Configuration	
Address	The address the identify provider will send SAML authentication requests to.
Entity ID	Click the *Copy* icon to copy the Entity ID.
Assertion consumer service URL	Click the *Copy* icon to copy the URL.
Single logout service URL	Click the *Copy* icon to copy the URL.
Enable Certificate	Service provider will use this certificate to sign or encrypt the request. When this option is disabled , the request will not be signed or encrypted.
Certificate	Allow the service provider to sign or encrypt the request. Select the certificate to use from the list. You can also download the public key of the certificate and upload it to the identity provider to verify and decrypt the request.
Identity Provider Configuration	
Entity ID	Enter the entity ID of identity provider
Single sign-on service URL	Enter the identity provider's sign on URL.
Single logout service URL	Enter the identity provider's logout URL.
Certificate	Upload the public X.509 certificate of the identity provider .
Additional SAML Attributes	
Attribute used to identify users	The identity provider will use this attribute in the request to report the sign-on user name.

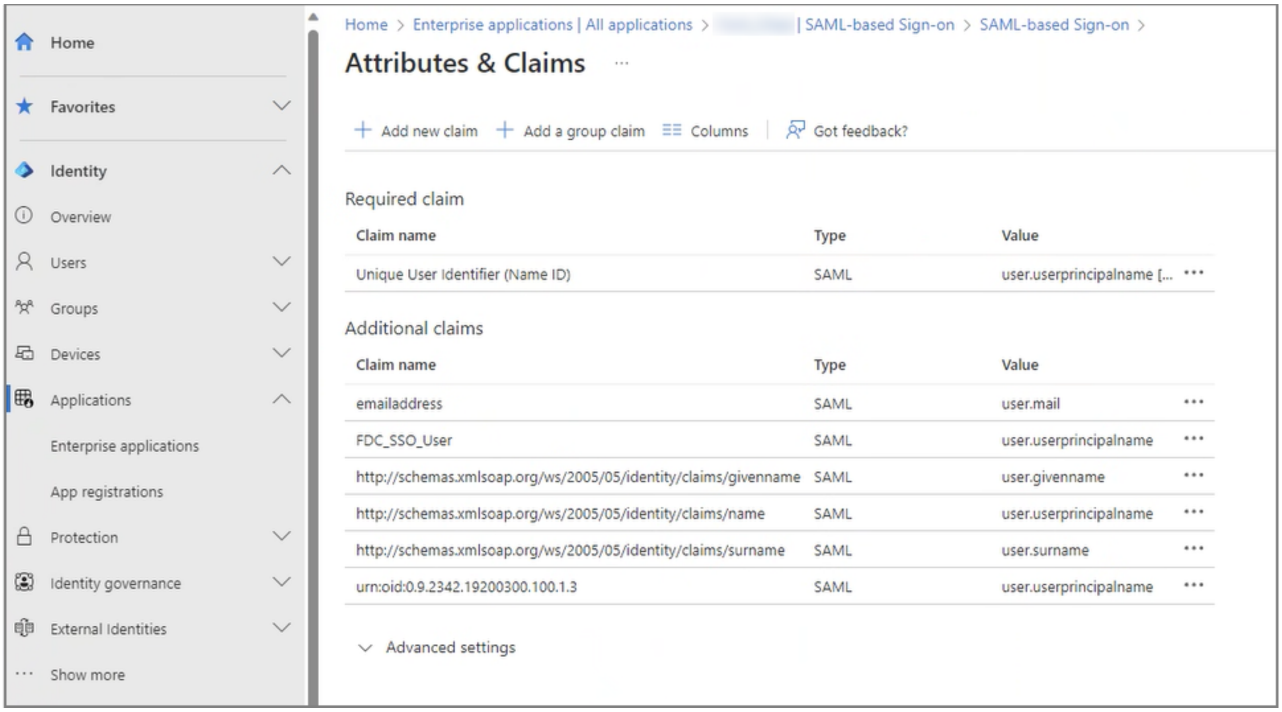
Configuring SSO with Azure

Configuring SSO with Azure requires a *Claim Attribute*. This section provides an overview on how to configure a new Claim Attribute in Azure and where to enter it in FortiDeceptor. For more information about Claim Attributes, see the Azure product help.

As SSO is a standard method, setting Claim Attribute on the IDP side can be applied to any IDP servers.

To configure SSO for Azure:

1. In Azure, go to *Identity* > *Applications* > *Enterprise applications* > *All applications*.
2. Select the application, select *Single sign-on* in the left-hand menu, and then select *Edit* in the *Attributes & Claims* section.



Attributes & Claims

Required claim

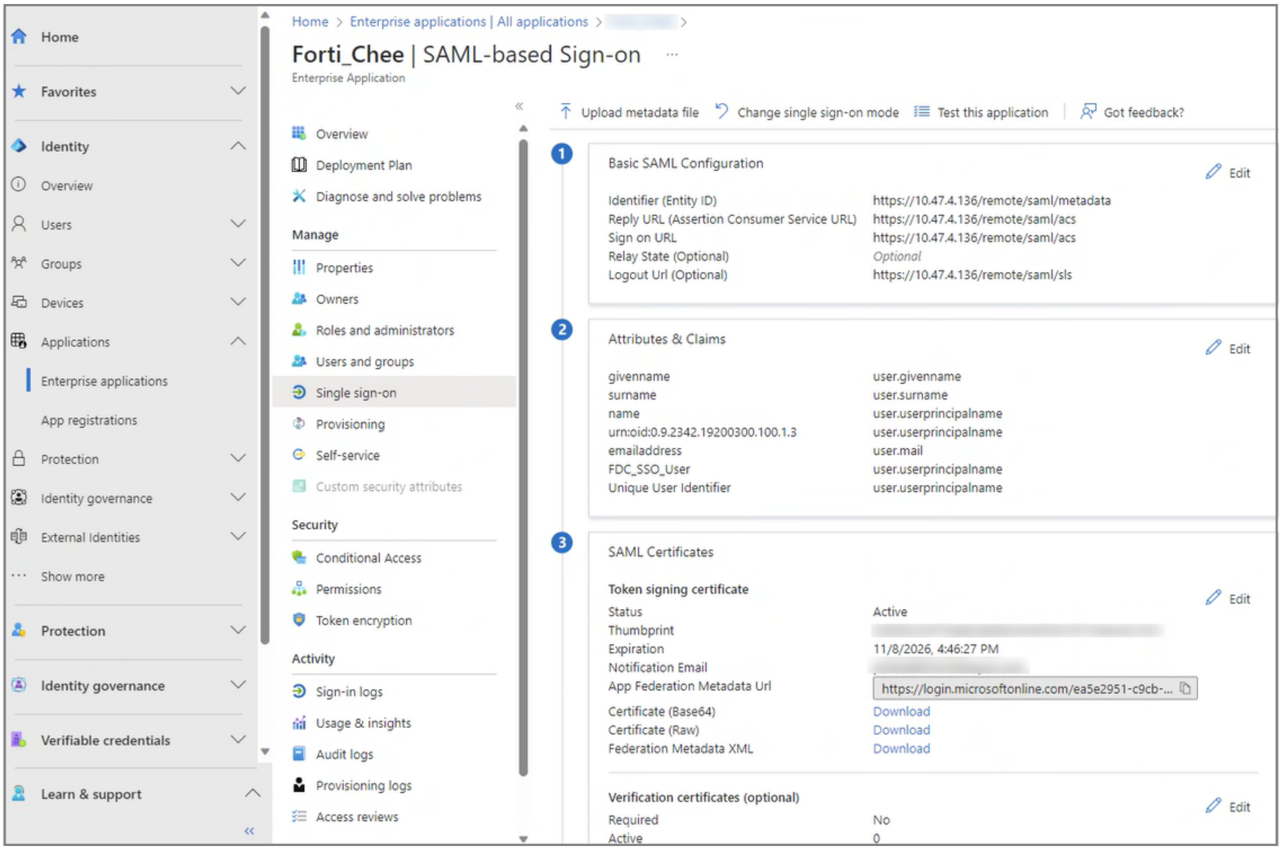
Claim name	Type	Value
Unique User Identifier (Name ID)	SAML	user.userprincipalname [...

Additional claims

Claim name	Type	Value
emailaddress	SAML	user.mail
FDC_SSO_User	SAML	user.userprincipalname
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/givenname	SAML	user.givenname
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/name	SAML	user.userprincipalname
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/surname	SAML	user.surname
urn:oid:0.9.2342.19200300.100.1.3	SAML	user.userprincipalname

3. Go to *Manage Claim*.

4. Go to *Manage* > *Single-Sign On*.



Forti_Chee | SAML-based Sign-on ···

Enterprise Application

1 Basic SAML Configuration

Identifier (Entity ID)	https://10.47.4.136/remote/saml/metadata
Reply URL (Assertion Consumer Service URL)	https://10.47.4.136/remote/saml/acs
Sign on URL	https://10.47.4.136/remote/saml/acs
Relay State (Optional)	Optional
Logout Url (Optional)	https://10.47.4.136/remote/saml/sls

2 Attributes & Claims

givenname	user.givenname
surname	user.surname
name	user.userprincipalname
urn:oid:0.9.2342.19200300.100.1.3	user.userprincipalname
emailaddress	user.mail
FDC_SSO_User	user.userprincipalname
Unique User Identifier	user.userprincipalname

3 SAML Certificates

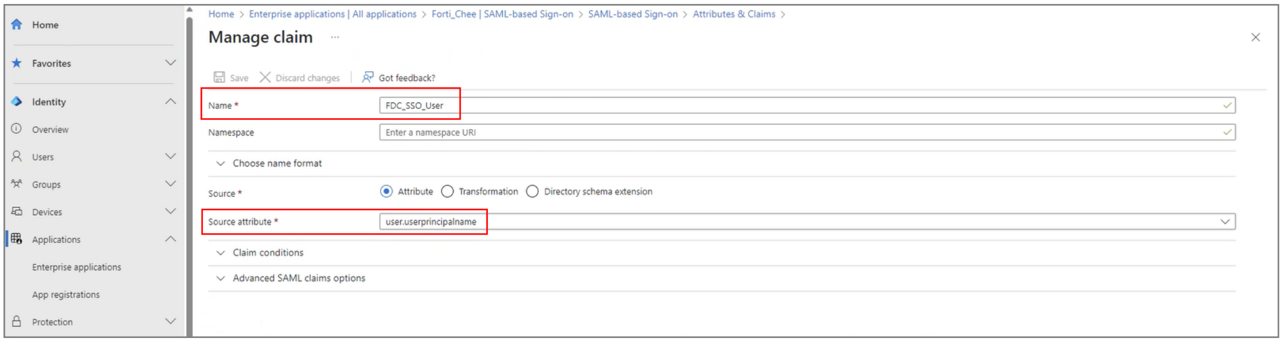
Token signing certificate

Status	Active
Thumbprint	[redacted]
Expiration	11/8/2026, 4:46:27 PM
Notification Email	[redacted]
App Federation Metadata Url	https://login.microsoftonline.com/ea5e2951-c9cb-...
Certificate (Base64)	Download
Certificate (Raw)	Download
Federation Metadata XML	Download

Verification certificates (optional)

Required	No
Active	0

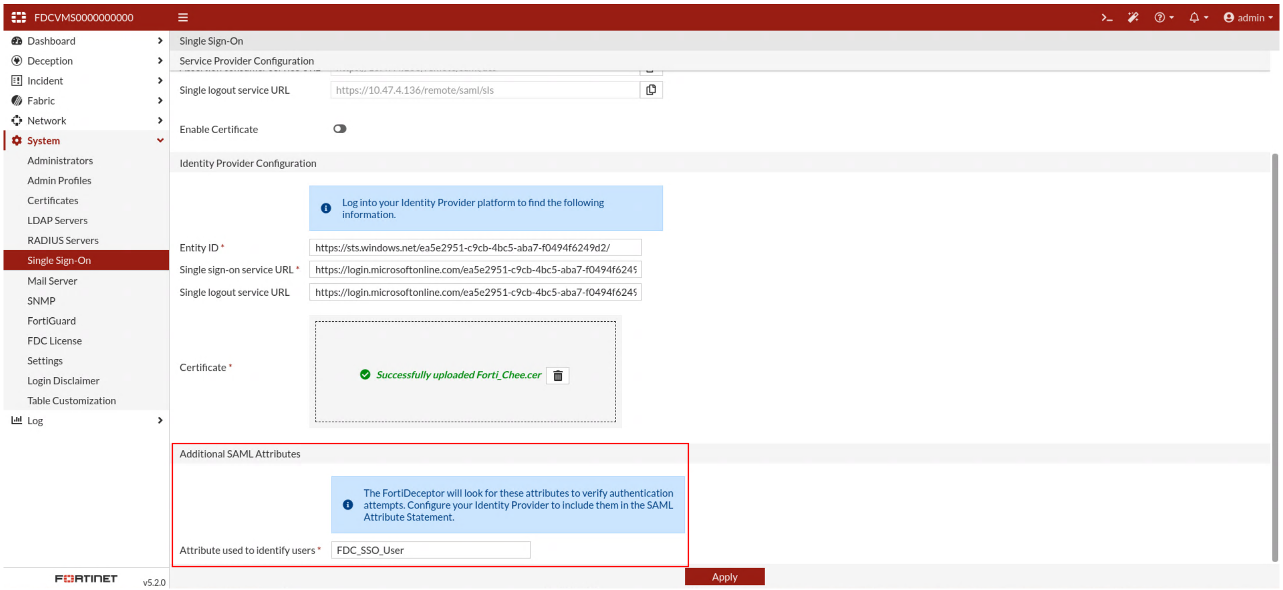
5. Specify the attribute *Name* and the *Source Attribute*.



Manage claim ···

Name *	FDC_SSO_User
Namespace	Enter a namespace URI
Source *	● Attribute ○ Transformation ○ Directory schema extension
Source attribute *	user.userprincipalname

6. In FortiDeceptor enter the attribute claim in the *Attribute used to identify users* field.



Single Sign-On

Service Provider Configuration

Single logout service URL: https://10.47.4.136/remote/saml/sls

Enable Certificate

Identity Provider Configuration

Log into your Identity Provider platform to find the following information.

Entity ID *: https://sts.windows.net/ea5e2951-c9cb-4bc5-aba7-f0494f6249d2/

Single sign-on service URL *: https://login.microsoftonline.com/ea5e2951-c9cb-4bc5-aba7-f0494f624

Single logout service URL: https://login.microsoftonline.com/ea5e2951-c9cb-4bc5-aba7-f0494f624

Certificate *: Successfully uploaded Forti_Chee.cer

Additional SAML Attributes

The FortiDeceptor will look for these attributes to verify authentication attempts. Configure your Identity Provider to include them in the SAML Attribute Statement.

Attribute used to identify users *: FDC_SSO_User

Mail Server

The *Mail Server* page allows you to configure email alerts and create custom delivery rules, ensuring timely and precise notifications of security incidents. This flexibility enhances your security monitoring by allowing you to tailor alerts based on specific criteria.

Incident alerts

Enable and configure email alerts for immediate notification of security events.

To send incident alerts:

1. Go to *System* > *Mail Server*. The *Mail Server* page opens.
2. Click *Mail server configuration*. The *Configure Mail Server Settings* page opens.
3. Configure the mail server settings.

Send Incidents Alerts	Enable to send incident alerts.
SMTP Server Address	SMTP server address.
Port	SMTP server port number.
From	The mail server email account. This is the "from" address.
Login User	The mail server login account.
Login Password	Enter and confirm the password.

4. (Optional) Click *Send Test Email* to send a test email to one or more email addresses. If an error occurs, the error message appears at the top of the page and is recorded in the System Logs.

5. Click *Save*.
6. Click *Back* to return to the *Mail Server* page.

Alert delivery rules

Set detailed criteria for alerts, including severity, type, and attacker information, to ensure relevant alerts are sent to the right recipients.

To create an alert delivery rule:

1. Go to *System* > *Mail Server*. The *Mail Server* page opens.
2. Click *Create alert delivery rule*. The *Create Alert Rule* pane opens.

3. Configure the rule settings.

Enable	When enabled, FortiDeceptor sends email alerts to the Receiver Email List based on the specified rule.
Name	Enter a name for the rule.
Incident URL	When enabled, the device hostname is used instead of the management IP. For the Incident URL link to work, your DNS server must be able to resolve the device hostname.
Alert Severity	Select *Low*, *Medium*, *High*, or *Critical*.
Alert Type	Select *Connection*, *Reconnaissance*, *Interaction*, and *Infection*.
Binary Infection	This options is available when the *Alert Type* is *Interaction* or *Infection*. Select *Yes* to be alerted when an attacker drops or downloads suspicious files into decoys.
Incident Alert Section	Select *All*, *Interaction Events Only*, *IPS events only*, or *Web filter events only*.
Attacker IP/Subnet	Enter one or more values for the attacker IP address or attacker IP network.
Attacker User	Enter one or more attacker usernames. The rule is triggered only if the username entered by the attacker matches the value for *Attacker User*exactly, including case sensitivity.
Attacker Password	Enter one or more attacker passwords. The rule is triggered only if the password entered by the attacker matches the value for *Attacker Password* exactly, including case sensitivity.
Operation Content	Enter one or more keywords that will trigger the rule. Operation Content supports both exact and partial matches. For example, if the keyword is "Monkey" and the attacker enters "Key," the rule is triggered. However, it will not trigger if the attacker only enters "ey." Operation Content is not case sensitive.
Victim Decoy Name	Select one or more deployed decoys from the *Select Entries* pane that slides open.
Victim Decoy Port	Enter one or more decoy service port numbers.
Recipients	Enter one or more receiver email addresses.
Display Original Recipient	Enable to view the original recipient of the alert email message.

Condition operators:

- **And**: All the values must be met to trigger the rule. For example, the rule is not triggered if the value for *Attacker IP/Subnet* is met, but the value for *Attacker User* is not.
- **Or**: Only one of the values must be me to trigger the rule. For example, if the values for *Attacker User* are *Admin* and *Administrator*, the rule is triggered if only *Admin* is entered.

4. Click *Save*.

SNMP

SNMP is a method to monitor your FortiDeceptor system on your local computer. You need an SNMP agent on your computer to read the SNMP information. Using SNMP, your FortiDeceptor system monitors for system events including CPU usage, memory usage, log disk space, interface changes, and malware detection.

SNMP has two parts:

- The SNMP agent or the device that is sending traps.
- The SNMP manager that monitors those traps.

The SNMP communities on the monitored FortiDeceptor are configured in the SNMP page.

The FortiDeceptor SNMP implementation is read-only. SNMP v1, v2c, v3 compliant SNMP manager applications, such as those on your local computer, have read-only access to FortiDeceptor system information and can receive FortiDeceptor system traps.

You can also download FortiDeceptor and Fortinet core MIB files.

Configure the SNMP agent

The SNMP agent sends SNMP traps that originate on FortiDeceptor to an external monitoring SNMP manager defined in one of the FortiDeceptor SNMP communities. Typically, an SNMP manager is an application on a local computer that can read the SNMP traps and then generate reports or graphs.

The SNMP manager can monitor FortiDeceptor to determine if it is operating properly or if critical events are occurring. The description, location, and contact information for this FortiDeceptor system is part of the information an SNMP manager collects. This information is useful if the SNMP manager is monitoring many devices, and it enables a faster response when FortiDeceptor requires attention.

To configure SNMP agents:

1. Go to *System* > *SNMP*.
2. Configure the following settings:

SNMP Agent	When enabled, the FortiDeceptor SNMP agent sends FortiDeceptor SNMP traps.
Description	Description of this FortiDeceptor to identify this unit.
Location	Location of this FortiDeceptor if it requires attention.
Contact	Contact information of the person in charge of this FortiDeceptor.
SNMP v1/v2c	Create, edit, or delete SNMP v1 and v2c communities. You can enable or disable communities in the edit page. Columns include: *Community Name*, *Queries*, *Traps*, *Enable*.

SNMP v3	Create, edit, or delete SNMP v3 entries. You can enable or disable queries in the edit page. Columns include: *Username*, *Security Level*, *Notification Host*, and *Queries*.

To create an SNMP v1/v2c community:

1. Go to *System* > *SNMP*.
2. In the SNMP v1/v2c section, click *Create New*.
3. Configure the following settings:

Enable	Enable the SNMP community.
Community Name	The name that identifies the SNMP community.
Hosts	The list of hosts that can use the settings in this SNMP community to monitor FortiDeceptor.
IP/Netmask	IP address and netmask of the SNMP hosts. Click *Add* to add additional hosts.
Queries v1, Queries v2c	Port number and if it is enabled. Enable queries for each SNMP version that FortiDeceptor uses.
Traps v1, Traps v2c	Local port number, remote port number, and if it is enabled. Enable traps for each SNMP version that FortiDeceptor uses.
SNMP Events	Events that cause FortiDeceptor to send SNMP traps to the community: • CPU usage is high • Memory is low • Log disk space is low • Incident is detected

4. Click *OK*.

To create an SNMP v3 user:

1. Go to *System* > *SNMP*.
2. In the SNMP v3 section, click *Create New*.

3. Configure the following settings:

Username	Name of the SNMPv3 user.
Security Level	Security level of the user: • None • Authentication only • Encryption and authentication
Authentication	Authentication is required when *Security Level* is either *Authentication only* or *Encryption and authentication*.
Method	Authentication method: • MD5 (Message Digest 5 algorithm) • SHA1 (Secure Hash algorithm)
Password	Authentication password of at least eight characters.
Encryption	Encryption is required if *Security Level* is *Encryption and authentication*.
Method	Encryption method: • DES • AES
Key	Encryption key of at least eight characters.
Notification Hosts (Traps)	
IP/Netmask	IP address and netmask. Click *Add* to add more hosts.
Query	
Port	Port number and if it is enabled.
SNMP V3 Events	SNMP events associated with that user: • CPU usage is high • Memory is low • Log disk space is low • Incident is detected

4. Click *OK*.

To download MIB files:

1. Go to *System* > *SNMP*.
2. Scroll down to *FortiDeceptor SNMP MIB* and click one of the following links:
   - *Download FortiDeceptor MIB File*
   - *Download Fortinet Core MIB File*

To filter the columns in the table:

1. Click the plus sign in the Search field. The *Filterable Columns* menu opens.

   ⊕

2. Select a column in the list to *Resize to Contents*, *Group By This column* or create a custom filter.
3. Click *Apply*.

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To show or hide columns in the table:

1. Hover the header row until the *Configure Table* icon appears.

   ⚙

2. Click *Configure Table*. The *Best Fit Columns* menu opens.
3. Select the columns to appear in the table and click *Apply*.
4. To restore the default table, click *Reset Table*.

FortiGuard

The FortiGuard Distribution Network (FDN) provides FortiGuard services for your FortiDeceptor system. The FDN is a worldwide network of FortiGuard Distribution Servers (FDS), which update the FortiGuard services on your FortiDeceptor system on a regular basis so that your FortiDeceptor system protects against the latest threats.

The FortiGuard services available on the FortiDeceptor system include:

Service	Description
Antivirus	Malware scanning against files that get captured by the decoys.
IDS engines	• Scanning the traffic between the threat actor and the decoys to detect network attacks • Contain the industrial signature pack for the ICS network .
Web filtering engine	Databases and look-ups against access from the decoy to the internet.
Anti-Recon and Anti-Exploit Service	The Anti-Reconnaissance and Anti-Exploit Service (ARAE) service is available on FortiDeceptor and is responsible for tracking hackers' activities on decoys with real-time alerts. Similar to how FortiSandbox traces malware behavior activities, ARAE will record malicious activities such as files extracted, intrusions activities, planted malware, and web sites visited. ARAEs goal is to Deceive, Expose and Eliminate threats.
AI Malware Engine	AI Pallas malware detection engine used for backend file inspection.

To configure FortiGuard updates:

1. Go to *System* > *FortiGuard*.
2. The following options and information are available:

Module Name	The FortiGuard module name, including: AntiVirus Scanner, AntiVirus Extended Signature, AntiVirus Active Signature, AntiVirus Extreme Signature, IDS Engine, IDS Signature, Anti-Reconnaissance & Anti-Exploit Engine. All modules automatically install update packages when they are available on the FDN.
Current Version	The current version of the module.
Release Time	The time that module was released.
Last Update Time	The time that module was last updated.
Last Check Status	The status of the last update attempt.
Upload Package File	Select *Browse* to locate a package file on the management computer, then select *Submit* to upload the package file to the FortiDeceptor. When the unit has no access to the Fortinet FDN servers, the user can go to the Customer Service and Support site to download package files manually.
FortiGuard Server Settings	
Use override FDN server to download module updates	Select to enable an override FDN server, or FortiManager, to download module update, then enter the server IP address or FQDN in the text box. When an overridden FDN server is used, FortiGuard Server Location will be disabled. Click *Connect FDN Now* button to schedule an immediate update check. The default port on FDN server is *443* and can be changed to *53* or *8888*.
Use Proxy	Select to use a proxy. Configure the *Proxy Type* (*HTTP Connect*, *SOCKS v4*, or *SOCKS v5*), *Server Name/IP*, *Port*, *Proxy Username*, and *Proxy Password*.
FortiGuard Web Filter Settings	
Use override server address for web filtering query	Select to enable an override server address for web filtering query, then enter the server IP address (IP address or IP address:port) or FQDN in the text box. By default, the closest web filtering server according to the unit's time zone is used. The default port on FDN server is 443.
Use Proxy	Select to use a proxy. Configure the *Proxy Type* (*HTTP Connect*, *SOCKS v4*, or *SOCKS v5*), *Server Name/IP*, *Port*, *Proxy Username*, and *Proxy Password*.
VM Image Download Proxy Settings	
Use Proxy	Select to use a proxy. Configure the *Proxy Type* (*HTTP Connect*, *SOCKS v4*, or *SOCKS v5*), *Server Name/IP*, *Port*, *Proxy Username*, and *Proxy Password*.

3. Click *Connect FDN Now* to connect the override FDN server/proxy.
   - Click *Test Connection* to test your connection.
   - Click *Apply* to apply your changes.

FDC License

FortiDeceptor is a subscription-based model that calculates the amount of Network VLANs the system can connect to. Single Class C (/24) will consume 1 VLAN, while other network classes with /23 and below will consume 2 VLANs (max).

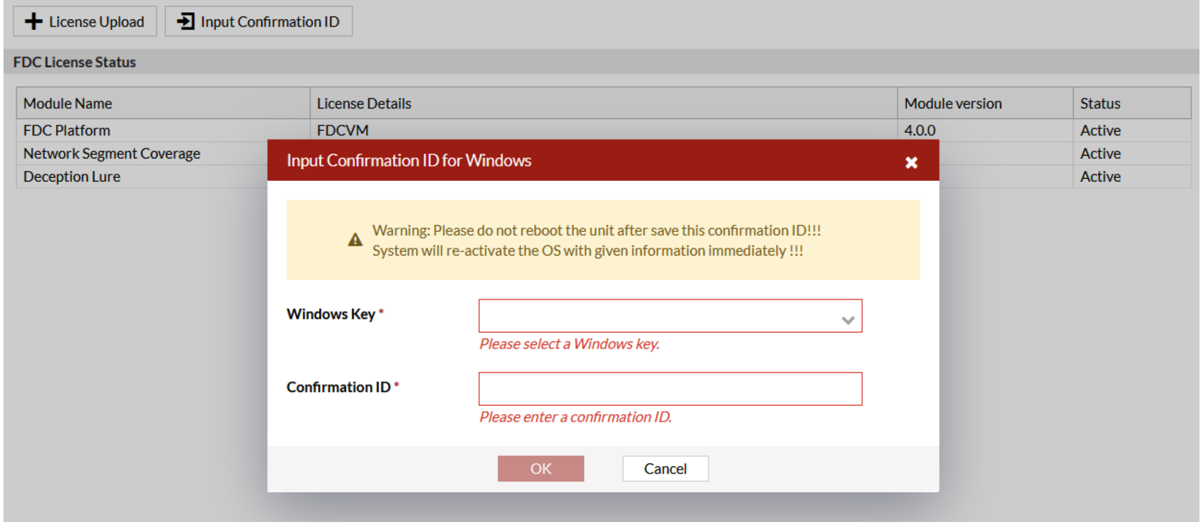
To upload a FortiDeceptor license:

1. Go to *System* > *FDC License*.
2. Click *License Upload*. The *Firmware License Upload* page opens.
3. Click *Browse* and navigate to the license file on your computer.
4. Click *Submit*.

FortiDeceptor will reboot after the license file is installed.

To input the confirmation ID for Windows:

1. Go to *System* > *FDC License*.
2. Click *Input Confirmation ID* . The *Input Confirmation ID for Windows* dialog opens.
3. From the *Windows Key* dropdown, select a Windows key.
4. In the *Confirmation ID* field, enter the confirmation ID.
5. Click *OK*.



Module Name	License Details	Module version	Status
FDC Platform	FDCVM	4.0.0	Active
Network Segment Coverage			Active
Deception Lure			Active

Input Confirmation ID for Windows

Warning: Please do not reboot the unit after save this confirmation ID!!!
System will re-activate the OS with given information immediately !!!

Windows Key *

Please select a Windows key.

Confirmation ID *

Please enter a confirmation ID.

Do not reboot FortiDeceptor until the activation is complete.

Settings

Configure the idle timeout for the administrator account or reset all the widgets in the *Dashboard*.

To configure idle timeout:

1. Go to *System* > *Settings*.
2. Enter a value between *1* and *480* minutes.
3. Click *OK*.

To reset all widgets:

Click the *Reset* button to revert the *Dashboard* to the default settings. This removes any widgets you added to the *Dashboard* and restores the widget settings.

To enable Mitre ICS tag:

1. Go to *System* > *Settings*.
2. Under *Mitre ICS settings* select *Enable Mitre ICS*.
3. Click *Apply*.

To Upload deception statistics to FortiGuard:

1. Go to *System* > *Settings*.
2. Enable *FortiDeceptor Attack Detection Exchange Program*.
3. Click *Apply*.

Login Disclaimer

Create a custom disclaimer message to display when a user logs into the FortiDeceptor unit.

To create a custom log in disclaimer:

1. Go to *System* > *Login Disclaimer*.
2. In the *Disclaimer* field, enter the disclaimer text.
3. (Optional) Select *Show disclaimer on login*, to display the disclaimer when a user logs in.
4. Click *OK*.

Table Customization

You can customize the page layout for the *Incidents* and *Events* pages.

To customize the columns available for Incidents or Events:

1. In the *Incident Columns* pane:

To show a column	Drag and drop the headers from the *Available Column Headers* to *Customized Column Headers and Orders*.
To hide a column	Drag and drop the headers from the *Customized Column Headers and Orders* to *Available Column Headers*.
To change the column order	Drag and drop the position of the headers in *Customized Column Headers and Orders*.

2. In the *Table Settings* pane, configure the table size and view.

Page Size	Enter the number of incidents to display per page when *View Type* > *Pagination* is selected.
View Type	Select *Pagination*, *Infinite Scroll* or *Both*.

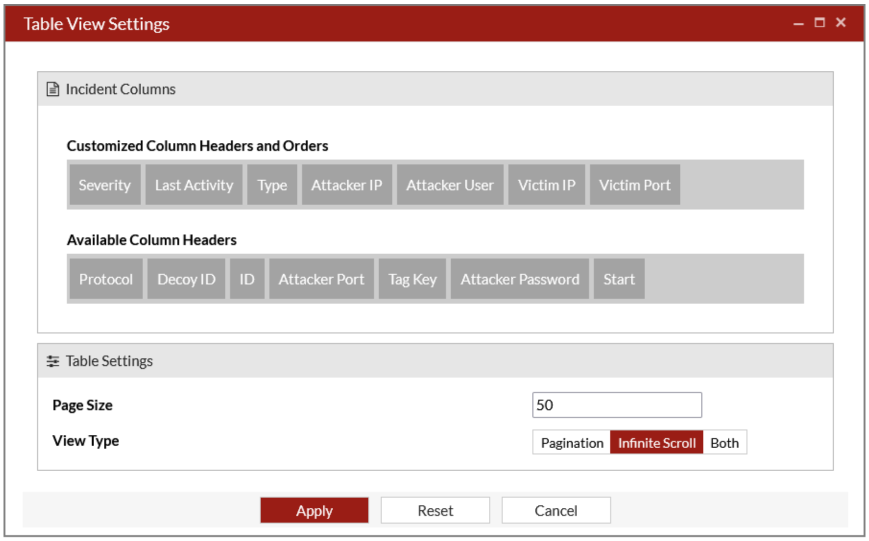


Table View Settings

Incident Columns

Customized Column Headers and Orders

Severity | Last Activity | Type | Attacker IP | Attacker User | Victim IP | Victim Port

Available Column Headers

Protocol | Decoy ID | ID | Attacker Port | Tag Key | Attacker Password | Start

Table Settings

Page Size: 50

View Type: Pagination [✓ Infinite Scroll] Both

3. Click *Apply*.

You may need to refresh the page to see your changes.

Raw logs

You can download and save raw logs to the management computer. Raw logs are saved as a text file with the extension *.log.gz*.

To download raw logs:

1. Go to *Log* > *All Events* and select a log.
2. In the toolbar, click *Download Log*.

Sample raw logs file content

```
itime=1535413204 date=2018-08-27 time=16:40:04 logid=0106000001 type=event subtype=system
     pri=debug user=system ui=system action= status=success msg="SNMP TRAP sent out:
     Service=SSH AttackerIp=10.95.5.83 AttackerPort=57190 VictimIp=10.95.5.21 VictimPort=22
     Operation=Established SSH connection Description=10.95.5.83 Username=NA Password=NA"
itime=1535413204 date=2018-08-27 time=16:40:04 logid=0106000001 type=event subtype=system
     pri=debug user=system ui=system action= status=success msg="SNMP TRAP sent out:
     Service=SSH AttackerIp=10.95.5.83 AttackerPort=57190 VictimIp=10.95.5.21 VictimPort=22
     Operation=SSH connection closed Description=83ssh Username=83ssh Password=83ssh"
itime=1535413204 date=2018-08-27 time=16:40:04 logid=0106000001 type=event subtype=system
     pri=debug user=system ui=system action= status=success msg="SNMP TRAP sent out:
     Service=SSH AttackerIp=10.95.5.83 AttackerPort=57190 VictimIp=10.95.5.21 VictimPort=22
     Operation=Authentication Failure Description=83ssh Username=83ssh Password=83ssh"
itime=1535413204 date=2018-08-27 time=16:40:04 logid=0106000001 type=event subtype=system
     pri=debug user=system ui=system action= status=success msg="SNMP TRAP sent out:
     Service=SAMBA AttackerIp=10.95.5.83 AttackerPort=NA VictimIp=10.95.5.21 VictimPort=445
     Operation=Change to dir Description=/home/share/samba Username=83samba
     Password=83samba"
itime=1535413204 date=2018-08-27 time=16:40:04 logid=0106000001 type=event subtype=system
     pri=debug user=system ui=system action= status=success msg="SNMP TRAP sent out:
     Service=SAMBA AttackerIp=10.95.5.83 AttackerPort=NA VictimIp=10.95.5.21 VictimPort=445
     Operation=Access path Description=samba Username=83samba Password=83samba"
itime=1535413204 date=2018-08-27 time=16:40:04 logid=0106000001 type=event subtype=system
     pri=debug user=system ui=system action= status=success msg="SNMP TRAP sent out:
     Service=SAMBA AttackerIp=10.95.5.83 AttackerPort=NA VictimIp=10.95.5.21 VictimPort=445
     Operation=Disconnect net share Description=samba Username=83samba Password=83samba"
itime=1535413201 date=2018-08-27 time=16:40:01 logid=0106000001 type=event subtype=system
     pri=alert user=system ui=GUI action=update status=success msg="Service=SSH
     AttackerIp=10.95.5.83 AttackerPort=57190 VictimIp=10.95.5.21 VictimPort=22
     Operation=SSH connection closed Description=83ssh Username=83ssh Password=83ssh"
itime=1535413201 date=2018-08-27 time=16:40:01 logid=0106000001 type=event subtype=system
     pri=alert user=system ui=GUI action=update status=success msg="Service=SSH
     AttackerIp=10.95.5.83 AttackerPort=57190 VictimIp=10.95.5.21 VictimPort=22
     Operation=Authentication Failure Description=83ssh Username=83ssh Password=83ssh"
itime=1535413198 date=2018-08-27 time=16:39:58 logid=0106000001 type=event subtype=system
     pri=alert user=system ui=GUI action=update status=success msg="Service=SSH
     AttackerIp=10.95.5.83 AttackerPort=57190 VictimIp=10.95.5.21 VictimPort=22
     Operation=Established SSH connection Description=10.95.5.83 Username=NA Password=NA"
itime=1535413198 date=2018-08-27 time=16:39:58 logid=0106000001 type=event subtype=system
     pri=alert user=system ui=GUI action=update status=success msg="Service=SAMBA
     AttackerIp=10.95.5.83 AttackerPort=NA VictimIp=10.95.5.21 VictimPort=445
     Operation=Disconnect net share Description=samba Username=83samba Password=83samba"
itime=1535413197 date=2018-08-27 time=16:39:57 logid=0106000001 type=event subtype=system
     pri=alert user=system ui=GUI action=update status=success msg="Service=SAMBA
     AttackerIp=10.95.5.83 AttackerPort=NA VictimIp=10.95.5.21 VictimPort=445
```

```
      Operation=Change to dir Description=/home/share/samba Username=83samba
      Password=83samba"
  itime=1535413197 date=2018-08-27 time=16:39:57 logid=0106000001 type=event subtype=system
      pri=alert user=system ui=GUI action=update status=success msg="Service=SAMBA
      AttackerIp=10.95.5.83 AttackerPort=NA VictimIp=10.95.5.21 VictimPort=445
      Operation=Access path Description=samba Username=83samba Password=83samba"
```

Log

Use the *Log*pages to view and download FortiDeceptor system logs. You can put logs locally on FortiDeceptor or on a remote log server.

When FortiDeceptor connects to DAAS and becomes a VME:

As of version 6.1, FortiDeceptor supports fetching logs from DAAS. . For optimal performance, VME and DAAS must use the same UTC system time. A mismatch due to different time zones or manually configured system times may result in delays or missing logs from DAAS.

Log Servers

You can send FortiDeceptor logs to a remote syslog server, FortiAnalyzer, or common event type (CEF) server. In *Log > Log Servers*, you can create new remote log servers, and edit and delete remote log servers. You can configure up to 30 remote log server entries.

The following options are available:

Create New	Create a log server entry.
Edit	Edit the selected log server entry.
Delete	Delete the selected log server entry.

This page displays the following information:

Name	Name of the server entry.
Type	Server type: syslog, syslog over TLS, FortiAnalyzer or CEF.
Log Server Address	Log server address.
Port	Log server port number.
Status	Log server status, *Enabled* or *Disabled*.

To create a server entry:

1. Go to *Log > Log Servers*.
2. Click *Create New*.

3. Configure the following settings:

Name	Name of the new server entry.
Type	Select *Syslog Protocol*, *FortiAnalyzer*, or *Common Event Format*.
Log Server Address	Log server IP address or FQDN.
Port	Port number. The default port is 514.
Status	Enable or disable sending logs to the server.
Log Level	Select the logging levels to forward to the log server. For logging levels, see Logging Levels on page 201.

4. Click *OK*.

To edit or delete a log server

1. Go to *Log* > *Log Servers*.
2. Select an entry and click *Edit* or *Delete*.

Log Categories

Log > *All Events* shows all logs.

The following options are available.

Download Log	Download the raw log file to the management computer.
History Logs	Enable to include historical logs in Log Search.
Refresh	Refresh the log message list.
Search	Click *Search* to add search filters. You can select different categories to search the logs. Search is not case sensitive. Click the **+** button to choose from *Date/Time*, *Level*, *User*, *Message*, or *Appliance*.
Details	Click to view the *Log Details*.

The following information is displayed.

#	Log number.
Date/Time	Date and time the log message was created.
Level	Level of the log message. For logging levels, see Logging Levels on page 201.
User	The user to which the log message relates. User can be a specific user or system.
Message	Detailed log message.

Logging Levels

FortiDeceptor log level can be Emergency (reserved), Alert, Critical, Error, Warning, Information, or Debug. The following table provides example logs for each log level.

Log Level	Description	Example Log Entry
Alert	Immediate action is required.	Suspicious URL visit domain.com from 192.12.1.12 to 42.156.162.21:80.
Critical	Functionality is affected.	System database is not ready. A program should have started to rebuild it and it shall be ready after a while.
Error	An erroneous condition exists and functionality is probably affected.	Errors that occur when deleting certificates.
Warning	Functionality might be affected.	Submitted file AVSInstallPack.exe is too large: 292046088.
Information	General information about system operations.	LDAP server information that was successfully updated.
Debug	Detailed information for debugging.	Launching job for file. jobid=2726271637747836543 filename=log md5=ebe5ae2bec3b653c2970e8cec9f5f1d9 sha1=06ea6108d02513f0d278ecc8d443df86dac2885b sha256=d678da5fb9ea3ee20af779a4ae13c402585 ebb070edcf20091cb20509000f74b

Appendix A - Deploying FortiDeceptor in offline or air-gapped networks

This section shows how to deploy FortiDeceptor in an offline or air-gapped network with no internet access, using the following procedures.

- Applying the license in an offline or air-gapped network on page 202
- Importing deception VMs in an offline or air-gapped network on page 204
- Importing firmware in an offline or air-gapped network on page 206
- Importing an FDS package via FDC GUI in an offline or air-gapped network on page 206
- Importing FDS package and license file via FortiManager in an offline or air-gapped network on page 207

FortiDeceptor uses deception VMs to deploy decoys across the network. Deploying FortiDeceptor VMs in a closed network requires downloading the required images directly from the FortiDeceptor VM external repository and manually uploading the deception VMs. For information about downloading the deception VMs, see Importing deception VMs in an offline or air-gapped network on page 204

You can also use the *Deception* > *Deception OS* page or the `fw-upgrade` CLI command to download and import packages.

Because FortiDeceptor also uses FDS services (IPS/AV/WEB) in offline and air-gapped networks, you must also import these packages.

Deception VM security

You can download deception VMs via the HTTPS protocol. Each image is compressed, encrypted, and packed by the FDC tool separately. The metafile describes the MD5 of each VM image.

The security layers that protect deception images are:

- Download via HTTPS.
- Deception VMs do not have any Fortinet propriety software.
- We provide the file's MD5 so that you can confirm the MD5 checksum for the downloaded files.
- FortiDeceptor always verifies the VM image by encryption and multiple layer checksum inside the package before installing it.

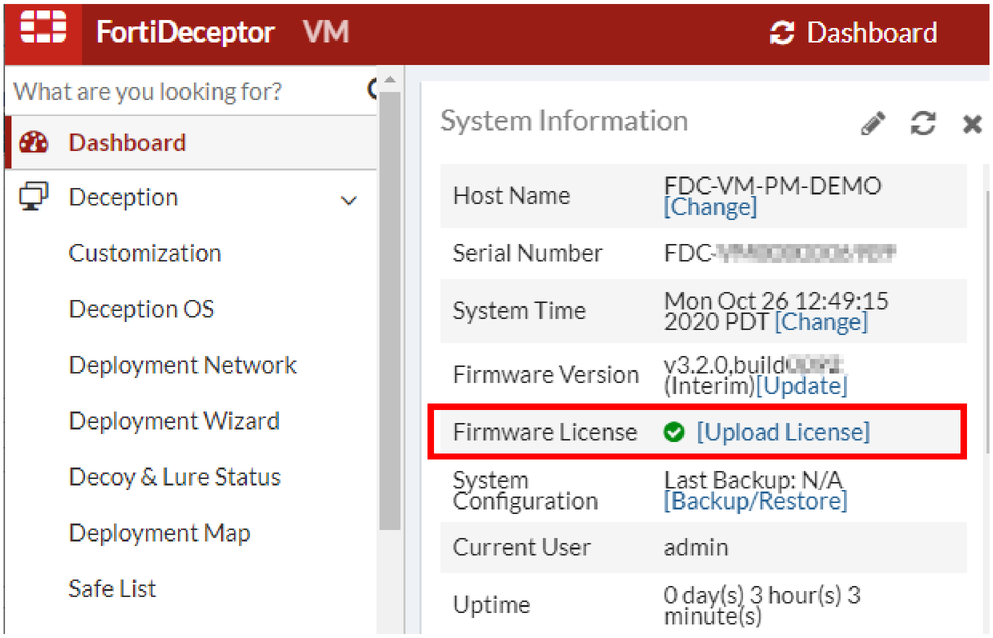
Applying the license in an offline or air-gapped network

To download the FortiDeceptor license file from the Fortinet support site:

1. Log into Customer Service and Support. The Asset Portal opens.
2. Go to *My Assets* and locate the device then click the *Serial Number*. The product details page opens.
3. In the *License & Key* widget, click *Get The License File* and save it to the local disk.

To upload the license file to FortiDeceptor:

1. Log into FortiDeceptor.
2. Configure the management IP address on port1.
3. In the *Dashboard System Information* widget, click *Upload License* beside *Firmware License*.



Host Name	FDC-VM-PM-DEMO [Change]
Serial Number	FDC-[redacted]
System Time	Mon Oct 26 12:49:15 2020 PDT [Change]
Firmware Version	v3.2.0,build[redacted] (Interim)[Update]
Firmware License	✓ [Upload License]
System Configuration	Last Backup: N/A [Backup/Restore]
Current User	admin
Uptime	0 day(s) 3 hour(s) 3 minute(s)

4. Locate the license and click *Submit*.

FortiDeceptor extracts the serial number, IP addresses, decoy keys, expiry date; and then performs the following verifications.

- Verify the expiration time of the license.
- Verify that the embedded management IP address is the same as the current management IP address. You can view the IP address in the *Product Information* widget in the product details page.
- Verify the expiration time of the decoys keys if the keys are subscription type.

If all the verifications pass, the unit is ready to import deception images.

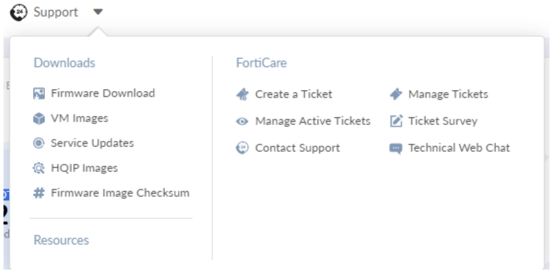
- FortiDeceptor decoy WCF lookup (any URLs visiting from decoys) are **not** categorized.
  - You can use FortiManager to resolve this. Because FortiDeceptor supports override FDS server, you can enter the FortiManager IP address there.
- Subscription-based decoys, that is, SSL VPN Windows customization, is in the `*.lic` file from the support site, which you can run offline.
- FortiDeceptor Custom Decoy Subscription Service includes:
  - FC-10-FDCVM-292-02-DD (for VM).
  - FC-10-FDC1K-292-02-DD (for HW).

Importing deception VMs in an offline or air-gapped network

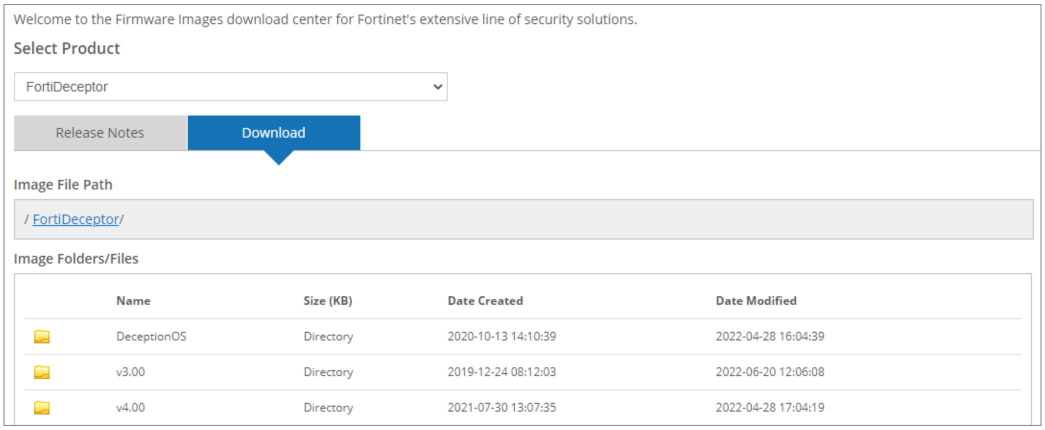
This topic shows how to download and import deception VMs in an offline or air-gapped network.

To download and import a deception VM:

1. Log into Customer Service and Support. The *Asset Portal* opens.
2. In the banner, click *Support* > *Downloads* > *Firmware Download*.



3. In the *Select Product* dropdown list, select FortiDeceptor and then click *Download*.



Welcome to the Firmware Images download center for Fortinet's extensive line of security solutions.

Select Product

FortiDeceptor

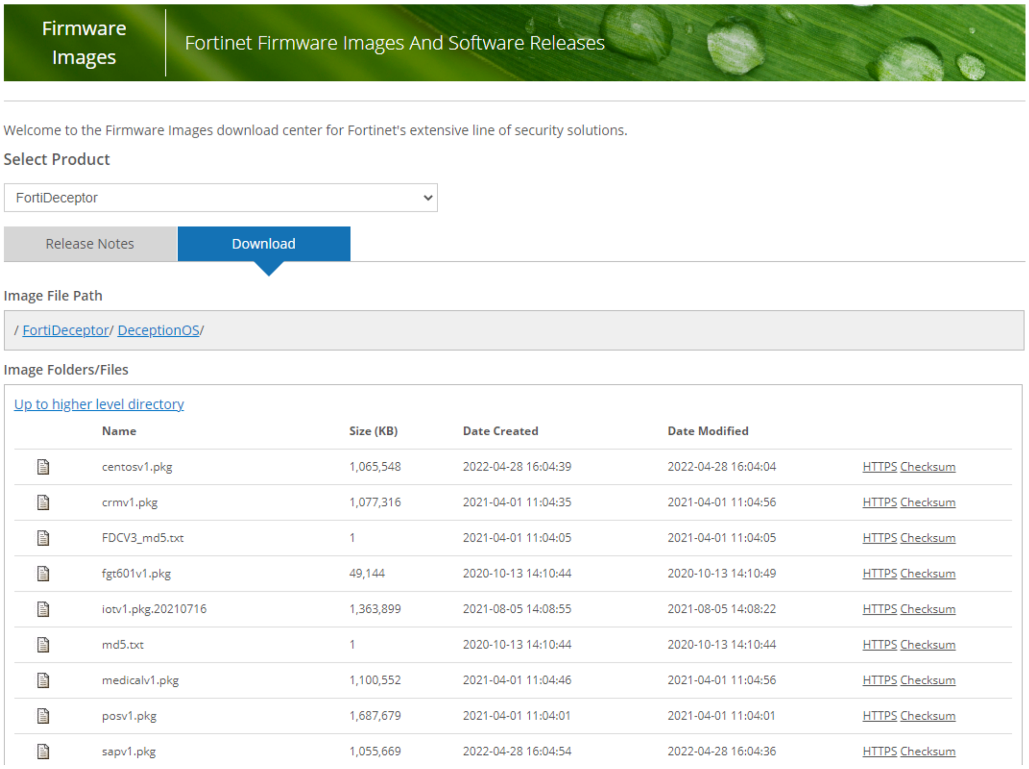
Image File Path

/ FortiDeceptor/

Image Folders/Files

	Name	Size (KB)	Date Created	Date Modified
📁	DeceptionOS	Directory	2020-10-13 14:10:39	2022-04-28 16:04:39
📁	v3.00	Directory	2019-12-24 08:12:03	2022-06-20 12:06:08
📁	v4.00	Directory	2021-07-30 13:07:35	2022-04-28 17:04:19

4. Click *Deception OS* to see the list of deception OS VM files.



Welcome to the Firmware Images download center for Fortinet's extensive line of security solutions.

Select Product

FortiDeceptor

Image File Path

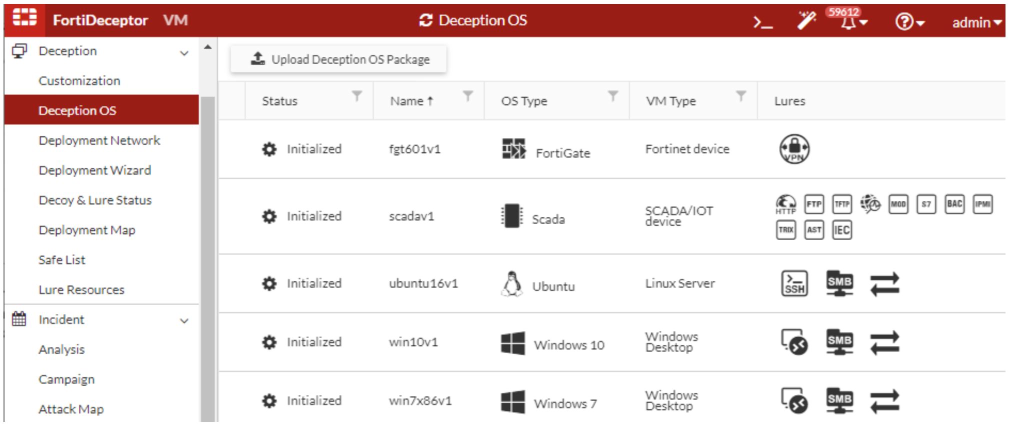
/ FortiDeceptor/ DeceptionOS/

Image Folders/Files

Up to higher level directory

Name	Size (KB)	Date Created	Date Modified	
centosv1.pkg	1,065,548	2022-04-28 16:04:39	2022-04-28 16:04:04	HTTPS Checksum
crmv1.pkg	1,077,316	2021-04-01 11:04:35	2021-04-01 11:04:56	HTTPS Checksum
FDCV3_md5.txt	1	2021-04-01 11:04:05	2021-04-01 11:04:05	HTTPS Checksum
fgt601v1.pkg	49,144	2020-10-13 14:10:44	2020-10-13 14:10:49	HTTPS Checksum
iotv1.pkg.20210716	1,363,899	2021-08-05 14:08:55	2021-08-05 14:08:22	HTTPS Checksum
md5.txt	1	2020-10-13 14:10:44	2020-10-13 14:10:44	HTTPS Checksum
medicalv1.pkg	1,100,552	2021-04-01 11:04:46	2021-04-01 11:04:56	HTTPS Checksum
posv1.pkg	1,687,679	2021-04-01 11:04:01	2021-04-01 11:04:01	HTTPS Checksum
sapv1.pkg	1,055,669	2022-04-28 16:04:54	2022-04-28 16:04:36	HTTPS Checksum

5. Download all the deception OS VM *.pkg* files in this directory.
6. Copy the downloaded files to the offline or air-gapped network.
7. In FortiDeceptor, go to *Deception > Deception OS* and click *Upload Deception OS Package* to import the FortiDeceptor images.



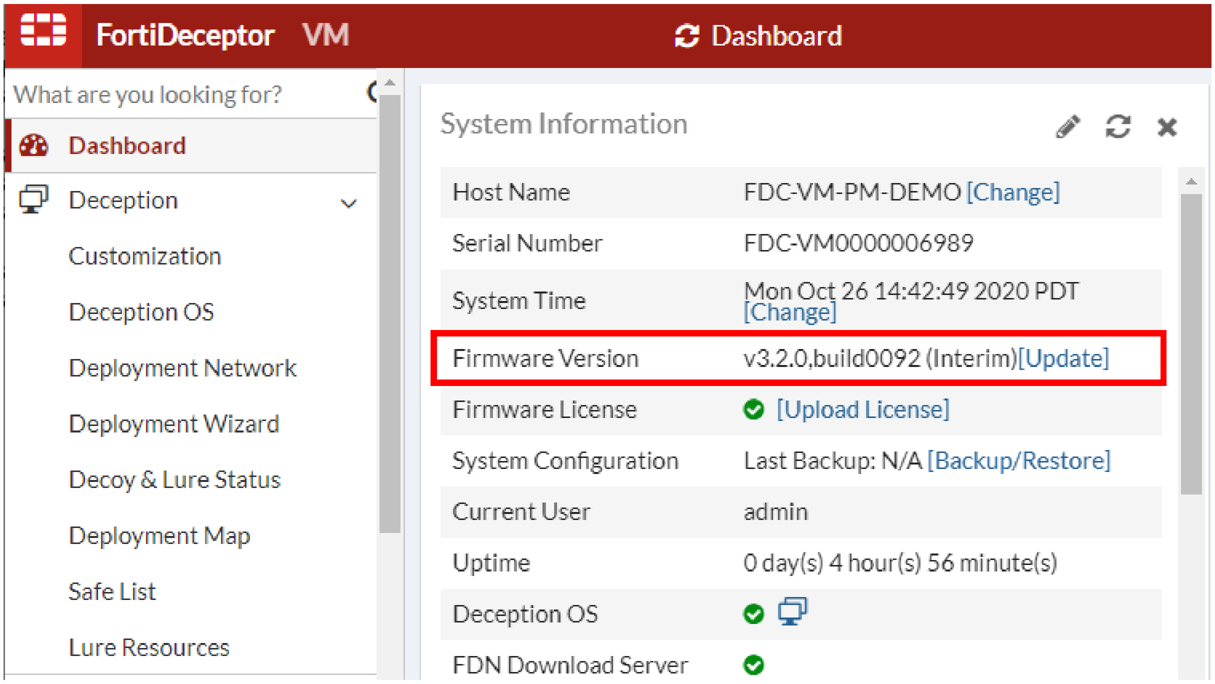
Status	Name ↑	OS Type	VM Type	Lures
Initialized	fgt601v1	FortiGate	Fortinet device	VPN
Initialized	scadav1	Scada	SCADA/IOT device	HTTP FTP TFTP MOD S7 BAC IPMI TRIX AST IEC
Initialized	ubuntu16v1	Ubuntu	Linux Server	SSH SMB ⇄
Initialized	win10v1	Windows 10	Windows Desktop	SMB ⇄
Initialized	win7x86v1	Windows 7	Windows Desktop	SMB ⇄

FortiDeceptor imports the images, verifies image integrity and other security layers, confirms that the images are the originals, and then initializes them. After initialization the *Deception OS* window *Status* column shows these images as *Initialized*.

Importing firmware in an offline or air-gapped network

To download and import FortiDeceptor firmware:

1. Log into Customer Service and Support.
2. Go to *Download* > *Firmware Images*.
3. In the *Select Product* dropdown list, select FortiDeceptor and then click *Download*.
4. Click the version you want.
5. Download the FortiDeceptor firmware file (the `.out` file).
6. Copy the downloaded file to the offline or air-gapped network.
7. Log into FortiDeceptor.
8. In the *Dashboard System Information* widget, click *Update* beside *Firmware Version*.



Host Name	FDC-VM-PM-DEMO [Change]
Serial Number	FDC-VM0000006989
System Time	Mon Oct 26 14:42:49 2020 PDT [Change]
Firmware Version	v3.2.0,build0092 (Interim)[Update]
Firmware License	✓ [Upload License]
System Configuration	Last Backup: N/A [Backup/Restore]
Current User	admin
Uptime	0 day(s) 4 hour(s) 56 minute(s)
Deception OS	✓
FDN Download Server	✓

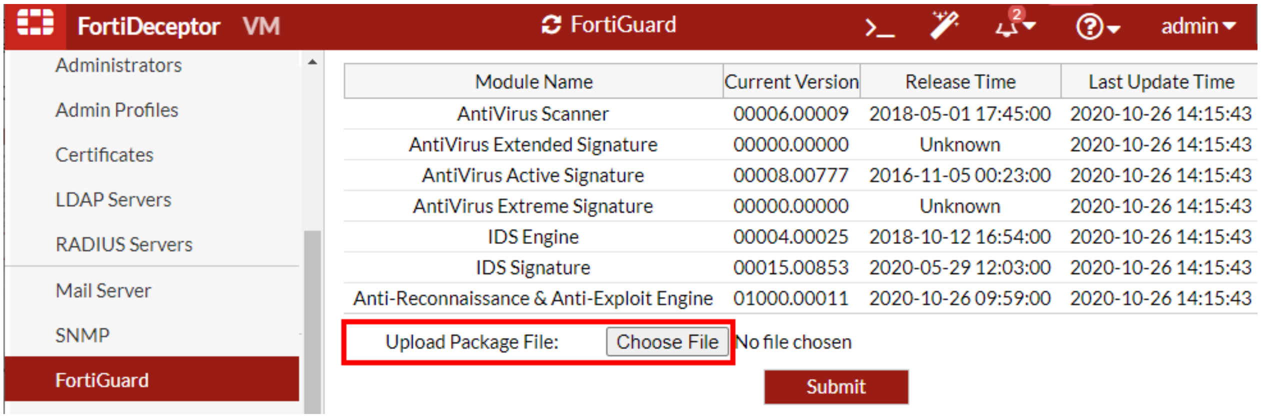
9. Click *Choose file*, then locate the firmware file and click *Submit*.
   FortiDeceptor reboots after the update.

Importing an FDS package via FDC GUI in an offline or air-gapped network

To download and import a FortiDeceptor FDS package:

1. Log into Customer Service and Support.
2. Go to *Download* > *FortiGuard Service Updates*.
3. Locate and download the FortiDeceptor FDS package (the `.pkg` file).
4. Copy the downloaded file to the offline or air-gapped network.

5. In FortiDeceptor, go to *System* > *FortiGuard*; then beside *Upload Package File*, click *Choose File* and locate the FDS package.



Module Name	Current Version	Release Time	Last Update Time
AntiVirus Scanner	00006.00009	2018-05-01 17:45:00	2020-10-26 14:15:43
AntiVirus Extended Signature	00000.00000	Unknown	2020-10-26 14:15:43
AntiVirus Active Signature	00008.00777	2016-11-05 00:23:00	2020-10-26 14:15:43
AntiVirus Extreme Signature	00000.00000	Unknown	2020-10-26 14:15:43
IDS Engine	00004.00025	2018-10-12 16:54:00	2020-10-26 14:15:43
IDS Signature	00015.00853	2020-05-29 12:03:00	2020-10-26 14:15:43
Anti-Reconnaissance & Anti-Exploit Engine	01000.00011	2020-10-26 09:59:00	2020-10-26 14:15:43

Upload Package File: Choose File No file chosen

6. Click *Submit*.
   Ensure you receive a confirmation that installation is successful.

Importing FDS package and license file via FortiManager in an offline or air-gapped network

This topic shows how to download and import a FortiDeceptor license in an offline or air-gapped network using FortiManager.

When FortiManager is operating in a closed network, you can create a support ticket to request account entitlement files from Fortinet Customer Service & Support for devices, and then upload the files to FortiGuard. This allows devices in the closed network to check licenses.

To request the FortiDeceptor entitlement license file for FortiManager:

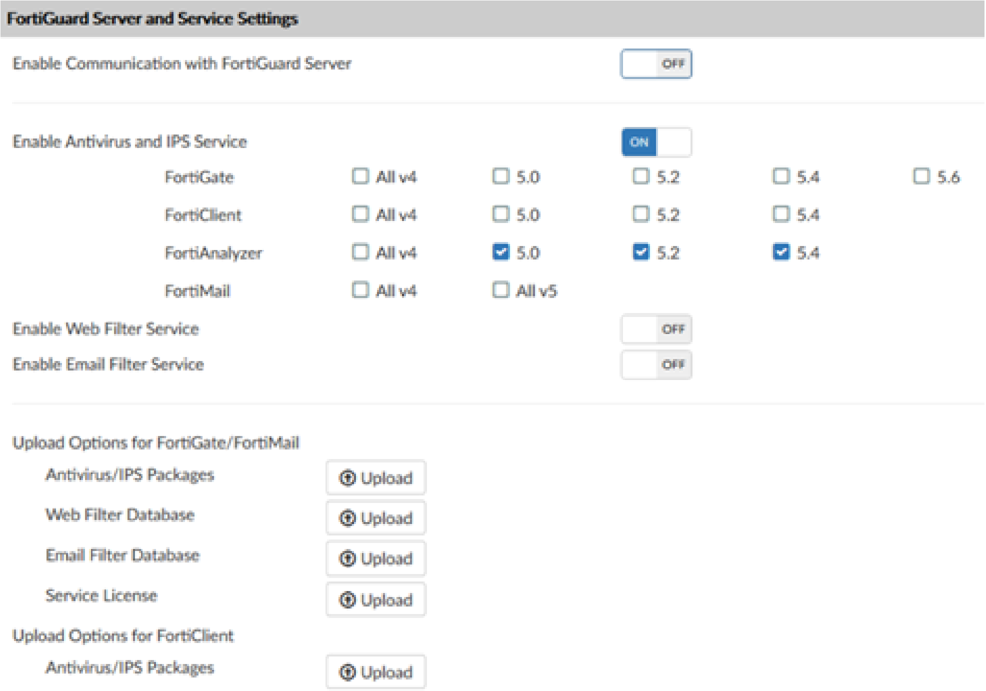
1. Log into Customer Service and Support.
2. Go to *Assistance* > *Create a Ticket*.
3. Expand *Customer Service* and click *Submit Ticket*.
4. Enter the required information.
   - For *Subject*, enter *Entitlement file*.
   - For *Category*, select *CS Contract/License*.
5. Complete and submit the ticket.
6. When you receive the entitlement file via email, download it to your computer.

Without a connection to a FortiGuard server, update packages and licenses must be manually downloaded from support, and then uploaded to FortiManager.

To upload the FortiDeceptor entitlement license file to FortiManager:

1. In FortiManager, go to *FortiGuard* > *Settings*.
2. Set *Enable Communication with FortiGuard Server* to *OFF* so that you can configure FortiManager as a local FDS server.

3. In the *Upload Options for FortiGate/FortiMail* section, click *Upload* besides *Service License*.



FortiGuard Server and Service Settings

Enable Communication with FortiGuard Server: OFF

Enable Antivirus and IPS Service: ON

FortiGate	□ All v4	□ 5.0	□ 5.2	□ 5.4	□ 5.6
FortiClient	□ All v4	□ 5.0	□ 5.2	□ 5.4	
FortiAnalyzer	□ All v4	☑ 5.0	☑ 5.2	☑ 5.4	
FortiMail	□ All v4	□ All v5			

Enable Web Filter Service: OFF

Enable Email Filter Service: OFF

Upload Options for FortiGate/FortiMail

Antivirus/IPS Packages	Upload
Web Filter Database	Upload
Email Filter Database	Upload
Service License	Upload

Upload Options for FortiClient

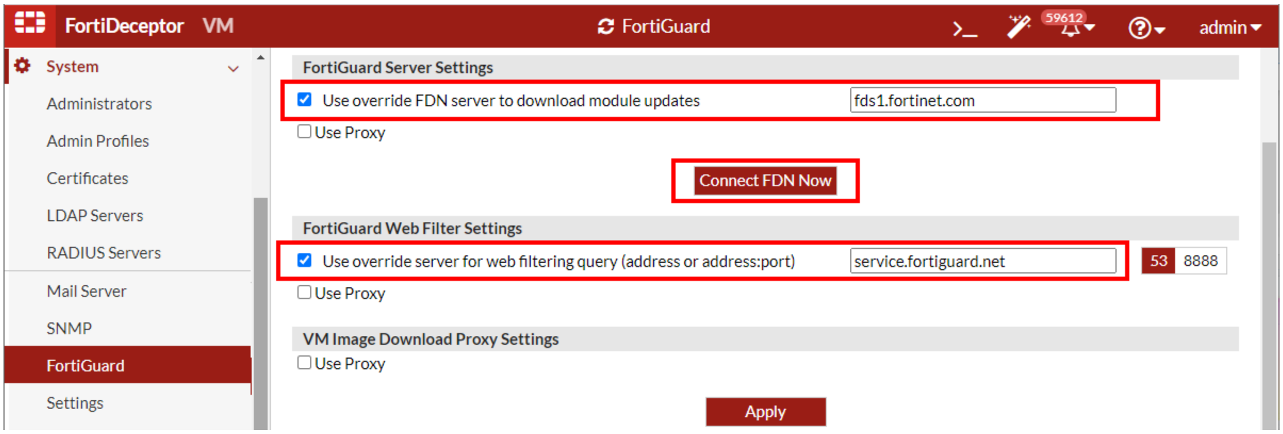
Antivirus/IPS Packages	Upload

Enable Communication with FortiGuard Server	Toggle *OFF* to disable communication with FortiGuard servers.
Enable AntiVirus and IPS Service	Toggle *ON* to enable antivirus and intrusion protection service. When on, select the versions of FortiGate, FortiClient, FortiAnalyzer, and FortiMail to download updates.
Enable Web Filter Service	Toggle *ON* to enable web filter services. When uploaded to FortiManager, the web filter database displays.
AntiVirus/IPS Packages	Click *Upload* to upload antivirus and IPS packages you downloaded from the Customer Service & Support portal.
Web Filter Database	Click *Upload* to upload the web filter database you downloaded from the Customer Service & Support portal. As the database can be large, uploading with CLI is recommended.
Service License	Click *Upload* to import the FortiGate license. You can get a license file from support by requesting your account entitlement for the device.

To configure FortiDeceptor to use FortiManager for FortiGuard services:

1. Go to *System* > *FortiGuard*.
2. In the *FortiGuard Server Settings* section, select *Use override FDN server to download module updates* and enter the FortiManager IP address.
3. In the *FortiGuard Web Filter Settings* section, select *Use override server for web filtering query (address or address:port)* and enter the FortiManager IP address.

4. In the *FortiGuard Server Settings* section, click *Connect FDN Now* to test the FDN connection.



FortiGuard Server Settings

☑ Use override FDN server to download module updates fds1.fortinet.com

□ Use Proxy

FortiGuard Web Filter Settings

☑ Use override server for web filtering query (address or address:port) service.fortiguard.net 53 8888

□ Use Proxy

VM Image Download Proxy Settings

□ Use Proxy

5. If the test passes, click *Apply*.

Appendix B - Deception deployment best practices

This section provides best practices principles and use cases on how to deploy FortiDeceptor in different network topologies.

The section covers the following topics:

Deception strategy

The ancient war strategies by Sun Tzu says: "Know thy self, know thy enemy. A thousand battles, a thousand victories.”

This means if you know the strengths and weaknesses of your enemy, and if you know the strengths and weaknesses in your defense system, you can win any battle. To win against cyber attackers and hackers or users with malicious intention, the cyber security team needs to understand the attacker’s techniques and tools, as well as shortfalls in the organization's defense system.

To understand the attack techniques and hackers’ interests in your environment, we need to understand three tools that can help security professionals stop attackers before a data breach happens.

- **Sandboxing**: This technique allows the malware to install and run in an enclosed environment where the security team can monitor the malware's actions to identify potential risks and countermeasures.
- **Honeypots**: These are intentionally vulnerable systems that are meant to attract attackers. Honeypots entice attackers to attempt to steal valuable data or further scope out the target network. Honeypots help you to understand the process and strategy of attackers.
- **Deception technologies**: These are more advanced honeypot and honeynet products that offer more automation for both detection and implementation of defenses based on the data they gather.

Deception technology is like honeypots on steroids. It has more advanced capabilities like deception lure, deception automation, threat analysis, threat hunting, and more.

The core technology behind deception is the decoy. In general, there are several kinds: low, medium, and high. To align with FortiDeceptor technology, let's focus on two types of decoys: Low Interaction and High Interaction.

- **Low interaction honeypot**: This decoy has limited capability of emulating enterprise applications and is used only to detect from where the attackers are coming and what they attempt to exploit. These are easy for attackers to fingerprint and bypass.
- **High interaction honeypot**: This decoy is identical to the enterprise systems and can run real operating systems, applications, and services with dummy data. They allow the attacker to log in and they respond to the attacker’s

request. In this way, the decoy helps you understand the attacker's intentions, lures them for a long time to identify how command and control infrastructure is set up.

Deception technology systems are more advanced and have more components, breadcrumbs, baits, and lures. Deception systems are implemented alongside enterprise systems but still remain in an isolated environment.

Deception technology systems are used to interrupt the attacker's kill chain, prolong the attack either to exhaust the attacker’s resources or encourage attackers by providing obvious vulnerabilities to help identity the details of their network and arsenals.

Deception strategy components

Deployment of enterprise-scale deception includes the following components:

- Medium interaction decoy and high interaction decoy that are deployed everywhere.
- Customizable decoys to match infrastructure and applications.
- Create and deploy lures to redirect attackers toward decoys.
- Create and deploy lures with trackable misinformation.
- Threat analysis capabilities.
- Integration with existing security infrastructure for mitigation and remediation (Security Fabric and third-party).

Deception strategy goals

Deployment of enterprise-scale deception should achieve the following cyber security requirements and goals:

- Generate actionable, high-fidelity alerts.
- Reduce the “dwell time” of an initial compromise.
- Confuse the attacker with false assets and misinformation.
- Block the human attacker or Advanced Persistent Threat (APT).
- Collect threat intelligence regarding tactics, techniques, and procedures.
- Integrate with existing defense-in-depth architecture.

Deception philosophy

Deception philosophy is a straightforward concept. You deploy deception across the whole network infrastructure and location which generates a fake virtual network layer that masks the real assets with a fake one.

The networks today are fluid and dynamic, so we need to be sure that every network segment and location has this deception layer and capability.

For example:

- **IT Endpoint segment** — Requires deployment of lures and decoys.
- **IT Servers segment** — Requires deployment of lures and decoys.
- **Network Devices** — Requires deployment of decoys.
- **IoT Devices** — Requires deployment of decoys.
- **OT Devices** — Requires deployment of decoys.
- **Data Repository** — Requires deployment of honey files and decoys.
- **Application segment** — Requires deployment of lures and decoys.

- **Network Traffic** — Require decoys that generates fake network traffic and lure that creates fake network connections and entries on the endpoint level.
- **Public/Private Cloud** — Requires deployment of decoys.

Deception light stack vs full stack

Deception light stack concept

The light deception concept uses a combination of endpoint lures with several high interaction decoys only as destination targets.

Using the light deception concept against a sophisticated adversary has some significant drawbacks:

- Deception lures reside on the endpoint and if there is no in-depth customization, this can be fingerprinted.
- A sophisticated adversary that controls several endpoints might fail once and learn the deception lure logic so that the adversary will not make the same mistake next time.
- A sophisticated adversary might not touch the deception lures if it can get high privilege at the beginning of the attack, and the probability of finding several decoys from several thousand assets is non-existent.
- Lack of visibility around unmanaged devices (IoT/OT) where an adversary has plenty of time and space to attack without detection.
- Simple malware spread vectors like pass the hash / single vulnerability attacks are not detected due to a lack of decoys in the network segment level. For example, the Wannacry malware will not get detected using this deployment stack.

Deception full stack concept

A simple explanation of the deception full stack concept is “do not let the sophisticated adversary / malware fingerprint your fake story!”

The deception full stack addresses the drawback of the light deception concept using several deception layers’ architectures:

- Server / endpoint lures are the first layer that engages with the adversary / APT.
- A large scale of decoys that creates a fake network surface on top of the real one offering false endpoints, servers, network devices, IoT/OT, database, files, applications, cloud, and more. This is the deception everywhere concept.
- Some of the decoys are generated from a customer “gold image” and are part of the network domain to increase the authentic deception level.

The dynamic deception decoys module prevents the sophisticated adversary from fingerprinting the decoys by changing the decoys' IP addresses and profile based on time or trigger.

The FortiDeceptor full stack deception concept runs deception lures with a large scale of decoys using a hybrid mode engine that provides medium and high-level interaction decoys against the adversary / APT malware.

Deception for FortiGuard Outbreak Alerts

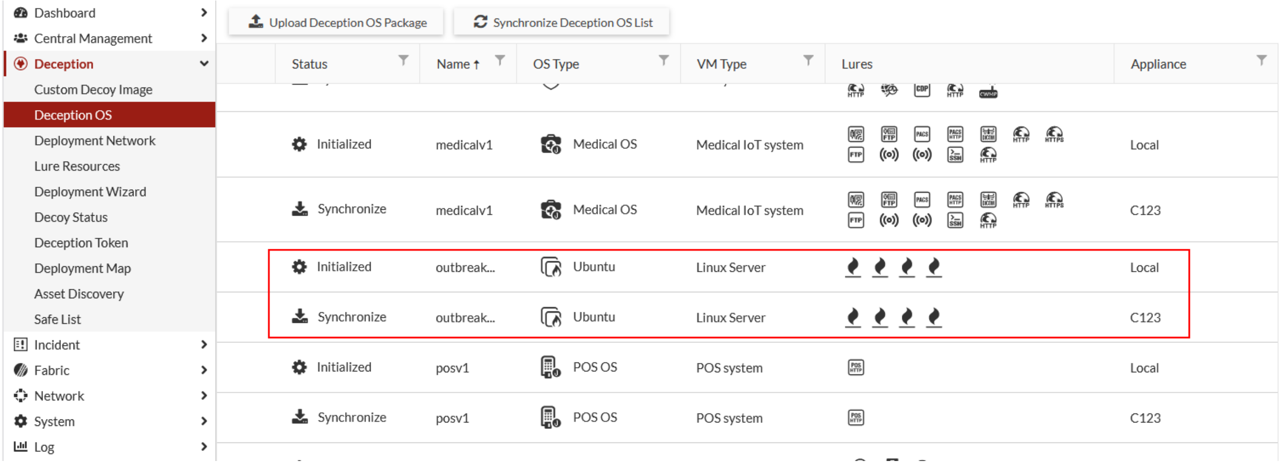
FortiGuard Outbreak Alerts communicate important information about cybersecurity attacks and the Fortinet products that will break the attack sequence. When a cybersecurity incident/attack/event occurs that affects numerous organizations, the Outbreak Alerts page is updated with a link to an individual FortiGuard Outbreak Alert. For more information, visit the *Outbreak Alerts* page.

FortiDeceptor's *outbreakv1* Deception OS contains Deception Decoys that are designed to target and mitigate vulnerabilities identified in the FortiGuard Outbreak Alerts page.

The following steps describe how to configure the *outbreakv1* Deception OS for Log4j2 attacks.

To deploy deception decoys for Outbreak Alerts:

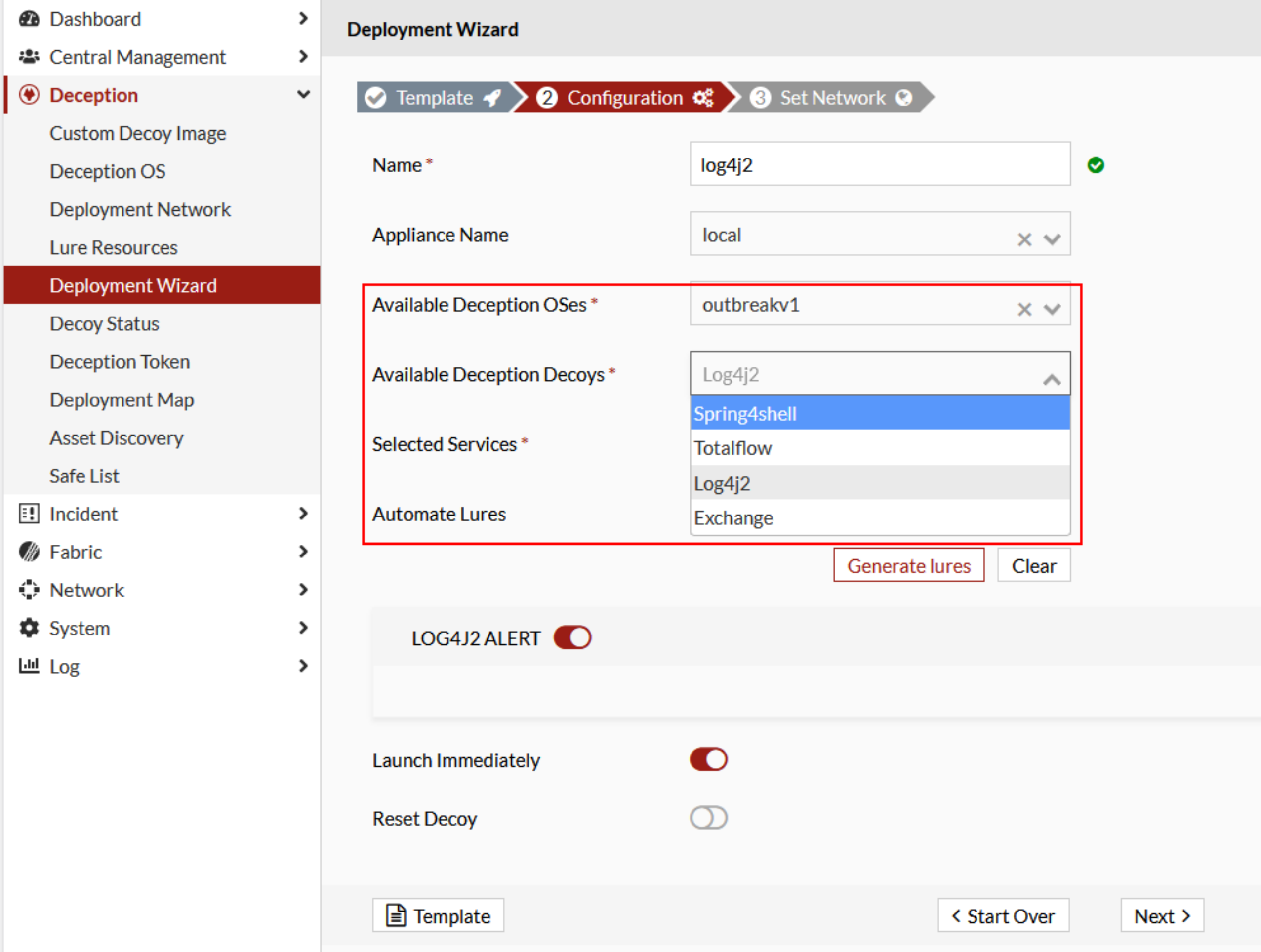
1. Install the *outbreakv1* deception OS.
   a. Go to *Deception > Deception OS*.
   b. In the *Status* column, click *Synchronize* next to *outbreakv1*. The status changes to *Initialized*.



Status	Name ↑	OS Type	VM Type	Lures	Appliance
Initialized	medicalv1	Medical OS	Medical IoT system		Local
Synchronize	medicalv1	Medical OS	Medical IoT system		C123
Initialized	outbreak...	Ubuntu	Linux Server		Local
Synchronize	outbreak...	Ubuntu	Linux Server		C123
Initialized	posv1	POS OS	POS system		Local
Synchronize	posv1	POS OS	POS system		C123

2. Go to *Deception > Deployment Wizard* and click *Create a new decoy*. The *Configuration* page opens.
3. Configure the following deployment settings.

Available Deception OSes	Select *outbreakv1*.
Available Deception Decoys	Select and outbreak deception decoy. For example, *Log4j2*.



Deployment Wizard

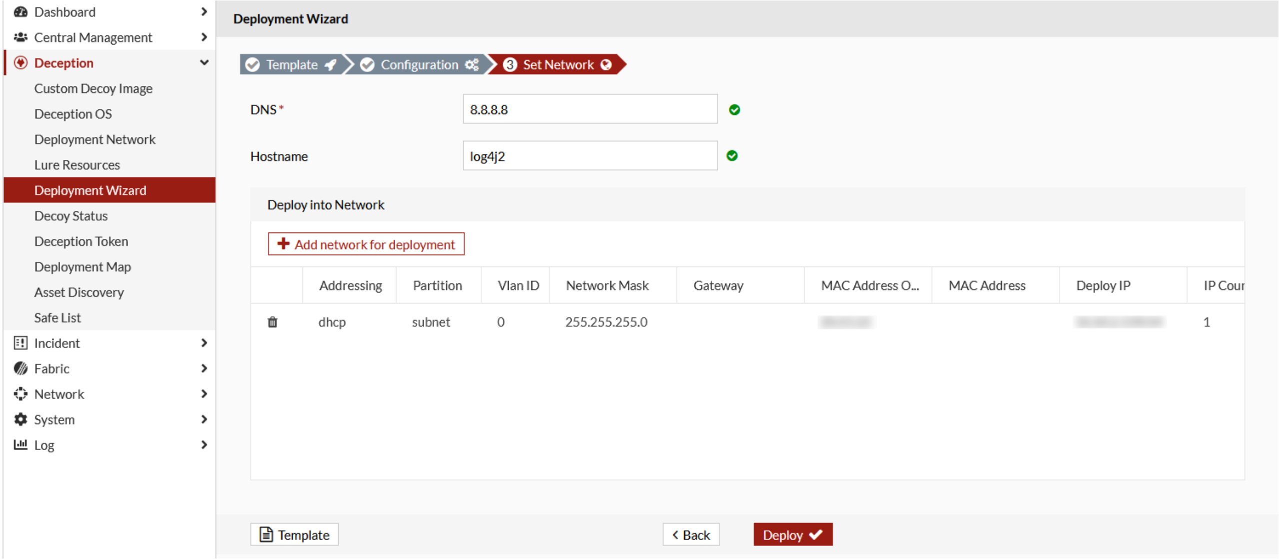
Name *	log4j2
Appliance Name	local
Available Deception OSes *	outbreakv1
Available Deception Decoys *	Log4j2 Spring4shell Totalflow Log4j2 Exchange
Selected Services *	
Automate Lures	

LOG4J2 ALERT

Launch Immediately	●
Reset Decoy	○

For more information about configuring deployment, see Deployment Wizard on page 114.

4. Continue to follow the steps in the Deployment Wizard and then click *Deploy*.



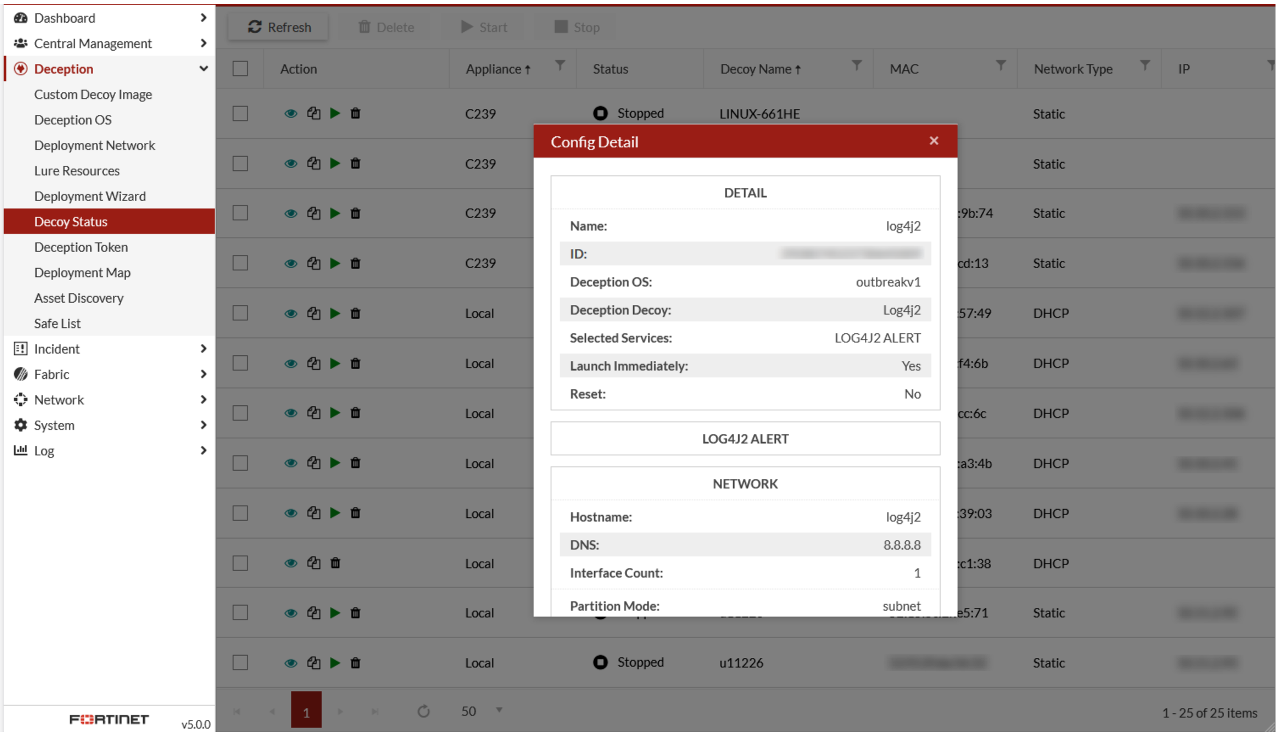
Deployment Wizard

DNS *	8.8.8.8
Hostname	log4j2

Deploy into Network

	Addressing	Partition	Vlan ID	Network Mask	Gateway	MAC Address O...	MAC Address	Deploy IP	IP Cour
🗑	dhcp	subnet	0	255.255.255.0		[redacted]		[redacted]	1

5. Go to *Deception* > *Decoy Status* to verify the decoy is running and configured correctly.



Action	Appliance	Status	Decoy Name	MAC	Network Type	IP
	C239	Stopped	LINUX-661HE		Static	
	C239				Static	
	C239			:9b:74	Static	[redacted]
	C239			cd:13	Static	[redacted]
	Local			57:49	DHCP	[redacted]
	Local			f4:6b	DHCP	[redacted]
	Local			cc:6c	DHCP	[redacted]
	Local			a3:4b	DHCP	[redacted]
	Local			39:03	DHCP	[redacted]
	Local			c1:38	DHCP	[redacted]
	Local			e5:71	Static	[redacted]
	Local	Stopped	u11226	[redacted]	Static	[redacted]

Config Detail

DETAIL

Name:	log4j2
ID:	[redacted]
Deception OS:	outbreakv1
Deception Decoy:	Log4j2
Selected Services:	LOG4J2 ALERT
Launch Immediately:	Yes
Reset:	No

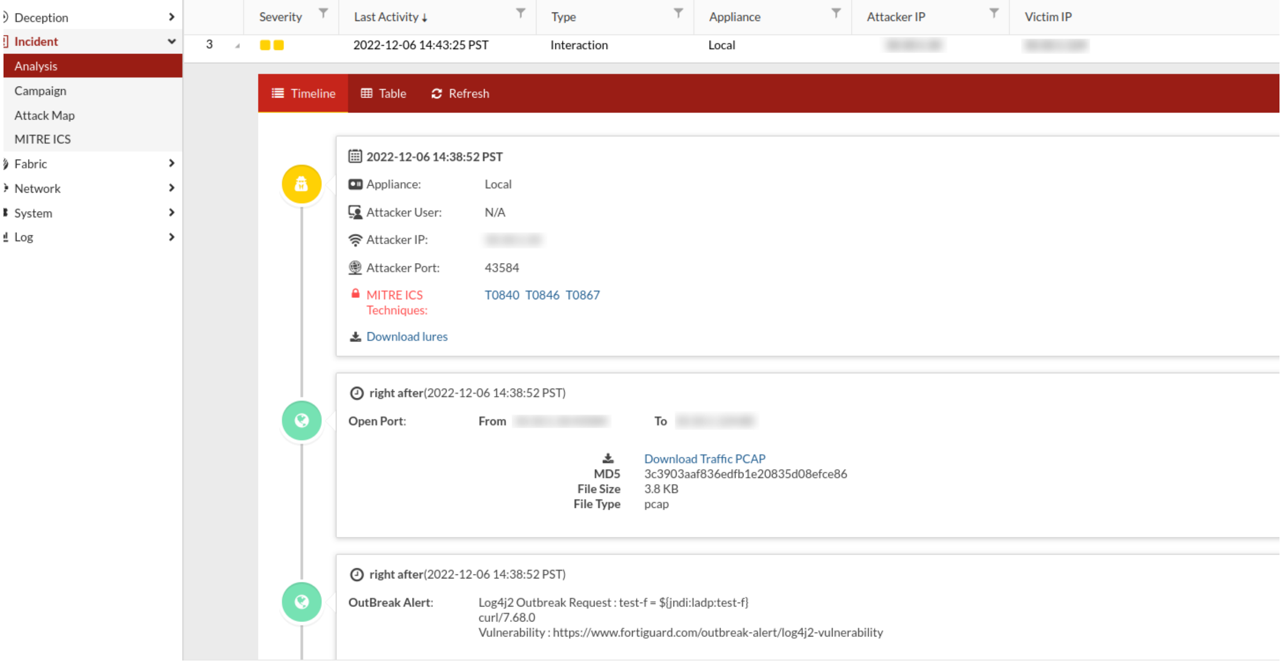
LOG4J2 ALERT

NETWORK

Hostname:	log4j2
DNS:	8.8.8.8
Interface Count:	1
Partition Mode:	subnet

6. Run a simulated attack with the Log4j2 traffic pattern from an endpoint machine located within same deployment network as the outbreak decoy. For example, `curl -X POST http://10.10.1.124/login -F "test-f=\${jndi:ldap:test-f}"`

7. Go to *Incident* > *Analysis* to verify the attack results.



	Severity	Last Activity	Type	Appliance	Attacker IP	Victim IP
3	🟨🟨	2022-12-06 14:43:25 PST	Interaction	Local	[redacted]	[redacted]

2022-12-06 14:38:52 PST

Appliance:	Local
Attacker User:	N/A
Attacker IP:	[redacted]
Attacker Port:	43584
MITRE ICS Techniques:	T0840 T0846 T0867

Download lures

right after(2022-12-06 14:38:52 PST)

Open Port: From [redacted] To [redacted]

	Download Traffic PCAP
MD5	3c3903aaf836edfb1e20835d08efce86
File Size	3.8 KB
File Type	pcap

right after(2022-12-06 14:38:52 PST)

OutBreak Alert: Log4j2 Outbreak Request : test-f = ${jndi:ladp:test-f}
curl/7.68.0
Vulnerability : https://www.fortiguard.com/outbreak-alert/log4j2-vulnerability

FortiDeceptor platform

The FortiDeceptor platform includes the following:

- FortiDeceptor components on page 216
- FortiDeceptor Token Package on page 216
- FortiDeceptor decoys on page 217

FortiDeceptor components

The FortiDeceptor platform includes the following components:

- The FortiDeceptor management console manages and operates the whole platform including deployment, configuration, alerting, analysis, and ECO system integration.
- FortiDeceptor offers a highly-scalable three-tier architecture that combines three levels of deception:
  - Server / endpoint lures.
  - Medium interaction decoys (IoT / OT).
  - High interaction decoys.

You can deploy deception lures using existing infrastructure tools such as A/D GPO, MS SCCM, and so on.

A single FortiDeceptor appliance can run up to 16 deception VMs that support a total of 256 IP addresses. Each IP address represents a single decoy.

You can download a deception VM from the FortiDeceptor marketplace. You can also allow the end user admin bring their own gold image and convert it to a decoy using the FortiDeceptor decoy customization wizard.

FortiDeceptor Token Package

The FortiDeceptor Token package adds breadcrumbs on real endpoints and servers, and redirects an attacker to engage with a decoy instead of a real asset. Deception tokens are typically distributed within real endpoints and servers on the network to expand the deception surface.

Effective deception lure technology should support the following:

- Deploy deception lure data and configurations where attackers collect information.
- Deception lure location must be invisible to end users and should not affect endpoint functionality.
- Deception lure should be accessible with user-level permissions so that attackers can access it early on and be detected. This saves the privileged escalation attack time.

The current FortiDeceptor token packages are:

Windows	• Cached Credential • HoneyDocs • ODBC • RDP • SMB
Linux	• HoneyDocs • RDP (xfreerdp)

	• SMB (SAMBA) • SSH
MAC	• RDP (xfreerdp) • SMB (SAMBA) • SSH
SAP	• SAP
AWS Key	• AWS Keys
Azure Key	• Azure Keys

When the FortiDeceptor token package is installed on a real Windows, Linux, or MAC endpoint, it increases the deception surface and redirects an attacker to engage with a decoy instead of a real asset.

FortiDeceptor decoys

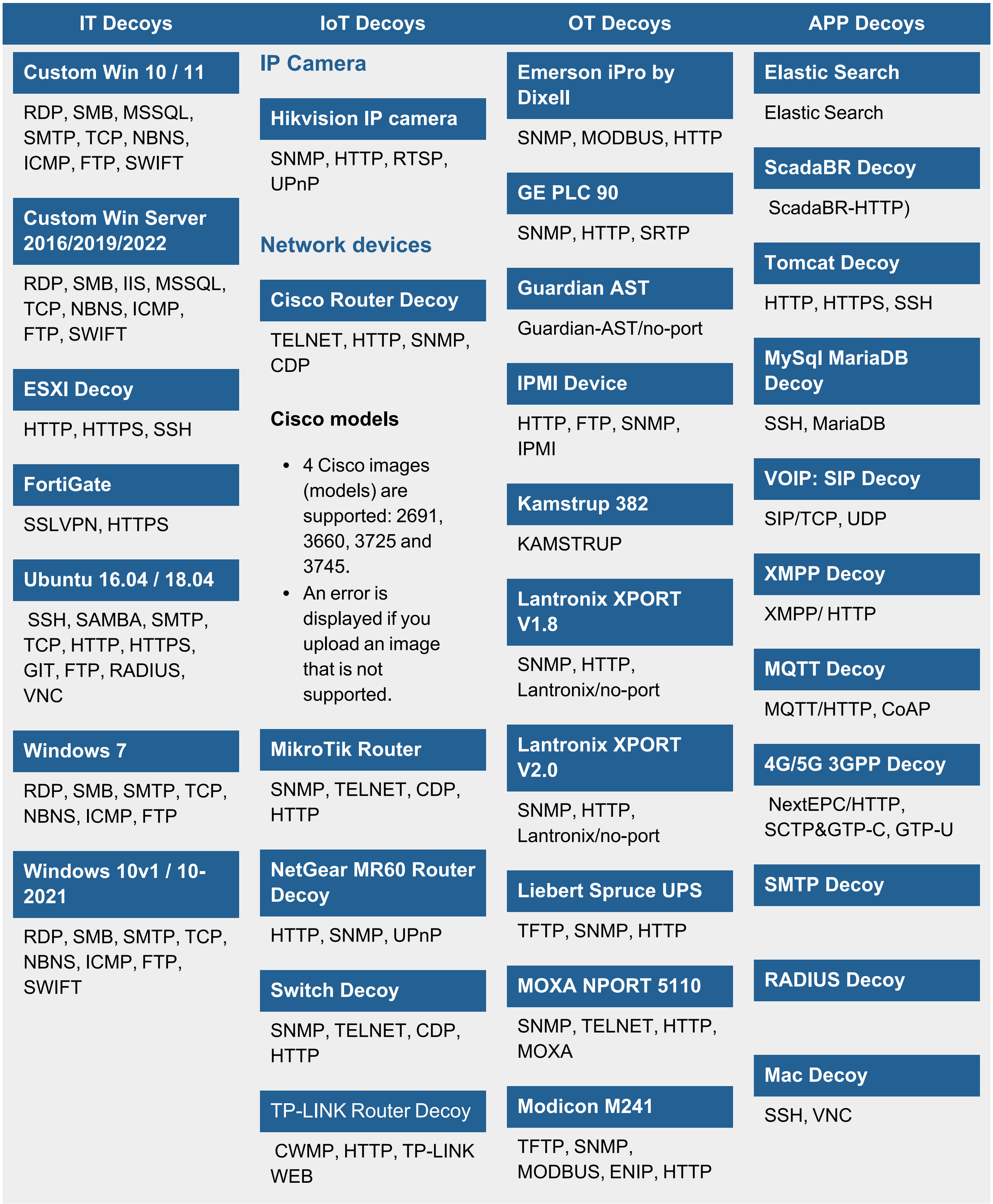
FortiDeceptor creates a network of decoys to lure attackers and monitor their activities on the network. When a hacker attacks a decoy, an alert is generated, and their malicious activities are captured and analyzed in real-time. This analysis generates a mitigation and remediation response that protects the network.

- Decoys on page 217
- Decoy Operating Systems (OS) on page 220
- Application decoys on page 221
- Lure services by OS on page 221
- IP address capacity on page 221
- Decoy services details on page 222

Decoys

The following table shows the current list of FortiDeceptor decoy and services.

IT Decoys	IoT Decoys	OT Decoys	APP Decoys
CentOS 7.9 SSH, SAMBA, SMTP, TCP, HTTP, HTTPS, GIT, FTP, RADIUS	**Printers** **Brother MFC Printer** SNMP, HTTP, Jetdirect	**Note:** OT Decoys are only supported in SCADA v3 OS.	**ERP Decoy** ERP-WEB/HTTP
Custom Redhat 7.9/8.8/8.10/9.4 SSH, SAMBA, SMTP, TCP, HTTP, HTTPS, GIT, FTP, RADIUS	**HP Printer Decoy** SNMP, HTTP, Jetdirect	**Ascent Compass MNG** HTTP, FTP, SNMP, BACNET	**POS Decoy** POS-WEB / HTTP
	Lexmark Printer Decoy SNMP, HTTP, Jetdirect	**C-More HMI** SNMP, HTTP, HTTPS, FTP	**SAP Decoy** SAP Router, SAP Dispatcher, HTTP



IT Decoys

Custom Win 10 / 11

RDP, SMB, MSSQL, SMTP, TCP, NBNS, ICMP, FTP, SWIFT

Custom Win Server 2016/2019/2022

RDP, SMB, IIS, MSSQL, TCP, NBNS, ICMP, FTP, SWIFT

ESXI Decoy

HTTP, HTTPS, SSH

FortiGate

SSLVPN, HTTPS

Ubuntu 16.04 / 18.04

SSH, SAMBA, SMTP, TCP, HTTP, HTTPS, GIT, FTP, RADIUS, VNC

Windows 7

RDP, SMB, SMTP, TCP, NBNS, ICMP, FTP

Windows 10v1 / 10-2021

RDP, SMB, SMTP, TCP, NBNS, ICMP, FTP, SWIFT

IoT Decoys

IP Camera

Hikvision IP camera

SNMP, HTTP, RTSP, UPnP

Network devices

Cisco Router Decoy

TELNET, HTTP, SNMP, CDP

Cisco models

- 4 Cisco images (models) are supported: 2691, 3660, 3725 and 3745.
- An error is displayed if you upload an image that is not supported.

MikroTik Router

SNMP, TELNET, CDP, HTTP

NetGear MR60 Router Decoy

HTTP, SNMP, UPnP

Switch Decoy

SNMP, TELNET, CDP, HTTP

TP-LINK Router Decoy

CWMP, HTTP, TP-LINK WEB

OT Decoys

Emerson iPro by Dixell

SNMP, MODBUS, HTTP

GE PLC 90

SNMP, HTTP, SRTP

Guardian AST

Guardian-AST/no-port

IPMI Device

HTTP, FTP, SNMP, IPMI

Kamstrup 382

KAMSTRUP

Lantronix XPORT V1.8

SNMP, HTTP, Lantronix/no-port

Lantronix XPORT V2.0

SNMP, HTTP, Lantronix/no-port

Liebert Spruce UPS

TFTP, SNMP, HTTP

MOXA NPORT 5110

SNMP, TELNET, HTTP, MOXA

Modicon M241

TFTP, SNMP, MODBUS, ENIP, HTTP

APP Decoys

Elastic Search

Elastic Search

ScadaBR Decoy

ScadaBR-HTTP)

Tomcat Decoy

HTTP, HTTPS, SSH

MySql MariaDB Decoy

SSH, MariaDB

VOIP: SIP Decoy

SIP/TCP, UDP

XMPP Decoy

XMPP/ HTTP

MQTT Decoy

MQTT/HTTP, CoAP

4G/5G 3GPP Decoy

NextEPC/HTTP, SCTP&GTP-C, GTP-U

SMTP Decoy

RADIUS Decoy

Mac Decoy

SSH, VNC

IT Decoys

IoT Decoys

Medical decoys

INFUSOMAT Decoy

HTTP, HTTPS, CanBus, B.BRAUN

PACS Decoy

TELNET, FTP, PACS, PACS-WEB, DICOM Server

SPACECOM Decoy

HTTP, HTTPS, FTP, CANBus, SSH

Bank Decoys

SWIFT VPN Gateway

TELNET, HTTPS

OT Decoys

Modicon M580

TFTP, SNMP, MODBUS, ENIP, HTTP

Niagara4 Station

SNMP, HTTP, BACNET

NiagaraAX Station

SNMP, HTTP, BACNET

Phoenix contact AXC 1050

HTTP, SNMP, PROFINET, FTP

PowerLogic ION7650

SNMP, MODBUS, DNP3, HTTP

Rockwell 1769-L16ER/B LOGIX5316ER

SNMP, ENIP, HTTP

Rockwell 1769-L35E Ethernet Port

SNMP, ENIP, HTTP

Rockwell PLC

HTTP, TFTP, SNMP, ENIP

SIEMENS S7-1500 PLC

HTTP, TFTP, SNMP, S7COMM, IEC104, PROFINET

APP Decoys

Webmin Decoy

HTTP, HTTPS

Citrix ADC Decoy

HTTP, HTTPS

Citrix Application Delivery Management Decoy

HTTP, HTTPS

Citrix Receiver Decoy

HTTP, HTTPS

Citrix Endpoint Management Decoy

HTTP, HTTPS

Citrix DMZ Decoy

HTTP, HTTPS

Nginx Decoy

HTTP, HTTPS

EV-CPO Decoy

HTTP, HTTPS

TrueNAS Decoy

SSH, HTTP, HTTPS, SAMBA, SNMP

IT Decoys	IoT Decoys	OT Decoys	APP Decoys
		Schneider EcoStruxure BMS server SNMP, BACNET, HTTP, TRICONEX	
		Schneider Power Meter - PM5560 SNMP, BACNET, ENIP, HTTP, DNP3	
		Schneider SCADAPack 333E SNMP, DNP3, TELNET	
		Siemens S7-200 PLC HTTP, TFTP, SNMP, MODBUS, S7COMM	
		Siemens S7-300 PLC TFTP, SNMP, IEC104)	
		VAV-DD BACnet controller SNMP, BACNET	

Decoy Operating Systems (OS)

The current FortiDeceptor decoy OS are:

Customized Linux	Red Hat 7.9, Red Hat 8, Red Hat 9, Ubuntu20.04 Server
Customized Windows	Windows 10, Windows 11 version 23H2, Windows Server 2016, Windows Server 2019, Windows Server 2022, French Windows 10, French Windows Server 2016. For detailed information, see Custom Decoy Image on page 44 **NOTE**: Windows 11 version 24H2 is not supported.
IoT/OT	SCADA version 3, Medical OS, IoT OS, and VoIP version1.
Linux	Ubuntu Desktop, CentOS, ESXi server, FV-CPO
VPN	Fortinet SSL-VPN (FG-60F, FG-100F, FG-1500D, FG-2000E, FG-3700D)
Windows	Windows 7, Windows 10, Windows 10ltsc2021v1

Application decoys

The current FortiDeceptor application decoys are:

- POS OS, ERP OS PACS and SAP

Lure services by OS

For a description of each lure service, see Decoy Operating Systems (OS) on page 220.

The current FortiDeceptor lure services are:

Customized Linux	HTTP, HTTPS, GIT, SAMBA, SSH, SMTP, TCPListener, FTP, RADIUS, ICMP
Customized Windows	RDP, SMB, NBNSSpoofSpotter, MSSQL, IIS (HTTP/HTTPS), ICMP, TCPListener, SMTP, SWIFT Lite2 and FTP
IoT/OT	HTTP, FTP, TFTP, SNMP, MODBUS, S7COMM, BACNET, IPMI, TRICONEX, ENIP, Kamstrup, DNP3, Telnet, PACS-WEB, PACS, DICOM server, Infusion Pump (TELNET), Infusion Pump (FTP), POS-WEB, ERP-WEP, GUARDIAN-AST, IEC104, Jetdirect, Printer-WEB, IP Camera-WEB, UPnP, RTSP, CDP, TP-link WEB, CWMP, SAP DISPATCHER, SAP WEB, MOXA, MQTT WEB, CoAP, SIP, and XMPP WEB
Linux	SSH, SAMBA, TCPListener, HTTP, HTTPS, GIT, ICMP and FTP
SSL VPN	HTTPS
Windows	RDP, SMB, TCPListener, NBNSSpoofSpotter, ICMP, FTP, SMTP, SWIFT Lite2. Does not contain (Windows 7.

IP address capacity

The current FortiDeceptor IP address capacity are:

- A single FDC 1KG can host up to 20 deception VMs.
- A single FDC VMs can host up to 20 deception VMs.
- A single deception VM supports up to 24 IP addresses or decoys. Each IP represents a decoy.
- A single FortiDeceptor appliance (HW/VM) can support up to 480 IP addresses.
- A single FortiDeceptor appliance (HW/VM) can support up to 128 segments (VLANS).

VPN only supports 8 IPs.
Cisco Decoy only supports 1VLAN.

Decoy services details

Service	Description
BACNET	Enable this service to capture attacks through BACNET on the default BACNET port.
CDP	Enable this service to allow the decoy VM to send CDP traffic within the network.
CoAP	• Enable this to service capture attacks through CoAP on the default CoAP port. • Download `libcoap` from GitHub is required. Go to https://github.com/miri64/libcoap and follow the command `libcoap` command rule.
CWMP	Enable this service to send data using CWMP protocol to *{ip}:{port}/cpe*.
DICOM Server service	• Server port can be adjusted • Server name can be adjusted • DICOM operations (e.g. C-STORE, C-FIND) are supported
DNP3	Enable this service to capture attacks through DNP3 on the default DNP3 port.
Elastic Search	• ES port can be adjusted, and the user-defined port will be used for HTTP REST API calls to interact with the Elasticsearch cluster. • ES node name is to define a unique identifier for the default created node with in the Cluster. Decoy hostname will be used if empty. • ES cluster name is required to setup the decoy.
ENIP service	• Enable this service to capture attack through ENIP on the default ENIP port. • ENIP serial number is user-defined.
ERP-WEB service	• Login-required web GUI simulates ERP website • Port can be adjusted
FTP service	• Enable this service to capture attacks through FTP on the default FTP port. • FTP port can be adjusted. • FTP banner is user-defined. • Enable Anonymous Access to allow files access through FTP without needing specific user credentials
GIT	• HTTP port can be adjusted. • HTTPS port can be adjusted. • GIT Users are user-defined. • Git Repository Import is optional.
Guardian-AST service	• Enable this service to simulate an AST's satellite communications remote asset tracking system named *Guardian*. • To deploy a Guardian-AST decoy, this service must be enabled since it is the only service available
GTP-U	• Enable the service to capture attacks through GTP-U.

Service	Description
HTTP service	- Enable this service to capture attacks through HTTP on the default HTTP port. - Serial Number is user-defined.
HTTPS	- Enable this service to capture attacks through HTTPS on the default HTTPS port.
ICMP	- Enable this service to capture ping/attacks through ICMP.
IEC104 service	Enable this to service capture attacks through IEC104 on the default IEC104 port.
Infusion Pump (FTP)	- Simulates Infusion Pump (FTP) - A username/password is required to login.
Infusion Pump (Telnet) service	- Simulates Infusion Pump (telnet) - A username/password is required to login.
Infusion Pump (Telnet) service	- Simulates Infusion Pump (telnet) - A username/password is required to login.
IP Camera-WEB	- A login-required service that displays videos to simulate IP cameras. Default videos are available. However, we strongly recommend uploading 1-8 *.mp4* videos that fit best with the working environment.
IPMI service	- Enable this service to capture attack through IPMI on the default IPMI port.
Jetdirect	- Enable this service to open port 9100 on the decoy VM, and respond to PJL (Printer Job Language) requests.
KAMSTRUP service	- Toggle to enable/disable this service. Enable this service to simulate a Kamstrup device - To deploy a KAMSTRUP decoy, this service must be enabled since it is the only service available
Lantronix Discovery Protocol service	- This protocol allows the discovery of Lantronix devices using the Lantronix discovery protocol.
MariaDB	- Enable this service to open the user defined port on the decoy VM and respond to MySQL database requests within the network. - Database name must match the name of database in the uploaded SQL schema. - Database content requires a SQL schema file for organizing database objects, providing a structured way to manage data and the relationships between different objects within the database system.
MODBUS	Enable this service to capture attacks through MODBUS on the default MODBUS port.
PROFINET service	- Download MOXA script from GitHub is required (https://github.com/Z-0ne/MoxaNportScan)
MQTT WEB	- Enable this service to capture attacks through MQTT WEB on the default MQTT WEB port.

Service	Description
	• Supports custom listening port. Default port is 18083. • Supports adding User/Password.
NBNSSpoofSpotter	• Enable this service to capture attacks through NBNS (NetBIOS Name Service) • NBNS Username is user-defined. • NBNS Password is user-defined. • NBNS Domain is user-defined. (Not mandatory) • NBNS Hostname is user-defined. • Enable NBNS User Hostname: This allows the system to directly query the specified NBNS hostname. • Disable NBNS User Hostname: The system will generate fake hostnames based on the provided string. • NBNS Interval setting ranges from 60 to 3600, to manage the frequency of NBNS activities.
NextEPC WEB	Enable this service to capture attacks through NextEPC WEB on the default port. Supports adding User/Password.
PACS service	• A user-defined name for the PACS system.
PACS-WEB service	• Login-required web GUI for PACS, with existing medical data • Port can be adjusted
POS-WEB service	• Login-required web GUI simulate POS website • Port can be adjusted
Printer-WEB	A web GUI that simulates the administration GUI of Lexmark MX410de printer.
PROFINET service	Enable this service to capture attacks through PROFINET
RADIUS	**centosv1 Decoy** • Enable this service to capture attacks through RADIUS. • Authentication port can be adjusted. • Accouting port can be adjusted. • FTP banner is user-defined. • Enable Anonymous Access to allow files access through FTP without needing specific user credentials **Linux Decoy (Ubuntu16v2)** • Enable this service to capture attacks through RADIUS. • Authentication port can be adjusted. • Accounting port can be adjusted. • Secret Password is user-defined.
RDP	• Enable this service to capture attacks through RDP on the default RDP port. **Customized Windows Decoys:** • Enable this service to capture attacks through RDP on the default RDP port.

Service	Description
	• Automatically enable Allow domain user to access RDP to allow Active Directory (AD) user in RDP service,if the customized windows decoys have joined Active Directory (AD) domain during customization, and input AD user when deploy decoy. • Automatically enable Anti Deception Detection feature to allow AD lure users to dynamically login to AD Domain Server daily, if the customized windows decoys have joined Active Directory (AD) domain during customization, and input AD user when deploy decoy.
Router Running-Config (optional)	Allows you to upload a customized Cisco *config* file to predefine the Cisco router setting
RTSP service	• When this service is enabled, you will also need to upload a video to a predefined location so the attacker can watch the video. • The RTSP port can be adjusted. • To upload the video, you can use *ffmpeg*, or any other method to infinitely loop a video so it is available to the attacker **Example:** To infinitely loop a video:`sudo ffmpeg -re -stream_loop -1 -i {path_to_local_video} -c copy -f rtsp rtsp://{ip}:{port}/{name_you_choose};` From the attacker perspective, the live camera stream is available at `rtsp://{ip}:{port}/{name_you_choose}`
S7COMM service	• Enable this service to capture attacks through S7COMM on the default S7COMM port. • Module Type is user-defined. • PLC Name is user-defined.
SAMBA	Enable this service to capture attacks through SMB on the default SMB port.
SAP DISPATCHER	• Enable SAP DISPATCHER so SAP Logon can get responses from the SAP decoy. • Use the default port to ensure SAP Logon can connect.
SAP ROUTER	• Enable SAP ROUTER Service so SAP Logon can configure the SAProuter String. • Use the default port to ensure SAP Logon can connect.
SAP WEB	A fake SAP HTTP and HTTPS GUI for SAP Fiori Launchpad or Legacy WebGUI.
SIP	• Enable this service to capture attacks through MQTT WEB on the default SIP port. • Supports adding User/Password. • Users can connect to the SIP server from SIP client service (like Linphone) through UDP or TCP, and register an account, text message, voice call, and video call each other.
SMB	• Enable this service to capture attacks through SMB on the default SMB port.

Service	Description
	Customized Windows Decoys: - Enable this service to capture attacks through RDP on the default RDP port. - Automatically enable Allow domain user to access RDP to allow Active Directory (AD) user in RDP service,if the customized windows decoys have joined Active Directory (AD) domain during customization, and input AD user when deploy decoy. - Automatically enable Anti Deception Detection feature to allow AD lure users to dynamically login to AD Domain Server daily, if the customized windows decoys have joined Active Directory (AD) domain during customization, and input AD user when deploy decoy.
SMTP	- Enable this service to capture attacks through SMTP (Simple Mail Transfer Protocol). - Listening port can be adjusted. - SMTP Domain is user-defined. - SMTP Banner is user-defined. - Enable Secure SMTP to activate TLS (Transport Layer Security) protocol on SMTP service. - Secure SMTP listening port can be adjusted. - Enable Anonymous Relay to allow anyone to send email to the decoy without requiring authentication.
SNMP	- Enable this service to open port 161 on the decoy VM, and respond to SNMP (v1 or v2c) request from within the network. - Community name is user-defined. - SNMP response is customized for: - Brother MFC Printer decoy - Cisco router decoy - GE PLC decoy - HP printer decoy - HP switch decoy - IP camera decoy - IPMI Device decoy - IPMI Device decoy - Lexmark Printer decoy - Liebert Spruce UPS decoy - moxa nport 5110 decoy - Phoenix contact AXC 1050 decoy - PowerLogic ION7650 decoy - Rockwell 1769-L35E Ethernet Port decoy - Schneider Power Meter - PM5560 decoy - Schneider SCADAPack 333E decoy - Siemens Rockwell PLC decoy - Siemens S7-200 PLC decoy

Service	Description
	• Siemens S7-300 PLC decoy • Siemens S7-1500 PLC decoy • TrueNAS Decoy • VAV-DD BACNET controller decoy
SSH	• Enable this service to open port 22 on the decoy VM and respond to SSH (Secure Shell) requests within the network. • SSH banner is user-defined.
SSLVPN	• Enable this service to capture attacks through SSLVPN on the user-defined port.
SWIFT Lite2	• Enable this service to activate SWIFT Lite2 on Windows 10 decoy. • MT file import is mandatory.
TCPListener	• Enable this service to capture the port scan attacks on the customized port. • TCP banner is user-defined.
Telnet service	**MikroTik Router Decoy** A login-required service that enables attackers to utilize all MikroTik router functions. **MikroTik Router Decoy** A login-required service that enables attackers to utilize all MikroTik router functions. **MOXA NPORT 5110 decoy** • Login-required telnet service simulates moxa nport 5110 command line environment. • Two command choices: 1 and 2 **Schneider SCADAPack 333E decoy** Login-required telnet service simulates SCADAPack E Smart RTU command line environment.
TFTP	Enable this to service capture attacks through TFTP on the default TFTP port
TP-LINK WEB	Enable this service to allow attackers to login to a fake TP-link setting site.
TRICONEX service	• Enable this service to capture attacks with the TRICONEX service.
UPnP service	• Enable this service to open port 8080 on the decoy VM and simulate UPnP service. • A UPnP msg will broadcast within the network. Within the msg there is a URL for the attacker to download a *.xml* file showing device information.
VNC	• Enable this service to capture remote control/support attacks through VNC

Service	Description
	(Virtual Network Computing) system.
XMPP WEB	• Enable this service to capture attacks through XMPP WEB on the default XMPP WEB port. • Supports custom listening port (default port is 5280). • Supports adding User/Password. • Can be reached through HTTP.

Deploying deception

To deploy FortiDeceptor to optimize the deception surface, see the following best practices.

Deception decoy best practices on page 228

Deception token best practices on page 232

AD integration best practices on page 233

Deployment best practices checklist on page 233

Network topology best practices on page 235

Deception decoy best practices

Deception effectiveness requires deployment across all network segments and locations.

This topic provides deception deployment best practices for the decoy layer, including deployment guidelines for each kind of network VLAN that can exist on an enterprise network.

Example of 5-8 decoys per data-center segment (VLAN)

OS

Deploy a matching decoy OS for each type of critical / sensitive IT system in this segment.

Services

Enable matching services for each type of critical / sensitive IT system in this segment and customize the services:

- Apply banner matching the network.
- Apply user access rule such as fake user and password.
- Upload fake data (SMB, FTP, HTTP).

If you do not have out-of-the-box matching services, you can use the custom TCP port listener.

Data

Upload fake data to the decoys to provide authentic engagement. If you do not have matching files, ask the customer to provide a public files package that you can upload and generate fake data using the same structure.

Application

Enable a false matching application for each type of critical / sensitive IT system on this segment If you do not have a matching application, enable high profile fake applications like ERP, POS, or PACS, and so on.

Hostname

Follow corporate standard server’s names for half the decoys and assign enticing names to the remaining half, such as JumpHost001, ERP-XXX, MNG-XXX, Net-Monitor, and so on. Remember that we need to configure these hostnames on the AD level as we use single deception VM across 16 IP address and we can have just one real hostname per OS. For the rest of the IP address, we should have it virtual on the DNS level.

Attackers also like to attack servers with a hostname that has names like “-test” or “-dev” as attackers assume that these servers are less protected.

Gold Image

Ensure you use at least two Windows servers as customer gold images that host critical applications and data. To increase authenticity, configure them to be part of the organization domain.

STATIC / DHCP IP Address

For datacenter segment hosting servers that always use static IP addresses, also use static IP configuration for the decoys.

Example of 2-4 decoys per endpoint segment (VLAN)

OS

Deploy a matching decoy OS and also an “old’ OS like Win7.

Services

Enable matching services for the endpoint on this segment.

If you do not have out-of-the-box matching services, you can use the custom TCP port listener.

Data

Upload fake data to the decoys to provide authentic engagement. If you do not have matching files, ask the customer to provide a public files package that you can upload and generate fake data using the same structure.

Hostname

Follow corporate standard server’s names for half the decoys and assign enticing names to the remaining half, such as IT Admin, HelpDesk, DBA, Finance, and so on. Remember that we need to configure these hostnames on the AD level as we use single deception VM across 16 IP address and we can have just one real hostname per OS. For the rest of the IP address, we should have it virtual on the DNS level.

Gold Image

Ensure you use at least 3–4 Windows servers as customer gold images. To increase authenticity, configure them to be part of the organization domain.

STATIC / DHCP IP Address

For endpoints segment hosting desktops that always use DHCP IP addresses, also use the DHCP IP configuration for the decoys. The DHCP configuration in FortiDeceptor 3.1 and 3.2 allows us to configure one IP per segment, so use the static configuration in this stage to have more decoys per segment.

Example of 7-10 decoys per OT segment (VLAN)

OS

Deploy a matching decoy SCADA OS.

Deploy a matching regular IT OS such as Win7, Win10, or Win2016.

Services

Enable matching services for the OT assets on this segment and customize the services.

- Apply banner matching the network.
- Apply access rule such as fake user and password.
- Upload fake data (SMB, FTP, HTTP).

If you do not have out-of-the-box matching services, you can use the custom TCP port listener.

Data

Upload fake data to the decoys to provide authentic engagement. If you do not have matching files, ask the customer to provide a public files package that you can upload and generate fake data using the same structure. You can also use a search engine like SHODAN.IO to find this data on the Internet and use it to customize the decoys.

Hostname

Follow the OS SCADA names for half the decoys and assign enticing names to the remaining half, such as IT Admin, SCADA-MNG, PLC_ADMIN, HMI_SERVER, NET-MONITOR, and so on.

Application

Check if the customer is willing to provide you access to his OT software. Otherwise, use open-source OT software or use the customize decoy option to generate this kind of decoy.

MAC ADDRESS

Ensure the OT decoy uses the appropriate MAC ADDRESS per vendor.

STATIC / DHCP IP Address

OT networks are mainly a static environment that does not has a DHCP server, so use static IP configuration as well for the decoys.

Example of 8-10 decoys per cloud segment (VPC, VNET)

OS

Deploy a matching decoy OS for each type of critical / sensitive IT system in this segment.

Services

Enable matching services for each type of critical / sensitive IT system in this segment and customize the services:

- Apply banner matching the network.
- Apply user access rule such as fake user and password.
- Upload fake data (SMB, FTP, HTTP).

If you do not have out-of-the-box matching services, you can use the custom TCP port listener.

Data

Upload fake data to the decoys to provide authentic engagement. If you do not have matching files, ask the customer to provide a public files package that you can upload and generate fake data using the same structure.

Application

Enable a false matching application for each type of critical / sensitive IT system on this segment. If you do not have a matching application, enable high profile fake applications like ERP, POS, or PACS, and so on.

Hostname

Follow corporate standard server’s names for half the decoys and assign enticing names to the remaining half, such as JumpHost001, WEB-XXX, DB-XXX, Sec-Monitor, and so on. Remember that we need to configure these hostnames on the AD level as we use single deception VM across 16 IP address and we can have just one real hostname per OS. For the rest of the IP address, we should have it virtual on the DNS level.

Attackers also like to attack servers with a hostname that has names like “-test” or “-dev” as attackers assume that these servers are less protected.

Gold Image

Ensure you use at least two Windows servers as customer gold images that host critical applications and data. To increase authenticity, configure them to be part of the organization domain.

STATIC / DHCP IP Address

Cloud environments mainly host servers that always use static IP addresses, so use static IPs configuration as well for the decoys.

Deception token best practices

Deception effectiveness requires deployment across all managed endpoints and servers.

This topic provides deception deployment best practices for the deception token layer. For token deployment over AD logon script, see appendix A.

Example of deception tokens on Windows, MAC, or Linux endpoint segment (VLAN)

RDP token

- Set up several Windows server decoys that support RDP access.
- Set up appropriate decoy hostnames like Terminal-XX, VDI-XX, and so on. This increases the level of authenticity when you add the Windows server decoys to the company domain.
- Follow company username and password policy.
- Generate 2-3 deception lures and deploy them over several different AD user groups.

SMB token

For Windows endpoints, use either SMB token or SAMBA token. Do not use both.

- Set up at least two Windows server decoys that support two fake network share access.
- Generate at least two tokens with two different share names.
- Use a share name similar to the company structure.
- Set up appropriate hostnames like FileSRV-XX, File-Server, and so on. This increases the level of authenticity when you add the Windows server decoy to the company domain.
- Follow company username and password policy.
- Generate a single deception token package and deploy it over all the network endpoints.

SAMBA token

For Windows endpoints, use either SMB lure or SAMBA token. Do not use both.

- Set up at least two Linux server decoys that support network share access.
- Set up appropriate hostnames like Storage-XX, Backup-Server, and so on.
- Generate at least two tokens with two different share names.
- Use a share name similar to the company structure.
- Follow company username and password policy.
- Generate a single deception token package and deploy it over all the network endpoints.

SSH lure

- Set up several Linux server decoys that support SSH access.
- Set up appropriate hostnames like JumpHost-XX, Control-XX, Cloud-XXX, and so on.
- Use a complicated password. This gives the attacker the impression that this is a critical server.
- Generate 2-3 deception tokens and deploy them over the IT endpoints group only. Attackers do not expect to see SSH clients on a regular desktop.

AD integration best practices

Active Directory (AD) is Microsoft's proprietary directory service. It runs on Windows Server and allows administrators to manage permissions and access to network resources. Active Directory stores data as objects. An object is a single element, such as a user, group, application; or device, such as a printer.

To detect AD attack using deception technology, use the following deception configuration example.

- Deploy custom Windows decoys (Windows 10, Windows 11, Windows Server 2016, Windows Sever 2019, Windows Sever 2022, French Windows 10, French Windows Server 2016) and add them to the customer network domain. For more information, see Custom Decoy Image on page 44.

Example of custom decoys in customer network domain

- Add several custom Windows decoys to the customer network domain.
- On the Windows domain, configure schedule task scripts to run using the fake users, such as the one from the cache credentials lure.
- Add to each domain decoy the maximum number of IP addresses and ensure they are static IP addresses.
- On the network DNS server, configure a decoy DNS.
  - Add DNS records to each decoy IP address.
  - Set up attractive hostnames for each decoy IP address. For more information, see Deception decoy best practices on page 228.
- Deploy the SMB lure front in a domain decoy to avoid detection by tools like HoneyBuster.

Deployment best practices checklist

This checklist is an example of a deception deployment profiling and sizing. This example is based on a company with one headquarters (HQ) site and two remote sites, one of which is a manufacturing site.

Deception Items	Customer Requirements	Deployment
FortiDeceptor appliance HW/VM	VM	The VM supports VMware, Hyper-V or KVM.
HQ site installation	Yes	Deploy on the company ESXi where you have access to most of the network VLANs.
Number of remote sites	2	If the primary and remote locations are connected by FortiGate firewall, configure the VXLAN tunnel between firewalls to publish decoys over the L2 tunnel from the HQ to the remote sites. For details on setting up the VXLAN, see https://kb.fortinet.com/kb/microsites/search.do?cmd=displayKC&docType=kc&externalId=FD47325&sliceId=1&docTypeID=DT_KCARTICLE_1_1&dialogID=163742631&stateId=1%200%20163740760%27. If the firewalls are different, check with Customer Support on how to configure an L2 Tunnel.

Deception Items	Customer Requirements	Deployment
Remote sites are office / OT network	1 remote office + 1 manufacture site	For remote office site, deploy Windows / Linux desktop decoys and deception lures like SMB, RDP and cache credentials. For remote OT site, deploy Windows / Linux and SCADA decoys.
Number of segments (VLANS) to cover	30	
Number of DC segments to cover	2	Deploy Windows / Linux server decoys.
Customer's server OS	Windows, Linux	Deploy Windows / Linux server decoys.
Critical services in the DC segments	SAP, web logistic app	Deploy ERP decoy, Windows decoy with a web app.
Number of endpoint segments to cover	25	Deploy Windows / Linux desktop decoys.
Customer's endpoint OS	Windows, MAC	Deploy deception lures such as SMB, RDP, and cache credentials for both Windows and MAC.
Customer's most important asset to protect	SAP	Deploy Windows decoy with SQL that uses SAP fake data.
Attack vectors customer is facing	Phishing, PTH, lateral movement based on AD	Deploy deception lures like SMB, RDP, and cache credentials. Follow cache credentials best practice.
Customer network's IoT devices	Printer, camera, temp sensors	
Customer network's OT devices	SCADA PLC, HMI	Deploy Windows / Linux and SCADA decoys.
Customer FortiGate firewall solution	Yes	Configure Security Fabric integration for isolation mitigation response.
Customer SIEM solution	Yes	Send SYSLOG from the FDC. Configure a correlation rule to detect lateral movement based on cache credentials lure.

Network topology best practices

For effective deception, you must also understand the customer's network topology, company security risks, where his most important assets are located, and what kind of attack vectors they face or have concerns.

Several common network topologies require different deception deployment approaches.

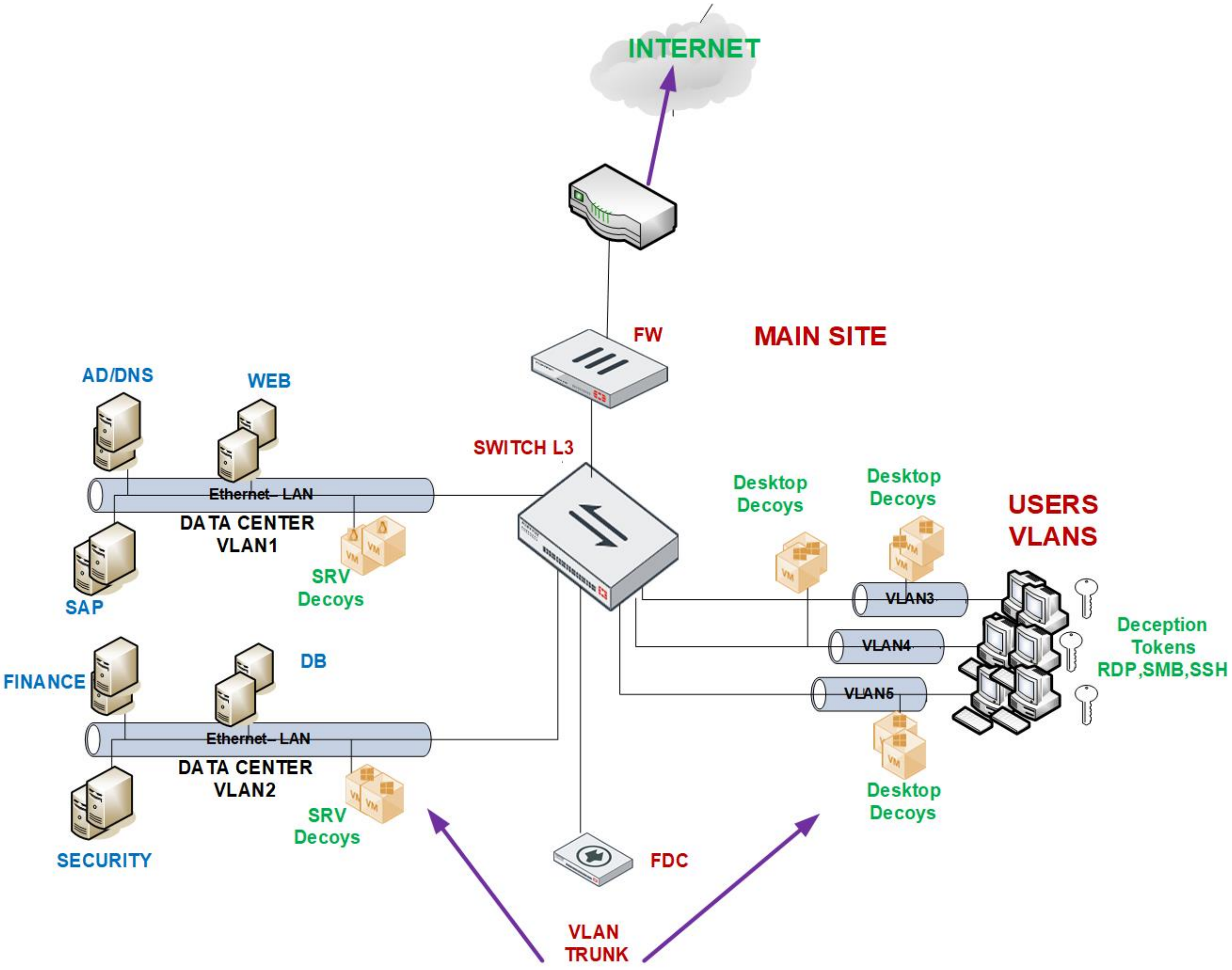
This topic provides best practices for the following scenarios:

1. Network with data center and users at the same location.
2. Network with a data center, users at the same location, and users at remote offices.
3. Network with a data center, users at the same location, users at remote offices, and remote OT sites.

Deception deployment in HQ only

A network topology without remote location is less common today. The reasoning might be that the most important assets are in HQ only and there is no need to deploy deception in remote sites.

This scenarios shows deploying deception in the main HQ only even if there are also remote locations.

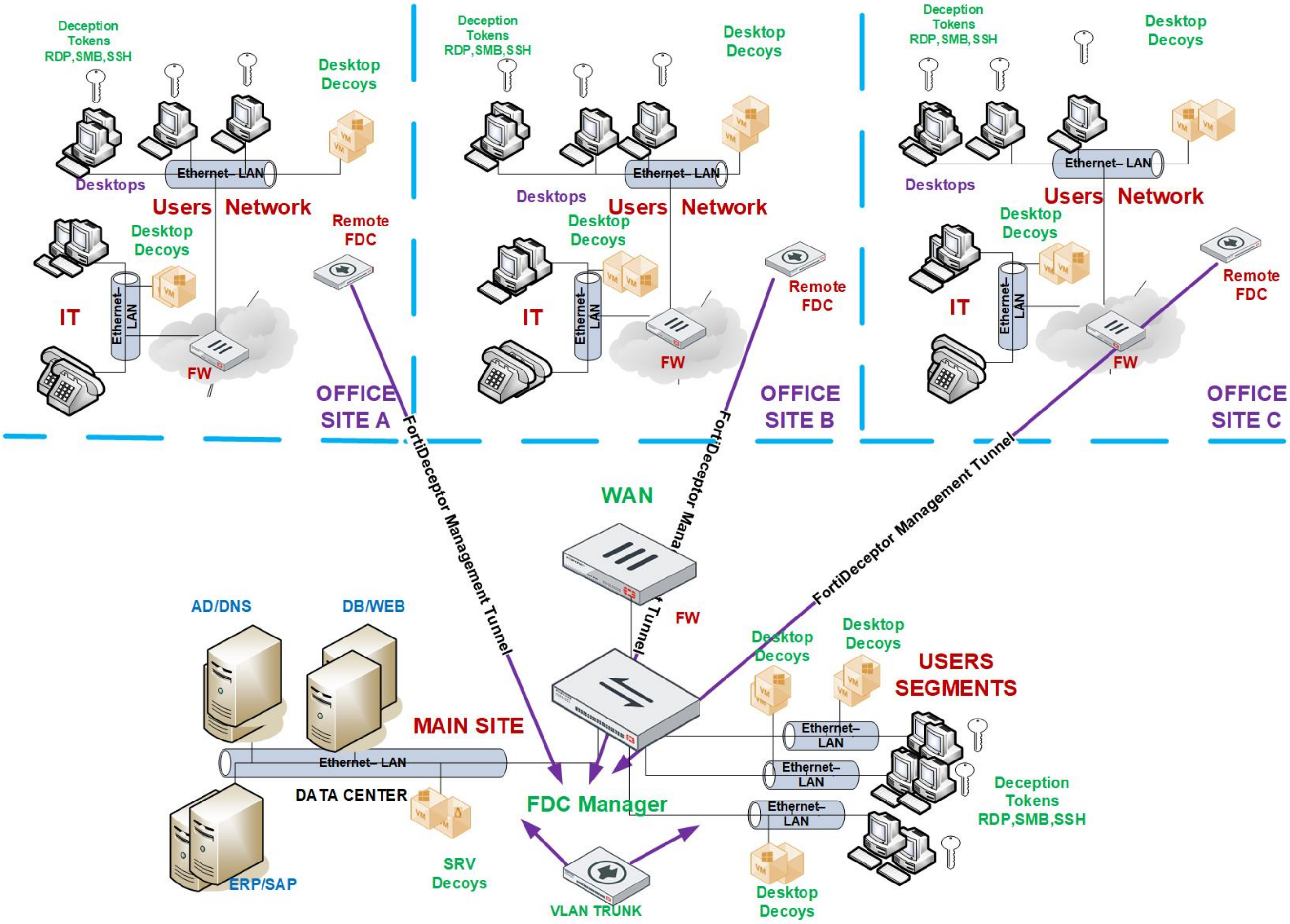


In this scenario, follow these best practice recommendations:

Deception deployment in HQ and remote offices

Network topology with remote locations is the most common enterprise network topology for installations that want to provide the same security protection across all sites.

The level of connectivity required by remote office users is broader and will lead to a data breach if the security level is not similar to the HQ security.



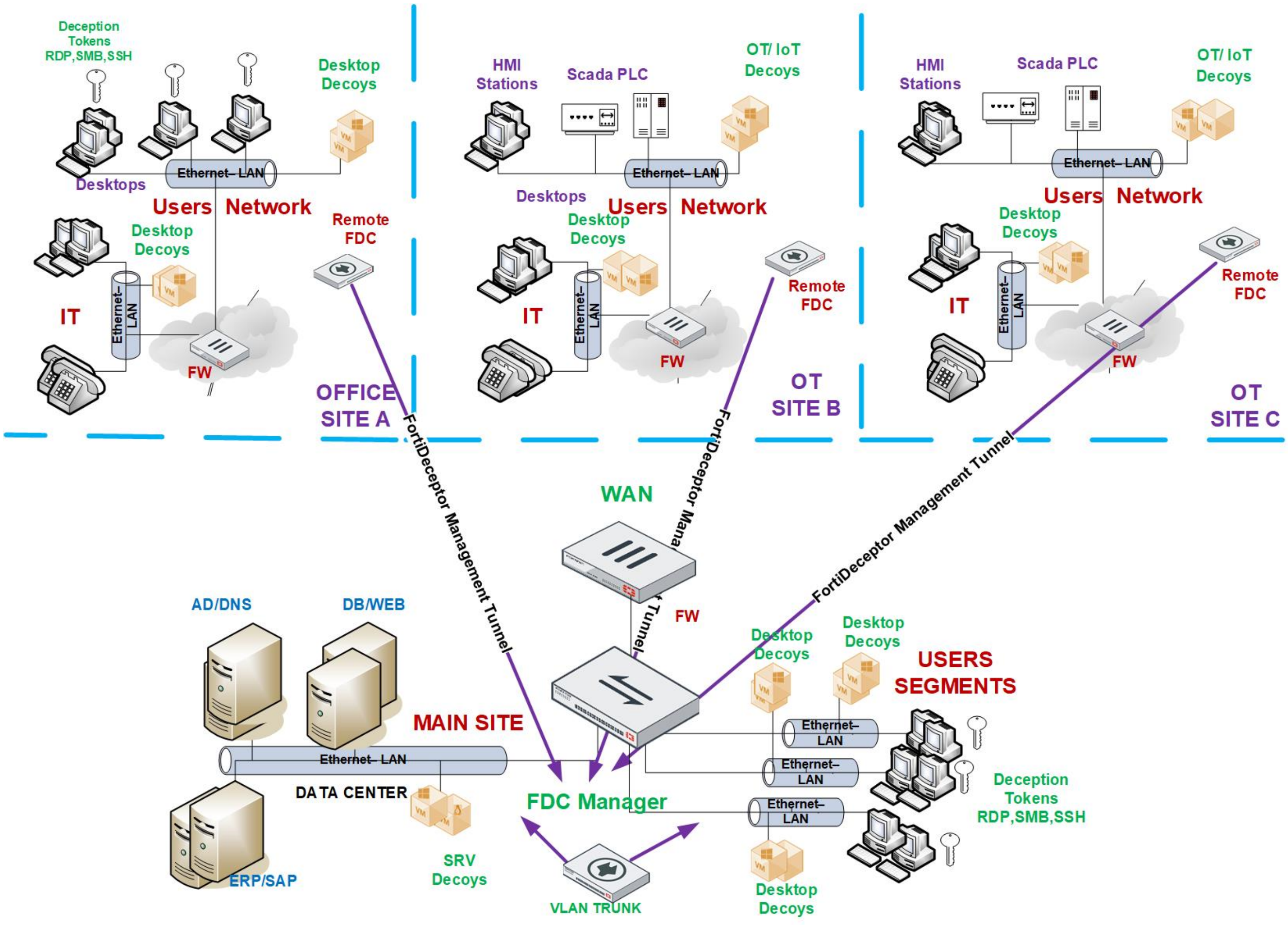
In this scenario, follow these best practice recommendations:

- Deploy a single FortiDeceptor appliance and connect it to the network via trunk to cover most of the HQ network VLANs.
- Deploy decoys following the best practice recommendation in Deception decoy best practices on page 228.
    - On data center VLANs: 5-7 decoys per VLAN.
    - On endpoint VLANs: 2-4 decoys per VLAN.

- Deploy deception lures across all manageable endpoints even if some of them are in remote sites.
  - RDP
  - SMB
  - Cached credentials
  - HoneyDocs
  - SSH (on IT department desktops only)
- Fabric integration.
  - If you have FortiGate, consider the integration value between FortiDeceptor and FortiGate for alert mitigation by isolating the infected machine.
  - Send SYSLOG to SIEM or any logger solution in place.
  - Send SYSLOG to SOAR solution for Deception playbooks. For example, FortiSOAR has pre-built deception playbooks for FortiDeceptor.

Deception deployment in HQ, remote offices, and OT sites

Network topology with remote location (offices + OT sites) is very common for manufacturing, critical infrastructure, and energy companies. The OT site presents a security challenge due to its environmental complexity, such as legacy OSes, non-standard devices and protocols, and so on.



In this scenario, follow these best practice recommendations:

- Deploy a single FortiDeceptor appliance and connect it to the network via trunk to cover most of the HQ network VLANs.
- Deploy decoys following the best practice recommendation in Deception decoy best practices on page 228.
  - On data center VLANs: 5-7 decoys per VLAN.
  - On endpoint VLANs: 2-4 decoys per VLAN.
  - Deploy deception lures across all manageable endpoints even if some of them are in remote sites.
    - RDP
    - SMB
    - Cached credentials
    - HoneyDocs
    - SSH (on IT department desktops only)
- Fabric integration.
  - If you have FortiGate, consider the integration value between FortiDeceptor and FortiGate for alert mitigation by isolating the infected machine.
  - Send SYSLOG to SIEM or any logger solution in place.
  - Send SYSLOG to SOAR solution for Deception playbooks. For example, FortiSOAR has pre-built deception playbooks for FortiDeceptor.

Attack vectors vs deception

This section shows the best practices for attack vectors vs deception.

Compromised internal endpoint using lateral movement

This scenario shows a human attacker trying to compromise an internal endpoint using lateral movements.

Attack vector scenario

An attacker uses a phishing email to compromise the internal user and get access to an internal endpoint.

The attacker then explores the compromised endpoint and collect intelligence on the network before running any privileged escalation or lateral movement.

Attacker's possible first steps on the compromised endpoint:

- Use network commands to understand the network environment and the endpoint location, such as getting information on critical servers and sensitive application locations.
- Access the local / network drive to find information like sensitive files, credentials, and more. The attacker is building the lateral movement route.

- Extract / dump saved password from Windows Credential Manager, browser, or memory, whether in clear text or hashed.

Deception layer

Use SMB deception lures that generate fake network drive fronts with a file server decoy with fake files. The fake network drive configuration is hidden to avoid users from opening it and generating false alerts. Keep in mind that the SMB lure also inserts fake credentials to the Windows credentials manager as well.

Use RDP deception lures that store saved usernames and passwords in the Windows Credential Manager that provides access to a Windows / Linux server decoy.

Use Cached credentials lures that inject saved usernames and passwords in the Windows memory to detect attacks using password dump like Mimikatz. Use a real domain user with IP restrictions.

Early breach detection

Since most users store data on the network drive, when an attacker finds that the compromised endpoint has a local disk and network drive, the attacker will likely access the fake network drive and generate alerts.

Attackers might use a tool like MIMIKATZ to extract clear-text password. An attacker engaging with a decoy using the extracted password generates alerts.

Alert details

The FortiDeceptor console presents the alert as a kill chain flow and presents a profile of the attacker. The alert data includes:

- Attacker username.
  - One of the most critical indicators that provide a quick answer regarding the attacker, attack stage, and phase.
  - A standard user means that the attacker / attack is in the early stage. Admin-level credentials means that the attacker / attack is in the privilege escalation phase or the attack was directed against high profile users from the IT department.
- Compromised IP address.
  - This is a critical indicator that points directly to the compromised host. Early detection prevents more persistent points by the attacker.
- Data that has been accessed by the attacker.
  - To see what data an attacker wants to access and steal, one way is to deploy interesting fake data that resembles your organization's real data.
  - Another way is to deploy a decoy file server with a structure that contains at least ten fake directories that resemble your organization’s real server.
  - You can monitor what data the attacker accesses or copies to assess the attacker's goal.
- Malicious binary.
  - For example, if the attacker engages with a decoy over RDP, the attacker will likely use malicious code to get more persistent and privilege access. So having malicious binary as a piece of evidence with the full binary analysis helps IOC look across the network for more compromised endpoints. You can use an IOC scanner or AV/EDR API to find the indicators across network endpoints and servers.

ECO system flow:

- Send alerts to your SIEM solution.
- Use your FortiGate Fabric integration to isolate the compromised endpoint from the network.
- Deploy more decoys on the isolated segment to keep monitoring the compromised endpoint.

Lateral movement based on AD mapping

This scenario shows a human attacker trying to compromise an internal endpoint using lateral movements based on AD mapping.

Attack vector scenario

An attacker uses a phishing email to compromise the internal user and get access to an internal endpoint.

The attacker uses the compromised user credentials to passively map the network and collect information without generating network noise.

The attacker uses the compromised user credentials to run LDAP queries against the AD to retrieve asset inventory since all users have read-only access on AD objects.

Leveraging the AD asset inventory saves the attacker from running active port scan mapping that generates network noise that can expose his malicious activity.

Attacker's toolkit for AD attack:

- PS script or LDAP query command tools to extract company endpoint and server assets.
- Analyze the hostname to find assets where the hostname reflects their role or dev / test servers that might not be protected like the rest of the network.

Deception layer

- Deploy Windows decoys and add them to the network Domain
- Add DNS A record using attractive hostnames for all domain decoys' IP address. Each decoy supports up to 24 IPs.
- Use SMB deception lures that generate a fake network drive share on the endpoint that mapped front a file server decoy with fake files. The fake network drive configuration is hidden to prevent users from opening it and generating false alerts. Keep in mind that the SMB lure also inserts fake credentials to the Windows credentials manager as well.
- Use RDP deception lures that store saved usernames and passwords in the Windows Credential Manager that provides access to a Windows / Linux server decoy.
- Use Cached credentials lures that inject saved usernames and passwords in the Windows memory to detect attacks using password dump like Mimikatz. Use a real domain user with IP restrictions.

Early breach detection

When the attacker retrieves asset inventory from the AD and starts probing the attractive servers based on their hostname or the fake network connection, these activities generate alerts.

Alert details

The FortiDeceptor console presents the alert as a kill chain flow and presents a profile of the attacker. The alert data includes:

- Attacker username.
  - One of the most critical indicators that provide a quick answer regarding the attacker, attack stage, and phase.
  - A standard user means that the attacker / attack is in the early stage. Admin-level credentials means that the attacker / attack is in the privilege escalation phase or the attack was directed against high profile users from the IT department.
- Compromised IP address.
  - This is a critical indicator that points directly to the compromised host. Early detection prevents more persistent points by the attacker.
- Malicious binary.
  - For example, if the attacker engages with a decoy over RDP, the attacker will likely use malicious code to get more persistent and privilege access. So having malicious binary as a piece of evidence with the full binary analysis helps IOC look across the network for more compromised endpoints. You can use an IOC scanner or AV/EDR API to find the indicators across network endpoints and servers.

ECO system flow:

- Send alerts to your SIEM solution.
- Use your FortiGate Fabric integration to isolate the compromised endpoint from the network. FortiDeceptor offers more fabric connectors for isolation.
- Deploy more decoys on the isolated segment to keep monitoring the compromised endpoint.

Lateral movement based on Mimikatz / PTH

This scenario shows a human attacker trying to compromise an internal endpoint using lateral movements based on Mimikatz / PTH.

Attack vector scenario

An attacker uses a phishing email to compromise the internal user and get access to an internal endpoint.

The attacker looks for any powerful user in the compromised endpoint.

The attacker / APT uses an advanced tool like Mimikatz to run several attacks to extract clear text passwords from memory or Windows Credential Manager, AD Kerberos tickets, Windows local hash, and so on.

The Mimikatz tool's goal is to get administrator-level permission and run in-depth lateral movement across the network.

Attacker's toolkit:

- Tools like Mimikatz, Meterpreter, password dump, and so on.
- Leverage services like RDP, RPC, WMI, VNC, SSH, and WINRM for lateral movement.

Deception layer

- Deploy Windows decoys and add them to the network Domain.
- Add DNS A record using attractive hostnames for all domain decoys' IP addresses. Each decoy supports up to 24 IPs.
- Use SMB deception lures that generate a fake network drive share on the endpoint that mapped front a file server decoy with fake files. The fake network drive configuration is hidden to prevent users from opening it and generating false alerts. Keep in mind that the SMB lure also inserts fake credentials to the Windows Credential Manager as well.
- Use RDP deception lures that store saved usernames and passwords in the Windows Credential Manager that provides access to a Windows / Linux server decoy.
- Use Cached credentials lures that inject saved usernames and passwords in the Windows memory to detect attacks using password dump like Mimikatz. Use a real domain user with IP restrictions.

Early breach detection

An attacker using fake credentials in the sRDP lure to engage with a decoy generates alerts.

An attacker engaging with a real asset using the fake username and password (in the cache credential lure) generate an alert on the SIEM solution. This requires a SIEM correlation rule.

Alert details

The FortiDeceptor console presents the alert as a kill chain flow and presents a profile of the attacker. The alert data includes:

- Attacker username.
  - One of the most critical indicators that provide a quick answer regarding the attacker, attack stage, and phase.
  - A standard user means that the attacker / attack is in the early stage. Admin-level credentials means that the attacker / attack is in the privilege escalation phase or the attack was directed against high profile users from the IT department.
- Compromised IP address.
  - This is a critical indicator that points directly to the compromised host. Early detection prevents more persistent points by the attacker.
- Malicious binary.
  - For example, if the attacker engages with a decoy over RDP, the attacker will likely use malicious code to get more persistent and privilege access. So having malicious binary as a piece of evidence with the full binary analysis helps IOC look across the network for more compromised endpoints. You can use an IOC scanner or AV/EDR API to find the indicators across network endpoints and servers.

ECO system flow:

- For SIEM:
  - Send alerts to your SIEM solution.
  - Create a correlation rule that creates an alert on using the fake username (cache credential lure.
- Use your FortiGate Fabric integration to isolate the compromised endpoint from the network. FortiDeceptor offers more fabric connectors for isolation.
- Deploy more decoys on the isolated segment to keep monitoring the compromised endpoint.

Deploying tokens using AD GPO logon script

FortiDeceptor generates a deception lure package based on the decoy service configuration. For example, deploying a Windows server decoy with the services RDP and SMB, and Linux desktop decoy with the services SSH and SAMBA generates a deception lure package named `FDC_TokenPKG_XXXXXXXXX` that contains the deception lure files.

The deception lure package is a zip file that has three directories containing all the relevant data and configuration for each OS.

The deception lure for each OS uses the same concept: binary files with several JSON files that provide the decoy fake access parameters for the lure.

There are two ways to assign logon scripts. The first is on the *Profile* tab of the user properties dialog in the Active Directory Users and Computers (ADUC). The second is via Group Policy Objects (GPO).

This section provides in-depth instructions on how to deploy Windows lures using the second option via AD GPO logon script.

The main idea for the GPO logon script distribution is:

- Place the deception lure package in a network directory that is accessible to all endpoints.
- Generate a batch file that runs under the logon script and runs each time the end user logs into the network domain.
- The batch file copies the deception lure package to the endpoint and executes it.
- After execution, the endpoint has the deception lure in place.

To prepare the GPO logon script:

1. Download the deception lure package from the FortiDeceptor Admin Console.
2. Unzip the downloaded file to a temporary location.
3. Open the unzipped file and access the `windows` directory.
4. Copy all the files and directories, except uninstall.bat, from the `windows` directory:
   - `windows_token.exe`
   - *Config.json*
   - *res* directory (if it is there)
   - `Honeydocs` directory (if it is there)
5. On the AD server, go to `\\%UserDNSDomain%\SysVol\domain\scripts`
   In this example, the domain is FDC.COM so the location is `\\FDC.COM\SysVol\FDC.COM\scripts`.
6. In the `scripts` directory, create a new directory and name it `MyFiles`.
7. Copy `windows_token.exe` and the `res` directory to the `MyFiles` directory.
8. Create a batch file named `Lure.bat` with the following commands. In this example, the domain is FDC.com.
   ```
   set SFolder=\\FDC.COM\SysVol\FDC.COM\scripts\MyFiles
   set DFolder=%UserProfile%
   xcopy /E /S /H /K /F /C /Y /I "%SFolder%" "%DFolder%\MyFiles"
   start /B /WAIT /MIN "windows_token" "%DFolder%\windows_token.exe" "--non-interactive"
   exit
   ```
   A similar script for token installation is:
   ```
   set SFolder=\\FDC.COM\SysVol\FDC.COM\scripts\MyFiles
   start /B /WAIT /MIN "windows_token" "%SFolder%\windows_token.exe" "--keep-files" "--non-
         interactive"
   exit
   ```
   Syntax example:

```
windows_token.exe "[optional command]" "<optional parameters>"...
```

Command	• (blank): The default command both uninstalls previous lures (if applicable), and installs the new lures. • `uninstall`: Uninstalls all previous installed lures (if applicable) for the current user.
Parameters	`--non-interactive`: (Optional) Used with any command, this parameter prevents any user interface from being displayed while the command is being executed. `--keep-files` (Optional) Keep the installation files/directories. Otherwise, all files and directories in the current folder will be wiped out.

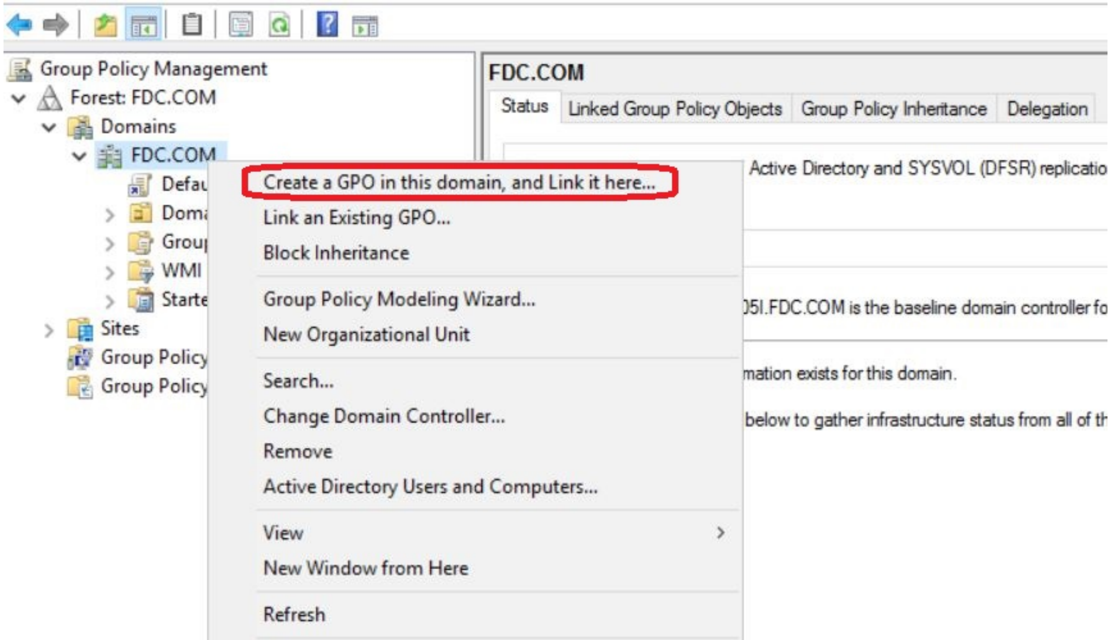
9. (Optional) *The default installation process both uninstalls previous lures (if applicable), and installs the new lures. To uninstall tokens without installation:
   - **a.** Copy `windows_token.exe` from the windows directory to the *MyFiles\Uninstall* directory.
   - **b.** Create a batch file named `uninstall_lure.bat` with the following commands.
     In the following example, the domain is *FDC.com*:

```
set SFolder=\\fdc.com\SYSVOL\fdc.com\scripts\MyFiles\Uninstall
start /B /WAIT /MIN "uninstall_windows_token" "%SFolder%\windows_token.exe"
"uninstall" "--non-interactive"
exit
```

Configuring the GPO logon script

To configure the GPO logon script:

1. Log into the AD server and open the Group Policy Management tool.
   You can also open this tool using the CLI `gpmc.msc`.
2. Right-click the top-level domain object (in this example, *FDC.COM*) and select *Create a GPO in this domain, and link it here*.
   This creates a new group policy object.



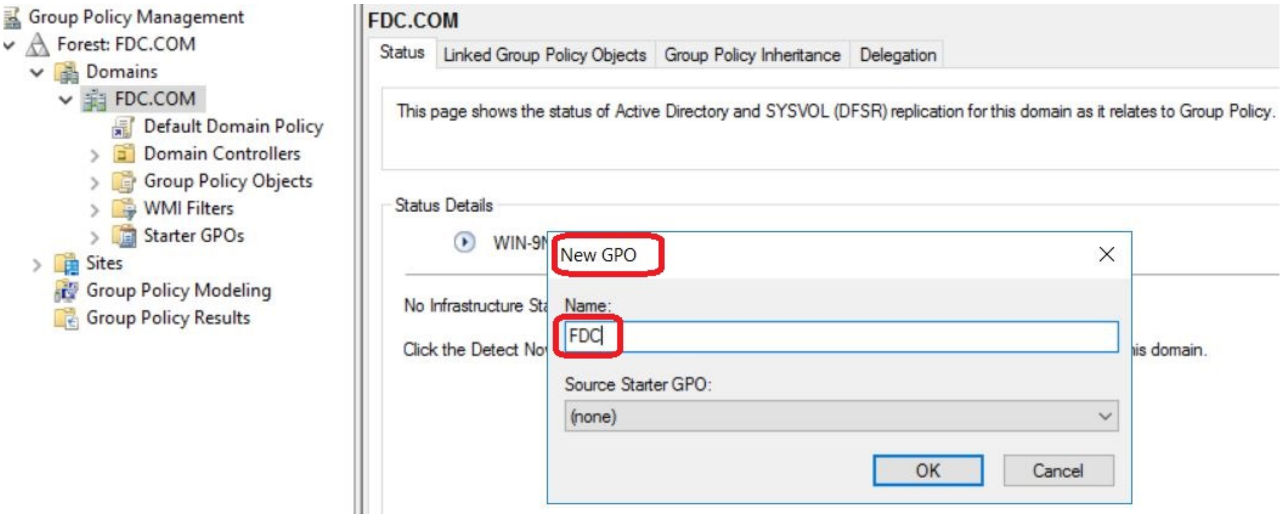
Active Directory and SYSVOL (DFSR) replicatio

)5I.FDC.COM is the baseline domain controller fo

mation exists for this domain.

below to gather infrastructure status from all of th

3. Enter a name for the new group policy object. Do not use a name that has any association with a deception technology.



This page shows the status of Active Directory and SYSVOL (DFSR) replication for this domain as it relates to Group Policy.

No Infrastructure St

Click the Detect No

is domain.

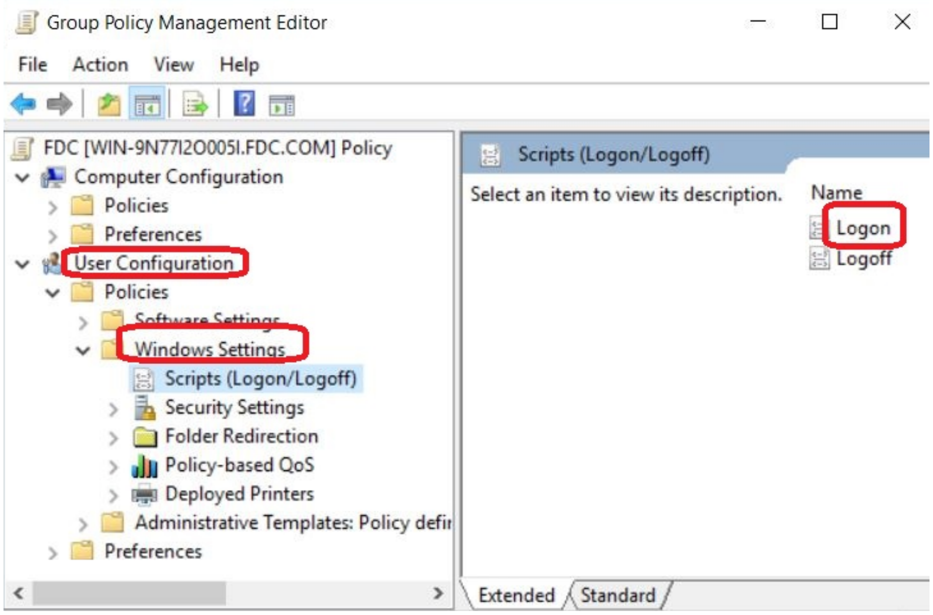
Name: FDC

Source Starter GPO: (none)

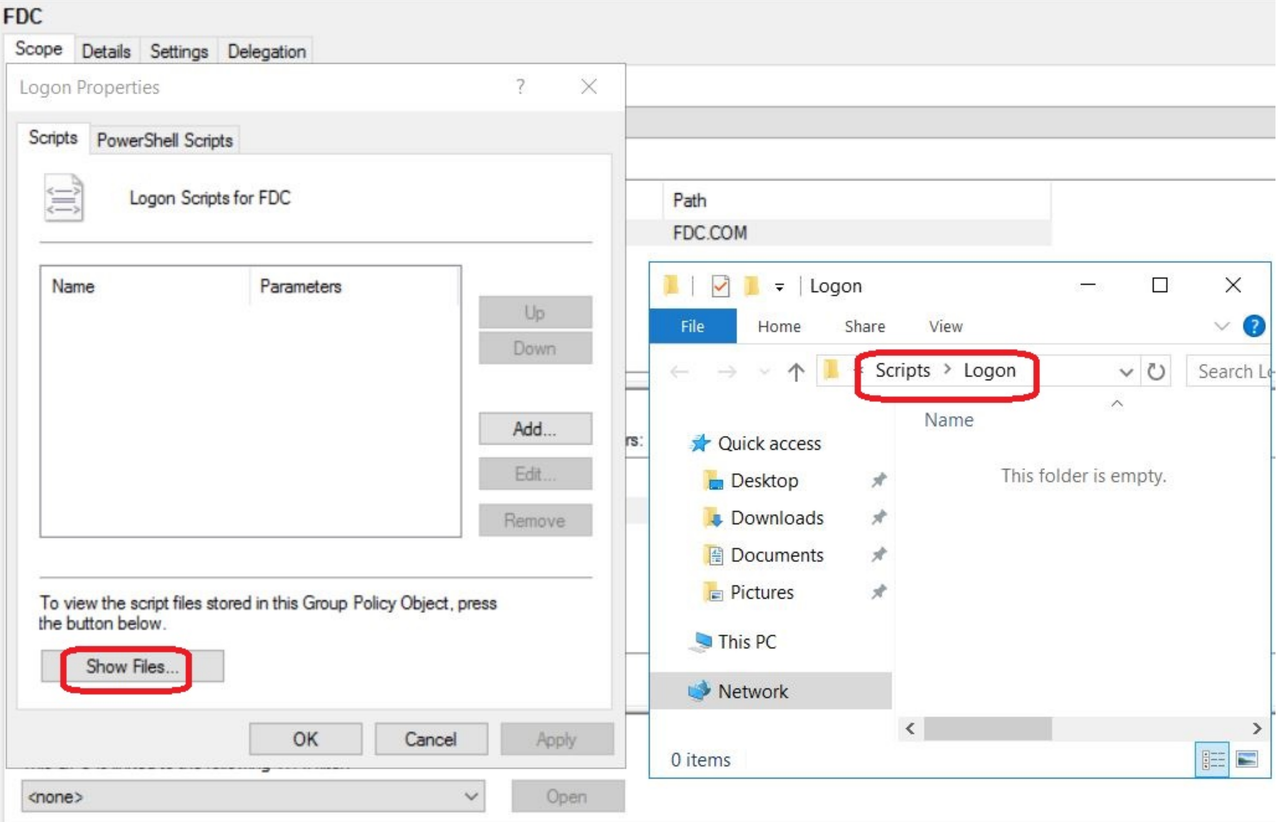
4. Right-click the new group policy object and select *Edit*.

5. Go to *User configuration* > *Policies* > *Windows Settings* > *Scripts (Logon/Logoff)*.

6. In the right pane, double click the *Logon* script to configure the Logon script properties.



7. In the *Logon Properties* dialog box, click *Show Files*.
8. Copy the batch file `Lure.bat` that you have prepared.

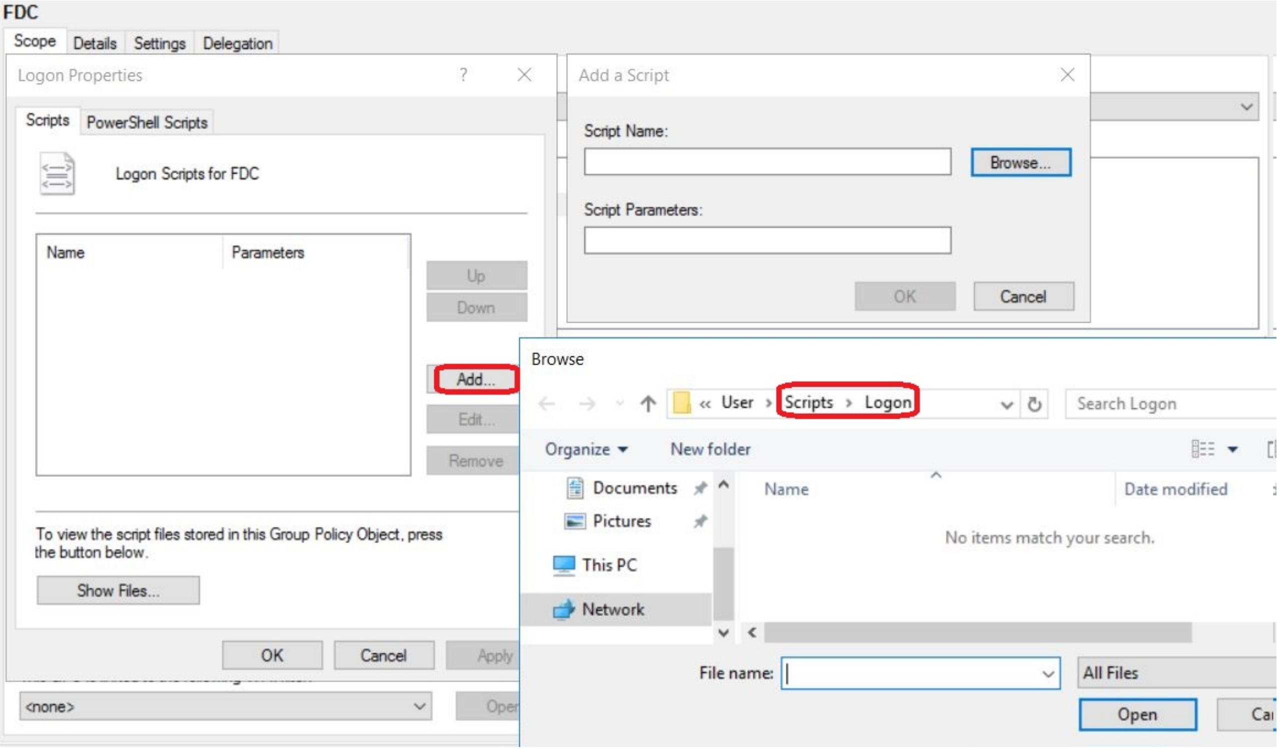


To view the script files stored in this Group Policy Object, press the button below.

This folder is empty.

9. In the *Logon Properties* dialog box, click *Add* to open the *Add a Script*dialog box.

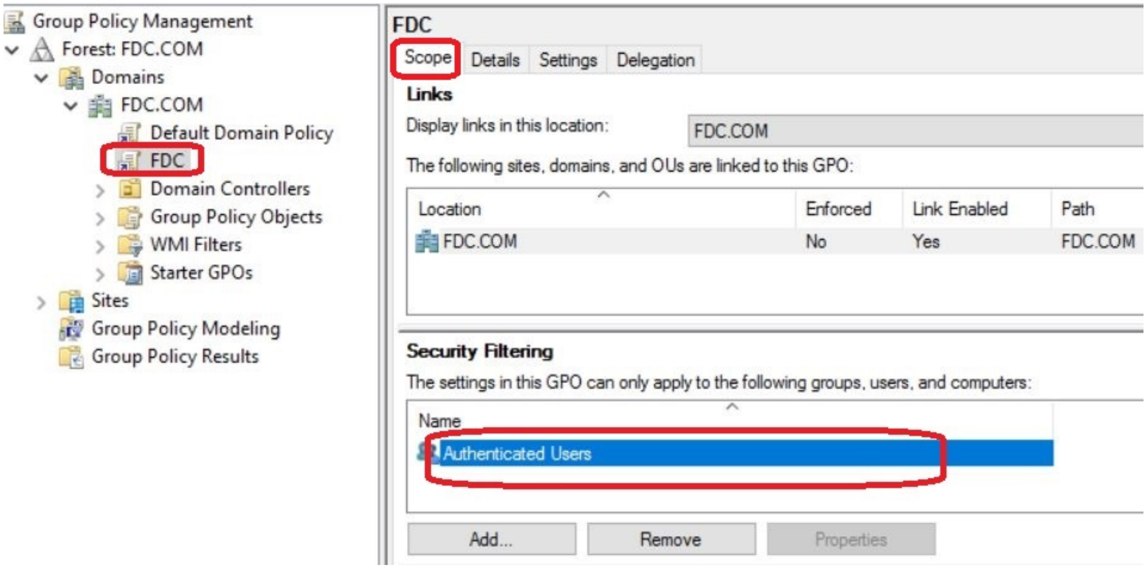
10. Click *Browse*, locate the `Lure.bat` batch file and add it to *Scripts (Logon/Logoff)*.



11. Click *Apply* and then click *OK* to close this window.

To enforce the group policy:

1. In the *Group Policy Management* console, select the new group policy object. In this example, *FDC.COM*.
2. In the *Scope* tab, verify that *FDC.COM* is linked.
3. In the *Security Filtering* section, add and remove the user groups to get the deception lure package through the logon script.
4. In the left pane, right-click the *FDC* group policy object and select *Enforced*.



Display links in this location: FDC.COM

The following sites, domains, and OUs are linked to this GPO:

Location	Enforced	Link Enabled	Path
FDC.COM	No	Yes	FDC.COM

The settings in this GPO can only apply to the following groups, users, and computers:

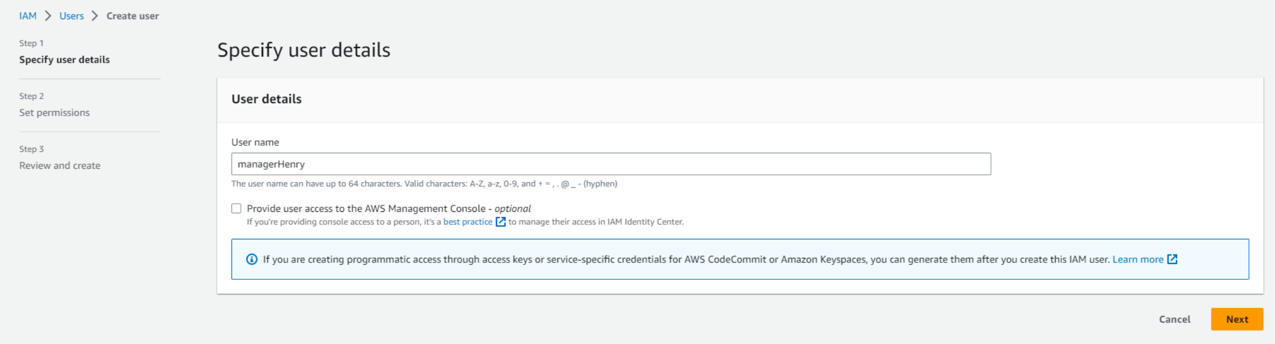
Name
Authenticated Users

Deploying AWS deception keys

To deploy AWS deceptions keys, first create the keys in AWS, then upload them to the FortiDeceptor and create a new campaign.

To create an IAM user:

1. Log in to your AWS administrator account.
2. Go to *Access Management* > *Users* and click *Add Users*.
3. In the *User details* page, enter a *User Name* and click *Next*.



Specify user details

User details

User name: managerHenry

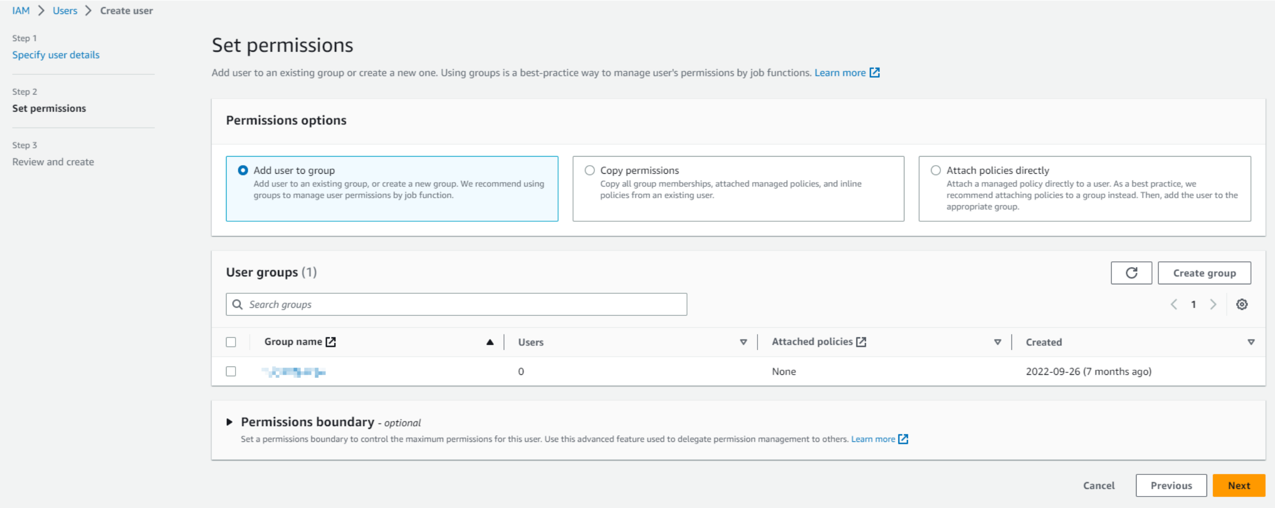
The user name can have up to 64 characters. Valid characters: A-Z, a-z, 0-9, and + = , . @ _ - (hyphen)

□ Provide user access to the AWS Management Console - *optional*

If you're providing console access to a person, it's a best practice to manage their access in IAM Identity Center.

If you are creating programmatic access through access keys or service-specific credentials for AWS CodeCommit or Amazon Keyspaces, you can generate them after you create this IAM user. Learn more

4. On the *Set Permissions* page, do not assign permissions, and click *Next*.



Set permissions

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. Learn more

Permissions options

● Add user to group — Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.

○ Copy permissions — Copy all group memberships, attached managed policies, and inline policies from an existing user.

○ Attach policies directly — Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

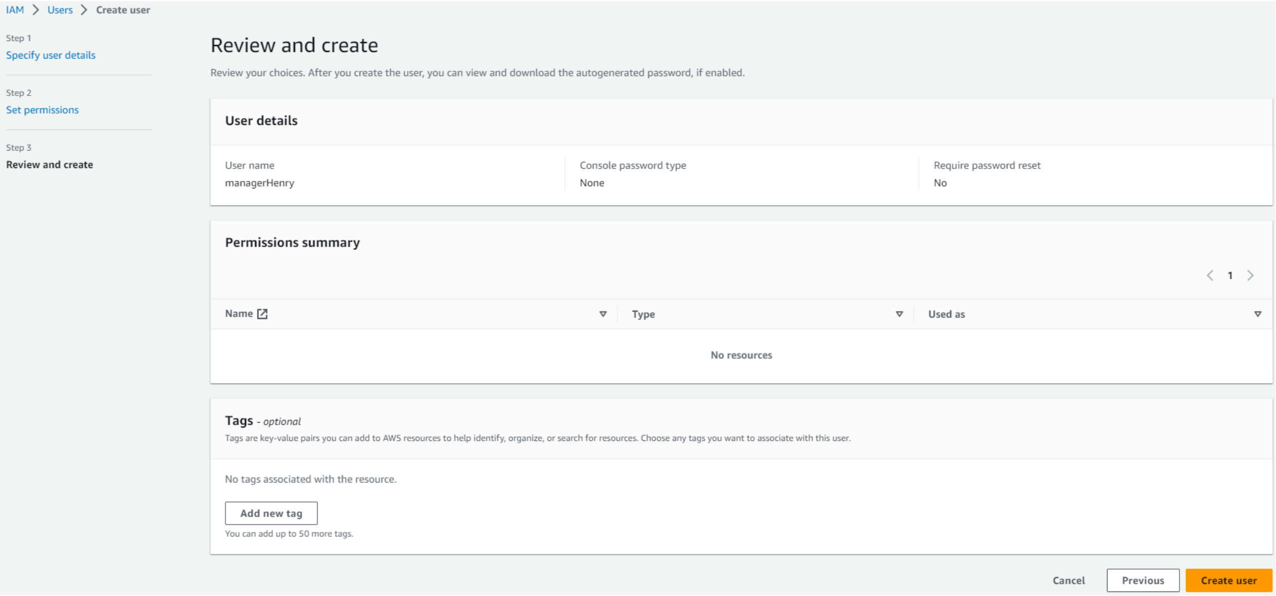
User groups (1)

□	Group name	Users	Attached policies	Created
□	[redacted]	0	None	2022-09-26 (7 months ago)

▶ Permissions boundary - *optional*

Set a permissions boundary to control the maximum permissions for this user. Use this advanced feature used to delegate permission management to others. Learn more

5. On the *Review and create* page, click *Create User*. The new user is created.



Review and create

Review your choices. After you create the user, you can view and download the autogenerated password, if enabled.

User details

User name	Console password type	Require password reset
managerHenry	None	No

Permissions summary

Name	Type	Used as
No resources		

Tags - *optional*

Tags are key-value pairs you can add to AWS resources to help identify, organize, or search for resources. Choose any tags you want to associate with this user.

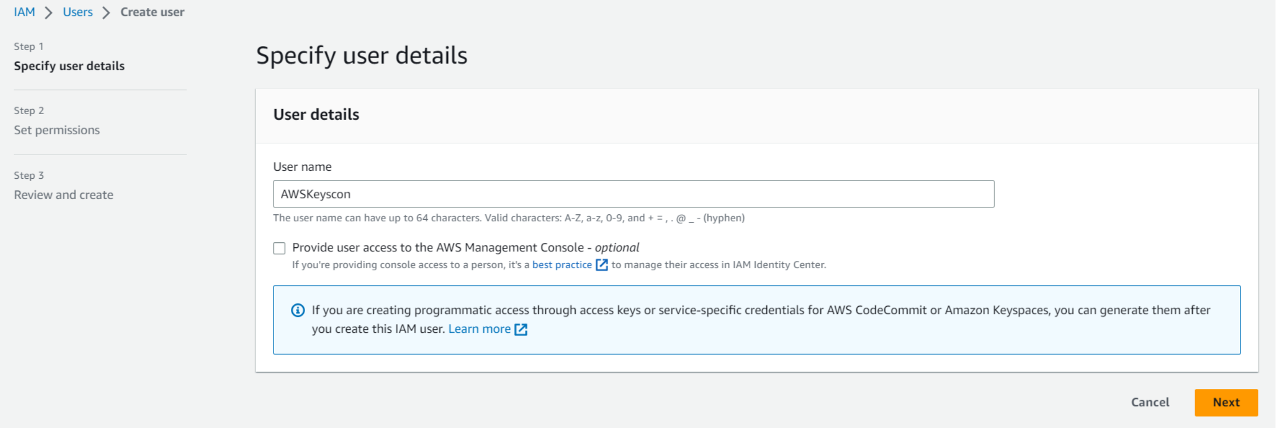
No tags associated with the resource.

You can add up to 50 more tags.

6. Create an access key for an AWS Connector user.

To create an AWS Connector user with AWSCloudTrail_ReadOnlyAccess permission:

1. Create a new AWS Connector user such as *AWSKeyscon*.



Specify user details

User details

User name: AWSKeyscon

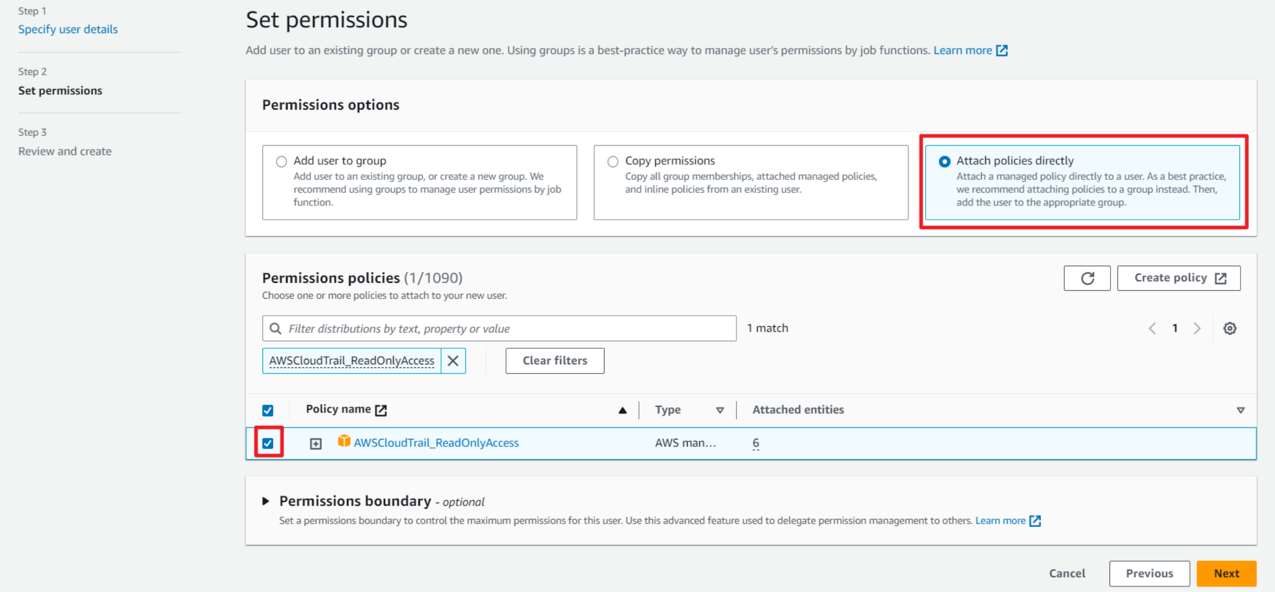
The user name can have up to 64 characters. Valid characters: A-Z, a-z, 0-9, and + = , . @ _ - (hyphen)

☐ Provide user access to the AWS Management Console - *optional*

If you're providing console access to a person, it's a best practice to manage their access in IAM Identity Center.

If you are creating programmatic access through access keys or service-specific credentials for AWS CodeCommit or Amazon Keyspaces, you can generate them after you create this IAM user. Learn more

2. Set the permissions to *Attach existing polices directly* and select *AWSCloudTrail_ReadOnlyAccess*.



Step 1
Specify user details

Step 2
Set permissions

Step 3
Review and create

Set permissions

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. Learn more

Permissions options

○ Add user to group
Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.

○ Copy permissions
Copy all group memberships, attached managed policies, and inline policies from an existing user.

● Attach policies directly
Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

Permissions policies (1/1090)
Choose one or more policies to attach to your new user.

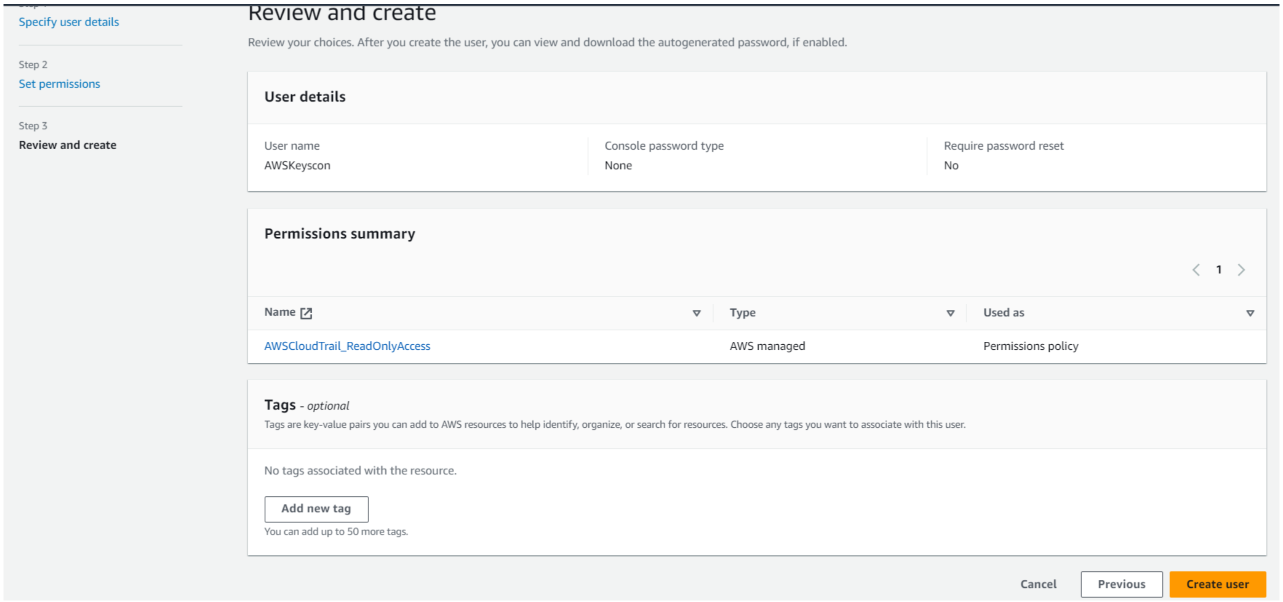
Filter distributions by text, property or value — 1 match

AWSCloudTrail_ReadOnlyAccess ✕ — Clear filters

☑	Policy name	Type	Attached entities
☑	AWSCloudTrail_ReadOnlyAccess	AWS man...	6

▸ Permissions boundary - *optional*
Set a permissions boundary to control the maximum permissions for this user. Use this advanced feature used to delegate permission management to others. Learn more

3. Review the user permissions and click *Create user*.



Specify user details

Step 2
Set permissions

Step 3
Review and create

Review and create

Review your choices. After you create the user, you can view and download the autogenerated password, if enabled.

User details

User name	Console password type	Require password reset
AWSKeyscon	None	No

Permissions summary

Name	Type	Used as
AWSCloudTrail_ReadOnlyAccess	AWS managed	Permissions policy

Tags - *optional*
Tags are key-value pairs you can add to AWS resources to help identify, organize, or search for resources. Choose any tags you want to associate with this user.

No tags associated with the resource.

Add new tag
You can add up to 50 more tags.

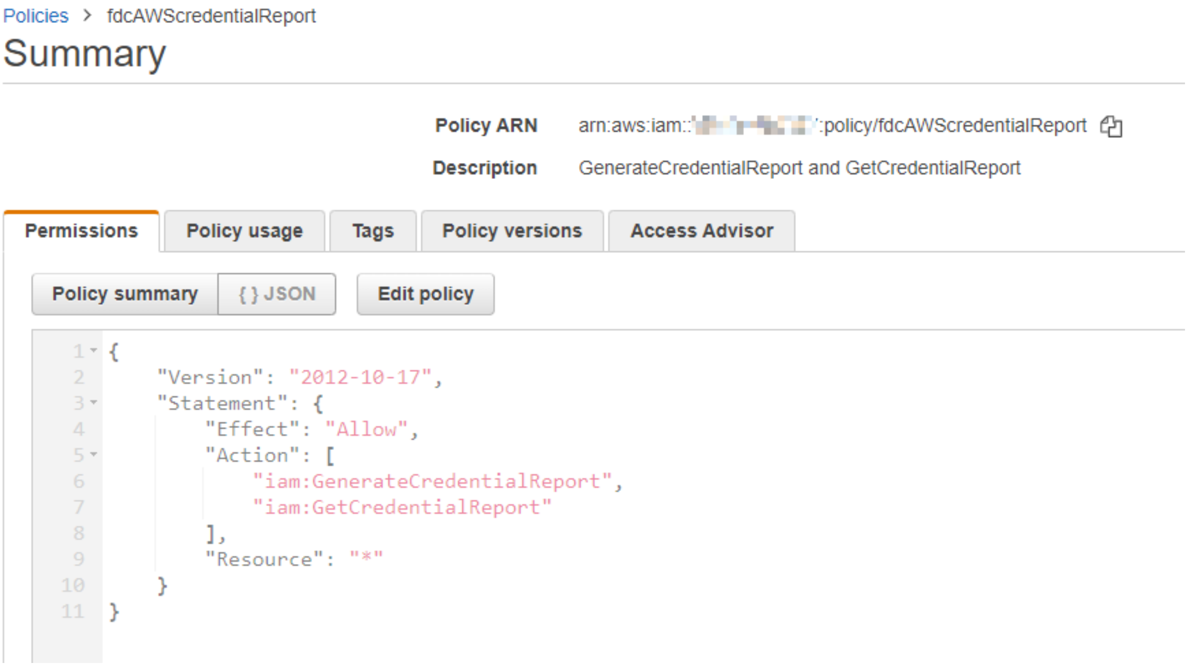
To grant an AWS connector user access to credential reports:

1. Go to *Policies* and create a custom policy such as *fdcAWScredentialReport*.
2. Click the *Permissions* tab and configure the permissions. For example:

```
{

         "Version": "2012-10-17",
         "Statement": {
            "Effect": "Allow",
            "Action": [
               "iam:GenerateCredentialReport",
                "iam:GetCredentialReport"
            ],
            "Resource": "*"
        }

}
```



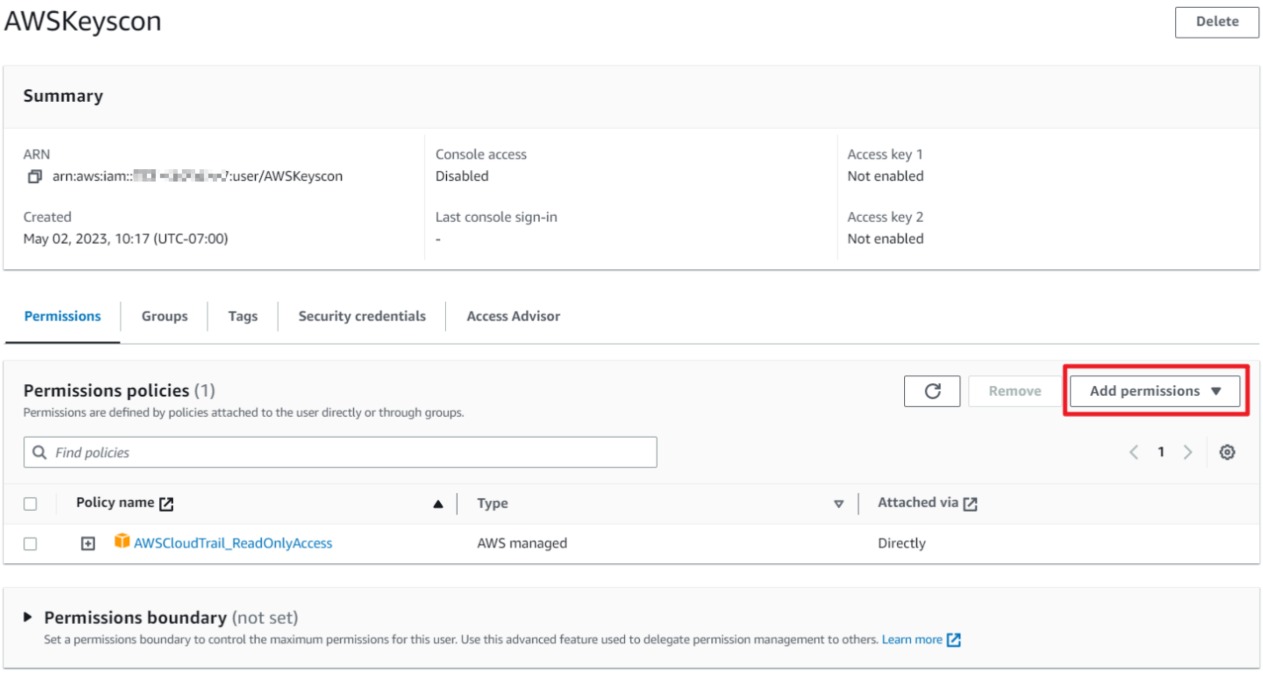
Summary

Policy ARN arn:aws:iam::[redacted]:policy/fdcAWScredentialReport

Description GenerateCredentialReport and GetCredentialReport

```
{
    "Version": "2012-10-17",
    "Statement": {
        "Effect": "Allow",
        "Action": [
            "iam:GenerateCredentialReport",
            "iam:GetCredentialReport"
        ],
        "Resource": "*"
    }
}
```

3. Go to *IAM* > *Users* and select the AWS Connector user such as *AWSKeyscon*, and then click *Add Permissions*.



AWSKeyscon

Summary

ARN
arn:aws:iam::[redacted]:user/AWSKeyscon

Created
May 02, 2023, 10:17 (UTC-07:00)

Console access
Disabled

Last console sign-in
-

Access key 1
Not enabled

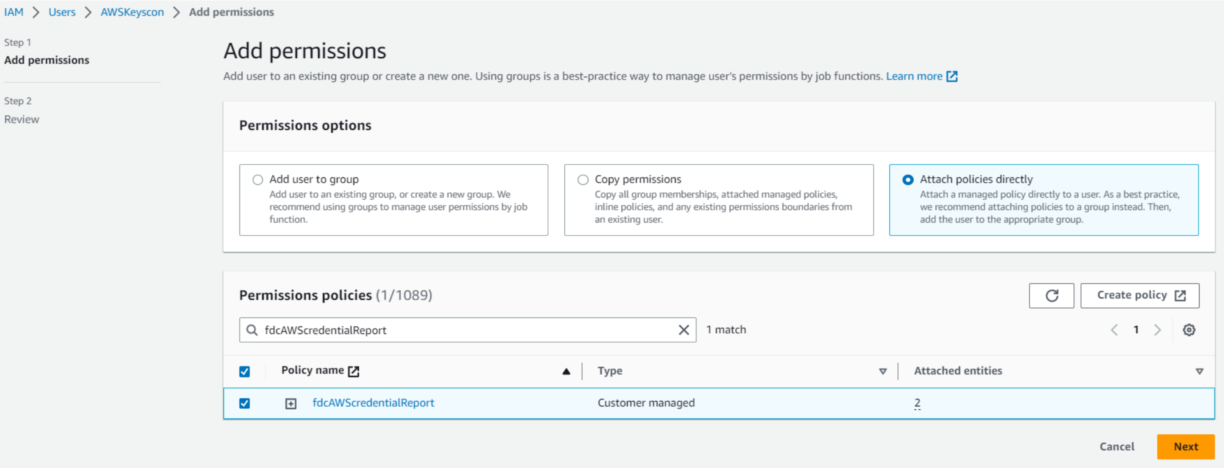
Access key 2
Not enabled

Permissions policies (1)
Permissions are defined by policies attached to the user directly or through groups.

□	Policy name	Type	Attached via
□	AWSCloudTrail_ReadOnlyAccess	AWS managed	Directly

▸ Permissions boundary (not set)
Set a permissions boundary to control the maximum permissions for this user. Use this advanced feature used to delegate permission management to others. Learn more

4. Configure the permissions.
   a. Under *Permissions polices* add the custom policy such as `fdcAWScredentialReport`.
   b. Click *Next*.



IAM > Users > AWSKeyscon > Add permissions

Step 1
Add permissions

Step 2
Review

Add permissions

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. Learn more

Permissions options

○ Add user to group
Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.

○ Copy permissions
Copy all group memberships, attached managed policies, inline policies, and any existing permissions boundaries from an existing user.

● Attach policies directly
Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

Permissions policies (1/1089)

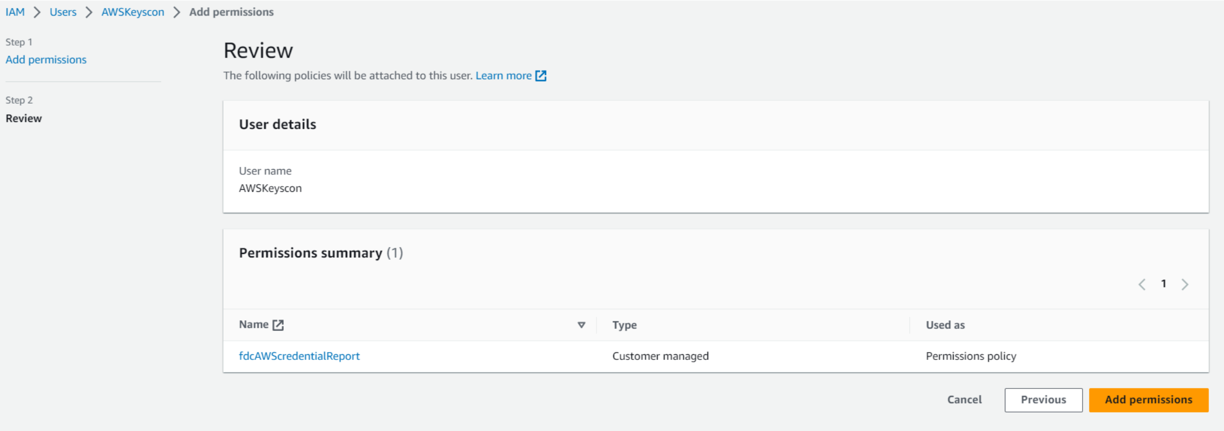
Create policy

fdcAWScredentialReport — 1 match — 1

☑	Policy name	Type	Attached entities
☑	⊞ fdcAWScredentialReport	Customer managed	2

Cancel   Next

   c. Review the *User details* and *Permissions summary* and click *Add Permissions*.



IAM > Users > AWSKeyscon > Add permissions

Step 1
Add permissions

Step 2
Review

Review

The following policies will be attached to this user. Learn more

User details

User name
AWSKeyscon

Permissions summary (1)

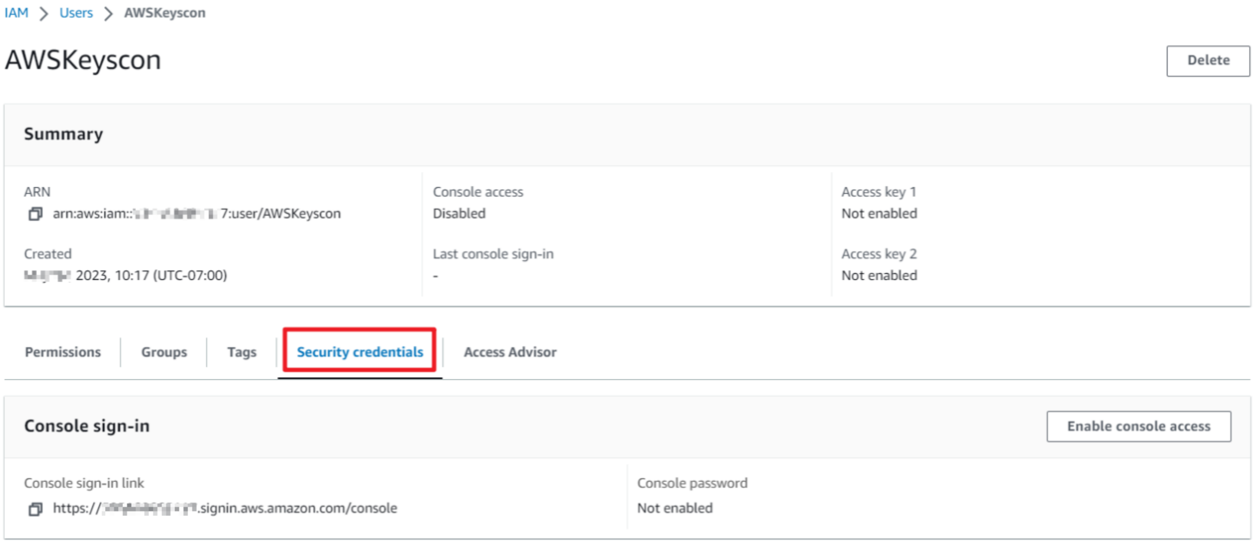
1

Name	Type	Used as
fdcAWScredentialReport	Customer managed	Permissions policy

Cancel   Previous   Add permissions

To create an access key for an AWS Connector user:

1. Go to *IAM users* and select a user such as *AWSKeyscon*, and then click the *Security credentials* tab.



IAM > Users > AWSKeyscon

AWSKeyscon

Delete

Summary

ARN
arn:aws:iam::[redacted]7:user/AWSKeyscon

Created
[redacted] 2023, 10:17 (UTC-07:00)

Console access
Disabled

Last console sign-in
-

Access key 1
Not enabled

Access key 2
Not enabled

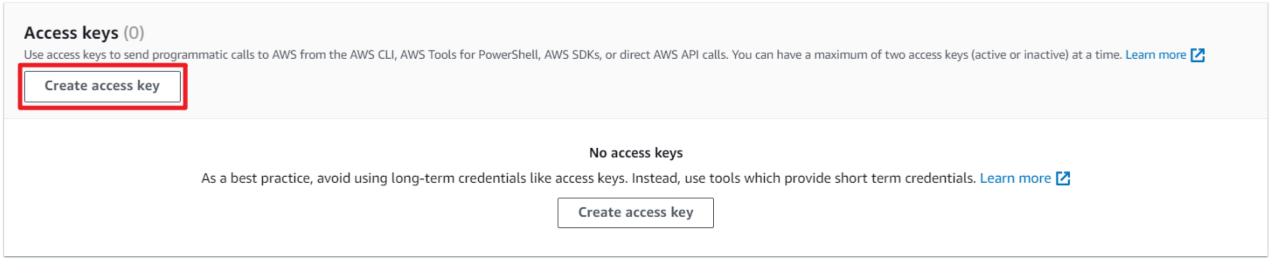
Console sign-in

Enable console access

Console sign-in link
https://[redacted].signin.aws.amazon.com/console

Console password
Not enabled

2. Under *Access keys* click *Create access key*.



Access keys (0)

Use access keys to send programmatic calls to AWS from the AWS CLI, AWS Tools for PowerShell, AWS SDKs, or direct AWS API calls. You can have a maximum of two access keys (active or inactive) at a time. Learn more

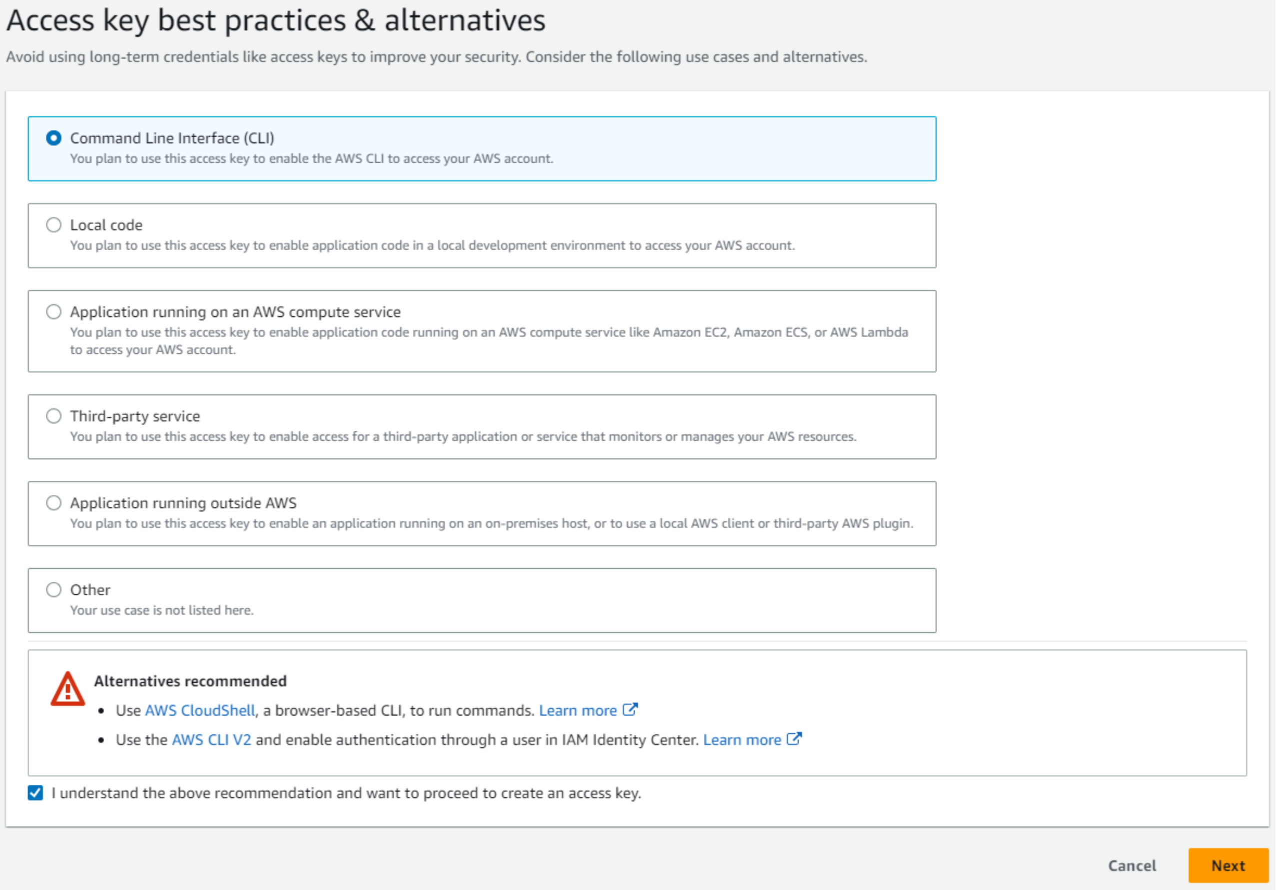
Create access key

No access keys

As a best practice, avoid using long-term credentials like access keys. Instead, use tools which provide short term credentials. Learn more

Create access key

3. Under *Access key best practices & alternatives* select *Command Line Interface (CLI)* and click *Next*.



Access key best practices & alternatives

Avoid using long-term credentials like access keys to improve your security. Consider the following use cases and alternatives.

● Command Line Interface (CLI)
You plan to use this access key to enable the AWS CLI to access your AWS account.

○ Local code
You plan to use this access key to enable application code in a local development environment to access your AWS account.

○ Application running on an AWS compute service
You plan to use this access key to enable application code running on an AWS compute service like Amazon EC2, Amazon ECS, or AWS Lambda to access your AWS account.

○ Third-party service
You plan to use this access key to enable access for a third-party application or service that monitors or manages your AWS resources.

○ Application running outside AWS
You plan to use this access key to enable an application running on an on-premises host, or to use a local AWS client or third-party AWS plugin.

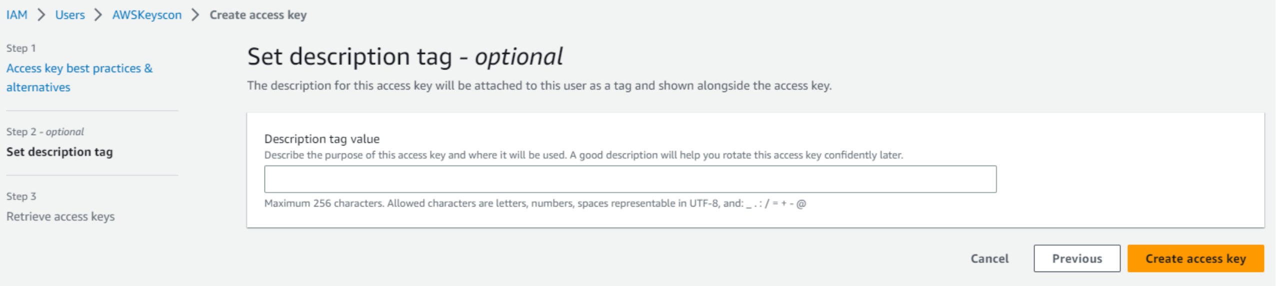
○ Other
Your use case is not listed here.

Alternatives recommended

- Use AWS CloudShell, a browser-based CLI, to run commands. Learn more
- Use the AWS CLI V2 and enable authentication through a user in IAM Identity Center. Learn more

☑ I understand the above recommendation and want to proceed to create an access key.

4. (Optional) Set the description tag and click *Create access key*.



IAM > Users > AWSKeyscon > Create access key
Step 1
Access key best practices & alternatives
Step 2 - optional
Set description tag
Step 3
Retrieve access keys

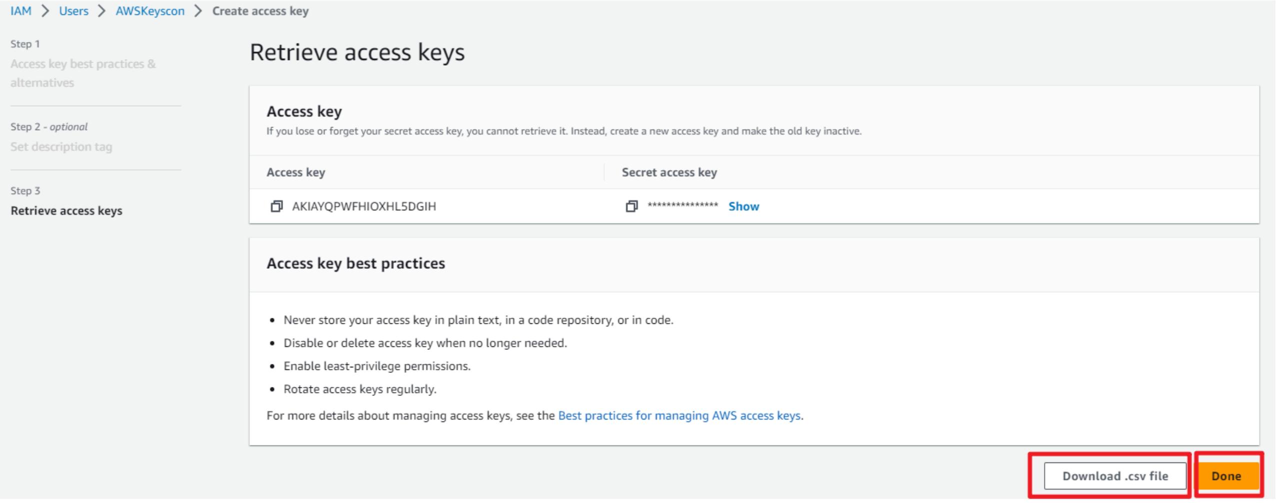
Set description tag - *optional*

The description for this access key will be attached to this user as a tag and shown alongside the access key.

Description tag value
Describe the purpose of this access key and where it will be used. A good description will help you rotate this access key confidently later.

Maximum 256 characters. Allowed characters are letters, numbers, spaces representable in UTF-8, and: _ . : / = + - @

5. On the *Retrieve access keys* page, click *Download .csv file* and then click *Done*.



IAM > Users > AWSKeyscon > Create access key

Step 1
Access key best practices & alternatives

Step 2 - *optional*
Set description tag

Step 3
Retrieve access keys

Retrieve access keys

Access key

If you lose or forget your secret access key, you cannot retrieve it. Instead, create a new access key and make the old key inactive.

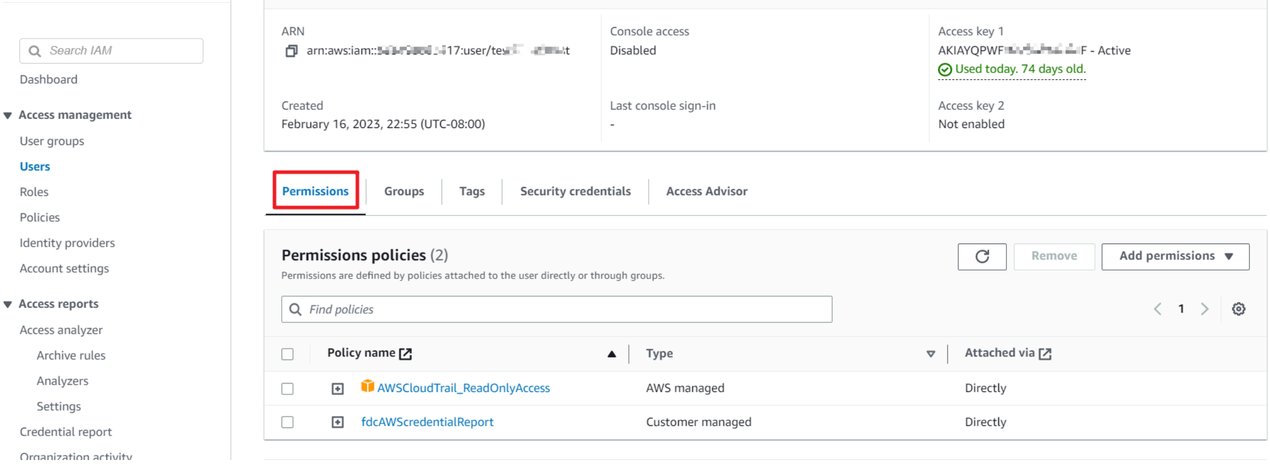
Access key	Secret access key
AKIAYQPWFHIOXHL5DGIH	*************** Show

Access key best practices

- Never store your access key in plain text, in a code repository, or in code.
- Disable or delete access key when no longer needed.
- Enable least-privilege permissions.
- Rotate access keys regularly.

For more details about managing access keys, see the Best practices for managing AWS access keys.

6. In the *Permissions* tab, ensure the AWS Keys Connector has the following two permissions: *AWSCloudTrail-ReadOnlyAccess* and the custom policy such as *fdcAWScredentialReport*.



ARN
arn:aws:iam::[redacted]17:user/te[redacted]t

Console access
Disabled

Access key 1
AKIAYQPWF[redacted]F - Active
Used today. 74 days old.

Created
February 16, 2023, 22:55 (UTC-08:00)

Last console sign-in
-

Access key 2
Not enabled

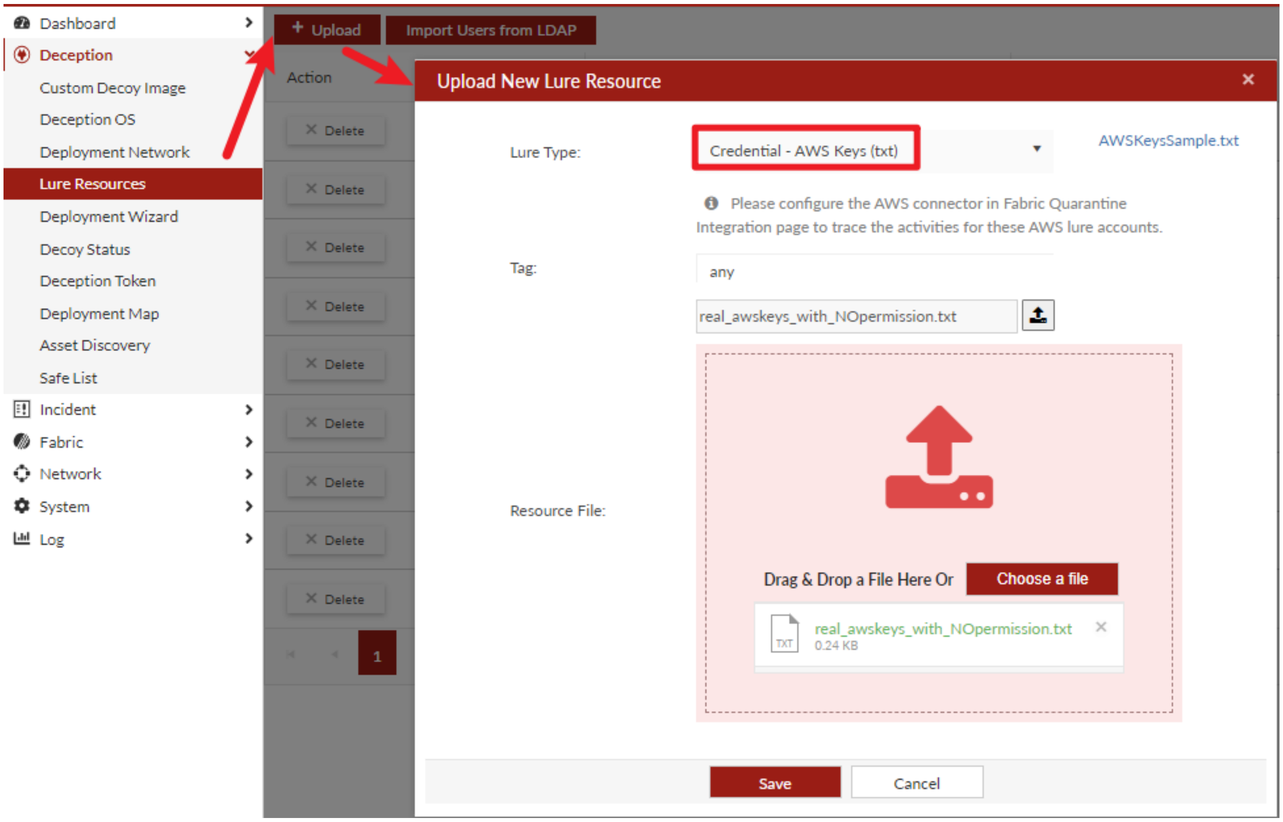
Permissions policies (2)

Permissions are defined by policies attached to the user directly or through groups.

□	Policy name	Type	Attached via
□	AWSCloudTrail_ReadOnlyAccess	AWS managed	Directly
□	fdcAWScredentialReport	Customer managed	Directly

To deploy the deception keys in FortiDeceptor:

1. Log in to FortiDeceptor and go to *Deception* > *Lure Resources*.



Upload New Lure Resource

Lure Type: Credential - AWS Keys (txt)

Please configure the AWS connector in Fabric Quarantine Integration page to trace the activities for these AWS lure accounts.

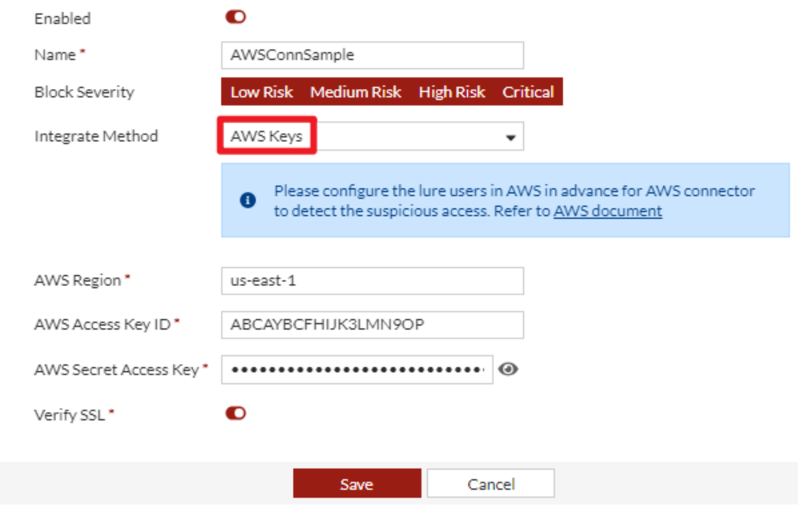
Tag: any

Resource File: real_awskeys_with_NOpermission.txt

real_awskeys_with_NOpermission.txt 0.24 KB

2. Go to *Fabric* > *Quarantine Integration* > *+Quarantine Integration With New Device* and configure the integration.

Integrate method	Select AWS Keys.
AWS Region	Enter the region for the AWS Connector user you created in the previous task.
AWS Access Key ID	Enter the access key ID for the AWS Connector user you created in the previous task.
AWS Secret Access Key	Enter the secret access key for the AWS Connector user you created in the previous task.

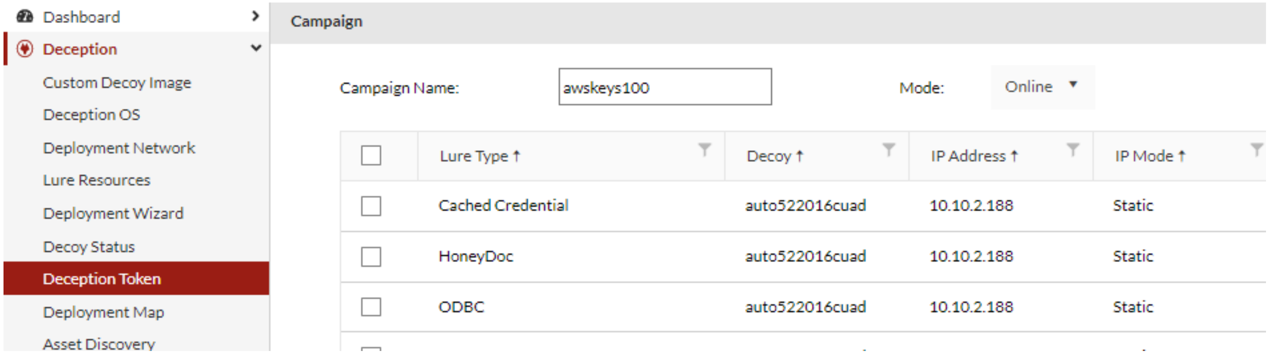


Enabled: ●
Name *: AWSConnSample
Block Severity: Low Risk | Medium Risk | High Risk | Critical
Integrate Method: AWS Keys

Please configure the lure users in AWS in advance for AWS connector to detect the suspicious access. Refer to AWS document

AWS Region *: us-east-1
AWS Access Key ID *: ABCAYBCFHIJK3LMN9OP
AWS Secret Access Key *: ••••••••••••••••••••••••••
Verify SSL *: ●

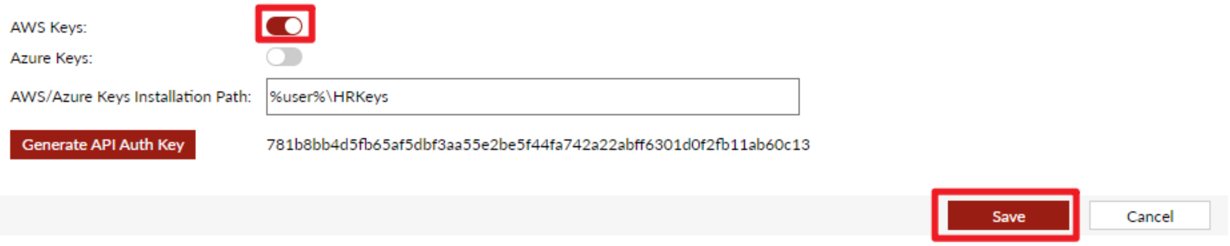
3. Go to *Deception* > *Deception Token* > *Token Campaign*.
4. Click + *Campaign* and select the AWS lure you unloaded in Step 2.



Campaign Name: awskeys100
Mode: Online

□	Lure Type ↑	Decoy ↑	IP Address ↑	IP Mode ↑
□	Cached Credential	auto522016cuad	10.10.2.188	Static
□	HoneyDoc	auto522016cuad	10.10.2.188	Static
□	ODBC	auto522016cuad	10.10.2.188	Static

5. Click *Generate API Auth Key* and click *Save*.



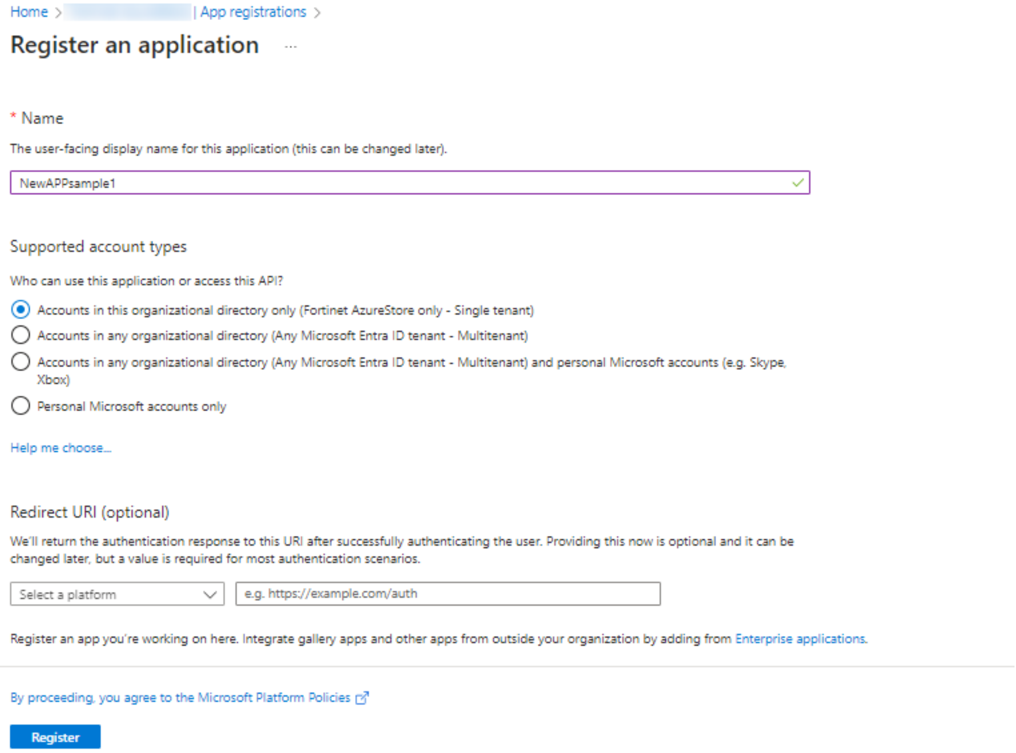
AWS Keys: ●
Azure Keys: ○
AWS/Azure Keys Installation Path: %user%\HRKeys
Generate API Auth Key: 781b8bb4d5fb65af5dbf3aa55e2be5f44fa742a22abff6301d0f2fb11ab60c13

Deploying Azure deception keys

To deploy Azure deception keys, first create the keys in Azure, then upload them to the FortiDeceptor and create a new campaign.

To create Microsoft Entra ID application keys for Lure Resource:

1. Log in to your Azure account.
2. Go to *Microsoft Entra ID* > *App registrations* > *Register an application* > *Register*. Do not assign any API permissions to this application.



Home > [redacted] | App registrations >

Register an application ...

* Name

The user-facing display name for this application (this can be changed later).

NewAPPsample1 ✓

Supported account types

Who can use this application or access this API?

● Accounts in this organizational directory only (Fortinet AzureStore only - Single tenant)

○ Accounts in any organizational directory (Any Microsoft Entra ID tenant - Multitenant)

○ Accounts in any organizational directory (Any Microsoft Entra ID tenant - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)

○ Personal Microsoft accounts only

Help me choose...

Redirect URI (optional)

We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.

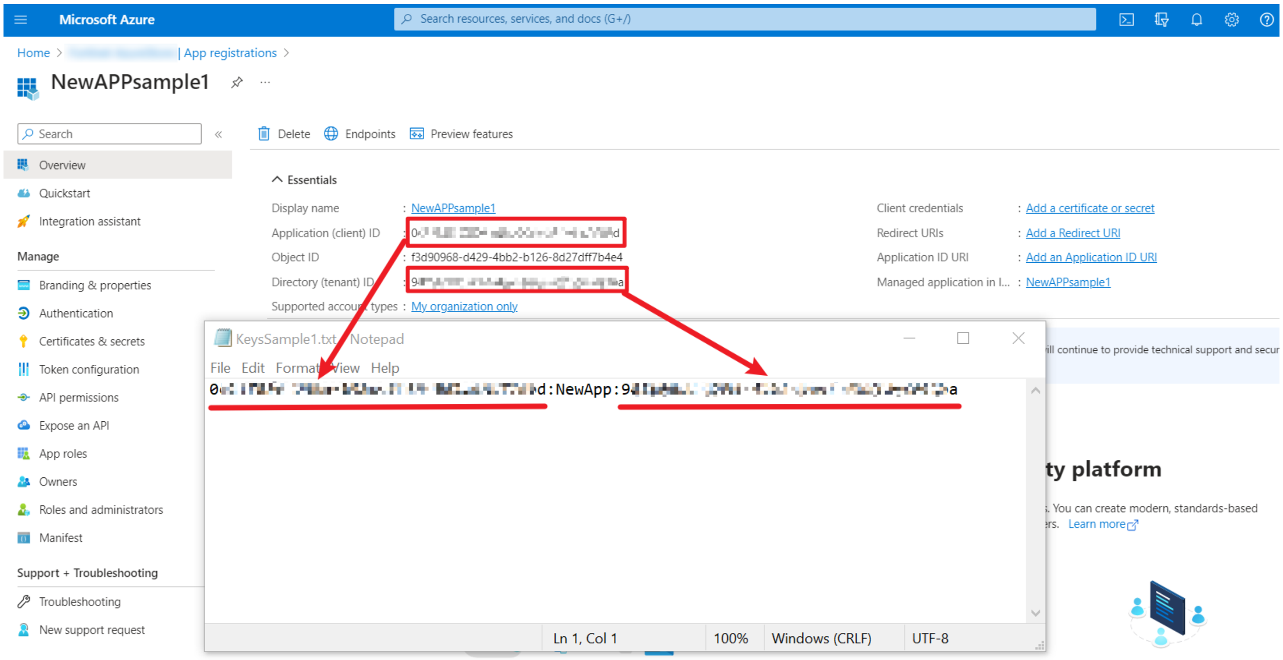
Select a platform | e.g. https://example.com/auth

Register an app you're working on here. Integrate gallery apps and other apps from outside your organization by adding from Enterprise applications.

By proceeding, you agree to the Microsoft Platform Policies

3. Go to *Microsoft Entra ID* > *App registrations* > *All applications*, and locate the application you created (for example, *NewAPPsample1*).

4. Copy and paste the client ID and the tenant ID into a .txt file (for example *KeysSample1.txt*).



Display name : NewAPPsample1
Application (client) ID : [redacted]
Object ID : f3d90968-d429-4bb2-b126-8d27dff7b4e4
Directory (tenant) ID : [redacted]
Supported account types : My organization only
Client credentials : Add a certificate or secret
Redirect URIs : Add a Redirect URI
Application ID URI : Add an Application ID URI
Managed application in l... : NewAPPsample1

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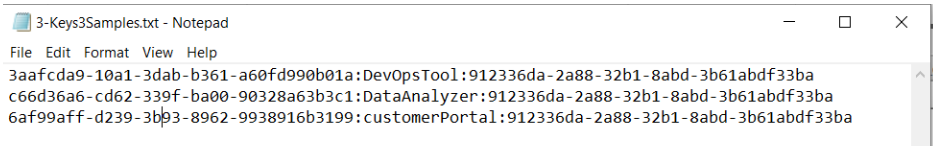
. You can create modern, standards-based ers. Learn more

```
[redacted]:NewApp:[redacted]
```

5. Input multiple applications info into one .txt file, such as *Keys3Samples.txt*

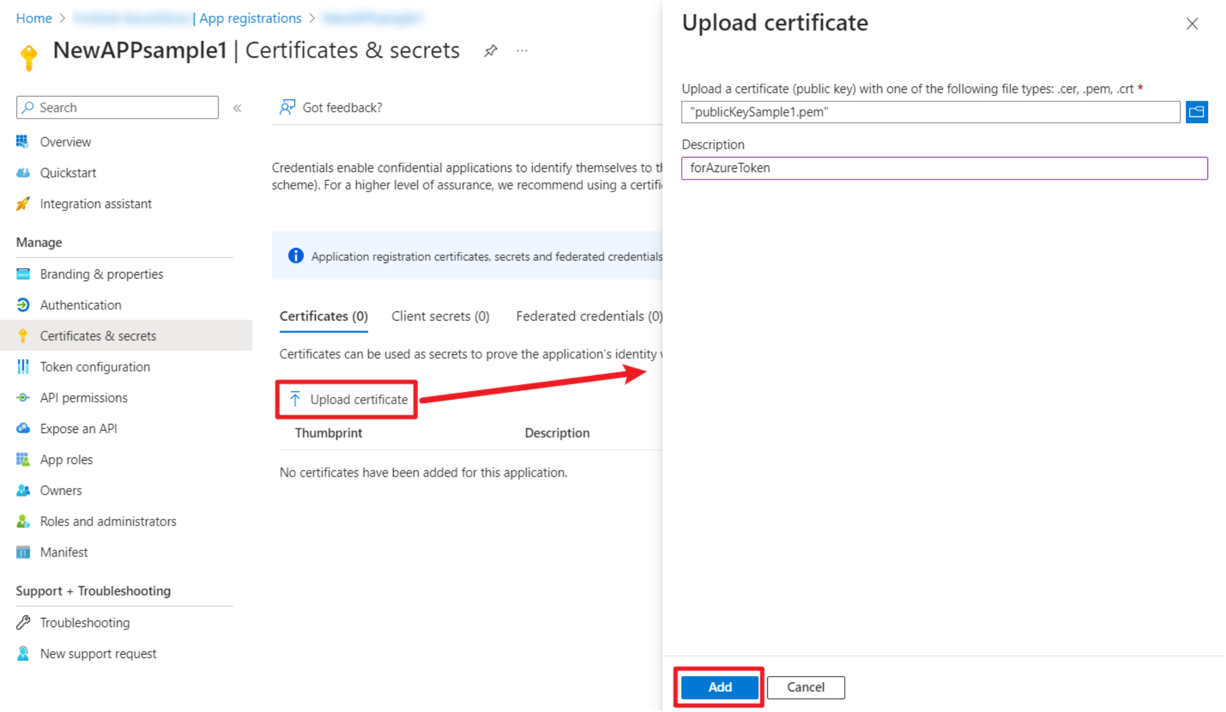


```
3aafcda9-10a1-3dab-b361-a60fd990b01a:DevOpsTool:912336da-2a88-32b1-8abd-3b61abdf33ba
c66d36a6-cd62-339f-ba00-90328a63b3c1:DataAnalyzer:912336da-2a88-32b1-8abd-3b61abdf33ba
6af99aff-d239-3b93-8962-9938916b3199:customerPortal:912336da-2a88-32b1-8abd-3b61abdf33ba
```

.

6. Locate the application you created (for example, NewAPPsample1). Go to *Certificate & secrets* > *Certificates*, and upload a certificate (public key).

a. (Optional) Upload a public key to the deception application.



Credentials enable confidential applications to identify themselves to th scheme). For a higher level of assurance, we recommend using a certifi

Application registration certificates, secrets and federated credentials

Certificates can be used as secrets to prove the application's identity

No certificates have been added for this application.

Upload certificate

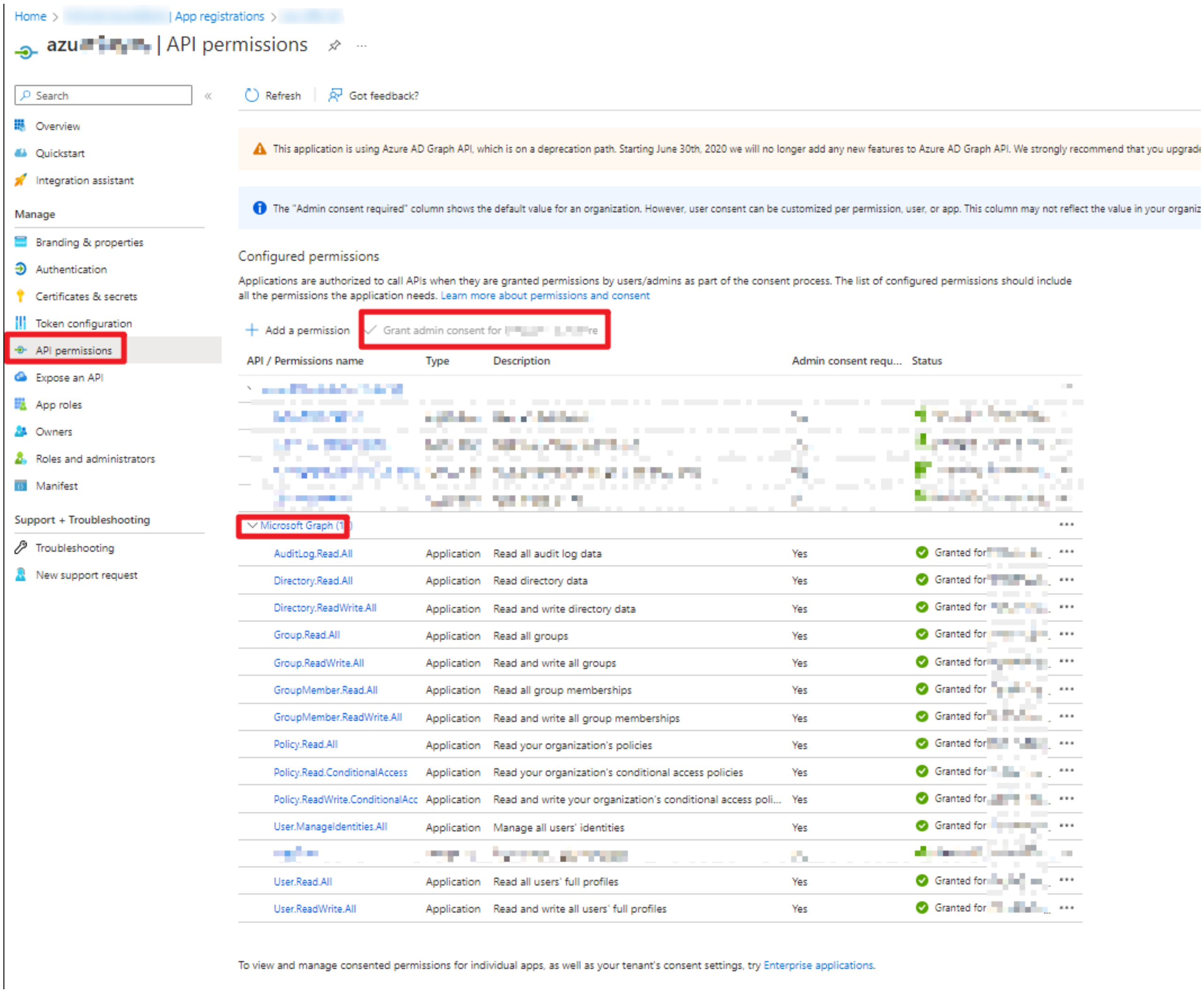
Upload a certificate (public key) with one of the following file types: .cer, .pem, .crt *
"publicKeySample1.pem"

Description
forAzureToken

b. (Optional) Keep the certificate file that corresponds to the public key you uploaded in the previous step.

To create Azure application keys for Azure Connector:

1. Go to create an *AD application for Azure Connector*.
2. Ensure that the required permissions are granted for the registration of this application.
   For a *Microsoft Graph Use*r, following API/Permissions must be granted:
   - *User.Read.All*
   - *User.ReadWrite.All*
   - *GroupMember.Read.All*
   - *GroupMember.ReadWrite.All*
   - *Group.ReadWrite.All*
   - *Group.Read.All*
   - *AuditLog.Read.All*
   - *Directory.Read.All*
   - *Directory.ReadWrite.All*
   - *User.ManageIdentities.All of type Application.*



Home > [redacted] | App registrations > [redacted]

azu[redacted] | API permissions

This application is using Azure AD Graph API, which is on a deprecation path. Starting June 30th, 2020 we will no longer add any new features to Azure AD Graph API. We strongly recommend that you upgrade

The "Admin consent required" column shows the default value for an organization. However, user consent can be customized per permission, user, or app. This column may not reflect the value in your organiz

Configured permissions

Applications are authorized to call APIs when they are granted permissions by users/admins as part of the consent process. The list of configured permissions should include all the permissions the application needs. Learn more about permissions and consent

API / Permissions name	Type	Description	Admin consent requ...	Status
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Microsoft Graph (1[redacted]				
AuditLog.Read.All	Application	Read all audit log data	Yes	✓ Granted for [redacted]
Directory.Read.All	Application	Read directory data	Yes	✓ Granted for [redacted]
Directory.ReadWrite.All	Application	Read and write directory data	Yes	✓ Granted for [redacted]
Group.Read.All	Application	Read all groups	Yes	✓ Granted for [redacted]
Group.ReadWrite.All	Application	Read and write all groups	Yes	✓ Granted for [redacted]
GroupMember.Read.All	Application	Read all group memberships	Yes	✓ Granted for [redacted]
GroupMember.ReadWrite.All	Application	Read and write all group memberships	Yes	✓ Granted for [redacted]
Policy.Read.All	Application	Read your organization's policies	Yes	✓ Granted for [redacted]
Policy.Read.ConditionalAccess	Application	Read your organization's conditional access policies	Yes	✓ Granted for [redacted]
Policy.ReadWrite.ConditionalAcc	Application	Read and write your organization's conditional access poli...	Yes	✓ Granted for [redacted]
User.ManageIdentities.All	Application	Manage all users' identities	Yes	✓ Granted for [redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
User.Read.All	Application	Read all users' full profiles	Yes	✓ Granted for [redacted]
User.ReadWrite.All	Application	Read and write all users' full profiles	Yes	✓ Granted for [redacted]

To view and manage consented permissions for individual apps, as well as your tenant's consent settings, try Enterprise applications.

3. Create the secret, and keep the client ID and tenant ID for the Azure Connector later.

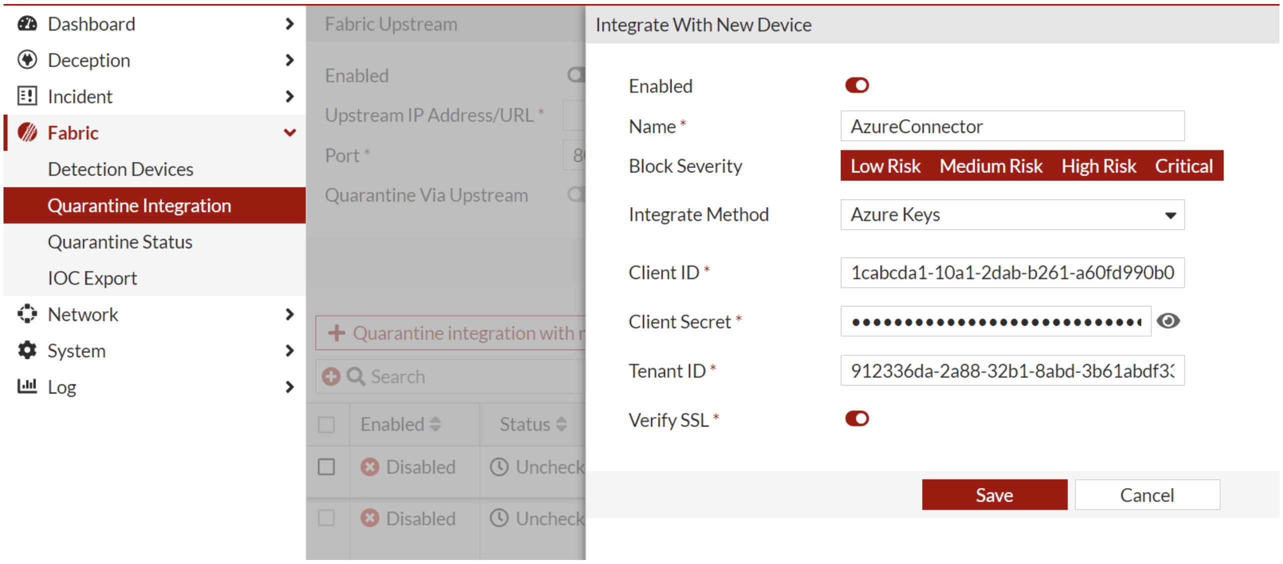
To deploy the deception keys in FortiDeceptor:

1. Log in to FortiDeceptor and go to *Deception* > *Lure Resources* and click *Upload*. You cannot select which Azure key is to be installed if you upload multiple keys at the same time.
2. For *Lure Type*, select *Credential - Azure Keys (txt)* and upload the text file you created in the previous task (for example, *KeysSample1.txt*) , and click *Save*.

   If you kept the certificate file which includes certificate with private key, for *Lure Type*, select *Azure Certificate*, and upload the certificate file from 6.b.
3. Go to *Fabric* > *Quarantine Integration* .
4. Click +*Quarantine Integration With New Device* and configure the integration.

Integrate method	Select *Azure Keys*.
Client ID	Also called *Application ID;Unique ID* of the Azure Active Directory application.

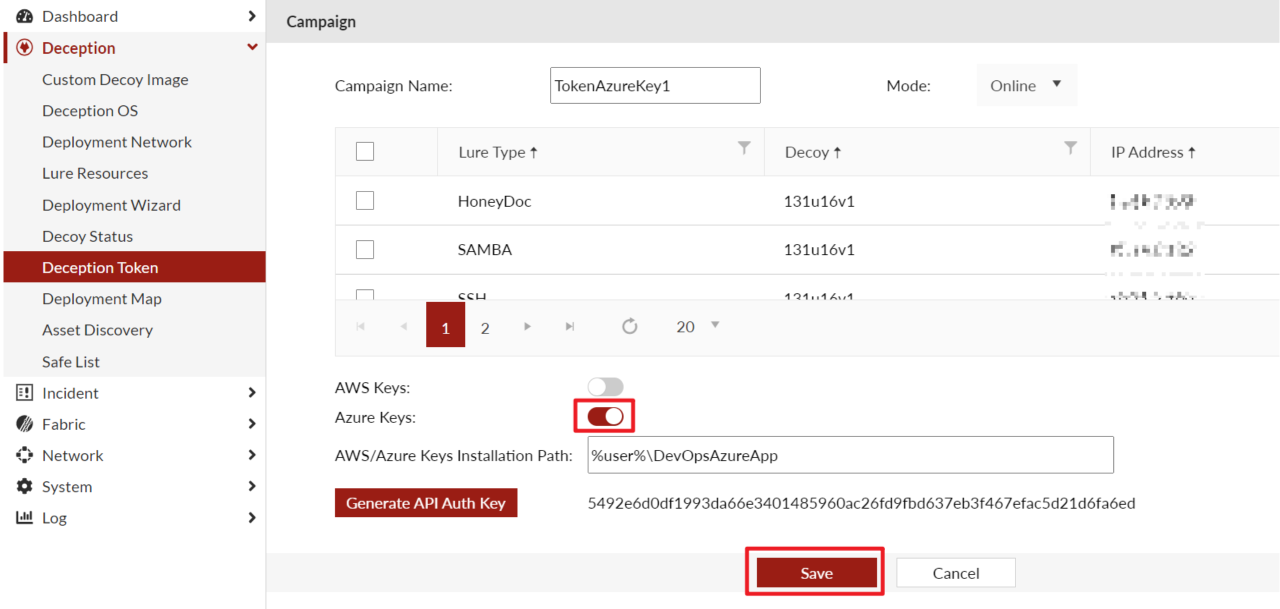
Client Secret	Client Secret of the Microsoft Entra application that is used to create an authentication token required to access the API.
Tenant ID	Tenant ID provided for your Azure Active Directory.
Verify SSL	Specifies whether the SSL certificate for the server is to be verified or not. By default, this option is set as *True*.



Integrate With New Device

Enabled	●
Name *	AzureConnector
Block Severity	Low Risk Medium Risk High Risk Critical
Integrate Method	Azure Keys
Client ID *	1cabcda1-10a1-2dab-b261-a60fd990b0
Client Secret *	•••••••••••••••••••••••••••••
Tenant ID *	912336da-2a88-32b1-8abd-3b61abdf3(
Verify SSL *	●

5. Go to *Deception* > *Deception Token* > *Token Campaign*.
6. Click + *Campaign*. Enable the toggle and use the default location or customized location to create the Azure keys campaign.



Campaign

Campaign Name: TokenAzureKey1

Mode: Online

□	Lure Type ↑	Decoy ↑	IP Address ↑
□	HoneyDoc	131u16v1	[redacted]
□	SAMBA	131u16v1	[redacted]
□	SSH	131u16v1	[redacted]

AWS Keys: ○

Azure Keys: ●

AWS/Azure Keys Installation Path: %user%\DevOpsAzureApp

5492e6d0df1993da66e3401485960ac26fd9fbd637eb3f467efac5d21d6fa6ed

7. Click *Save*.

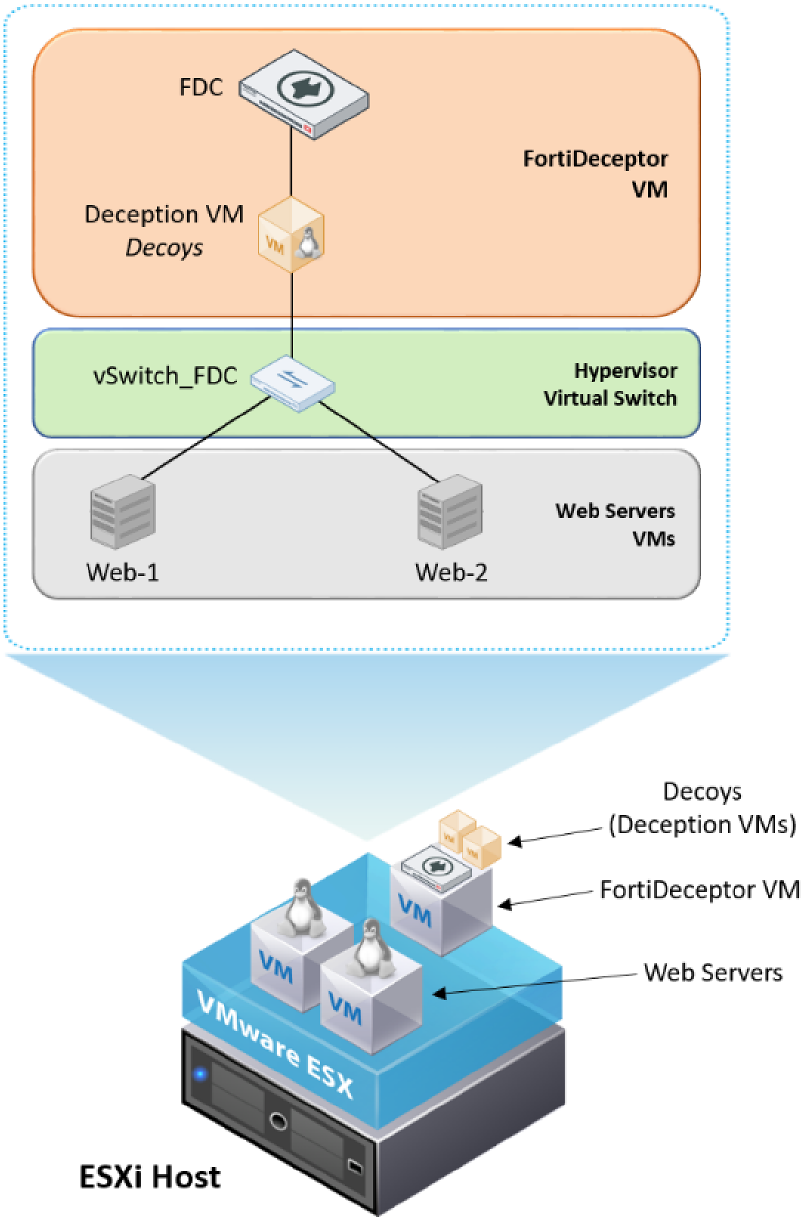
Configuring trunk ports on FortiDeceptor VM

This section describes how to configure trunk ports to extend VLANs between FortiDeceptor VM and ESXi vSwitch using a single interface.

This setup requires FortiDeceptor VM v3.1 build 0061 and vSwitch ESXi v6.7.0 build 13006603.

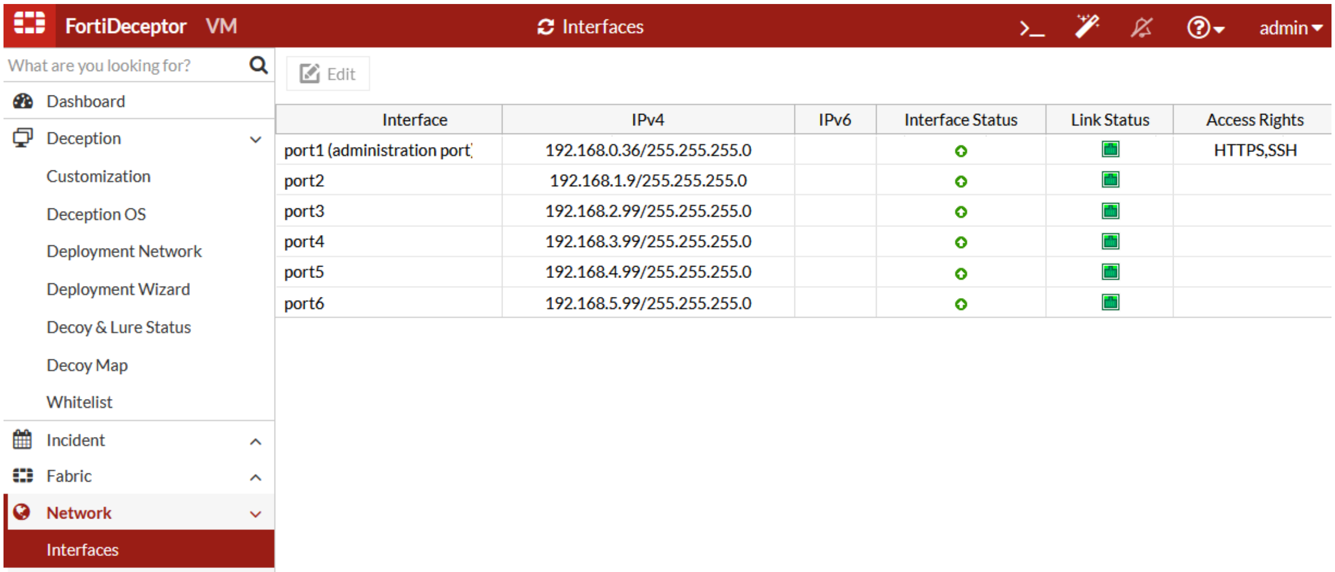
Set up a single ESXi host with the following workloads.

- 1 FortiDeceptor VM with one decoy monitoring two network segments.
- 2 web servers in different VLANs / network segments.
- 1 vSwitch dedicated to connecting the FortiDeceptor decoy to the network segments.



FortiDeceptor VM has internal network ports. Set up FortiDeceptor VM with the following.

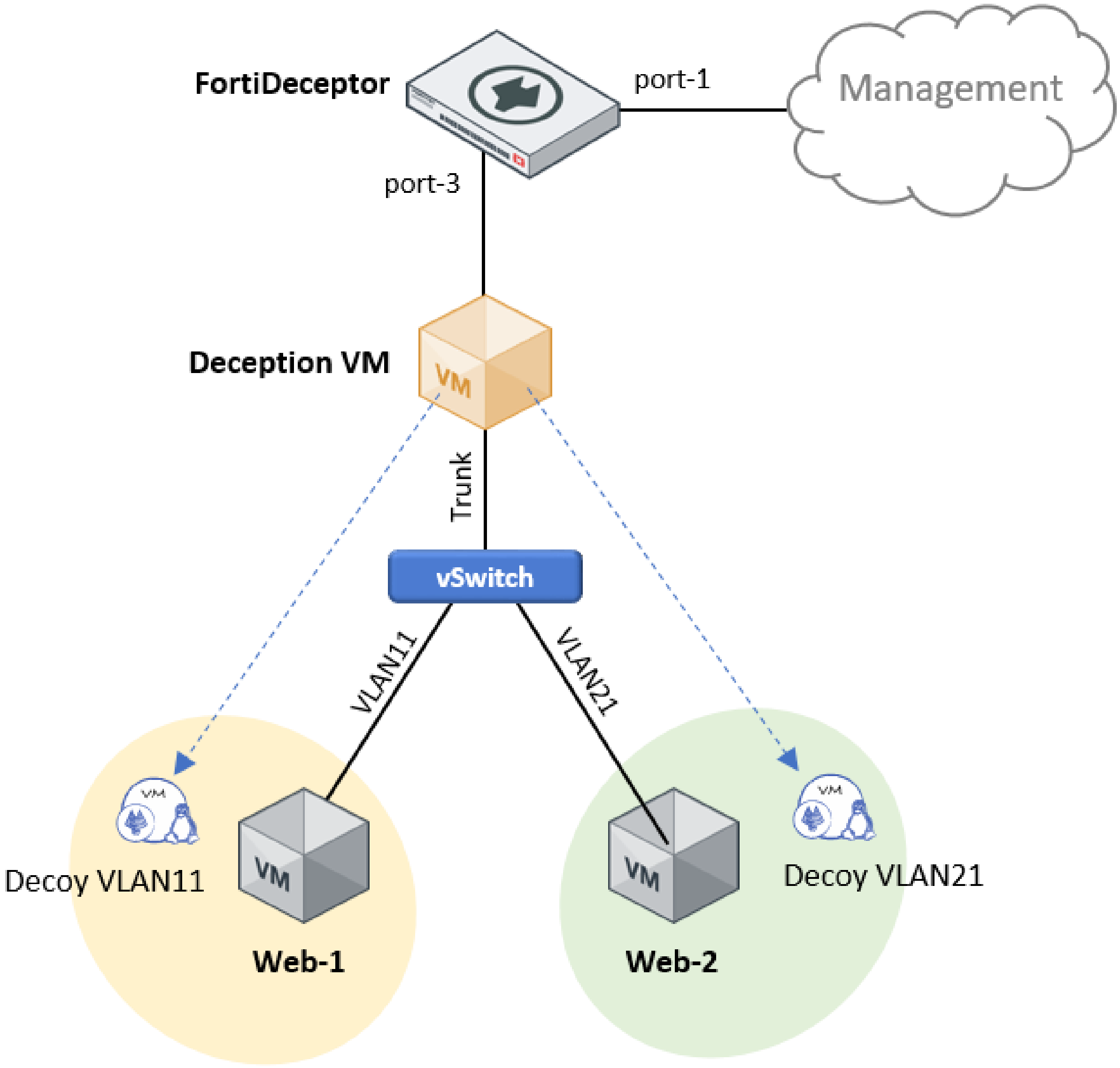
- Reserve port1 for device management.
- Use the other ports to deploy deception decoys.



Interface	IPv4	IPv6	Interface Status	Link Status	Access Rights
port1 (administration port	192.168.0.36/255.255.255.0		●	🟩	HTTPS,SSH
port2	192.168.1.9/255.255.255.0		●	🟩	
port3	192.168.2.99/255.255.255.0		●	🟩	
port4	192.168.3.99/255.255.255.0		●	🟩	
port5	192.168.4.99/255.255.255.0		●	🟩	
port6	192.168.5.99/255.255.255.0		●	🟩	

When you initially set up FortiDeceptor, the interface configuration in *Network* > *Interfaces* is provisioned automatically. You do not need to change this section as these network settings are just for internal use. The actual deception network interfaces that connect to the monitored segments are configured under *Deception* > *Deployment Network*.

In this environment, port3 is used to deploy a Linux-based deception VM (decoy). The goal is to monitor network activity in two different VLANs where the production servers reside: WebServer-1 (192.168.11.11/24) in VLAN11 and WebServer-2 (192.168.21.21/24) in VLAN21.



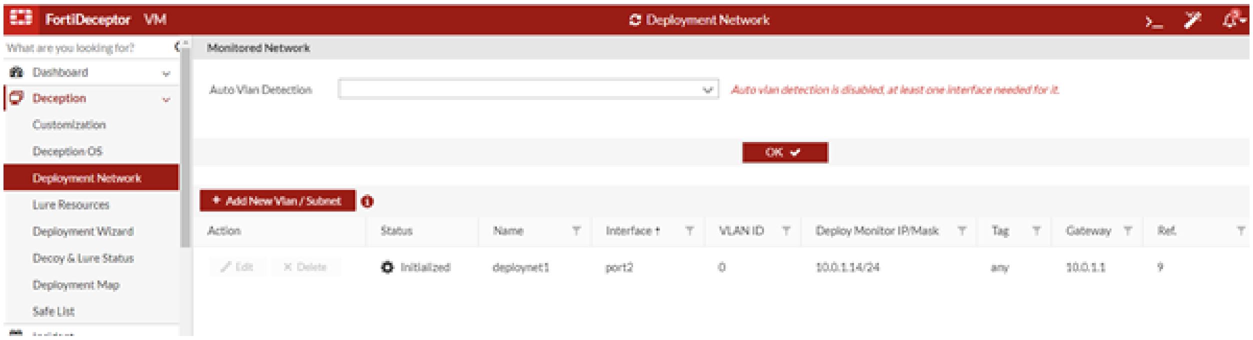
The deception VM has a single network interface to monitor two different VLANs so it is necessary to configure VLAN trunking between port3 and the ESXi vSwitch port. There is only one vSwitch to connect all the devices together using different virtual ports for each device.

Configuring FortiDeceptor

Configure FortiDeceptor to monitor the subnet networks, one for each VLAN, using the same network port3.

To configure FortiDeceptor:

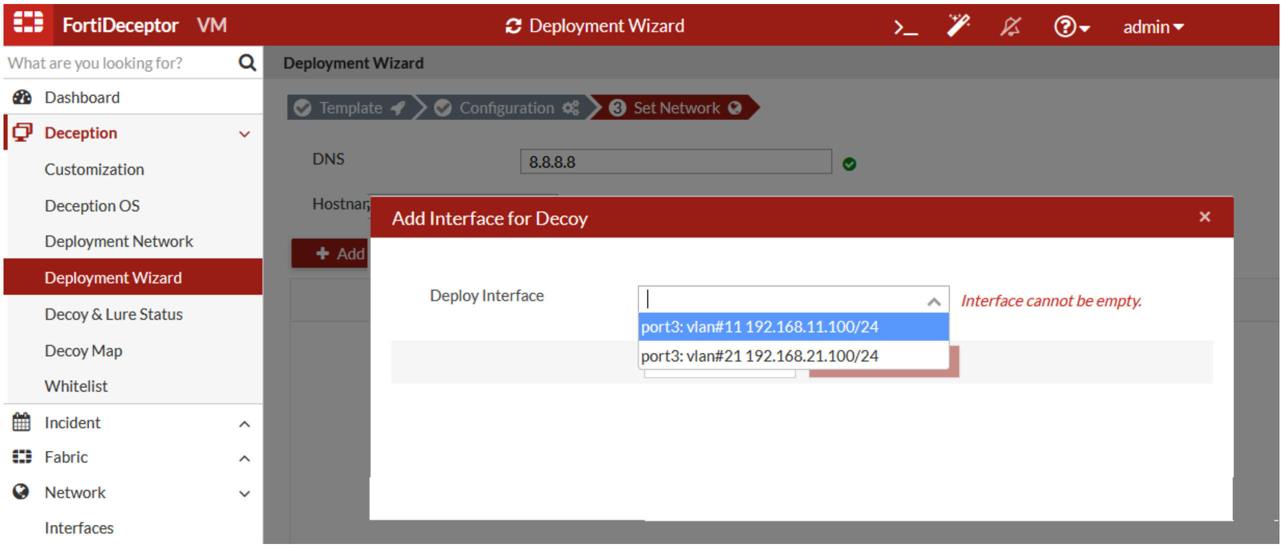
1. Go to *Deception* > *Deployment Network* and click *Add New Vlan / Subnet* to add the monitored segments.



Auto Vlan Detection — *Auto vlan detection is disabled, at least one interface needed for it.*

Action	Status	Name	Interface	VLAN ID	Deploy Monitor IP/Mask	Tag	Gateway	Ref.
Edit Delete	Initialized	deploynet1	port2	0	10.0.1.14/24	any	10.0.1.1	9

2. Use the VLAN tag for each monitored subnet so that FortiDeceptor can differentiate the traffic between them. Verify that both VLANs use port3.
3. Specify the *Deploy Network IP/Mask* that the deception VM use to monitor its decoys on each segment. Ensure these IP addresses are unique and belong to the monitored subnets.
4. Go to *Deception* > *Deployment Wizard* to deploy the actual deception VM and attach the monitored segments.



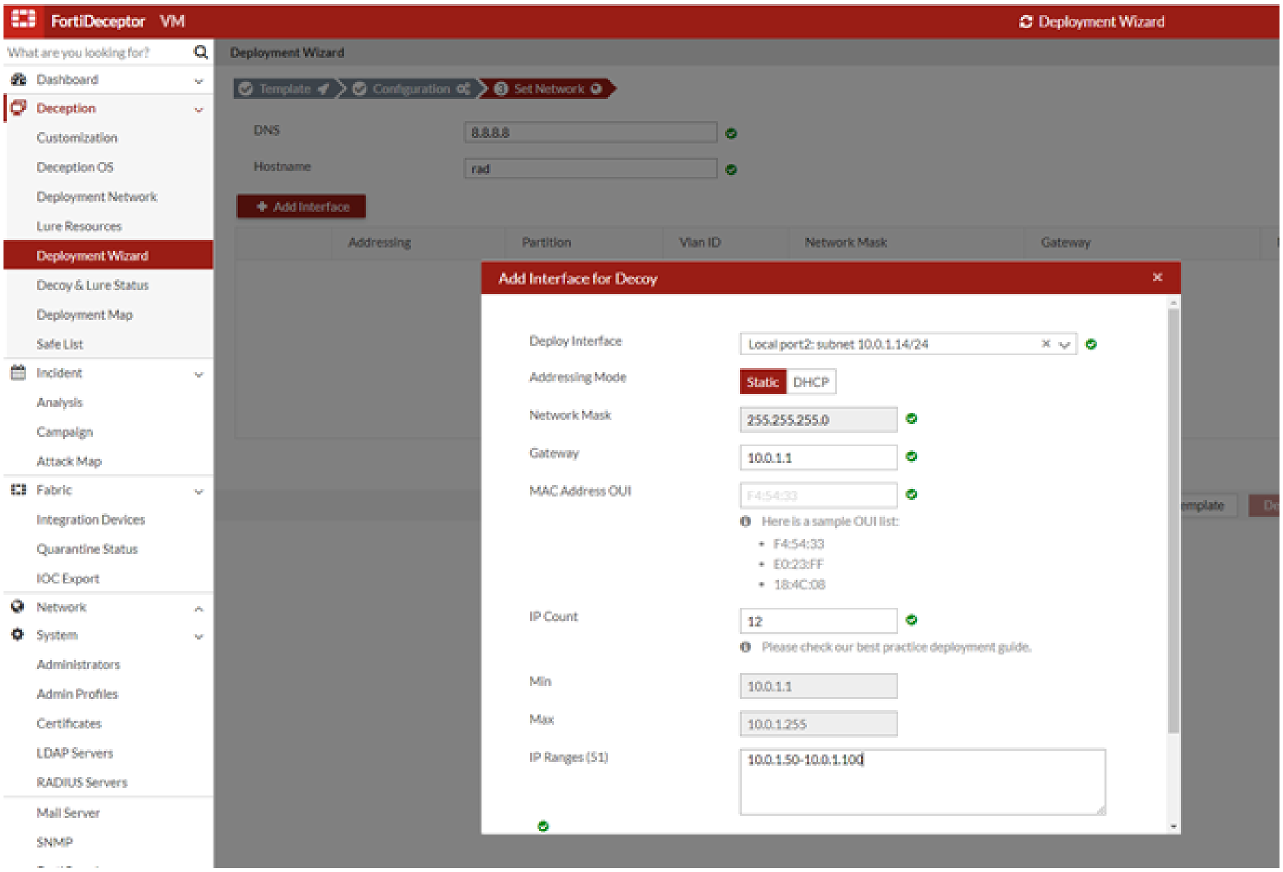
DNS: 8.8.8.8

Deploy Interface — *Interface cannot be empty.*

port3: vlan#11 192.168.11.100/24
port3: vlan#21 192.168.21.100/24

5. Specify the network settings for the decoys.
FortiDeceptor automates the creation of deception VMs and decoy services to lure and expose attackers; so decoy services on each segment require dedicated IP addresses to interact with attackers.

If you want to use a static IP address for the decoy services, click *Static*, then specify a single IP address or IP address range in *IP Ranges*.



DNS: 8.8.8.8

Hostname: rad

Add Interface for Decoy

Deploy Interface: Local port2: subnet 10.0.1.14/24

Addressing Mode: [✓ Static] DHCP

Network Mask: 255.255.255.0

Gateway: 10.0.1.1

MAC Address OUI: F4:54:33

Here is a sample OUI list:

- F4:54:33
- E0:23:FF
- 18:4C:08

IP Count: 12

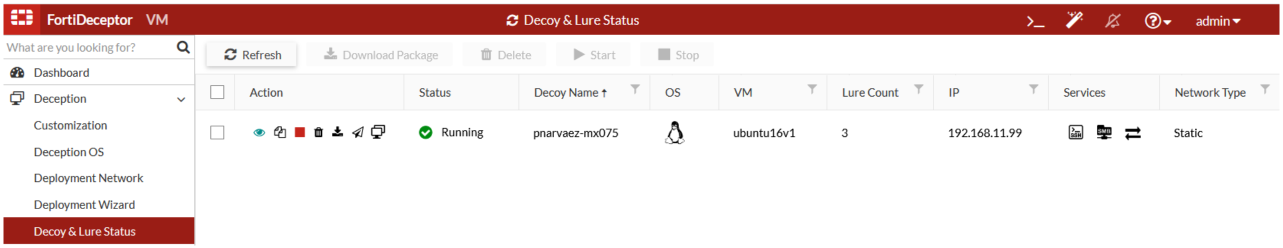
Please check our best practice deployment guide.

Min: 10.0.1.1

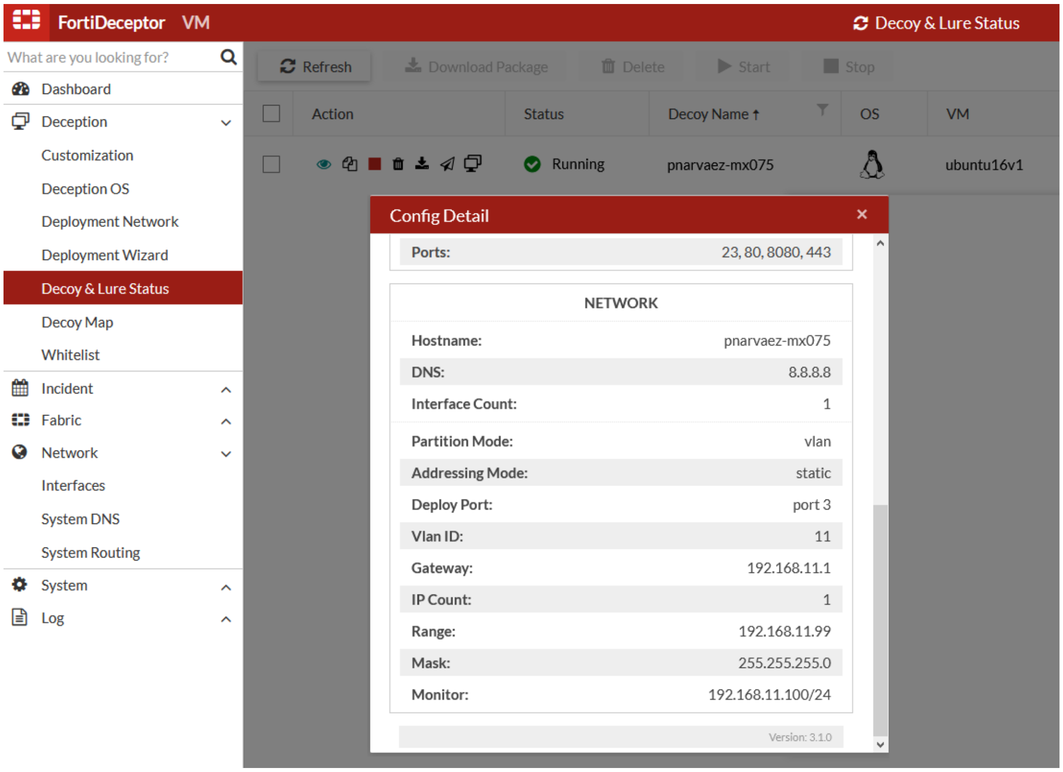
Max: 10.0.1.255

IP Ranges (51): 10.0.1.50-10.0.1.100

6. After completing VM deployment, go to *Decoy & Lure Status* to validate the configuration.



□	Action	Status	Decoy Name ↑	OS	VM	Lure Count	IP	Services	Network Type
□		✓ Running	pnarvaez-mx075		ubuntu16v1	3	192.168.11.99		Static

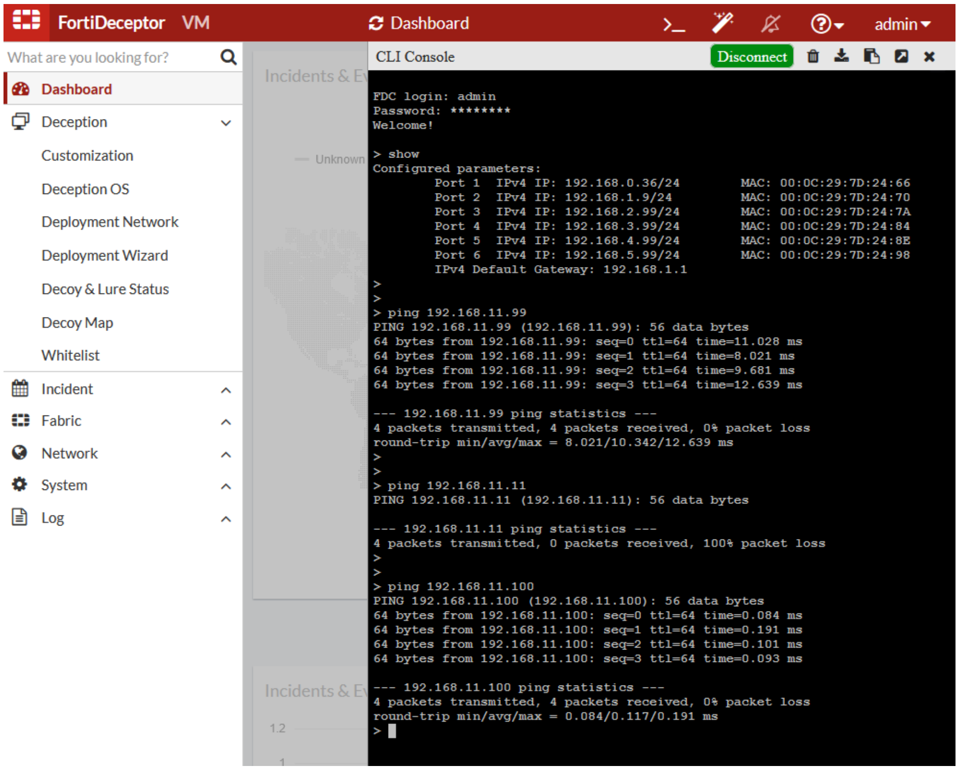


Ports:	23, 80, 8080, 443

NETWORK

Hostname:	pnarvaez-mx075
DNS:	8.8.8.8
Interface Count:	1
Partition Mode:	vlan
Addressing Mode:	static
Deploy Port:	port 3
Vlan ID:	11
Gateway:	192.168.11.1
IP Count:	1
Range:	192.168.11.99
Mask:	255.255.255.0
Monitor:	192.168.11.100/24

7. Test connectivity by pinging the decoy and the monitoring IP addresses and verify that they are reachable. The web servers are not reachable as ESXi is not configured yet.



```
FDC login: admin
Password: ********
Welcome!

> show
Configured parameters:
        Port 1  IPv4 IP: 192.168.0.36/24        MAC: 00:0C:29:7D:24:66
        Port 2  IPv4 IP: 192.168.1.9/24         MAC: 00:0C:29:7D:24:70
        Port 3  IPv4 IP: 192.168.2.99/24        MAC: 00:0C:29:7D:24:7A
        Port 4  IPv4 IP: 192.168.3.99/24        MAC: 00:0C:29:7D:24:84
        Port 5  IPv4 IP: 192.168.4.99/24        MAC: 00:0C:29:7D:24:8E
        Port 6  IPv4 IP: 192.168.5.99/24        MAC: 00:0C:29:7D:24:98
        IPv4 Default Gateway: 192.168.1.1
>
>
> ping 192.168.11.99
PING 192.168.11.99 (192.168.11.99): 56 data bytes
64 bytes from 192.168.11.99: seq=0 ttl=64 time=11.028 ms
64 bytes from 192.168.11.99: seq=1 ttl=64 time=8.021 ms
64 bytes from 192.168.11.99: seq=2 ttl=64 time=9.681 ms
64 bytes from 192.168.11.99: seq=3 ttl=64 time=12.639 ms

--- 192.168.11.99 ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 8.021/10.342/12.639 ms
>
>
> ping 192.168.11.11
PING 192.168.11.11 (192.168.11.11): 56 data bytes

--- 192.168.11.11 ping statistics ---
4 packets transmitted, 0 packets received, 100% packet loss
>
>
> ping 192.168.11.100
PING 192.168.11.100 (192.168.11.100): 56 data bytes
64 bytes from 192.168.11.100: seq=0 ttl=64 time=0.084 ms
64 bytes from 192.168.11.100: seq=1 ttl=64 time=0.191 ms
64 bytes from 192.168.11.100: seq=2 ttl=64 time=0.101 ms
64 bytes from 192.168.11.100: seq=3 ttl=64 time=0.093 ms

--- 192.168.11.100 ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 0.084/0.117/0.191 ms
> █
```

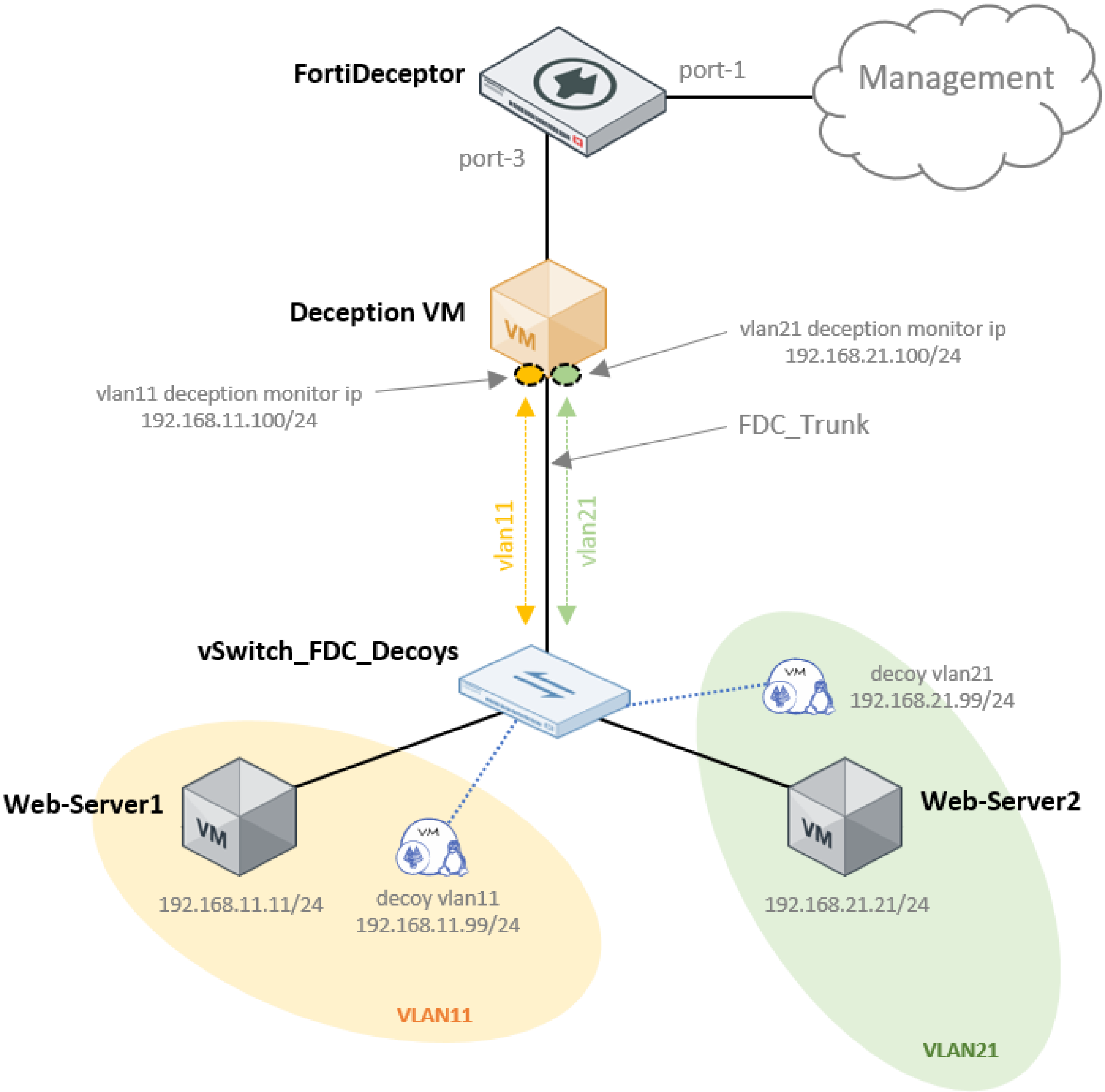
From the networking perspective, FortiDeceptor is ready to monitor both VLANs over port3. However, to activate the logical trunk interface, FortiDeceptor needs to receive VLAN trunking traffic from the vSwitch port.

If you have a physical switch connected to the ESXi host, you must configure 802.1Q on the switch port that is connected to the host uplink.

Configuring the vSwitch

To simplify configuration, we recommend using a dedicated vSwitch for the decoy and monitored segments.

The following diagram shows the vSwitch ports relationship.

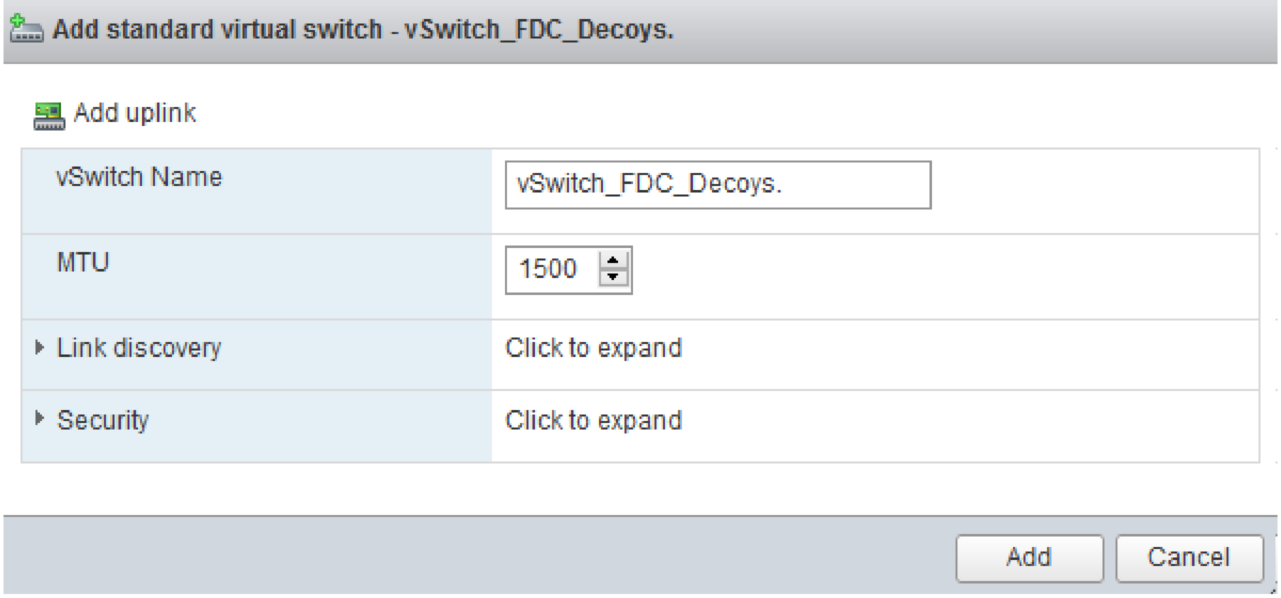


On ESXi, configure the *vSwitch_ FDC_Decoys* vSwitch to connect both VLANs to FortiDeceptor. Then configure three network port-groups:

1. *FDC_Trunk* – Port-group for the actual trunk interface between FortiDeceptor and vSwitch.
2. *VLAN11* – Port-group to connect VLAN11 to vSwitch.
3. *VLAN21* – Port-group to connect VLAN21 to vSwitch.

To configure the vSwitch:

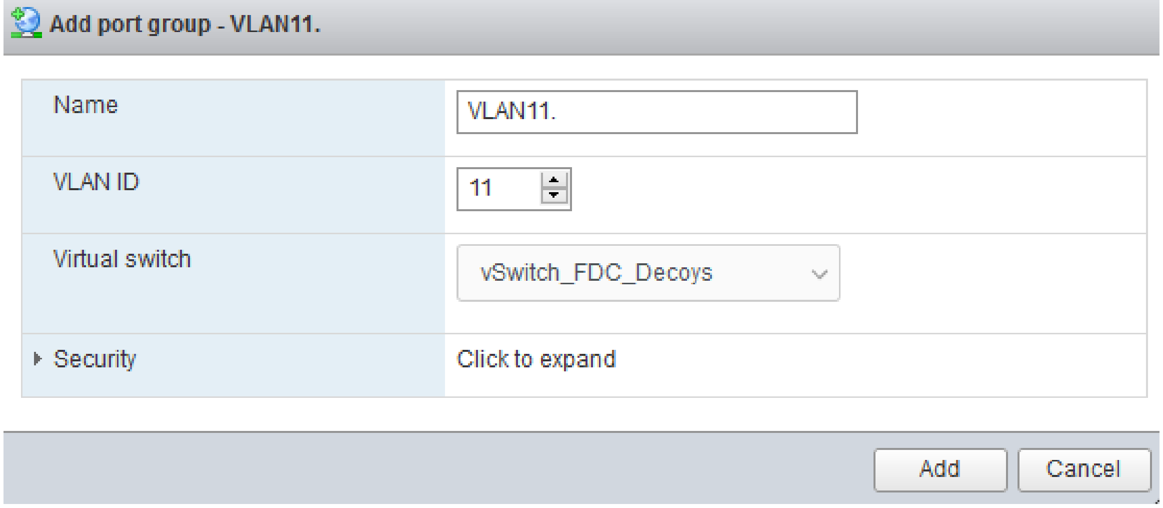
1. On the ESXi client, go to *Networking* > *Virtual Switches* and add a standard virtual switch.
   Just configure the *vSwtich Name*, remove the uplink (unless you need it), and use default values for the other options.



Add standard virtual switch - vSwitch_FDC_Decoys.

vSwitch Name	vSwitch_FDC_Decoys.
MTU	1500
▸ Link discovery	Click to expand
▸ Security	Click to expand

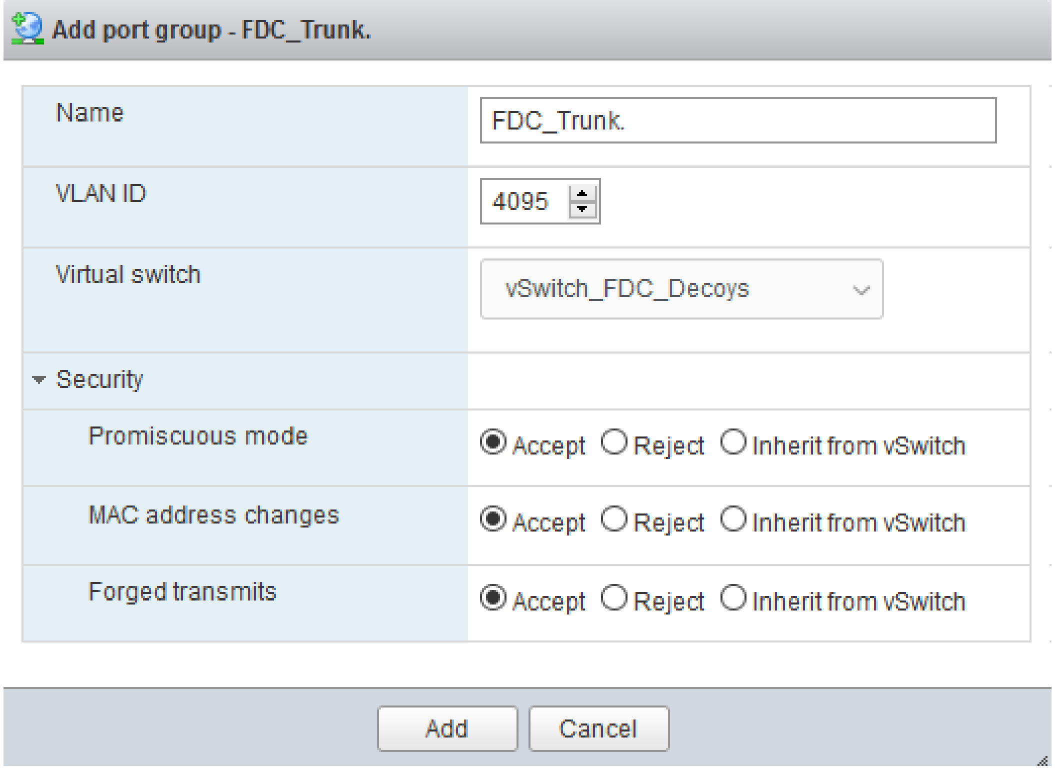
2. Go to *Networking* > *Port groups* and add the port groups.
   Port groups for VLAN11 and VLAN21 are similar. For each port group, specify a *Name*, configure the *VLAN ID*, and select the *Virtual switch*.



Add port group - VLAN11.

Name	VLAN11.
VLAN ID	11
Virtual switch	vSwitch_FDC_Decoys
▸ Security	Click to expand

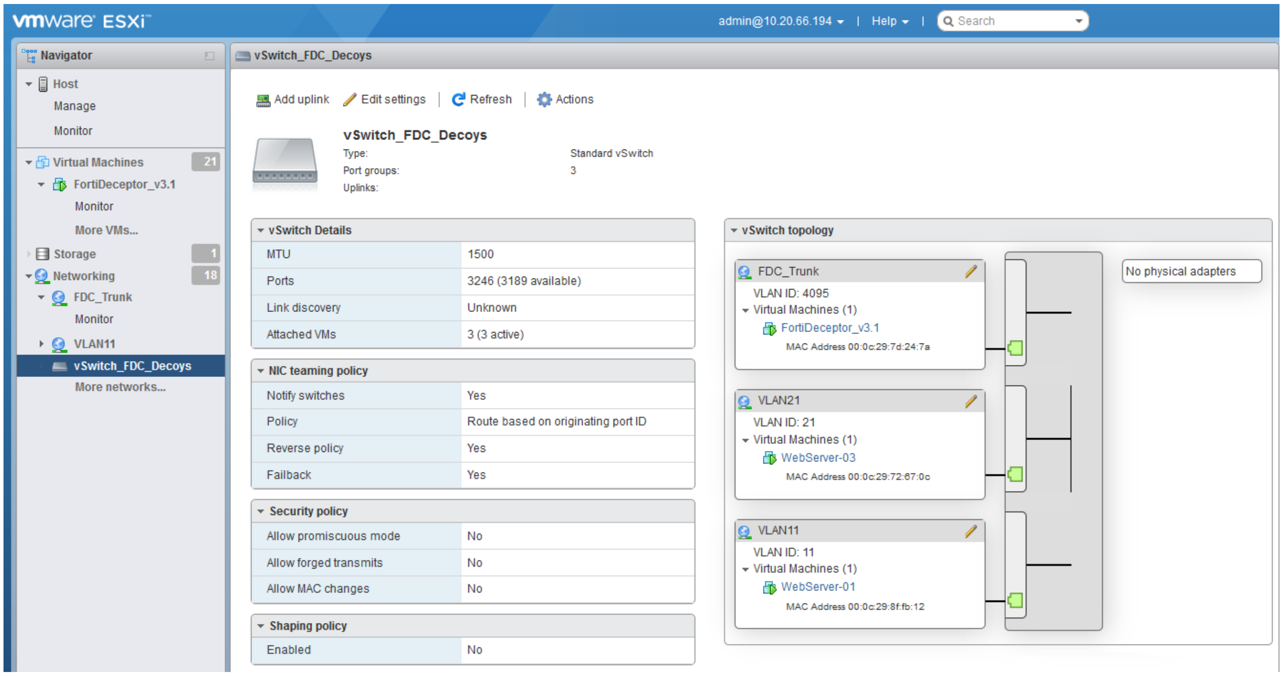
3. For the FDC Trunk port, configure a special port-group.
   On ESXi, you do not need to configure 802.1Q. You only need to set the port group to be a promiscuous interface and specify *4095* for the *VLAN ID* so the vSwitch can send and receive traffic from the VLANs configured on FortiDeceptor.
   Select the *Virtual switch* and set all *Security* options to *Accept*.



Add port group - FDC_Trunk.

Name	FDC_Trunk.
VLAN ID	4095
Virtual switch	vSwitch_FDC_Decoys
Security	
Promiscuous mode	● Accept ○ Reject ○ Inherit from vSwitch
MAC address changes	● Accept ○ Reject ○ Inherit from vSwitch
Forged transmits	● Accept ○ Reject ○ Inherit from vSwitch

4. To verify the configuration, check the vSwitch topology and ensure all devices are connected to this switch.



vSwitch_FDC_Decoys

Type:	Standard vSwitch
Port groups:	3
Uplinks:	

vSwitch Details

MTU	1500
Ports	3246 (3189 available)
Link discovery	Unknown
Attached VMs	3 (3 active)

NIC teaming policy

Notify switches	Yes
Policy	Route based on originating port ID
Reverse policy	Yes
Failback	Yes

Security policy

Allow promiscuous mode	No
Allow forged transmits	No
Allow MAC changes	No

Shaping policy

Enabled	No

vSwitch topology

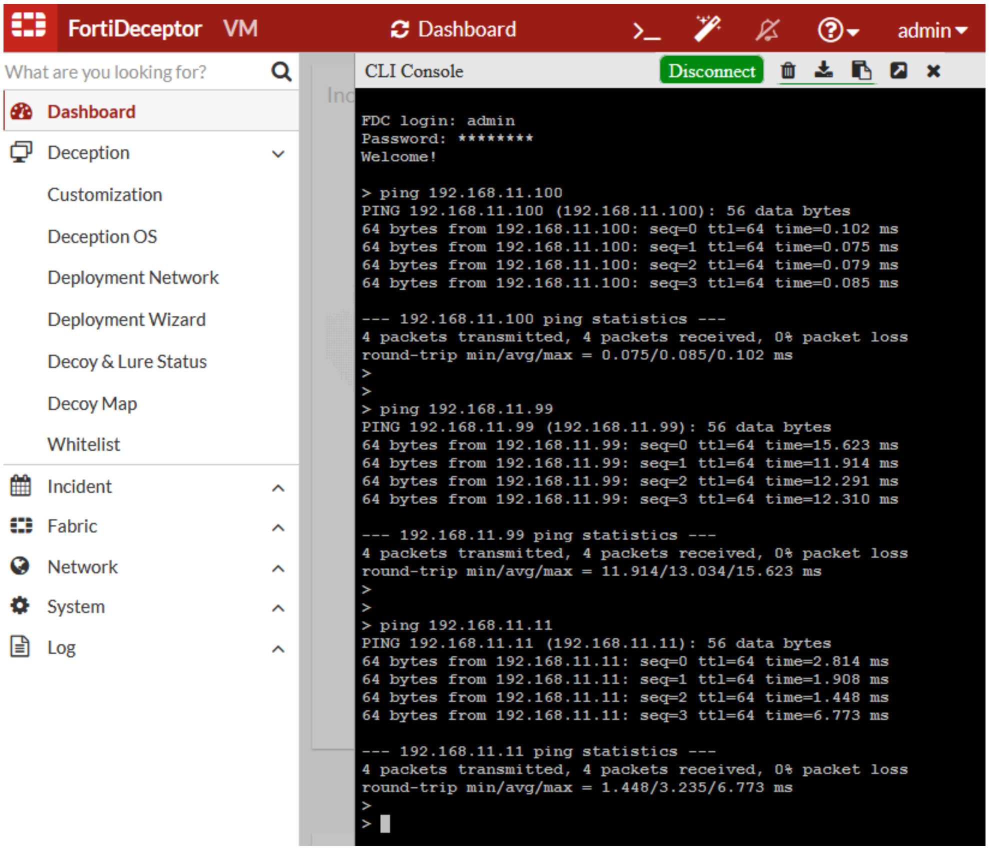
FDC_Trunk
VLAN ID: 4095
Virtual Machines (1)
FortiDeceptor_v3.1
MAC Address 00:0c:29:7d:24:7a

VLAN21
VLAN ID: 21
Virtual Machines (1)
WebServer-03
MAC Address 00:0c:29:72:67:0c

VLAN11
VLAN ID: 11
Virtual Machines (1)
WebServer-01
MAC Address 00:0c:29:8f:fb:12

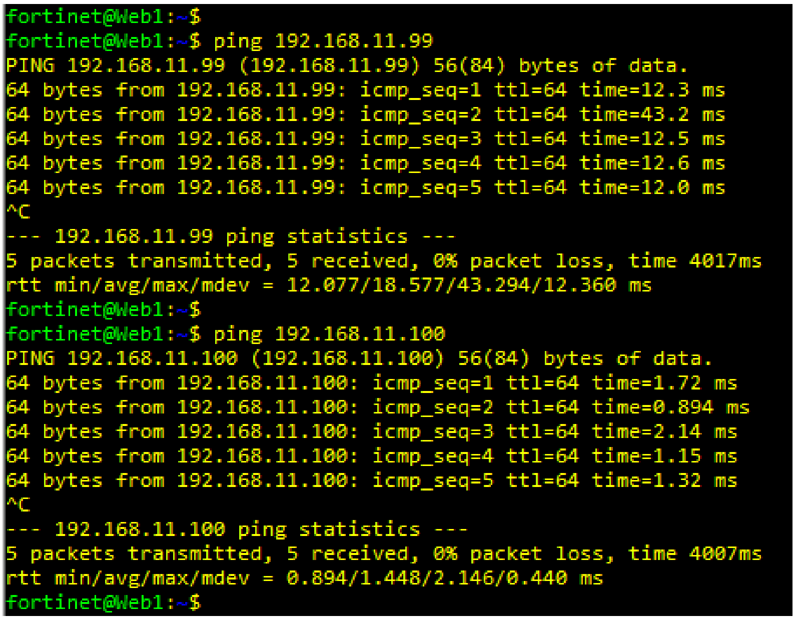
No physical adapters

5. Test connectivity from FortiDeceptor to the web servers, and from each web server to the decoys connected to the same VLAN.
   - From FortiDeceptor.



```
FDC login: admin
Password: ********
Welcome!

> ping 192.168.11.100
PING 192.168.11.100 (192.168.11.100): 56 data bytes
64 bytes from 192.168.11.100: seq=0 ttl=64 time=0.102 ms
64 bytes from 192.168.11.100: seq=1 ttl=64 time=0.075 ms
64 bytes from 192.168.11.100: seq=2 ttl=64 time=0.079 ms
64 bytes from 192.168.11.100: seq=3 ttl=64 time=0.085 ms

--- 192.168.11.100 ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 0.075/0.085/0.102 ms
>
>
> ping 192.168.11.99
PING 192.168.11.99 (192.168.11.99): 56 data bytes
64 bytes from 192.168.11.99: seq=0 ttl=64 time=15.623 ms
64 bytes from 192.168.11.99: seq=1 ttl=64 time=11.914 ms
64 bytes from 192.168.11.99: seq=2 ttl=64 time=12.291 ms
64 bytes from 192.168.11.99: seq=3 ttl=64 time=12.310 ms

--- 192.168.11.99 ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 11.914/13.034/15.623 ms
>
>
> ping 192.168.11.11
PING 192.168.11.11 (192.168.11.11): 56 data bytes
64 bytes from 192.168.11.11: seq=0 ttl=64 time=2.814 ms
64 bytes from 192.168.11.11: seq=1 ttl=64 time=1.908 ms
64 bytes from 192.168.11.11: seq=2 ttl=64 time=1.448 ms
64 bytes from 192.168.11.11: seq=3 ttl=64 time=6.773 ms

--- 192.168.11.11 ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 1.448/3.235/6.773 ms
>
>
```

   - From web server 1.



```
fortinet@Web1:~$
fortinet@Web1:~$ ping 192.168.11.99
PING 192.168.11.99 (192.168.11.99) 56(84) bytes of data.
64 bytes from 192.168.11.99: icmp_seq=1 ttl=64 time=12.3 ms
64 bytes from 192.168.11.99: icmp_seq=2 ttl=64 time=43.2 ms
64 bytes from 192.168.11.99: icmp_seq=3 ttl=64 time=12.5 ms
64 bytes from 192.168.11.99: icmp_seq=4 ttl=64 time=12.6 ms
64 bytes from 192.168.11.99: icmp_seq=5 ttl=64 time=12.0 ms
^C
--- 192.168.11.99 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4017ms
rtt min/avg/max/mdev = 12.077/18.577/43.294/12.360 ms
fortinet@Web1:~$
fortinet@Web1:~$ ping 192.168.11.100
PING 192.168.11.100 (192.168.11.100) 56(84) bytes of data.
64 bytes from 192.168.11.100: icmp_seq=1 ttl=64 time=1.72 ms
64 bytes from 192.168.11.100: icmp_seq=2 ttl=64 time=0.894 ms
64 bytes from 192.168.11.100: icmp_seq=3 ttl=64 time=2.14 ms
64 bytes from 192.168.11.100: icmp_seq=4 ttl=64 time=1.15 ms
64 bytes from 192.168.11.100: icmp_seq=5 ttl=64 time=1.32 ms
^C
--- 192.168.11.100 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4007ms
rtt min/avg/max/mdev = 0.894/1.448/2.146/0.440 ms
fortinet@Web1:~$
```

How to setup and use LDAP/RADIUS servers

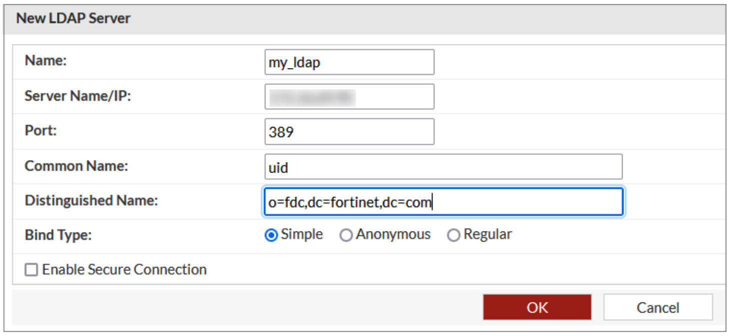
1. Set up the LDAP server

Requirements:

- FortiAuthenticator login credentials

To set up the LDAP server:

1. In FortiDeceptor Go to *System* > *LDAP Servers*.
2. Click *Create New*. The *New LDAP Server* window opens.
3. Configure the LDAP server settings, see LDAP Servers on page 180.

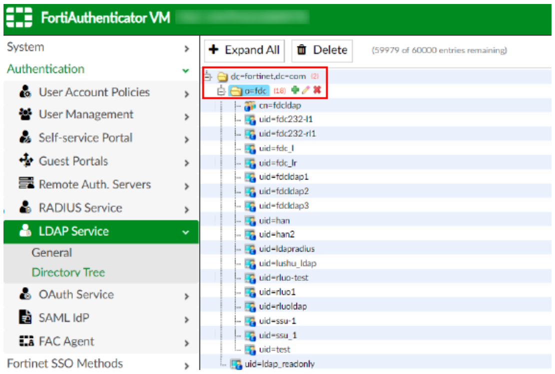


New LDAP Server

Name:	my_ldap
Server Name/IP:	[redacted]
Port:	389
Common Name:	uid
Distinguished Name:	o=fdc,dc=fortinet,dc=com
Bind Type:	● Simple ○ Anonymous ○ Regular

☐ Enable Secure Connection

You must use the following format for the *Distinguished Name* field :<*root_node*>,<*subordinate_node*>. To find the names of the Root and Subordinate nodes in FortiAuthenticator, by go to *LDAP Service* > *Directory Tree*.



FortiAuthenticator VM [redacted]

```
dc=fortinet,dc=com (2)
  o=fdc (18)
    cn=fdcldap
    uid=fdc232-l1
    uid=fdc232-rl1
    uid=fdc_l
    uid=fdc_lr
    uid=fdcldap1
    uid=fdcldap2
    uid=fdcldap3
    uid=han
    uid=han2
    uid=ldapradius
    uid=lushu_ldap
    uid=rluo-test
    uid=rluo1
    uid=rluoldap
    uid=ssu-1
    uid=ssu_1
    uid=test
  uid=ldap_readonly
```

2. Setup the RADIUS server

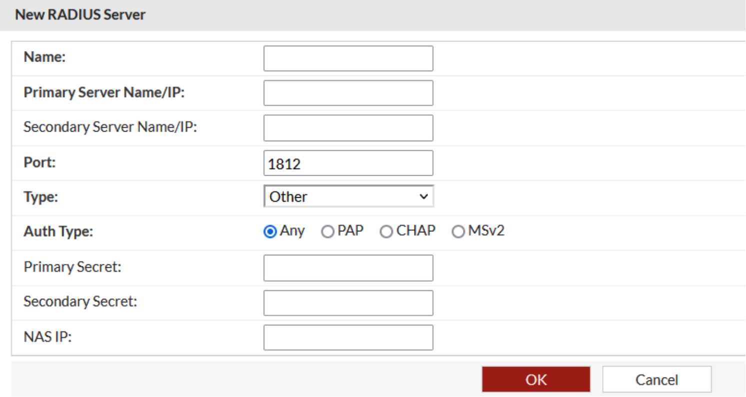
Requirements:

- FortiAuthenticator login credentials

To set up the RADIUS server in FortiDeceptor:

1. Go to *System* > *RADIUS Servers*.
2. Click *Create New*. The *New RADIUS Server* window opens.

3. Configure the RADIUS server settings. See RADIUS Servers on page 181.



New RADIUS Server

Name:	
Primary Server Name/IP:	
Secondary Server Name/IP:	
Port:	1812
Type:	Other
Auth Type:	● Any ○ PAP ○ CHAP ○ MSv2
Primary Secret:	
Secondary Secret:	
NAS IP:	

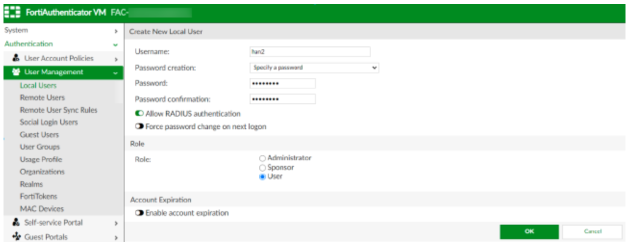
In the *Primary Secret* field enter, *fortinet*.

3. Create an account in FortiAuthenticator and enable LDAP/RADIUS

You do not need to complete this step if you already have a FortiAuthenticator account.

To enable LDAP/RADIUS:

1. In FortiAuthenticator, go to *User Management* > *Local Users* and create a new account.
   a. Enable *Allow RADIUS authentication*.
   b. In the *Password* and *Password confirmation* fields, enter `fortinet`.



Create New Local User

Username:	han2
Password creation:	Specify a password
Password:	••••••••
Password confirmation:	••••••••

● Allow RADIUS authentication
○ Force password change on next logon

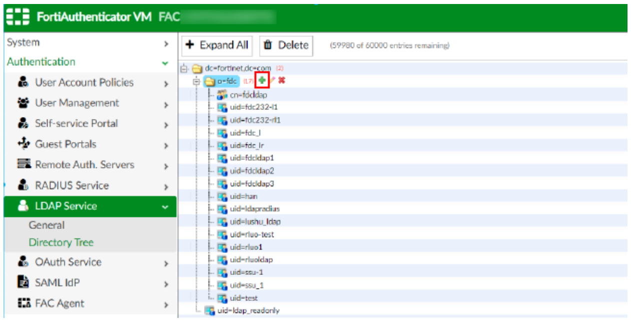
Role

Role: ○ Administrator ○ Sponsor ● User

Account Expiration

○ Enable account expiration

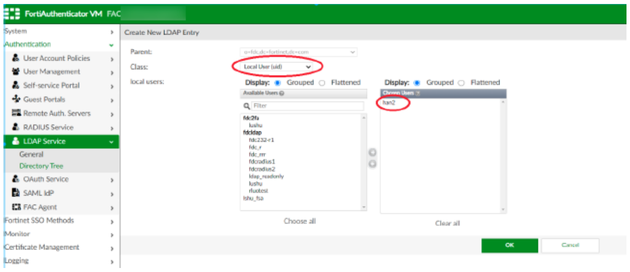
2. Go *LDAP Service* > *Directory Tree* to enable LDAP.
3. Expand the Root node, and then click the green plus symbol next to the Subordinate node. The *Create New LDAP entry* window opens.



(59980 of 60000 entries remaining)

```
dc=fortinet,dc=com (2)
  o=fdc (17)
    cn=fdcldap
    uid=fdc232-l1
    uid=fdc232-rl1
    uid=fdc_l
    uid=fdc_lr
    uid=fdcldap1
    uid=fdcldap2
    uid=fdcldap3
    uid=han
    uid=ldapradius
    uid=lushu_ldap
    uid=rluo-test
    uid=rluo1
    uid=rluoldap
    uid=ssu-1
    uid=ssu_1
    uid=test
  uid=ldap_readonly
```

4. From the *Class* dropdown, select *Local User (uid)*.



Create New LDAP Entry

Parent: o=fdc,dc=fortinet,dc=com

Class: Local User (uid)

local users:

Display: ● Grouped ○ Flattened — Available Users

Filter

fdc2fa
- lushu

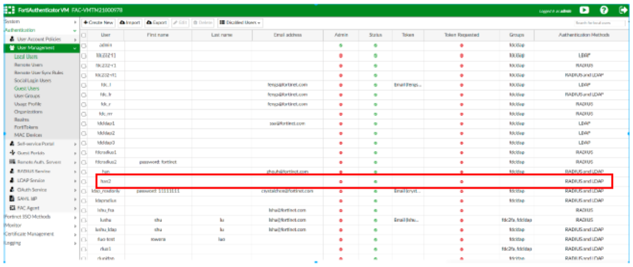
fdcldap
- fdc232-r1
- fdc_r
- fdc_rrr
- fdcradius1
- fdcradius2
- ldap_readonly
- lushu
- rluotest

lshu_fsa

Display: ● Grouped ○ Flattened — Chosen Users

han2

5. Go to *User Management* > *Local Users* to verify the RADIUS and LDAP servers are enabled. To do this, check that the *Authentication Methods* column shows *RADIUS and LDAP*.



□	User	First name	Last name	Email address	Admin	Status	Token	Token Requested	Groups	Authentication Methods
□	admin				●	●		●	fdcldap	
□	fdc232r1				●	●		●	fdcldap	LDAP
□	fdc232-r1				●	●		●	fdcldap	RADIUS
□	fdc232-rl1				●	●		●	fdcldap	RADIUS and LDAP
□	fdc_l			fengq@fortinet.com	●	●	Email fengq...	●	fdcldap	LDAP
□	fdc_lr			fengq@fortinet.com	●	●		●	fdcldap	RADIUS and LDAP
□	fdc_r			fengq@fortinet.com	●	●		●	fdcldap	RADIUS
□	fdc_rrr				●	●		●	fdcldap	RADIUS
□	fdcldap1			sss@fortinet.com	●	●		●	fdcldap	LDAP
□	fdcldap2				●	●		●	fdcldap	LDAP
□	fdcldap3				●	●		●	fdcldap	LDAP
□	fdcradius1				●	●		●	fdcldap	RADIUS
□	fdcradius2	password: fortinet			●	●		●	fdcldap	RADIUS
□	han			zhouh@fortinet.com	●	●		●	fdcldap	RADIUS and LDAP
□	han2				●	●		●		RADIUS and LDAP
□	ldap_readonly	password: 11111111		crystalchen@fortinet.com	●	●	Email crystal...	●	fdcldap	RADIUS and LDAP
□	ldapradius				●	●		●	fdcldap	RADIUS and LDAP
□	lshu_fsa			lshu@fortinet.com	●	●		●		RADIUS
□	lushu	shu	lu	lshu@fortinet.com	●	●	Email lshu...	●	fdc2fa, fdcldap	RADIUS
□	lushu_ldap	shu	lu	lshu@fortinet.com	●	●		●	fdcldap	RADIUS and LDAP
□	rluo test	rowena	luo		●	●		●	fdcldap	RADIUS and LDAP
□	rluo1				●	●		●	fdc2fa, fdcldap	RADIUS and LDAP
□	rluotest				●	●		●	fdcldap	RADIUS and LDAP

4. Create login account using LDAP/RADIUS accounts from FortiAuthenticator

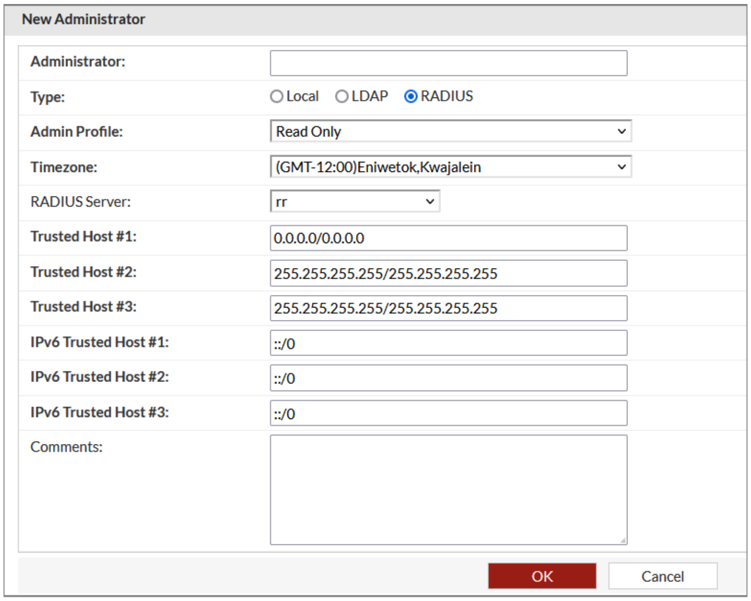
To create a login account with LDAP/RADIUS:

1. In FortiAuthenticator, go to *User Management* > *Local Users* and locate an account that has LDAP/RADIUS enabled. To do this, look in the *Authentication Methods* column for *RADIUS and LDAP*.
2. In FortiDeceptor, go to *System* > *Administrators* and click + *Create New* to create a new administrator. The *New Administrator* window opens.
3. Configure the administrator settings.

The values for the *Administrator*, *Type*, and *LDAP Server* fields must match the user's settings in FortiAuthenticator.

4. Log in to FortiDeceptor with the administrator account you created.
5. Go to *System* > *Administrators* and click + *Create New* . The *New Administrator* window opens.

6. Create a new administrator and set the *Type* to *RADIUS*.



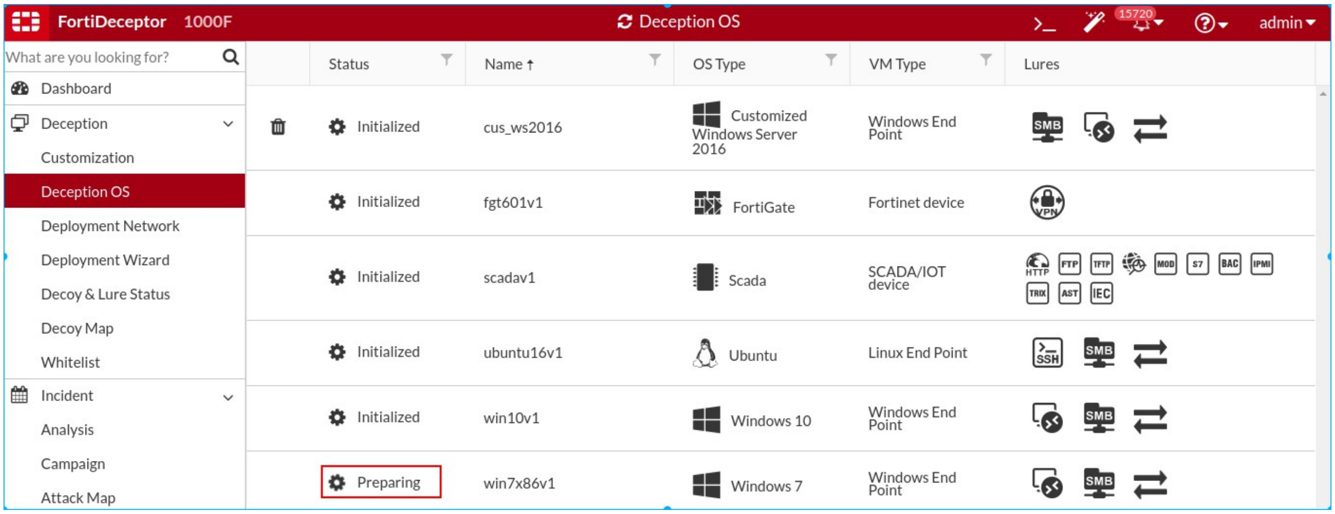
New Administrator

Administrator:	
Type:	○ Local ○ LDAP ● RADIUS
Admin Profile:	Read Only
Timezone:	(GMT-12:00)Eniwetok,Kwajalein
RADIUS Server:	rr
Trusted Host #1:	0.0.0.0/0.0.0.0
Trusted Host #2:	255.255.255.255/255.255.255.255
Trusted Host #3:	255.255.255.255/255.255.255.255
IPv6 Trusted Host #1:	::/0
IPv6 Trusted Host #2:	::/0
IPv6 Trusted Host #3:	::/0
Comments:	

7. Log in to FortiDeceptor with the RADIUS administrator account you created.

Activating Windows 7/10 licenses after exceeding the activation limit

This topic outlines the steps to resolve the issue where the Windows 7 and 10 Deception OS image does not progress beyond *Preparing* for more than 30 minutes.



Status	Name ↑	OS Type	VM Type	Lures
Initialized	cus_ws2016	Customized Windows Server 2016	Windows End Point	SMB
Initialized	fgt601v1	FortiGate	Fortinet device	VPN
Initialized	scadav1	Scada	SCADA/IOT device	HTTP FTP TFTP MOD S7 BAC IPMI TRIX AST IEC
Initialized	ubuntu16v1	Ubuntu	Linux End Point	SSH SMB
Initialized	win10v1	Windows 10	Windows End Point	SMB
Preparing	win7x86v1	Windows 7	Windows End Point	SMB

Requirements:

You will need to contact Microsoft's Assisted Support team. Prepare the following information:

- Licensing Agreement Type
- Licensing Agreement Number & Details
- Product Details
- Company Name
- Email Address
- Product Key

Step 1: Check the Error Logs

1. In FortiDeceptor, go to *Log* > *All Events*.
2. Look for entries indicating activation failure and an Installation ID. Example log entries:

```
“Failed to activate win7x86v1: key: 7269T-FGVQP-97P7R-97QM9-XXXXX, Installation ID:
006262033130386650086814647423101965877916107162009163, Error: 0x80072F8F”
“Failed to initialize deception OS win7x86v1, prepare to retry” “Starting activate
win7x86v1”
```

Step 2: Retrieve and Format the Installation ID

1. Get the installation ID from the logs:

```
“Failed to activate win7x86v1: key: 7269T-FGVQP-97P7R-97QM9-XXXXX, Installation ID:
     006262033130386650086814647423101965877916107162009163, Error: 0x80072F8F”
```

2. Split the installation ID into 9 groups of 6 digits. For example:

```
006262033130386650086814647423101965877916107162009163
```

Becomes:

```
006262 033130 386650 086814 647423 101965 877916 107162 009163
```

Step 3: Contact Microsoft Activation Service

1. Call the Microsoft Activation Service. You can find the Microsoft Volume License Key assisted support telephone numbers here:
https://www.microsoft.com/en-us/licensing/existing-customer/activation-centers
2. When prompted, select the second option in the help menu: *Business Customer*.
3. Follow phone system instructions to enter the installation ID.
4. The phone system will ask you to provide details about your account before it accepts your request.
5. After verification, you will receive a Confirmation ID (8 groups of 6 digits). Write it down. You can end the call.

Step 4: Activate the license on FortiDeceptor

1. On FortiDeceptor, run the following CLI command:

```
> dcvm-confirm-id -a -kXXXXX-XXXXX-XXXXX-XXXXX-XXXXX
-c042532258754869596628901610621951021013844450525
Confirmation ID has been added.
>
```

Do not include a space between the `-c` flag and the `Confirmation ID`.

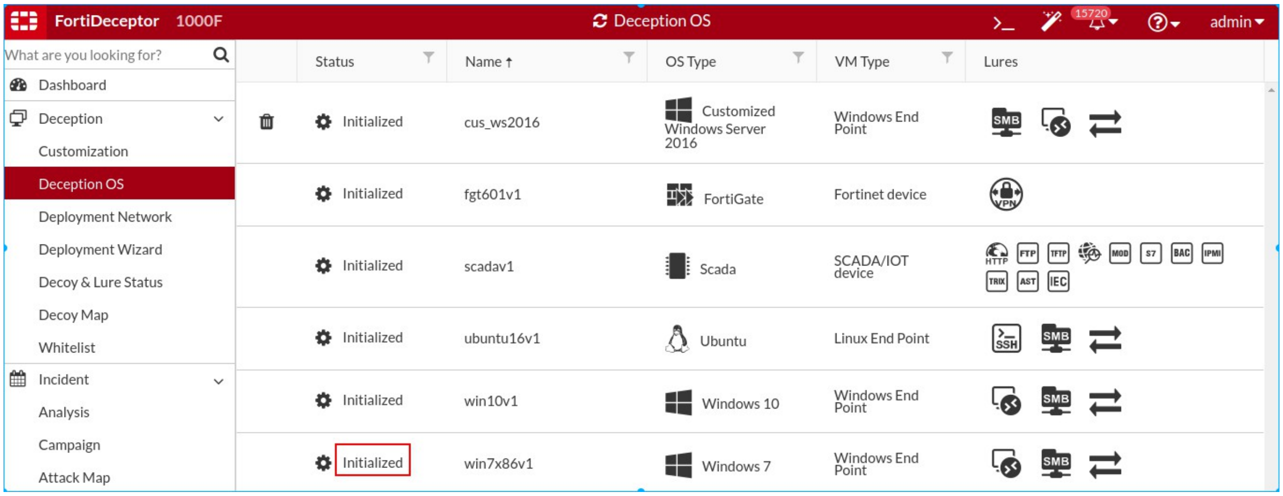
2. Confirm the entry:

```
> dcvm-confirm-id -l
```

Example output:

```
7269T-FGVQP-97P7R-97QM9-XXXXX 042532258754869596628901610621951021013844450525
```

3. FortiDeceptor will process the activation with the provided confirmation ID. Wait a few minutes and check the result. Do not reboot FortiDeceptor.
   If successful, the new *Status* will show *Initialized*:



Status	Name ↑	OS Type	VM Type	Lures
Initialized	cus_ws2016	Customized Windows Server 2016	Windows End Point	SMB
Initialized	fgt601v1	FortiGate	Fortinet device	VPN
Initialized	scadav1	Scada	SCADA/IOT device	HTTP FTP TFTP MOD S7 BAC IPMI TRIX AST IEC
Initialized	ubuntu16v1	Ubuntu	Linux End Point	SSH SMB
Initialized	win10v1	Windows 10	Windows End Point	SMB
Initialized	win7x86v1	Windows 7	Windows End Point	SMB

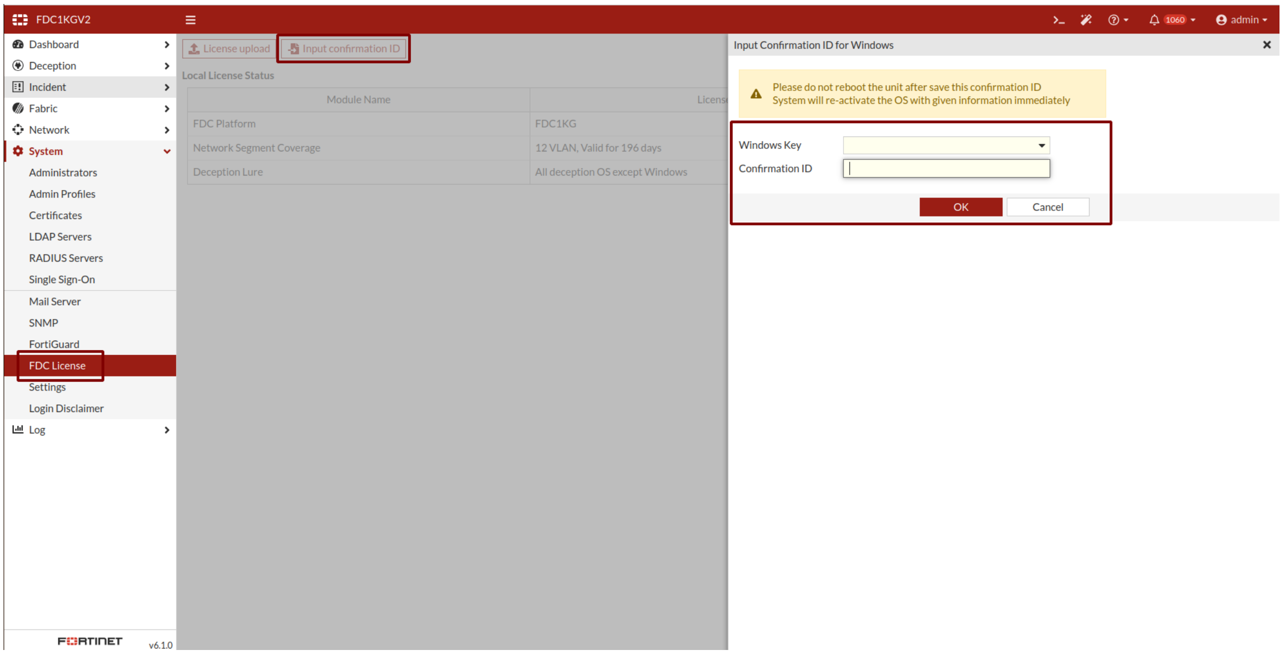
The log message will show:

```
“Successfully activated win7x86v1”
```

4. Remove the confirmation id

```
> dcvm-confirm-id -d -kXXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

5. Optionally, you can also go to *System> FDC License* to upload the confirmation ID.



Local License Status

Module Name	License
FDC Platform	FDC1KG
Network Segment Coverage	12 VLAN, Valid for 196 days
Deception Lure	All deception OS except Windows

Input Confirmation ID for Windows

Please do not reboot the unit after save this confirmation ID
System will re-activate the OS with given information immediately

Windows Key

Confirmation ID

OK Cancel

Hardening

System hardening reduces security risks by eliminating potential attack vectors and shrinking the system's attack surface. This section covers some of the actions that can be used.

Building security into FDC-OS

The FortiDeceptor operating system, FortiDeceptor hardware devices, and FortiDeceptor virtual machines (VMs) are built with security in mind, so many security features are built into the hardware and software. Fortinet maintains an ISO:9001 certified software and hardware development processes to ensure that FortiDeceptor products are developed in a secure manner.

Boot device security

The FortiDeceptor boot device in hardware devices use Fortinet’s customized bootloader which is specifically designed and implemented for the FortiDeceptor product. FortiDeceptor physical devices always boot from this boot device.

FDC-OS kernel and user processes

FortiDeceptor is a multi-process operating system with kernel and user processes. The FortiDeceptor kernel runs in a privileged hardware mode while higher-level applications run in user mode. FortiDeceptor is a closed system that does not allow the loading or execution of third-party code in the FortiDeceptor user space. All non-essential services, packages, and applications are removed.

Physical security

Install the FortiDeceptor in a physically secure location. Physical access to the FortiDeceptor can allow it to be bypassed, or other firmware could be loaded after a manual reboot.

Optionally, disable the maintainer account with CLI command set-maintainer. Note that doing this will make you unable to recover administrator access using a console connection if all of the administrator credentials are lost.

Vulnerability - monitoring PSIRT

The *FortiGuard Labs Product Security Incident Response Team* (PSIRT) continually tests and gathers information about Fortinet hardware and software products, looking for vulnerabilities and weaknesses. Any such findings are fed back to Fortinet's development teams and serious issues are described along with protective solutions. The PSIRT regulatory releases PSIRT advisories when issues are found and corrected. Advisories are listed at https://www.fortiguard.com/psirt.

Firmware

Keep the FortiDeceptor firmware up to date. The latest patch release has the most fixed bugs and vulnerabilities, and should be the most stable. Firmware is periodically updated to add new features and resolve important issues.

- Read the release notes. The known issues may include issues that affect your business.
- Do not use out of support firmware. Review the product lifecycle and plan to upgrade before the firmware expires.
- Optionally, subscribe to the Fortinet firmware RSS feed: https://pub.kb.fortinet.com/rss/firmware.xml.

Encrypted protocols

Use encrypted protocols whenever possible, for example, SNMPv3 instead of SNMP, SMTPS instead of SMTP, SSH instead of telnet and HTTPS instead of HTTP.

Strong ciphers

FortiDeceptor already sets to use higher levels of encryption and strong ciphers for communications with Fortinet fabric devices.

FortiGuard databases

Ensure that FortiGuard databases, such as Industry Security Signature, Network Alerts Signature, AntiVirus Scanner and Signatures, AI Malware Engine and ARAE Engines are updated punctually.

Trusted Hosts

Limit access to the FortiDeceptor to a management interface on a management network. Trusted hosts can also be used to specify the IP addresses or subnets that can log in to the FortiDeceptor. When authenticating to the FortiDeceptor, implement two-factor authentication (2FA). This makes it significantly more difficult for an attacker to gain access to the FortiDeceptor.

Limit login user’s access right

The features that a login user can access should be limited to the scope of that user's work to reduce possible attack vectors. The admin profile tied to the user account defines the areas on the FortiDeceptor that the user can access, and what they can do in those areas. The list of users with access should be audited regularly to ensure that it is current.

Administration access security

Secure administrative access features:

- SSH and SNMP are disabled by default. If required, these administrative services must be explicitly enabled via the GUI or CLI.
- Only SSHv2 is configured, and SSHv1 is disabled for SSH service.
- TLSv1.1 and above versions are configured for HTTPS administrative access, while lower versions, including SSLv3 and TLS1.0, are disabled.
- HTTPS is enabled by default, and HTTP is not supported.
- The strong-crypto global settings are configured to use strong ciphers (AES128, AES256) and digests (SHA128, SHA256) for HTTPS, SSH, and TLS functions.

Admin administrator account

All FortiDeceptor ship with a default administrator account called *admin*. By default, this account does not have a password. However, FortiDeceptor uses restricted password policy that enforce the admin account to change the password on the first user login and use a complex password. (This mechanism is enforced across all users upon their first log in.)

Maintainer account

Administrators with physical access to a FortiDeceptor appliance can use a console cable and a special administrator account called maintainer to log into the CLI. When enabled, the maintainer account can be used to log in from the console after a hard reboot. The password for the maintainer account is *bcpb* followed by the FortiDeceptor serial number. An administrator has 60-seconds to complete this login using the CLI command `admin-pwd-reset`

The only action the maintainer account has permissions to perform is to reset the passwords of `super_admin` accounts. Logging in with the maintainer account requires a hard boot of the FortiDeceptor.

FortiDeceptor generates event log messages when you log in with the maintainer account and for each password reset.

Non-factory SSL certificates

Non-factory SSL certificates should be used for the FortiDeceptor web management interface.

The default Fortinet factory self-signed certificates are provided to simplify initial installation and testing. Using these certificates leaves you vulnerable to man-in-the-middle attacks, where an attacker spoofs your certificate, compromises your connection, and steals your personal information.

Your administrator web portal should also be configured with a server certificate from a trusted CA.

Other recommended actions user can take

The following general administrative settings are recommended:

- Set the idle timeout time for login users to a low value, preferably less that ten minutes.
- In Interfaces page, limit access right for network ports.
- Replace the certificate that is offered for HTTPS access with a trusted certificate that has the FQDN or IP address of the FortiDeceptor.
- For local accounts on the FortiDeceptor, try upgrading to FortiDeceptor to V4.3.0 and later which enforces a default password policy with minimum complexity level.
- Do not use shared accounts to access the FortiDeceptor. Shared accounts are more likely to be compromised, are more difficult to maintain as password updates must be disseminated to all users, and make it impossible to audit access to the FortiDeceptor.

Appendix C - Configuration examples

This section provides configuration examples to integrate FortiDeceptor with other Fabric devices as well as third-party integrations.

This section contains the following topics:

Configure FortiDeceptor for admin access authentication from Active Directory

To configure FortiDeceptor to authenticate from the Active Directory (AD) server, prepare and import a signed server certificate into FortiAuthenticator. Next you will configure the LDAP service and add the local user to the LDAP directory tree in FortiAuthenticator. Then you will import the server certificate and configure the LDAP server in FortiDeceptor.

FortiDeceptor admin access authentication from FortiAuthenticator

To configure FortiDeceptor admin access authentication front FortiAuthenticator using LDAP:

1. Prepare the certificate.
2. Import the signed server certificate to FortiAuthenticator.

3. Import the RootCA to FortiAuthenticator.
4. Configure the FortiAuthenticator LDAP Service.
5. Add the local user the LDAP Directory Tree.
6. Import the RootCA into FortiDeceptor.
7. Configure the LDAP server in FortiDeceptor.

1. Prepare the certificate

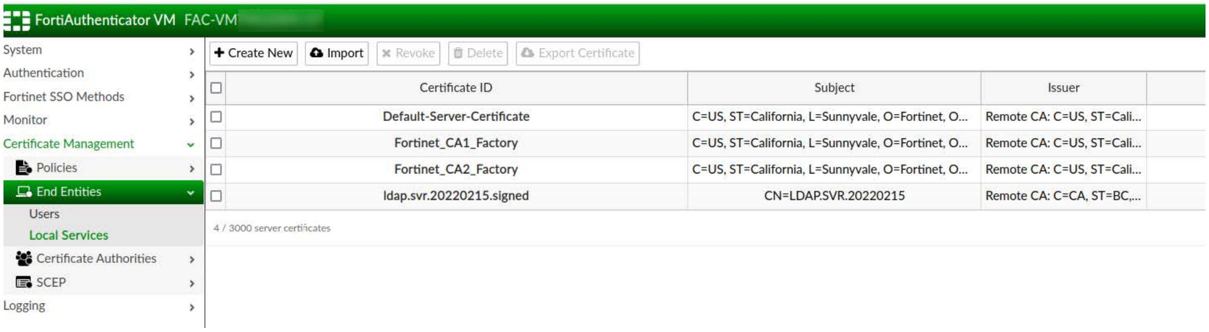
If you are not using LDAP, you can proceed directly to Step 5: Create LDAP Directory Tree.

To prepare the certificate:

1. Create a Certificate Signing Request (CSR) and private key.
2. Sign the CSR with either a public Certificate Authority (CA) or your own RootCA. For the purpose of this example, we will be using a self-created RootCA.

2. Import the signed server certificate to FortiAuthenticator

1. Log in to FortiAuthenticator.
2. Go to *Certificate Management > End Entities > Local Services* and click *Import*.



☐	Certificate ID	Subject	Issuer
☐	Default-Server-Certificate	C=US, ST=California, L=Sunnyvale, O=Fortinet, O...	Remote CA: C=US, ST=Cali...
☐	Fortinet_CA1_Factory	C=US, ST=California, L=Sunnyvale, O=Fortinet, O...	Remote CA: C=US, ST=Cali...
☐	Fortinet_CA2_Factory	C=US, ST=California, L=Sunnyvale, O=Fortinet, O...	Remote CA: C=US, ST=Cali...
☐	ldap.svr.20220215.signed	CN=LDAP.SVR.20220215	Remote CA: C=CA, ST=BC,...

4 / 3000 server certificates

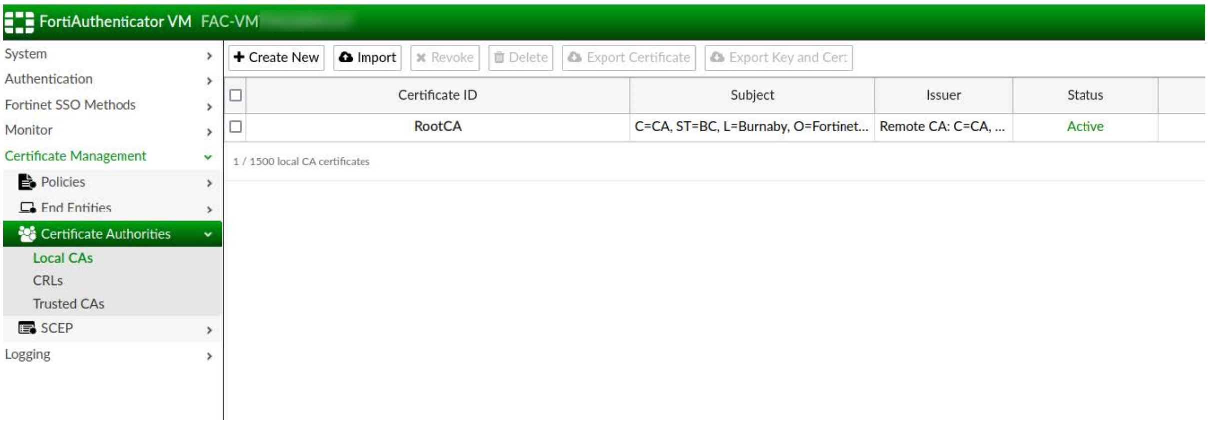
3. Select *Choose File* to locate the certificate file on your computer.
4. Select *OK* to import the certificate.

For more information, see *Certificate Management > End Entities* in the *FortiAuthenticator Administration Guide*.

3. Import the RootCA to FortiAuthenticator

1. Go to *Certificate Management > Certificate Authorities > Local CAs*.
2. Click *Create New* and configure the certificate settings.

3. Click *OK* to create the new certificate.



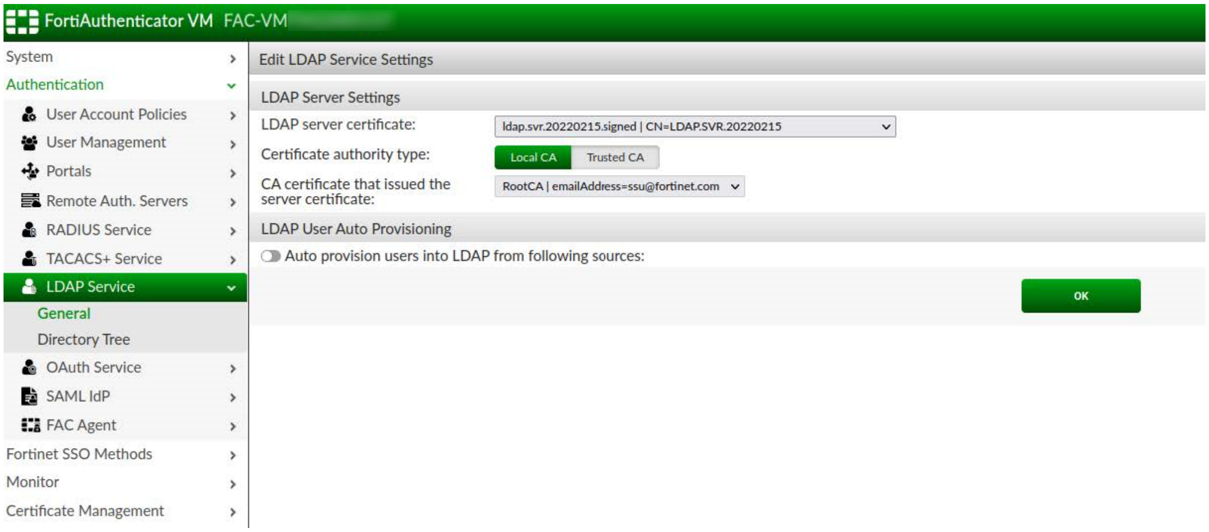
☐	Certificate ID	Subject	Issuer	Status
☐	RootCA	C=CA, ST=BC, L=Burnaby, O=Fortinet...	Remote CA: C=CA, ...	Active

1 / 1500 local CA certificates

For more information, see *Certificate Management > Certificate Authorities > Local CAs* in the *FortiAuthenticator Administration Guide*.

4. Configure the FortiAuthenticator LDAP Service

1. In FortiAuthenticator, go to *Authentication* > *LDAP Service* > *General*.
2. From the *LDAP server certificate* dropdown, select the server certificate you imported.
3. From the *CA certificate that issued the server certificate* dropdown, select *RootCA* and click *OK*.



Edit LDAP Service Settings

LDAP Server Settings

LDAP server certificate: ldap.svr.20220215.signed | CN=LDAP.SVR.20220215

Certificate authority type: Local CA | Trusted CA

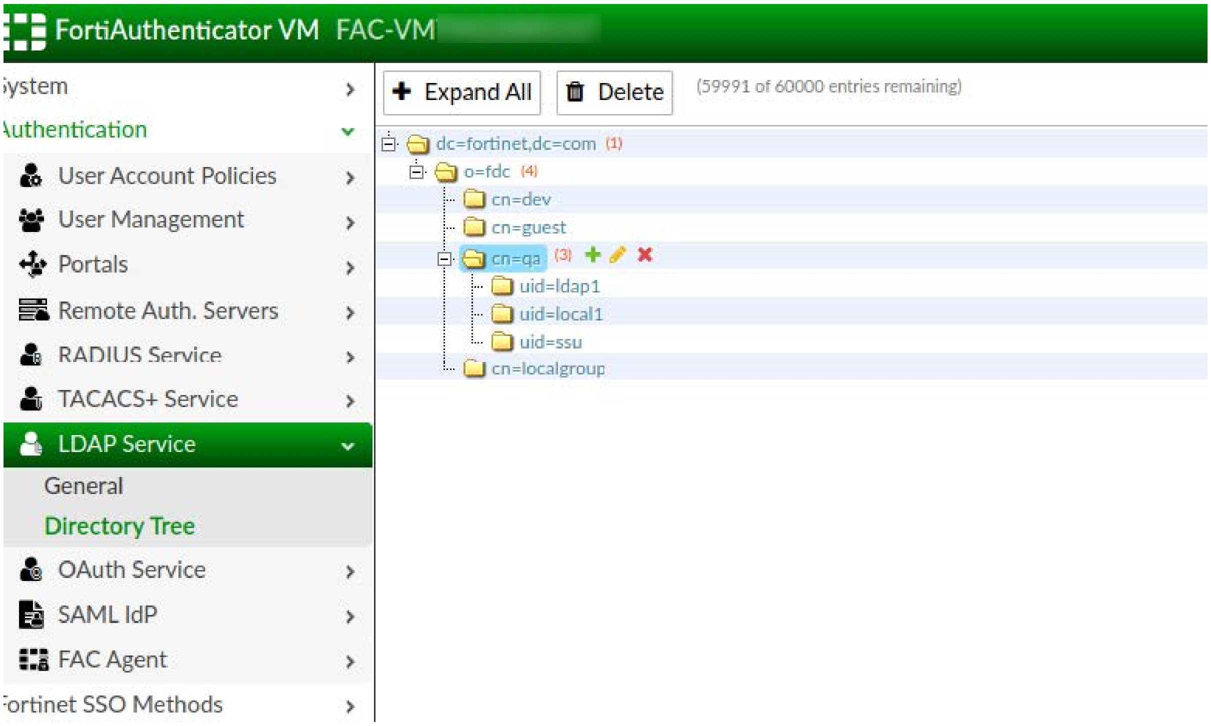
CA certificate that issued the server certificate: RootCA | emailAddress=ssu@fortinet.com

LDAP User Auto Provisioning

○ Auto provision users into LDAP from following sources:

5. Add the local user the LDAP Directory Tree

1. In FortiAuthenticator, from the LDAP directory tree, select the green plus (**+**) symbol next to the DN entry where you want to add the node. The *Create New LDAP Entry* window opens.



2. In the *Class* field, select the identifier to use.
3. Select the required value from the dropdown menu, or select *Create New* to create a new entry of the selected class.
4. Click *OK*.

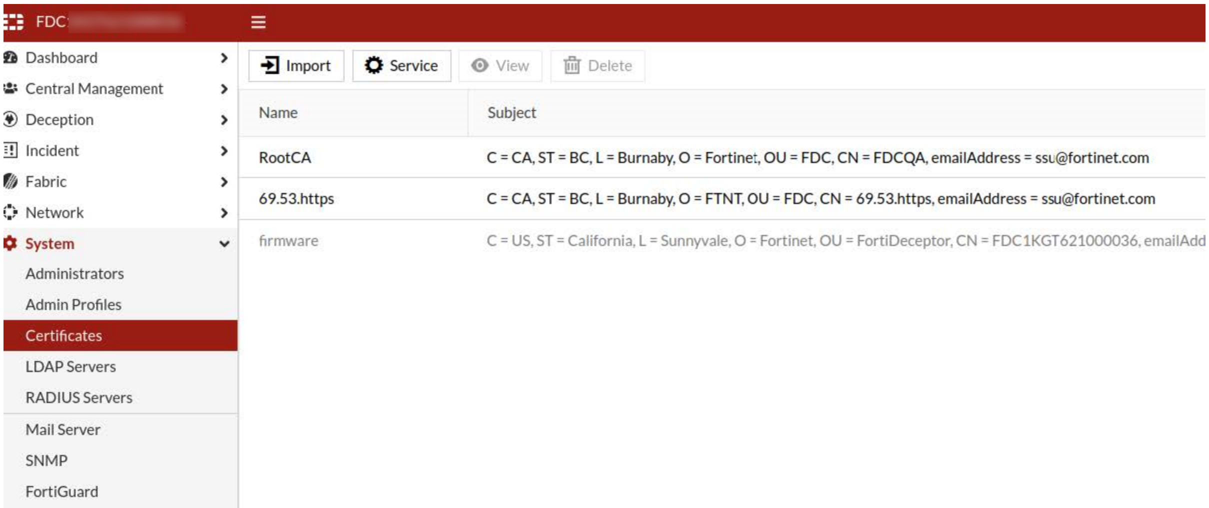
For more information, see *Creating the directory tree* in the in the *FortiAuthenticator Administration Guide*.

6. Import the RootCA into FortiDeceptor

If you are not using LDAP, proceed to Step 7. Configure the LDAP server in FortiDeceptor.

1. In FortiDeceptor, go to *System > Certificates* and click *Import*.
2. In the *Certificate* field, click *Browse* and upload a copy of the RootCA certificate you imported to FortiAuthenticator in Step 3 Import the RootCA to FortiAuthenticator.

3. Configure the rest of the certificate settings and click *OK*.



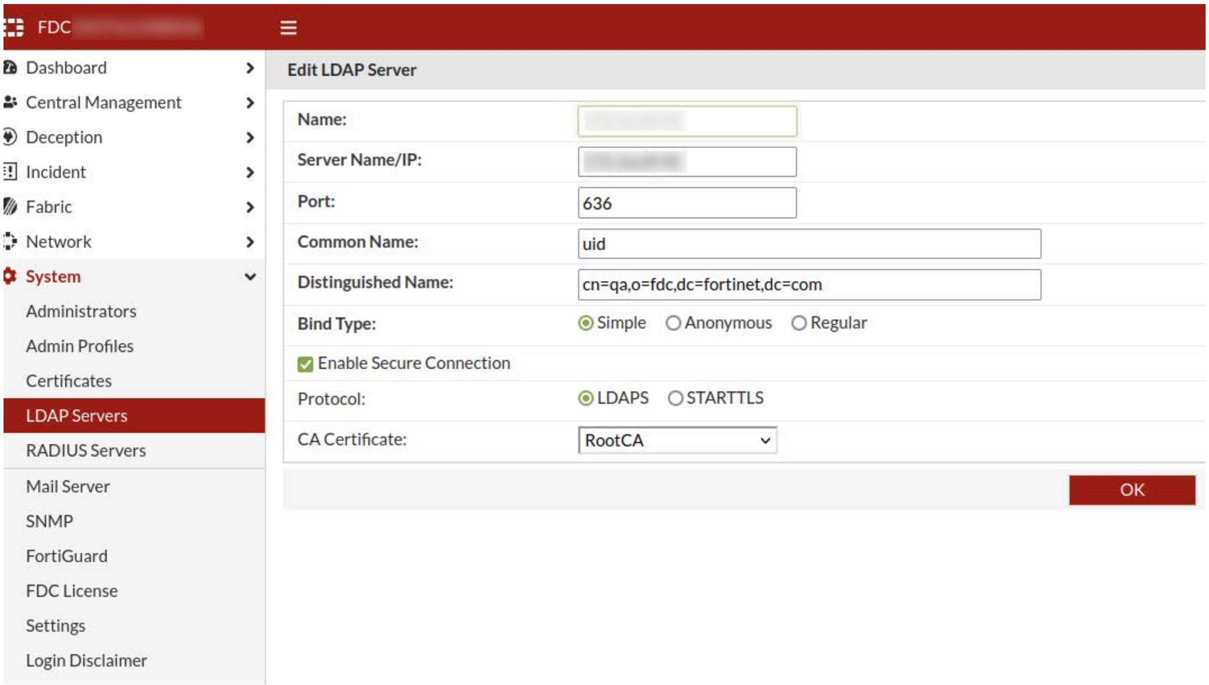
Name	Subject
RootCA	C = CA, ST = BC, L = Burnaby, O = Fortinet, OU = FDC, CN = FDCQA, emailAddress = ssu@fortinet.com
69.53.https	C = CA, ST = BC, L = Burnaby, O = FTNT, OU = FDC, CN = 69.53.https, emailAddress = ssu@fortinet.com
firmware	C = US, ST = California, L = Sunnyvale, O = Fortinet, OU = FortiDeceptor, CN = FDC1KGT621000036, emailAdd

For more information, see Certificates on page 178.

7. Configure the LDAP server in FortiDeceptor

1. In FortiDeceptor, go to *System* > *LDAP servers* and click *Create New*. The *New LDAP Server* page opens.
2. Configure the LDAP settings keeping the following considerations in mind:

Common Name	The *Common Name* must match the node you created in the LDAP tree.
Enable Secure Connection	When enabled, you must select the RootCA you imported from the *CA Certificate* dropdown.



Edit LDAP Server

Name: [redacted]

Server Name/IP: [redacted]

Port: 636

Common Name: uid

Distinguished Name: cn=qa,o=fdc,dc=fortinet,dc=com

Bind Type: ● Simple ○ Anonymous ○ Regular

☑ Enable Secure Connection

Protocol: ● LDAPS ○ STARTTLS

CA Certificate: RootCA

3. Click *OK*.

Configure a Active Directory (AD) user as FortiDeceptor administrator

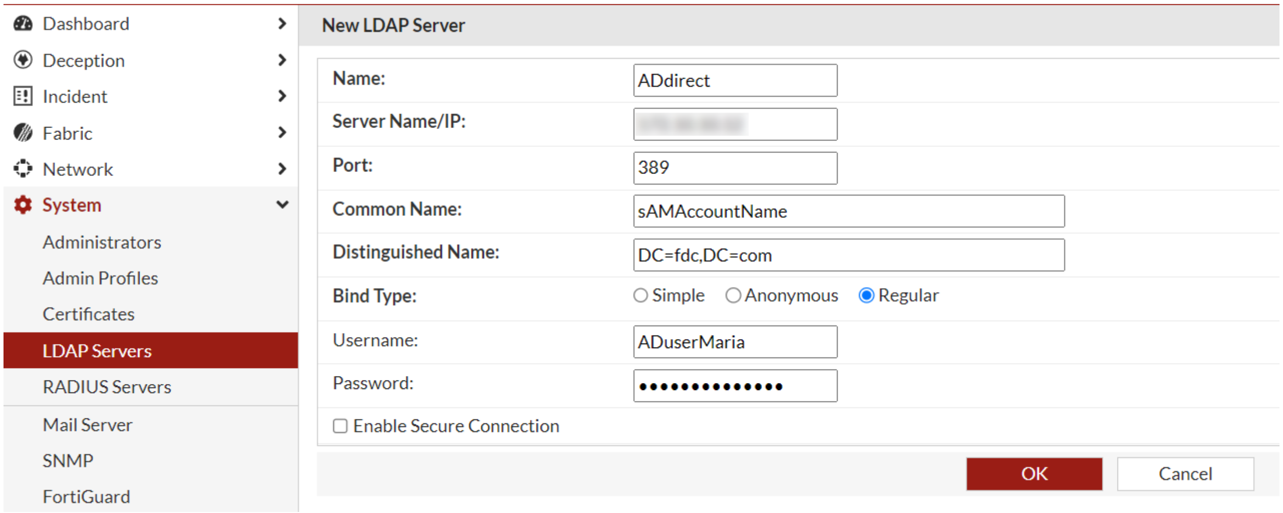
To configure an AD user as an administrator:

1. Configure the LDAP Server in FortiDeceptor.
2. Set the Active Directory user to be an administrator.

1. Configure the LDAP Server in FortiDeceptor

1. On the Active Directory server, enable LDAP signing.
2. Go to *System* > *LDAP Servers* and click *Create New*. The *New LDAP Server* page opens.
3. Configure the LDAP settings as follows:

Name	Enter a unique name for the LDAP server.
Server Name/IP	Enter the FQDN IP or address of the AD server.
Port	Enter the connection port of the LDAP server.
Common Name	Enter the name of the user identifier field on the LDAP server. In this example, *sAMAccountName*.
Distinguished Name	Enter the LDAP node where the user account entries can be found. In this example, *DC=fdc,DC=com*.
Bind Type	Select the binding type: • *Simple*: Bind using a simple password authentication without a search. • *Anonymous*: Bind using anonymous user search. • *Regular*: Bind using username/password and then search. Use simple authentication if the user records all fall under one distinguished name (DN). If the users are under more than one DN, use the anonymous or regular type, which can search the entire LDAP database for the required username. If the LDAP server requires authentication to perform searches, use the regular type and provide the *Username* and *Password*.
Username	Enter the LDAP server domain username.
Password	Enter the LDAP server domain password.
Enable Secure Connection	Enable or disable secure connection to the LDAP server.

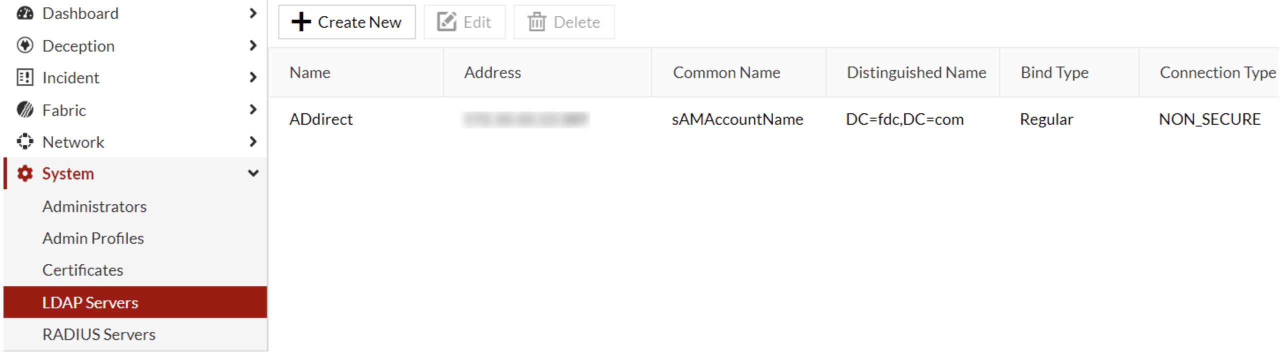


New LDAP Server

Name:	ADdirect
Server Name/IP:	[redacted]
Port:	389
Common Name:	sAMAccountName
Distinguished Name:	DC=fdc,DC=com
Bind Type:	○ Simple ○ Anonymous ● Regular
Username:	ADuserMaria
Password:	••••••••••••••

□ Enable Secure Connection

4. Click *OK*.

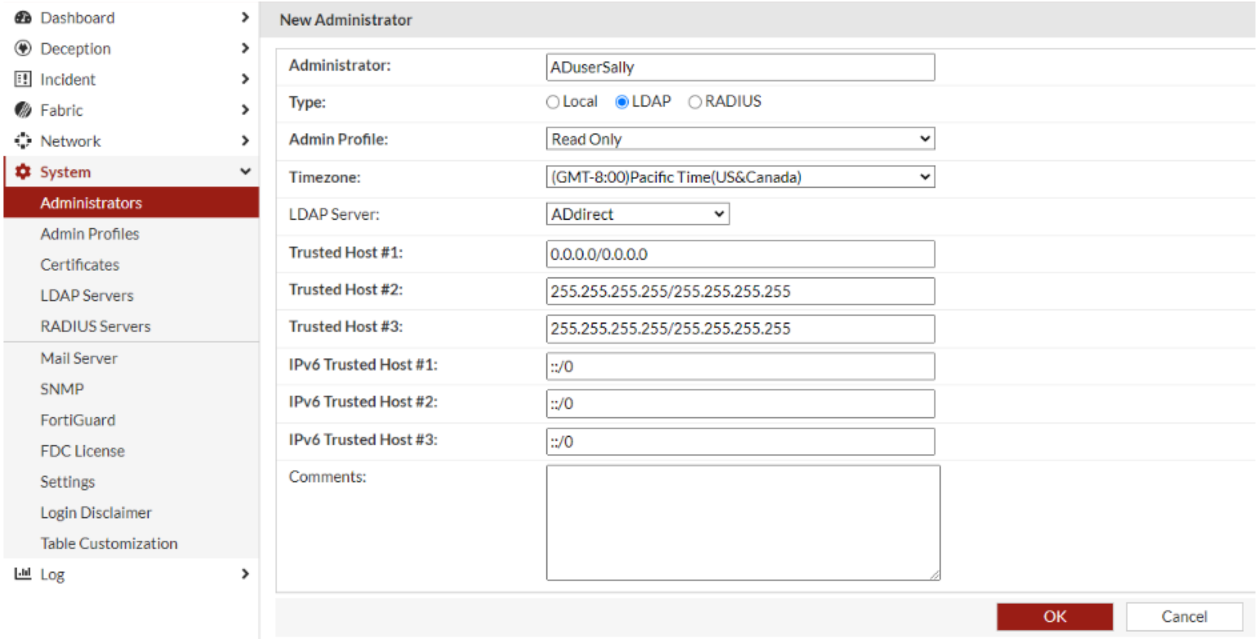


Name	Address	Common Name	Distinguished Name	Bind Type	Connection Type
ADdirect	[redacted]	sAMAccountName	DC=fdc,DC=com	Regular	NON_SECURE

2. Set the Active Directory user to be an administrator

1. Go to *System* > *Administrators* and click *Create New*. The *New Administrator* page opens.
2. Configure the administrator settings keeping the following considerations in mind:

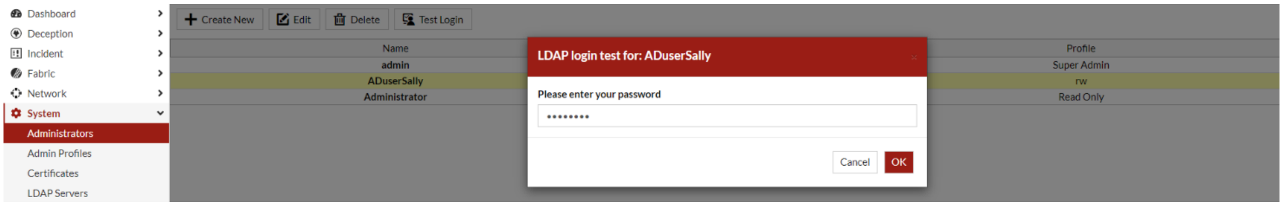
Type	Select *LDAP*.
LDAP Server	Select the LDAP server you created in Step 1.



New Administrator

Administrator:	ADuserSally
Type:	○ Local ● LDAP ○ RADIUS
Admin Profile:	Read Only
Timezone:	(GMT-8:00)Pacific Time(US&Canada)
LDAP Server:	ADirect
Trusted Host #1:	0.0.0.0/0.0.0.0
Trusted Host #2:	255.255.255.255/255.255.255.255
Trusted Host #3:	255.255.255.255/255.255.255.255
IPv6 Trusted Host #1:	::/0
IPv6 Trusted Host #2:	::/0
IPv6 Trusted Host #3:	::/0
Comments:	

3. Click *OK*.
4. (Optional)To test the user credentials, select the user you created, and click *Test Login*.



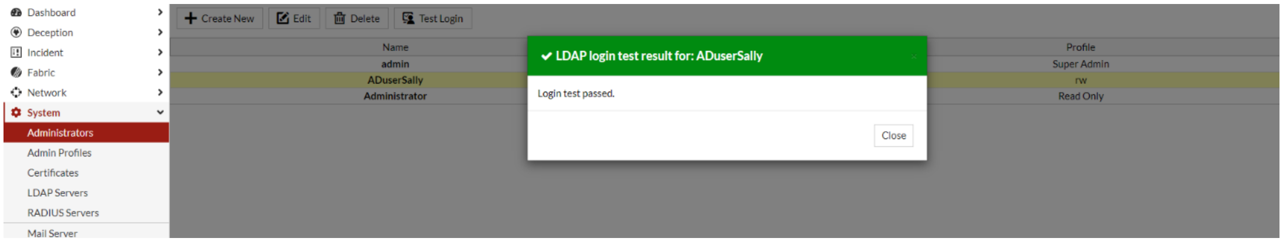
Name	Profile
admin	Super Admin
ADuserSally	rw
Administrator	Read Only

LDAP login test for: ADuserSally

Please enter your password

••••••••

Enter the password and click *OK*.

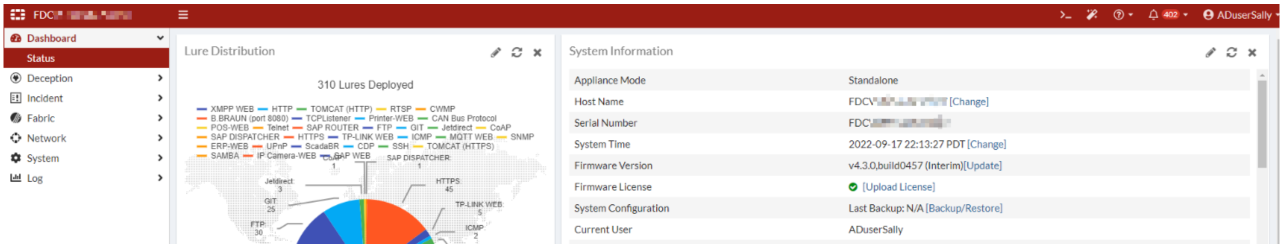


Name	Profile
admin	Super Admin
ADuserSally	rw
Administrator	Read Only

✔ LDAP login test result for: ADuserSally

Login test passed.

Use the Active Directory user account you created to log in to FortiDeceptor.



Appliance Mode	Standalone
Host Name	FDCV[redacted] [Change]
Serial Number	FDC[redacted]
System Time	2022-09-17 22:13:27 PDT [Change]
Firmware Version	v4.3.0,build0457 (Interim)[Update]
Firmware License	✓ [Upload License]
System Configuration	Last Backup: N/A [Backup/Restore]
Current User	ADuserSally

Import network users from the Active Director server for Decoy lure configuration

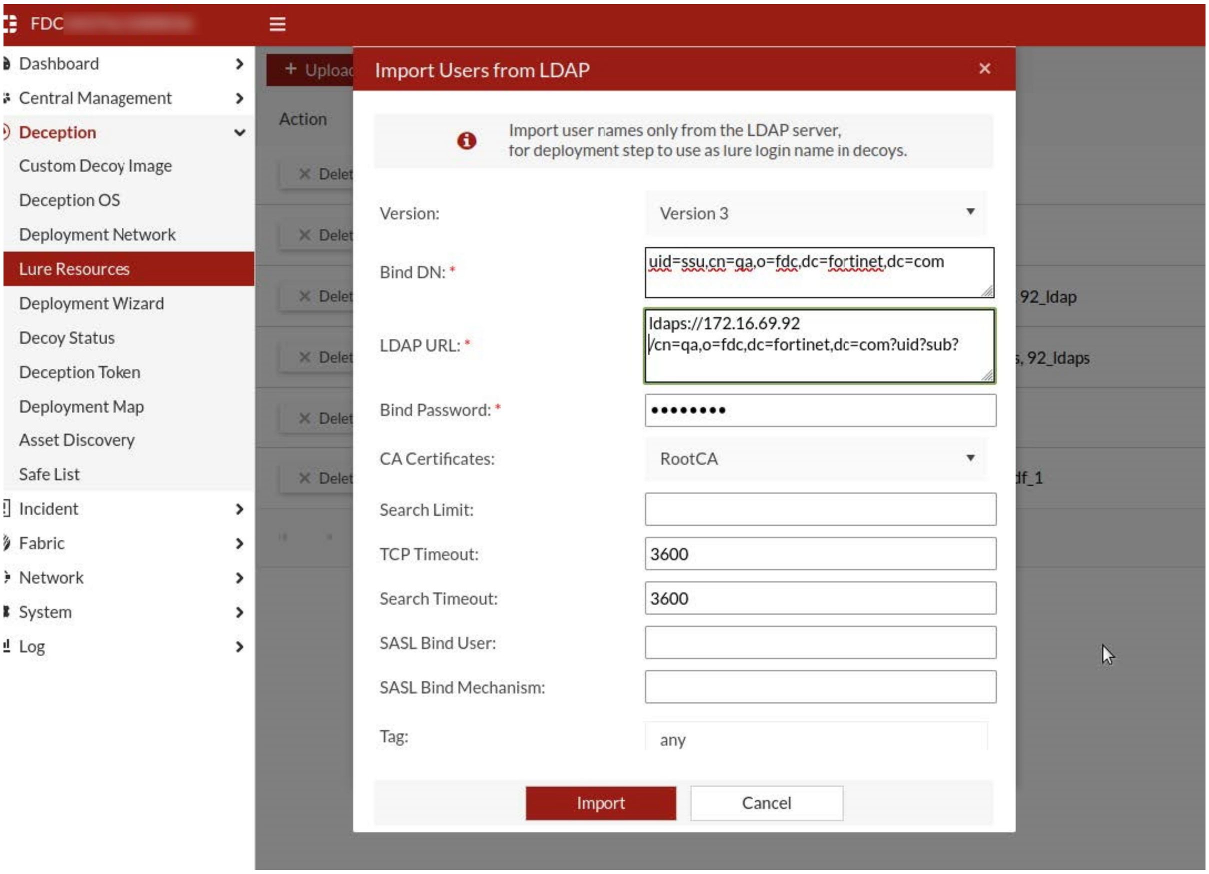
To Import the lure user from the Active Directory server:

1. In FortiDeceptor, go to *Deception* > *Lure Resources* and click *Import Users from LDAP*. The *Import Users from LDAP* dialog opens.
2. Configure the import and click *Import*. For more information, see Lure Resources on page 111.

Bind DN	Username used to connect to the LDAP service on the specified LDAP Server. For example: `uid=ssu.cn=qa.o=fdc.dc=fortinet.dc=com`

LDAP URL	Enter the LDAP URL using the following format:
	`[protocol///]host[:port][/basedn[?attribute,...][?scope][?filter]]`
	For example:
	`ldap://<ip_address>/cn=qa,o=fdc,dc=fortinet,dc=com?uid?sub?`

Bind Password	Enter the Bind DN's password.
CA Certificates	Select *RootCA*.



Import Users from LDAP

Import user names only from the LDAP server, for deployment step to use as lure login name in decoys.

Version: Version 3

Bind DN: * uid=ssu,cn=qa,o=fdc,dc=fortinet,dc=com

LDAP URL: * ldaps://172.16.69.92/cn=qa,o=fdc,dc=fortinet,dc=com?uid?sub?

Bind Password: * ••••••••

CA Certificates: RootCA

Search Limit:

TCP Timeout: 3600

Search Timeout: 3600

SASL Bind User:

SASL Bind Mechanism:

Tag: any

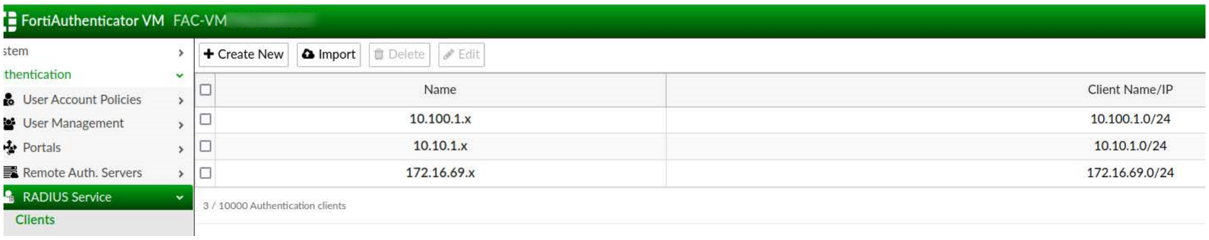
MFA (RADIUS) configuration

To integrate the RADIUS service with FortiDeceptor:

1. Configure FortiAuthenticator on the RADIUS server side.
2. Configure the RADIUS user on FortiDeceptor.

1. Configure FortiAuthenticator on the RADIUS server side

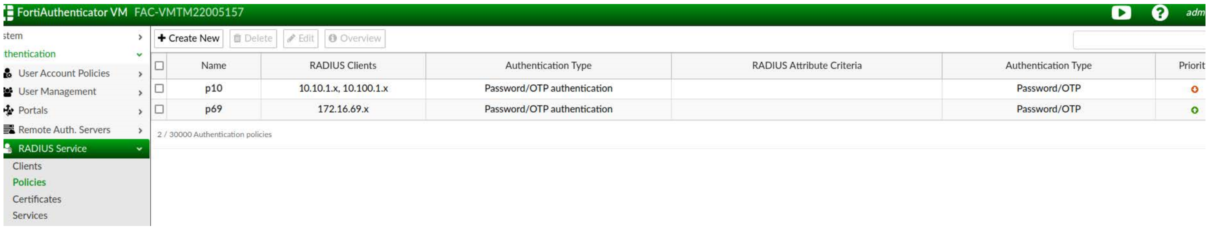
1. Add the radius clients for remote RADIUS service access.
   a. In FortiAuthenticator, go to *Authentication* > *RADIUS Service* > *Clients*, and click *Create New*. The *Create New Authentication Client* window opens.
   b. Configure the client service settings. For information, see *Clients > To configure a RADIUS client* in the *FortiAuthenticator Administration Guide*.
   c. Click *OK*.



☐	Name	Client Name/IP
☐	10.100.1.x	10.100.1.0/24
☐	10.10.1.x	10.10.1.0/24
☐	172.16.69.x	172.16.69.0/24

3 / 10000 Authentication clients

2. Create a radius policy for the radius client you created.
   a. Go to *Authentication* > *RADIUS Service* > *Policies*, and click *Create New*. The *RADIUS Policy Creation Wizard* opens.

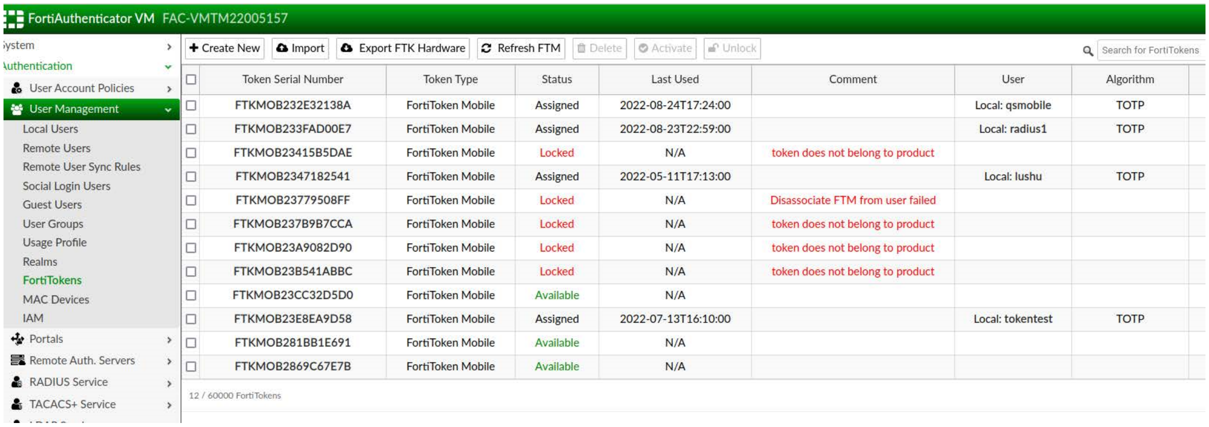


☐	Name	RADIUS Clients	Authentication Type	RADIUS Attribute Criteria	Authentication Type	Priorit
☐	p10	10.10.1.x, 10.100.1.x	Password/OTP authentication		Password/OTP	
☐	p69	172.16.69.x	Password/OTP authentication		Password/OTP	

2 / 30000 Authentication policies

   b. Follow the steps in the wizard to configure the policy. For information, see *Policies > To configure a RADIUS policy* in the *FortiAuthenticator Administration Guide*.
   c. Click *OK*.

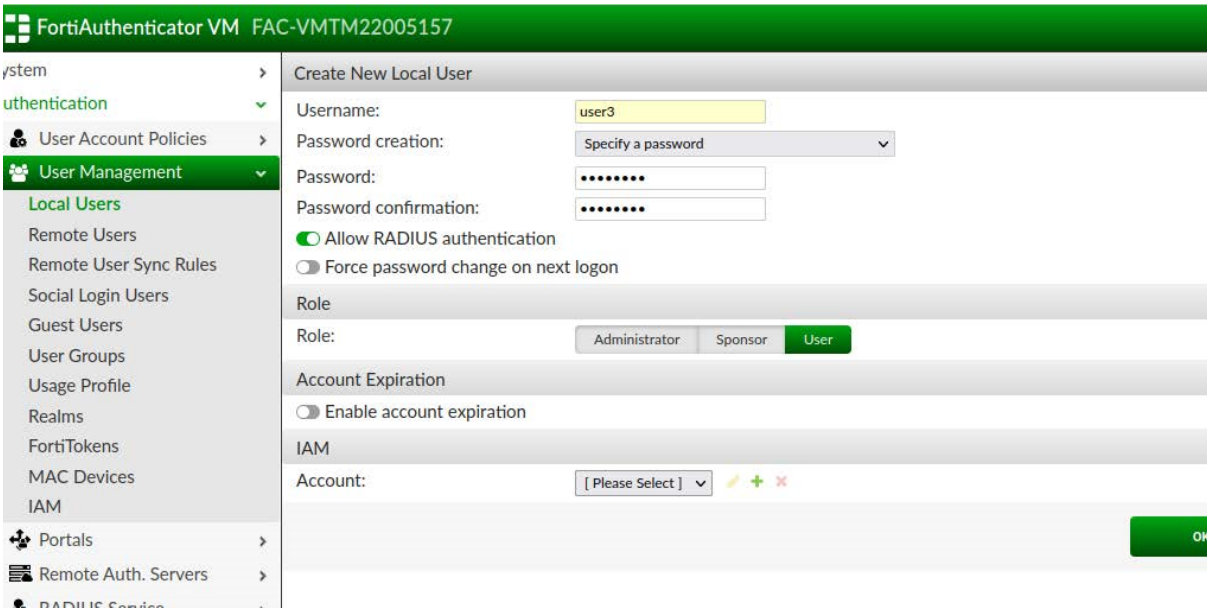
3. (Optional) Create or import a FortiToken.
   a. In FortiAuthenticator, go to *Authentication > User Management > FortiTokens* and click *Create New*.



□	Token Serial Number	Token Type	Status	Last Used	Comment	User	Algorithm
□	FTKMOB232E32138A	FortiToken Mobile	Assigned	2022-08-24T17:24:00		Local: qsmobile	TOTP
□	FTKMOB233FAD00E7	FortiToken Mobile	Assigned	2022-08-23T22:59:00		Local: radius1	TOTP
□	FTKMOB23415B5DAE	FortiToken Mobile	Locked	N/A	token does not belong to product		
□	FTKMOB2347182541	FortiToken Mobile	Assigned	2022-05-11T17:13:00		Local: lushu	TOTP
□	FTKMOB23779508FF	FortiToken Mobile	Locked	N/A	Disassociate FTM from user failed		
□	FTKMOB237B9B7CCA	FortiToken Mobile	Locked	N/A	token does not belong to product		
□	FTKMOB23A9082D90	FortiToken Mobile	Locked	N/A	token does not belong to product		
□	FTKMOB23B541ABBC	FortiToken Mobile	Locked	N/A	token does not belong to product		
□	FTKMOB23CC32D5D0	FortiToken Mobile	Available	N/A			
□	FTKMOB23E8EA9D58	FortiToken Mobile	Assigned	2022-07-13T16:10:00		Local: tokentest	TOTP
□	FTKMOB281BB1E691	FortiToken Mobile	Available	N/A			
□	FTKMOB2869C67E7B	FortiToken Mobile	Available	N/A			

12 / 60000 FortiTokens

4. Create a local user.
   a. Go to *Authentication > Local Users* and click *Create New*.
   b. Configure the user settings and click *OK*.



Create New Local User

Username: user3

Password creation: Specify a password

Password: ••••••••

Password confirmation: ••••••••

● Allow RADIUS authentication

○ Force password change on next logon

Role

Role: User

Account Expiration

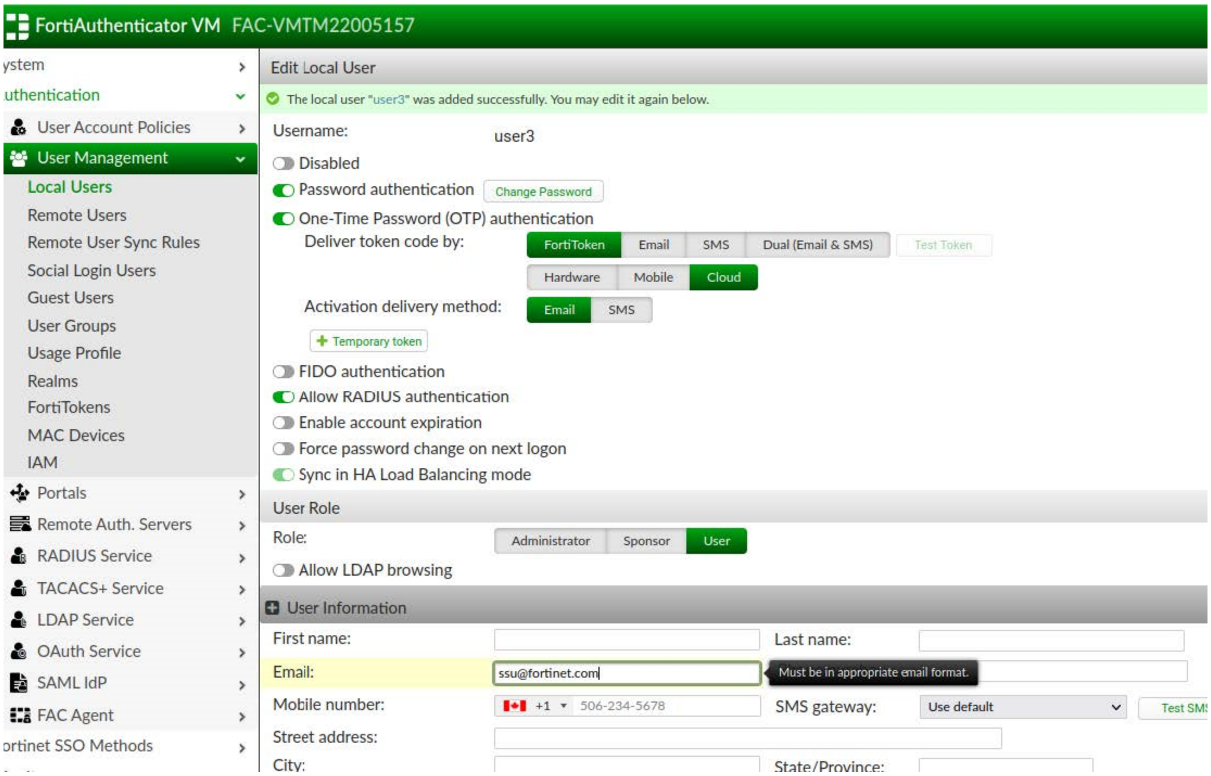
○ Enable account expiration

IAM

Account: [Please Select]

c. After the user is created, enable OTP with FortiToken for this local user.

One-Time Password (OTP authentication	Enable.
Deliver token by	FortiToken



The local user "user3" was added successfully. You may edit it again below.

Username: user3

Disabled

Password authentication

One-Time Password (OTP) authentication

Deliver token code by: [✓ FortiToken] Email SMS Dual (Email & SMS)

Hardware Mobile [✓ Cloud]

Activation delivery method: [✓ Email] SMS

FIDO authentication

Allow RADIUS authentication

Enable account expiration

Force password change on next logon

Sync in HA Load Balancing mode

Role: Administrator Sponsor [✓ User]

Allow LDAP browsing

First name:

Last name:

Email: ssu@fortinet.com

Must be in appropriate email format.

Mobile number: +1 506-234-5678

SMS gateway: Use default

Street address:

City:

State/Province:

5. Activate the FortiToken for this user via an email link.

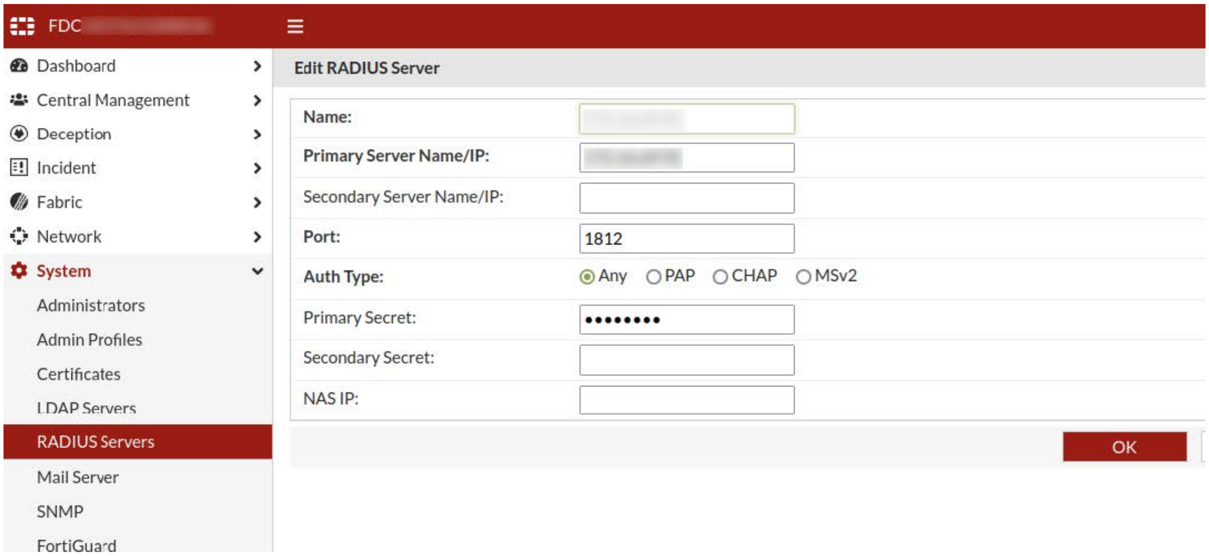
2. Configure the RADIUS user on FortiDeceptor

1. Add the RADIUS server.

a. In FortiDeceptor, go to *System* > *RADIUS*.

b. Configure the server settings and click *OK*.

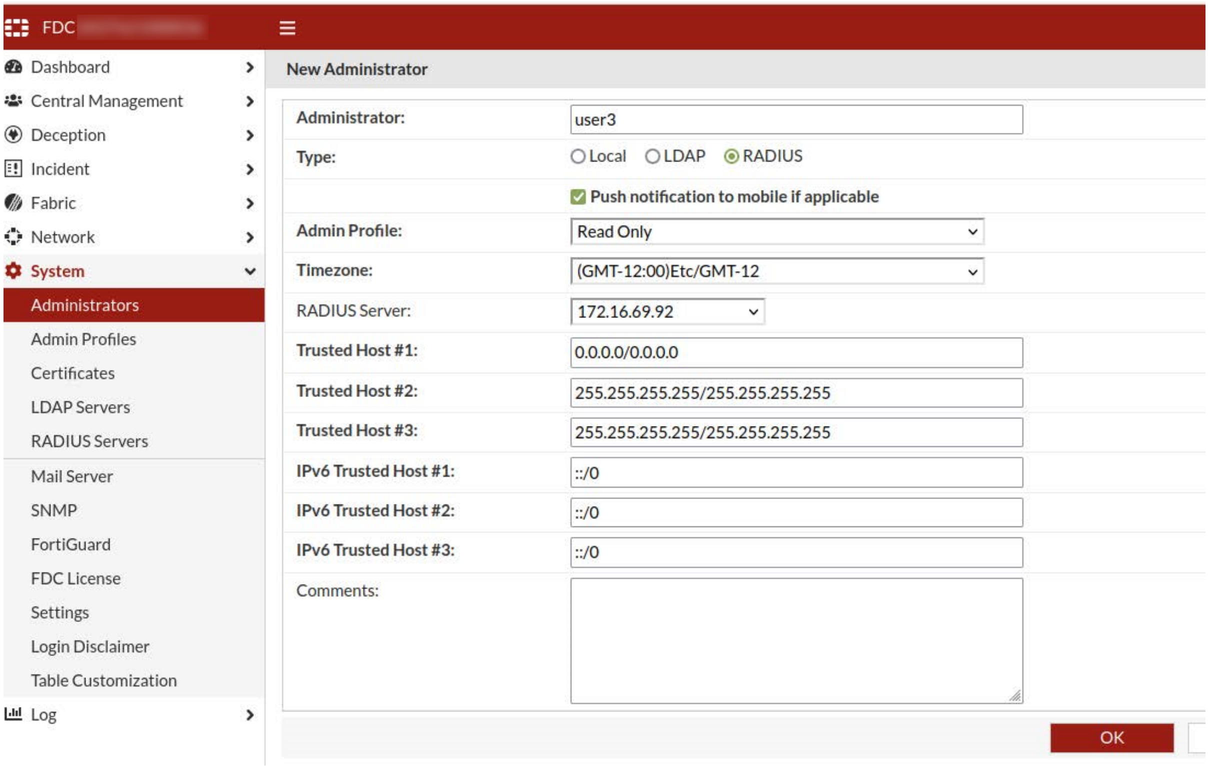
We recommend enabling *Push notification to mobile of applicable* to allow users to authorize the login with a mobile device.



Edit RADIUS Server

Name:	[redacted]
Primary Server Name/IP:	[redacted]
Secondary Server Name/IP:	
Port:	1812
Auth Type:	● Any ○ PAP ○ CHAP ○ MSv2
Primary Secret:	••••••••
Secondary Secret:	
NAS IP:	

2. Add the local user you created in FortiAuthenticator.
   a. Go to *System* > *Administrators* and click *Create New*.
   b. Configure the *Administrator* settings and click *OK*.



New Administrator

Administrator:	user3
Type:	○ Local ○ LDAP ● RADIUS
	☑ Push notification to mobile if applicable
Admin Profile:	Read Only
Timezone:	(GMT-12:00)Etc/GMT-12
RADIUS Server:	172.16.69.92
Trusted Host #1:	0.0.0.0/0.0.0.0
Trusted Host #2:	255.255.255.255/255.255.255.255
Trusted Host #3:	255.255.255.255/255.255.255.255
IPv6 Trusted Host #1:	::/0
IPv6 Trusted Host #2:	::/0
IPv6 Trusted Host #3:	::/0
Comments:	

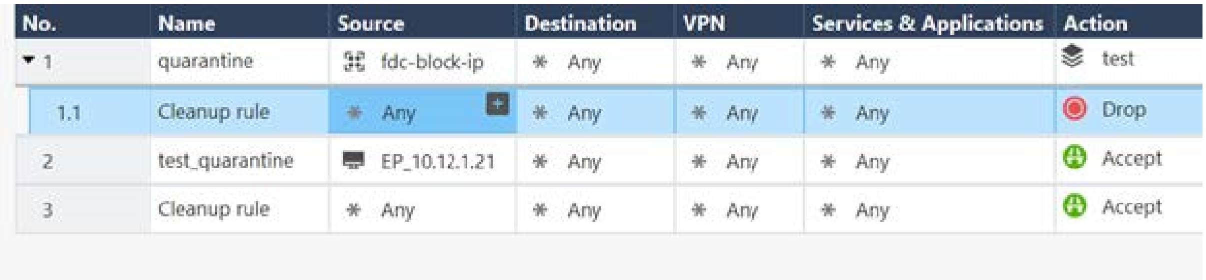
   c. Click *Test Login* to verify the credentials.

Integrate with Checkpoint Firewall

All the configurations for CheckPoint Firewall are done with the SmartConsole.

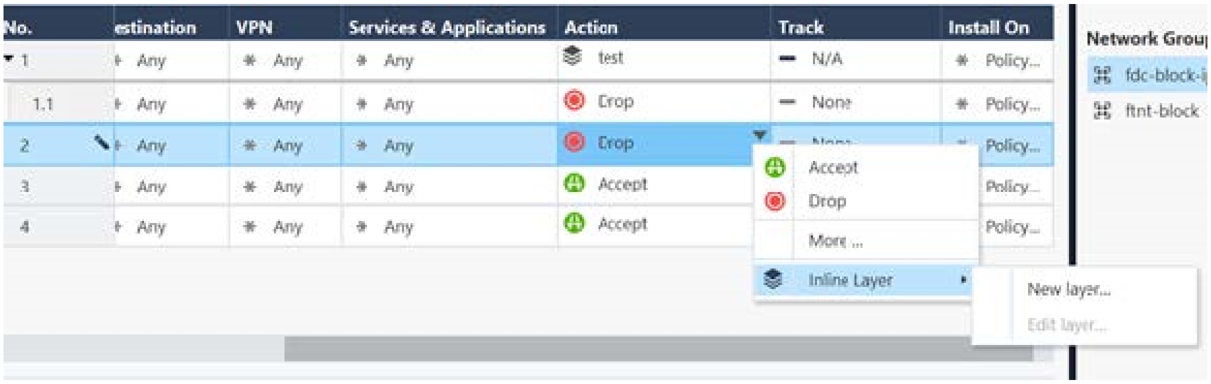
1. Configure the REST API permissions.

1. Open the SmartConsole and go to *Management API* and click *Advanced Settings* > *All IP addresses*.
2. Click *Publish*.
3. Use SSH to log in to the manager server, then type `api restart`.
4. Create a domain object named `.quarantine.com`.
5. Create a network group object named `fdc-block-ip`.
6. Add the domain object named `.quarantine.com` to the network group object named `fdc-block-ip`.
7. Create a new policy rule.
   a. Create a new policy rule named `quarantine`.
   b. Set the policy *Source* to *fdc-block-ip*.
   c. Set `Destination` to *Any*.



No.	Name	Source	Destination	VPN	Services & Applications	Action
▾ 1	quarantine	fdc-block-ip	Any	Any	Any	test
1.1	Cleanup rule	Any	Any	Any	Any	Drop
2	test_quarantine	EP_10.12.1.21	Any	Any	Any	Accept
3	Cleanup rule	Any	Any	Any	Any	Accept

   d. Set *Action* to *Inline Layer* > *New Layer*. Give the layer a name such as `Cleanup Rule` and click *OK*.



No.	estination	VPN	Services & Applications	Action	Track	Install On
▾ 1	Any	Any	Any	test	N/A	Policy...
1.1	Any	Any	Any	Drop	None	Policy...
2	Any	Any	Any	Drop	None	Policy...
3	Any	Any	Any	Accept		Policy...
4	Any	Any	Any	Accept		Policy...

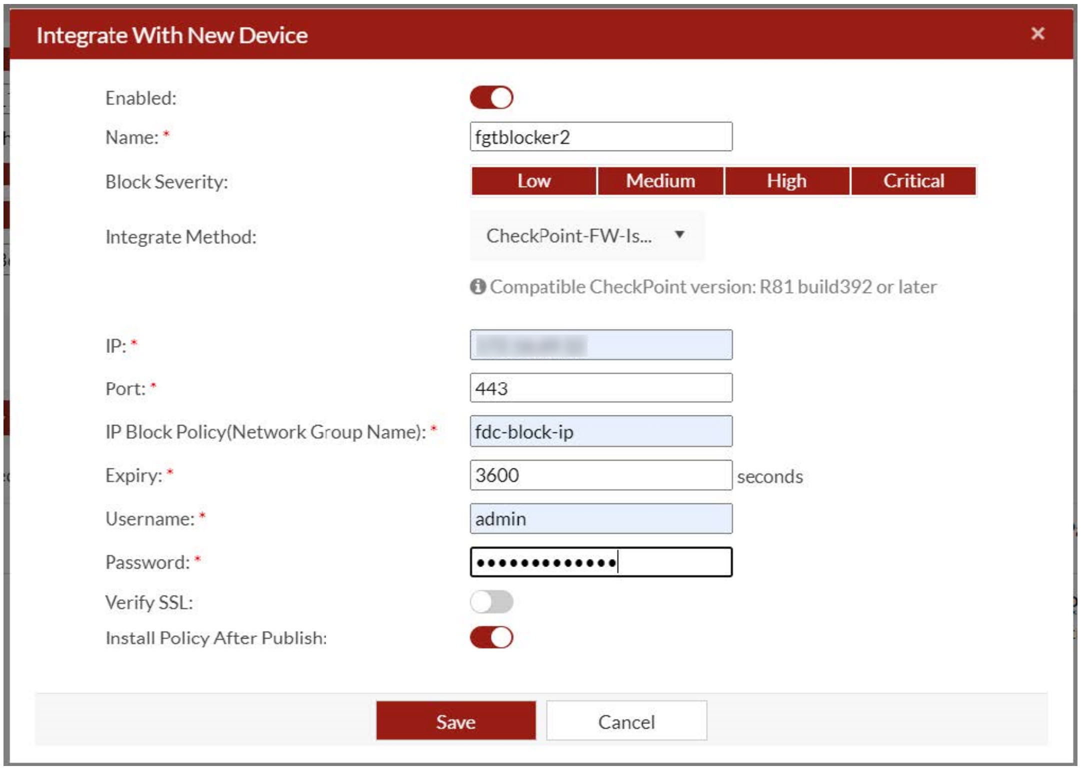
   e. Set *Action* to *Drop*.
   f. You can use the default settings for the other fields.
8. (Optional) Make the CheckPoint Fire Wall pingable.
   a. Log in to the SmartConsole.
   b. Go to *Global Properties* and enable *Accept ICMP requests*.
   c. Install the policy.

2. Configure FortiDeceptor

1. On FortiDeceptor go to *Fabric* > *Quarantine Integration*, and click +*Quarantine Integration with New Device*.
2. Configure the new device based on the following recommendations and click *Save*.

Integrate Method	Select *CheckPoint-FW-Isolation*.

IP Block Policy (network Group Name)	Enter the group object name you created (`fdc-block-ip`).
Username	Enter the Username for the management account in CheckPoint Fire Wall. You can create new admin with API permissions or use `Admin`.
Password	Enter the Password for the management account in CheckPoint Fire Wall.
Verify SSL	Disable.
Install Policy After Publish	Enable.



Integrate With New Device

Enabled:	● (on)
Name: *	fgtblocker2
Block Severity:	Low / Medium / High / Critical
Integrate Method:	CheckPoint-FW-Is... ▼
	Compatible CheckPoint version: R81 build392 or later
IP: *	[redacted]
Port: *	443
IP Block Policy(Network Group Name): *	fdc-block-ip
Expiry: *	3600 seconds
Username: *	admin
Password: *	•••••••••••••
Verify SSL:	○ (off)
Install Policy After Publish:	● (on)

Integration with Crowdstrike

1. Configure CrowdStrike

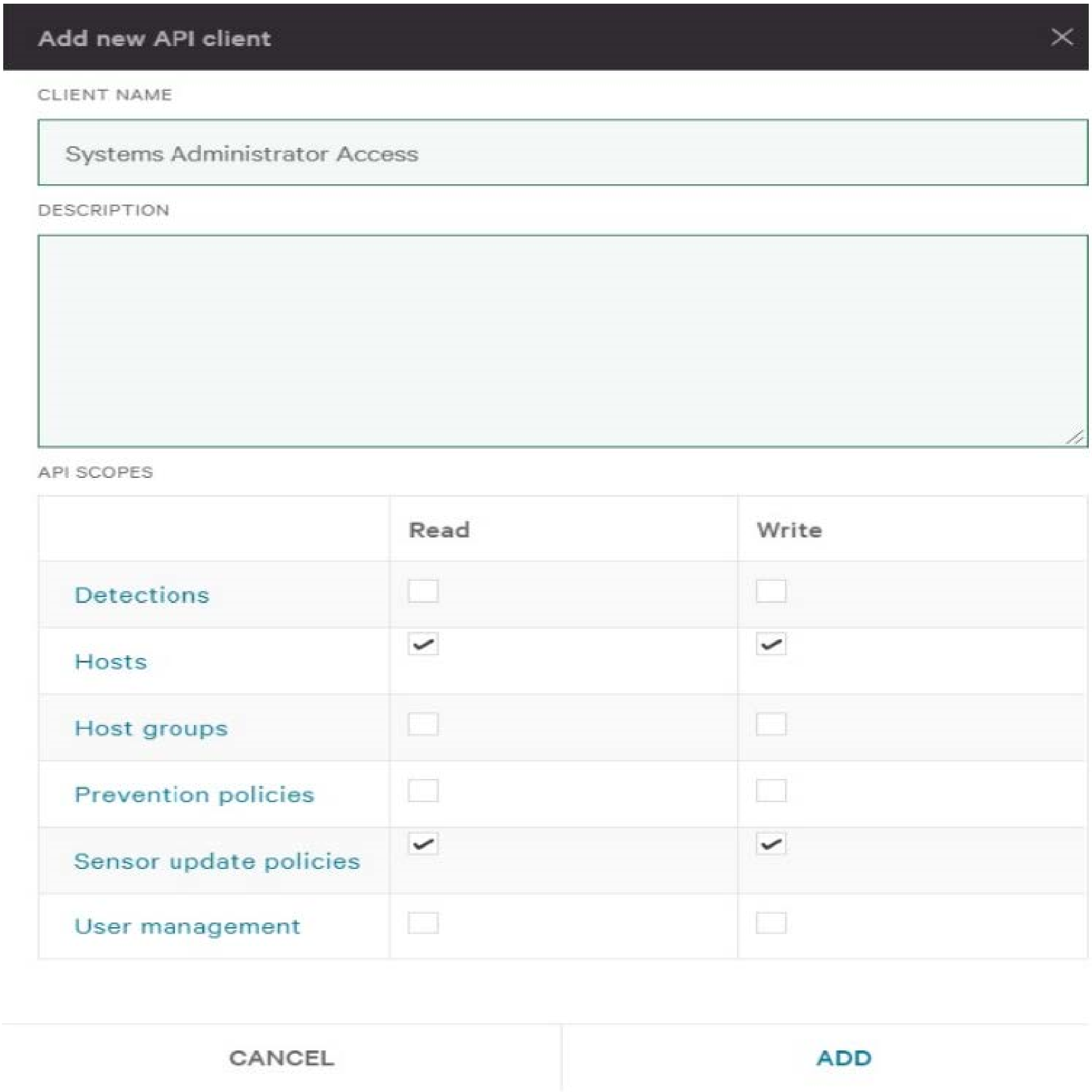
OAuth2 will be used for authentication of the incoming REST API requests.

1.1 REST API Permission

To define a CrowdStrike API client, you must be designated as the Falcon Administrator role to view, create, or modify API clients or keys. Secrets are only shown when a new API Client is created or when it is reset.

1.2 Create client ID and client secret

1. Log in to the Falcon UI.
2. Go to *Support* > *API Clients and Keys* to view existing clients, add new API clients, or view the audit log.
3. Click *Add new API Client*. You will be prompted to provide a descriptive name and select the appropriate API scopes.
4. Click *Save*. You will be presented with the *Client ID* and *Client Secret*. The secret will only be shown once and should be stored in a secure place. If the *Client Secret* is lost, a reset must be performed and any applications relying on the Client Secret will need to be updated with the new credentials.



Add new API client

CLIENT NAME

Systems Administrator Access

DESCRIPTION

API SCOPES

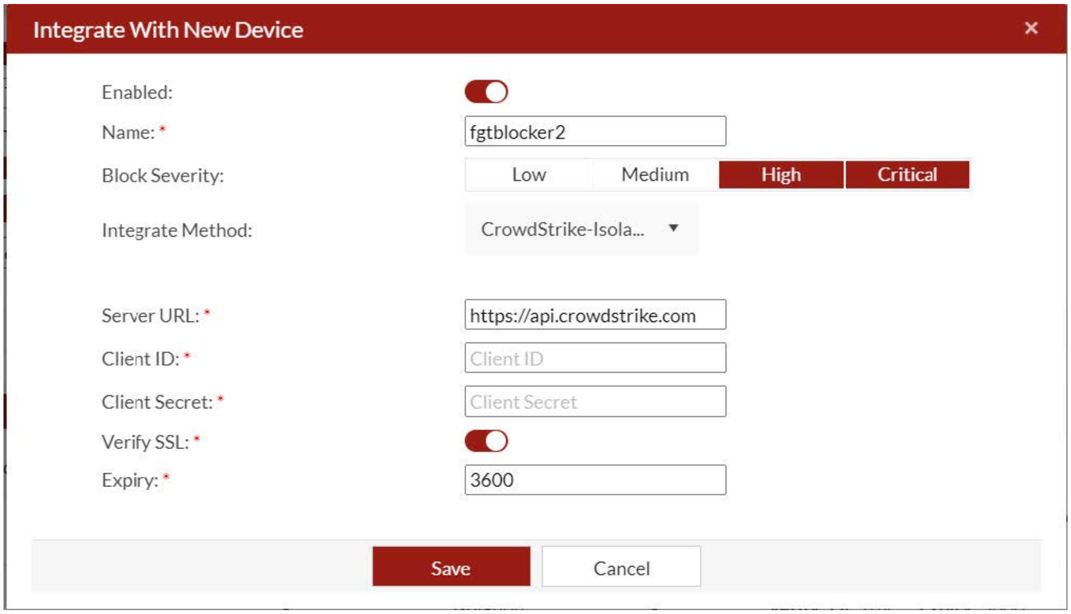
	Read	Write
Detections	□	□
Hosts	☑	☑
Host groups	□	□
Prevention policies	□	□
Sensor update policies	☑	☑
User management	□	□

2. Configure FortiDeceptor

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration*.
2. Click + *Quarantine Integration with new device*. The *Integrate With New Device* window opens.
3. Configure the integration settings.

Name	Enter the Quarantine Integration name.
Integrate Method	Select *CrowdStrike-Isolation* from the dropdown list.

Server URL	Set the server URL
Client ID	Enter the Client ID.
Client Secret	Enter the Client Secret.



Integrate With New Device

Enabled: ●

Name: * fgtblocker2

Block Severity: Low | Medium | [✓ High] | [✓ Critical]

Integrate Method: CrowdStrike-Isola... ▾

Server URL: * https://api.crowdstrike.com

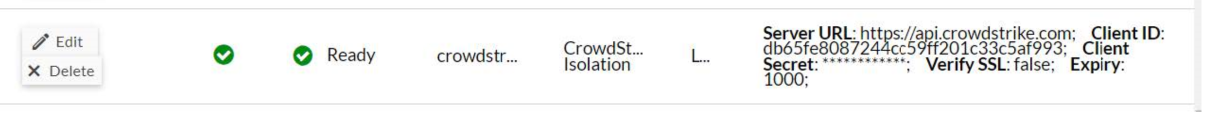
Client ID: * Client ID

Client Secret: * Client Secret

Verify SSL: * ●

Expiry: * 3600

4. Click *Save*.
5. Confirm the status is *Ready*.



✓ Ready crowdstr... CrowdSt... Isolation L... **Server URL**: https://api.crowdstrike.com; **Client ID**: db65fe8087244cc59ff201c33c5af993; **Client Secret**: *************; **Verify SSL**: false; **Expiry**: 1000;

Integrate with Cuckoo Sandbox

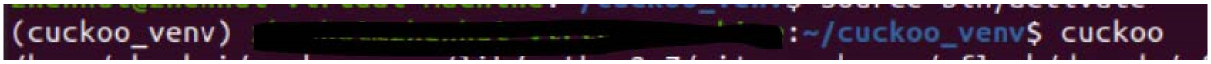
1. Configure Cuckoo Sandbox

For information about installing Cuckoo Sandbox, please see the product documentation.

1.1 Start Cuckoo Sandbox

Before starting Cuckoo Sandbox, ensure the guest machine (for example, Win 7 running in VirtualBox) has started. To start Cuckoo, use the command `cuckoo_venv`.

In this example, cuckoo is installed in the Python virtual environment. In this case, you will need to activate the virtual environment first.

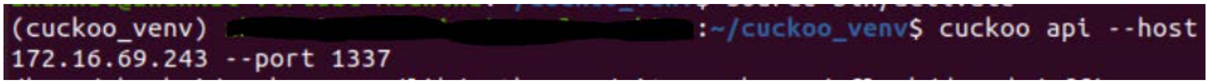


```
(cuckoo_venv) [redacted]:~/cuckoo_venv$ cuckoo
```

1.2 Start cuckoo API server

To start the Cuckoo API server, use the following command:

```
cuckoo api --host 172.16.69.243 --port 1337
```



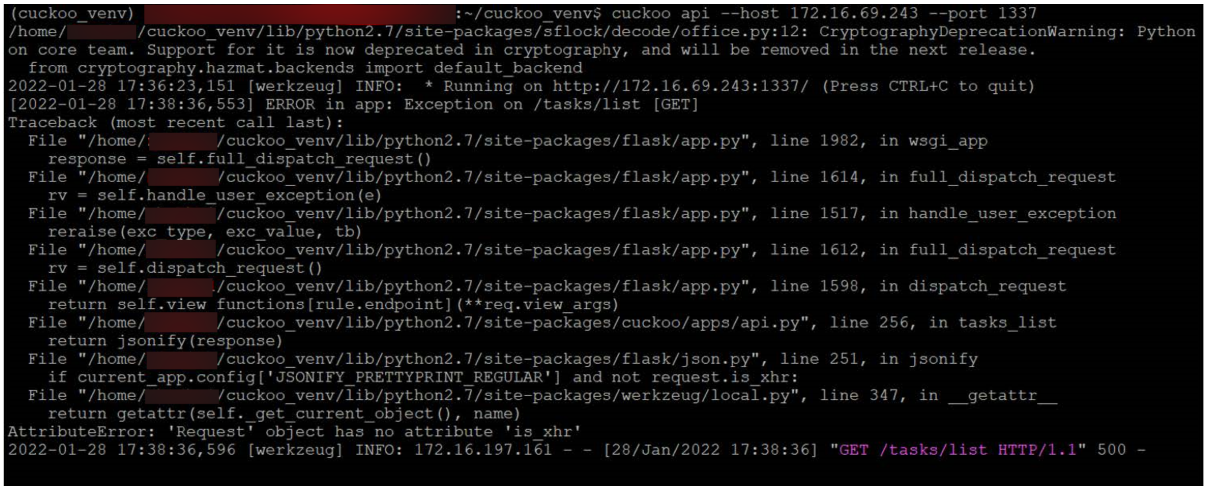
```
(cuckoo_venv) [redacted]:~/cuckoo_venv$ cuckoo api --host
172.16.69.243 --port 1337
```

To access to the API, the `api_token` can be found in `<cwd>/conf/cuckoo.cfg`.

Troubleshooting:

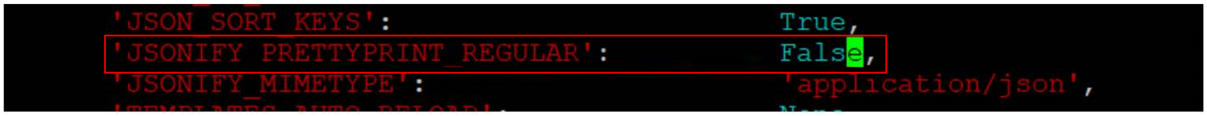
If you see the following attribute error when requesting the API:

```
AttributeError: 'Request' object has no attribute 'is_xhr'
```



```
(cuckoo_venv) [redacted]:~/cuckoo_venv$ cuckoo api --host 172.16.69.243 --port 1337
/home/[redacted]/cuckoo_venv/lib/python2.7/site-packages/sflock/decode/office.py:12: CryptographyDeprecationWarning: Python
on core team. Support for it is now deprecated in cryptography, and will be removed in the next release.
  from cryptography.hazmat.backends import default_backend
2022-01-28 17:36:23,151 [werkzeug] INFO:  * Running on http://172.16.69.243:1337/ (Press CTRL+C to quit)
[2022-01-28 17:38:36,553] ERROR in app: Exception on /tasks/list [GET]
Traceback (most recent call last):
  File "/home/[redacted]/cuckoo_venv/lib/python2.7/site-packages/flask/app.py", line 1982, in wsgi_app
    response = self.full_dispatch_request()
  File "/home/[redacted]/cuckoo_venv/lib/python2.7/site-packages/flask/app.py", line 1614, in full_dispatch_request
    rv = self.handle_user_exception(e)
  File "/home/[redacted]/cuckoo_venv/lib/python2.7/site-packages/flask/app.py", line 1517, in handle_user_exception
    reraise(exc_type, exc_value, tb)
  File "/home/[redacted]/cuckoo_venv/lib/python2.7/site-packages/flask/app.py", line 1612, in full_dispatch_request
    rv = self.dispatch_request()
  File "/home/[redacted]/cuckoo_venv/lib/python2.7/site-packages/flask/app.py", line 1598, in dispatch_request
    return self.view_functions[rule.endpoint](**req.view_args)
  File "/home/[redacted]/cuckoo_venv/lib/python2.7/site-packages/cuckoo/apps/api.py", line 256, in tasks_list
    return jsonify(response)
  File "/home/[redacted]/cuckoo_venv/lib/python2.7/site-packages/flask/json.py", line 251, in jsonify
    if current_app.config['JSONIFY_PRETTYPRINT_REGULAR'] and not request.is_xhr:
  File "/home/[redacted]/cuckoo_venv/lib/python2.7/site-packages/werkzeug/local.py", line 347, in __getattr__
    return getattr(self._get_current_object(), name)
AttributeError: 'Request' object has no attribute 'is_xhr'
2022-01-28 17:38:36,596 [werkzeug] INFO: 172.16.197.161 - - [28/Jan/2022 17:38:36] "GET /tasks/list HTTP/1.1" 500 -
```

Open `/flask/app.py` and set `JSONIFY_PRETTYPRINT_REGULAR` to `False`.



```
        'JSON_SORT_KEYS':                         True,
        'JSONIFY_PRETTYPRINT_REGULAR':            False,
        'JSONIFY_MIMETYPE':                       'application/json',
```

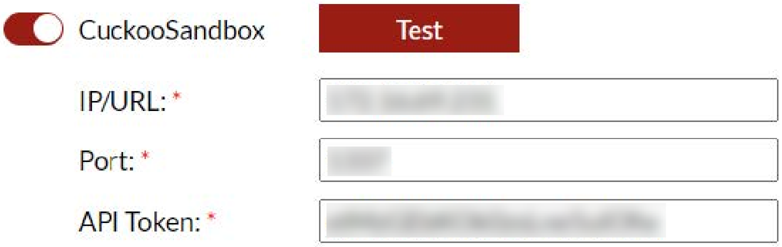
The `request.is_xhr property` was deprecated since Werkzeug 0.13 and removed in Werkzeug 1.0.0. As a result, this error will occur when using Flask <= 0.12.4 and Werkzeug >=1.0.0 because Flask uses this property in the source before the 1.0.0 version.

2. Configure FortiDeceptor to integrate with Cuckoo Sandbox

1. In FortiDeceptor go to *Fabric > Detection Devices*.
2. Enable *Cuckoo Sandbox*.

3. Configure Cuckoo Sandbox.

IP/URL	Set the IP the based on the command in step 1.2 Start cuckoo API server.
Port	Set the Port the based on the command in step 1.2 Start cuckoo API server.
API Token	API token information can be found on `<cwd>/conf/cuckoo.cfg`.

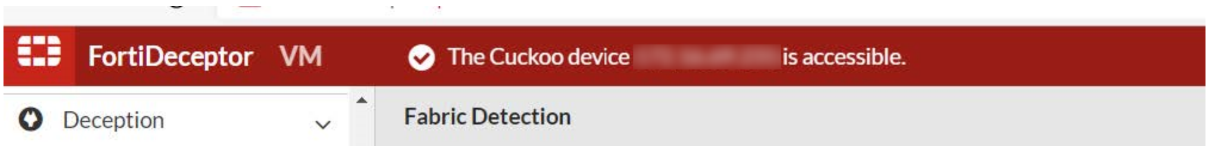


IP/URL: * [redacted]

Port: * [redacted]

API Token: * [redacted]

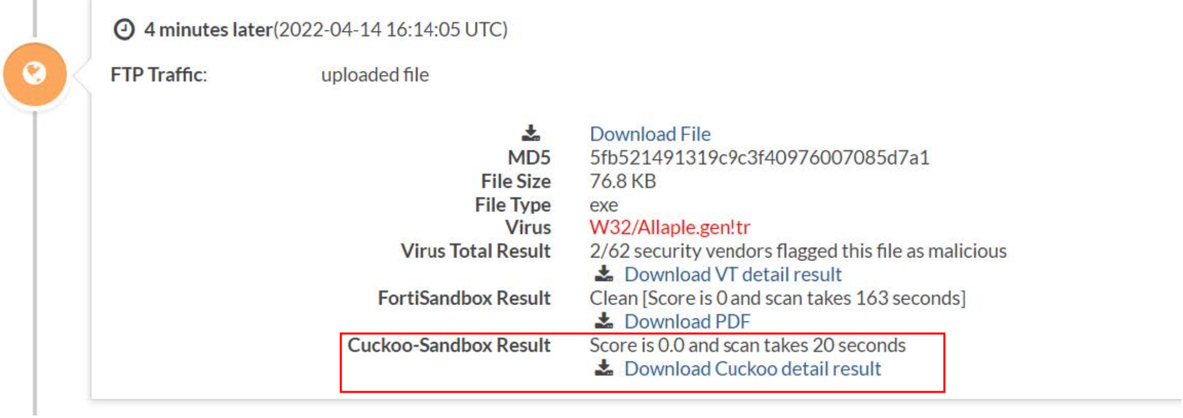
4. Click *Test*. You should see *The Cuckoo device <IP> is accessible*".



The Cuckoo device [redacted] is accessible.

3. Verify the detection result from Cuckoo Sandbox

1. Copy a file from any endpoint to the decoy using SMB/FTP protocol and verify that the file is captured and analyzed by the Cuckoo sandbox.
2. To verify the result in FortiDeceptor:
   a. Go to *Incident > Analysis*.
   b. Expand the incident and verify *Cuckoo-Sandbox Result* is displayed.

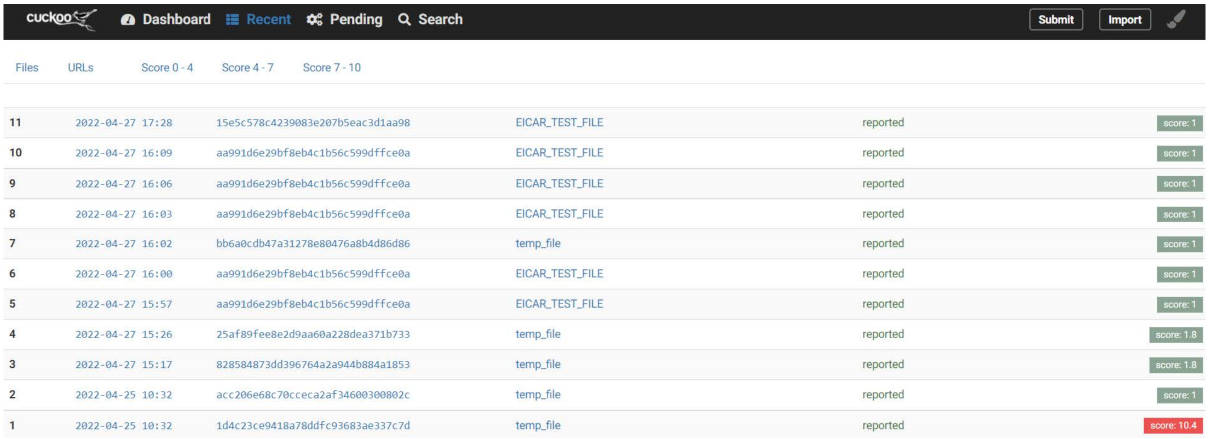


4 minutes later(2022-04-14 16:14:05 UTC)

FTP Traffic: uploaded file

	Download File
MD5	5fb521491319c9c3f40976007085d7a1
File Size	76.8 KB
File Type	exe
Virus	W32/Allaple.gen!tr
Virus Total Result	2/62 security vendors flagged this file as malicious Download VT detail result
FortiSandbox Result	Clean [Score is 0 and scan takes 163 seconds] Download PDF
Cuckoo-Sandbox Result	Score is 0.0 and scan takes 20 seconds Download Cuckoo detail result

3. To verify the result in Cuckoo Sandbox, go to *WebUI* > *Recent*. Open the Cuckoo report to verify result.



11	2022-04-27 17:28	15e5c578c4239083e207b5eac3d1aa98	EICAR_TEST_FILE	reported	score: 1
10	2022-04-27 16:09	aa991d6e29bf8eb4c1b56c599dffce0a	EICAR_TEST_FILE	reported	score: 1
9	2022-04-27 16:06	aa991d6e29bf8eb4c1b56c599dffce0a	EICAR_TEST_FILE	reported	score: 1
8	2022-04-27 16:03	aa991d6e29bf8eb4c1b56c599dffce0a	EICAR_TEST_FILE	reported	score: 1
7	2022-04-27 16:02	bb6a0cdb47a31278e80476a8b4d86d86	temp_file	reported	score: 1
6	2022-04-27 16:00	aa991d6e29bf8eb4c1b56c599dffce0a	EICAR_TEST_FILE	reported	score: 1
5	2022-04-27 15:57	aa991d6e29bf8eb4c1b56c599dffce0a	EICAR_TEST_FILE	reported	score: 1
4	2022-04-27 15:26	25af89fee8e2d9aa60a228dea371b733	temp_file	reported	score: 1.8
3	2022-04-27 15:17	828584873dd396764a2a944b884a1853	temp_file	reported	score: 1.8
2	2022-04-25 10:32	acc206e68c70cceca2af34600300802c	temp_file	reported	score: 1
1	2022-04-25 10:32	1d4c23ce9418a78ddfc93683ae337c7d	temp_file	reported	score: 10.4

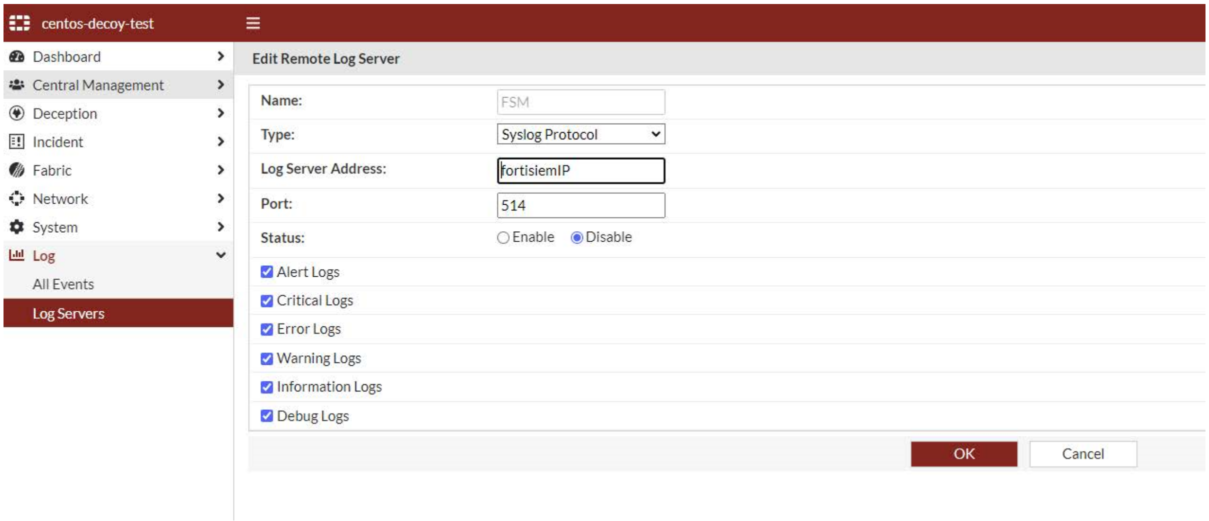
Integration with FortiSIEM

To integrate FortiDeceptor with FortiSIEM:

1. Configure FortiSIEM as a remote log server in FortiDeceptor
2. Change the discovered FortiDeceptor status from Pending to Approved
3. Check the logs and generate reports in FortiSIEM

1. Configure FortiSIEM as a remote log server in FortiDeceptor

1. In FortiDeceptor, go to *Log* > *Log Servers*.
2. Click *Create new*. The *New Remote Log Server* window opens.
3. Configure the *Log Server Address* for FortiSIEM and click *OK*. For more information, see Log Servers on page 199.



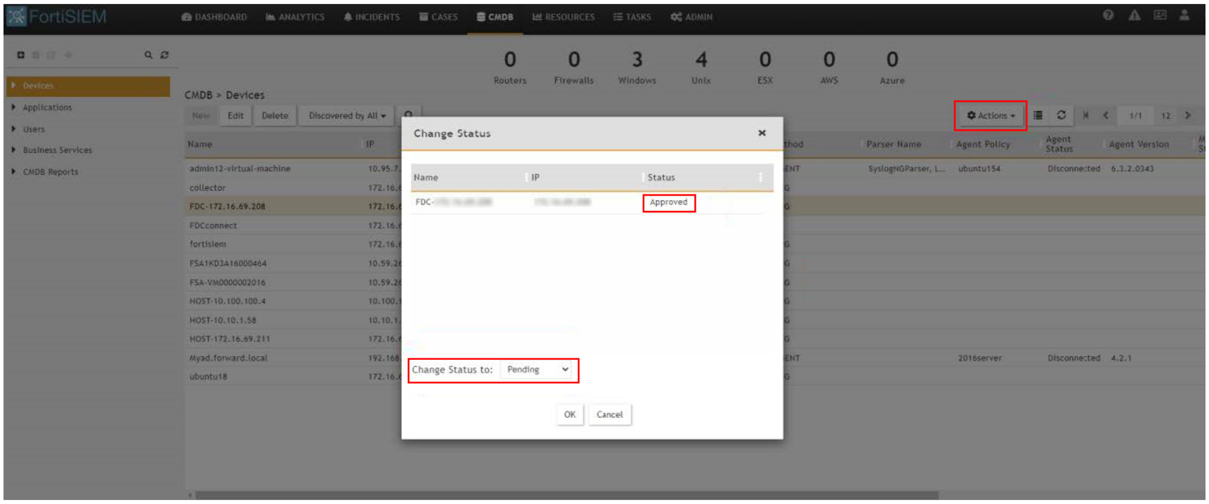
Edit Remote Log Server

Name:	FSM
Type:	Syslog Protocol
Log Server Address:	fortisiemIP
Port:	514
Status:	○ Enable ● Disable

☑ Alert Logs
☑ Critical Logs
☑ Error Logs
☑ Warning Logs
☑ Information Logs
☑ Debug Logs

2. Change the discovered FortiDeceptor status from Pending to Approved

1. In FortiSIEM go to *Devices* and select the FortiDeceptor device from the list.
2. Click the *Actions* dropdown and change the status from *Pending* to *Approved*.



0	0	3	4	0	0	0
Routers	Firewalls	Windows	Unix	ESX	AWS	Azure

CMDB > Devices

Name	IP	...thod	Parser Name	Agent Policy	Agent Status	Agent Version
admin12-virtual-machine	10.95.7.	ENT	SyslogNGParser, L...	ubuntu154	Disconnected	6.3.2.0343
collector	172.16.6	G				
FDC-172.16.69.208	172.16.6	G				
FDCconnect	172.16.6					
fortisiem	172.16.6	G				
FSA1KD3A16000464	10.59.26	G				
FSA-VM0000002016	10.59.26	G				
HOST-10.100.100.4	10.100.1	G				
HOST-10.10.1.58	10.10.1.	G				
HOST-172.16.69.211	172.16.6	G				
Myad.forward.local	192.168.	ENT		2016server	Disconnected	4.2.1
ubuntu18	172.16.6	G				

Change Status

Name	IP	Status
FDC-[redacted]	[redacted]	Approved

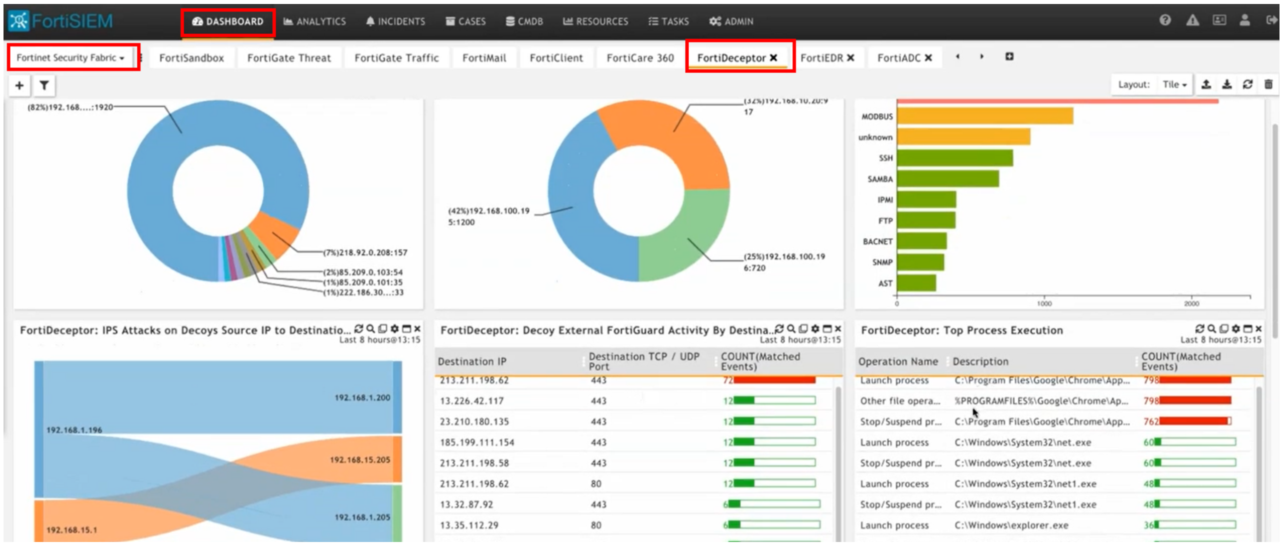
Change Status to: Pending

OK Cancel

3. Check the logs and generate reports in FortiSIEM

To see how FortiSIEM and FortiDeceptor integrations improve cyberthreat detection and increase visibility of potential attacks, watch this short video *FortiSIEM Demo: FortiSIEM and FortiDeceptor Integrations*

1. In FortiSIEM click the *DASHOBARD* tab, the *Fortinet Security Fabric* dashboard, and click the FortiDeceptor dashboard. The information received from FortiDeceptor is displayed. You can click on any widget to drill down on the information.



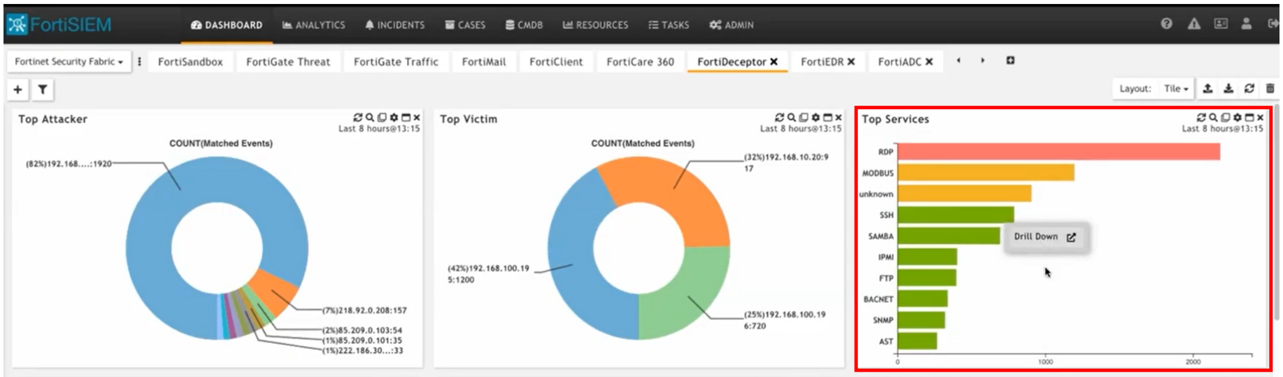
FortiDeceptor: Decoy External FortiGuard Activity By Destina...
Last 8 hours@13:15

Destination IP	Destination TCP / UDP Port	COUNT(Matched Events)
213.211.198.62	443	72
13.226.42.117	443	12
23.210.180.135	443	12
185.199.111.154	443	12
213.211.198.58	443	12
213.211.198.62	80	12
13.32.87.92	443	6
13.35.112.29	80	6

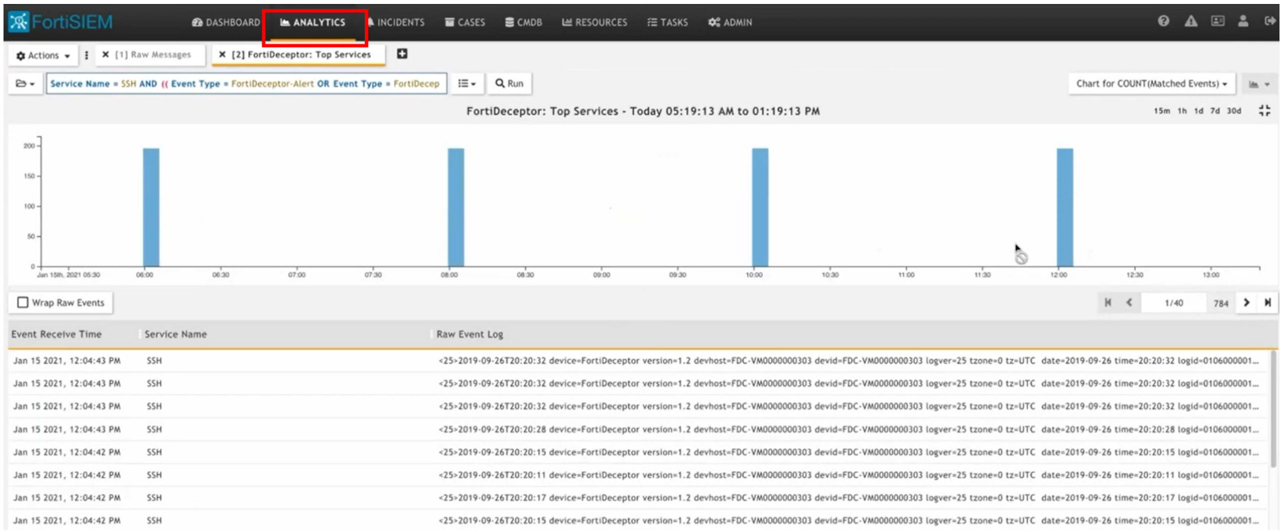
FortiDeceptor: Top Process Execution
Last 8 hours@13:15

Operation Name	Description	COUNT(Matched Events)
Launch process	C:\Program Files\Google\Chrome\App...	798
Other file opera...	%PROGRAMFILES%\Google\Chrome\Ap...	798
Stop/Suspend pr...	C:\Program Files\Google\Chrome\App...	762
Launch process	C:\Windows\System32\net.exe	60
Stop/Suspend pr...	C:\Windows\System32\net.exe	60
Launch process	C:\Windows\System32\net1.exe	48
Stop/Suspend pr...	C:\Windows\System32\net1.exe	48
Launch process	C:\Windows\explorer.exe	36

2. In the *Top Services* widget click *SSH*.



The events and the raw logs are displayed in the *ANALYTICS* tab.



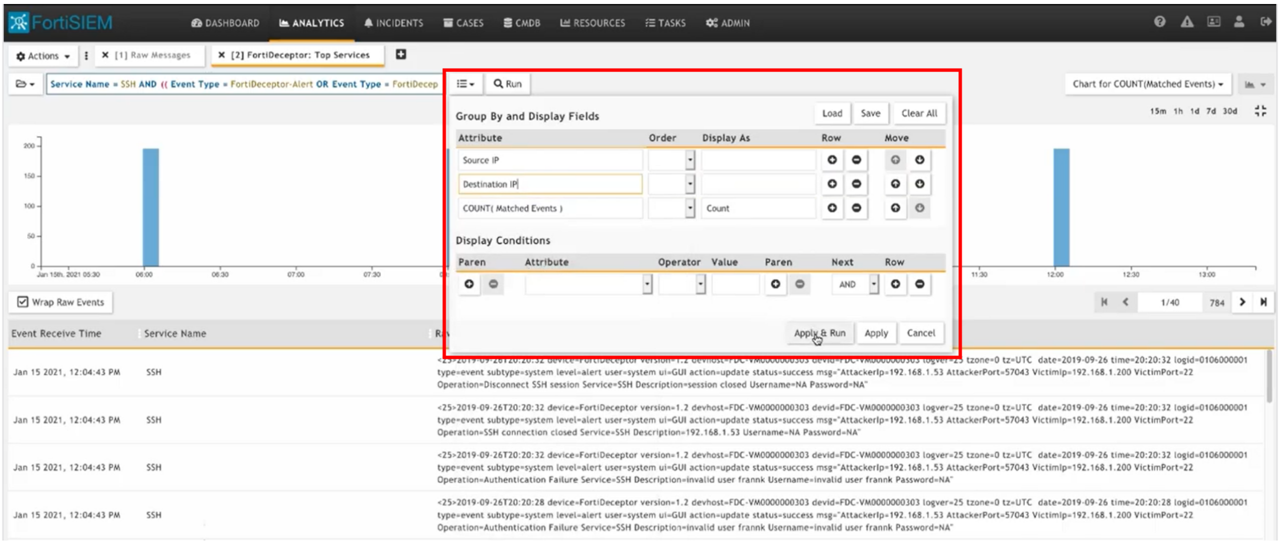
Service Name = SSH AND ((Event Type = FortiDeceptor-Alert OR Event Type = FortiDecep

FortiDeceptor: Top Services - Today 05:19:13 AM to 01:19:13 PM

□ Wrap Raw Events

Event Receive Time	Service Name	Raw Event Log
Jan 15 2021, 12:04:43 PM	SSH	<25>2019-09-26T20:20:32 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:32 logid=0106000001...
Jan 15 2021, 12:04:43 PM	SSH	<25>2019-09-26T20:20:32 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:32 logid=0106000001...
Jan 15 2021, 12:04:43 PM	SSH	<25>2019-09-26T20:20:32 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:32 logid=0106000001...
Jan 15 2021, 12:04:43 PM	SSH	<25>2019-09-26T20:20:28 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:28 logid=0106000001...
Jan 15 2021, 12:04:42 PM	SSH	<25>2019-09-26T20:20:15 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:15 logid=0106000001...
Jan 15 2021, 12:04:42 PM	SSH	<25>2019-09-26T20:20:11 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:11 logid=0106000001...
Jan 15 2021, 12:04:42 PM	SSH	<25>2019-09-26T20:20:17 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:17 logid=0106000001...
Jan 15 2021, 12:04:42 PM	SSH	<25>2019-09-26T20:20:15 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:15 logid=0106000001...

3. Use a *Group By and the Display Fields* template to view the Source IP and Destination IP.



Service Name = SSH AND ((Event Type = FortiDeceptor-Alert OR Event Type = FortiDecep

Group By and Display Fields

Attribute	Order	Display As
Source IP		
Destination IP		
COUNT(Matched Events)		Count

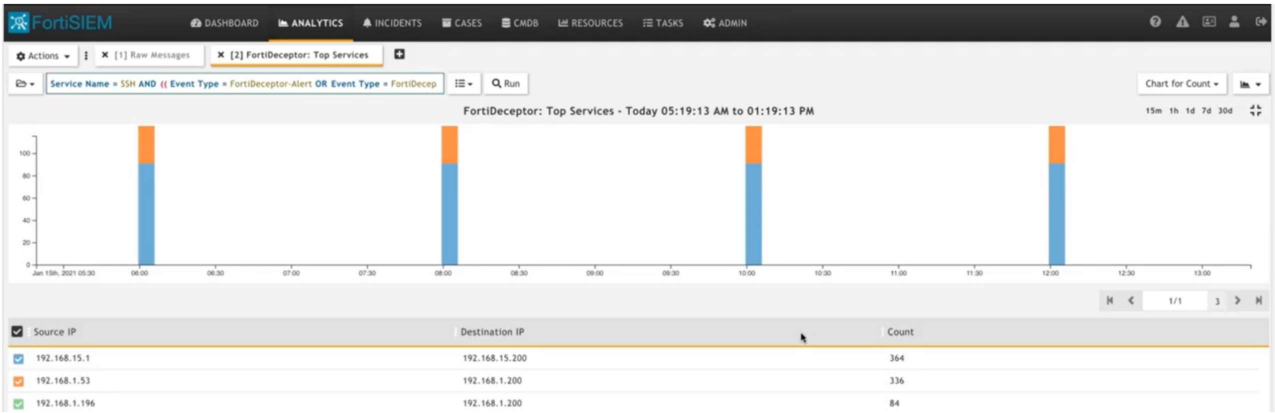
Display Conditions

Paren	Attribute	Operator	Value	Paren	Next
					AND

☑ Wrap Raw Events

Event Receive Time	Service Name	Raw Event Log
Jan 15 2021, 12:04:43 PM	SSH	tzone=0 tz=UTC date=2019-09-26 time=20:20:32 logid=0106000001 type=event subtype=system level=alert user=system ui=GUI action=update status=success msg="AttackerIp=192.168.1.53 AttackerPort=57043 VictimIp=192.168.1.200 VictimPort=22 Operation=Disconnect SSH session Service=SSH Description=session closed Username=NA Password=NA"
Jan 15 2021, 12:04:43 PM	SSH	<25>2019-09-26T20:20:32 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:32 logid=0106000001 type=event subtype=system level=alert user=system ui=GUI action=update status=success msg="AttackerIp=192.168.1.53 AttackerPort=57043 VictimIp=192.168.1.200 VictimPort=22 Operation=SSH connection closed Service=SSH Description=192.168.1.53 Username=NA Password=NA"
Jan 15 2021, 12:04:43 PM	SSH	<25>2019-09-26T20:20:32 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:32 logid=0106000001 type=event subtype=system level=alert user=system ui=GUI action=update status=success msg="AttackerIp=192.168.1.53 AttackerPort=57043 VictimIp=192.168.1.200 VictimPort=22 Operation=Authentication Failure Service=SSH Description=invalid user frannk Username=invalid user frannk Password=NA"
Jan 15 2021, 12:04:43 PM	SSH	<25>2019-09-26T20:20:28 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=20:20:28 logid=0106000001 type=event subtype=system level=alert user=system ui=GUI action=update status=success msg="AttackerIp=192.168.1.53 AttackerPort=57043 VictimIp=192.168.1.200 VictimPort=22 Operation=Authentication Failure Service=SSH Description=invalid user frannk Username=invalid user frannk Password=NA"

The Source and Destination IPs are displayed.

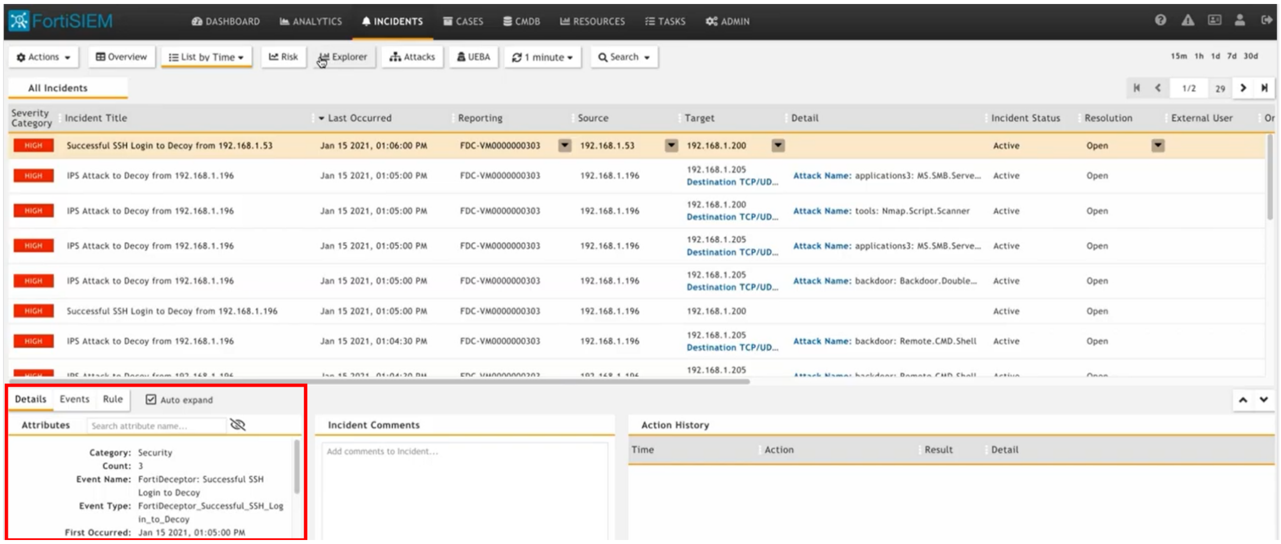


Service Name = SSH AND ((Event Type = FortiDeceptor-Alert OR Event Type = FortiDecep

FortiDeceptor: Top Services - Today 05:19:13 AM to 01:19:13 PM

☑ Source IP	Destination IP	Count
192.168.15.1	192.168.15.200	364
192.168.1.53	192.168.1.200	336
192.168.1.196	192.168.1.200	84

4. Click the *Incidents* tab. Select and incident in the list and the click the *Details*, *Events*, and *Rule* tab to view more information about the incident.



Severity Category	Incident Title	Last Occurred	Reporting	Source	Target	Detail	Incident Status	Resolution	External User
HIGH	Successful SSH Login to Decoy from 192.168.1.53	Jan 15 2021, 01:06:00 PM	FDC-VM0000000303	192.168.1.53	192.168.1.200		Active	Open	
HIGH	IPS Attack to Decoy from 192.168.1.196	Jan 15 2021, 01:05:00 PM	FDC-VM0000000303	192.168.1.196	192.168.1.205 Destination TCP/UD...	Attack Name: applications3: MS.SMB.Serve...	Active	Open	
HIGH	IPS Attack to Decoy from 192.168.1.196	Jan 15 2021, 01:05:00 PM	FDC-VM0000000303	192.168.1.196	192.168.1.200 Destination TCP/UD...	Attack Name: tools: Nmap.Script.Scanner	Active	Open	
HIGH	IPS Attack to Decoy from 192.168.1.196	Jan 15 2021, 01:05:00 PM	FDC-VM0000000303	192.168.1.196	192.168.1.205 Destination TCP/UD...	Attack Name: applications3: MS.SMB.Serve...	Active	Open	
HIGH	IPS Attack to Decoy from 192.168.1.196	Jan 15 2021, 01:05:00 PM	FDC-VM0000000303	192.168.1.196	192.168.1.205 Destination TCP/UD...	Attack Name: backdoor: Backdoor.Double...	Active	Open	
HIGH	Successful SSH Login to Decoy from 192.168.1.196	Jan 15 2021, 01:05:00 PM	FDC-VM0000000303	192.168.1.196	192.168.1.200		Active	Open	
HIGH	IPS Attack to Decoy from 192.168.1.196	Jan 15 2021, 01:04:30 PM	FDC-VM0000000303	192.168.1.196	192.168.1.205 Destination TCP/UD...	Attack Name: backdoor: Remote.CMD.Shell	Active	Open	

Details | Events | Rule | ☑ Auto expand

Attributes

Category: Security
Count: 3
Event Name: FortiDeceptor: Successful SSH Login to Decoy
Event Type: FortiDeceptor_Successful_SSH_Login_to_Decoy
First Occurred: Jan 15 2021, 01:05:00 PM

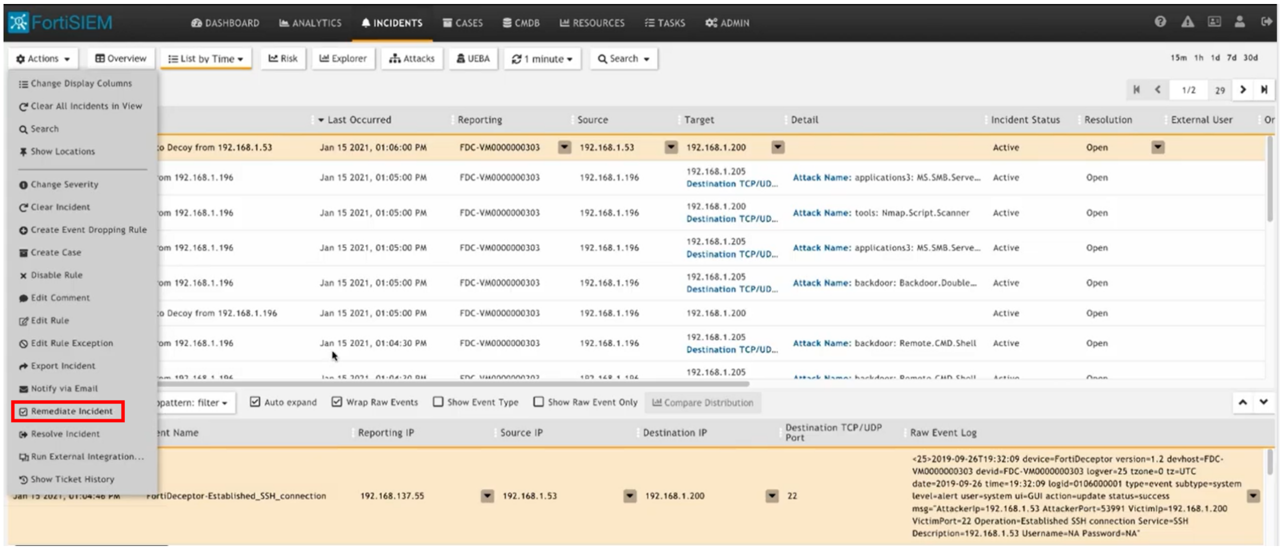
Incident Comments

Add comments to Incident...

Action History

Time	Action	Result	Detail

5. Click the *Actions* menu and select *Remediable Incident* to block the IP address.



Event Name	Reporting IP	Source IP	Destination IP	Destination TCP/UDP Port	Raw Event Log
FortiDeceptor-Established_SSH_connection	192.168.137.55	192.168.1.53	192.168.1.200	22	<25>2019-09-26T19:32:09 device=FortiDeceptor version=1.2 devhost=FDC-VM0000000303 devid=FDC-VM0000000303 logver=25 tzone=0 tz=UTC date=2019-09-26 time=19:32:09 logid=0106000001 type=event subtype=system level=alert user=system ui=GUI action=update status=success msg="AttackerIp=192.168.1.53 AttackerPort=53991 VictimIp=192.168.1.200 VictimPort=22 Operation=Established SSH connection Service=SSH Description=192.168.1.53 Username=NA Password=NA"

FortiSIEM Watch List

Deception Tokens are part of the FortiDeceptor platform and are included in the product license at no additional cost.

FortiDeceptorTokens:

- Are an agentless technology.
- Deceive threat actors by adding breadcrumbs to real endpoints and servers so the actor engages with network decoys instead of real assets.
- Are normally distributed within real endpoints and server assets to expand the attack surface.

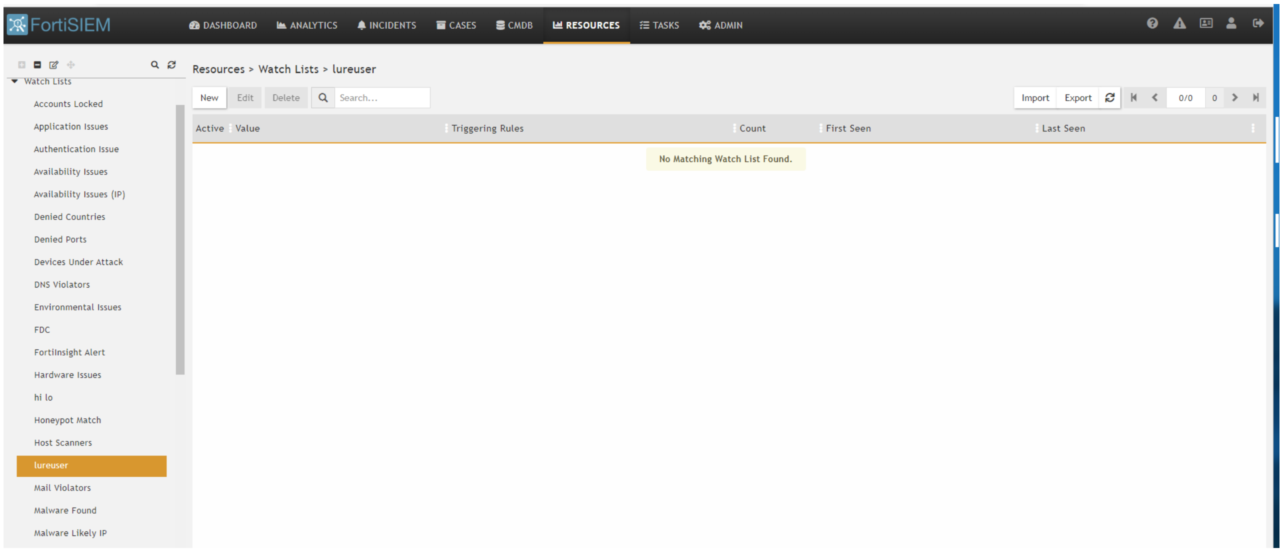
FortiDeceptor generates a deception token package based on the decoy service configuration. The FortiDeceptor and FortiSIEM integration for the Watch List detects when a threat actor attempts to use the fake credentials from the token package to access a real asset (as opposed to a decoy). FortiDeceptor cannot detect this type of access because the asset is not a decoy. When integrated, both the FortiDeceptor and FortiSIEM GUI will display an alert for this type of access.

To integrate FortiDeceptor with FortiSIEM:

1. Configure FortiSIEM.
2. Configure the Watch List in FortiDeceptor.
3. Test the integration.
4. Check the incidents on FortiSIEM.
5. View the incidents on FortiDeceptor.

1. Configure FortiSIEM

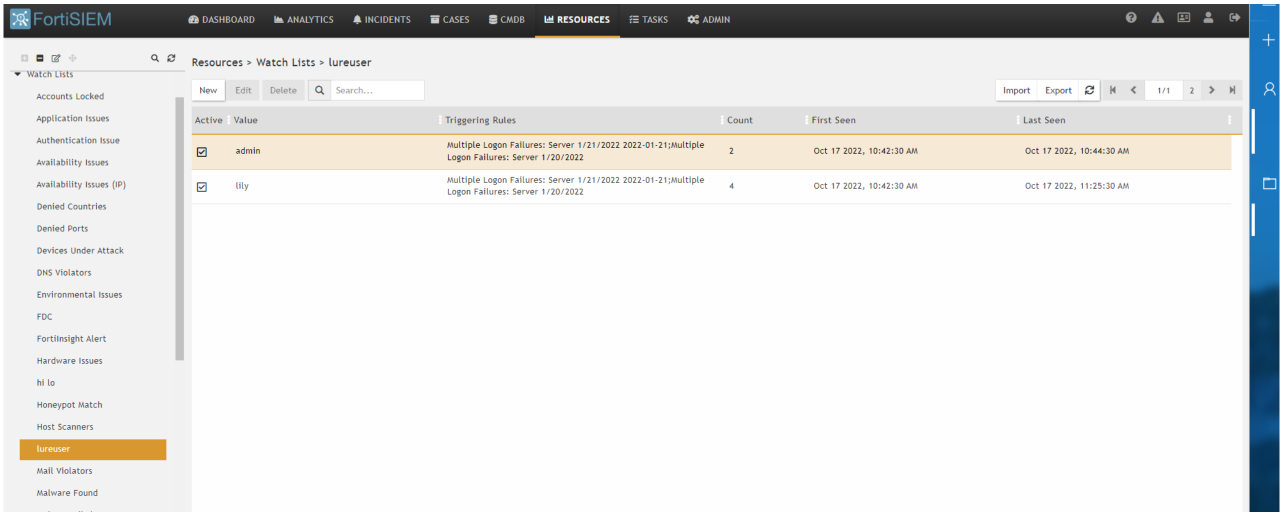
1. In FortiSIEM go to *Watch Lists* and click *New* to create a new watch list or edit an existing Watch List. For more information, see *Managing Resources* > *Watch List* > *Creating a Watch List* in the FortiSIEM User Guide.



No Matching Watch List Found.

2. Go to *Resources* and define the Watch List rules. For information, see *Managing Resources* > *Watch List* > *Using a Watch List* > *Adding a Watch List to a Rule* in the FortiSIEM User Guide.

In the image below, the usernames (face credential tokens) are generated automatically by FortiDeceptor during the integration.



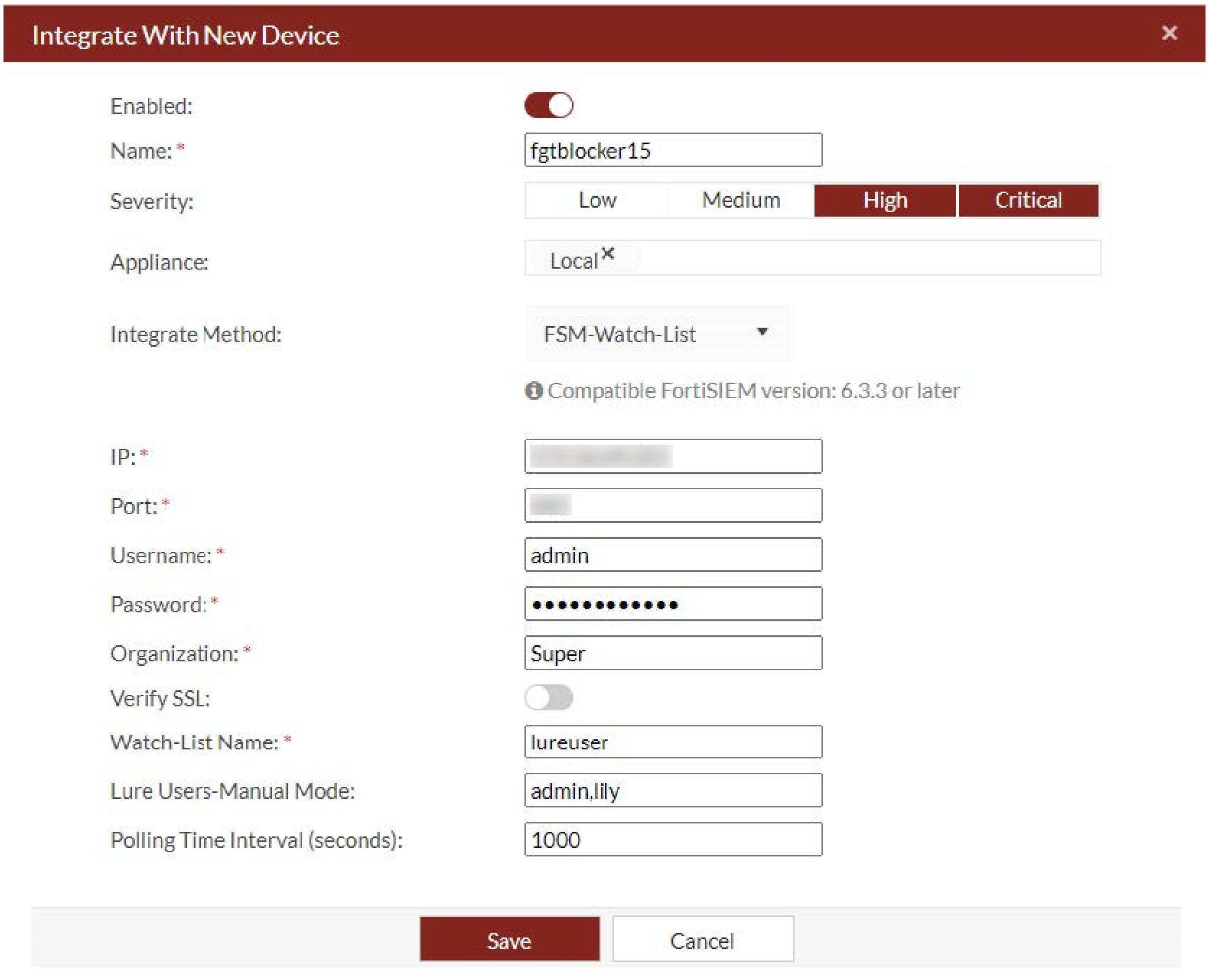
Resources > Watch Lists > lureuser

Active	Value	Triggering Rules	Count	First Seen	Last Seen
☑	admin	Multiple Logon Failures: Server 1/21/2022 2022-01-21;Multiple Logon Failures: Server 1/20/2022	2	Oct 17 2022, 10:42:30 AM	Oct 17 2022, 10:44:30 AM
☑	lily	Multiple Logon Failures: Server 1/21/2022 2022-01-21;Multiple Logon Failures: Server 1/20/2022	4	Oct 17 2022, 10:42:30 AM	Oct 17 2022, 11:25:30 AM

2. Configure the Watch List in FortiDeceptor

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click *Quarantine Integration With New Device*.
2. From the *Integrate Method* dropdown, select *FSM Watch-List*.
3. Configure the integration settings.

IP	Enter the IP for the FortiSIEM device.
Port	Enter the Port number for the FortiSIEM device.
Username	Enter the username for the FortiSIEM device.
Password	Enter the password for the FortiSIEM device.
Watch-List Name	Enter the name of the Watch List you created in Step 1 Configure FortiSIEM.
Lure Users-Manual Mode	This option allow you to add more usernames manually to the FortiSIEM watch list in addition to the one that FortiDeceptor generates automatically based on the deception token package. Please enter the Lure Users you created and separate multiple users with a comma.



Integrate With New Device ×

Enabled: ●

Name: * fgtblocker15

Severity: Low | Medium | **High** | **Critical**

Appliance: Local ×

Integrate Method: FSM-Watch-List ▾

ℹ Compatible FortiSIEM version: 6.3.3 or later

IP: * [redacted]

Port: * [redacted]

Username: * admin

Password: * ••••••••••••

Organization: * Super

Verify SSL: ○

Watch-List Name: * lureuser

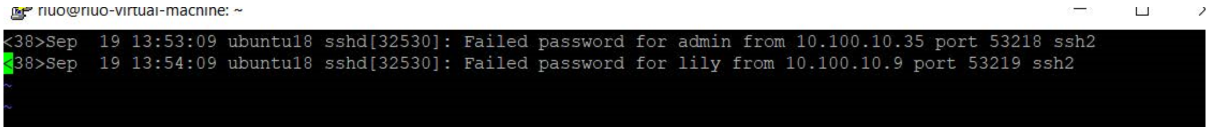
Lure Users-Manual Mode: admin,lily

Polling Time Interval (seconds): 1000

4. Click *Save*.

3. Test the integration

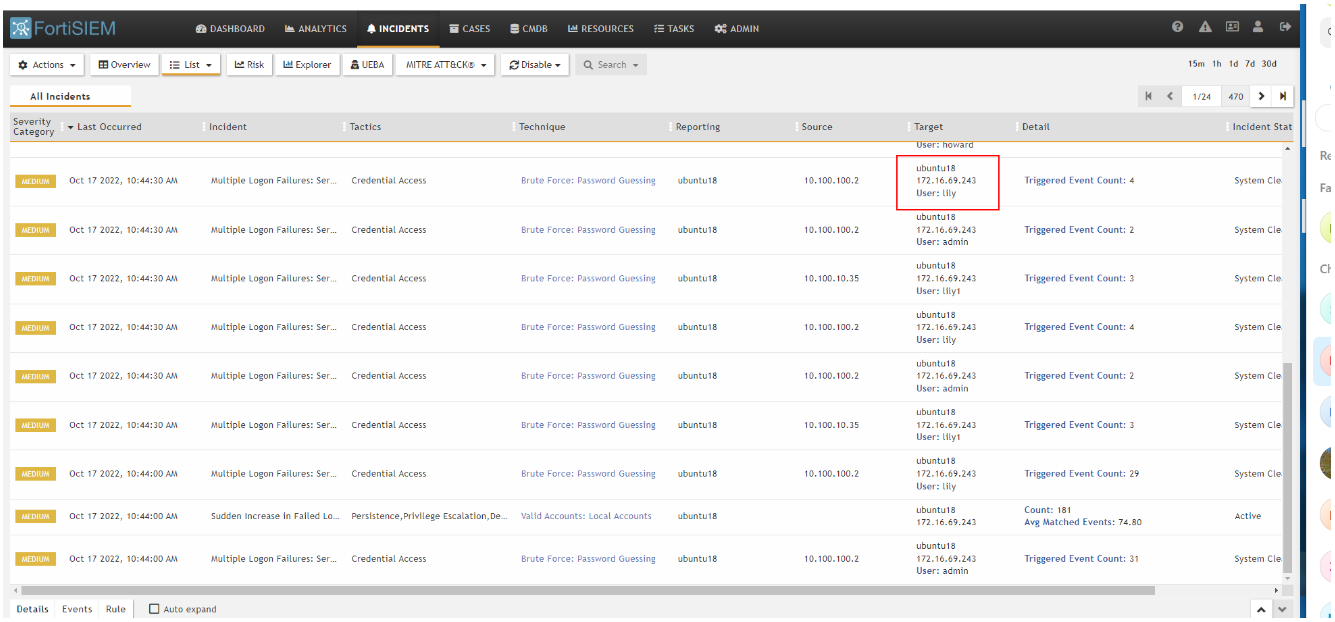
To test the integration, use one of the fake credentials to access a real asset. Verify that FortiSIEM can detect fake credentials when used to access an asset that is not a decoy.



```
rluo@rluo-virtual-machine: ~
<38>Sep  19 13:53:09 ubuntu18 sshd[32530]: Failed password for admin from 10.100.10.35 port 53218 ssh2
<38>Sep  19 13:54:09 ubuntu18 sshd[32530]: Failed password for lily from 10.100.10.9 port 53219 ssh2
~
~
```

4. Check the incidents on FortiSIEM

In FortiSIEM, go to *Incidents* to verify the incidents you triggered are reported. For information, see *FortiSIEM Manager* > *FortiSIEM Manager Incidents* > *FortiSIEM Manager Incidents - List View* in the *FortiSIEM User Guide*.

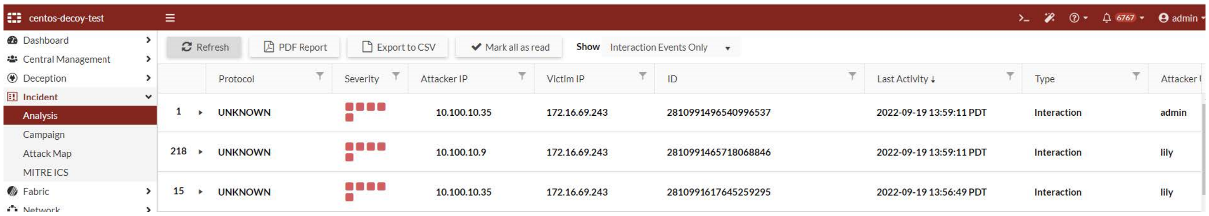


Severity Category	Last Occurred	Incident	Tactics	Technique	Reporting	Source	Target	Detail	Incident Stat
							User: howard		
MEDIUM	Oct 17 2022, 10:44:30 AM	Multiple Logon Failures: Ser...	Credential Access	Brute Force: Password Guessing	ubuntu18	10.100.100.2	ubuntu18 172.16.69.243 User: lily	Triggered Event Count: 4	System Cle
MEDIUM	Oct 17 2022, 10:44:30 AM	Multiple Logon Failures: Ser...	Credential Access	Brute Force: Password Guessing	ubuntu18	10.100.100.2	ubuntu18 172.16.69.243 User: admin	Triggered Event Count: 2	System Cle
MEDIUM	Oct 17 2022, 10:44:30 AM	Multiple Logon Failures: Ser...	Credential Access	Brute Force: Password Guessing	ubuntu18	10.100.10.35	ubuntu18 172.16.69.243 User: lily1	Triggered Event Count: 3	System Cle
MEDIUM	Oct 17 2022, 10:44:30 AM	Multiple Logon Failures: Ser...	Credential Access	Brute Force: Password Guessing	ubuntu18	10.100.100.2	ubuntu18 172.16.69.243 User: lily	Triggered Event Count: 4	System Cle
MEDIUM	Oct 17 2022, 10:44:30 AM	Multiple Logon Failures: Ser...	Credential Access	Brute Force: Password Guessing	ubuntu18	10.100.100.2	ubuntu18 172.16.69.243 User: admin	Triggered Event Count: 2	System Cle
MEDIUM	Oct 17 2022, 10:44:30 AM	Multiple Logon Failures: Ser...	Credential Access	Brute Force: Password Guessing	ubuntu18	10.100.10.35	ubuntu18 172.16.69.243 User: lily1	Triggered Event Count: 3	System Cle
MEDIUM	Oct 17 2022, 10:44:00 AM	Multiple Logon Failures: Ser...	Credential Access	Brute Force: Password Guessing	ubuntu18	10.100.100.2	ubuntu18 172.16.69.243 User: lily	Triggered Event Count: 29	System Cle
MEDIUM	Oct 17 2022, 10:44:00 AM	Sudden Increase in Failed Lo...	Persistence,Privilege Escalation,De...	Valid Accounts: Local Accounts	ubuntu18		ubuntu18 172.16.69.243	Count: 181 Avg Matched Events: 74.80	Active
MEDIUM	Oct 17 2022, 10:44:00 AM	Multiple Logon Failures: Ser...	Credential Access	Brute Force: Password Guessing	ubuntu18	10.100.100.2	ubuntu18 172.16.69.243 User: admin	Triggered Event Count: 31	System Cle

5. View the incidents on FortiDeceptor

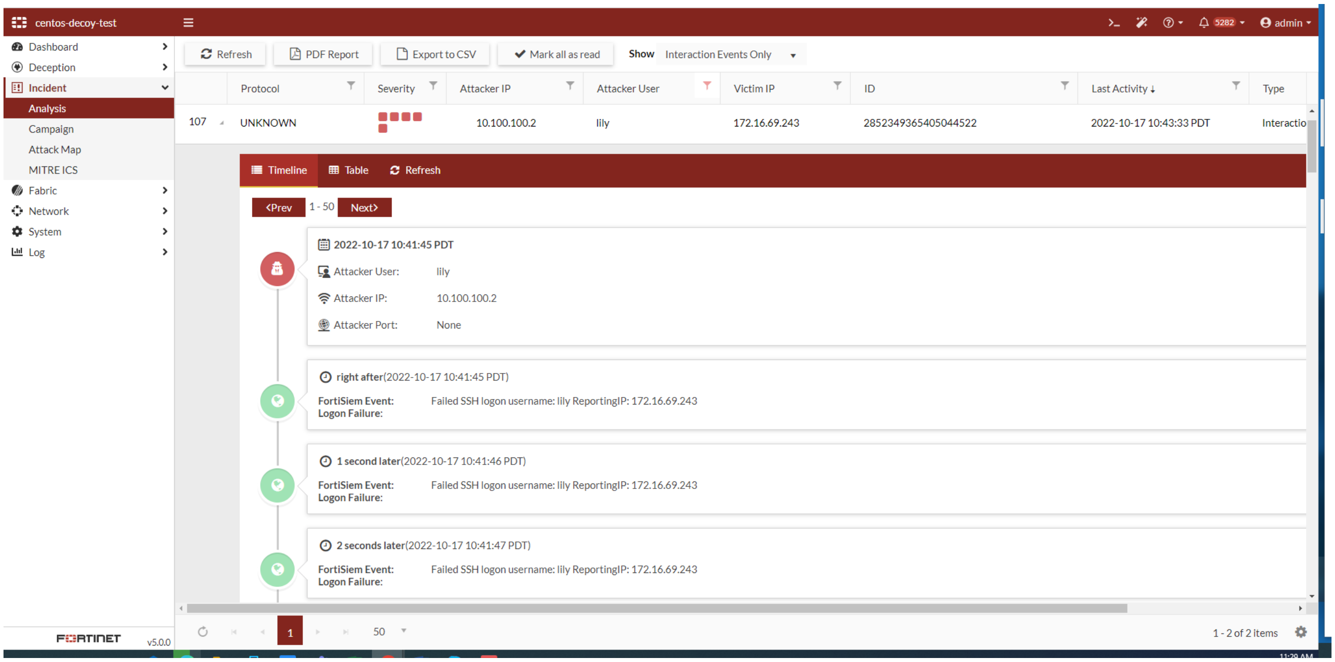
In FortiDeceptor, go to *Incident > Analysis* to view the incidents you triggered.

Incidents captured by FortiSIEM are recorded as *UNKNOWN* in the *Protocol* column.



		Protocol	Severity	Attacker IP	Victim IP	ID	Last Activity ↓	Type	Attacker U
1	▸	UNKNOWN	■■■■■	10.100.10.35	172.16.69.243	2810991496540996537	2022-09-19 13:59:11 PDT	Interaction	admin
218	▸	UNKNOWN	■■■■■	10.100.10.9	172.16.69.243	2810991465718068846	2022-09-19 13:59:11 PDT	Interaction	lily
15	▸	UNKNOWN	■■■■■	10.100.10.35	172.16.69.243	2810991617645259295	2022-09-19 13:56:49 PDT	Interaction	lily

Click the arrow to expand the alert. You will see the incident was captured by FortiSIEM.



	Protocol	Severity	Attacker IP	Attacker User	Victim IP	ID	Last Activity ↓	Type
107	UNKNOWN	🟥🟥🟥🟥🟥	10.100.100.2	lily	172.16.69.243	2852349365405044522	2022-10-17 10:43:33 PDT	Interactio

2022-10-17 10:41:45 PDT
Attacker User: lily
Attacker IP: 10.100.100.2
Attacker Port: None

right after(2022-10-17 10:41:45 PDT)
FortiSiem Event: Logon Failure: Failed SSH logon username: lily ReportingIP: 172.16.69.243

1 second later(2022-10-17 10:41:46 PDT)
FortiSiem Event: Logon Failure: Failed SSH logon username: lily ReportingIP: 172.16.69.243

2 seconds later(2022-10-17 10:41:47 PDT)
FortiSiem Event: Logon Failure: Failed SSH logon username: lily ReportingIP: 172.16.69.243

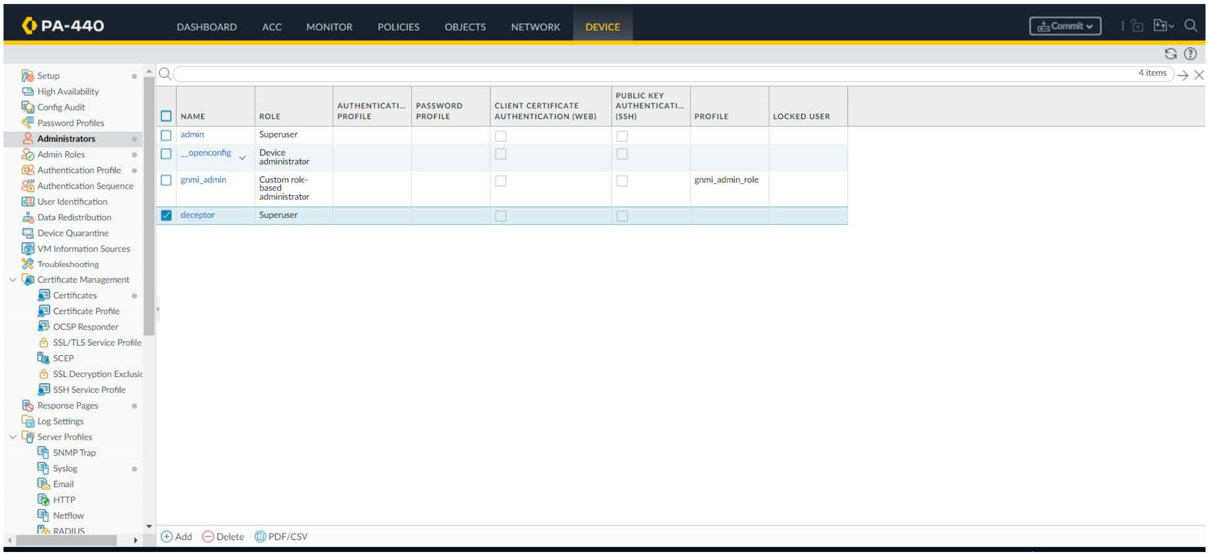
Integration with PAN devices

To integrate FortiDeceptor with PAN devices:

1. Configure PAN.
2. Configure the PAN device on FortiDeceptor.
3. Check the PAN status on FortiDeceptor.
4. Verify the policy has been added on PAN.
5. Attack a decoy and check the quarantine status in FortiDeceptor.

1. Configure PAN

Create an administrator on the PAN device. For information, see the PAN-OS Administrator’s Guide.

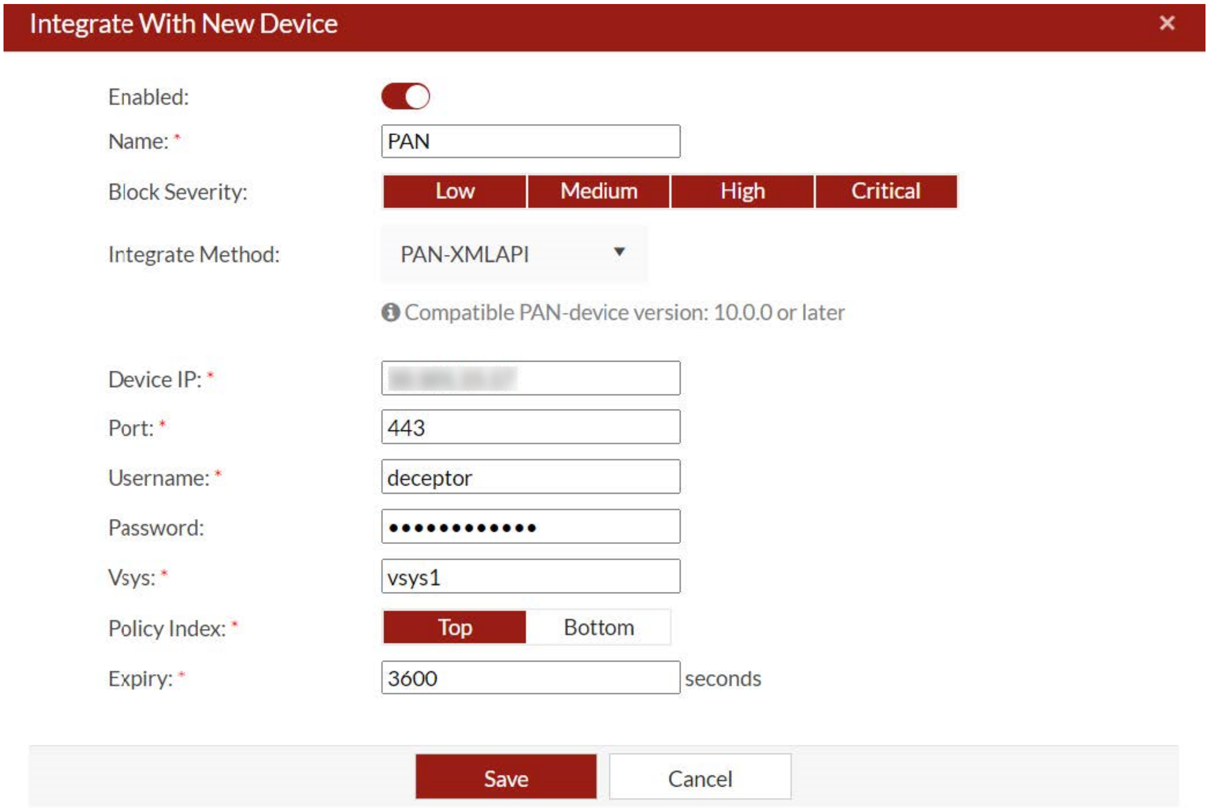


☐	NAME	ROLE	AUTHENTICATI... PROFILE	PASSWORD PROFILE	CLIENT CERTIFICATE AUTHENTICATION (WEB)	PUBLIC KEY AUTHENTICATI... (SSH)	PROFILE	LOCKED USER
☐	admin	Superuser			☐	☐		
☐	_openconfig	Device administrator			☐	☐		
☐	gnmi_admin	Custom role-based administrator			☐	☐	gnmi_admin_role	
☑	deceptor	Superuser			☐	☐		

2. Configure the PAN device on FortiDeceptor

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click + *Quarantine Integration with new device*.
2. Configure the integration settings and click *Save*.

Enabled	Enable
Name	Enter a name for the integration.
Integration Method	Select *PAN-XMLAPI*.
Device IP	Enter the IP for the PAN device.
Port	Enter the port number for the PAN device.
Username	Enter the username for the PAN device.
Password	Enter the password the PAN device.
Vsys	The virtual system (Vsys) which is configured on the PAN device.
Policy Index	Select *Top* or *Bottom*.
Expiry	Default blocking time in seconds. Default is 3600 seconds.

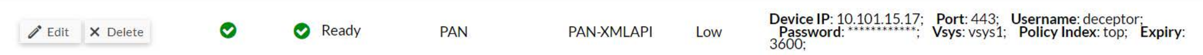


Integrate With New Device

Enabled:	●
Name: *	PAN
Block Severity:	Low / Medium / High / Critical
Integrate Method:	PAN-XMLAPI ▾
	ℹ Compatible PAN-device version: 10.0.0 or later
Device IP: *	[redacted]
Port: *	443
Username: *	deceptor
Password:	••••••••••••
Vsys: *	vsys1
Policy Index: *	Top / Bottom
Expiry: *	3600 seconds

3. Check the PAN status on FortiDeceptor

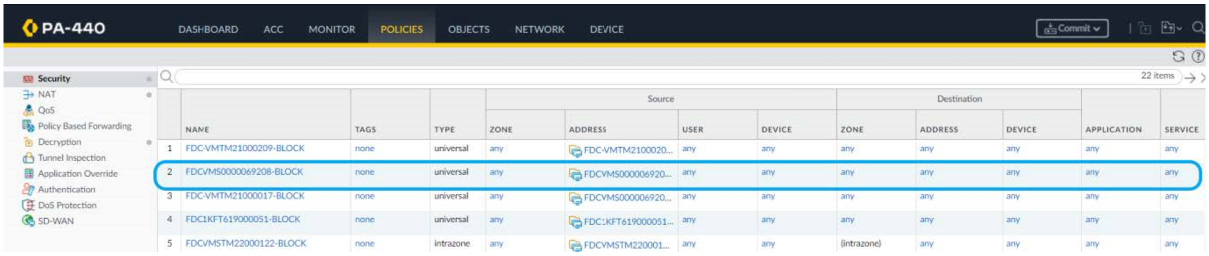
In FortiDeceptor, click *Quarantine Integration* and verify the PAN device status is *Ready*.



✎ Edit ✕ Delete	✓	✓ Ready	PAN	PAN-XMLAPI	Low	**Device IP**: 10.101.15.17; **Port**: 443; **Username**: deceptor; **Password**: ************; **Vsys**: vsys1; **Policy Index**: top; **Expiry**: 3600;

4. Verify the policy has been added on PAN

For more information about PAN polices, see the PAN-OS Administrator’s Guide.

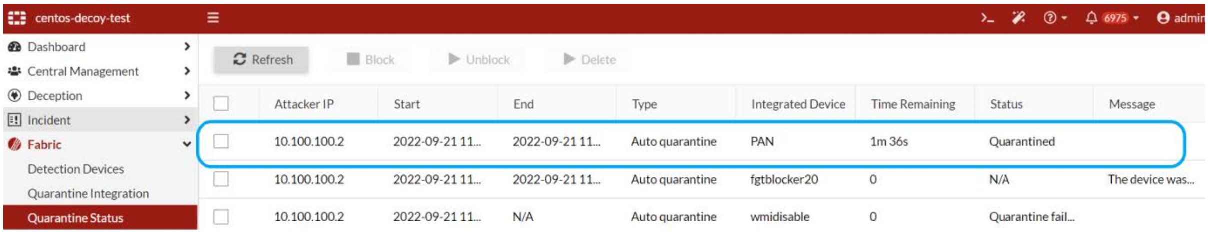


				Source				Destination			
	NAME	TAGS	TYPE	ZONE	ADDRESS	USER	DEVICE	ZONE	ADDRESS	DEVICE	APPLICATION	SERVICE
1	FDC-VMTM21000209-BLOCK	none	universal	any	FDC-VMTM2100020...	any	any	any	any	any	any	any
2	FDCVMS0000069208-BLOCK	none	universal	any	FDCVMS000006920...	any	any	any	any	any	any	any
3	FDC-VMTM21000017-BLOCK	none	universal	any	FDCVMS000006920...	any	any	any	any	any	any	any
4	FDC1KFT619000051-BLOCK	none	universal	any	FDC1KFT619000051...	any	any	any	any	any	any	any
5	FDCVMSTM22000122-BLOCK	none	intrazone	any	FDCVMSTM220001...	any	any	(intrazone)	any	any	any	any

5. Attack a decoy and check the quarantine status in FortiDeceptor

To check quarantine status in FortiDeceptor:

1. Go to *Fabric* > *Quarantine Status*.
2. Search for the PAN device in the *Integrated Device* column.



□	Attacker IP	Start	End	Type	Integrated Device	Time Remaining	Status	Message
□	10.100.100.2	2022-09-21 11...	2022-09-21 11...	Auto quarantine	PAN	1m 36s	Quarantined	
□	10.100.100.2	2022-09-21 11...	2022-09-21 11...	Auto quarantine	fgtblocker20	0	N/A	The device was...
□	10.100.100.2	2022-09-21 11...	N/A	Auto quarantine	wmidisable	0	Quarantine fail...	

Integration with Microsoft ATP

1. Configure Azure

1.1 Configure the permissions

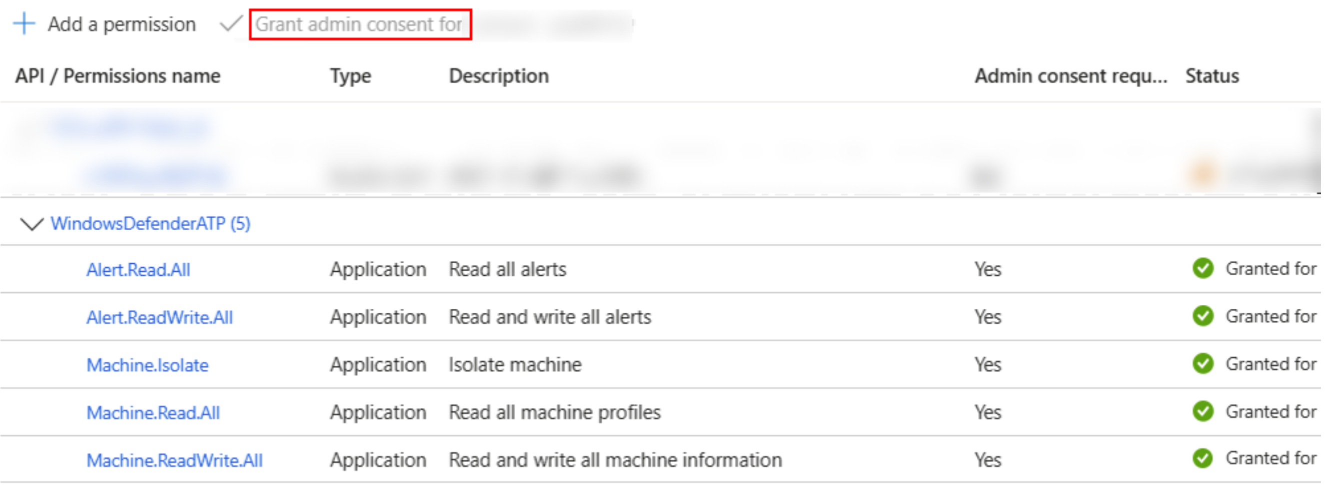
For the Application registration stage, you must have a Global administrator role in your Azure Active Directory (Azure AD) tenant.

1.2 Create an app in Microsoft Entra

For information about creating an app in the Azure Active Directory, see *Create an App in Microsoft Entra ID* in Microsoft Defender for Endpoint API.

When setting up the application, ensure it has access to Defender for Endpoint. Assign the necessary permissions, including *Read and write all alerts*, *Isolate machine*, and *Read and write all machine information*, as shown in the image that follows.

Every time you add permission, you must click *Grant consent* for the new permission to take effect.

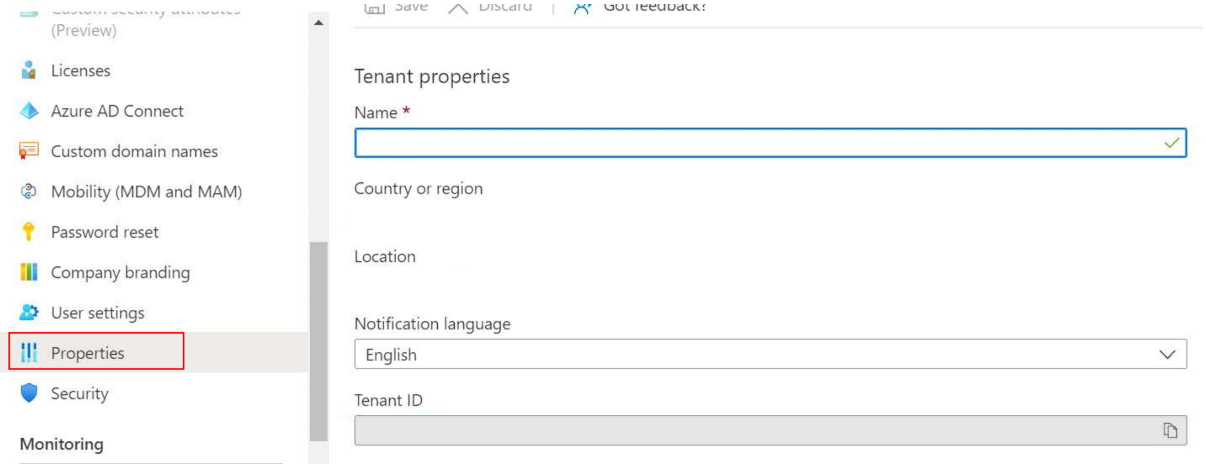


API / Permissions name	Type	Description	Admin consent requ...	Status
[redacted]				
∨ WindowsDefenderATP (5)				
Alert.Read.All	Application	Read all alerts	Yes	✓ Granted for
Alert.ReadWrite.All	Application	Read and write all alerts	Yes	✓ Granted for
Machine.Isolate	Application	Isolate machine	Yes	✓ Granted for
Machine.Read.All	Application	Read all machine profiles	Yes	✓ Granted for
Machine.ReadWrite.All	Application	Read and write all machine information	Yes	✓ Granted for

2. Onboard devices on Microsoft 365 Defender

2.1 Verify the tenant IDs are identical

1. Login to Microsoft 365 Defender (https://security.microsoft.com/) with your Azure account.
2. Ensure the Tenant IDs in Azure and Microsoft 365 Defender are identical.
   - To view the Tenant ID in Azure, go to *Azure Home* > *Azure Active Directory* > *Properties*.



Tenant properties

Name *

Country or region

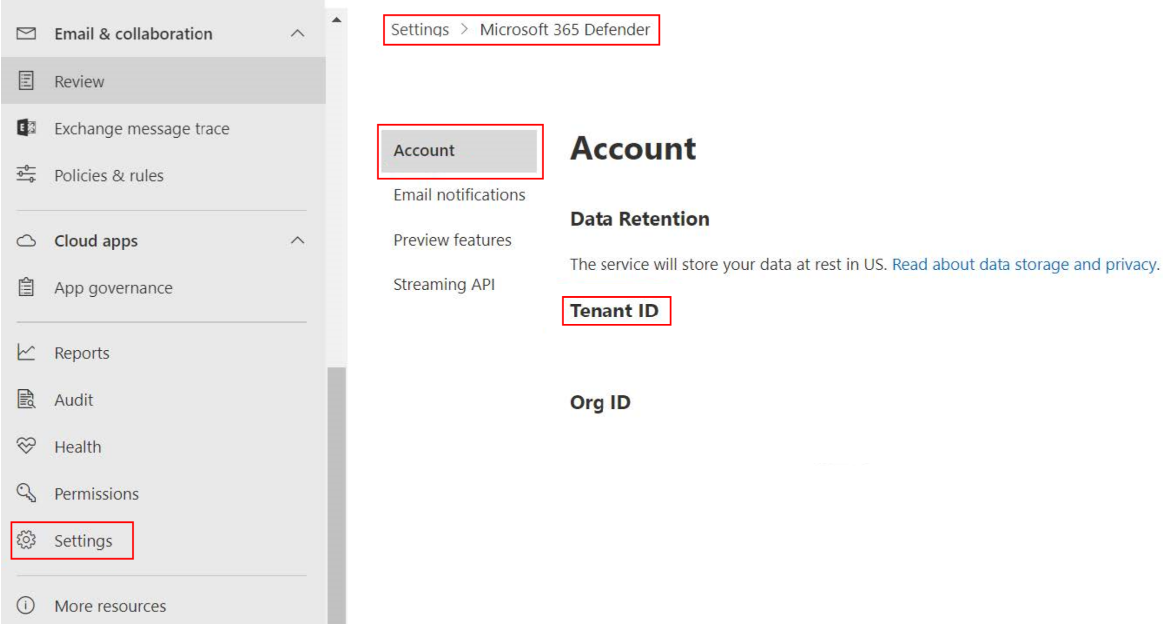
Location

Notification language

English

Tenant ID

- To view the Tenant ID in Microsoft 365 Defender, go to *Settings* > *Microsoft 365 Defender* > *Account*.



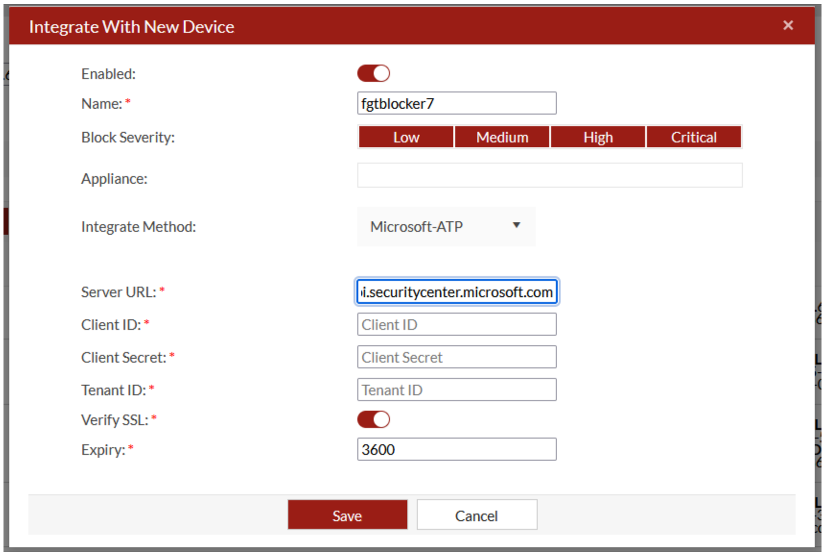
2.1 Onboard devices in Defender

1. In Microsoft Defender, go to *Settings* > *Endpoints* > *Device management* > *Onboarding* .
2. Onboard the endpoints you want to manage.

3. Configure FortiDeceptor

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click *Quarantine Integration With New Device*.
2. Configure the integration settings and click *Save*.

Integrate Method	Select *Microsoft-ATP*.
Server URL	Enter the URL of API: `https://api.securitycenter.microsoft.com`.
Client ID	Enter the Azure Client ID.
Client Secret	Enter the Azure Client Secret.
Tenant ID	Enter the Azure Tenant ID.



Integrate With New Device

Enabled: ●

Name: * fgtblocker7

Block Severity: Low Medium High Critical

Appliance:

Integrate Method: Microsoft-ATP

Server URL: * i.securitycenter.microsoft.com

Client ID: * Client ID

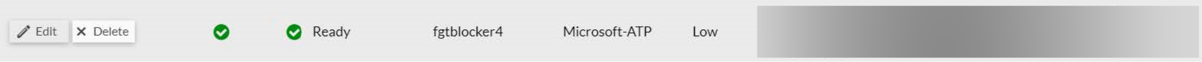
Client Secret: * Client Secret

Tenant ID: * Tenant ID

Verify SSL: * ●

Expiry: * 3600

3. Verify the device status is *Ready*



✓ ✓ Ready fgtblocker4 Microsoft-ATP Low

Integration with FortiSandbox

FortiSandbox is an anti-virus engine. When integrated, FortiDeceptor submits malware to FortiSandbox and retrieves the scanning result.

To integrate FortiDeceptor with FortiSandbox:

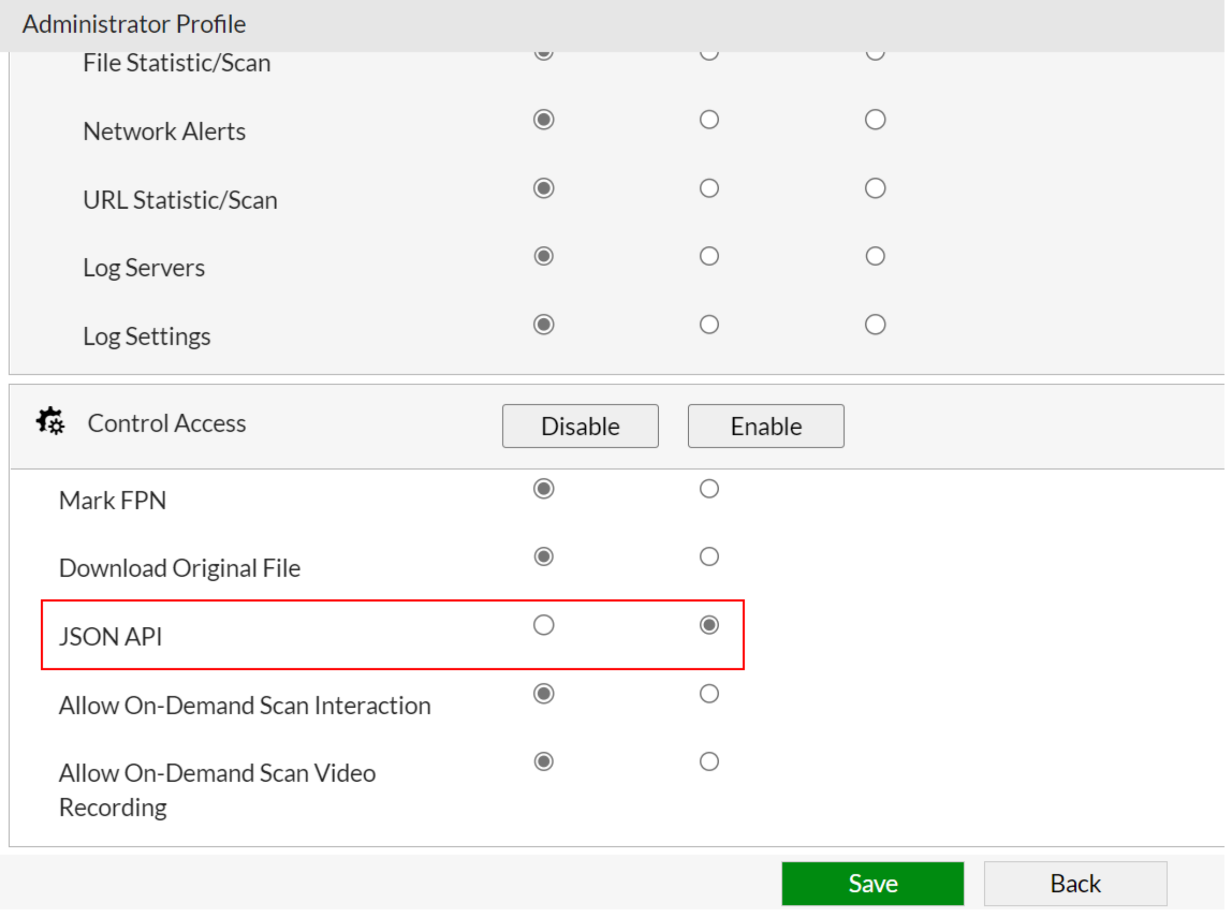
1. Create a new user role in FortiSandbox.
2. Integrate FortiDeceptor with FortiSandbox.
3. Verify the scanning results in FortiDeceptor and FortiSandbox.

1. Create a new user role in FortiSandbox

Create a new user role whose with privileges to access JSON API.

1. Create an Admin Profile with JSON API privileges. For information, see *Admin Profiles* in the *FortiSandbox Administration Guide*.
   a. Go to *System* > *Admin Profiles* and click *Create New*.
   b. Give the profile a descriptive *Name* such as `testApi`.

c. Under *Control Access*, select *JSON API*. Configure the other settings as required and click *Save*.

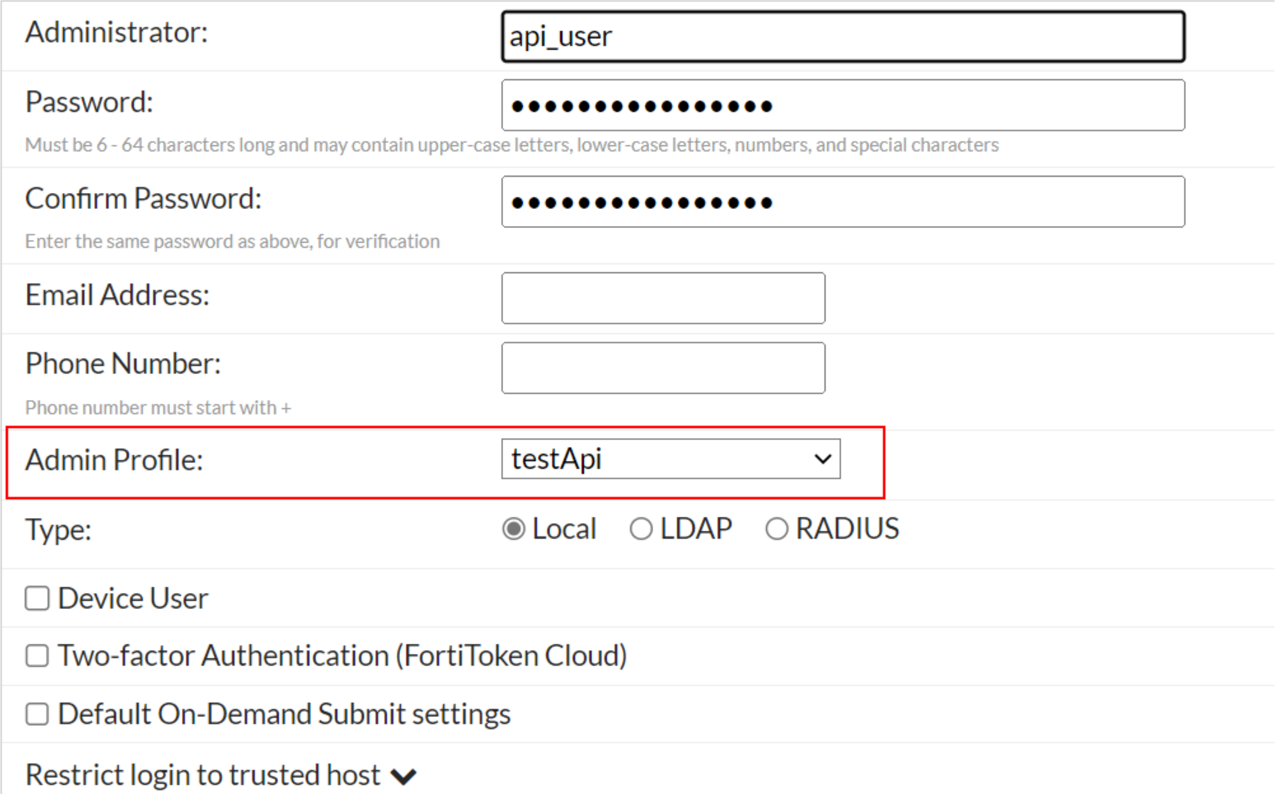


Administrator Profile

File Statistic/Scan	●	○	○
Network Alerts	●	○	○
URL Statistic/Scan	●	○	○
Log Servers	●	○	○
Log Settings	●	○	○

Control Access	Disable	Enable
Mark FPN	●	○
Download Original File	●	○
JSON API	○	●
Allow On-Demand Scan Interaction	●	○
Allow On-Demand Scan Video Recording	●	○

2. Create a new administrator with the profile you just created. For information see *Administrators* in the *FortiSandbox Administration Guide*.
   a. Go to *System > Administrators*, click *Create New*.
   b. Set administrator name and password.
   c. From the *Admin Profile* dropdown, select the profile you just created and click *OK*.



Administrator:	api_user
Password: Must be 6 - 64 characters long and may contain upper-case letters, lower-case letters, numbers, and special characters	●●●●●●●●●●●●●●●●
Confirm Password: Enter the same password as above, for verification	●●●●●●●●●●●●●●●●
Email Address:	
Phone Number: Phone number must start with +	
Admin Profile:	testApi
Type:	● Local ○ LDAP ○ RADIUS

□ Device User

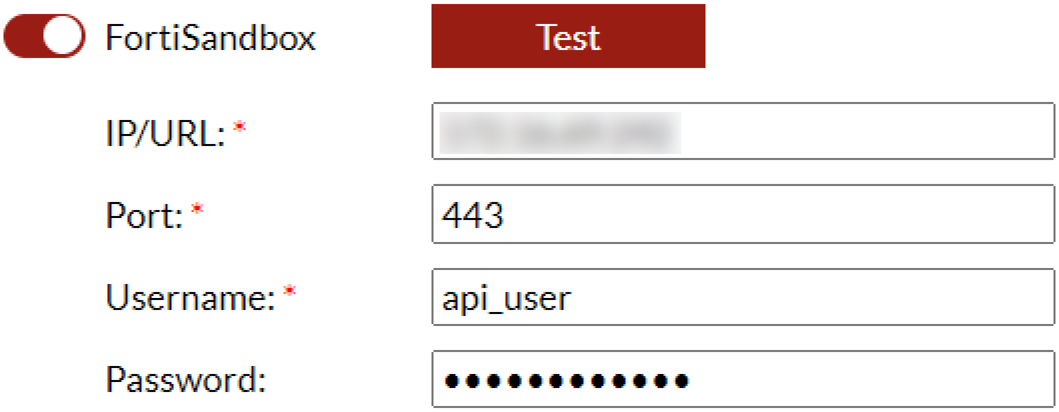
□ Two-factor Authentication (FortiToken Cloud)

□ Default On-Demand Submit settings

Restrict login to trusted host

2. Integrate FortiDeceptor with FortiSandbox

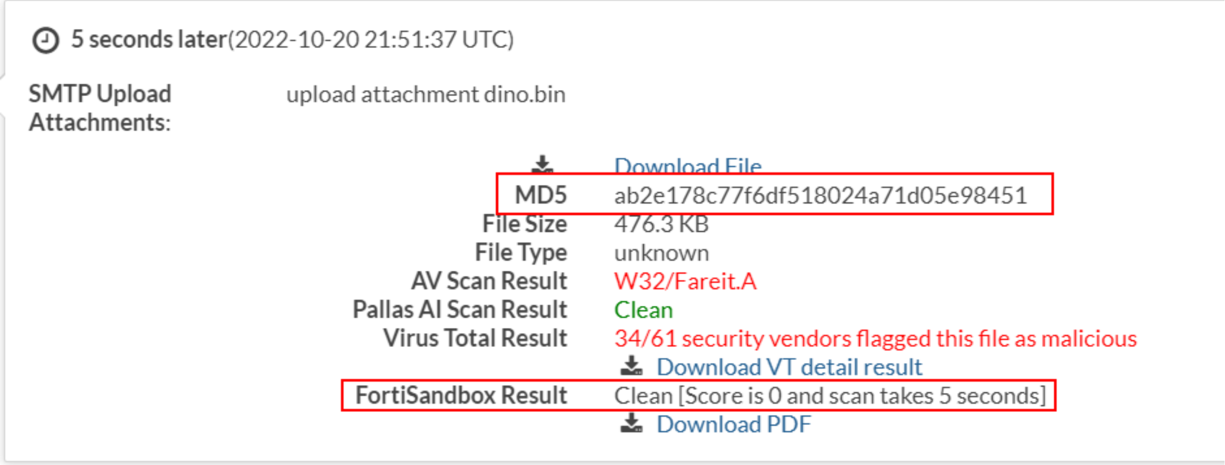
1. Configure a user on FortiSandbox to use for access from FortiDeceptor.
2. In FortiDeceptor, go to *Fabric > Detection Device*. The *Fabric Detection* dialog opens.
3. Enable *FortiSandbox*.
4. Configure the device settings and click *Save*.



IP/URL: *	[redacted]
Port: *	443
Username: *	api_user
Password:	●●●●●●●●●●●●

3. Verify the scanning results in FortiDeceptor and FortiSandbox

1. Send a SMB/FTP put attack to the decoy from the endpoint.
2. To verify the results in FortiDeceptor:
   a. Go to *Incident* > *Analysis*.
   b. Expand the incident and a make a note of the filename in the *MD5* field and the *FortiSandbox Result*.

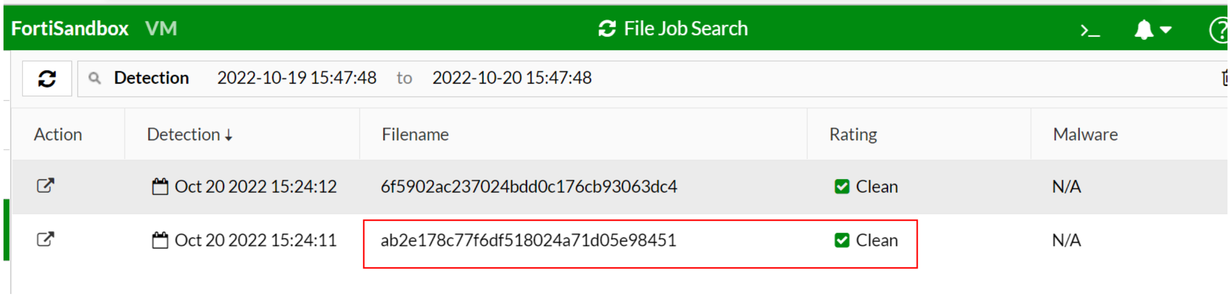


🕘 5 seconds later(2022-10-20 21:51:37 UTC)

SMTP Upload Attachments: upload attachment dino.bin

MD5	ab2e178c77f6df518024a71d05e98451
File Size	476.3 KB
File Type	unknown
AV Scan Result	W32/Fareit.A
Pallas AI Scan Result	Clean
Virus Total Result	34/61 security vendors flagged this file as malicious Download VT detail result
FortiSandbox Result	Clean [Score is 0 and scan takes 5 seconds] Download PDF

3. To verify the results in FortiSandbox:
   a. Go to *Scan Job* > *File Job Search*.
   b. Search for the filename and verify the *Rating* is the same as the *FortiSandbox Result* in FortiDeceptor.



Detection 2022-10-19 15:47:48 to 2022-10-20 15:47:48

Action	Detection ↓	Filename	Rating	Malware
	Oct 20 2022 15:24:12	6f5902ac237024bdd0c176cb93063dc4	☑ Clean	N/A
	Oct 20 2022 15:24:11	ab2e178c77f6df518024a71d05e98451	☑ Clean	N/A

Integration with FortiNAC

This topic assumes FortiNAC has been set up properly as a NAC solution. We have provided an example on how to configure the integration for testing purposes.

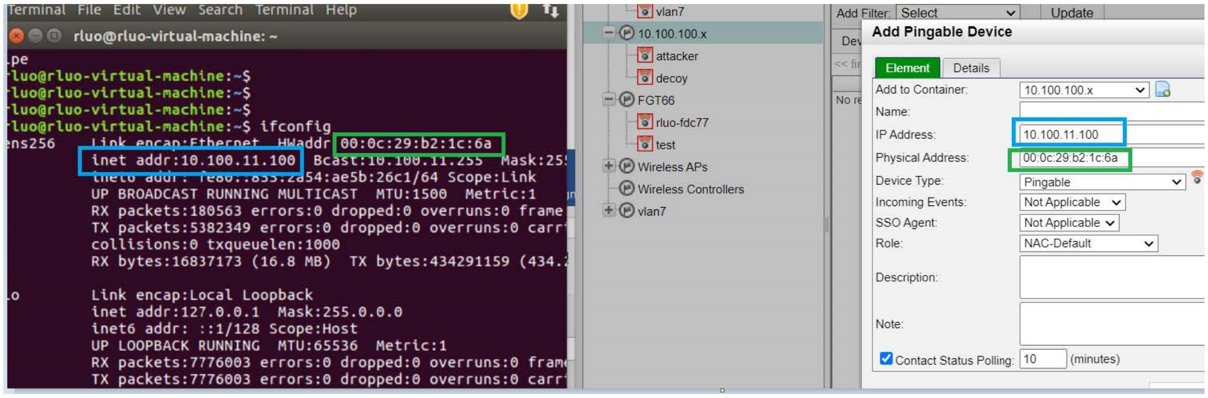
To integrate FortiDeceptor with FortiNAC:

1. Configure the attack host on FortiNAC.
2. Convert the pingable device to a host.
3. Verify the host was added successfully.
4. Generate an API token on FortiNAC.
5. Configure the integration with FortiNAC (Gen-Webhook).
6. Configure the integration with FortiNAC (FNAC-WEBHOOK).

1. Configure the attack host on FortiNAC

1. On FortiNAC, go to *Network* > *Inventory*.
2. Select the *Container* icon.
3. Right-click a container and select *Add Pingable Device* or right-click a pingable device in the *Devices* tab and select *Modify*.
4. From the drop-down menu select the *Container* where this device will be stored. You can use the icon next to the *Container* field to add a new container.
5. Configure the pingable device.

IP Address	Enter the IP address of the endpoint.
Physical Address	Enter the address of hardware endpoint.



```
.pe
rluo@rluo-virtual-machine:~$
rluo@rluo-virtual-machine:~$
rluo@rluo-virtual-machine:~$
rluo@rluo-virtual-machine:~$ ifconfig
ens256    Link encap:Ethernet  HWaddr 00:0c:29:b2:1c:6a
          inet addr:10.100.11.100  Bcast:10.100.11.255  Mask:25
          inet6 addr: fe80::833:2a54:ae5b:26c1/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:180563 errors:0 dropped:0 overruns:0 frame
          TX packets:5382349 errors:0 dropped:0 overruns:0 carr
          collisions:0 txqueuelen:1000
          RX bytes:16837173 (16.8 MB)  TX bytes:434291159 (434.

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:7776003 errors:0 dropped:0 overruns:0 frame
          TX packets:7776003 errors:0 dropped:0 overruns:0 carr
```

Add Pingable Device

Add to Container: 10.100.100.x

Name:

IP Address: 10.100.11.100

Physical Address: 00:0c:29:b2:1c:6a

Device Type: Pingable

Incoming Events: Not Applicable

SSO Agent: Not Applicable

Role: NAC-Default

Description:

Note:

☑ Contact Status Polling: 10 (minutes)

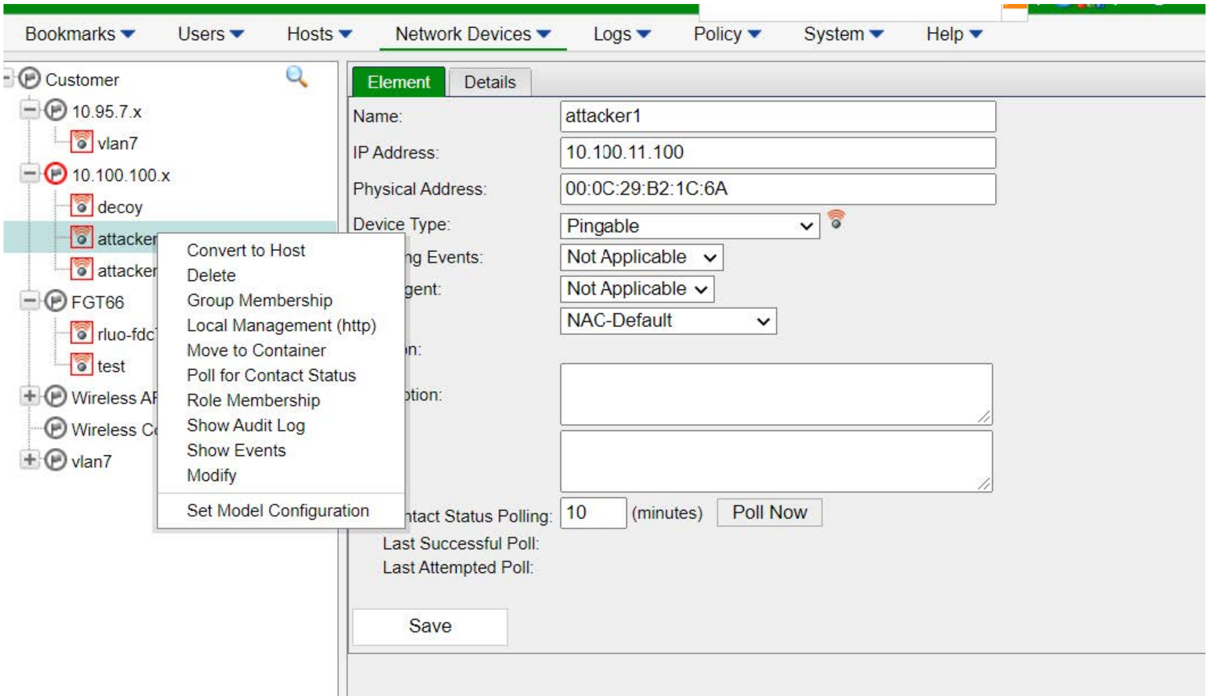
6. Click *OK*.

For information about adding and modifying pingable devices in FortiNAC, see Add or modify a pingable device in the *FortiNAC Administration Guide*.

2. Convert the pingable device to a host

1. In FortiNAC, click *Network* > *Inventory*.
2. Expand the *Container* where the device is located.
3. Select the device to be converted.

4. Right-click a device and select *Convert To Host*. This option converts the non-SNMP devices selected to hosts.



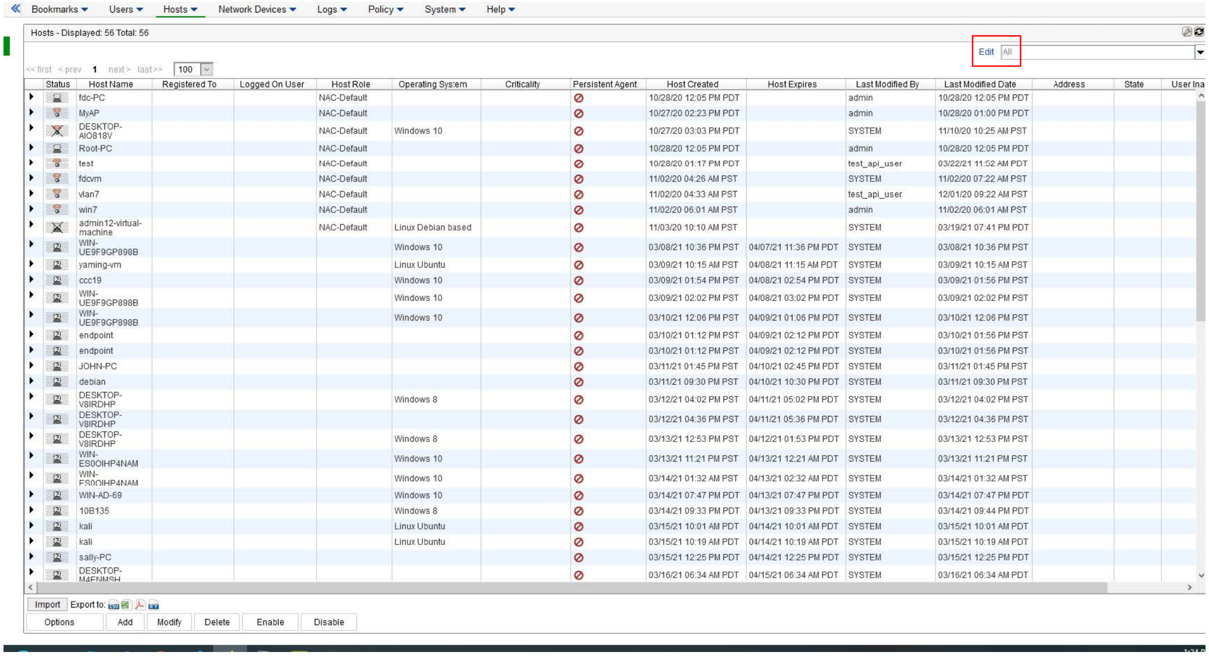
Name: attacker1
IP Address: 10.100.11.100
Physical Address: 00:0C:29:B2:1C:6A
Device Type: Pingable
ng Events: Not Applicable
gent: Not Applicable
NAC-Default
n:
ption:
ntact Status Polling: 10 (minutes)
Last Successful Poll:
Last Attempted Poll:

5. Click *Yes* on the confirmation window.
6. *Select and verify that the pingable devices now display.*

For more information, see Convert all pingables to hosts in the *FortiNAC Administration Guide*.

3. Verify the host was added successfully

Go to the *Hosts* tab, and check the status. For information, see Host Summary in the *FortiNAC Administration Guide*.

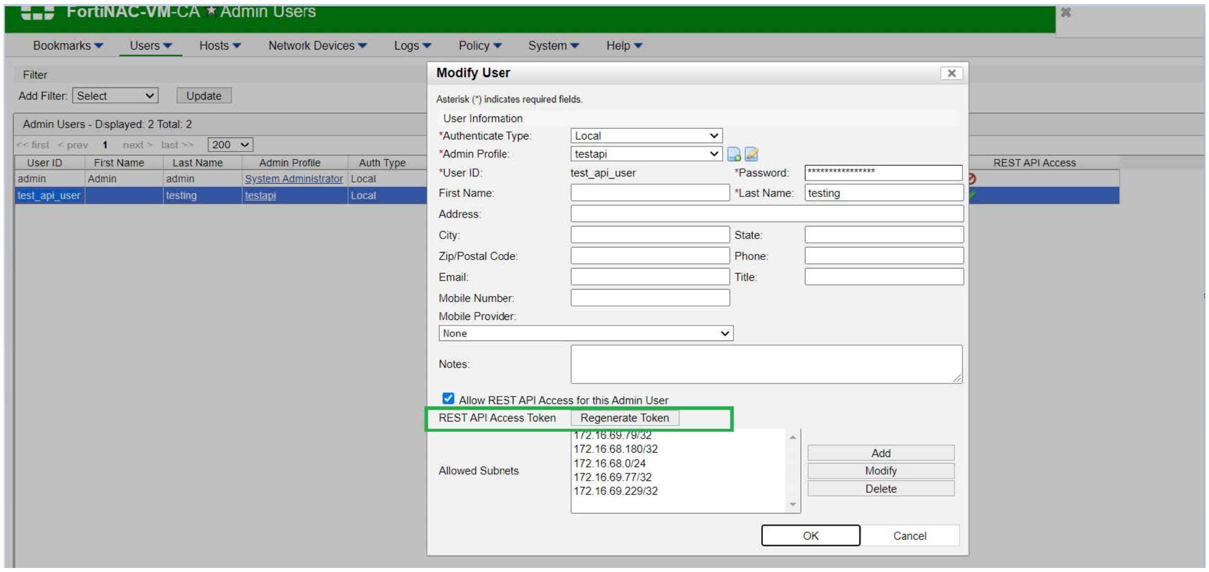


Hosts - Displayed: 56 Total: 56

Status	Host Name	Registered To	Logged On User	Host Role	Operating Sys:em	Criticality	Persistent Agent	Host Created	Host Expires	Last Modified By	Last Modified Date	Address	State	User Ina
	fdc-PC			NAC-Default			⊘	10/28/20 12:05 PM PDT		admin	10/28/20 12:05 PM PDT			
	MyAP			NAC-Default			⊘	10/27/20 02:23 PM PDT		admin	10/28/20 01:00 PM PDT			
	DESKTOP-AIO818V			NAC-Default	Windows 10		⊘	10/27/20 03:03 PM PDT		SYSTEM	11/10/20 10:25 AM PST			
	Root-PC			NAC-Default			⊘	10/28/20 12:05 PM PDT		admin	10/28/20 12:05 PM PDT			
	test			NAC-Default			⊘	10/28/20 01:17 PM PDT		test_api_user	03/22/21 11:52 AM PDT			
	fdcvm			NAC-Default			⊘	11/02/20 04:26 AM PST		SYSTEM	11/02/20 07:22 AM PST			
	vlan7			NAC-Default			⊘	11/02/20 04:33 AM PST		test_api_user	12/01/20 09:22 AM PST			
	win7			NAC-Default			⊘	11/02/20 06:01 AM PST		admin	11/02/20 06:01 AM PST			
	admin12-virtual-machine			NAC-Default	Linux Debian based		⊘	11/03/20 10:10 AM PST		SYSTEM	03/19/21 07:41 PM PDT			
	WIN-UE9F9GP898B				Windows 10		⊘	03/08/21 10:36 PM PST	04/07/21 11:36 PM PDT	SYSTEM	03/08/21 10:36 PM PST			
	yaming-vm				Linux Ubuntu		⊘	03/09/21 10:15 AM PST	04/08/21 11:15 AM PDT	SYSTEM	03/09/21 10:15 AM PST			
	ccc19				Windows 10		⊘	03/09/21 01:54 PM PST	04/08/21 02:54 PM PDT	SYSTEM	03/09/21 01:56 PM PST			
	WIN-UE9F9GP898B				Windows 10		⊘	03/09/21 02:02 PM PST	04/08/21 03:02 PM PDT	SYSTEM	03/09/21 02:02 PM PST			
	WIN-UE9F9GP898B				Windows 10		⊘	03/10/21 12:06 PM PST	04/09/21 01:06 PM PDT	SYSTEM	03/10/21 12:06 PM PST			
	endpoint						⊘	03/10/21 01:12 PM PST	04/09/21 02:12 PM PDT	SYSTEM	03/10/21 01:56 PM PST			
	endpoint						⊘	03/10/21 01:12 PM PST	04/09/21 02:12 PM PDT	SYSTEM	03/10/21 01:56 PM PST			
	JOHN-PC						⊘	03/11/21 01:45 PM PST	04/10/21 02:45 PM PDT	SYSTEM	03/11/21 01:45 PM PST			
	debian						⊘	03/11/21 09:30 PM PST	04/10/21 10:30 PM PDT	SYSTEM	03/11/21 09:30 PM PST			
	DESKTOP-V8IRDHP				Windows 8		⊘	03/12/21 04:02 PM PST	04/11/21 05:02 PM PDT	SYSTEM	03/12/21 04:02 PM PST			
	DESKTOP-V8IRDHP						⊘	03/12/21 04:36 PM PST	04/11/21 05:36 PM PDT	SYSTEM	03/12/21 04:36 PM PST			
	DESKTOP-V8IRDHP				Windows 8		⊘	03/13/21 12:53 PM PST	04/12/21 01:53 PM PDT	SYSTEM	03/13/21 12:53 PM PST			
	WIN-ES0OIHP4NAM				Windows 10		⊘	03/13/21 11:21 PM PST	04/13/21 12:21 AM PDT	SYSTEM	03/13/21 11:21 PM PST			
	WIN-ES0OIHP4NAM				Windows 10		⊘	03/14/21 01:32 AM PST	04/13/21 02:32 AM PDT	SYSTEM	03/14/21 01:32 AM PST			
	WIN-AD-69				Windows 10		⊘	03/14/21 07:47 PM PDT	04/13/21 07:47 PM PDT	SYSTEM	03/14/21 07:47 PM PDT			
	10B135				Windows 8		⊘	03/14/21 09:33 PM PDT	04/13/21 09:33 PM PDT	SYSTEM	03/14/21 09:44 PM PDT			
	kali				Linux Ubuntu		⊘	03/15/21 10:01 AM PDT	04/14/21 10:01 AM PDT	SYSTEM	03/15/21 10:01 AM PDT			
	kali				Linux Ubuntu		⊘	03/15/21 10:19 AM PDT	04/14/21 10:19 AM PDT	SYSTEM	03/15/21 10:19 AM PDT			
	sally-PC						⊘	03/15/21 12:25 PM PDT	04/14/21 12:25 PM PDT	SYSTEM	03/15/21 12:25 PM PDT			
	DESKTOP-M4ENMSH						⊘	03/16/21 06:34 AM PDT	04/15/21 06:34 AM PDT	SYSTEM	03/16/21 06:34 AM PDT			

4. Generate an API token on FortiNAC

1. In FortiNAC go to the *Users* tab.
2. Select a user from the list. The *Modify User* page opens.
3. Next to *REST API Access Token*, click *Regenerate Token*.



Admin Users - Displayed: 2 Total: 2

User ID	First Name	Last Name	Admin Profile	Auth Type	REST API Access
admin	Admin	admin	System Administrator	Local	
test_api_user		testing	testapi	Local	✓

Modify User

Asterisk (*) indicates required fields.

User Information

*Authenticate Type:	Local		
*Admin Profile:	testapi		
*User ID:	test_api_user	*Password:	****************
First Name:		*Last Name:	testing
Address:			
City:		State:	
Zip/Postal Code:		Phone:	
Email:		Title:	
Mobile Number:			

Mobile Provider: None

Notes:

☑ Allow REST API Access for this Admin User

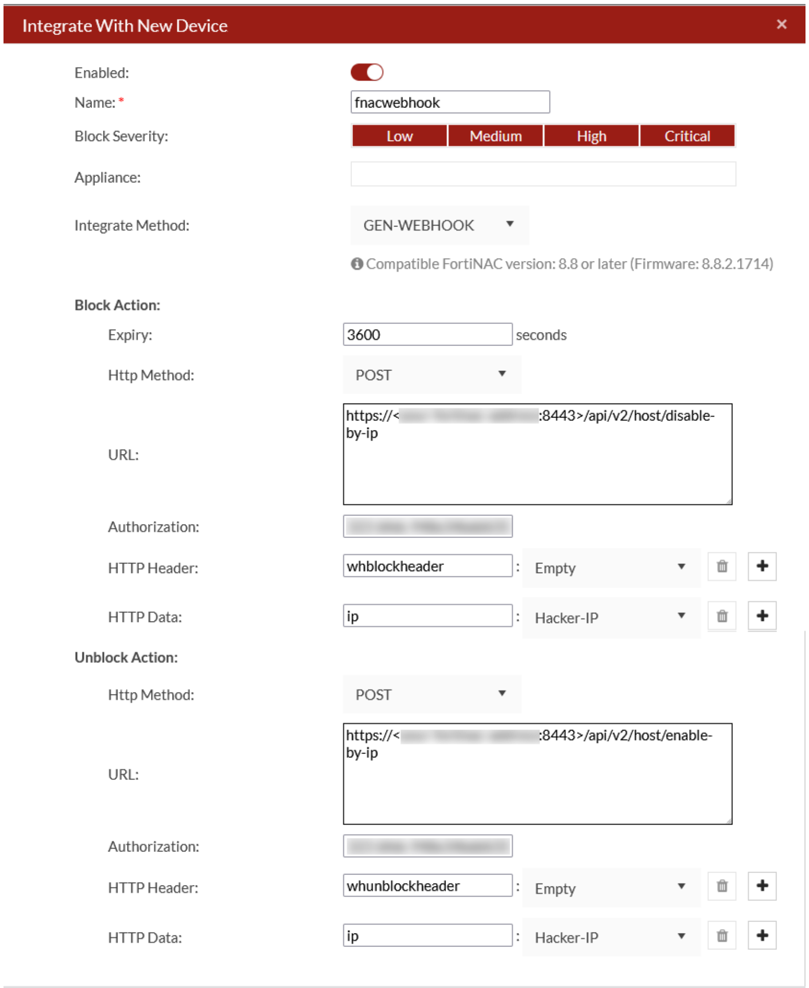
REST API Access Token: Regenerate Token

Allowed Subnets: 172.16.69.79/32
172.16.68.180/32
172.16.68.0/24
172.16.69.77/32
172.16.69.229/32

5. Configure the integration with FortiNAC (Gen-Webhook)

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click *Quarantine Integration With New Device*.
2. Configure the integration settings and click *Save*.

Integrate Method	Select *GEN-WEBHOOK*.
Block Action	
Http Method	POST
URL	https://<your-fortinac-address:8443>/api/v2/host/disable-by-ip
Authorization	Enter the API access token you generated in step 4
HTTP Header	blockheader
HTTP Data	ip
Unblock Action	
HTTP Method	POST
URL	https://<your-fortinac-address:8443>/api/v2/host/enable-by-ip



Integrate With New Device

Enabled:

Name: * fnacwebhook

Block Severity: Low | Medium | High | Critical

Appliance:

Integrate Method: GEN-WEBHOOK

Compatible FortiNAC version: 8.8 or later (Firmware: 8.8.2.1714)

Block Action:

Expiry: 3600 seconds

Http Method: POST

URL: https://<[redacted]:8443>/api/v2/host/disable-by-ip

Authorization: [redacted]

HTTP Header: whblockheader : Empty

HTTP Data: ip : Hacker-IP

Unblock Action:

Http Method: POST

URL: https://<[redacted]:8443>/api/v2/host/enable-by-ip

Authorization: [redacted]

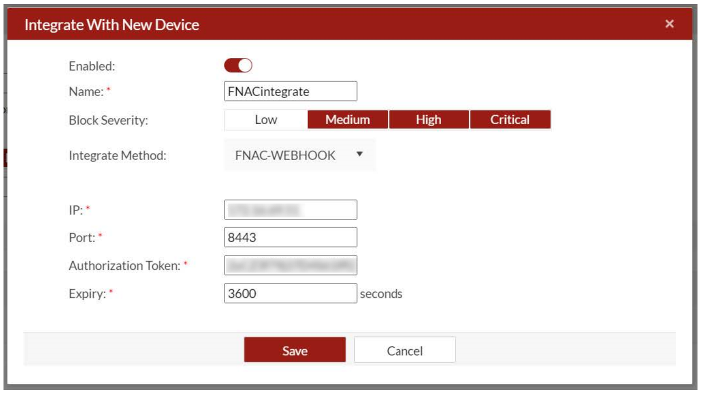
HTTP Header: whunblockheader : Empty

HTTP Data: ip : Hacker-IP

6. Configure the integration with FortiNAC (FNAC-WEBHOOK)

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click *Quarantine Integration With New Device*.
2. Configure the integration settings and click *Save*.

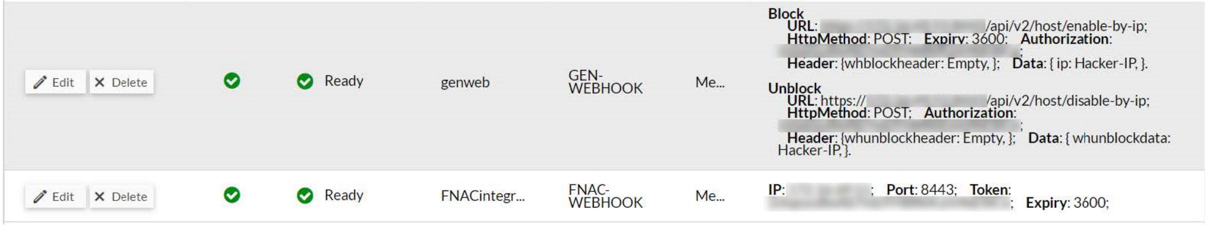
IP	Enter the FortiNAC address.
PORT	8443
Authorization Token	Enter the API access token you generated in Step 4.
Expiry	1-3600 (default is 3600).



Integrate With New Device

Enabled:	●
Name: *	FNACintegrate
Block Severity:	Low / **Medium** / **High** / **Critical**
Integrate Method:	FNAC-WEBHOOK ▾
IP: *	[redacted]
Port: *	8443
Authorization Token: *	[redacted]
Expiry: *	3600 seconds

3. Verify the device status is *Ready*.



Edit ✕ Delete	✓	✓ Ready	genweb	GEN-WEBHOOK	Me...	**Block** **URL**: [redacted]/api/v2/host/enable-by-ip; **HttpMethod**: POST; **Expiry**: 3600; **Authorization**: [redacted]; **Header**: {whblockheader: Empty, }; **Data**: { ip: Hacker-IP, }. **Unblock** **URL**: https://[redacted]/api/v2/host/disable-by-ip; **HttpMethod**: POST; **Authorization**: [redacted]; **Header**: {whunblockheader: Empty, }; **Data**: { whunblockdata: Hacker-IP, }.
Edit ✕ Delete	✓	✓ Ready	FNACintegr...	FNAC-WEBHOOK	Me...	**IP**: [redacted]; **Port**: 8443; **Token**: [redacted]; **Expiry**: 3600;

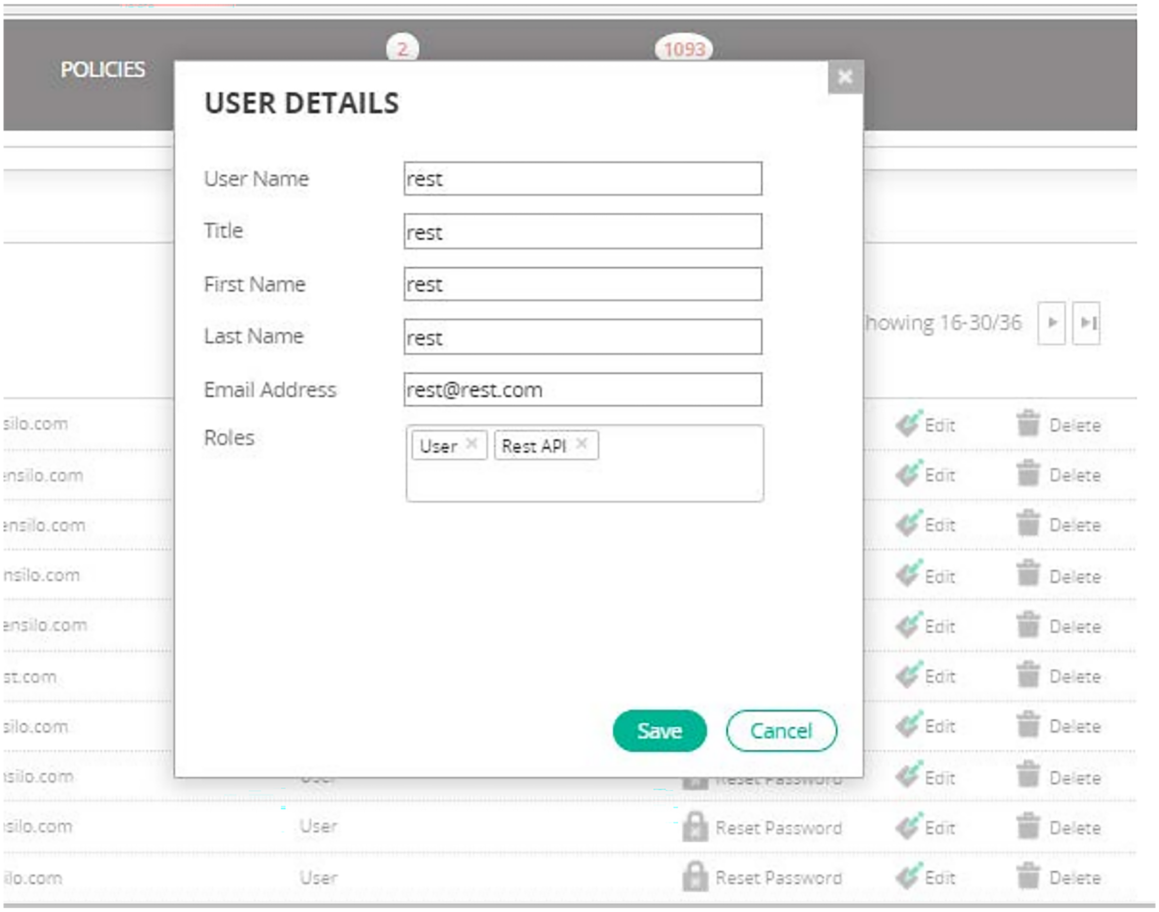
Integration with FortiEDR

To integrate FortiDeceptor with FortiEDR:

1. Configure FortiEDR.
2. Configuration on FortiDeceptor.

1. Configure FortiEDR

FortiDeceptor performs API calls using basic authentication by supplying a username and password. The user performing the calls must have the relevant REST API role defined in FortiEDR.



USER DETAILS

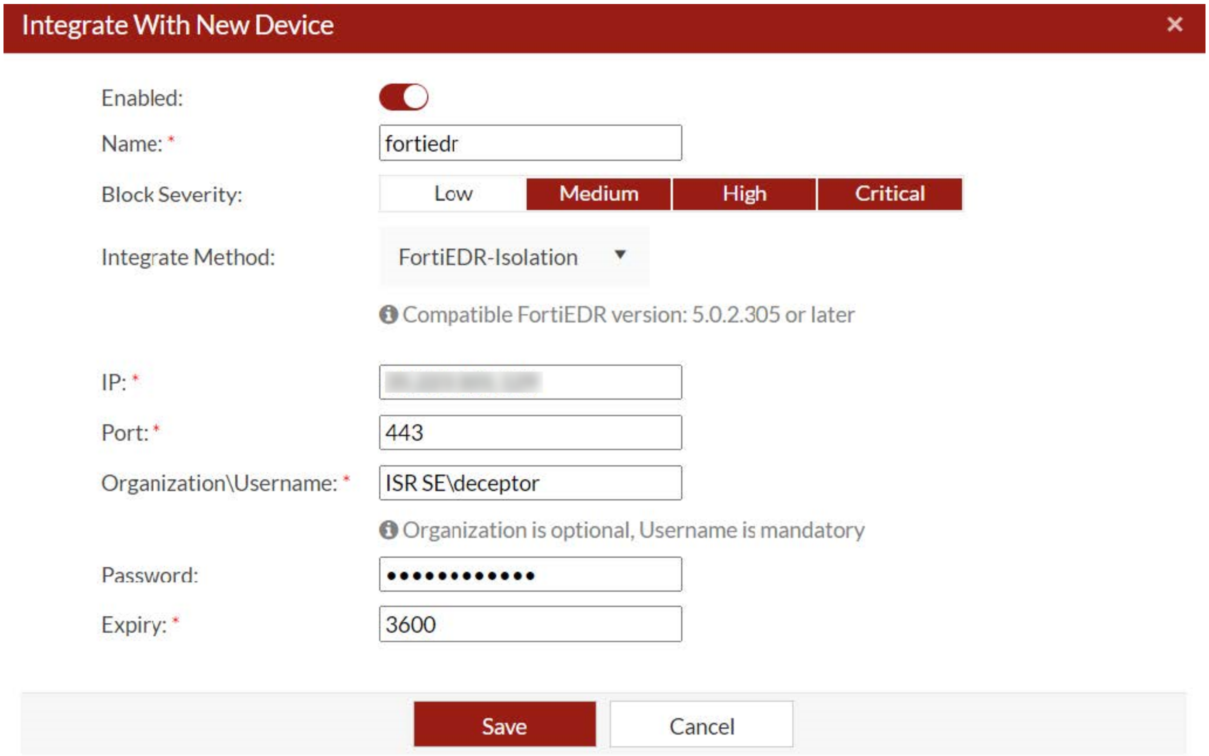
User Name	rest
Title	rest
First Name	rest
Last Name	rest
Email Address	rest@rest.com
Roles	User × Rest API ×

A user attempting to perform API calls without the REST API role sees a *401 Unauthorized Access* error code. The *Admin* role does not provide access to the REST API layer, and does not contain the REST API role.

2. Configuration on FortiDeceptor

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click *Quarantine Integration With New Device*.
2. Configure the integration settings and click *Save*.

Integrate Method	Select *FortiEDR-Isolation*.
IP	Enter the IP address of the FortiEDR.
Organization\Username	Separate the organization and username with a backslash (\) if organization is applicable.
Password	Enter the password for the FortiEDR username.



Integrate With New Device

Enabled: ●

Name: * fortiedr

Block Severity: Low [✓ Medium] [✓ High] [✓ Critical]

Integrate Method: FortiEDR-Isolation ▼

ℹ Compatible FortiEDR version: 5.0.2.305 or later

IP: * [redacted]

Port: * 443

Organization\Username: * ISR SE\deceptor

ℹ Organization is optional, Username is mandatory

Password: ••••••••••••

Expiry: * 3600

Integration with FortiAnalyzer

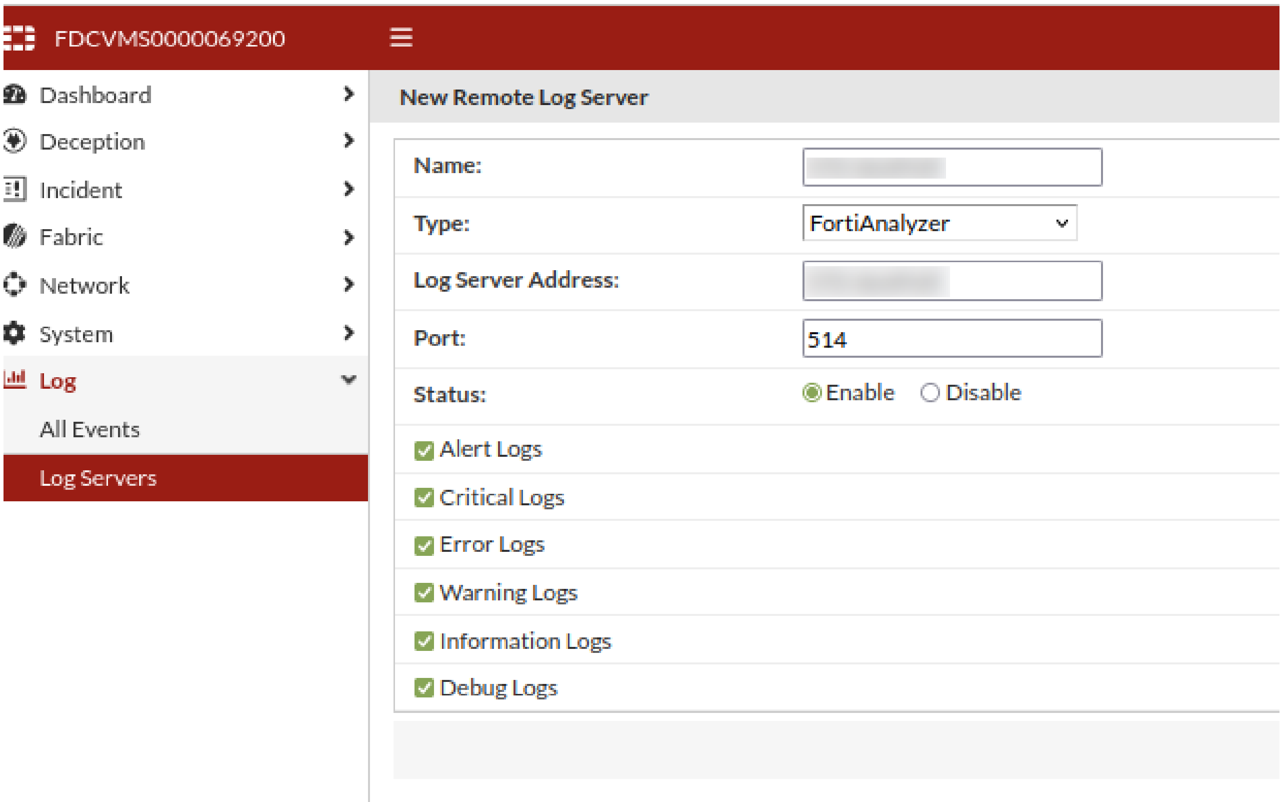
The steps in this topic assume the FortiDeceptor device has never to been connected to and has not been authorized by FortiAnalyzer.

To integrate FortiDeceptor with FortiAnalyzer:

1. Configure the Log Servers in FortiDeceptor.
2. Authorize FortiDeceptor in FortiAnalyzer.
3. Create the FortiDeceptor security report in FortiAnalyzer.

1. Configure the Log Servers in FortiDeceptor

1. In FortiDeceptor, go to *Log > Log Servers* and click *Create New*. The *New Remote Log Server* window opens.
2. Set the *Type* to *FortiAnalyzer* and enter the *Log Server Address*.



New Remote Log Server

Name:	[redacted]
Type:	FortiAnalyzer
Log Server Address:	[redacted]
Port:	514
Status:	● Enable ○ Disable

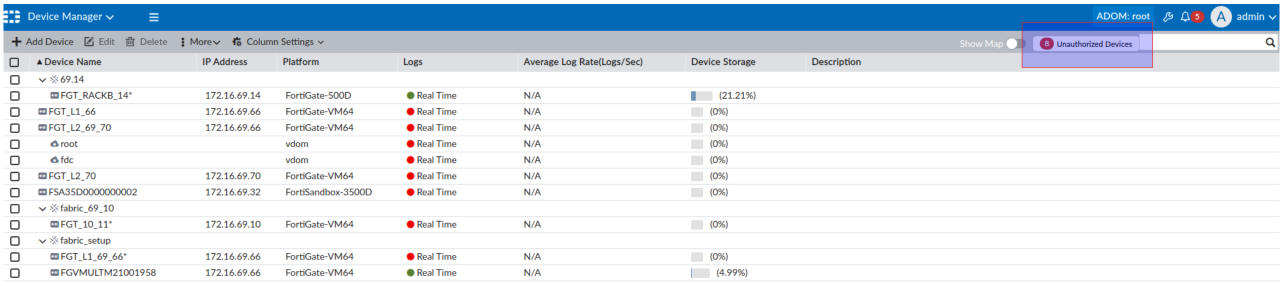
☑ Alert Logs
☑ Critical Logs
☑ Error Logs
☑ Warning Logs
☑ Information Logs
☑ Debug Logs

3. Configure the additional log server settings as required and click *OK*.

2. Authorize FortiDeceptor in FortiAnalyzer

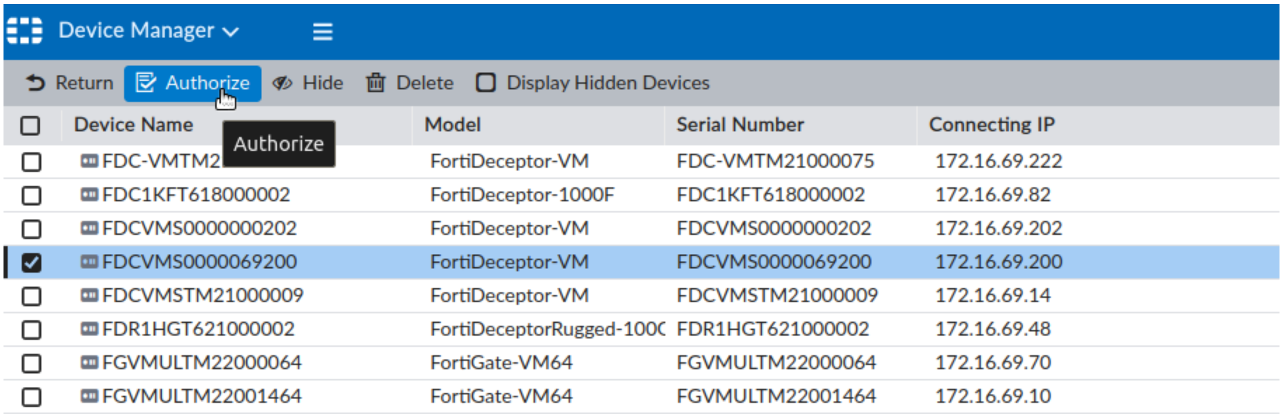
Allow a minimum of five minutes before attempting to authorize FortiDeceptor in FortiAnalyzer.

1. In FortiAnalyzer, go to *Device Manager*.
2. Search for FortiDeceptor in the *Unauthorized Devices* list. It may take up to half an hour for the device to appear in the list.



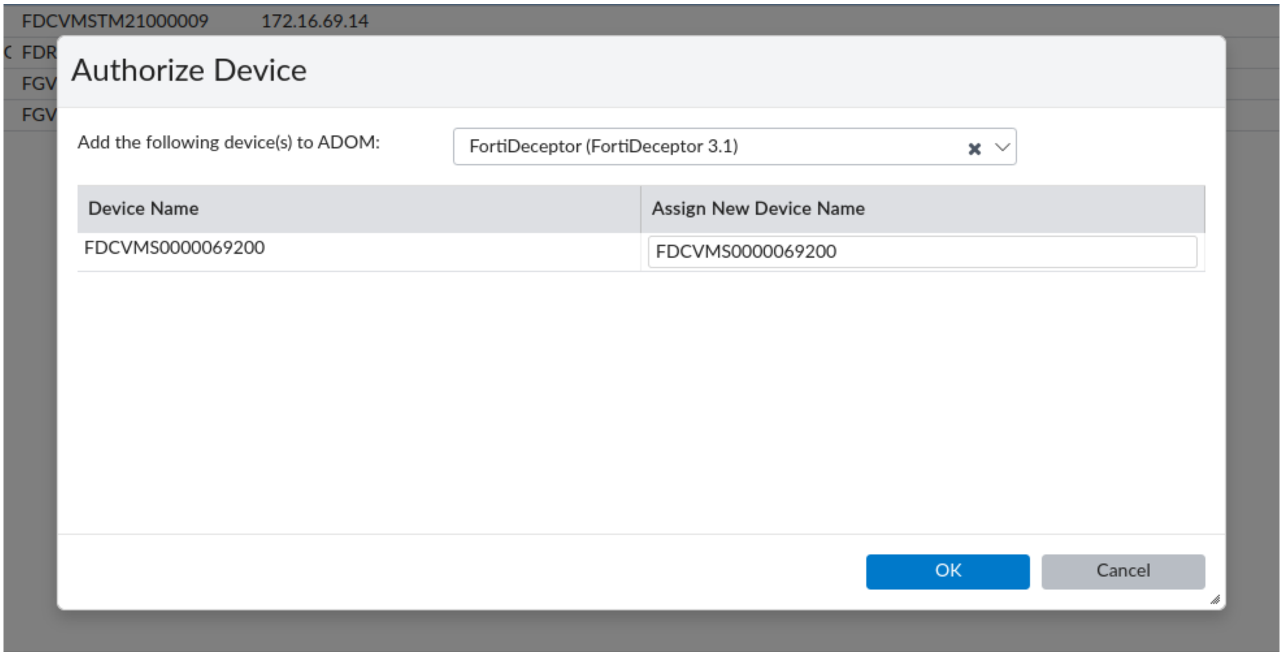
	Device Name	IP Address	Platform	Logs	Average Log Rate(Logs/Sec)	Device Storage	Description
□	69.14						
□	FGT_RACKB_14*	172.16.69.14	FortiGate-500D	● Real Time	N/A	(21.21%)	
□	FGT_L1_66	172.16.69.66	FortiGate-VM64	● Real Time	N/A	(0%)	
□	FGT_L2_69_70	172.16.69.66	FortiGate-VM64	● Real Time	N/A	(0%)	
□	root		vdom	● Real Time	N/A	(0%)	
□	fdc		vdom	● Real Time	N/A	(0%)	
□	FGT_L2_70	172.16.69.70	FortiGate-VM64	● Real Time	N/A	(0%)	
□	FSA35D0000000002	172.16.69.32	FortiSandbox-3500D	● Real Time	N/A	(0%)	
□	fabric_69_10						
□	FGT_10_11*	172.16.69.10	FortiGate-VM64	● Real Time	N/A	(0%)	
□	fabric_setup						
□	FGT_L1_69_66*	172.16.69.66	FortiGate-VM64	● Real Time	N/A	(0%)	
□	FGVMULTM21001958	172.16.69.66	FortiGate-VM64	● Real Time	N/A	(4.99%)	

3. Select the device and click *Authorize*. The *Authorize Device* dialog opens.



□	Device Name	Model	Serial Number	Connecting IP
□	FDC-VMTM2	FortiDeceptor-VM	FDC-VMTM21000075	172.16.69.222
□	FDC1KFT618000002	FortiDeceptor-1000F	FDC1KFT618000002	172.16.69.82
□	FDCVMS0000000202	FortiDeceptor-VM	FDCVMS0000000202	172.16.69.202
☑	FDCVMS0000069200	FortiDeceptor-VM	FDCVMS0000069200	172.16.69.200
□	FDCVMSTM21000009	FortiDeceptor-VM	FDCVMSTM21000009	172.16.69.14
□	FDR1HGT621000002	FortiDeceptorRugged-100C	FDR1HGT621000002	172.16.69.48
□	FGVMULTM22000064	FortiGate-VM64	FGVMULTM22000064	172.16.69.70
□	FGVMULTM22001464	FortiGate-VM64	FGVMULTM22001464	172.16.69.10

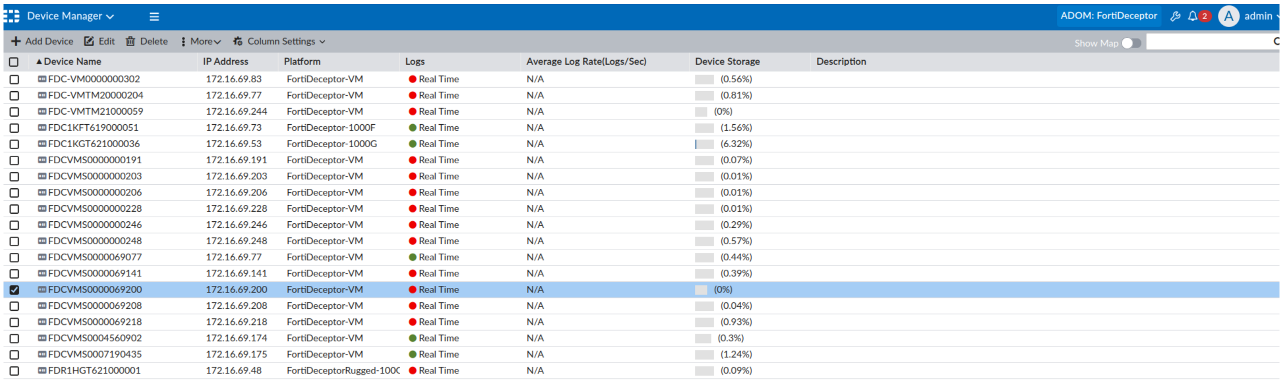
4. From the *Add the following device(s) to ADOM list*, select the ADOM you want to add the device to.



Add the following device(s) to ADOM: FortiDeceptor (FortiDeceptor 3.1)

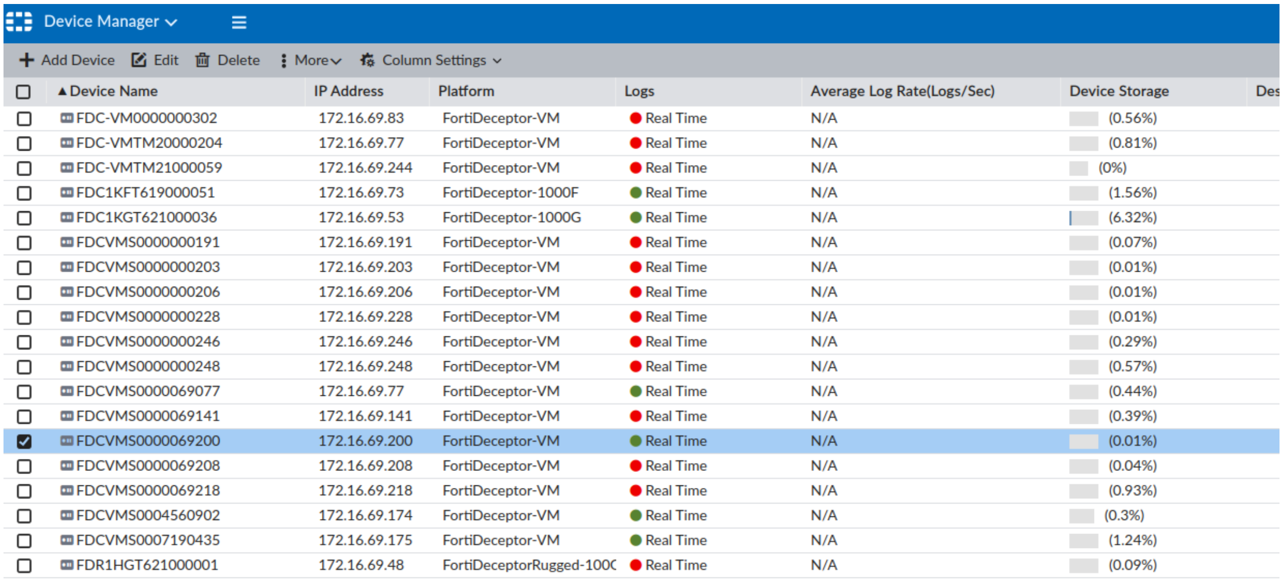
Device Name	Assign New Device Name
FDCVMS0000069200	FDCVMS0000069200

5. Go to the ADOM's *Device Manager* and verify the FortiDeceptor is added.



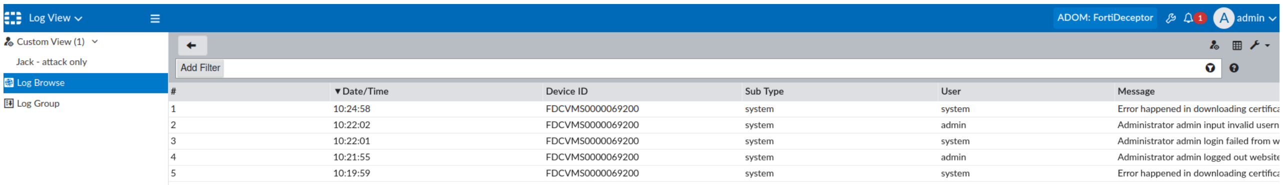
☐	▲Device Name	IP Address	Platform	Logs	Average Log Rate(Logs/Sec)	Device Storage	Description
☐	FDC-VM0000000302	172.16.69.83	FortiDeceptor-VM	🔴 Real Time	N/A	(0.56%)	
☐	FDC-VMTM20000204	172.16.69.77	FortiDeceptor-VM	🔴 Real Time	N/A	(0.81%)	
☐	FDC-VMTM21000059	172.16.69.244	FortiDeceptor-VM	🔴 Real Time	N/A	(0%)	
☐	FDC1KFT619000051	172.16.69.73	FortiDeceptor-1000F	🟢 Real Time	N/A	(1.56%)	
☐	FDC1KGT621000036	172.16.69.53	FortiDeceptor-1000G	🟢 Real Time	N/A	(6.32%)	
☐	FDCVMS0000000191	172.16.69.191	FortiDeceptor-VM	🔴 Real Time	N/A	(0.07%)	
☐	FDCVMS0000000203	172.16.69.203	FortiDeceptor-VM	🔴 Real Time	N/A	(0.01%)	
☐	FDCVMS0000000206	172.16.69.206	FortiDeceptor-VM	🔴 Real Time	N/A	(0.01%)	
☐	FDCVMS0000000228	172.16.69.228	FortiDeceptor-VM	🔴 Real Time	N/A	(0.01%)	
☐	FDCVMS0000000246	172.16.69.246	FortiDeceptor-VM	🔴 Real Time	N/A	(0.29%)	
☐	FDCVMS0000000248	172.16.69.248	FortiDeceptor-VM	🔴 Real Time	N/A	(0.57%)	
☐	FDCVMS0000069077	172.16.69.77	FortiDeceptor-VM	🟢 Real Time	N/A	(0.44%)	
☐	FDCVMS0000069141	172.16.69.141	FortiDeceptor-VM	🔴 Real Time	N/A	(0.39%)	
☑	FDCVMS0000069200	172.16.69.200	FortiDeceptor-VM	🔴 Real Time	N/A	(0%)	
☐	FDCVMS0000069208	172.16.69.208	FortiDeceptor-VM	🔴 Real Time	N/A	(0.04%)	
☐	FDCVMS0000069218	172.16.69.218	FortiDeceptor-VM	🔴 Real Time	N/A	(0.93%)	
☐	FDCVMS0004560902	172.16.69.174	FortiDeceptor-VM	🟢 Real Time	N/A	(0.3%)	
☐	FDCVMS0007190435	172.16.69.175	FortiDeceptor-VM	🟢 Real Time	N/A	(1.24%)	
☐	FDR1HGT621000001	172.16.69.48	FortiDeceptorRugged-100C	🔴 Real Time	N/A	(0.09%)	

6. In the *Logs* column, the status will display a red dot until FortiDeceptor generates syslogs. A green dot indicates the device is connected and functioning properly.



☐	▲Device Name	IP Address	Platform	Logs	Average Log Rate(Logs/Sec)	Device Storage	Des
☐	FDC-VM0000000302	172.16.69.83	FortiDeceptor-VM	🔴 Real Time	N/A	(0.56%)	
☐	FDC-VMTM20000204	172.16.69.77	FortiDeceptor-VM	🔴 Real Time	N/A	(0.81%)	
☐	FDC-VMTM21000059	172.16.69.244	FortiDeceptor-VM	🔴 Real Time	N/A	(0%)	
☐	FDC1KFT619000051	172.16.69.73	FortiDeceptor-1000F	🟢 Real Time	N/A	(1.56%)	
☐	FDC1KGT621000036	172.16.69.53	FortiDeceptor-1000G	🟢 Real Time	N/A	(6.32%)	
☐	FDCVMS0000000191	172.16.69.191	FortiDeceptor-VM	🔴 Real Time	N/A	(0.07%)	
☐	FDCVMS0000000203	172.16.69.203	FortiDeceptor-VM	🔴 Real Time	N/A	(0.01%)	
☐	FDCVMS0000000206	172.16.69.206	FortiDeceptor-VM	🔴 Real Time	N/A	(0.01%)	
☐	FDCVMS0000000228	172.16.69.228	FortiDeceptor-VM	🔴 Real Time	N/A	(0.01%)	
☐	FDCVMS0000000246	172.16.69.246	FortiDeceptor-VM	🔴 Real Time	N/A	(0.29%)	
☐	FDCVMS0000000248	172.16.69.248	FortiDeceptor-VM	🔴 Real Time	N/A	(0.57%)	
☐	FDCVMS0000069077	172.16.69.77	FortiDeceptor-VM	🟢 Real Time	N/A	(0.44%)	
☐	FDCVMS0000069141	172.16.69.141	FortiDeceptor-VM	🔴 Real Time	N/A	(0.39%)	
☑	FDCVMS0000069200	172.16.69.200	FortiDeceptor-VM	🟢 Real Time	N/A	(0.01%)	
☐	FDCVMS0000069208	172.16.69.208	FortiDeceptor-VM	🔴 Real Time	N/A	(0.04%)	
☐	FDCVMS0000069218	172.16.69.218	FortiDeceptor-VM	🔴 Real Time	N/A	(0.93%)	
☐	FDCVMS0004560902	172.16.69.174	FortiDeceptor-VM	🟢 Real Time	N/A	(0.3%)	
☐	FDCVMS0007190435	172.16.69.175	FortiDeceptor-VM	🟢 Real Time	N/A	(1.24%)	
☐	FDR1HGT621000001	172.16.69.48	FortiDeceptorRugged-100C	🔴 Real Time	N/A	(0.09%)	

7. Go to *Log View* and select this FortiDeceptor to view the logs.

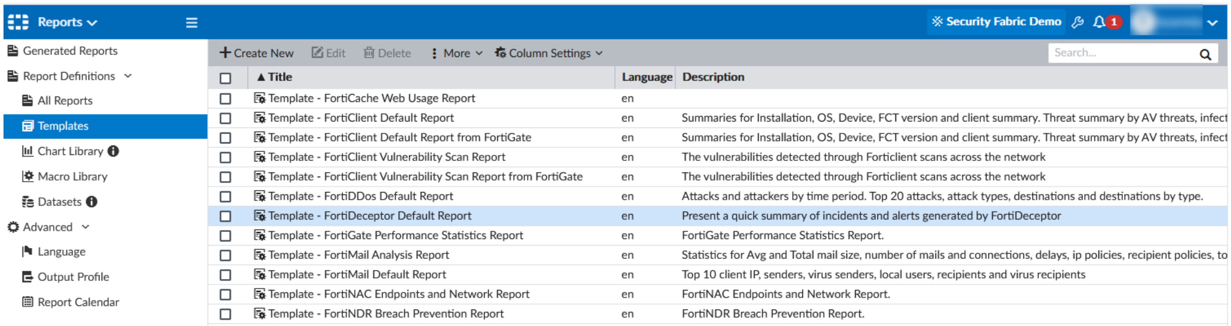


#	▼Date/Time	Device ID	Sub Type	User	Message
1	10:24:58	FDCVMS0000069200	system	system	Error happened in downloading certifica
2	10:22:02	FDCVMS0000069200	system	admin	Administrator admin input invalid usern
3	10:22:01	FDCVMS0000069200	system	system	Administrator admin login failed from w
4	10:21:55	FDCVMS0000069200	system	admin	Administrator admin logged out website
5	10:19:59	FDCVMS0000069200	system	system	Error happened in downloading certifica

3. Create the FortiDeceptor security report in FortiAnalyzer

1. In FortiAnalyzer, create the report template:
   a. Open the *Reports* module.
   b. Go to the *Reports* > *Report Definitions* > *Templates*.

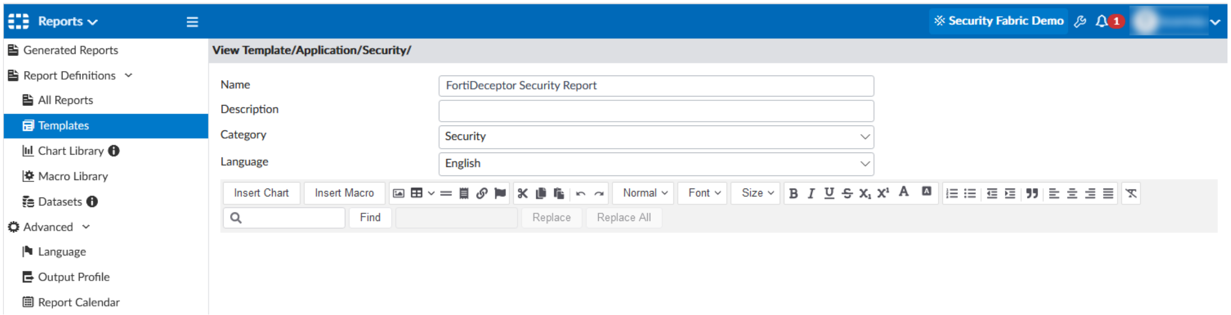
c. In the template list, select *FortiDeceptor Default Report*.



□	▲Title	Language	Description
□	Template - FortiCache Web Usage Report	en	
□	Template - FortiClient Default Report	en	Summaries for Installation, OS, Device, FCT version and client summary. Threat summary by AV threats, infect
□	Template - FortiClient Default Report from FortiGate	en	Summaries for Installation, OS, Device, FCT version and client summary. Threat summary by AV threats, infect
□	Template - FortiClient Vulnerability Scan Report	en	The vulnerabilities detected through Forticlient scans across the network
□	Template - FortiClient Vulnerability Scan Report from FortiGate	en	The vulnerabilities detected through Forticlient scans across the network
□	Template - FortiDDos Default Report	en	Attacks and attackers by time period. Top 20 attacks, attack types, destinations and destinations by type.
□	Template - FortiDeceptor Default Report	en	Present a quick summary of incidents and alerts generated by FortiDeceptor
□	Template - FortiGate Performance Statistics Report	en	FortiGate Performance Statistics Report.
□	Template - FortiMail Analysis Report	en	Statistics for Avg and Total mail size, number of mails and connections, delays, ip policies, recipient policies, to
□	Template - FortiMail Default Report	en	Top 10 client IP, senders, virus senders, local users, recipients and virus recipients
□	Template - FortiNAC Endpoints and Network Report	en	FortiNAC Endpoints and Network Report.
□	Template - FortiNDR Breach Prevention Report	en	FortiNDR Breach Prevention Report.

d. In the toolbar, click *Create New*.

e. Give the template a descriptive *Name* such as `FortiDeceptor Security Report` and from the *Category* dropdown, select *Security*.



View Template/Application/Security/

Name	FortiDeceptor Security Report
Description	
Category	Security
Language	English

f. Configure the rest of the template settings as required and click *OK*. For information, see *Creating report templates* in the *FortiAnalyzer Administration Guide*.

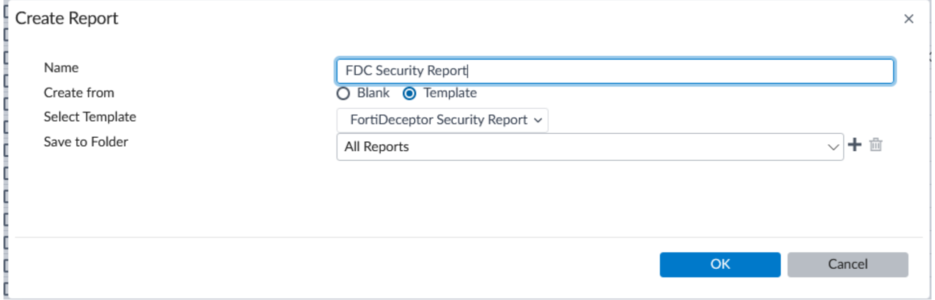
2. Create the report:

a. Go to the *Reports > Report Definitions*.

b. In the toolbar, click *Report > Create New*.

c. Give the report a distinctive *Name*.

d. Next to *Create From*, select *Template* and from the *Select Template* dropdown, select the FortiDeceptor template you created.



Create Report

Name	FDC Security Report
Create from	○ Blank ● Template
Select Template	FortiDeceptor Security Report
Save to Folder	All Reports

e. Select the folder to save the report and click *OK*.

For more information about creating reports in FortiAnalyzer see *Reports*in the *FortiAnalyzer Administration Guide*.

Integration with FortiGate over Webhook

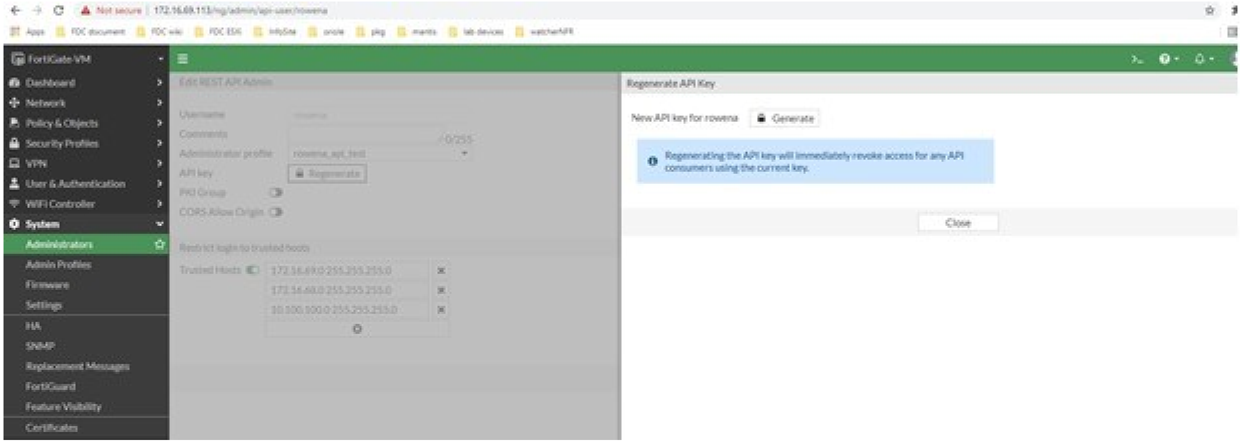
This topic describes how to integrate FortiDeceptor with FortiGate versions 6.4 and 7.0. The GUI may vary depending the version of FortiGate/FortiOS you are using. For more information about Automation Stitches, select the version of *FortiGate / FortiOS Administration Guide* you are using in the Fortinet Document Library.

To integrate FortiDeceptor with FortiGate over Webhook:

1. Configure the API key on FortiGate.
2. Configure Webhook on FortiGate 6.4.x .
3. Configure Webhook on FortiGate 7.0.x .
4. Configure FortiDeceptor to integrate with FortiGate over Webhook.

1. Configure the API key on FortiGate

1. In FortiGate, go to *System* > *Administrators* and select a user.
2. Next to *API Key*, click *Regenerate*, then copy the API key.



Administrator profile: rowena_api_test

Trusted Hosts: 172.16.69.0 255.255.255.0, 172.16.68.0 255.255.255.0, 10.100.100.0 255.255.255.0

Regenerating the API key will immediately revoke access for any API consumers using the current key.

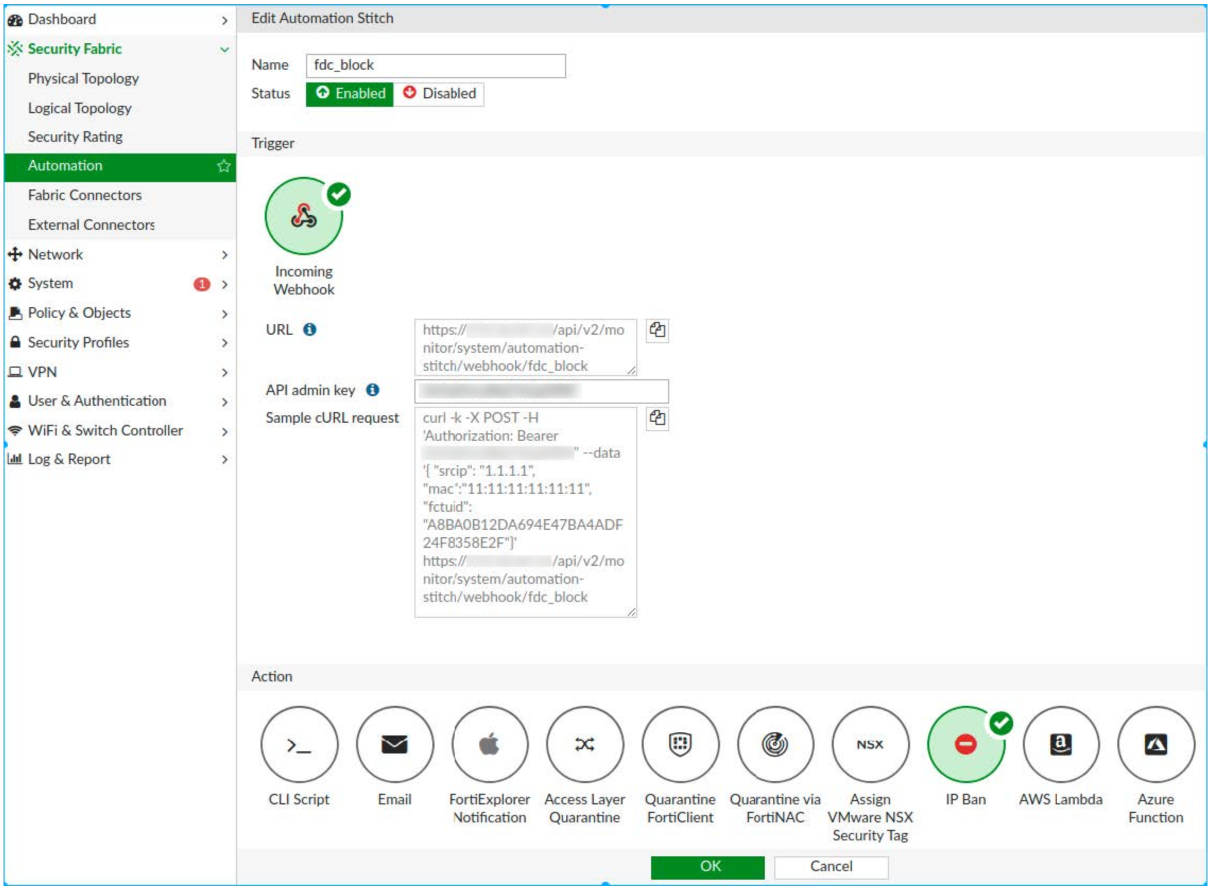
2. Configure Webhook on FortiGate 6.4.x

For information about creating and editing webhooks in FortiGate, see *Automation webhook stitches* in the *FortiGate / FortiOS 6.4.0 Administration Guide*.

2.1 Configure the incoming webhook for block action

1. Go to *Security Fabric* > *Automation*.
2. Create a new Automation Stitch
   1. In the toolbar, click *Create New*.
   2. Under *Trigger* click *Incoming Webhook*.
   3. Under *Action*, click *IP Ban*.
   4. In the *API admin key* field, enter the API key you recorded in Step 1. Configure the API key on FortiGate . A Sample cURL request is created.

e. Copy the *Sample cURL request*.



Name: fdc_block

Status: Enabled | Disabled

URL: https://[redacted]/api/v2/monitor/system/automation-stitch/webhook/fdc_block

API admin key: [redacted]

Sample cURL request:

```
curl -k -X POST -H
'Authorization: Bearer
[redacted]' --data
'{ "srcip": "1.1.1.1",
"mac":"11:11:11:11:11:11",
"fctuid":
"A8BA0B12DA694E47BA4ADF
24F8358E2F"}'
https://[redacted]/api/v2/mo
nitor/system/automation-
stitch/webhook/fdc_block
```

3. Execute the request:

   a. Edit the sample cURL you recorded in the previous step.

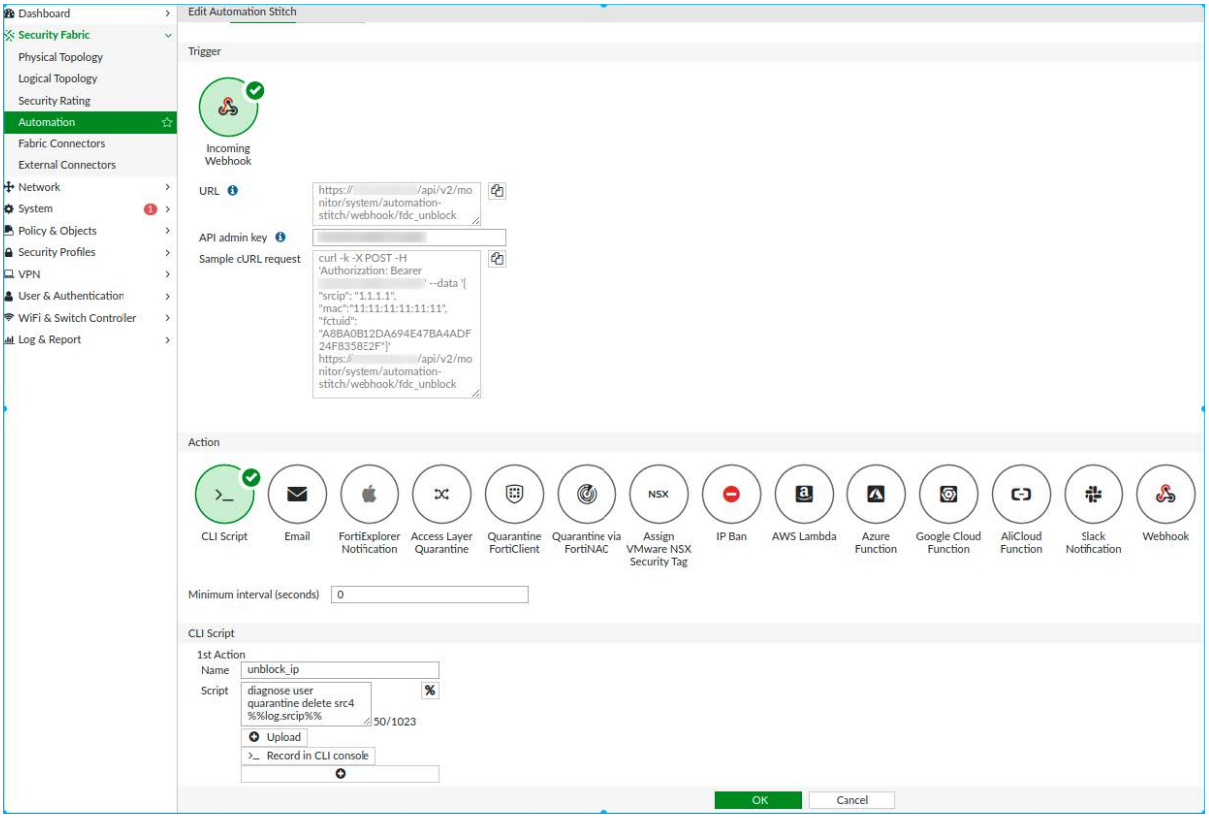
   b. Edit parameters to the data field (“`srcip`”, "`mac`" and "`fctuid`"), and then execute the request.

```
root@pc:~# curl -k -X POST -H 'Authorization: Bearer cfgtct1mmx3fQxr4khb994p7swdfmk' --
      data '{ "mac":"0c:0a:00:0c:ce:b0", "fctuid": "0000BB0B0ABD0D00B0D0A0B0E0F0B00B"}'
      https://172.16.116.226/api/v2/monitor/system/automation-
      stitch/webhook/Incoming%20Webhook%20Quarantine
{
   "http_method":"POST",
   "status":"success",
   "http_status":200,
   "serial":"FGT00E0Q00000000",
   "version":"v6.4.0",
   "build":1545
```

Encode the spaces in the automation-stitch name with `%20`. For example, `Incoming%20Webhook%20Quarantine`

2.2 Configure the incoming webhook for unblock action

1. Go to *Security Fabric* > *Automation*.
2. Create a new Automation Stitch
   a. In the toolbar, click *Create New*.
   b. Under *Trigger* click *Incoming Webhook*.
   c. Under *Action*, click *CLI Script*.
   d. Under CLI Script, in the *Script* field enter the following command: `diagnose user quarantine delete src4 %%log.srcip%%`
   e. In the *API admin key* field, enter the API key you recorded in the previous Step 1. Configure the API key on FortiGate . A Sample cURL request is created.



URL: https://[redacted]/api/v2/monitor/system/automation-stitch/webhook/fdc_unblock

API admin key: [redacted]

Sample cURL request:

```
curl -k -X POST -H
'Authorization: Bearer
[redacted]' --data '{
"srcip": "1.1.1.1",
"mac":"11:11:11:11:11:11",
"fctuid":
"A8BA0B12DA694E47BA4ADF
24F8358E2F"}'
https://[redacted]/api/v2/mo
nitor/system/automation-
stitch/webhook/fdc_unblock
```

Minimum interval (seconds): 0

CLI Script

1st Action

Name: unblock_ip

Script:

```
diagnose user
quarantine delete src4
%%log.srcip%%
```

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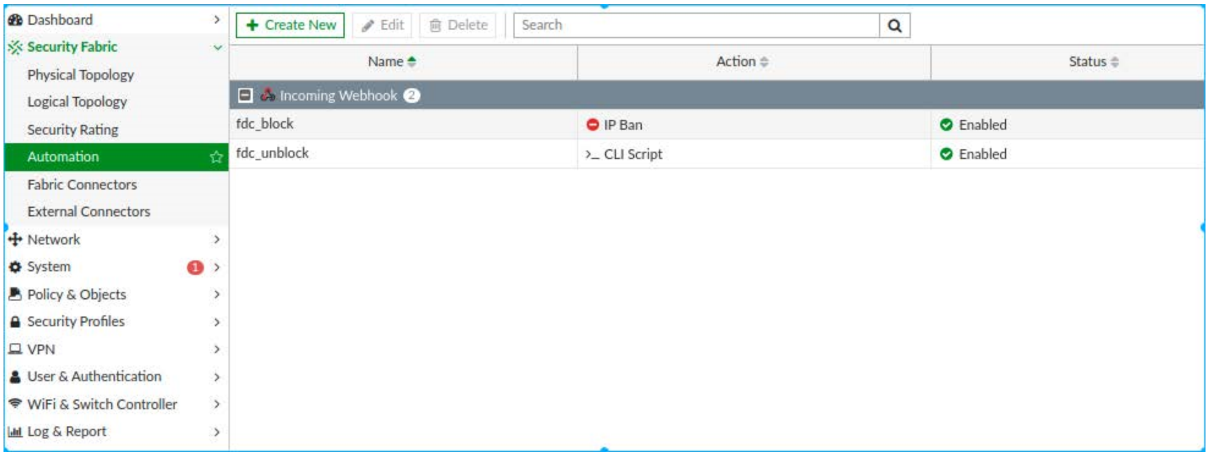
2.3 Review the configuration on FortiGate side

In FortiGate, go to *Security Fabric* > *Automation* and verify the *Status* for the block and unblock webhooks are *Enabled*.



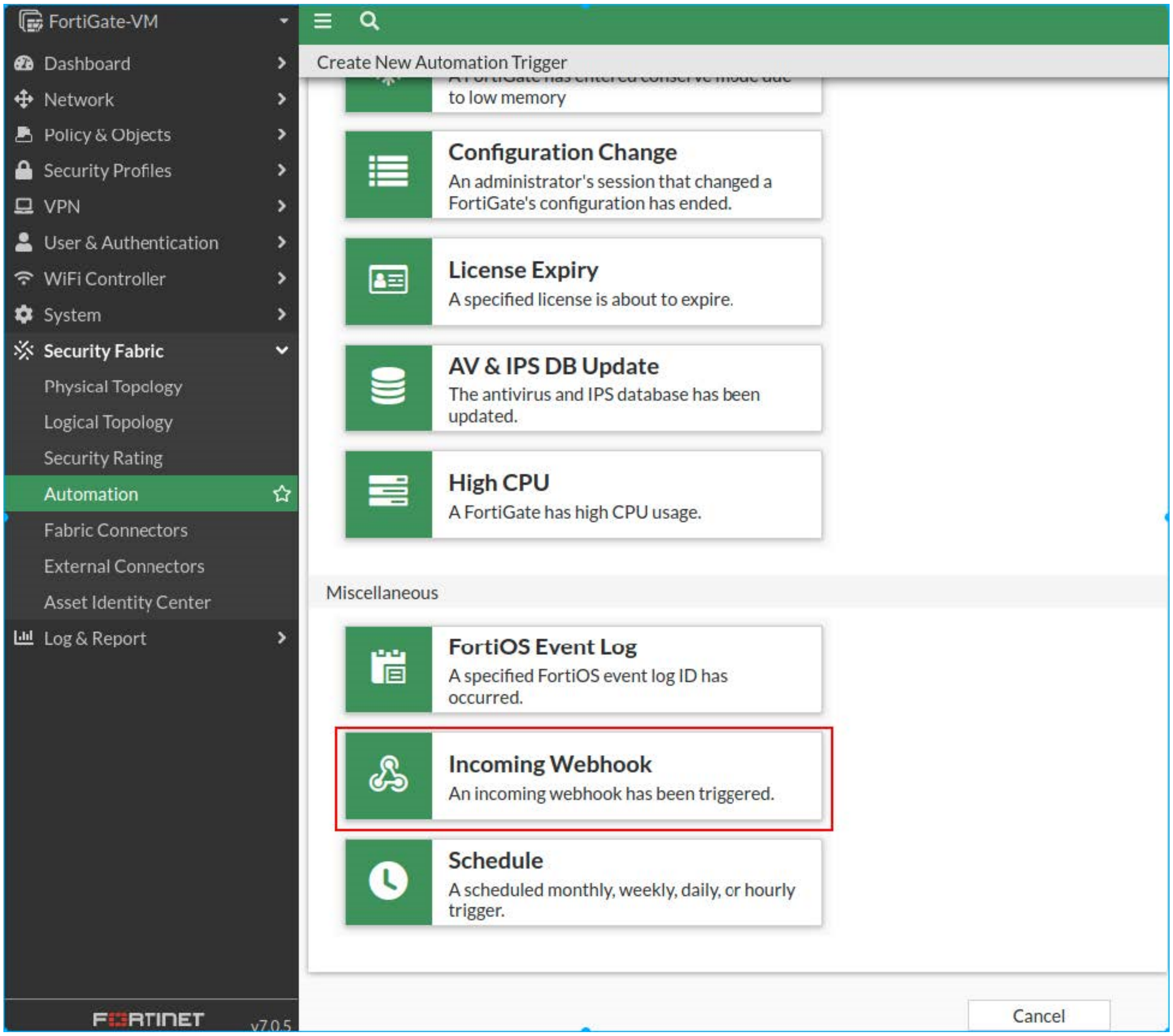
Name	Action	Status
Incoming Webhook 2		
fdc_block	IP Ban	Enabled
fdc_unblock	CLI Script	Enabled

3. Configure Webhook on FortiGate 7.0.x

3.1 Configure the incoming webhook for block automation

1. Go to *Security Fabric* > *Automation*.
2. In the banner, click *Trigger* > *Create New*. The *Create New Automation Trigger* page opens.

3. Click *Incoming Webhook*. The *Create New Automation Trigger* dialog opens.



Create New Automation Trigger

to low memory

Configuration Change
An administrator's session that changed a FortiGate's configuration has ended.

License Expiry
A specified license is about to expire.

AV & IPS DB Update
The antivirus and IPS database has been updated.

High CPU
A FortiGate has high CPU usage.

Miscellaneous

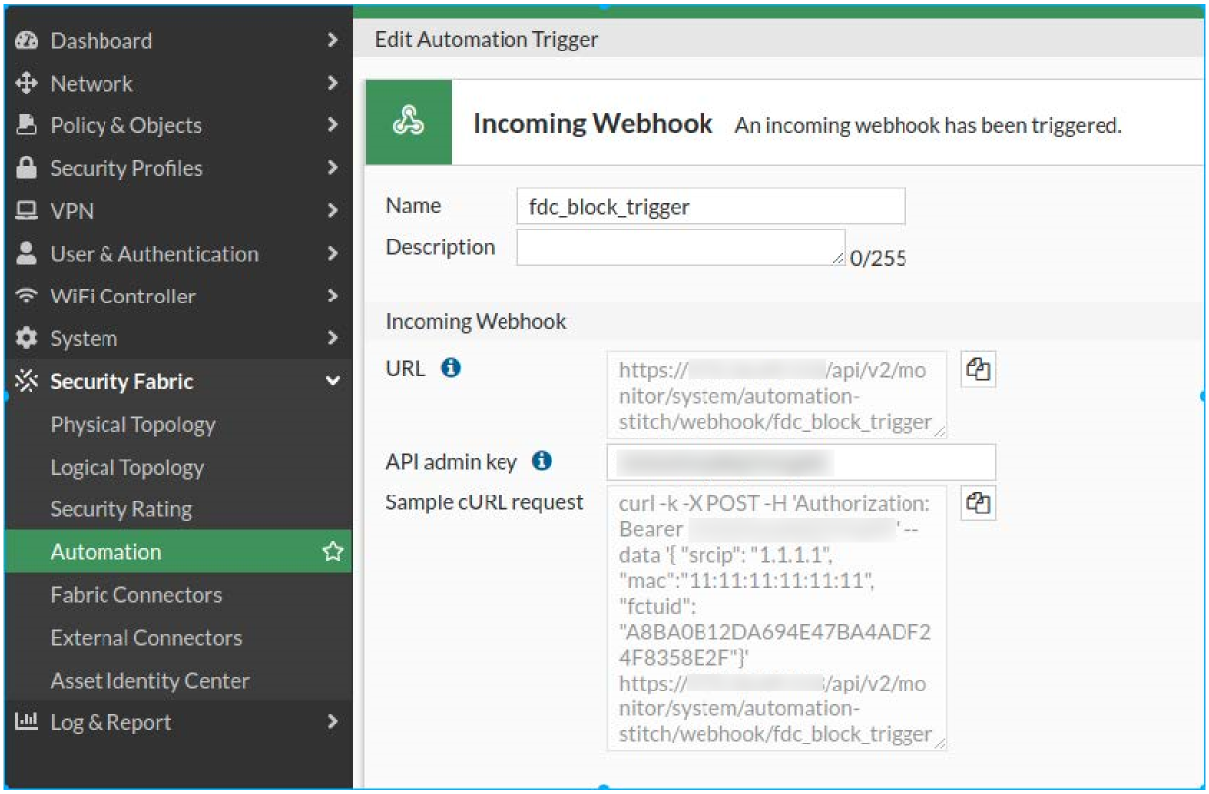
FortiOS Event Log
A specified FortiOS event log ID has occurred.

Incoming Webhook
An incoming webhook has been triggered.

Schedule
A scheduled monthly, weekly, daily, or hourly trigger.

4. Give the trigger a descriptive name such as `fdc_block_trigger`and click *OK*.

5. Enter the *API admin key* and click *OK*.



Name: fdc_block_trigger

Description: 0/255

URL: https://[redacted]/api/v2/monitor/system/automation-stitch/webhook/fdc_block_trigger

API admin key: [redacted]

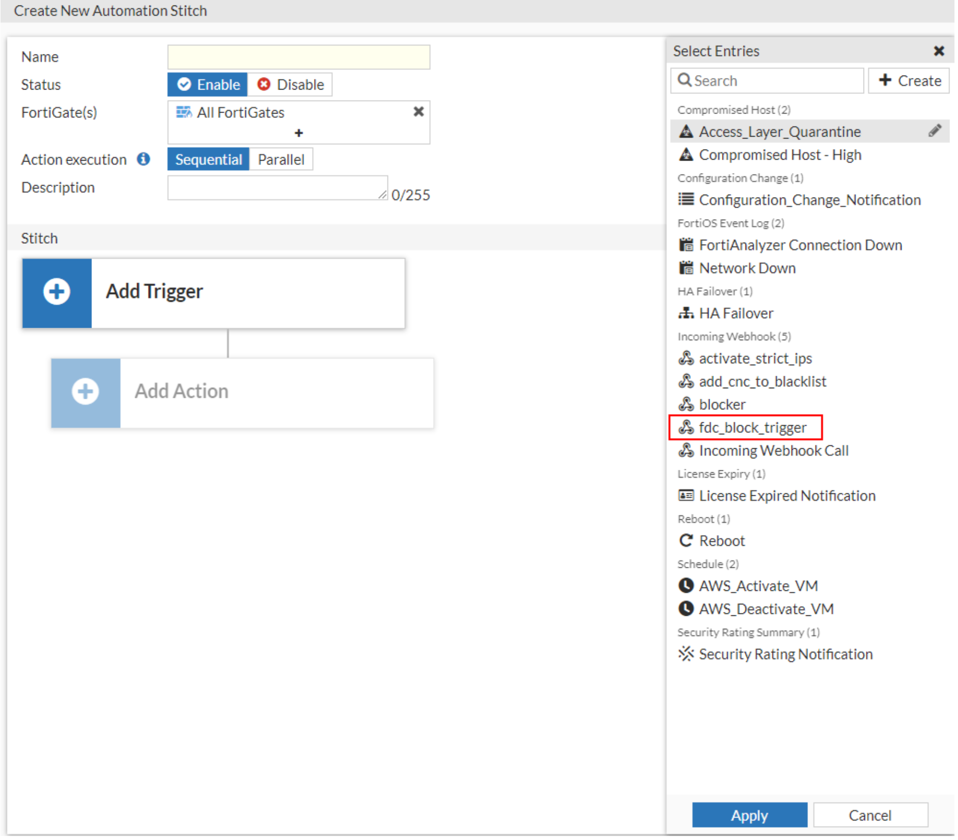
Sample cURL request:

```
curl -k -X POST -H 'Authorization: Bearer [redacted]' --data '{ "srcip": "1.1.1.1", "mac":"11:11:11:11:11:11", "fctuid": "A8BA0B12DA694E47BA4ADF24F8358E2F"}' https://[redacted]/api/v2/monitor/system/automation-stitch/webhook/fdc_block_trigger
```

3.2 Create block stitch with the block trigger

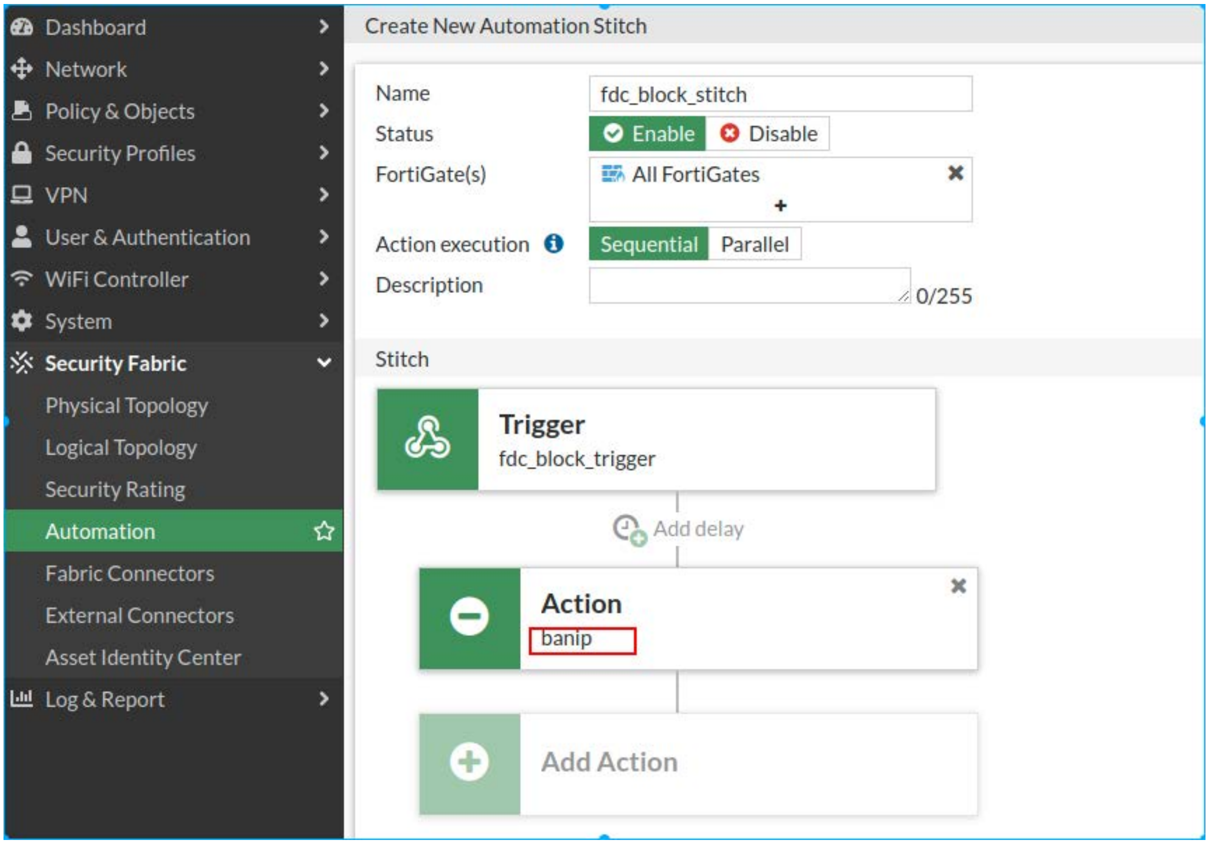
1. Go to *Security Fabric* > *Automation*.
2. In the banner, click *Stitch* > *Create New*. The *Create New Automation Stitch* page opens.
3. Click *Add Trigger*. The *Select Entries* pane opens.

4. Select the `fdc_block_trigger` you created and click *Apply*.



5. Click *Add Action*. The *Select Entries* pane opens.
6. Click *Create*. The *Create New Automation Trigger* windows opens.
7. Click *IP Ban*. Enter a *Name* such as `banip` and click *OK*.

8. Select the action you created (`banip`), click *Apply* and click *OK*.



Create New Automation Stitch

Name: fdc_block_stitch

Status: Enable | Disable

FortiGate(s): All FortiGates

Action execution: Sequential | Parallel

Description: 0/255

Stitch

Trigger
fdc_block_trigger

Add delay

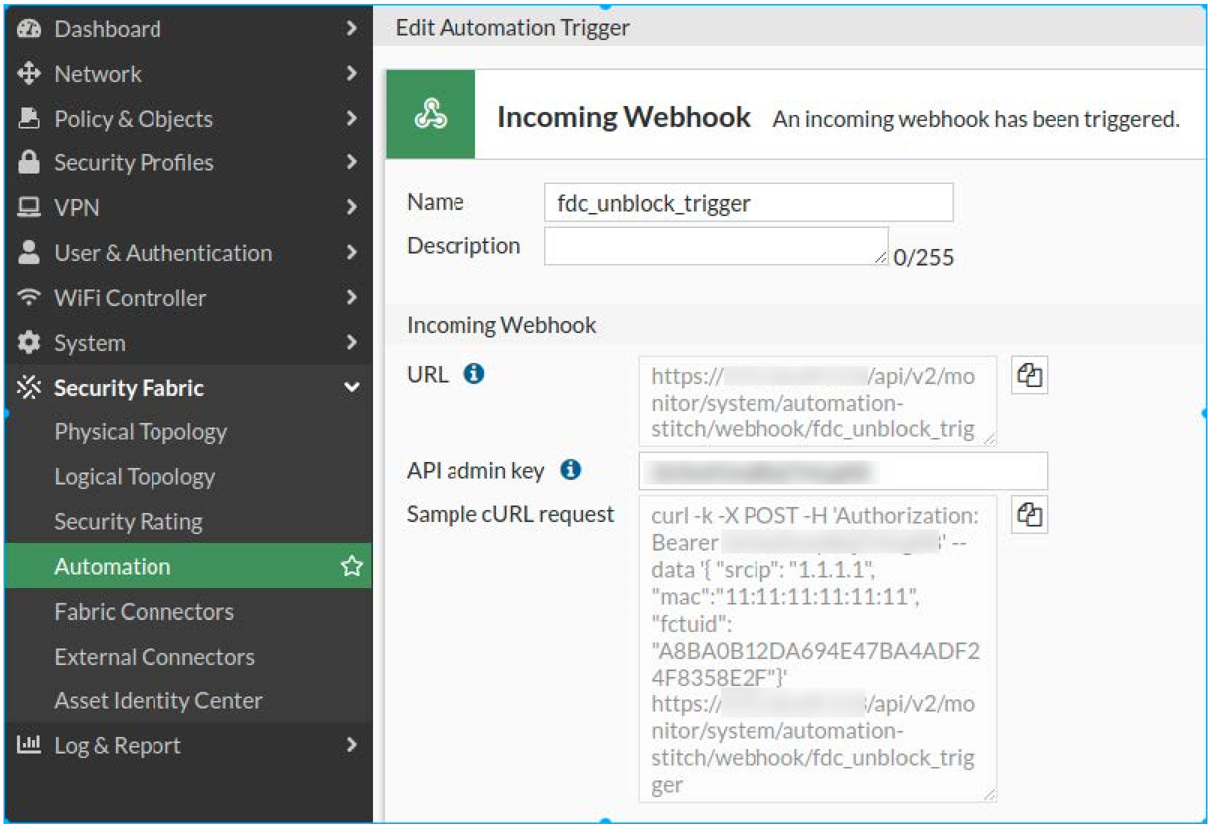
Action
banip

Add Action

3.3 Configure the incoming webhook for unblock automation

1. Go to *Security Fabric* > *Automation*.
2. In the banner, click *Trigger* > *Create New*. The *Create New Automation Trigger* page opens.
3. Click *Incoming Webhook*. The *Create New Automation Trigger* dialog opens.
4. Give the Trigger a descriptive name such as `fdc_unblock_trigger`and click *OK*.

5. Enter the *API admin key* and click *OK*.



Edit Automation Trigger

Incoming Webhook An incoming webhook has been triggered.

Name: fdc_unblock_trigger

Description: 0/255

Incoming Webhook

URL: https://[redacted]/api/v2/monitor/system/automation-stitch/webhook/fdc_unblock_trig

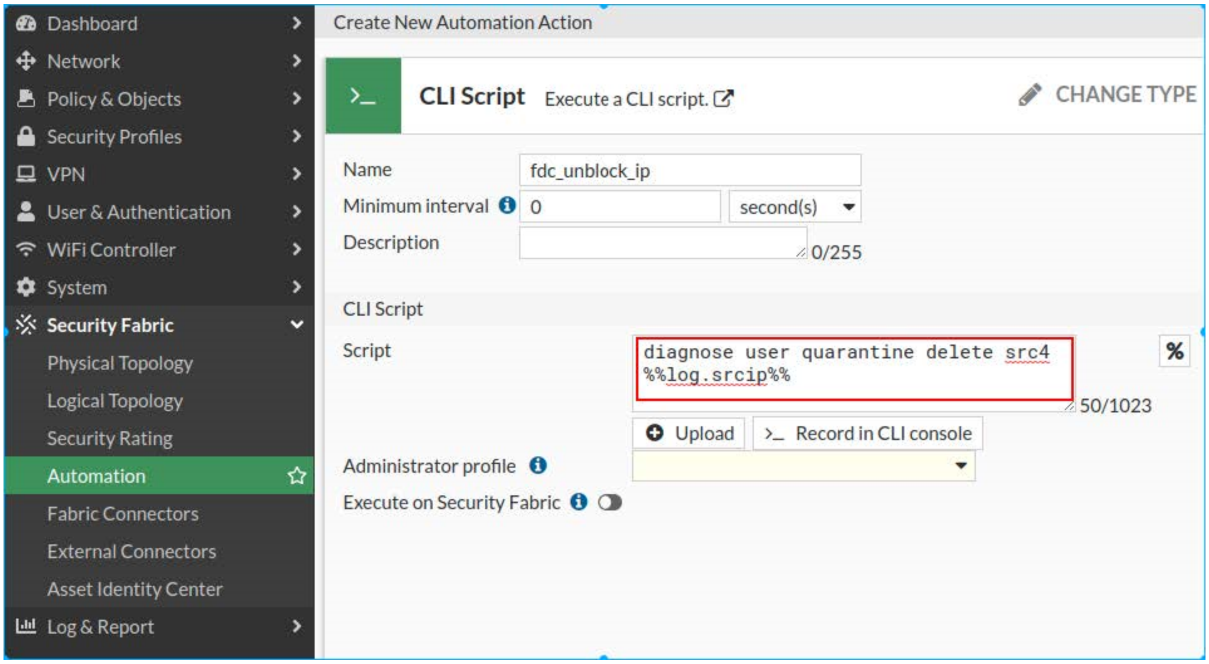
API admin key: [redacted]

Sample cURL request:

```
curl -k -X POST -H 'Authorization: Bearer [redacted]' --data '{ "srcip": "1.1.1.1", "mac":"11:11:11:11:11:11", "fctuid": "A8BA0B12DA694E47BA4ADF24F8358E2F"}' https://[redacted]/api/v2/monitor/system/automation-stitch/webhook/fdc_unblock_trigger
```

3.4 Create unblock action with CLI script

1. Go to *Security Fabric* > *Automation*.
2. In the banner, click *Stitch* > *Create New*. The *Create New Automation Stitch* page opens.
3. Click *Add Trigger*. The *Select Entries* pane opens.
4. Select the `fdc_unblock_trigger` you created and click *Apply*.
5. Click *Add Action*. The *Select Entries* pane opens.
6. Click *Create*. The *Create New Automation Trigger* windows opens.
7. In the *Search* field enter `CLI` and click the *CLI Script* tile. The *Create New Automation Action* opens.
8. Click *IP Ban*. Enter a *Name* such as `fdc_unblock_ip`.
9. In the *Script* field enter the following command: `diagnose user quarantine delete src4 %%log.srcip%%`.



Name: fdc_unblock_ip

Minimum interval: 0 second(s)

Description: 0/255

CLI Script

Script:

```
diagnose user quarantine delete src4
%%log.srcip%%
```

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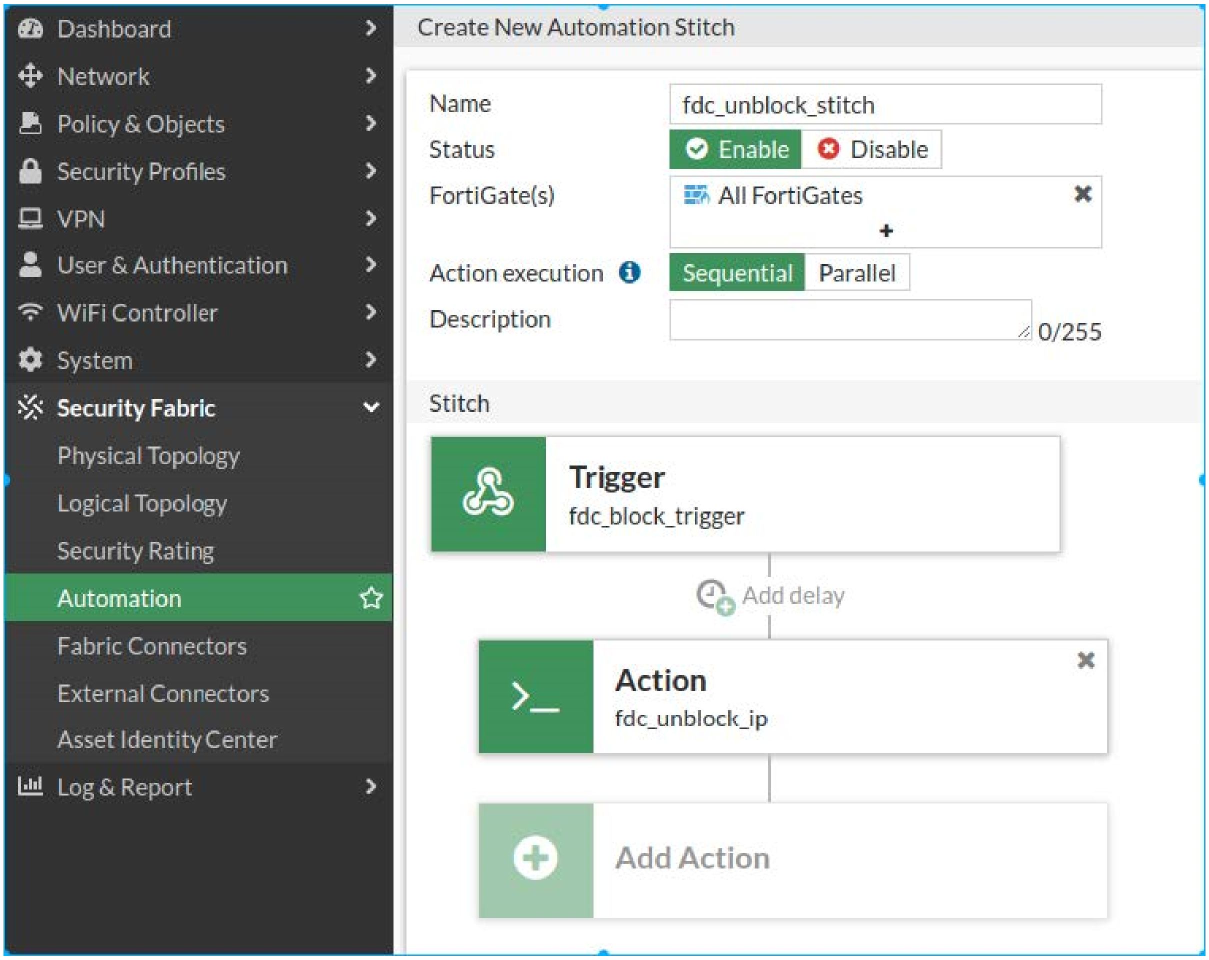
Administrator profile

Execute on Security Fabric

10. Click *OK*.

11. Click *Add Action*. From the *Add Entries* pane, select the Action you created (`fdc_unblock_ip`) and click *Apply*.



Name: fdc_unblock_stitch
Status: Enable | Disable
FortiGate(s): All FortiGates
Action execution: Sequential | Parallel
Description: 0/255

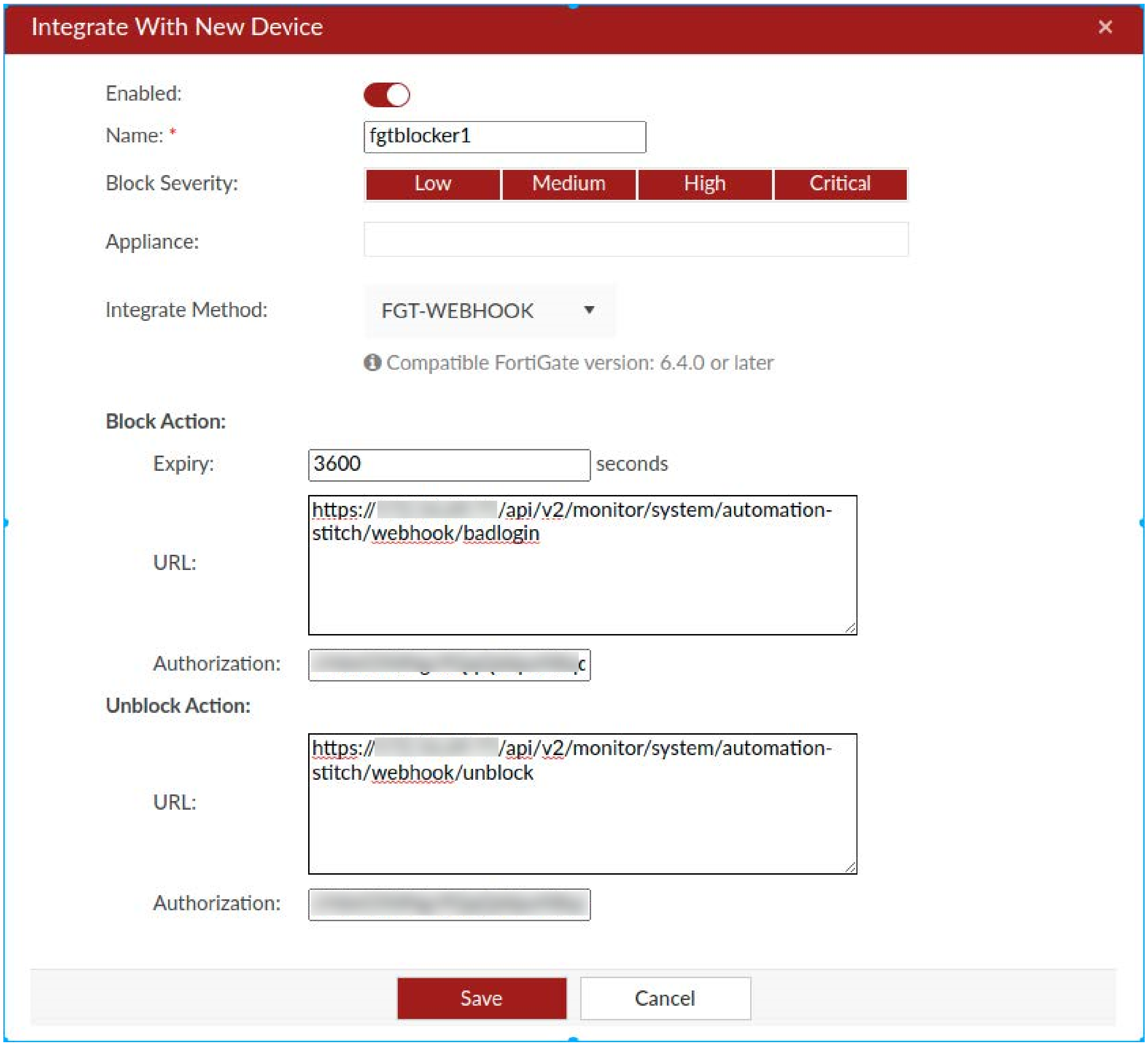
Trigger: fdc_block_trigger

Action: fdc_unblock_ip

4. Configure FortiDeceptor to integrate with FortiGate over Webhook

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click *Quarantine Integration With New Device*.
2. Configure the integration settings and click *Save*.

Integrate Method	Select *FGT-WEBHOOK*.
Block Action	
URL	Enter the webhook URL from FortiGate.
Authorization	Enter the API key from FortiGate.
Unblock Action	
URL	Enter the webhook URL from FortiGate.
Authorization	Enter the API key from FortiGate.



Integrate With New Device

Enabled: ●

Name: * fgtblocker1

Block Severity: Low | Medium | High | Critical

Appliance:

Integrate Method: FGT-WEBHOOK

Compatible FortiGate version: 6.4.0 or later

Block Action:

Expiry: 3600 seconds

URL: https://[redacted]/api/v2/monitor/system/automation-stitch/webhook/badlogin

Authorization: [redacted]

Unblock Action:

URL: https://[redacted]/api/v2/monitor/system/automation-stitch/webhook/unblock

Authorization: [redacted]

3. Ensure the integration *Status* is *Ready*.

Integrate with FortiGate 6.0.3 to 7.2.3 over REST-API

The following instructions are based on FortiGate 6.0.3 to 7.2.3 and FortiDeceptor 6.1.0. For information about the versions of FortiGate and FortiDeceptor you are using, select the version in the Fortinet Document Library.

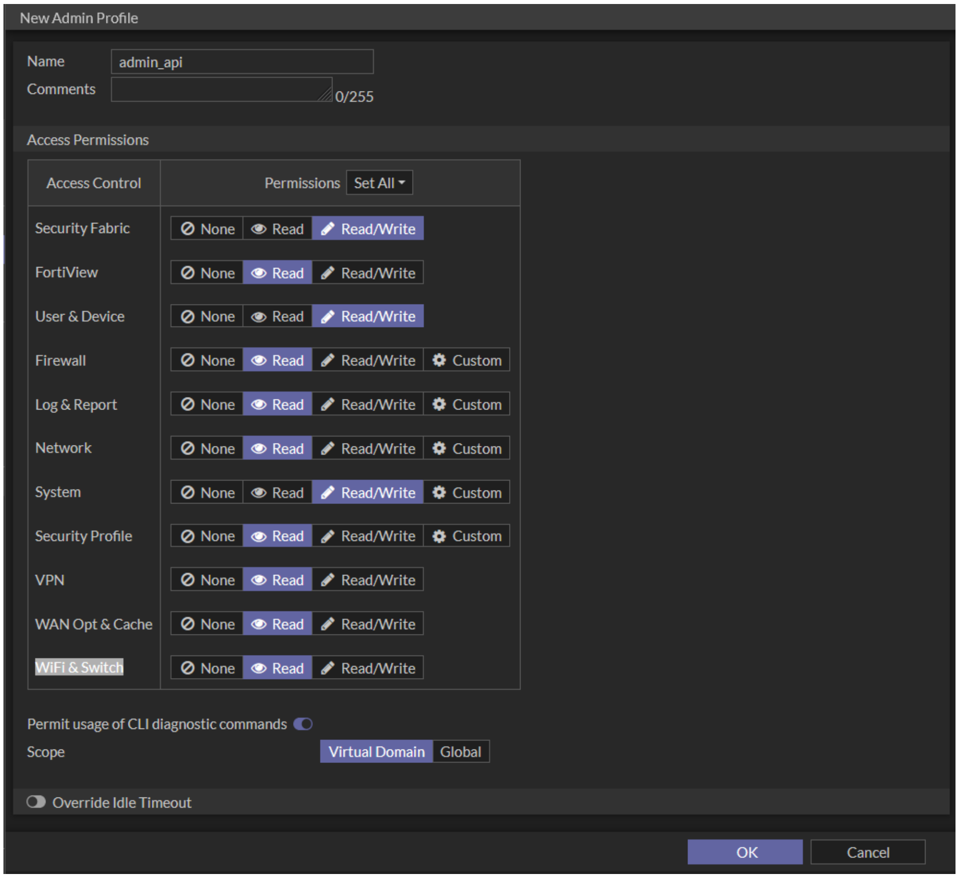
1. Configure FortiGate

1.1 Configure a new profile with minimum permissions for REST API integration

For more information about creating Administrator profiles, see the FortiGate Administration Guide.

1. On FortiGate, go to *System* > *Admin Profiles* and click *Create New*.
2. Configure the profile *Access Permissions*. The following are the minimum required permissions.

Access Control	Permissions
Security Fabric	Read/Write
FortiView	Read
User & Device	Read/Write
Firewall	Read
Log & Report	Read
Network	Read
System	Read/Write
Security Profile	Read
VPN	Read
WAN Opt & Cache	Read
WiFi & Switch	Read



New Admin Profile

Name: admin_api

Comments: 0/255

Access Permissions

Access Control	Permissions Set All
Security Fabric	None Read [✓ Read/Write]
FortiView	None [✓ Read] Read/Write
User & Device	None Read [✓ Read/Write]
Firewall	None [✓ Read] Read/Write Custom
Log & Report	None [✓ Read] Read/Write Custom
Network	None [✓ Read] Read/Write Custom
System	None Read [✓ Read/Write] Custom
Security Profile	None [✓ Read] Read/Write Custom
VPN	None [✓ Read] Read/Write
WAN Opt & Cache	None [✓ Read] Read/Write
WiFi & Switch	None [✓ Read] Read/Write

Permit usage of CLI diagnostic commands

Scope: [✓ Virtual Domain] Global

Override Idle Timeout

1.2 Create a new REST API admin

The administrator type will depend on the integration method you intend to use in FortiDeceptor.

- Create a new *Administrator* if you want the admin to log in with a username and password.
- Create a new *REST API Admin* if you want the user to log in with an API token.

For more information about creating Administrators in FortiGate, see the FortiGate Administration Guide.

To create a new Administrator:

1. On FortiGate, go to *System* > *Administrators*.
2. Click *Create New* > *Administrator*.
3. Enter a *Username* and *Password* for the administrator.
4. From the *Administrator profile* dropdown, select the profile you created in step 1.1 Create the administrator profile in FortiGate.
5. Click *OK*.

To create a new REST API Admin:

1. Go to *System* > *Administrators*.
2. Select *Create New* > *REST API Admin*.

3. Configure the administrator settings.

Username	The username of the administrator. Do not use the characters < > ( ) # " ' in the administrator username. Using these characters in an administrator username might have a cross site scripting (XSS) vulnerability.
Administrator Profile	Where permissions for the REST API administrator are defined. A REST API administrator should have the minimum permissions required to complete the request.
PKI Group	Certificate matching is supported as an extra layer of security. Both the client certificate and token must match to be granted access to the API.
CORS Allow Origin	Cross Origin Resource Sharing (CORS) allows third-party web apps to make API requests to the FortiGate using the token.
Trusted Hosts	The following can be used to restrict access to FortiGate API: • Multiple trusted hosts/subnets can be configured • IPv6 hosts are supported • Allow all (0.0.0.0/0) is not allowed You need your *Source Address*to create the trusted host. The kernel's local-in policy applies the `system admin` trusthosts, giving them precedence over the `system API user`. For API access, the system applies the `api-user` trust hosts. In this scenario, the API client's IP address must match both the `system admin` and `system api-user` trusthost lists.

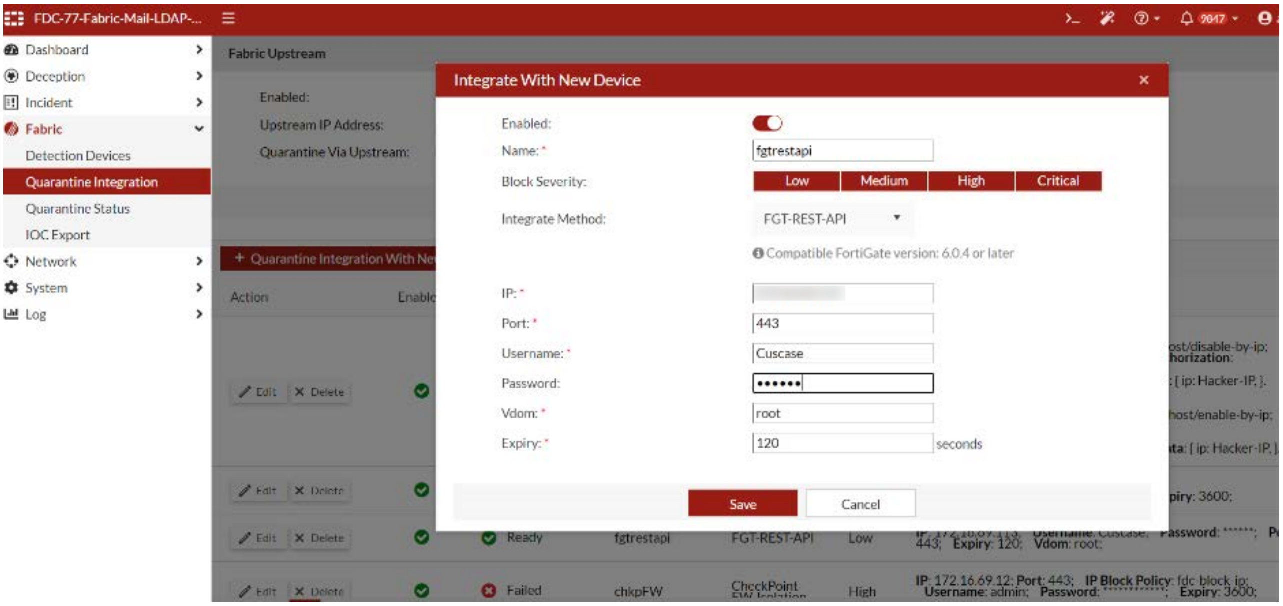
4. Click *OK*. An API token is generated. Make note of the token, as it is only shown once.

2. Configure FortiDeceptor to integrate with FortiGate

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click *Quarantine Integration With New Device*.
2. Configure the integration settings and click *OK*.

Enabled	Enable the integration.
Name	Enter a name for the integration.
Severity Filter	Select *Low Risk*, *Medium Risk*, *High Risk*, or *Critical*. All filters are enabled by default.
Integrate Method	Select one of the following: • *FortiGate-REST-API*: Select this option to log in with a username and password. • *FortiGate-REST-API-TOKEN*: Select this option to log in with an API key.

IP/URL	Enter the IP address of the FortiGate.
API Token	Enter the API Token. This option appears when the *Integrate Method* is *FortiGate-REST-API-TOKEN*.
Port	Enter the Port for the FortiGate.
Username	Enter the username for the admin you just created. This option appears when the *Integrate Method* is *FortiGate-REST-API*.
Password	Enter the password for the admin you just created. This option appears when the *Integrate Method* is *FortiGate-REST-API*.
Vdom	Enter the VDOM the FortiGate belongs to.
Expiry	Enter the amount of time to block the attack in seconds.



Integrate With New Device

Enabled: ●

Name: * fgtrestapi

Block Severity: Low Medium High Critical

Integrate Method: FGT-REST-API

Compatible FortiGate version: 6.0.4 or later

IP: * [redacted]

Port: * 443

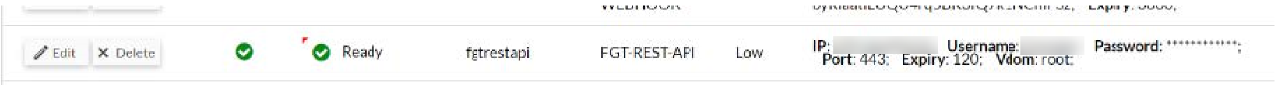
Username: * Cuscase

Password: ••••••

Vdom: * root

Expiry: * 120 seconds

3. Verify the integration *Status* is *Ready*.



Ready fgtrestapi FGT-REST-API Low IP: [redacted] Username: [redacted] Password: *************; Port: 443; Expiry: 120; Vdom: root;

3. Test the integration

1. Send an attack against a decoy.
2. On FortiDeceptor, check the quarantine status.
3. On FortiGate, go to *Dashboard* > *Users Device* and expand the *Quarantine* widget to check quarantine status.
4. (Optional) Check the quarantine status on FortiDeceptor after it has expired.
   - On FortiDeceptor, go to *Fabric* > *Quarantine Status* to check the status.
5. (Optional) Check the quarantine status on FortiGate after it has expired.
   - On FortiGate, go to *Dashboard* > *Users Device* and expand the *Quarantine* widget to check quarantine status.

Integrate FortiDeceptor with FortiGate over Fabric v7.2.4

This topic describes how to integrate FortiDeceptor with FortiGate over Fabric in FortiOS versions 7.2.4 .

FortiGate 7.2.1 has a bug which prevents adding and displaying the FortiDeceptor information widgets in the dashboard.

Integrate FortiDeceptor with FortiGate over Fabric:

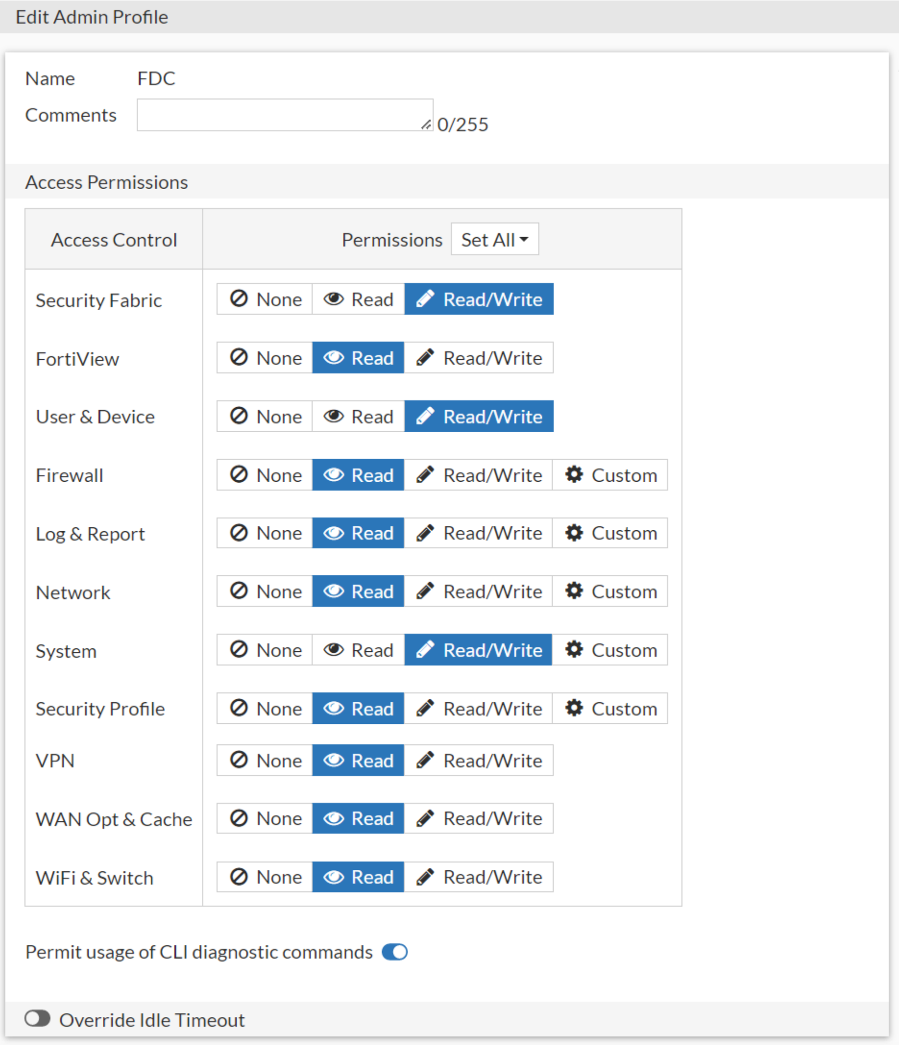
1. Configure the Fabric Connector on FortiGate.
2. Configure the upstream FortiDeceptor.
3. Authorize FortiDeceptor on FortiGate.
4. Configure the automation on FortiGate.
5. Create a stitch for manual block on FortiGate.
6. Create a stitch for manual unblock.
7. Check the quarantine status in FortiDeceptor.
8. Check quarantine status on FortiGate.

1. Configure the Fabric Connector on FortiGate

1.1 Create the administrator profile in FortiGate

1. In FortiGate, go to *System* > *Admin Profiles*.
2. Select *prof_admin* or *super_admin* and click *Create New*. The *New Admin Profile* page opens.
3. Configure the profile *Access Permissions*. The following are the minimum required permissions.

Access Control	Permissions
Security Fabric	Read/Write
FortiView	Read
User & Device	Read/Write
Firewall	Read
Log & Report	Read
Network	Read
System	Read/Write
Security Profile	Read
VPN	Read
WAN Opt & Cache	Read
WiFi & Switch	Read



Edit Admin Profile

Name FDC

Comments 0/255

Access Permissions

Access Control	Permissions Set All ▾
Security Fabric	None Read [✓ Read/Write]
FortiView	None [✓ Read] Read/Write
User & Device	None Read [✓ Read/Write]
Firewall	None [✓ Read] Read/Write Custom
Log & Report	None [✓ Read] Read/Write Custom
Network	None [✓ Read] Read/Write Custom
System	None Read [✓ Read/Write] Custom
Security Profile	None [✓ Read] Read/Write Custom
VPN	None [✓ Read] Read/Write
WAN Opt & Cache	None [✓ Read] Read/Write
WiFi & Switch	None [✓ Read] Read/Write

Permit usage of CLI diagnostic commands ●

○ Override Idle Timeout

4. Click *OK*.

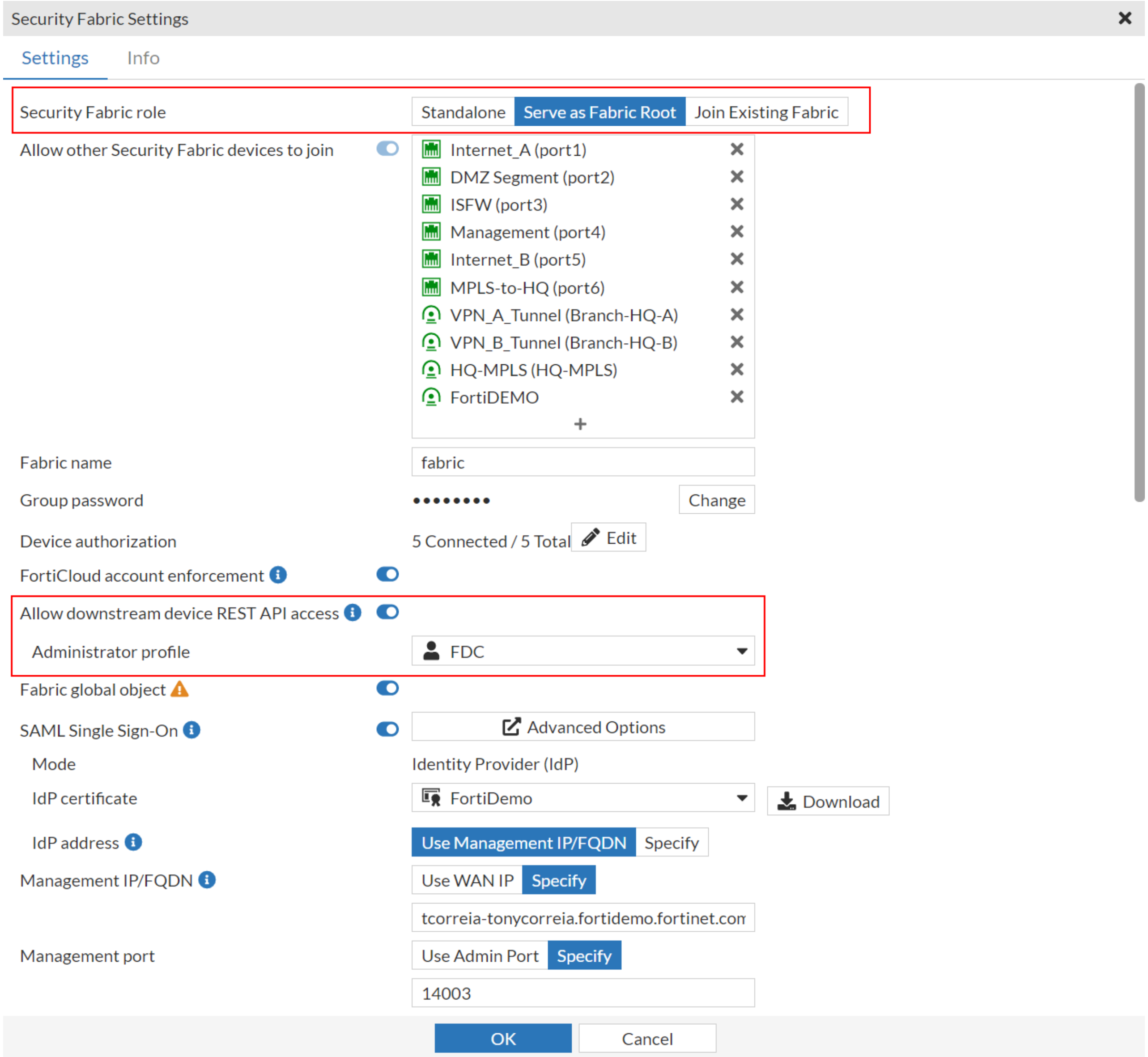
1.2 Configure the Fabric Connector using the FortiGate profile

Enable the Security Fabric. For more information, see Configuring the root FortiGate and downstream FortiGates.

1. Go to *Security Fabric* > *Fabric Connectors*.
2. Click the *Security Fabric Setup* tile and click *Edit*. The *Security Fabric Settings* window opens.

3. Configure the following settings and click *OK*.

Security Fabric role	Select *Serve as Fabric Root*.
Allow downstream device REST API access	Enable. Enabling *Allow downstream device REST API access* is mandatory.
Administrator profile	Select the profile you create in Step 1.1 Create the administrator profile in FortiGate.



Security Fabric Settings

Settings | Info

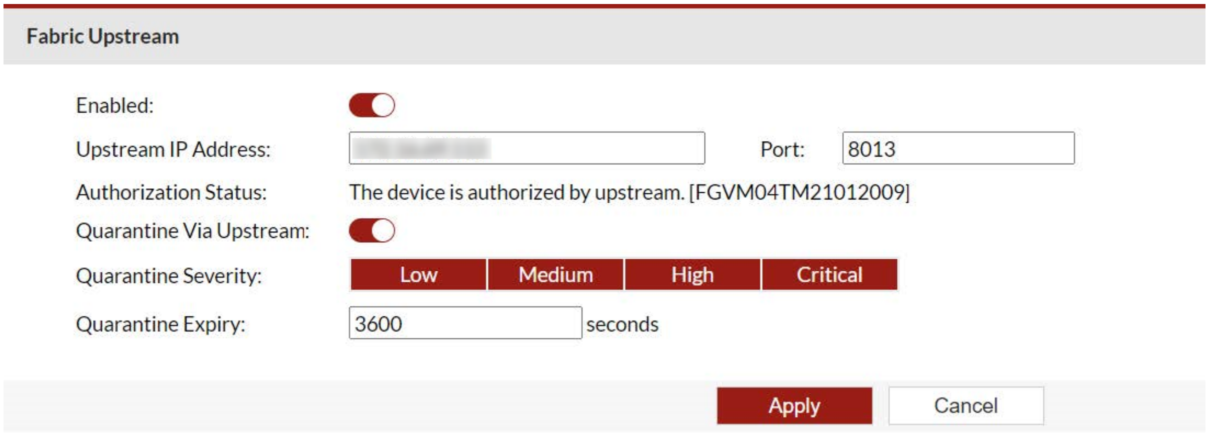
Security Fabric role	Standalone / **Serve as Fabric Root** / Join Existing Fabric
Allow other Security Fabric devices to join	Internet_A (port1) DMZ Segment (port2) ISFW (port3) Management (port4) Internet_B (port5) MPLS-to-HQ (port6) VPN_A_Tunnel (Branch-HQ-A) VPN_B_Tunnel (Branch-HQ-B) HQ-MPLS (HQ-MPLS) FortiDEMO
Fabric name	fabric
Group password	•••••••• Change
Device authorization	5 Connected / 5 Total Edit
FortiCloud account enforcement	Enabled
Allow downstream device REST API access	Enabled
Administrator profile	FDC
Fabric global object	Enabled
SAML Single Sign-On	Enabled Advanced Options
Mode	Identity Provider (IdP)
IdP certificate	FortiDemo Download
IdP address	**Use Management IP/FQDN** / Specify
Management IP/FQDN	Use WAN IP / **Specify** tcorreia-tonycorreia.fortidemo.fortinet.com
Management port	Use Admin Port / **Specify** 14003

OK | Cancel

2. Configure the upstream FortiDeceptor

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration*.
2. Configure the *Fabric Upstream* settings and click *Apply*.

Enabled	Enable.
Upstream IP address	Enter the IP of the upstream FortiGate
Quarantine Via Upstream	Enable.



Fabric Upstream

Enabled: ●

Upstream IP Address: [redacted] Port: 8013

Authorization Status: The device is authorized by upstream. [FGVM04TM21012009]

Quarantine Via Upstream: ●

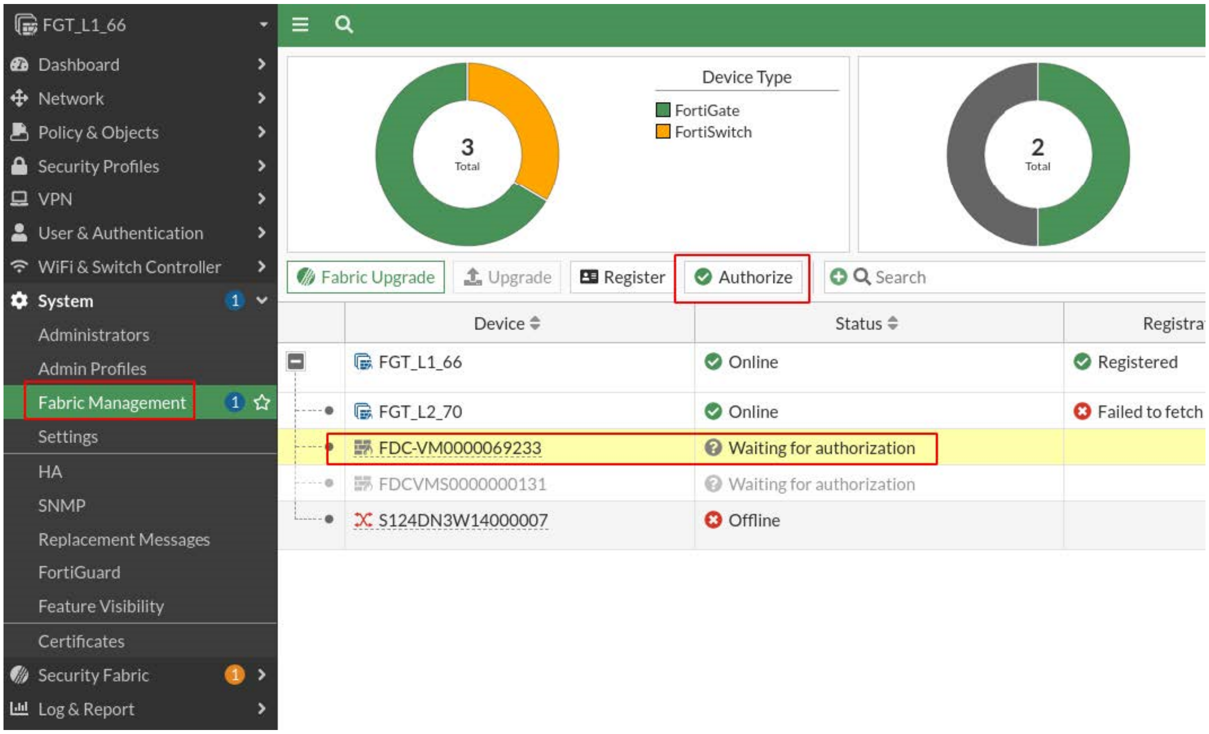
Quarantine Severity: Low Medium High Critical

Quarantine Expiry: 3600 seconds

3. Authorize FortiDeceptor on FortiGate

3.1 Update the device status

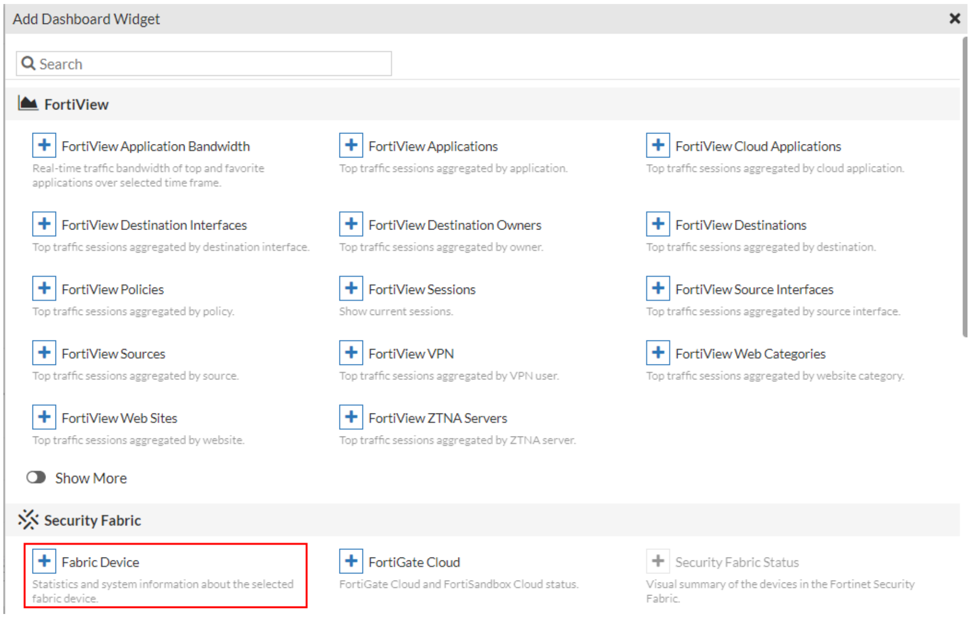
1. Go to *System* > *Fabric Management*.
2. Select the FortiDeceptor with a status of *Waiting for authorization* and click "*Authorize*.



Device	Status	Registra
FGT_L1_66	✓ Online	✓ Registered
FGT_L2_70	✓ Online	✗ Failed to fetch
FDC-VM0000069233	? Waiting for authorization	
FDCVMS0000000131	? Waiting for authorization	
S124DN3W14000007	✗ Offline	

3.2 Add the fabric device widget in FortiGate Dashboard

1. Go to *Dashboard* > *Status* and click *Add Widget*. The *Add Dashboard Widget* menu opens.
2. Under *Security Fabric*, click *Fabric Device*.



Add Dashboard Widget

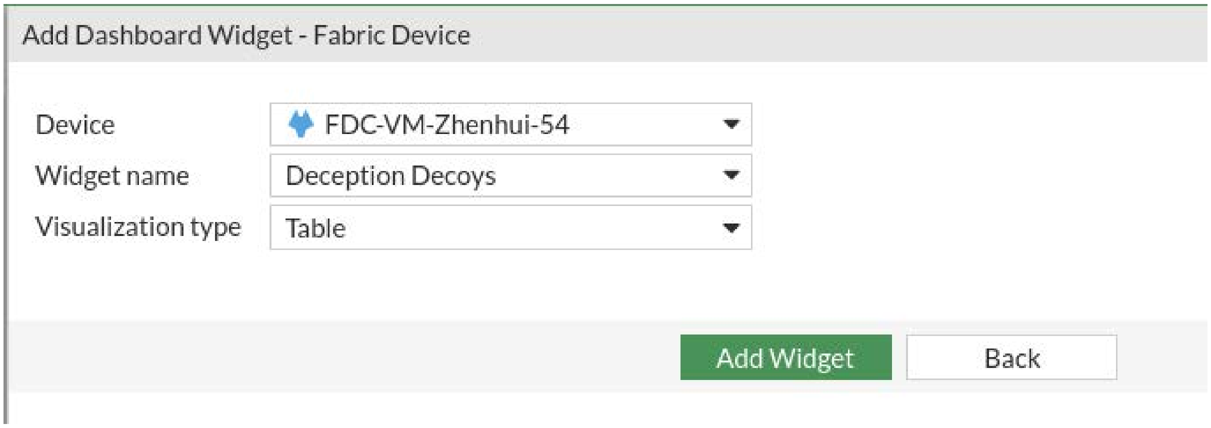
FortiView

- FortiView Application Bandwidth — Real-time traffic bandwidth of top and favorite applications over selected time frame.
- FortiView Applications — Top traffic sessions aggregated by application.
- FortiView Cloud Applications — Top traffic sessions aggregated by cloud application.
- FortiView Destination Interfaces — Top traffic sessions aggregated by destination interface.
- FortiView Destination Owners — Top traffic sessions aggregated by owner.
- FortiView Destinations — Top traffic sessions aggregated by destination.
- FortiView Policies — Top traffic sessions aggregated by policy.
- FortiView Sessions — Show current sessions.
- FortiView Source Interfaces — Top traffic sessions aggregated by source interface.
- FortiView Sources — Top traffic sessions aggregated by source.
- FortiView VPN — Top traffic sessions aggregated by VPN user.
- FortiView Web Categories — Top traffic sessions aggregated by website category.
- FortiView Web Sites — Top traffic sessions aggregated by website.
- FortiView ZTNA Servers — Top traffic sessions aggregated by ZTNA server.

Security Fabric

- Fabric Device — Statistics and system information about the selected fabric device.
- FortiGate Cloud — FortiGate Cloud and FortiSandbox Cloud status.
- Security Fabric Status — Visual summary of the devices in the Fortinet Security Fabric.

3. From the *Device* dropdown, select the FortiDeceptor.



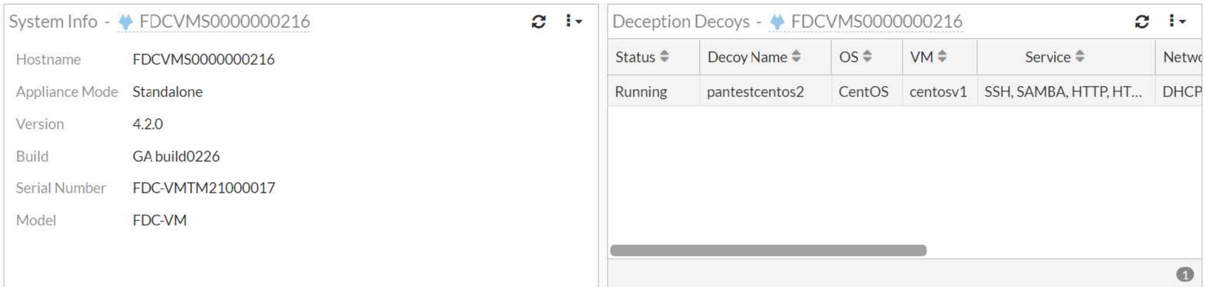
Add Dashboard Widget - Fabric Device

Device: FDC-VM-Zhenhui-54
Widget name: Deception Decoys
Visualization type: Table

4. Configure the other settings and click *Add Widget*.

3.3 Monitor the FortiDeceptor widgets on FortiGate

Use the FortiDeceptor Fabric Device widget to monitor FortiDeceptor System Information and Deception Decoys information.



System Info - FDCVMS0000000216

Hostname	FDCVMS0000000216
Appliance Mode	Standalone
Version	4.2.0
Build	GA build0226
Serial Number	FDC-VMTM21000017
Model	FDC-VM

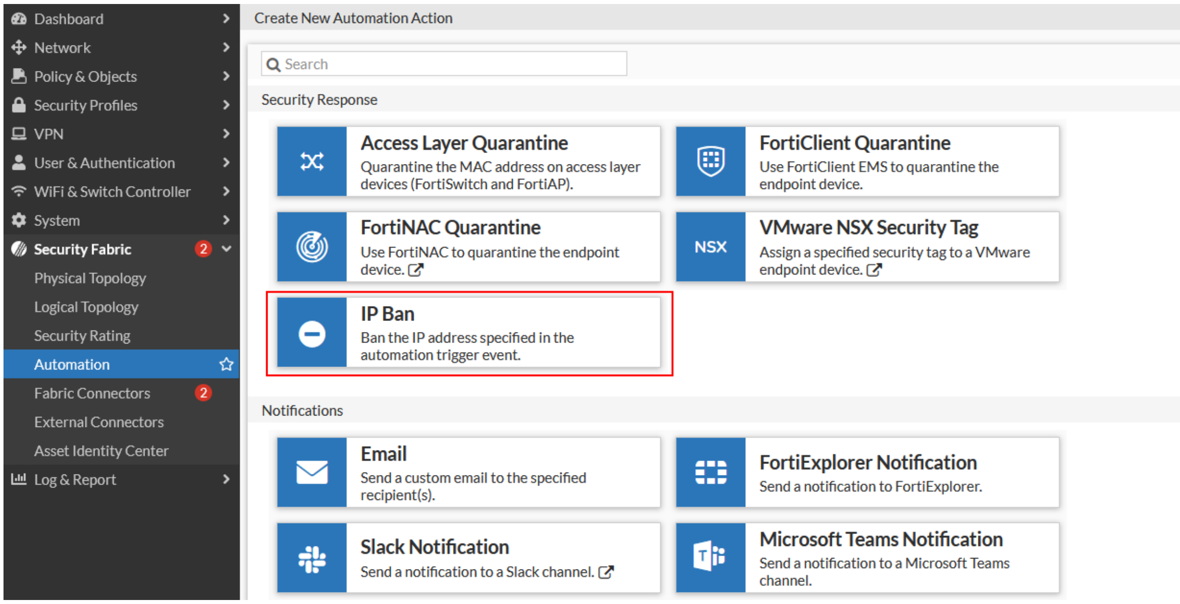
Deception Decoys - FDCVMS0000000216

Status	Decoy Name	OS	VM	Service	Netwo
Running	pantestcentos2	CentOS	centosv1	SSH, SAMBA, HTTP, HT...	DHCP

4. Configure the automation on FortiGate

4.1 Create Stitch for automated quarantine on FortiGate side

1. Go to *Security Fabric >Automation*.
2. In the banner click *Action*.
3. Click *Create New* and then click *IP Ban*. The *Create New Automation Action* page opens.



Create New Automation Action

Security Response

Access Layer Quarantine
Quarantine the MAC address on access layer devices (FortiSwitch and FortiAP).

FortiClient Quarantine
Use FortiClient EMS to quarantine the endpoint device.

FortiNAC Quarantine
Use FortiNAC to quarantine the endpoint device.

VMware NSX Security Tag
Assign a specified security tag to a VMware endpoint device.

IP Ban
Ban the IP address specified in the automation trigger event.

Notifications

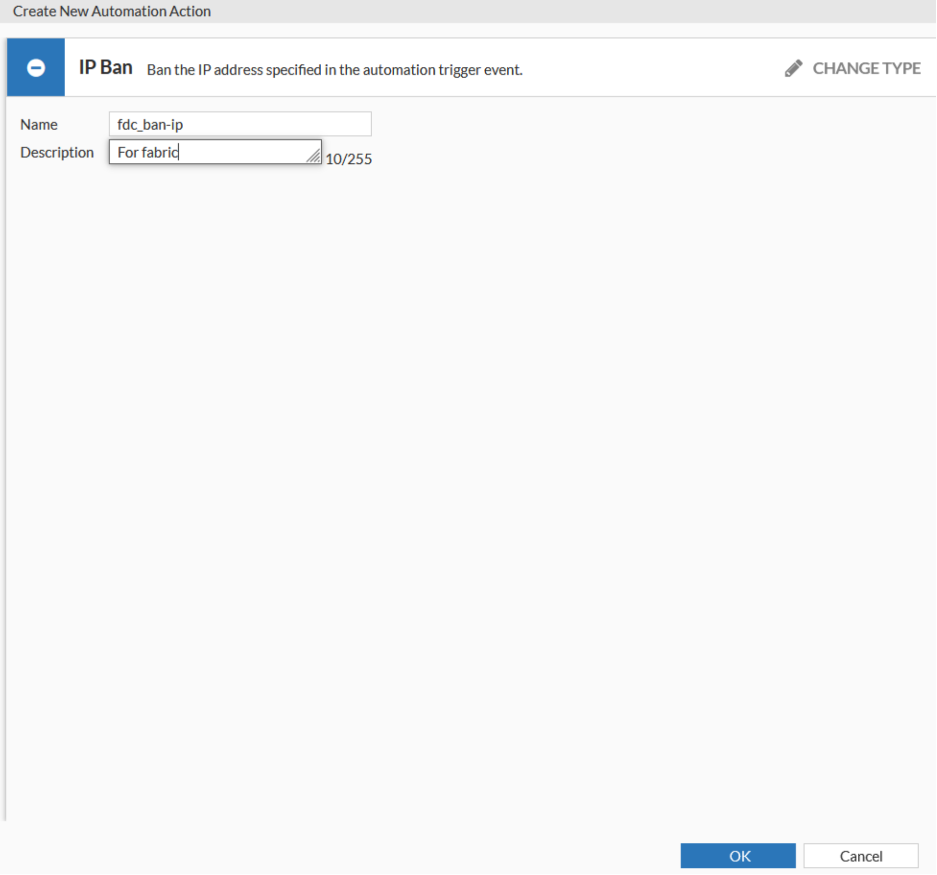
Email
Send a custom email to the specified recipient(s).

FortiExplorer Notification
Send a notification to FortiExplorer.

Slack Notification
Send a notification to a Slack channel.

Microsoft Teams Notification
Send a notification to a Microsoft Teams channel.

4. Enter a descriptive name *Name* such as `fdc_ban-ip` and a *Description* such as `For fabric` and click *OK*.



Create New Automation Action

IP Ban Ban the IP address specified in the automation trigger event.

Name: fdc_ban-ip

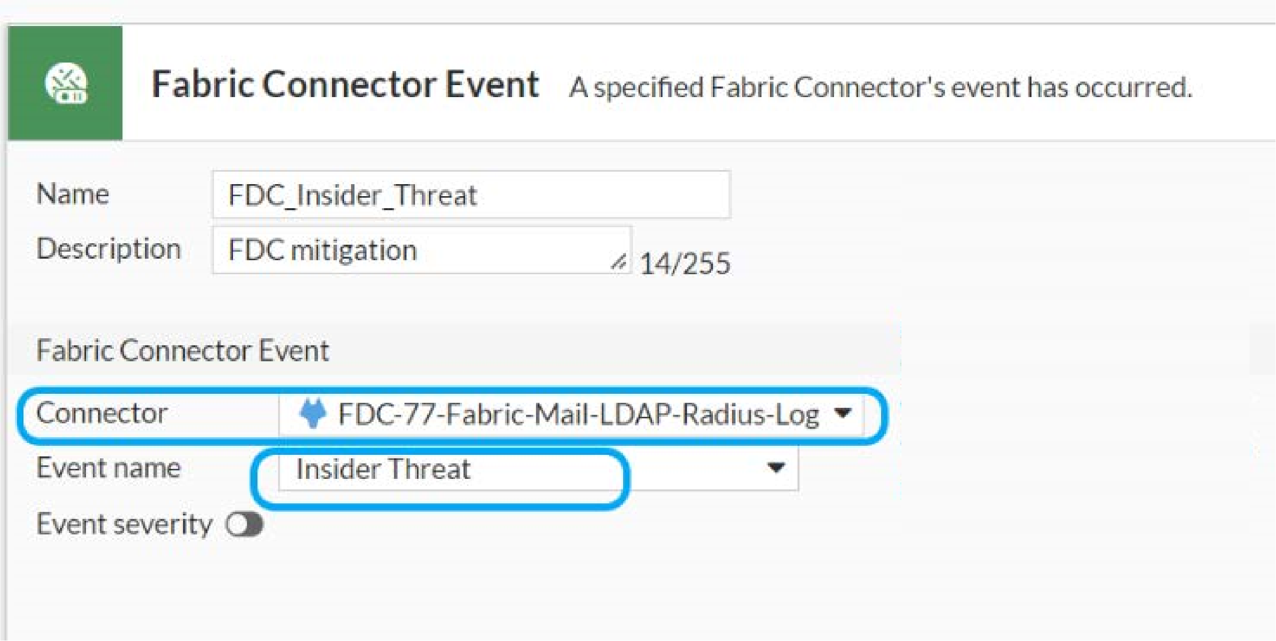
Description: For fabric 10/255

4.2. Create a trigger for automated quarantine

1. In FortiGate go to *Fabric* > *Automation*.
2. In the banner, click *Trigger*.
3. Click *Create New* and then click the *Fabric Connector Event* tile.

4. Configure the following settings, and click *OK*.

Name	Give the connector a descriptive name such as `FDC_Insider_Threat`.
Description	Enter a description such as `FDC mitigation`.
Connector	Select the upstream FortiDeceptor device.
Event name	Select *Insider Threat*.



Fabric Connector Event A specified Fabric Connector's event has occurred.

Name: FDC_Insider_Threat

Description: FDC mitigation 14/255

Fabric Connector Event

Connector: FDC-77-Fabric-Mail-LDAP-Radius-Log

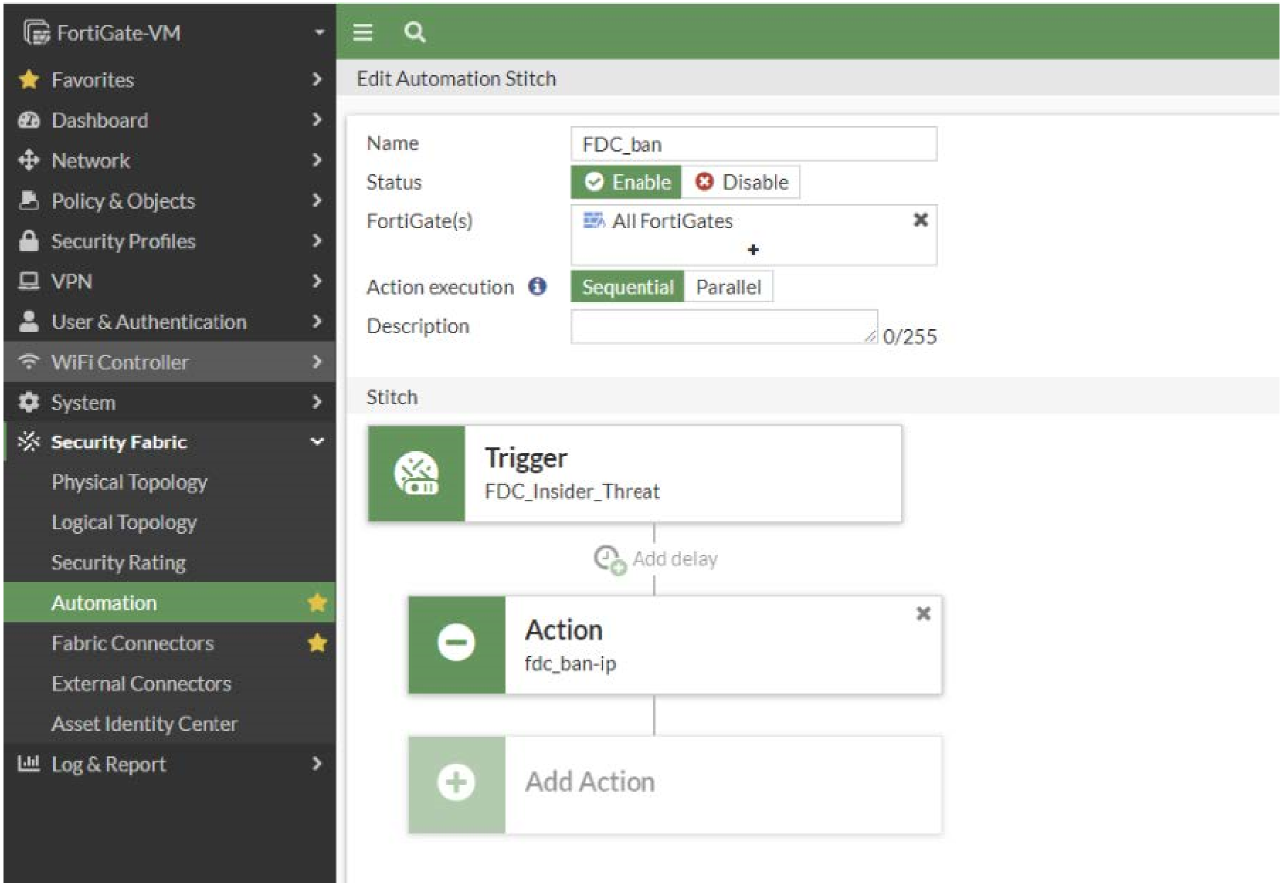
Event name: Insider Threat

Event severity

4.3 Create a stitch for automated quarantine

1. In FortiGate go to *Security Fabric* > *Automation*.
2. In the banner, click *Stitch* and then click *Create New*.
3. Give the Stitch a descriptive name such as `FDC_ban`.
4. Click the *Trigger* tile and select the trigger you created in Step 4.2. Create Trigger for automated quarantine (`FDC_Insider_Threat`).

5. Click the *Action* tile and select the Action you created (`fdc_ban-ip`).



Edit Automation Stitch

Name: FDC_ban

Status: Enable | Disable

FortiGate(s): All FortiGates

Action execution: Sequential | Parallel

Description: 0/255

Stitch

Trigger
FDC_Insider_Threat

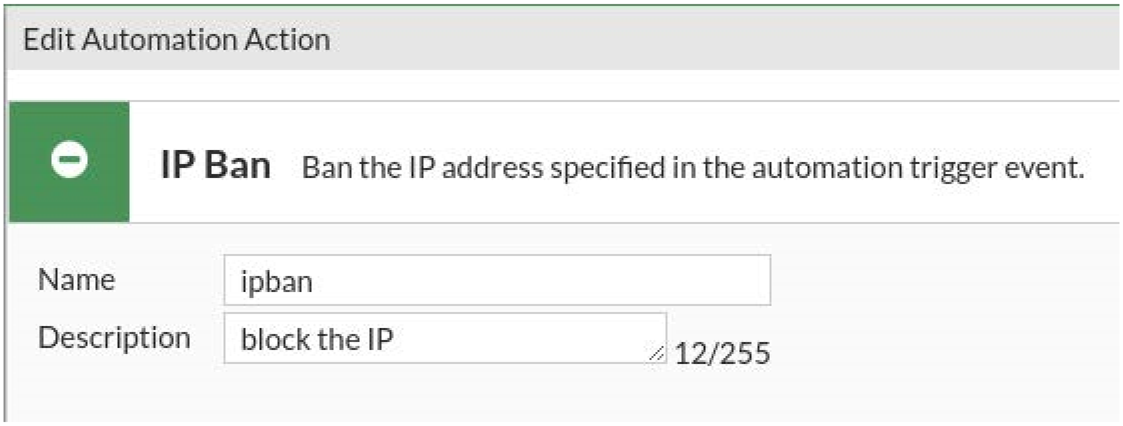
Action
fdc_ban-ip

5. Create a stitch for manual block on FortiGate

5.1 Create an Action for manual block

1. In FortiGate go to *Security Fabric* > *Automation*.
2. In the banner, click *Action*.
3. Click *Create New* and then click the *IP Ban* tile.

4. Give the Action a descriptive *Name* such as `ipban` and enter a *Description* such as `block the IP` and click *OK*.



Edit Automation Action

IP Ban Ban the IP address specified in the automation trigger event.

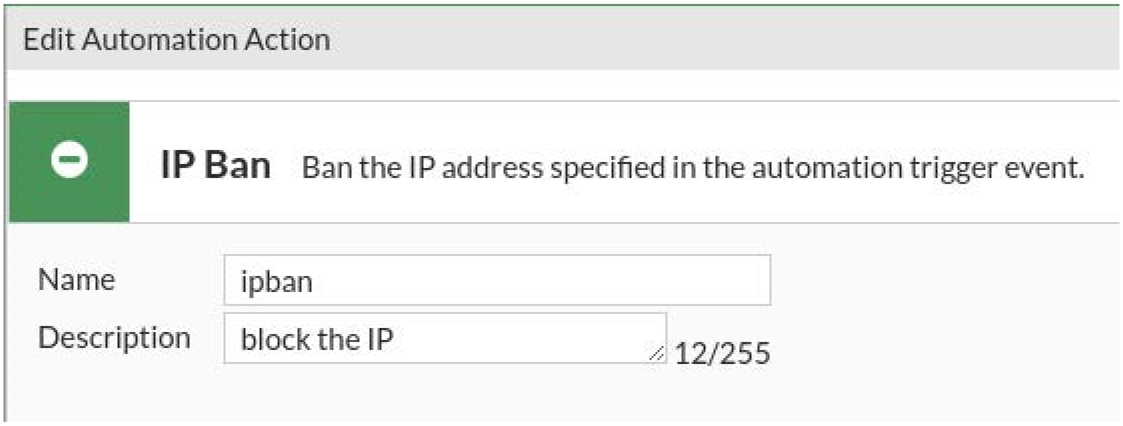
Name: ipban

Description: block the IP 12/255

5.2 Create a trigger for manual block

1. In FortiGate, go to *Security Fabric* > *Automation*.
2. In the banner, click *Trigger*;
3. Click *Create New* and then click the *Fabric Connector Event* tile.
4. Configure the following settings and click *OK*.

Name	Enter a descriptive name such as `manual-ban`.
Connector	Select the downstream FortiDeceptor device.
Event Name	Select *Notify Ban*.



Edit Automation Action

IP Ban Ban the IP address specified in the automation trigger event.

Name: ipban

Description: block the IP 12/255

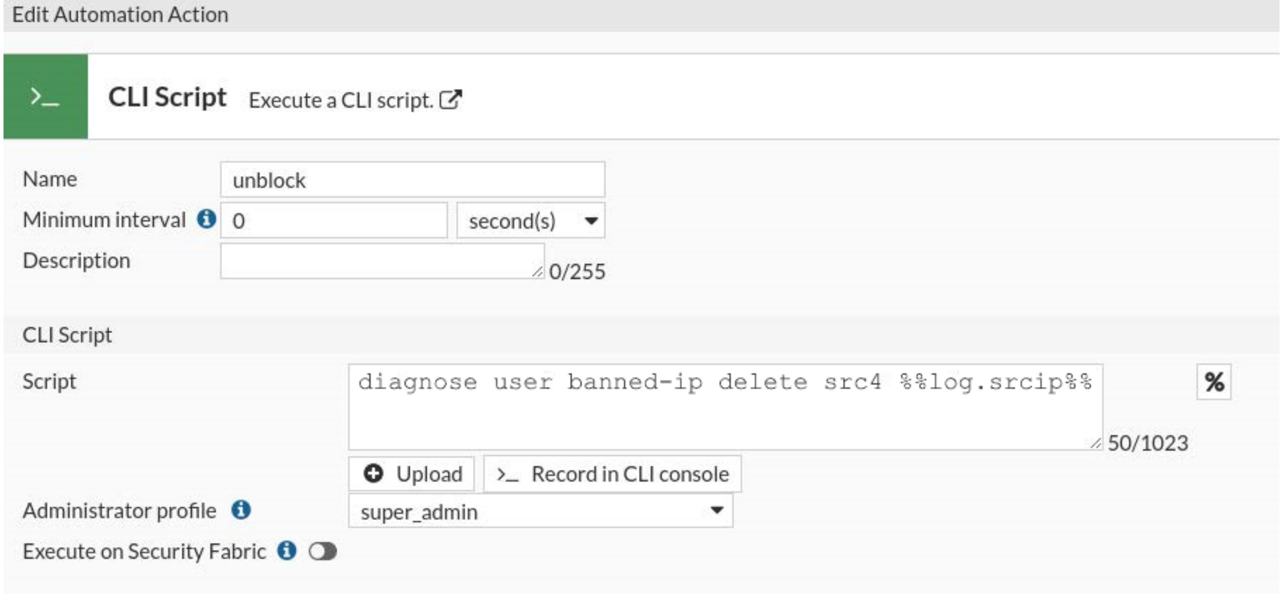
5.3 Create a stitch for manual block

1. Go to *Security Fabric* > *Automation*.
2. In the banner, click *Stitch*, and then click *Create New*.
3. Give the *Stitch* a descriptive name such as `FDC_Manual_Block`.
4. Click the *Trigger* tile and select the trigger you created in 5.2 Create Trigger for manual block (`manual-ban`).
5. Click the *Action* tile and select the Action you created in Step 5.1 Create Action for manual block (`ipban`)

6. Create a stitch for manual unblock

6.1 Create an Action for manual unblock

1. In FortiGate go to *Security Fabric* > *Automation*.
2. In the banner, click *Action*.
3. Click *Create New* and then scroll down and click the *CLI Script* tile.
4. Give the action an descriptive *Name* such as `unblock`.
5. In the *CLI Script* > *Script* field enter the following command and click *OK*.
   ```
   diagnose user banned-ip delete src4 %%log.srcip%%
   ```


Edit Automation Action

CLI Script Execute a CLI script.

Name: unblock
Minimum interval: 0 second(s)
Description: 0/255

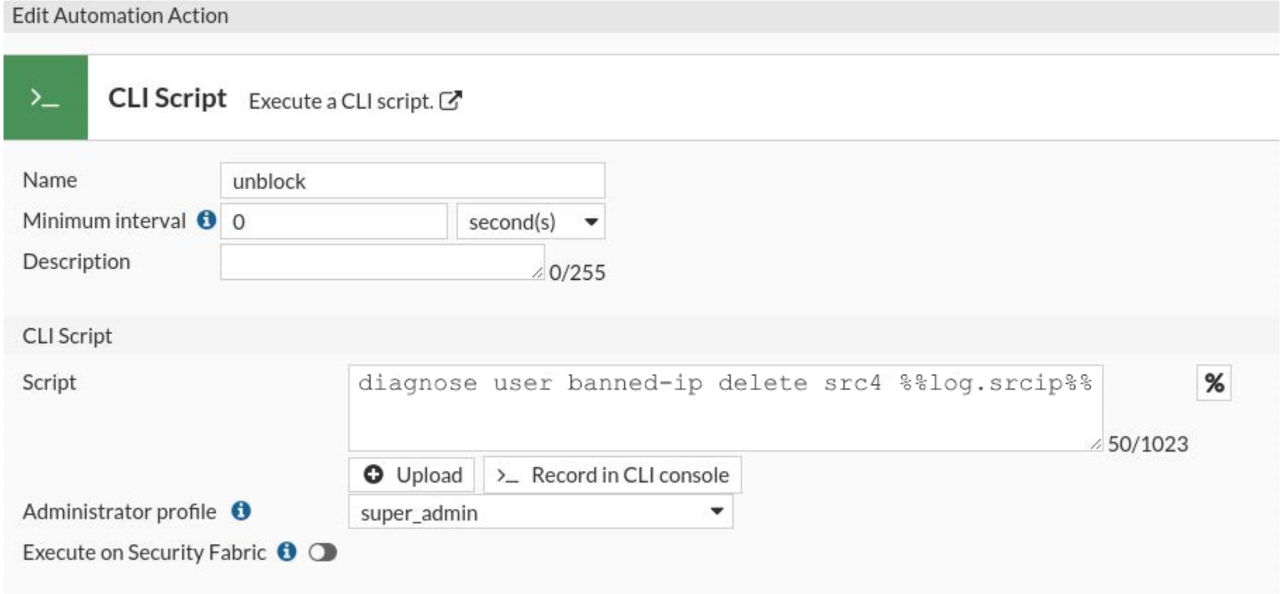
CLI Script

Script:
```
diagnose user banned-ip delete src4 %%log.srcip%%
```
50/1023

Administrator profile: super_admin
Execute on Security Fabric

If you are integrating FortiDeceptor with an upstream FortiGate, you will need to specify the VDOM information in the automation action.

```
config vdom
edit <vdom_name>
Diagnose user banned-ip delete src4
%%log.scrip%%
```



Edit Automation Action

CLI Script Execute a CLI script.

Name	unblock
Minimum interval	0 second(s)
Description	0/255

CLI Script

Script

```
diagnose user banned-ip delete src4 %%log.srcip%%
```

50/1023

Administrator profile: super_admin

Execute on Security Fabric: ○

6.2 Create a trigger for manual unblock

1. In FortiGate, go to *Security Fabric* > *Automation*.
2. In the banner, click *Trigger*
3. Click *Create New*, then configure the following settings and click *OK*.

Name	Give the trigger a descriptive name such as `Trigger-unban`.
Connector	Select the downstream FortiDeceptor device.
Event name	Select *Notify Unban*.

6.3 Create a stitch for manual unblock

1. Go to *Security Fabric* > *Automation*.
2. In the banner, click *Stitch*, and then click *Create New*.
3. Give the *Stitch* a descriptive name such as `FDC_Manual_Unblock`.
4. Click the *Trigger* tile and select the trigger you created in 6.2 Create Trigger for manual unblock (`unblock`) .
5. Click the *Action* tile and select the Action you created in Step 6.1 Create Action for manual unblock (`Trigger-ban`).

7. Check the quarantine status in FortiDeceptor

1. In FortiDeceptor, go to *Fabric* > *Quarantine Status*.
2. For *Type* > *Auto quarantine*, verify the *Status* is *Quarantined*.
3. (Optional) Trigger a manual block.
   a. Select a device with *Type* > *Manual quarantine*.
   b. In the toolbar, click *Block*.

8. Check quarantine status on FortiGate

To view the quarantine status with the FortiGate GUI:

Go to *Dashboard* > *Users & Devices* and expand the *Quarantine* widget.

To view quarantine status with FortiGate CLI:

Run the following command:

```
diagnose user quarantine list
```

To view the debug log for quarantine with the FortiGate CLI:

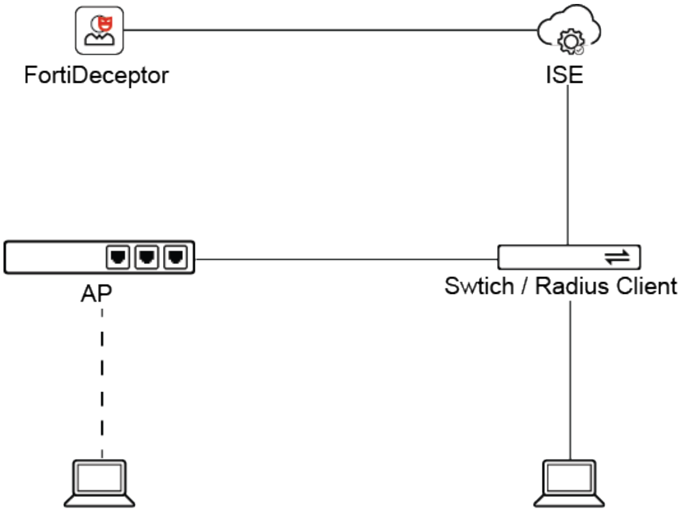
Run the following command:

```
diagnose debug en
```

Integrate with Cisco ISE

Topology

This topic assumes Cisco ISE has been set up properly as a NAC solution, to work with a switch which has CoA enabled.



To integrate FortiDeceptor with Cisco ISE:

1. Configure Cisco ISE.
2. Configure the Authorization Policy.
3. Check the configuration
4. Configure FortiDeceptor.

5. Quarantine the endpoint.
6. Un-quarantine the endpoint.

The Adaptive Network Control feature requires a Cisco Advantage ISE subscription license. For more information, see the Cisco ISE Licensing Guide.

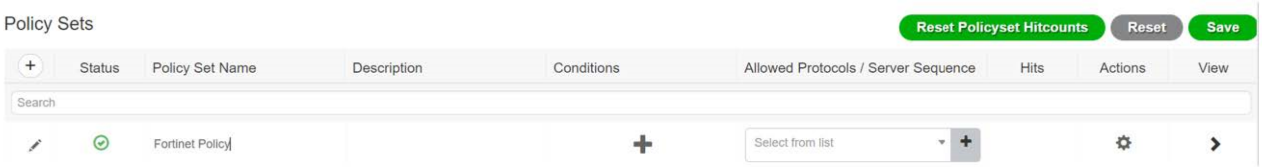
1. Configure Cisco ISE

1.1 Configure the ERS on Cisco ISE

Please refer to the Cisco developer documentation on how to enable the ERS interface and configure the ERS admin account on Cisco ISE. This ERS admin account must be enabled with REST API and will be used by FortiDeceptor to communicate with Cisco ISE to quarantine and un-quarantine the attackers by IP.

1.2 Create a new policy in Cisco ISE

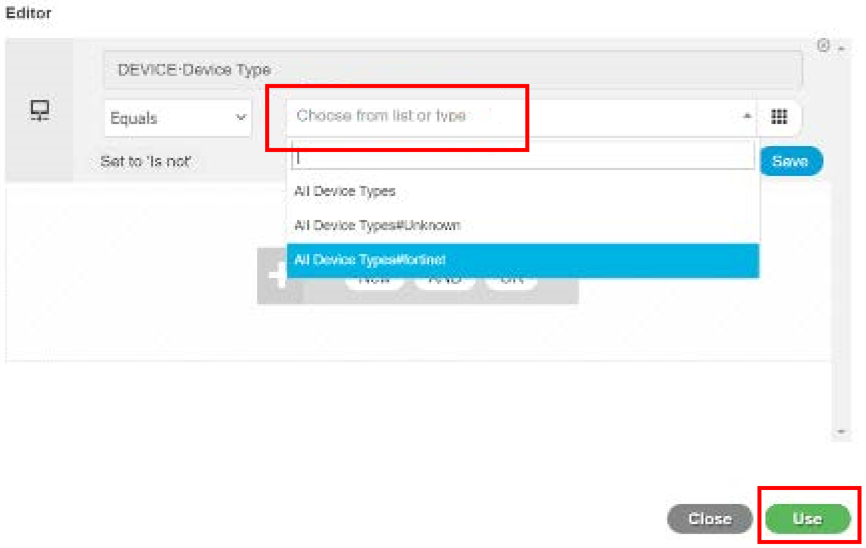
1. In Cisco ISE, go to *Policy* > *Policy Sets*.
2. Click the **+** button, and type a name in the *Policy Set Name* field such as `Fortinet Policy`.
3. In the *Conditions* column, click **+**.



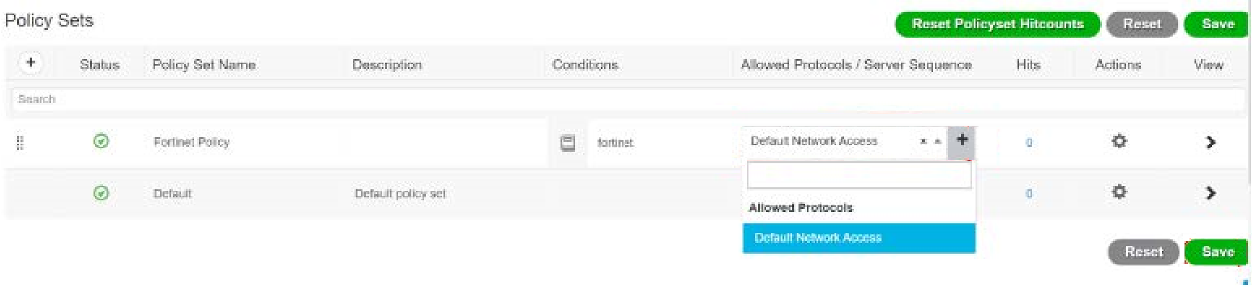
+	Status	Policy Set Name	Description	Conditions	Allowed Protocols / Server Sequence	Hits	Actions	View
✎	✓	Fortinet Policy		+	Select from list ▾ +		⚙	>

4. In *Conditions Studio*, click *Click to add an attribute*.
5. In the *Editor* pop-up window, type `device type`.
6. In the *Attribute* box, click *Choose from list or type* and select *All Device Types*.

7. Click *Use*.



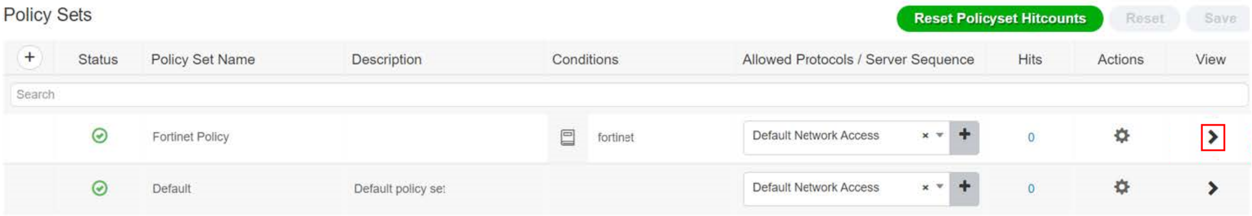
The new policy will look like the image below.



+	Status	Policy Set Name	Description	Conditions	Allowed Protocols / Server Sequence	Hits	Actions	View
	✓	Fortinet Policy		fortinet	Default Network Access	0	⚙	>
	✓	Default	Default policy set			0	⚙	>

2. Configure the Authorization Policy

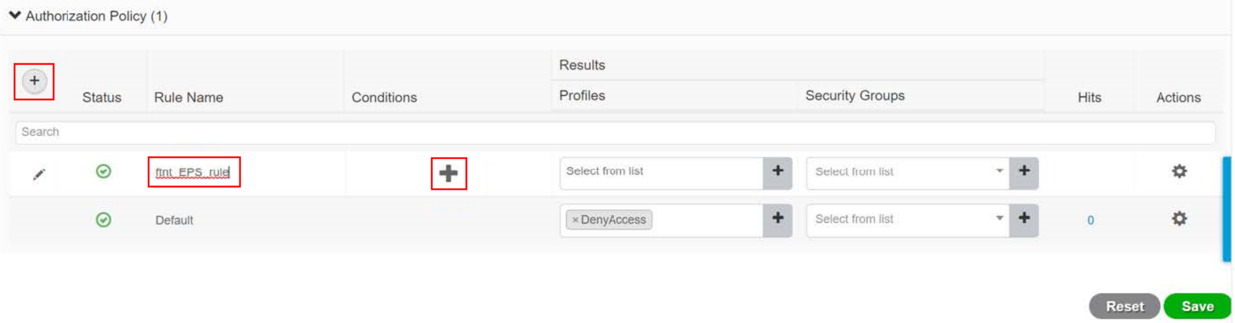
1. In the *View* column, click on the arrow **>**.



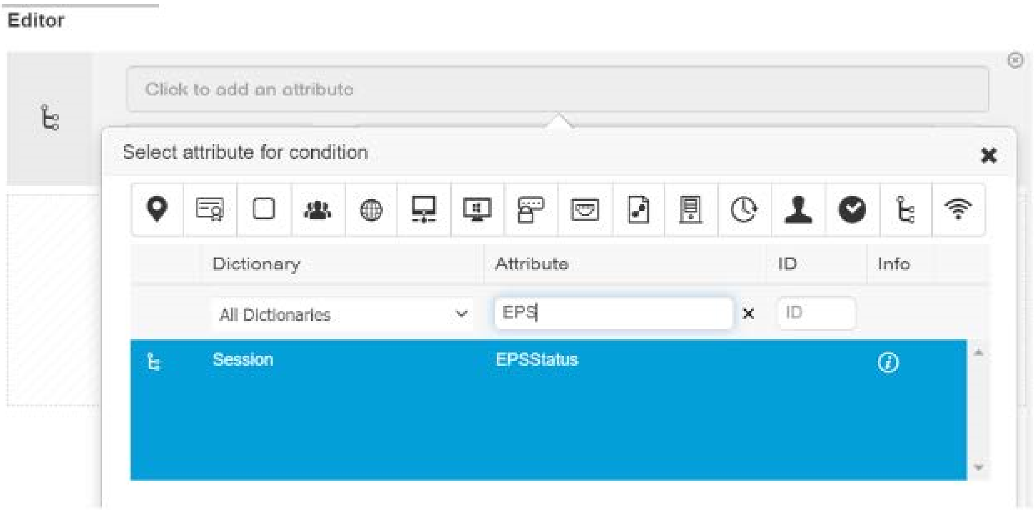
+	Status	Policy Set Name	Description	Conditions	Allowed Protocols / Server Sequence	Hits	Actions	View
	✓	Fortinet Policy		fortinet	Default Network Access	0	⚙	>
	✓	Default	Default policy set		Default Network Access	0	⚙	>

2. Click **+** to the left side of the *Status* column. A new authorization is generated.

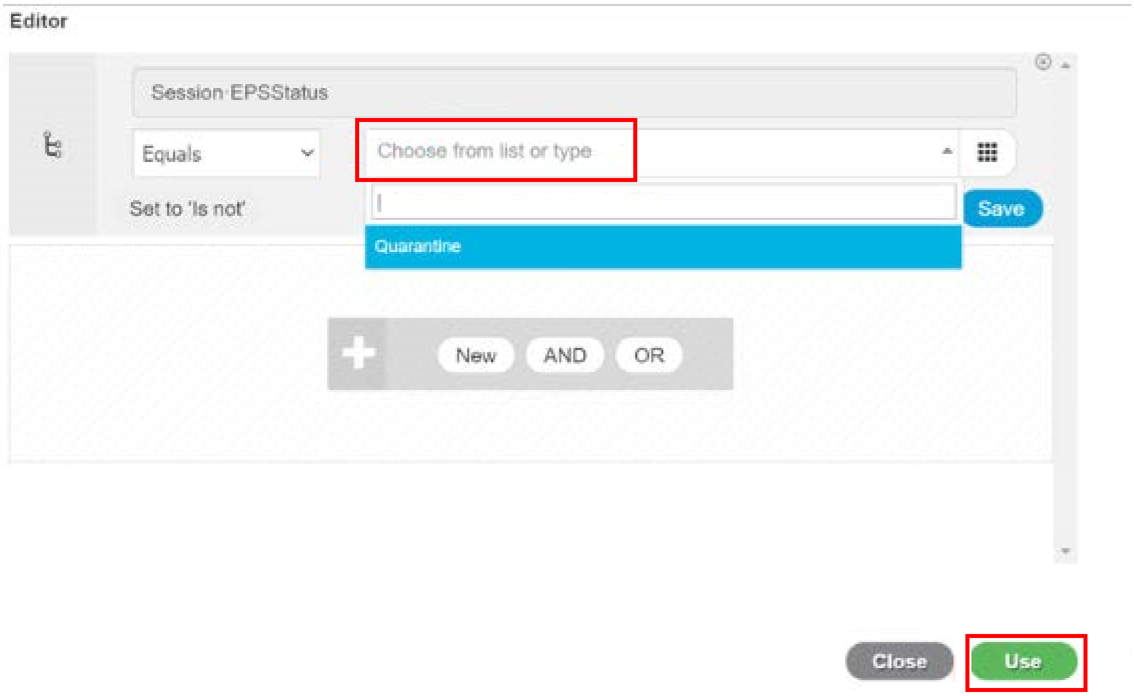
3. In the *Rule Name* column, enter a name such as `ftnt_EPS_rule`.



4. In the *Conditions* column, click **+**.
5. In *Conditions Studio*, in the *Editor*, click *Click to add an attribute*.
6. in the *Attribute* box, type `EPS`and select *EPSStatus*.



7. Click *Choose from list or type* and select *Quarantine* from the dropdown list.



Editor

Session·EPSStatus

Equals | Choose from list or type

Set to 'Is not'

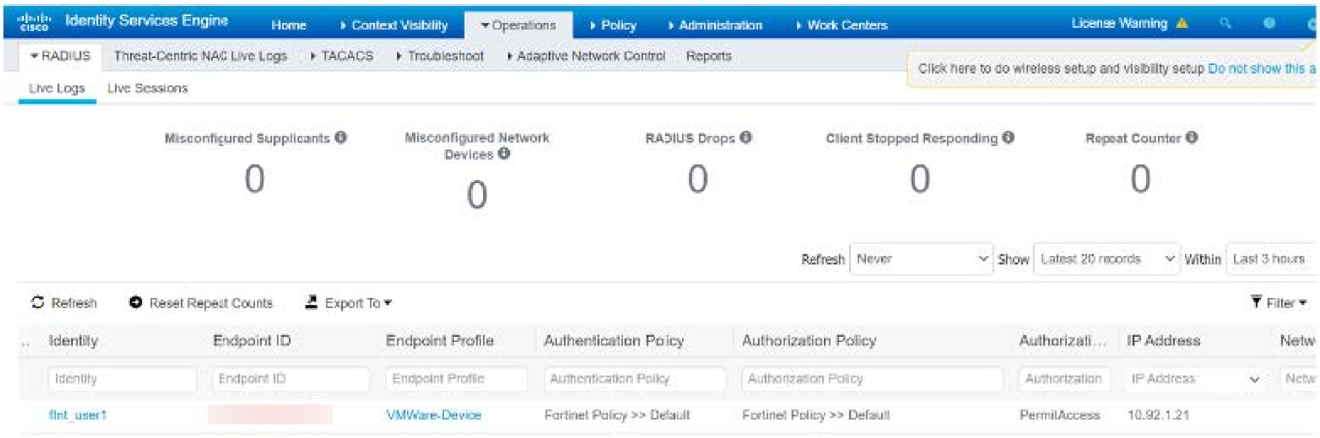
Quarantine

8. Click *Use*.

3 Check the configuration

If each network component is configured properly, the endpoint will be authenticated successfully. In Windows 10, use the Command Prompt of Windows 10, to verify the IP address is acquired and the DHCP server is pingable.

In Cisco ISE go to *Operations* > *RADIUS* > *Live Logs*. The endpoint should be displayed.



Click here to do wireless setup and visibility setup Do not show this a

Misconfigured Supplicants	Misconfigured Network Devices	RADIUS Drops	Client Stopped Responding	Repeat Counter
0	0	0	0	0

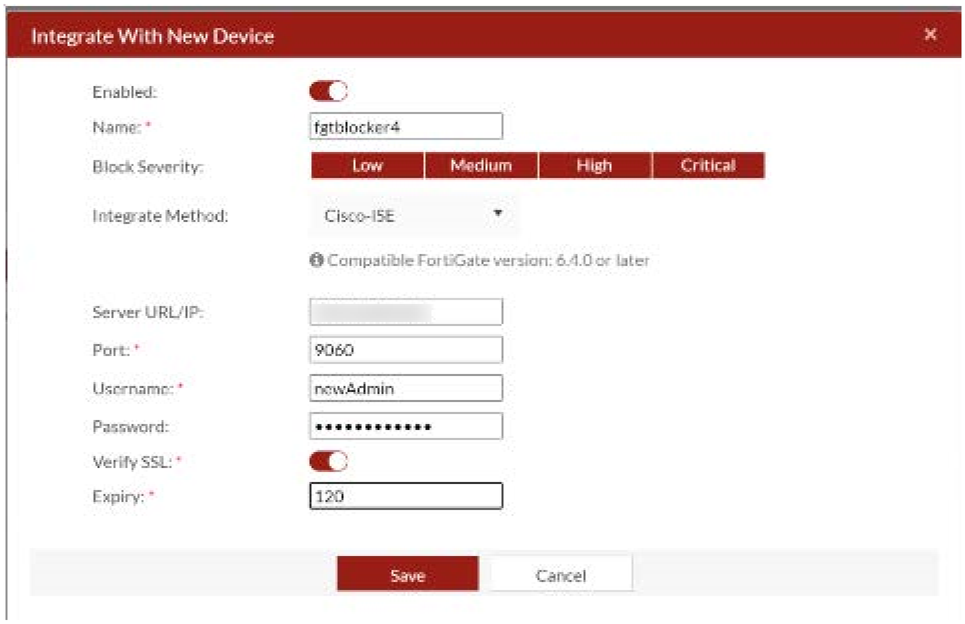
Refresh: Never | Show: Latest 20 records | Within: Last 3 hours

Identity	Endpoint ID	Endpoint Profile	Authentication Policy	Authorization Policy	Authorizati...	IP Address	Netw
flnt_user1	[redacted]	VMWare-Device	Fortinet Policy >> Default	Fortinet Policy >> Default	PermitAccess	10.92.1.21	

4. Configure FortiDeceptor

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click *Quarantine Integration With New Device*.
2. Configure the integration settings and click *Save*.

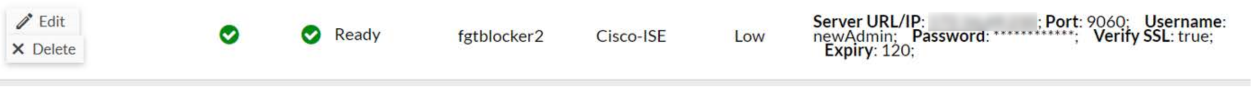
Enabled	Enable
Name	Enter a descriptive name for the integrations.
Integrate Method	Select *Cisco-ISE*.
ServerURL/IP	Enter the IP address for Cisco ISE.
Username	Enter the username for Cisco ISE.
Password	Enter the password for Cisco ISE.
Expiry	Set the expiry in seconds.



Integrate With New Device ×

Enabled:	●
Name: *	fgtblocker4
Block Severity:	Low | Medium | High | Critical
Integrate Method:	Cisco-ISE ▾
	Compatible FortiGate version: 6.4.0 or later
Server URL/IP:	[redacted]
Port: *	9060
Username: *	newAdmin
Password:	************
Verify SSL: *	●
Expiry: *	120

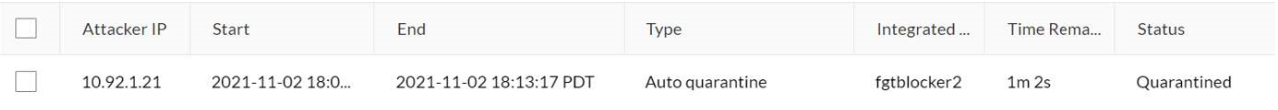
3. Verify the *Status* is *Ready*.



✓	✓ Ready	fgtblocker2	Cisco-ISE	Low	**Server URL/IP**: [redacted]; **Port**: 9060; **Username**: newAdmin; **Password**: ************; **Verify SSL**: true; **Expiry**: 120;

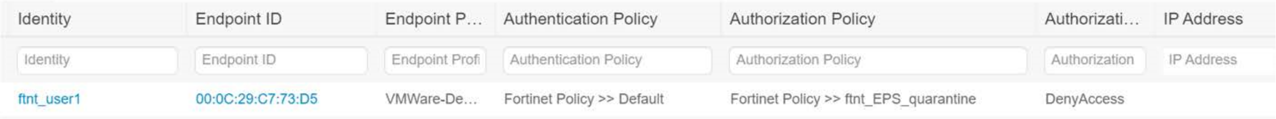
5. Quarantine the endpoint

1. Attack a decoy deployed in FortiDeceptor from the endpoint. When FortiDeceptor detects the attack has occurred, a quarantine of REST API with the IP address of the endpoint will be sent to Cisco ISE.
2. In FortiDeceptor go to *Fabric* > *Quarantine Status*, to verify the quarantine was successful.



□	Attacker IP	Start	End	Type	Integrated ...	Time Rema...	Status
□	10.92.1.21	2021-11-02 18:0...	2021-11-02 18:13:17 PDT	Auto quarantine	fgtblocker2	1m 2s	Quarantined

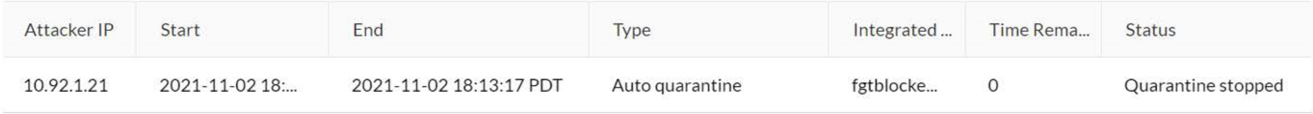
3. On the endpoint, you should see the status of the network adapter becomes *Authentication failed* and DHCP server is no longer pingable.
4. In Cisco ISE, navigate to the *Live Logs*.
   - In the *Authorization Profiles* column, you should see *PermitAccess*is replaced by *DenyAccess*.
   - In the Authorization Policy column *Fortinet Policy* >> *Default* changes to *Fortinet Policy* >> *ftnt_EPS_quarantine*.



Identity	Endpoint ID	Endpoint P...	Authentication Policy	Authorization Policy	Authorizati...	IP Address
Identity	Endpoint ID	Endpoint Profi	Authentication Policy	Authorization Policy	Authorization	IP Address
ftnt_user1	00:0C:29:C7:73:D5	VMWare-De...	Fortinet Policy >> Default	Fortinet Policy >> ftnt_EPS_quarantine	DenyAccess	

6. Un-quarantine the endpoint

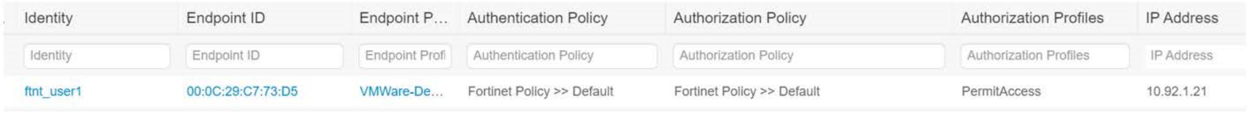
After 120 seconds, un-quarantine of REST API is sent to Cisco ISE from FortiDeceptor. At the same time, *Status* of *Quarantine Status* changes to *Quarantine stopped*.



Attacker IP	Start	End	Type	Integrated ...	Time Rema...	Status
10.92.1.21	2021-11-02 18:...	2021-11-02 18:13:17 PDT	Auto quarantine	fgtblocke...	0	Quarantine stopped

On the endpoint, the status of the network adapter is *Resumed* and the DHCP server becomes pingable.

In Cisco ISE go to *Live Logs*:

- In the *Authorization Profiles* column, *DenyAccess*changes to *PermitAccess*.
- In the *Authorization Policy* column *Fortinet Policy* >> *ftnt_EPS_quarantine*changes to *Fortinet Policy* >> *Default*.
- 

Identity	Endpoint ID	Endpoint P...	Authentication Policy	Authorization Policy	Authorization Profiles	IP Address
Identity	Endpoint ID	Endpoint Profi	Authentication Policy	Authorization Policy	Authorization Profiles	IP Address
ftnt_user1	00:0C:29:C7:73:D5	VMWare-De...	Fortinet Policy >> Default	Fortinet Policy >> Default	PermitAccess	10.92.1.21

Integrate Windows IR collector

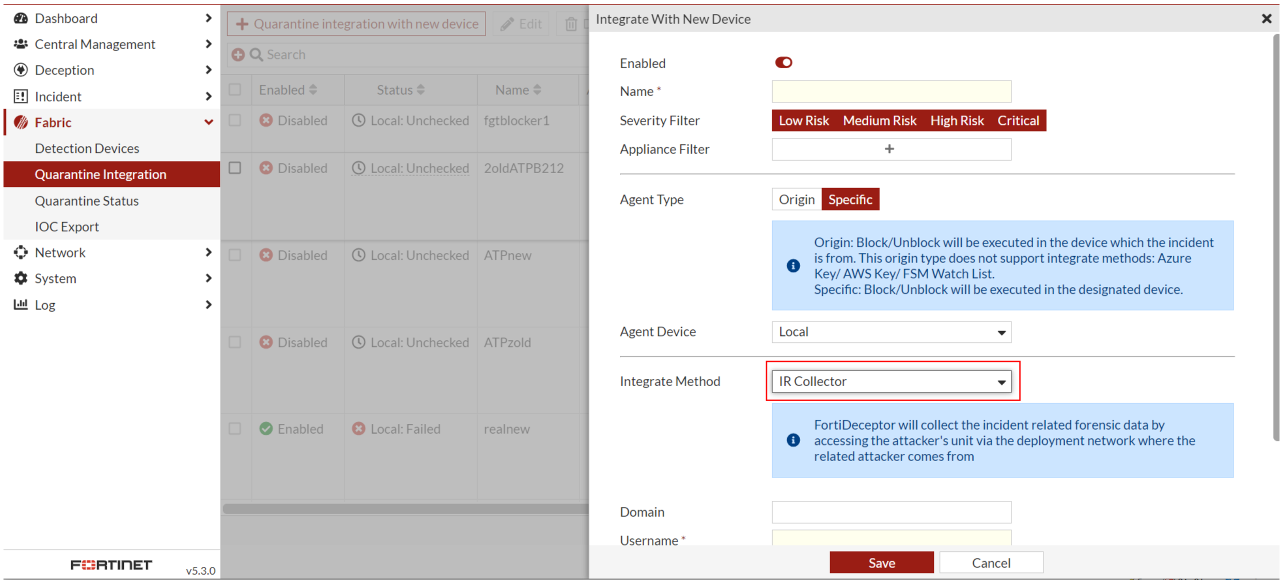
The IR Collector integration allows admins with local and domain permissions to connect to Windows endpoints remotely, copy IR tools, run commands on the endpoint and collect digital artifacts for future analysis. After the IR Collector is configured, it will collect incident related forensic data by accessing the attacker's unit via the deployment network where the attack originated from.

To configure the IR Collector:

1. Go to *Fabric* > *Quarantine Integration* and click *Quarantine integration with new device*. The *Integrate With New Device* pane opens.

2. From the *Integrate method* dropdown, select *IR collector* and configure the integration settings as required.

> The *Username* should be a user who is either a local admin or a domain user with administrative privileges to access the endpoints.



Enabled	Status	Name
Disabled	Local: Unchecked	fgtblocker1
Disabled	Local: Unchecked	2oldATPB212
Disabled	Local: Unchecked	ATPnew
Disabled	Local: Unchecked	ATPzold
Enabled	Local: Failed	realnew

Integrate With New Device

Enabled: ●

Name *

Severity Filter: Low Risk, Medium Risk, High Risk, Critical

Appliance Filter: +

Agent Type: Origin [✓ Specific]

Origin: Block/Unblock will be executed in the device which the incident is from. This origin type does not support integrate methods: Azure Key/ AWS Key/ FSM Watch List.
Specific: Block/Unblock will be executed in the designated device.

Agent Device: Local

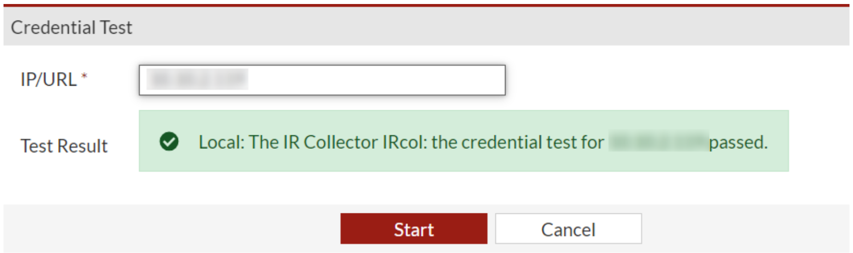
Integrate Method: IR Collector

FortiDeceptor will collect the incident related forensic data by accessing the attacker's unit via the deployment network where the related attacker comes from

Domain

Username *

3. Click *Save*.
4. Configure the Windows endpoint. Both IR and Windows network isolation in the Fabric require the same setting for the endpoints. For information, see Mitigation using Windows remote command on page 370.
5. After you configuring FortiDeceptor and the Windows endpoint, perform a connection check.
   a. Go to *Fabric > Quarantine Integration*
   b. Select the IR Collector integration and click *Credential Test*.



Credential Test

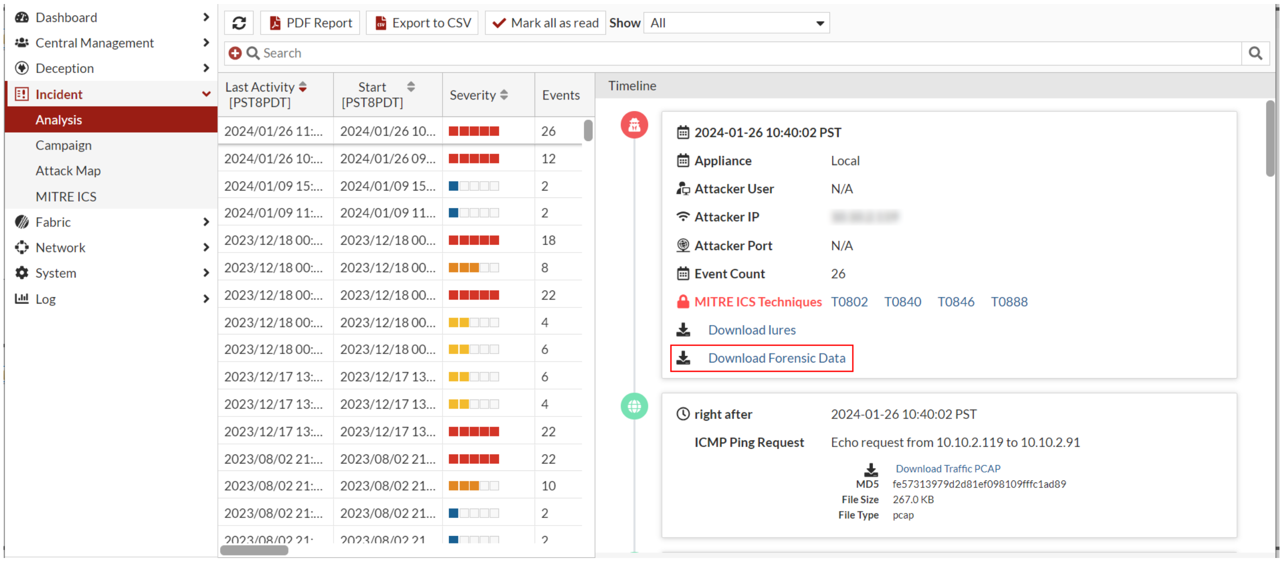
IP/URL * [redacted]

Test Result: Local: The IR Collector IRcol: the credential test for [redacted] passed.

To download the artifacts:

1. Go to *Incident > Analysis*.
2. Click an incident in the table.

3. Click *Download Forensic Data*. The artifacts are saved as a Zip file.



Last Activity [PST8PDT]	Start [PST8PDT]	Severity	Events
2024/01/26 11:...	2024/01/26 10...	🟥🟥🟥🟥🟥	26
2024/01/26 10:...	2024/01/26 09...	🟥🟥🟥🟥🟥	12
2024/01/09 15:...	2024/01/09 15...	🟦□□□□	2
2024/01/09 11:...	2024/01/09 11...	🟦□□□□	2
2023/12/18 00:...	2023/12/18 00...	🟥🟥🟥🟥🟥	18
2023/12/18 00:...	2023/12/18 00...	🟧🟧🟧□□	8
2023/12/18 00:...	2023/12/18 00...	🟥🟥🟥🟥🟥	22
2023/12/18 00:...	2023/12/18 00...	🟨🟨□□□	4
2023/12/18 00:...	2023/12/18 00...	🟨🟨□□□	6
2023/12/17 13:...	2023/12/17 13...	🟨🟨□□□	6
2023/12/17 13:...	2023/12/17 13...	🟨🟨□□□	4
2023/12/17 13:...	2023/12/17 13...	🟥🟥🟥🟥🟥	22
2023/08/02 21:...	2023/08/02 21...	🟥🟥🟥🟥🟥	22
2023/08/02 21:...	2023/08/02 21...	🟧🟧🟧□□	10
2023/08/02 21:...	2023/08/02 21...	🟦□□□□	2
2023/08/02 21:	2023/08/02 21	🟦□□□□	2

2024-01-26 10:40:02 PST

Appliance Local

Attacker User N/A

Attacker IP [redacted]

Attacker Port N/A

Event Count 26

MITRE ICS Techniques T0802 T0840 T0846 T0888

Download lures

Download Forensic Data

right after 2024-01-26 10:40:02 PST

ICMP Ping Request Echo request from 10.10.2.119 to 10.10.2.91

Download Traffic PCAP

MD5 fe57313979d2d81ef098109fffc1ad89

File Size 267.0 KB

File Type pcap

Artifacts list

Extracted from the file system:

- IE/Firefox/Chrome History
- Named Pipes
- Prefetch Startup
- Directories
- etc.

Extracted from the registry:

- Installer Folders
- Recent Docs
- Services
- UserAssists
- Networks List

Extracted from in-memory processes:

- Opened Files

Other information:

- Drives List Network
- Drives Network Cards
- Processes
- Routing Table
- Sessions
- Sockets

Artifacts labeled *etc* are files that contain more information.

Mitigation using Windows remote command

1. Configure the endpoint

1.1 Verify the endpoint domains and permissions.

FortiDeceptor will use the administrator account of the AD domain to access Windows endpoints. Please ensure the Windows endpoints are connected to the AD domain and the administrator account of AD domain can access the endpoints.

The administrator can also be a domain local admin with permission to disable the endpoint network interfaces.

1.2 Open the Windows SMB port

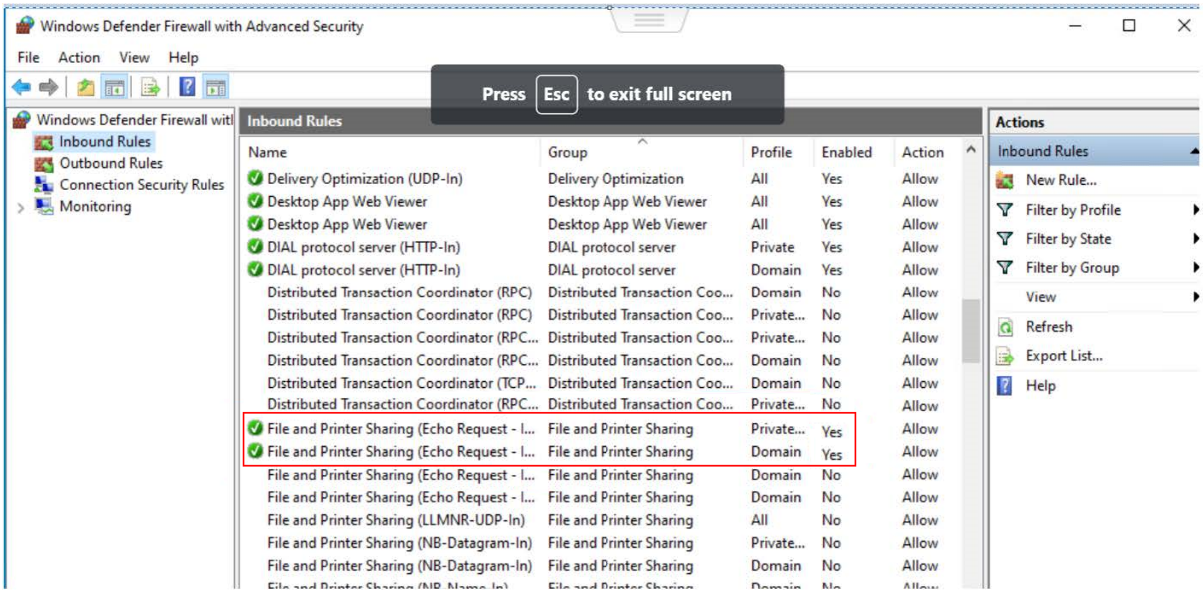
By default, Windows blocks the SMB port 445. To open the port run the following command in PowerShell:

```
Set-NetFirewallRule -Name FPS-SMB-In-TCP -Enabled True
```

1.3 Enable SMB

If the Firewall is enabled by the A/D GPO, you will need to add the FortiDeceptor management IP to the exclusion list.

1. Type `wf. msc` in the Windows search box.
2. Click *Inbound Rules* in the navigation pane.
3. Scroll down to *File and Printer Sharing (Echo Request - ICMPv4-In)*.
4. Enable the options in both *Private* and *Domain* profile

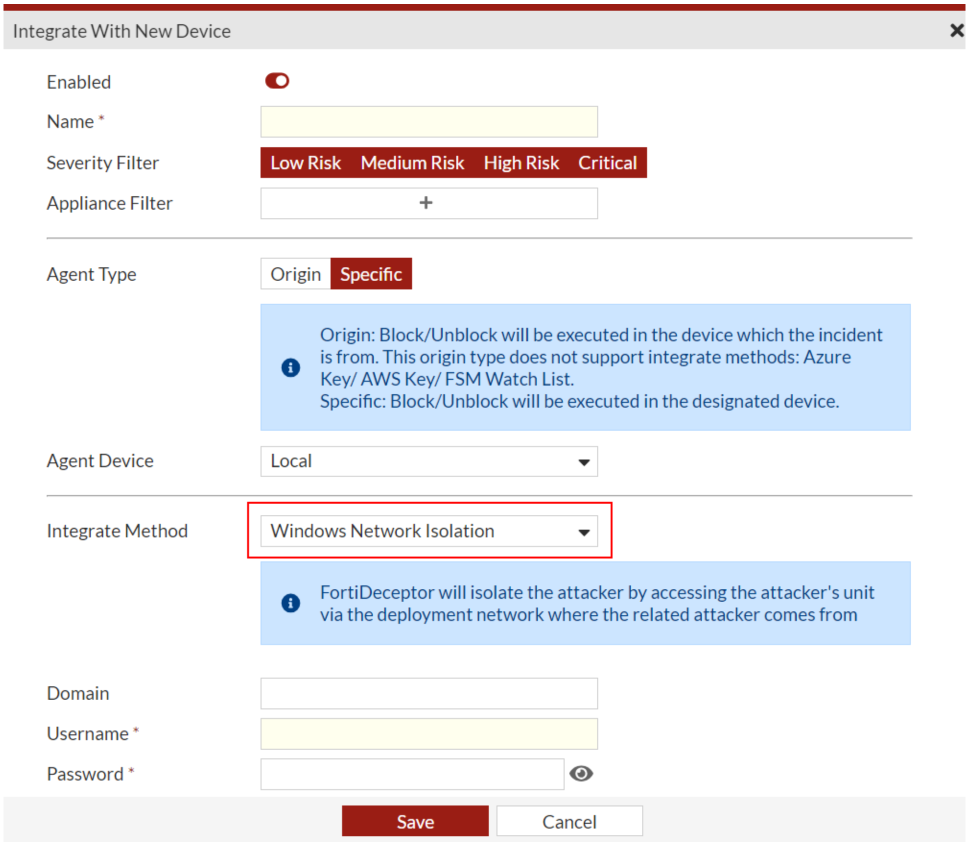


Inbound Rules

Name	Group	Profile	Enabled	Action
✓ Delivery Optimization (UDP-In)	Delivery Optimization	All	Yes	Allow
✓ Desktop App Web Viewer	Desktop App Web Viewer	All	Yes	Allow
✓ Desktop App Web Viewer	Desktop App Web Viewer	All	Yes	Allow
✓ DIAL protocol server (HTTP-In)	DIAL protocol server	Private	Yes	Allow
✓ DIAL protocol server (HTTP-In)	DIAL protocol server	Domain	Yes	Allow
Distributed Transaction Coordinator (RPC)	Distributed Transaction Coo...	Domain	No	Allow
Distributed Transaction Coordinator (RPC)	Distributed Transaction Coo...	Private...	No	Allow
Distributed Transaction Coordinator (RPC...	Distributed Transaction Coo...	Private...	No	Allow
Distributed Transaction Coordinator (RPC...	Distributed Transaction Coo...	Domain	No	Allow
Distributed Transaction Coordinator (TCP...	Distributed Transaction Coo...	Domain	No	Allow
Distributed Transaction Coordinator (RPC...	Distributed Transaction Coo...	Private...	No	Allow
✓ File and Printer Sharing (Echo Request - I...	File and Printer Sharing	Private...	Yes	Allow
✓ File and Printer Sharing (Echo Request - I...	File and Printer Sharing	Domain	Yes	Allow
File and Printer Sharing (Echo Request - I...	File and Printer Sharing	Domain	No	Allow
File and Printer Sharing (Echo Request - I...	File and Printer Sharing	Domain	No	Allow
File and Printer Sharing (LLMNR-UDP-In)	File and Printer Sharing	All	No	Allow
File and Printer Sharing (NB-Datagram-In)	File and Printer Sharing	Private...	No	Allow
File and Printer Sharing (NB-Datagram-In)	File and Printer Sharing	Domain	No	Allow
File and Printer Sharing (NB-Name-In)	File and Printer Sharing	Domain	No	Allow

2. Configure FortiDeceptor

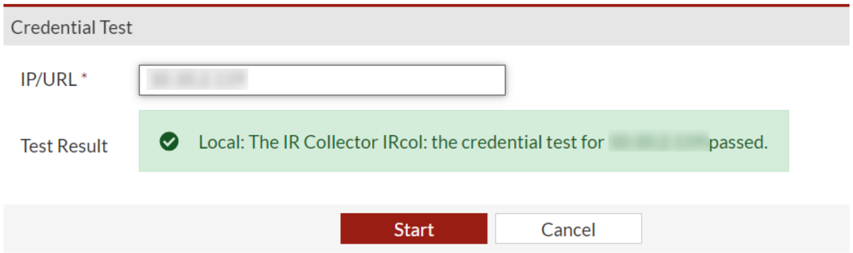
1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click + *Quarantine Integration with new device*.
2. Configure the integration settings ensuring the user has sufficient privileges to manage NICs.



Integrate With New Device

Enabled	●
Name *	
Severity Filter	Low Risk · Medium Risk · High Risk · Critical
Appliance Filter	+
Agent Type	Origin [✓ Specific]
	Origin: Block/Unblock will be executed in the device which the incident is from. This origin type does not support integrate methods: Azure Key/ AWS Key/ FSM Watch List. Specific: Block/Unblock will be executed in the designated device.
Agent Device	Local
Integrate Method	Windows Network Isolation
	FortiDeceptor will isolate the attacker by accessing the attacker's unit via the deployment network where the related attacker comes from
Domain	
Username *	
Password *	

3. (Optional) Click *Credentials Test* and then click *Start* to test the connection.



Credential Test

IP/URL * [redacted]

Test Result: Local: The IR Collector IRcol: the credential test for [redacted] passed.

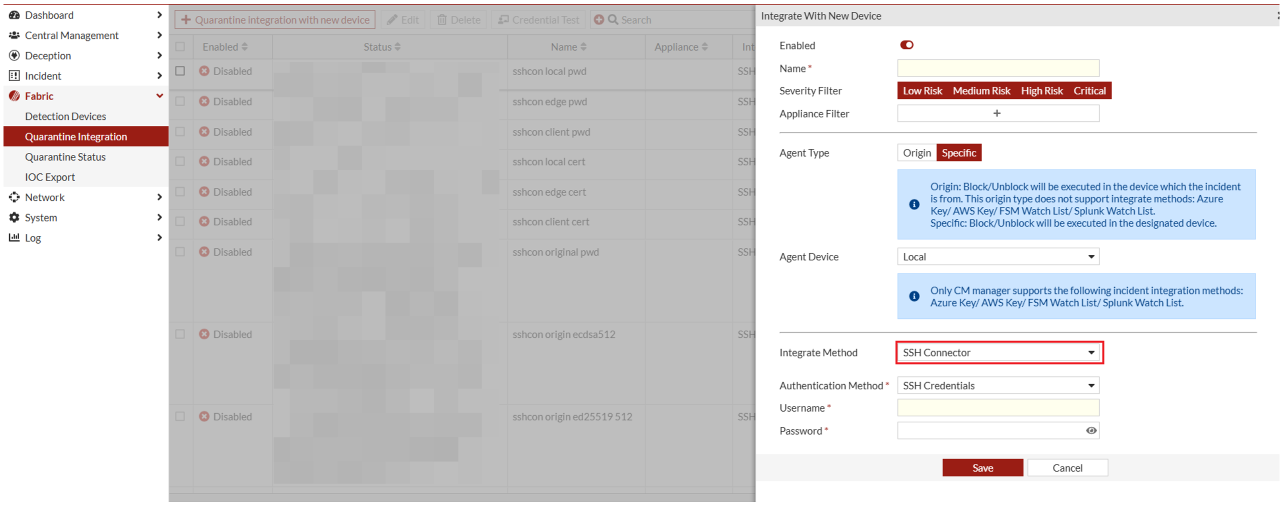
Integrate with SSH Connector

The SSH Connector allows admins with local permissions to connect to Linux endpoints remotely, and quarantine the exploited endpoint by shutting down its network access. After the SSH connector is configured, the quarantine, triggered by deception incidents, will be implemented by SSH accessing the attacker's unit via the deployment network where the attack originated from.

To configure the SSH Connector:

1. Go to *Fabric* > *Quarantine Integration* and click *Quarantine integration with new device*. The *Integrate With New Device* pane opens.
2. From the *Integrate method* dropdown, select *SSH Connector* and configure the integration settings as required.

> The *Username* should be a user with administrative privileges for the endpoints.



Enabled	Status	Name	Appliance	Int
Disabled	[redacted]	sshcon local pwd		SSH
Disabled	[redacted]	sshcon edge pwd		SSH
Disabled	[redacted]	sshcon client pwd		SSH
Disabled	[redacted]	sshcon local cert		SSH
Disabled	[redacted]	sshcon edge cert		SSH
Disabled	[redacted]	sshcon client cert		SSH
Disabled	[redacted]	sshcon original pwd		SSH
Disabled	[redacted]	sshcon origin ecdsa512		SSH
Disabled	[redacted]	sshcon origin ed25519 512		SSH

Integrate With New Device

Enabled	●
Name *	
Severity Filter	Low Risk, Medium Risk, High Risk, Critical
Appliance Filter	+
Agent Type	Origin [✓ Specific]

Origin: Block/Unblock will be executed in the device which the incident is from. This origin type does not support integrate methods: Azure Key/ AWS Key/ FSM Watch List/ Splunk Watch List.
Specific: Block/Unblock will be executed in the designated device.

Agent Device	Local

Only CM manager supports the following incident integration methods: Azure Key/ AWS Key/ FSM Watch List/ Splunk Watch List.

Integrate Method	SSH Connector
Authentication Method *	SSH Credentials
Username *	
Password *	

3. Click *Save*.

4. Configure the Linux endpoint. For information, see Mitigation using Linux remote command on page 373.
5. After you configure the FortiDeceptor and the Linux endpoints, perform a connection check.

The SSH Connector does not support endpoint quarantine on cloud platforms such as AWS, Azure, and Google Cloud Platform, even if the connection check is successful. Additionally, endpoints that do not support the `nmcli` networking `off` command cannot be quarantined using this integration.

Mitigation using Linux remote command

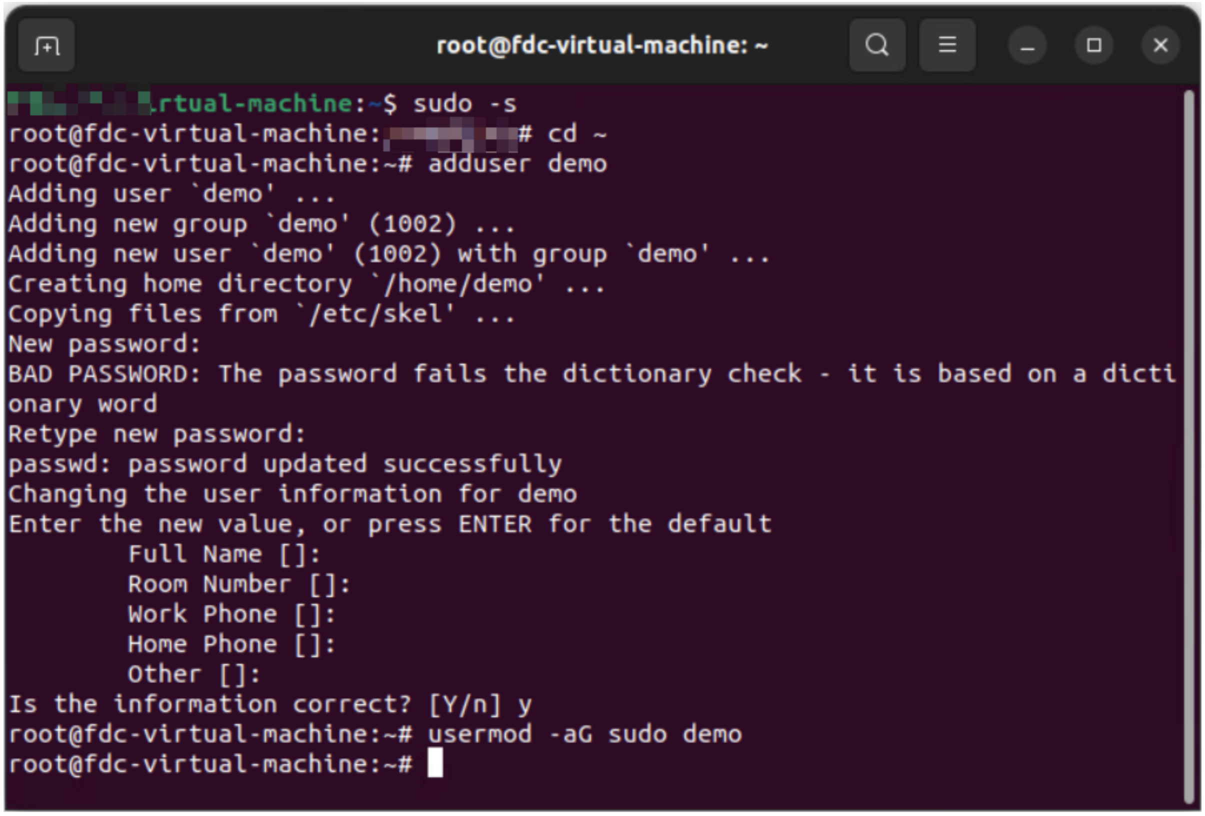
1. Configure the endpoint

1.1 Verify the endpoint permissions

FortiDeceptor will use the user account with sudo permissions to access Linux endpoints. Please ensure the user account is included in the sudo group at the endpoint(s).

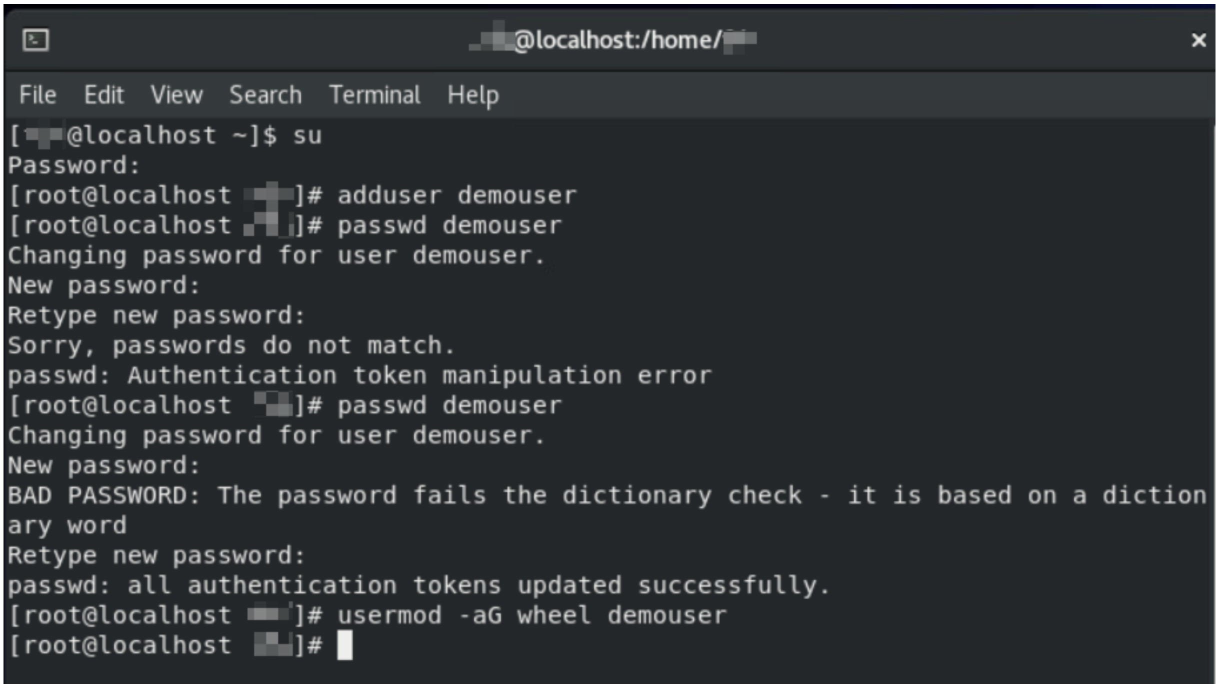
To create and add a user in the sudo group in the Linux endpoint terminal:

Ubuntu:



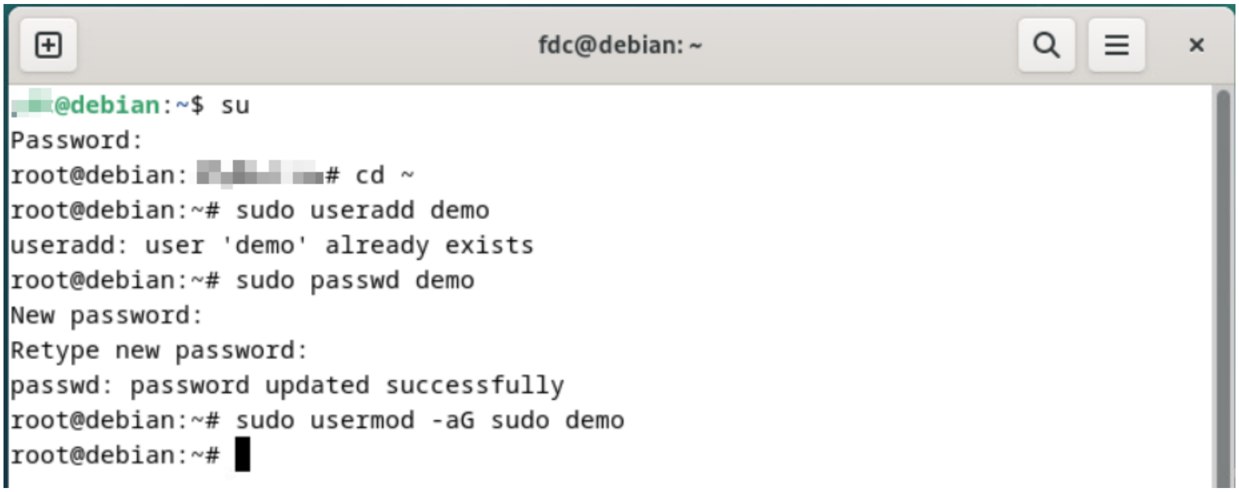
```
[redacted]rtual-machine:~$ sudo -s
root@fdc-virtual-machine:[redacted]# cd ~
root@fdc-virtual-machine:~# adduser demo
Adding user `demo' ...
Adding new group `demo' (1002) ...
Adding new user `demo' (1002) with group `demo' ...
Creating home directory `/home/demo' ...
Copying files from `/etc/skel' ...
New password:
BAD PASSWORD: The password fails the dictionary check - it is based on a dicti
onary word
Retype new password:
passwd: password updated successfully
Changing the user information for demo
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
root@fdc-virtual-machine:~# usermod -aG sudo demo
root@fdc-virtual-machine:~#
```

CentOS/RedHat:



```
[[redacted]@localhost ~]$ su
Password:
[root@localhost [redacted]]# adduser demouser
[root@localhost [redacted]]# passwd demouser
Changing password for user demouser.
New password:
Retype new password:
Sorry, passwords do not match.
passwd: Authentication token manipulation error
[root@localhost [redacted]]# passwd demouser
Changing password for user demouser.
New password:
BAD PASSWORD: The password fails the dictionary check - it is based on a diction
ary word
Retype new password:
passwd: all authentication tokens updated successfully.
[root@localhost [redacted]]# usermod -aG wheel demouser
[root@localhost [redacted]]# 
```

Debian:



```
[redacted]@debian:~$ su
Password:
root@debian: [redacted]# cd ~
root@debian:~# sudo useradd demo
useradd: user 'demo' already exists
root@debian:~# sudo passwd demo
New password:
Retype new password:
passwd: password updated successfully
root@debian:~# sudo usermod -aG sudo demo
root@debian:~# 
```

1.2 Allow the Linux SSH connection

By default, the SSH service may not be installed at the Linux endpoint, or the local firewall at the endpoint blocks the SSH traffic. To install the SSH service and open the port, run the following command:

```
sudo apt install openssh-server
sudo ufw allow ssh
```

1.3 Install nmcli at Linux endpoints

`nmcli` is the network management command-line tool required for Linux endpoint isolation.

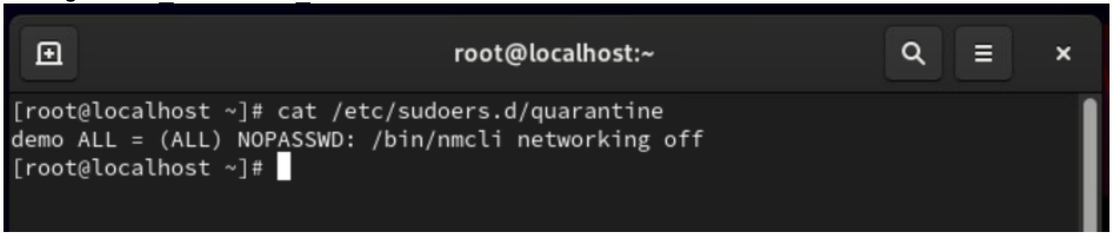
To install the nmcli, run the following command:

Ubuntu/Debian (Debian-based distribution)	`sudo apt update`
	`sudo apt install network-manager`

CentOS/RedHat (RPM-based distribution)	`sudo yum check-update`
	`sudo yum install NetworkManager`

1.4 Allow nmcli command to run without password prompt

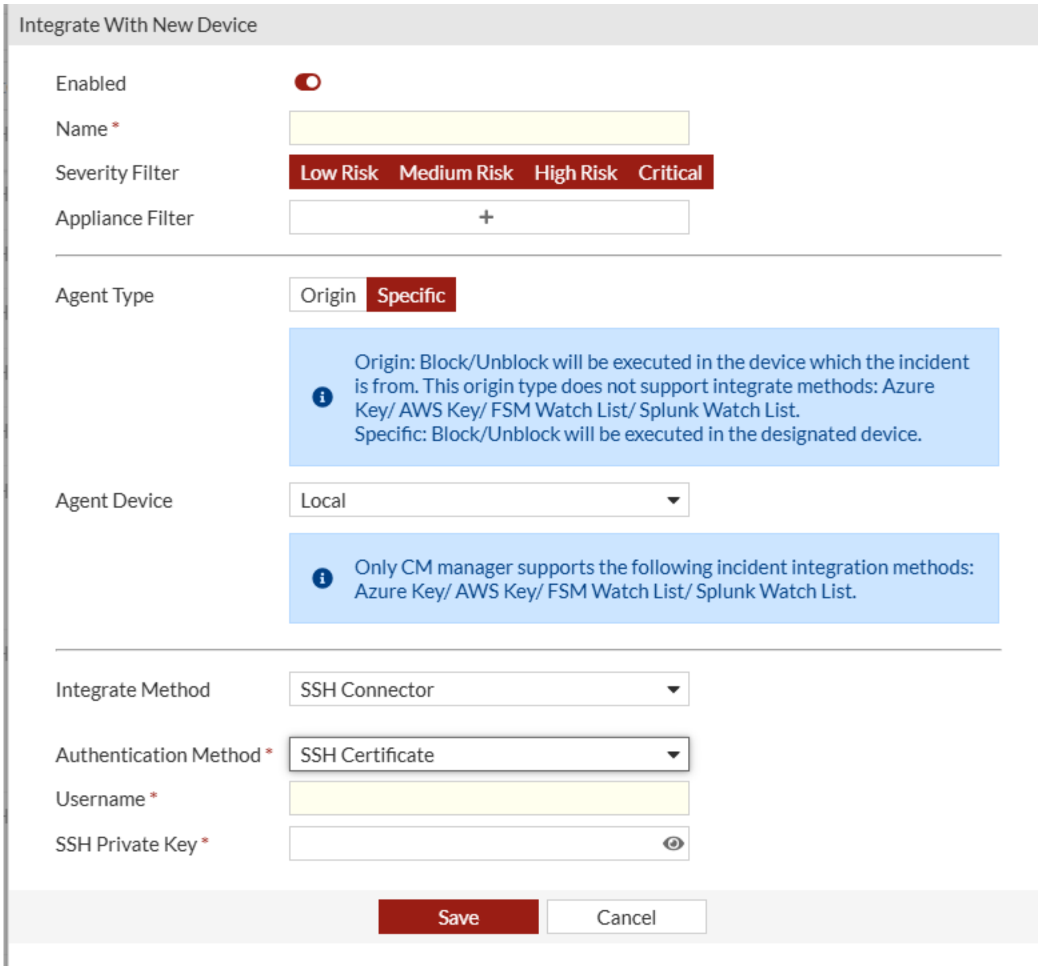
1. Create a new file named `quarantine` under `/etc/sudoers.d`.
2. Copy `YOUR_USERNAME_HERE ALL = (ALL) NOPASSWD: /bin/nmcli networking off` to the new file. Change `YOUR_USERNAME_HERE` to the real user name.



```
[root@localhost ~]# cat /etc/sudoers.d/quarantine
demo ALL = (ALL) NOPASSWD: /bin/nmcli networking off
[root@localhost ~]# 
```

2. Configure FortiDeceptor

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration* and click + *Quarantine Integration with new device*.
2. Configure the integration settings ensuring the user has sufficient privileges to manage NICs.



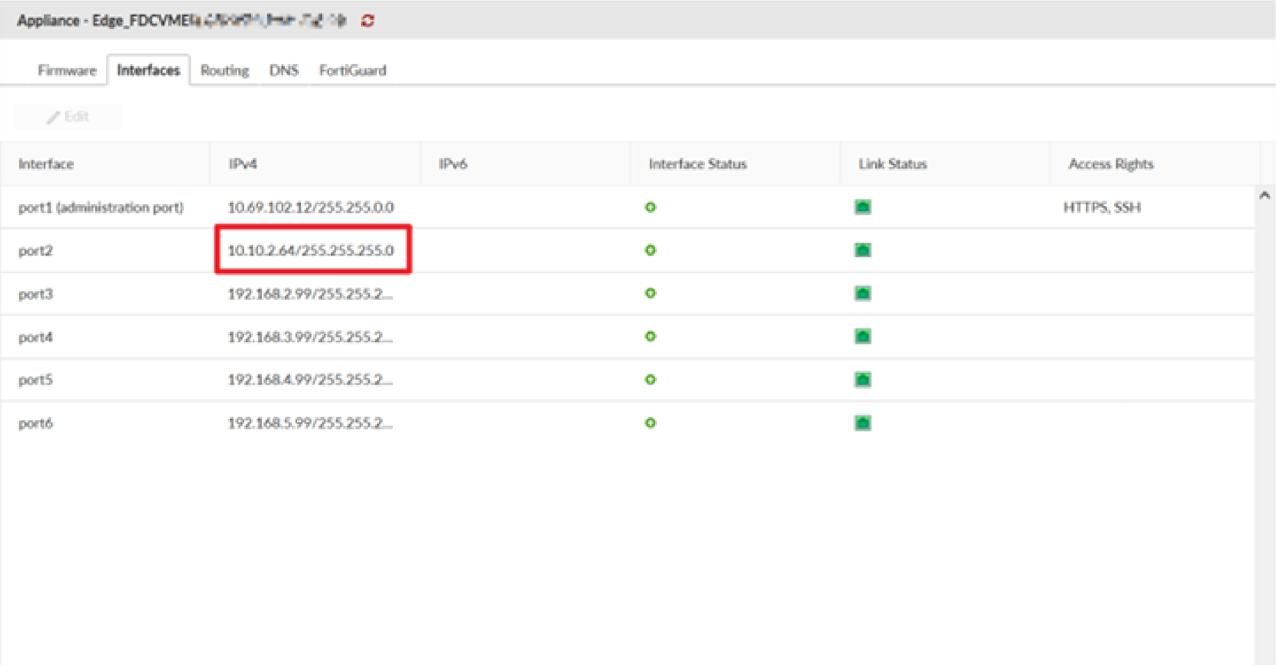
Integrate With New Device

Enabled	●
Name *	
Severity Filter	Low Risk Medium Risk High Risk Critical
Appliance Filter	+
Agent Type	Origin [✓ Specific]
	Origin: Block/Unblock will be executed in the device which the incident is from. This origin type does not support integrate methods: Azure Key/ AWS Key/ FSM Watch List/ Splunk Watch List. Specific: Block/Unblock will be executed in the designated device.
Agent Device	Local
	Only CM manager supports the following incident integration methods: Azure Key/ AWS Key/ FSM Watch List/ Splunk Watch List.
Integrate Method	SSH Connector
Authentication Method *	SSH Certificate
Username *	
SSH Private Key *	

3. (Edge appliance only) Configure interface IP address for endpoint connection.

   Example:

   If a decoy (IP: *10.10.2.12*) is deployed in the deployment network (subnet *10.10.2.0/24*) under the interface (*port2*), then the interface (*port2*) should be assigned an IP address in the same subnet as below. Thereby, the isolation command can be sent to the endpoints from the corresponding interface.



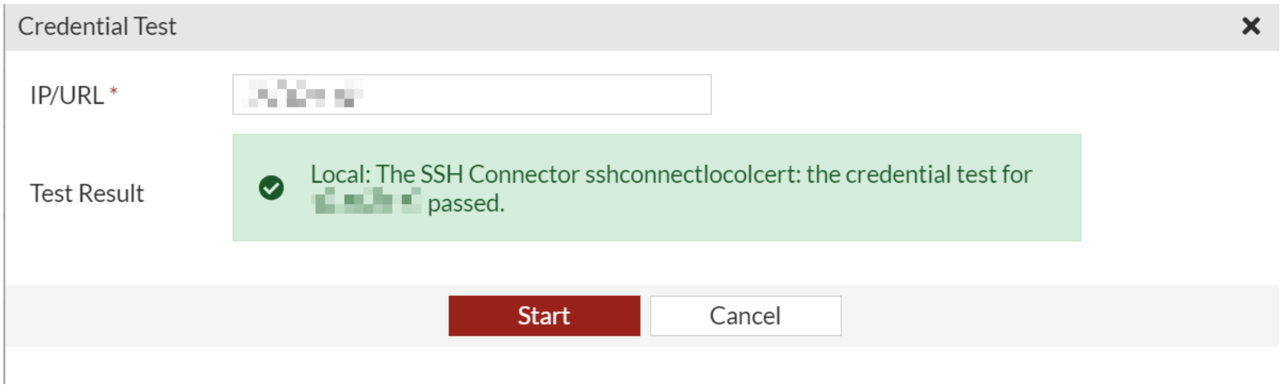
Appliance - Edge_FDCVME[redacted]

Interface	IPv4	IPv6	Interface Status	Link Status	Access Rights
port1 (administration port)	10.69.102.12/255.255.0.0		●	🟩	HTTPS, SSH
port2	10.10.2.64/255.255.255.0		●	🟩	
port3	192.168.2.99/255.255.2...		●	🟩	
port4	192.168.3.99/255.255.2...		●	🟩	
port5	192.168.4.99/255.255.2...		●	🟩	
port6	192.168.5.99/255.255.2...		●	🟩	

For Edge appliances:

You are required to go to *Network* > *Interfaces*and configure the relevant interface to where the endpoint is accessible. FortiDeceptor v6.0.0 does not support a Trunk port for *Windows Network Isolation*, *IR collector* and *SSH connector*.

4. (Optional) Click *Credentials Test* and then click *Start* to test the connection.



Credential Test

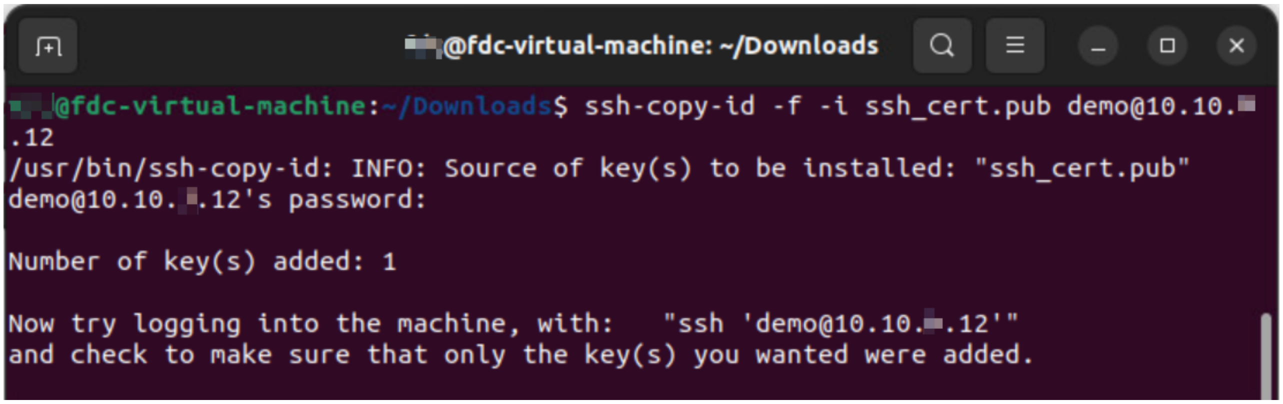
IP/URL * [redacted]

Test Result ✓ Local: The SSH Connector sshconnectlocolcert: the credential test for [redacted] passed.

3. (Optional) Share SSH public key to the endpoint

This step is required for the SSH connector configured with a SSH certificate as authentication method.

1. In FortiDeceptor , go to *Fabric* > *Quarantine Integration*, and download the generated SSH public key.
2. Apply the downloaded generated SSH public key to the corresponding user at the endpoints.



[redacted]@fdc-virtual-machine: ~/Downloads

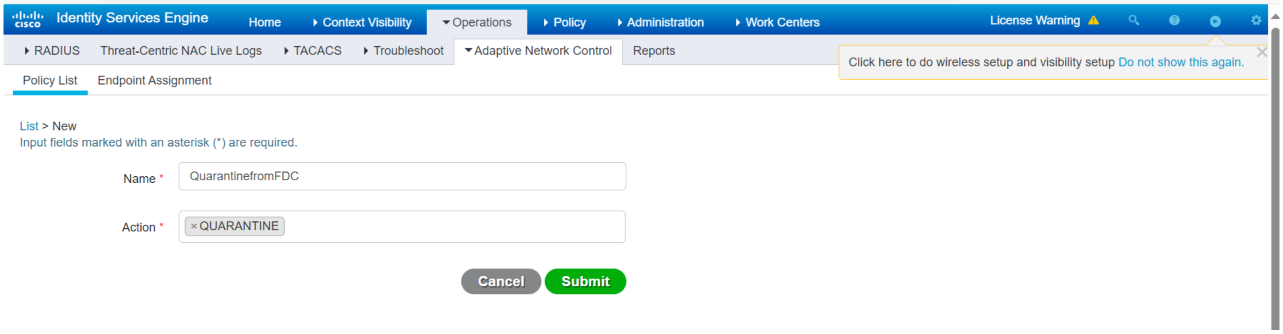
```
[redacted]@fdc-virtual-machine:~/Downloads$ ssh-copy-id -f -i ssh_cert.pub demo@10.10.[redacted]
.12
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "ssh_cert.pub"
demo@10.10.[redacted].12's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'demo@10.10.[redacted].12'"
and check to make sure that only the key(s) you wanted were added.
```

Integrate with Cisco ISE ANC policy

Cisco Identity Services Engine (ISE) Adaptive Network Control (ANC) policy is a feature that allows administrators to monitor and control network access for endpoints. ANC policies are used to enforce specific actions on endpoints based on their behavior or security posture.

1. Create and ANC policy (for ANC policy quarantine only)

1. In Cisco ISE, go to *Operations* > *Adaptive Network Control* > *Policy List*.
2. Click *Add*.
3. Name the new ANC policy and select an *Action* from dropdown list.



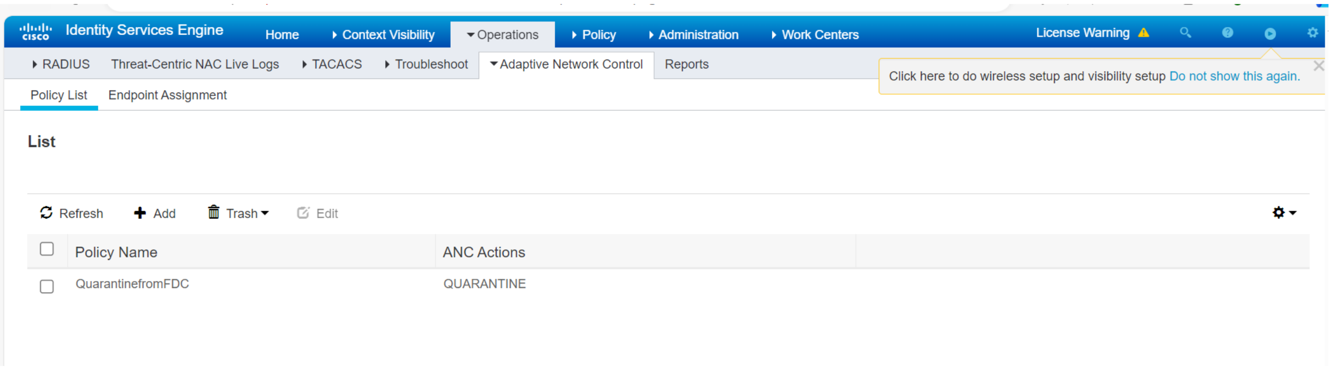
Click here to do wireless setup and visibility setup Do not show this again.

List > New
Input fields marked with an asterisk (*) are required.

Name * QuarantinefromFDC

Action * × QUARANTINE

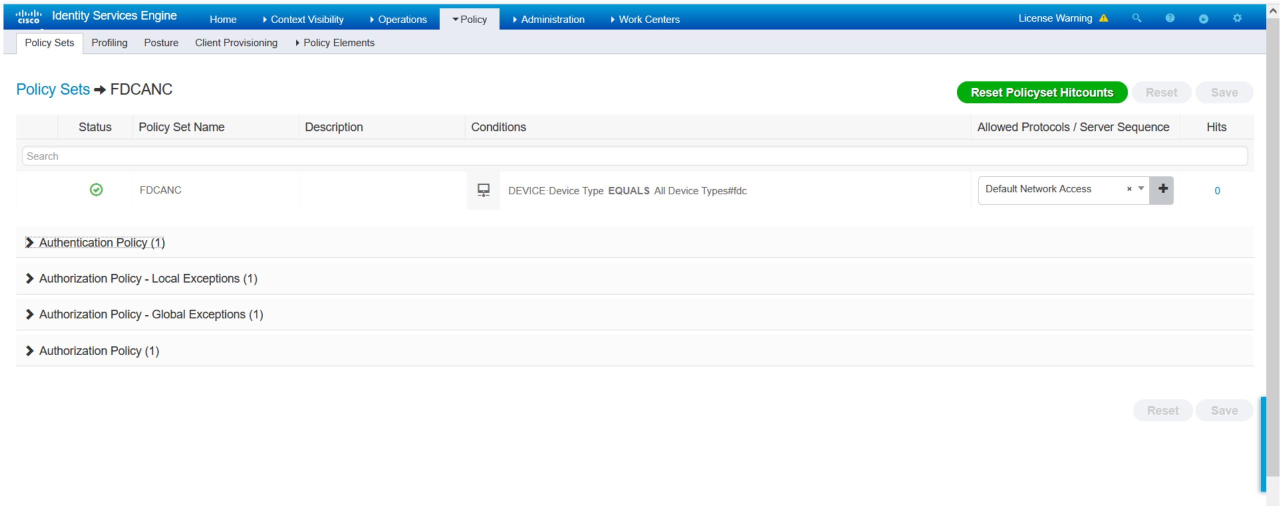
The new policy is added to the list.



□	Policy Name	ANC Actions
□	QuarantinefromFDC	QUARANTINE

2. Create a new policy (for ANC policy quarantine only)

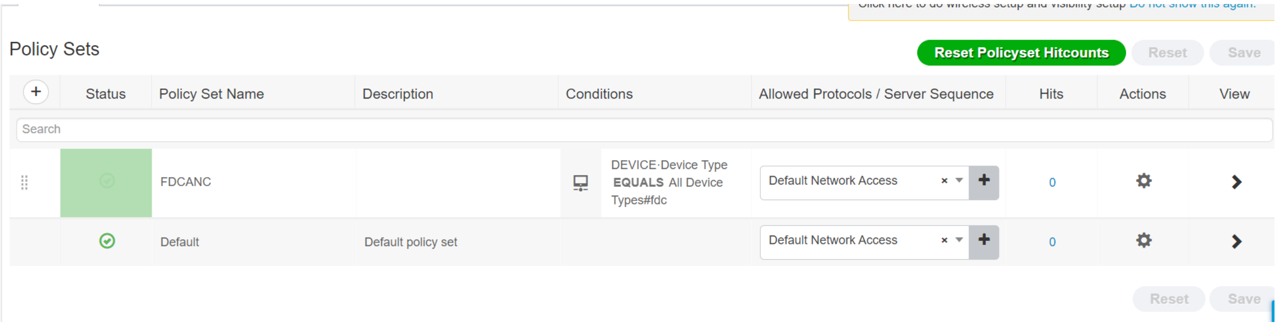
1. In Cisco ISE, go to *Policy Sets*.



Status	Policy Set Name	Description	Conditions	Allowed Protocols / Server Sequence	Hits
✓	FDCANC		DEVICE Device Type EQUALS All Device Types#fdc	Default Network Access	0

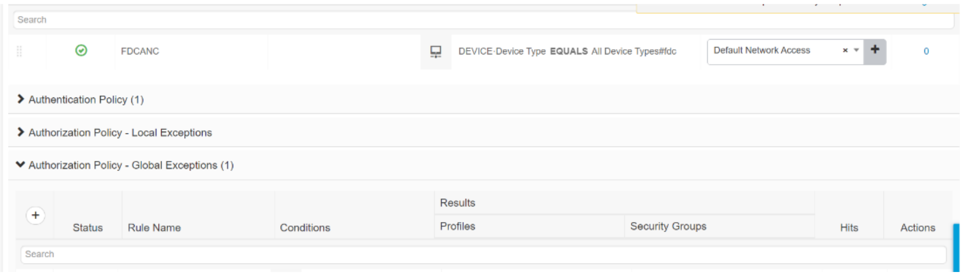
Authentication Policy (1)
Authorization Policy - Local Exceptions (1)
Authorization Policy - Global Exceptions (1)
Authorization Policy (1)
Reset
Save

2. Click the FortiDeceptor in the *Policy Set Name* column, click the FortiDeceptor policy.


Click here to do wireless setup and visibility setup Do not show this again.
Policy Sets
Reset Policyset Hitcounts
Reset
Save
Search

+	Status	Policy Set Name	Description	Conditions	Allowed Protocols / Server Sequence	Hits	Actions	View
	✓	FDCANC		DEVICE·Device Type EQUALS All Device Types#fdc	Default Network Access	0	⚙	>
	✓	Default	Default policy set		Default Network Access	0	⚙	>

3. Expand *Authorization Policy - Global Exceptions (1)*. To add a new policy, click the plus sign (**+**) in the Status column.



Search

FDCANC | DEVICE·Device Type **EQUALS** All Device Types#fdc | Default Network Access | 0

› Authentication Policy (1)

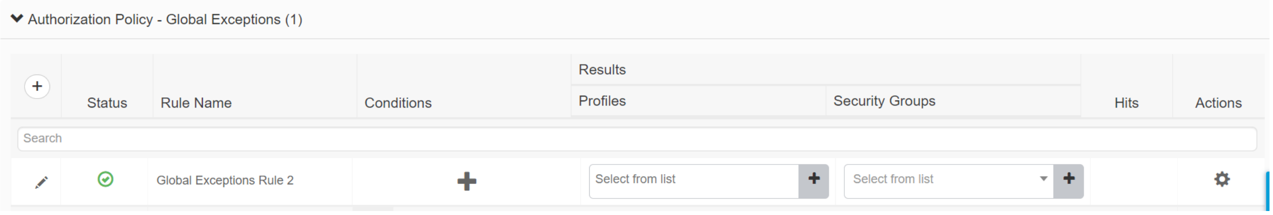
› Authorization Policy - Local Exceptions

⌄ Authorization Policy - Global Exceptions (1)

+	Status	Rule Name	Conditions	Results		Hits	Actions
				Profiles	Security Groups		

Search

4. In the *Conditions* column, click the plus sign (**+**).

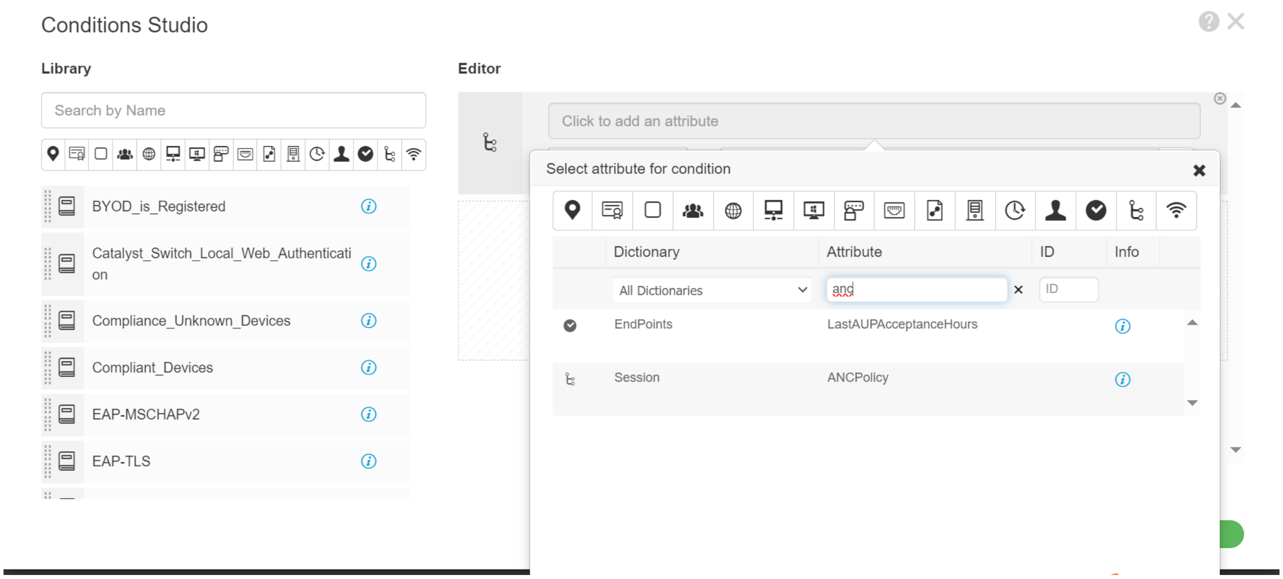


⌄ Authorization Policy - Global Exceptions (1)

+	Status	Rule Name	Conditions	Results		Hits	Actions
				Profiles	Security Groups		
	✓	Global Exceptions Rule 2	+	Select from list	Select from list		

Search

5. In the *Editor* click the *Click to add an attribute* field. In the *Attribute* column, search for *anc* and select *ANCPolicy*.



Conditions Studio

Library

Search by Name

- BYOD_is_Registered
- Catalyst_Switch_Local_Web_Authentication
- Compliance_Unknown_Devices
- Compliant_Devices
- EAP-MSCHAPv2
- EAP-TLS

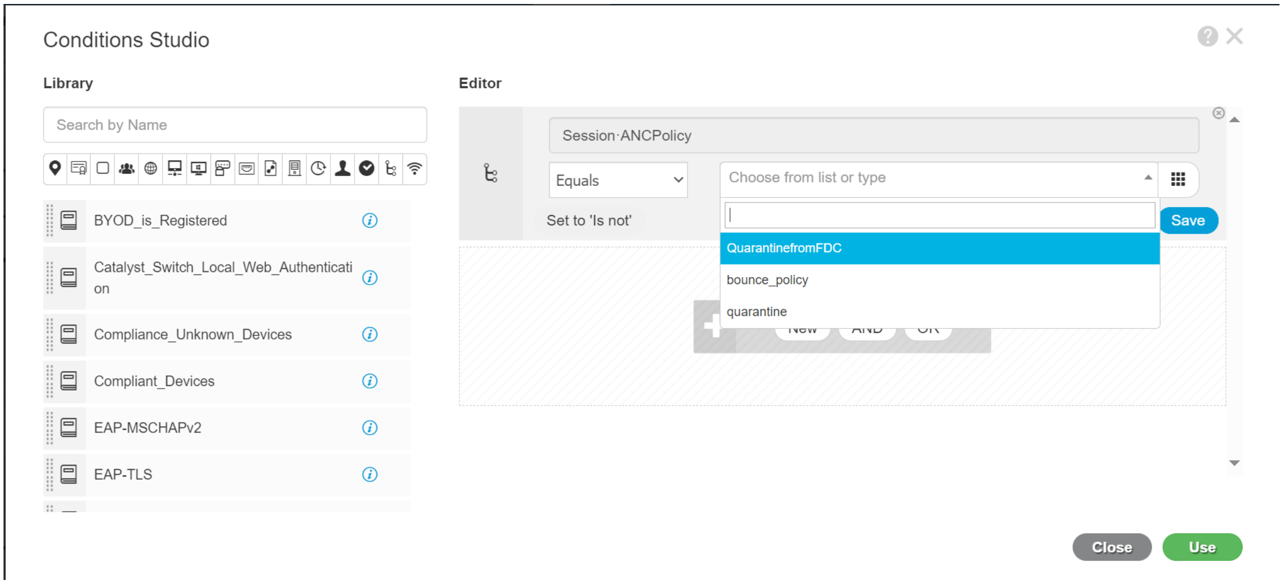
Editor

Click to add an attribute

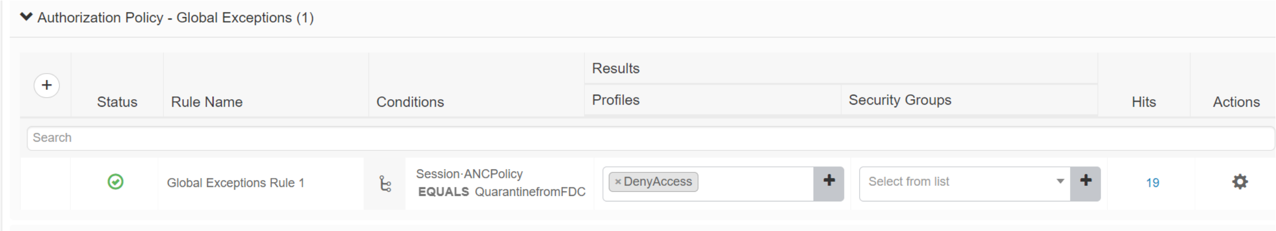
Select attribute for condition

	Dictionary	Attribute	ID	Info
	All Dictionaries	anc	ID	
✓	EndPoints	LastAUPAcceptanceHours		ⓘ
	Session	ANCPolicy		ⓘ

6. Click *Choose from list or type*, select the policy you created in the first step (*QuarantinefromFDC*) and click *Use*. .

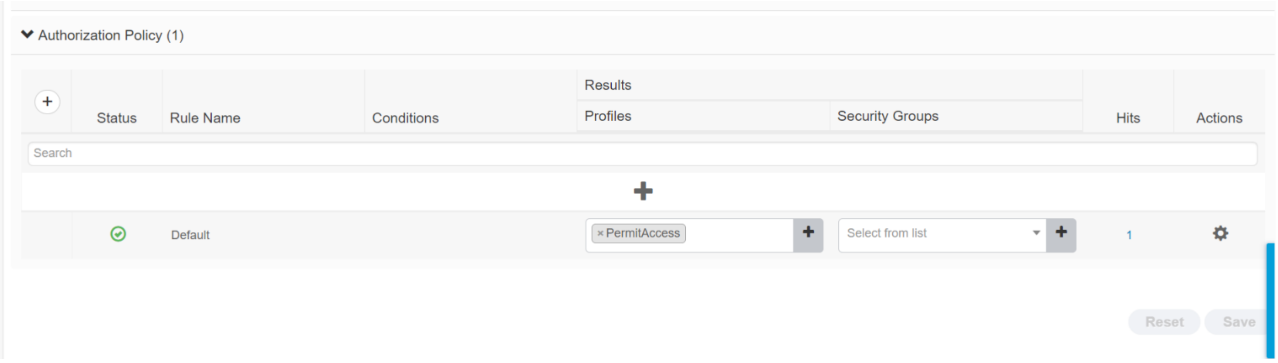


7. From the *Profiles* dropdown, select *DenyAccess*.


Authorization Policy - Global Exceptions (1)

	Status	Rule Name	Conditions	Results: Profiles	Results: Security Groups	Hits	Actions
+							
	✓	Global Exceptions Rule 1	Session·ANCPolicy EQUALS QuarantinefromFDC	× DenyAccess +	Select from list +	19	⚙

8. In the *Authorization Policy*, ensure the *Conditions* column is empty and *Profiles* dropdown is set to *PermitAccess*.

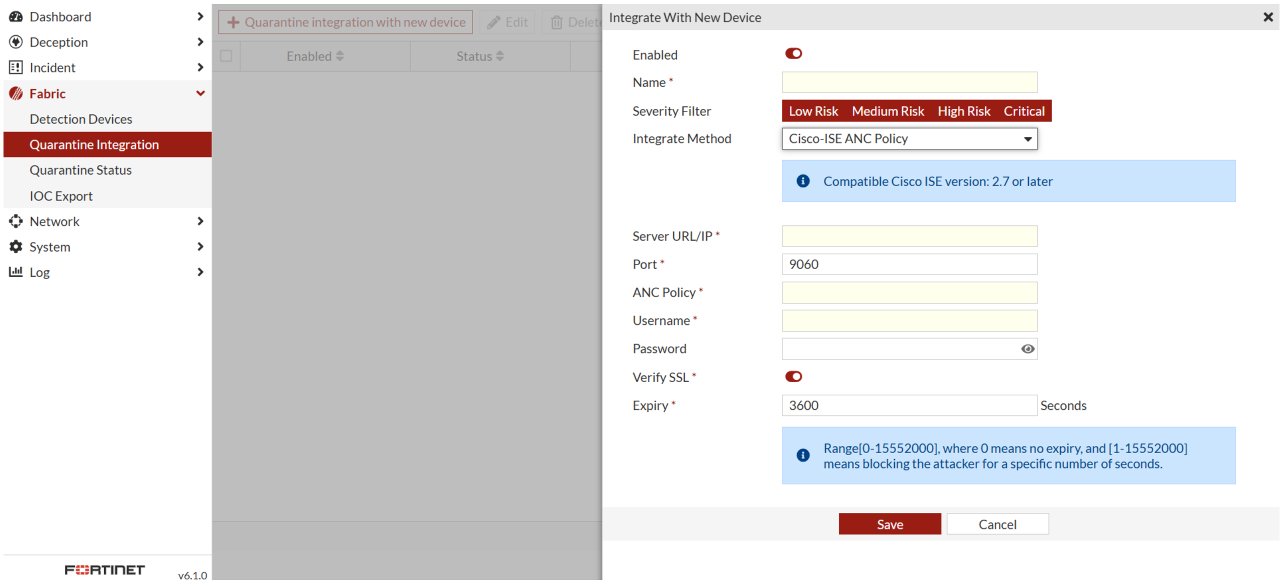

Authorization Policy (1)

	Status	Rule Name	Conditions	Results: Profiles	Results: Security Groups	Hits	Actions
+							
	✓	Default		× PermitAccess +	Select from list +	1	⚙

3. Configure FortiDeceptor

1. In FortiDeceptor, go to *Fabric* > *Quarantine Integration*.
2. Click *Quarantine integration with new device*. The *Integrate With New Device* dialog opens.
3. From the Integrate Method dropdown, select Cisco-ISE ANC policy.

4. Configure the integration settings and click *Save*.



Enabled ●
Name *
Severity Filter: Low Risk, Medium Risk, High Risk, Critical
Integrate Method: Cisco-ISE ANC Policy
Compatible Cisco ISE version: 2.7 or later
Server URL/IP *
Port *: 9060
ANC Policy *
Username *
Password
Verify SSL * ●
Expiry *: 3600 Seconds
Range[0-15552000], where 0 means no expiry, and [1-15552000] means blocking the attacker for a specific number of seconds.

Integration with Splunk Watch List

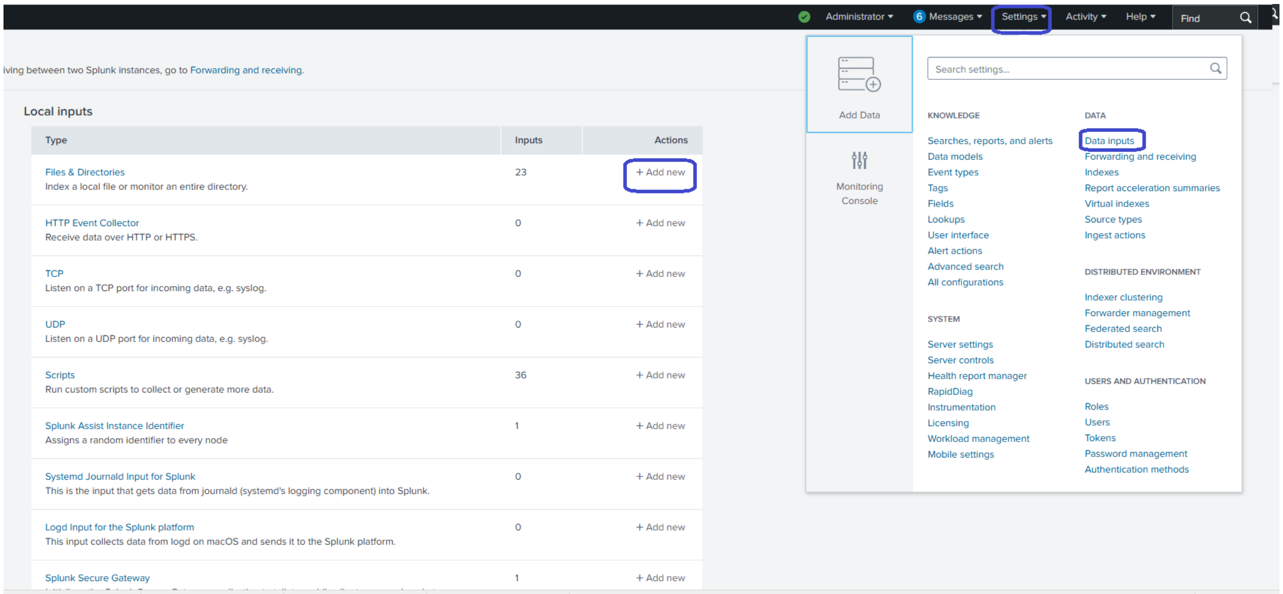
This topic provides steps for integrating FortiDeceptor with Splunk, focusing on setting up data sources, creating lookups, searches, roles, users, and tokens.

To integrate FortiDeceptor with Splunk Watch List:

1. Set up the Data Source
2. Create a new lookup
3. Create a new search
4. Create a new role
5. Create a new user
6. Create a new token
7. Configure the integration in FortiDeceptor Artifacts list

1. Set up the Data Source

1. Go to *Settings* > *Data* > *Data Inputs* > *Add New*.

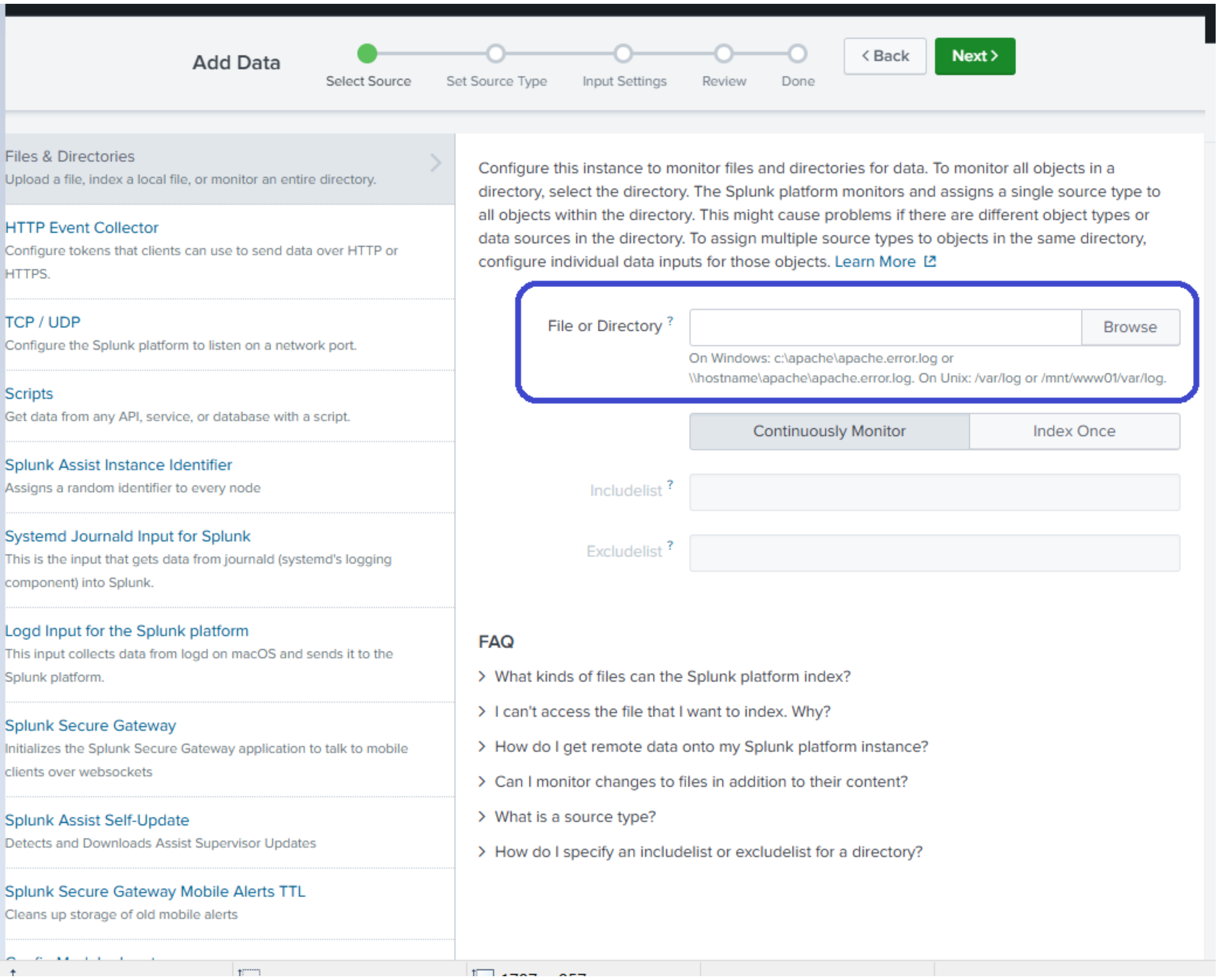


iving between two Splunk instances, go to Forwarding and receiving.

Local inputs

Type	Inputs	Actions
Files & Directories Index a local file or monitor an entire directory.	23	+ Add new
HTTP Event Collector Receive data over HTTP or HTTPS.	0	+ Add new
TCP Listen on a TCP port for incoming data, e.g. syslog.	0	+ Add new
UDP Listen on a UDP port for incoming data, e.g. syslog.	0	+ Add new
Scripts Run custom scripts to collect or generate more data.	36	+ Add new
Splunk Assist Instance Identifier Assigns a random identifier to every node	1	+ Add new
Systemd Journald Input for Splunk This is the input that gets data from journald (systemd's logging component) into Splunk.	0	+ Add new
Logd Input for the Splunk platform This input collects data from logd on macOS and sends it to the Splunk platform.	0	+ Add new
Splunk Secure Gateway	1	+ Add new

2. In the *File or Directory* field, click *Browse* and select auth logs from */var/log/auth.log*.



Files & Directories: Upload a file, index a local file, or monitor an entire directory.

HTTP Event Collector: Configure tokens that clients can use to send data over HTTP or HTTPS.

TCP / UDP: Configure the Splunk platform to listen on a network port.

Scripts: Get data from any API, service, or database with a script.

Splunk Assist Instance Identifier: Assigns a random identifier to every node

Systemd Journald Input for Splunk: This is the input that gets data from journald (systemd's logging component) into Splunk.

Logd Input for the Splunk platform: This input collects data from logd on macOS and sends it to the Splunk platform.

Splunk Secure Gateway: Initializes the Splunk Secure Gateway application to talk to mobile clients over websockets

Splunk Assist Self-Update: Detects and Downloads Assist Supervisor Updates

Splunk Secure Gateway Mobile Alerts TTL: Cleans up storage of old mobile alerts

Configure this instance to monitor files and directories for data. To monitor all objects in a directory, select the directory. The Splunk platform monitors and assigns a single source type to all objects within the directory. This might cause problems if there are different object types or data sources in the directory. To assign multiple source types to objects in the same directory, configure individual data inputs for those objects. Learn More

On Windows: c:\apache\apache.error.log or \\hostname\apache\apache.error.log. On Unix: /var/log or /mnt/www01/var/log.

FAQ

- What kinds of files can the Splunk platform index?
- I can't access the file that I want to index. Why?
- How do I get remote data onto my Splunk platform instance?
- Can I monitor changes to files in addition to their content?
- What is a source type?
- How do I specify an includelist or excludelist for a directory?

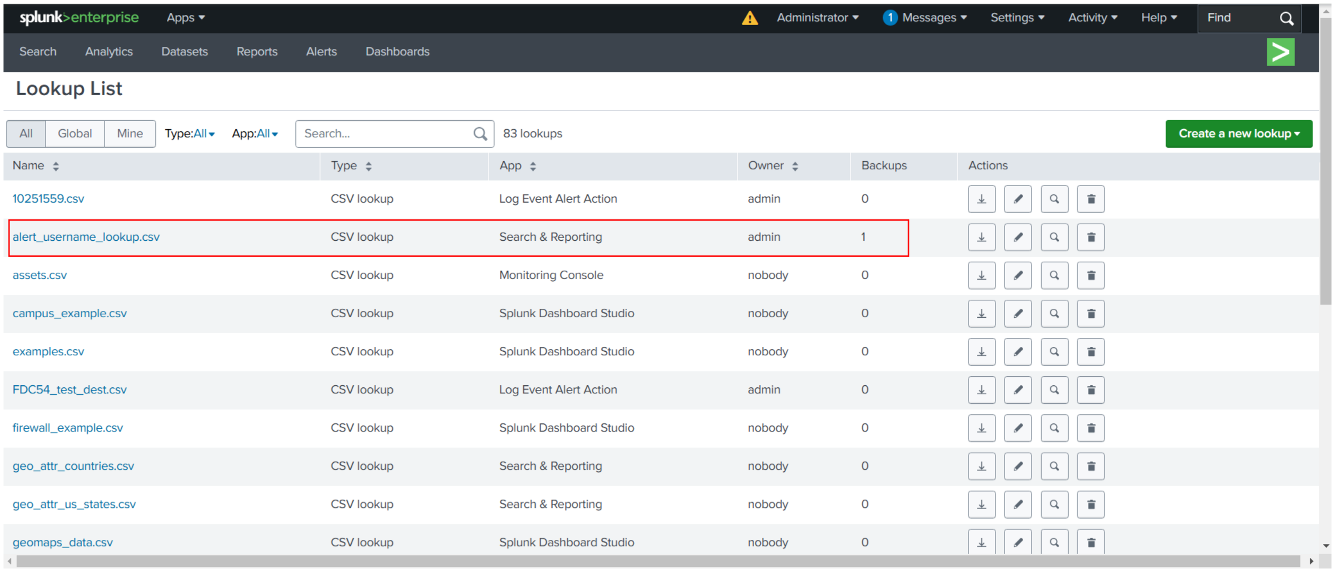
3. Click *Next*.

2. Create a new lookup

For detailed information about creating a lookup in Splunk, see the product documentation.

1. In Splunk, go to *Apps > Splunk App for Lookup File Editing*.
2. In the *Lookup Editor*, click *Lookups > Create New Lookup*.
3. Choose to create a *CSV* lookup.

Below is an example of a FortiDeceptor CSV lookup in Splunk.

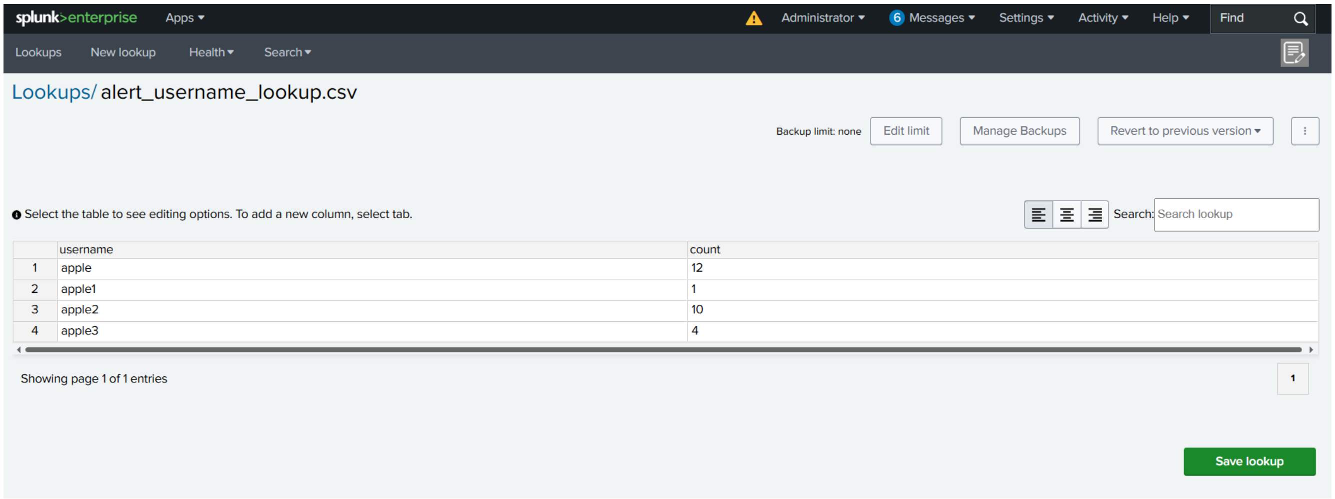


Lookup List

83 lookups

Name	Type	App	Owner	Backups	Actions
10251559.csv	CSV lookup	Log Event Alert Action	admin	0	
alert_username_lookup.csv	CSV lookup	Search & Reporting	admin	1	
assets.csv	CSV lookup	Monitoring Console	nobody	0	
campus_example.csv	CSV lookup	Splunk Dashboard Studio	nobody	0	
examples.csv	CSV lookup	Splunk Dashboard Studio	nobody	0	
FDC54_test_dest.csv	CSV lookup	Log Event Alert Action	admin	0	
firewall_example.csv	CSV lookup	Splunk Dashboard Studio	nobody	0	
geo_attr_countries.csv	CSV lookup	Search & Reporting	nobody	0	
geo_attr_us_states.csv	CSV lookup	Search & Reporting	nobody	0	
geomaps_data.csv	CSV lookup	Splunk Dashboard Studio	nobody	0	

The *Key Name* column is used to match field values from your events is the *username* column.



Lookups/ alert_username_lookup.csv

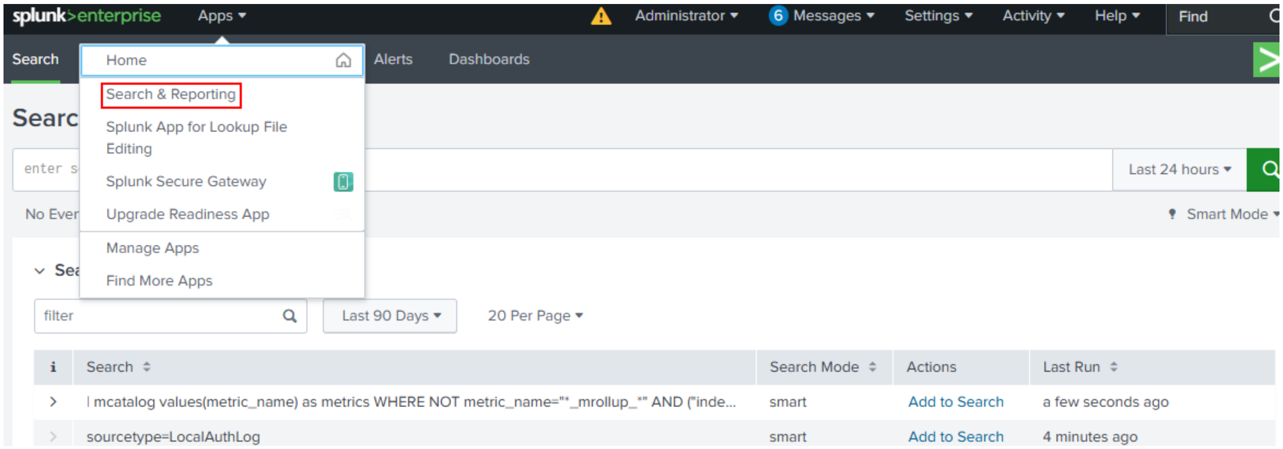
Select the table to see editing options. To add a new column, select tab.

	username	count
1	apple	12
2	apple1	1
3	apple2	10
4	apple3	4

Showing page 1 of 1 entries

3. Create a new search

1. Go to *Apps* > *Search & Reporting*

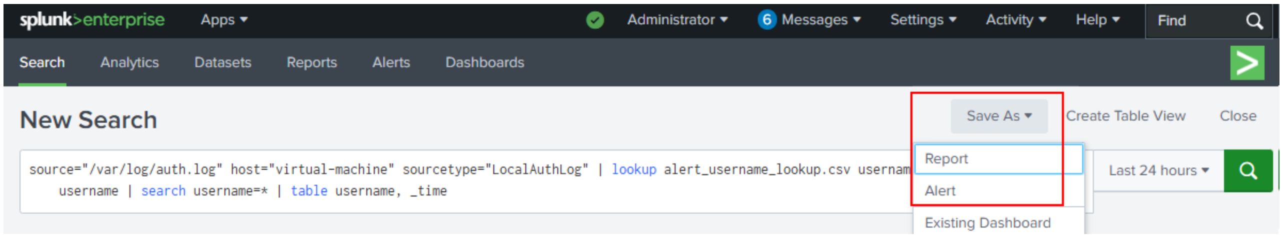


i	Search	Search Mode	Actions	Last Run
>	| mcatalog values(metric_name) as metrics WHERE NOT metric_name="*_mrollup_*" AND ("inde...	smart	Add to Search	a few seconds ago
>	sourcetype=LocalAuthLog	smart	Add to Search	4 minutes ago

2. In the *New Search* field, enter search statements and select the search period from the dropdown list (e.g., *Last 24 hours*).
   Example:

```
source="/var/log/auth.log" host="virtual-machine" sourcetype="LocalAuthLog" | lookup
     alert_username_lookup.csv username as username OUTPUT username | search username=*
     | table username, _time
```

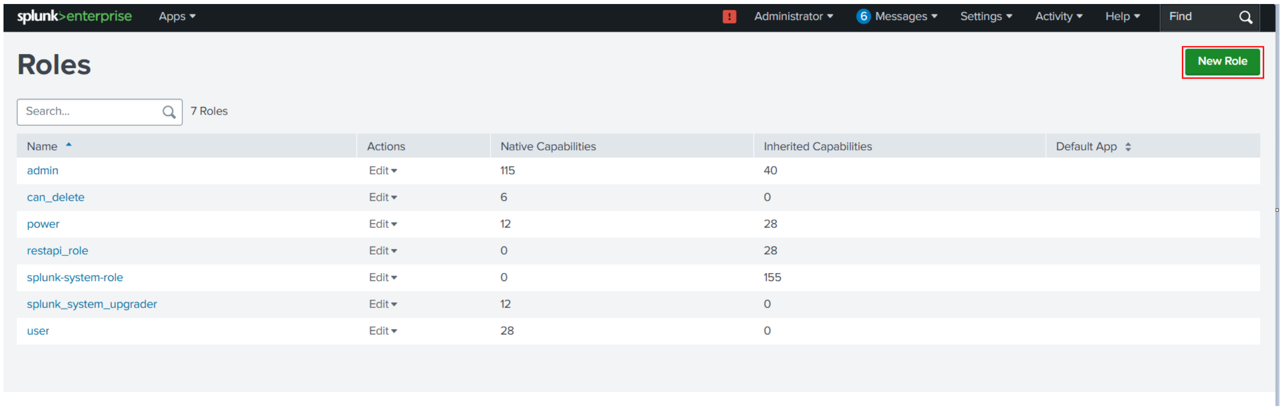
3. To save the alert, click *Save As* > *Alert* and give a name, such as *Alert for username*.



```
source="/var/log/auth.log" host="virtual-machine" sourcetype="LocalAuthLog" | lookup alert_username_lookup.csv usernam
    username | search username=* | table username, _time
```

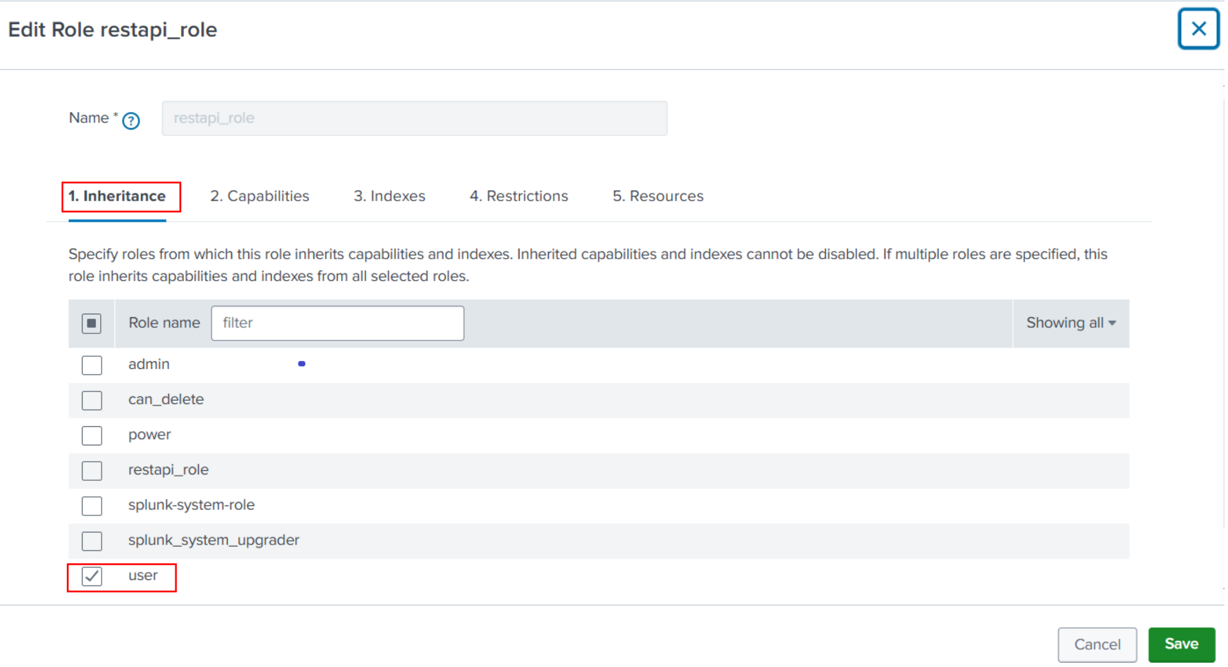
4. Create a new role

1. Go to *Settings* > *USERS AND AUTHENTICATION* > *Roles*.
2. Click *New Role*.



Name	Actions	Native Capabilities	Inherited Capabilities	Default App
admin	Edit ▾	115	40	
can_delete	Edit ▾	6	0	
power	Edit ▾	12	28	
restapi_role	Edit ▾	0	28	
splunk-system-role	Edit ▾	0	155	
splunk_system_upgrader	Edit ▾	12	0	
user	Edit ▾	28	0	

3. Define the role:
   a. In the *Role Name* field, enter a name for the role (for example, *restapi_role*)
   b. In the *Inheritance* tab, select *user*.



Edit Role restapi_role

Name * restapi_role

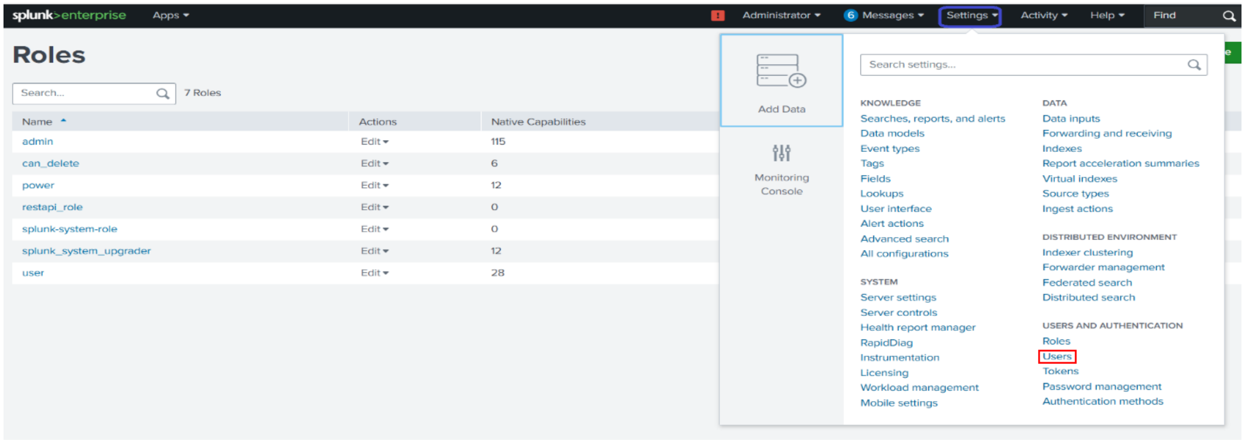
Specify roles from which this role inherits capabilities and indexes. Inherited capabilities and indexes cannot be disabled. If multiple roles are specified, this role inherits capabilities and indexes from all selected roles.

■	Role name filter	Showing all ▾
□	admin	
□	can_delete	
□	power	
□	restapi_role	
□	splunk-system-role	
□	splunk_system_upgrader	
☑	user	

   c. You can use the defaults in the *Capabilities*, *Indexes*, *Restrictions* and *Resources* tabs.
   d. Click *Save*.

5. Create a new user

1. Go to *Settings* > *USERS AND AUTHENTICATION* > *Users*.



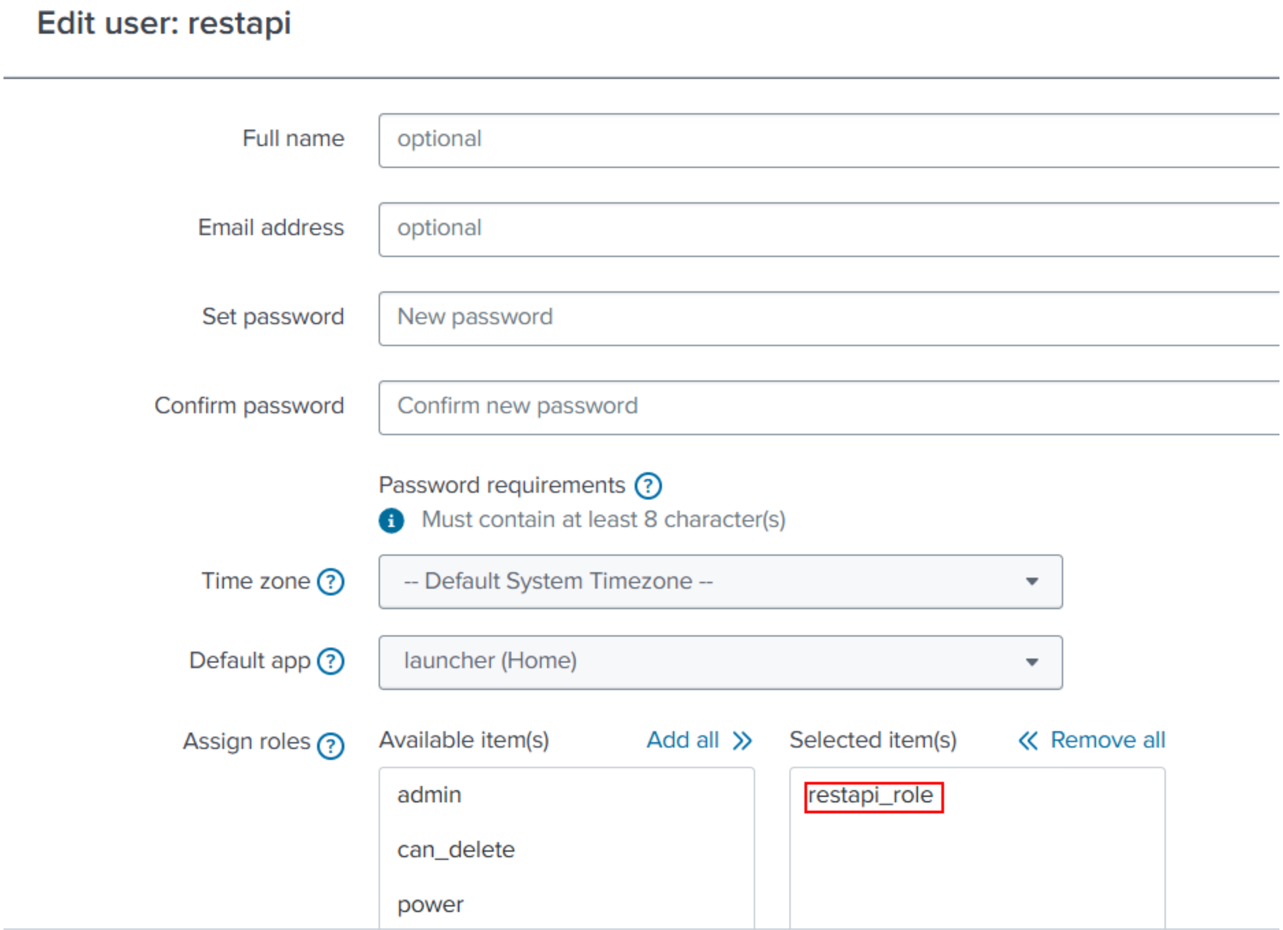
Roles

Search... 7 Roles

Name ▴	Actions	Native Capabilities
admin	Edit ▾	115
can_delete	Edit ▾	6
power	Edit ▾	12
restapi_role	Edit ▾	0
splunk-system-role	Edit ▾	0
splunk_system_upgrader	Edit ▾	12
user	Edit ▾	28

2. Click *New user*.
3. Define the new user (*Full name*, *Email address*, etc)

4. In the *Assign roles* area, assign the role you created in the previous steps. In this example, *restapi_role*.



Edit user: restapi

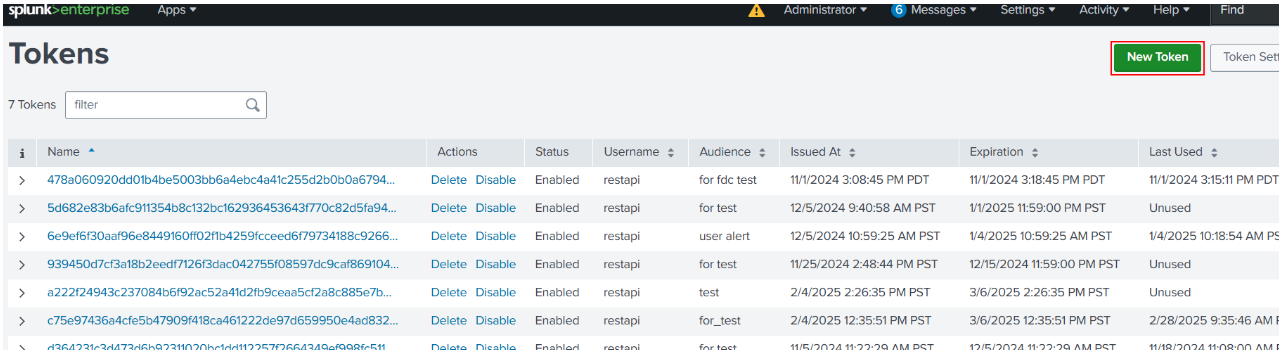
Full name	optional
Email address	optional
Set password	New password
Confirm password	Confirm new password
	Password requirements Must contain at least 8 character(s)
Time zone	-- Default System Timezone --
Default app	launcher (Home)

Assign roles

Available item(s)	Selected item(s)
admin	restapi_role
can_delete	
power	

6. Create a new token

1. Go to Settings > USERS AND AUTHENTICATION > Tokens.
2. Click *New Token*.

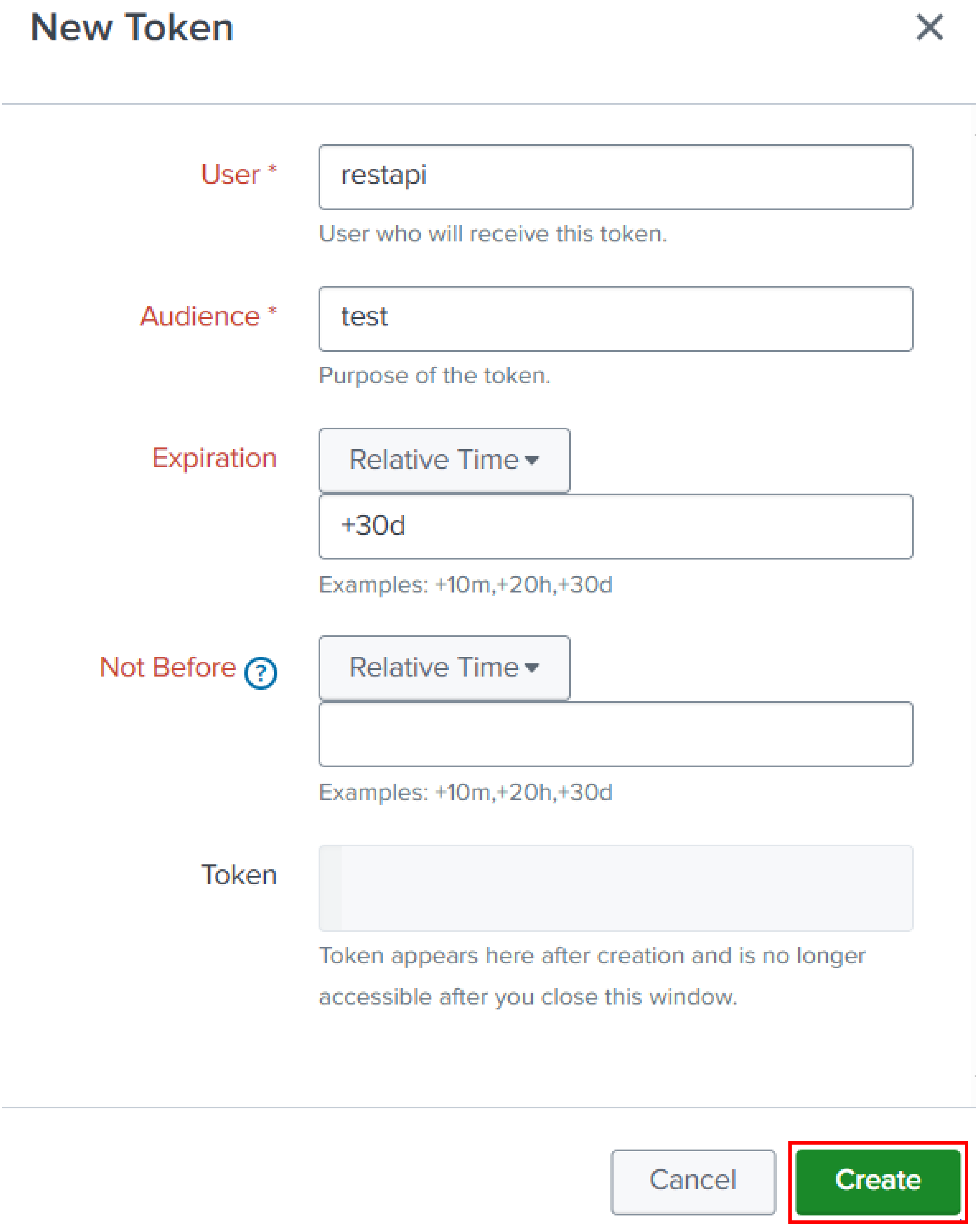


Tokens

7 Tokens filter

Name	Actions	Status	Username	Audience	Issued At	Expiration	Last Used
478a060920dd01b4be5003bb6a4ebc4a41c255d2b0b0a6794...	Delete Disable	Enabled	restapi	for fdc test	11/1/2024 3:08:45 PM PDT	11/1/2024 3:18:45 PM PDT	11/1/2024 3:15:11 PM PDT
5d682e83b6afc911354b8c132bc162936453643f770c82d5fa94...	Delete Disable	Enabled	restapi	for test	12/5/2024 9:40:58 AM PST	1/1/2025 11:59:00 PM PST	Unused
6e9ef6f30aaf96e8449160ff02f1b4259fcceed6f79734188c9266...	Delete Disable	Enabled	restapi	user alert	12/5/2024 10:59:25 AM PST	1/4/2025 10:59:25 AM PST	1/4/2025 10:18:54 AM PS
939450d7cf3a18b2eedf7126f3dac042755f08597dc9caf869104...	Delete Disable	Enabled	restapi	for test	11/25/2024 2:48:44 PM PST	12/15/2024 11:59:00 PM PST	Unused
a222f24943c237084b6f92ac52a41d2fb9ceaa5cf2a8c885e7b...	Delete Disable	Enabled	restapi	test	2/4/2025 2:26:35 PM PST	3/6/2025 2:26:35 PM PST	Unused
c75e97436a4cfe5b47909f418ca461222de97d659950e4ad832...	Delete Disable	Enabled	restapi	for_test	2/4/2025 12:35:51 PM PST	3/6/2025 12:35:51 PM PST	2/28/2025 9:35:46 AM F
d364231c3d473d6b92311020bc1dd112257f2664349ef998fc511	Delete Disable	Enabled	restapi	for test	11/5/2024 11:22:29 AM PST	12/5/2024 11:22:29 AM PST	11/18/2024 11:08:00 AM F

3. Click *Create* to generate a new token.



New Token

User * restapi

User who will receive this token.

Audience * test

Purpose of the token.

Expiration Relative Time +30d

Examples: +10m,+20h,+30d

Not Before Relative Time

Examples: +10m,+20h,+30d

Token

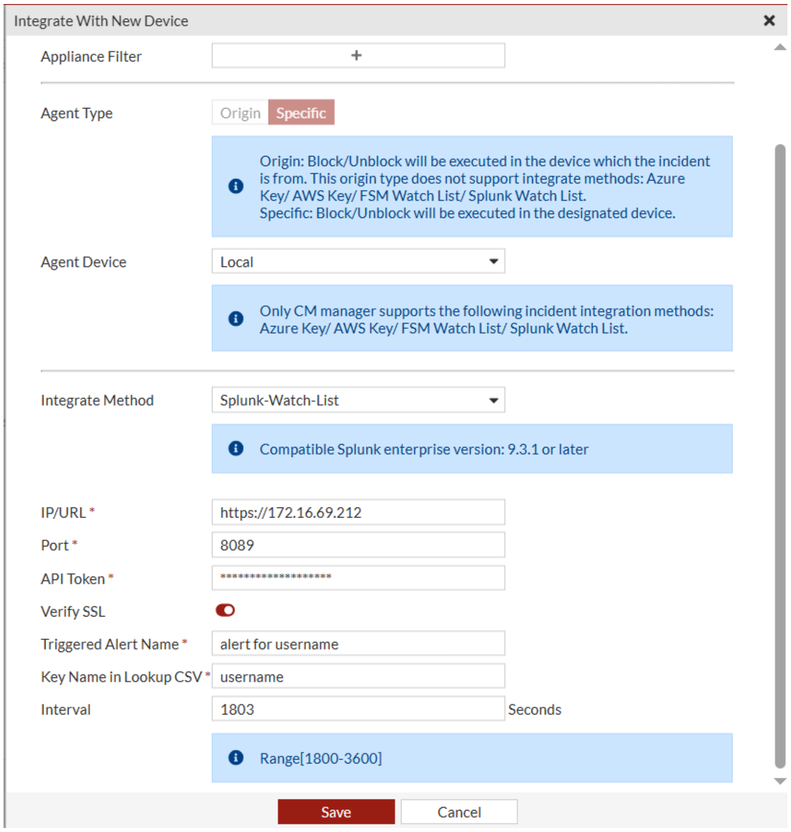
Token appears here after creation and is no longer accessible after you close this window.

4. Copy and save the token. You will need this token later.

7. Configure the integration in FortiDeceptor

1. In FortiDeceptor go to *Fabric* > *Quarantine Integration*.
2. Click Quarantine integration with new device. The *Integrate With New Device* pane opens.
3. Configure the integration.

Integrate Method	Select *Splunk-Watch-List*.
IP/URL	Enter the IP address of the Splunk instance
API Token	Enter the token you created in *6. Create a new token*.
Triggered Alert Name	Enter the alert name you created in *3. Create a new search*.
Key Name in Lookup CSV	Enter the name of the CSV you created in *2. Create a new lookup*.

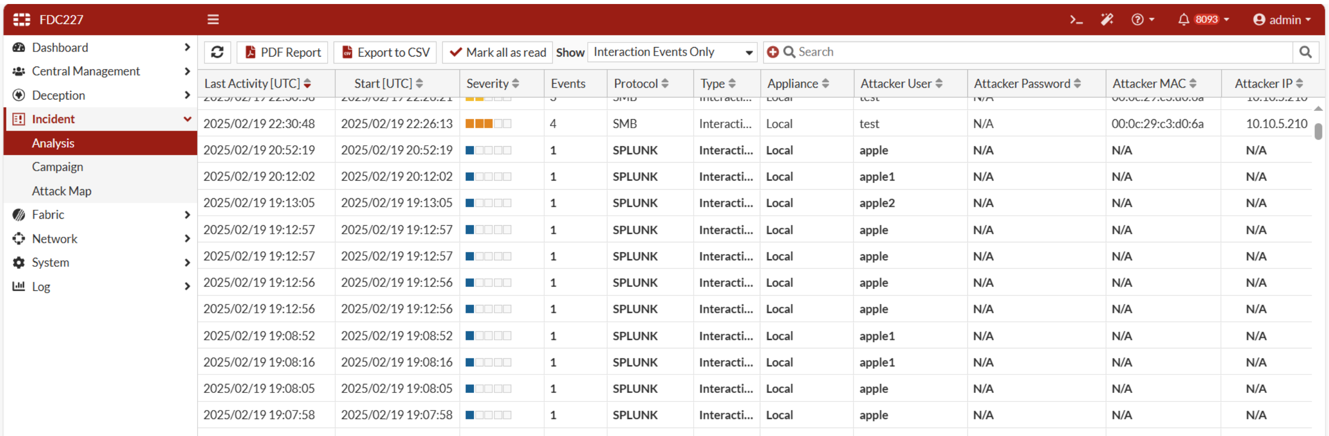


Integrate With New Device

Appliance Filter	+
Agent Type	Origin [✓ Specific]
	Origin: Block/Unblock will be executed in the device which the incident is from. This origin type does not support integrate methods: Azure Key/ AWS Key/ FSM Watch List/ Splunk Watch List. Specific: Block/Unblock will be executed in the designated device.
Agent Device	Local
	Only CM manager supports the following incident integration methods: Azure Key/ AWS Key/ FSM Watch List/ Splunk Watch List.
Integrate Method	Splunk-Watch-List
	Compatible Splunk enterprise version: 9.3.1 or later
IP/URL *	https://172.16.69.212
Port *	8089
API Token *	*******************
Verify SSL	●
Triggered Alert Name *	alert for username
Key Name in Lookup CSV *	username
Interval	1803 Seconds
	Range[1800-3600]

4. Configure the other settings as required and click *Save*.

After the integration has been initialized, go to *Incident* > *Analysis* to view the events.



Last Activity [UTC]	Start [UTC]	Severity	Events	Protocol	Type	Appliance	Attacker User	Attacker Password	Attacker MAC	Attacker IP
2025/02/19 22:30:48	2025/02/19 22:26:13	■■■□□	4	SMB	Interacti...	Local	test	N/A	00:0c:29:c3:d0:6a	10.10.5.210
2025/02/19 20:52:19	2025/02/19 20:52:19	■□□□□	1	SPLUNK	Interacti...	Local	apple	N/A	N/A	N/A
2025/02/19 20:12:02	2025/02/19 20:12:02	■□□□□	1	SPLUNK	Interacti...	Local	apple1	N/A	N/A	N/A
2025/02/19 19:13:05	2025/02/19 19:13:05	■□□□□	1	SPLUNK	Interacti...	Local	apple2	N/A	N/A	N/A
2025/02/19 19:12:57	2025/02/19 19:12:57	■□□□□	1	SPLUNK	Interacti...	Local	apple	N/A	N/A	N/A
2025/02/19 19:12:57	2025/02/19 19:12:57	■□□□□	1	SPLUNK	Interacti...	Local	apple	N/A	N/A	N/A
2025/02/19 19:12:56	2025/02/19 19:12:56	■□□□□	1	SPLUNK	Interacti...	Local	apple	N/A	N/A	N/A
2025/02/19 19:12:56	2025/02/19 19:12:56	■□□□□	1	SPLUNK	Interacti...	Local	apple	N/A	N/A	N/A
2025/02/19 19:08:52	2025/02/19 19:08:52	■□□□□	1	SPLUNK	Interacti...	Local	apple1	N/A	N/A	N/A
2025/02/19 19:08:16	2025/02/19 19:08:16	■□□□□	1	SPLUNK	Interacti...	Local	apple1	N/A	N/A	N/A
2025/02/19 19:08:05	2025/02/19 19:08:05	■□□□□	1	SPLUNK	Interacti...	Local	apple	N/A	N/A	N/A
2025/02/19 19:07:58	2025/02/19 19:07:58	■□□□□	1	SPLUNK	Interacti...	Local	apple	N/A	N/A	N/A

Artifacts list

Extracted from the file system	• IE/Firefox/Chrome History • Named Pipes • Prefetch Startup • Directories
Extracted from the registry	• Installer Folders • Recent Docs • Services • UserAssists • Networks List

Deploy the Windows 10 decoy with Active Directory (AD)

Deploying the Windows 10 decoy within an Active Directory (AD) domain enhances network security through deception technology. This process involves configuring and integrating decoy systems into the network to mimic real assets, attracting and detecting potential cyber threats.

In FortiDeceptor, the deployment of Windows 10v1 decoys is streamlined through the *Deployment Wizard*. This tool guides you through the necessary steps to configure and deploy decoys effectively. Key configurations include selecting the Windows 10v1 template, specifying domain credentials, and setting network parameters such as the domain IP and address.

By enabling domain users to access Remote Desktop Protocol (RDP) and Server Message Block (SMB) services, the decoys can simulate realistic network interactions. Additionally, the system automatically enables critical security settings such as *Anti-Deception Detection* to enhance the decoy's effectiveness.

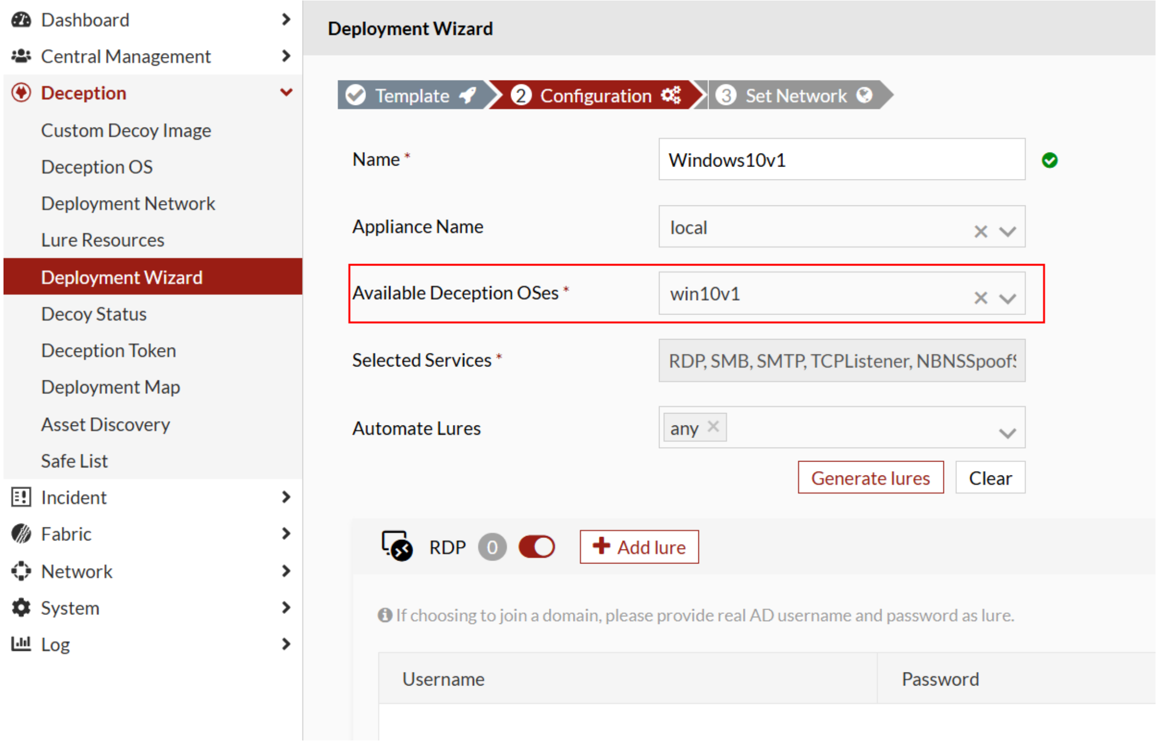
To download the Windows 10 decoy:

Go to *Deception OS* and down load the *win10v1* decoy. Please allow time for the OS to download.

To deploy the win10v1 decoy with AD:

1. Go to *Deception* > *Deployment Wizard* and click *Create a new decoy*.
2. Configure the OS for Windows 10. From the *Available Deception OSes* dropdown, select *win10v1*.

   For detailed information about creating a new decoy, see Deployment Wizard on page 114.



Deployment Wizard

Name * Windows10v1

Appliance Name local

Available Deception OSes * win10v1

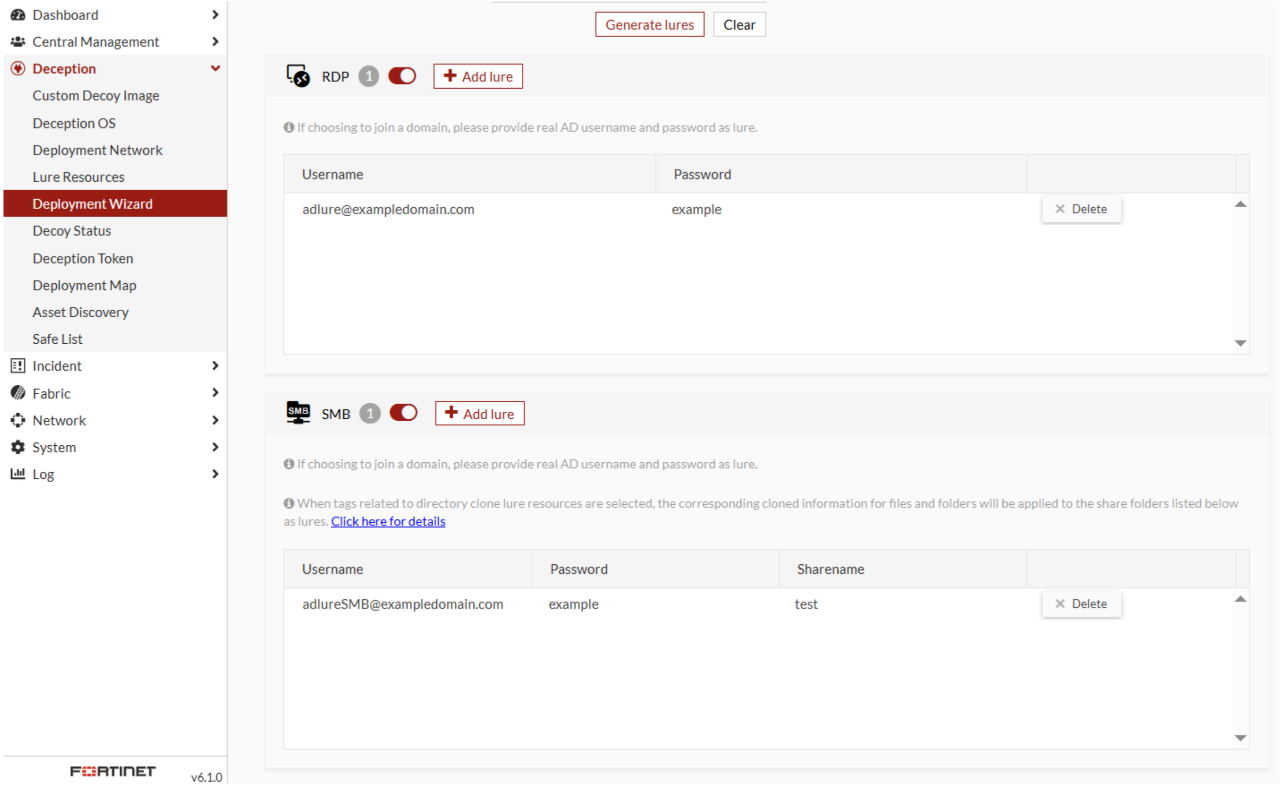
Selected Services * RDP, SMB, SMTP, TCPListener, NBNSSpoof!

Automate Lures any

If choosing to join a domain, please provide real AD username and password as lure.

Username	Password

3. In the RDP and SMB decoys, enter valid usernames and passwords for the AD domain users. Click *Next*.



If choosing to join a domain, please provide real AD username and password as lure.

Username	Password
adlure@exampledomain.com	example

If choosing to join a domain, please provide real AD username and password as lure.

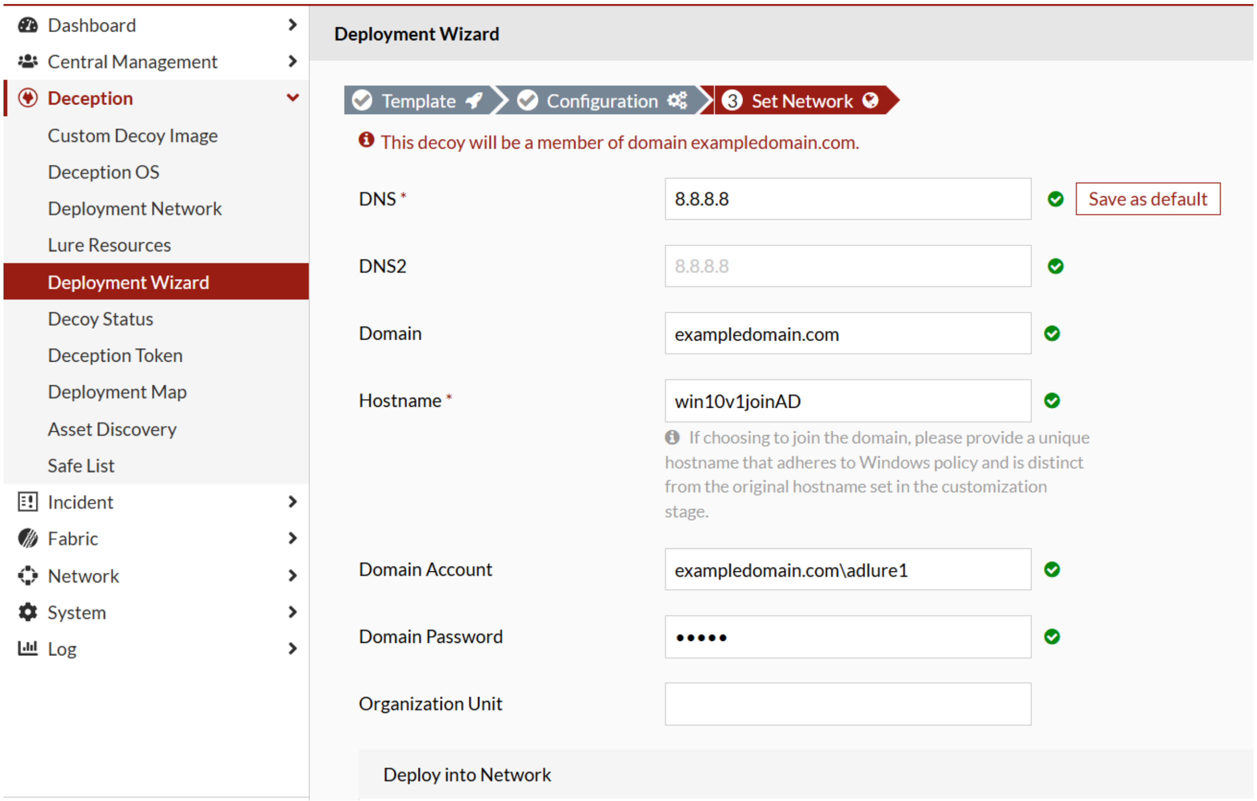
When tags related to directory clone lure resources are selected, the corresponding cloned information for files and folders will be applied to the share folders listed below as lures. Click here for details

Username	Password	Sharename
adlureSMB@exampledomain.com	example	test

As of version 6.1, the settings for *Allow domain users to access SMB/RDP* and *Anti-Deception Detection* have been removed. These features are now automatically enabled when you enter an AD account in the format: `adlure@exampledomain.com`.

4. In the *Set Network* step, configure the DNS serve settings:

DNS	Enter the Domain IP
Domain	Enter the domain address. The *Domain Account*, *Domain Password*, and *Organization Unit* fields are displayed
Hostname	Enter a unique hostname that complies with Windows policy and is different from the original hostname set during the customization stage.
Domain Account	Enter the domain account.
Domain Password	Enter the domain password.
Organization Unit	Enter the Organization Unit.



Deployment Wizard

This decoy will be a member of domain exampledomain.com.

DNS *	8.8.8.8
DNS2	8.8.8.8
Domain	exampledomain.com
Hostname *	win10v1joinAD
Domain Account	exampledomain.com\adlure1
Domain Password	•••••
Organization Unit	

If choosing to join the domain, please provide a unique hostname that adheres to Windows policy and is distinct from the original hostname set in the customization stage.

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