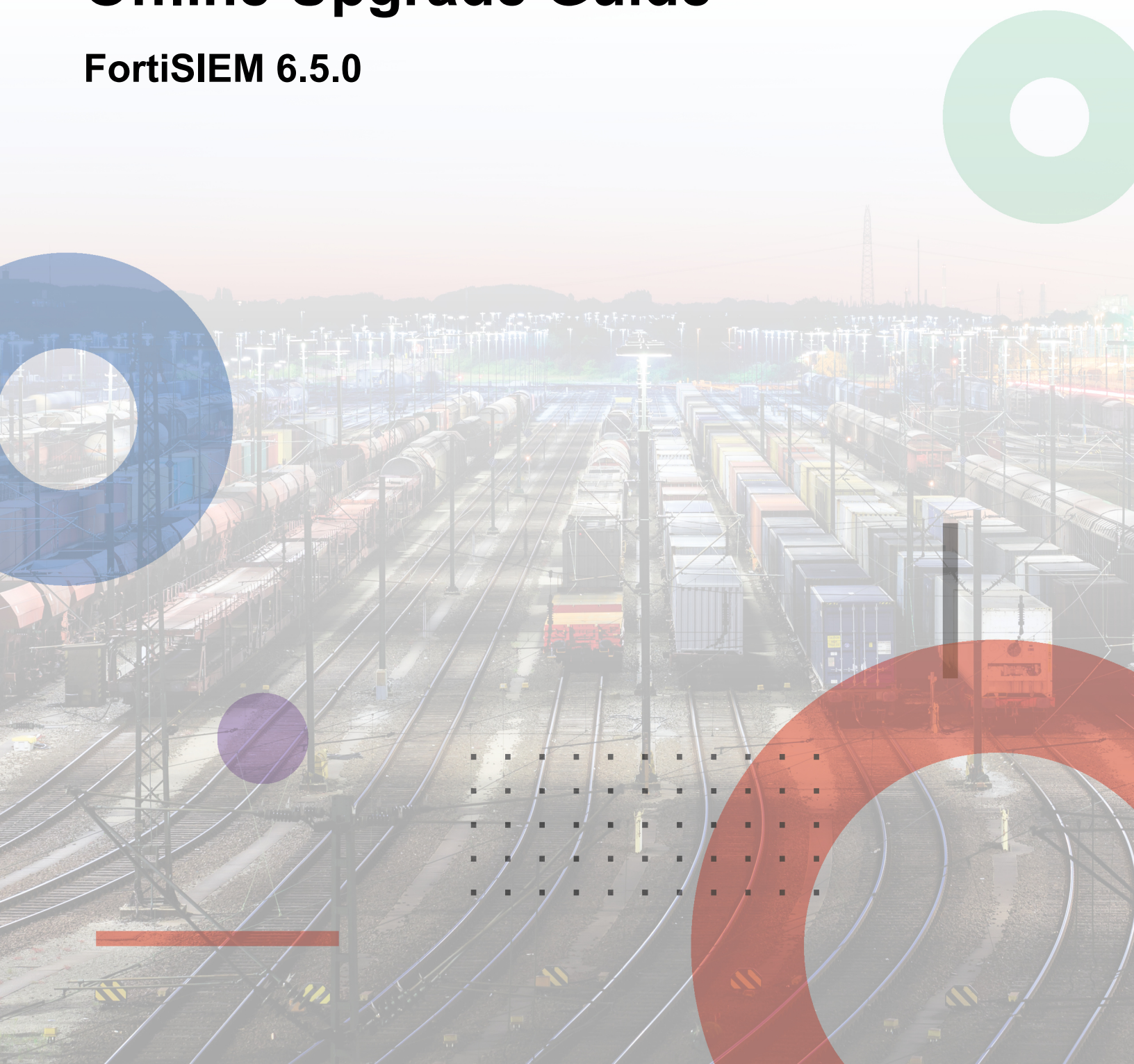
Offline Upgrade Guide

FortiSIEM 6.5.0



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07/22/2022
FortiSIEM 6.5.0 Offline Upgrade Guide

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Change Log

Date	Change Description
2018-09-24	Initial version of FortiSIEM - Offline Upgrade Guide.
2018-10-08	Revision 1: modifications to the Section: 'Upgrading FortiSIEM' - Step 1.
2019-08-19	Revision 2: Updated the location of the image download site.
2021-03-30	Revision 3: Released for 6.2.0.
2021-04-06	Revision 4: Updated "6.1.x to 6.2.0 Upgrade" and "Syncing the Local Repository Mirror".
2021-05-07	Revision 5: Released for 6.2.1.
2021-06-22	Revision 6: Disk size for deployment updated.
2021-07-06	Revision 7: Released for 6.3.0.
2021-07-21	Revision 8: Added "Upgrading Multiple Collector Nodes in an Online and/or Offline Environment".
2021-08-26	Revision 9: Released for 6.3.1.
2021-10-15	Revision 10: Released for 6.3.2.
2021-12-22	Revision 11: Released for 6.3.3.
2022-01-18	Revision 12: Released for 6.4.0.
2022-01-27	Revision 13: Supervisor/Worker Upgrade section updated for 6.4.0 release.
2022-03-09	Revision 14: Supervisor/Worker Upgrade section updated for 6.4.0 release.
2022-05-09	Revision 15: Released for 6.5.0

Offline Install and Upgrade

This document describes the steps needed to install and upgrade FortiSIEM in a closed environment without internet access. In some cases, FortiSIEM communicates with a repository to download the latest updates. This can be eliminated by setting up a local repository.

Fresh Installation

There are two options for fresh installation, FIPS disabled, or FIPS enabled.

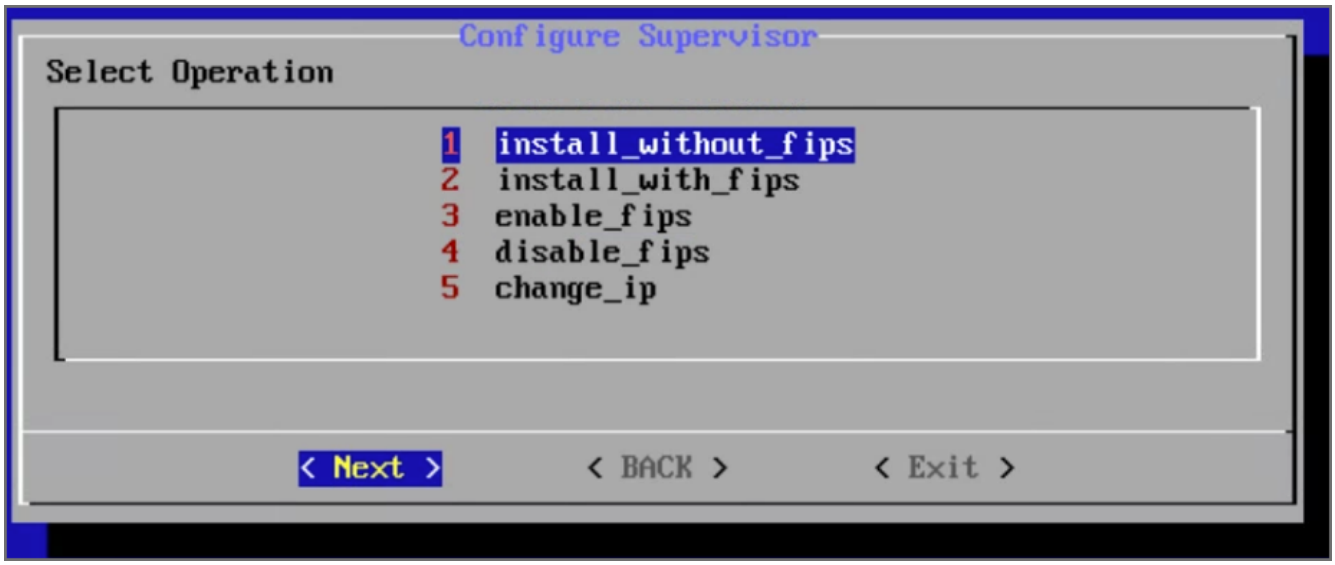
- FIPS Disabled Installation
- FIPS Enabled Installation

FIPS Disabled Installation

With FIPS disabled, a fresh installation does not require internet access and can be performed in a closed environment. Run the following command:

```
# configFSM.sh
```

and select **1 install_without_fips**.



FIPS Enabled Installation

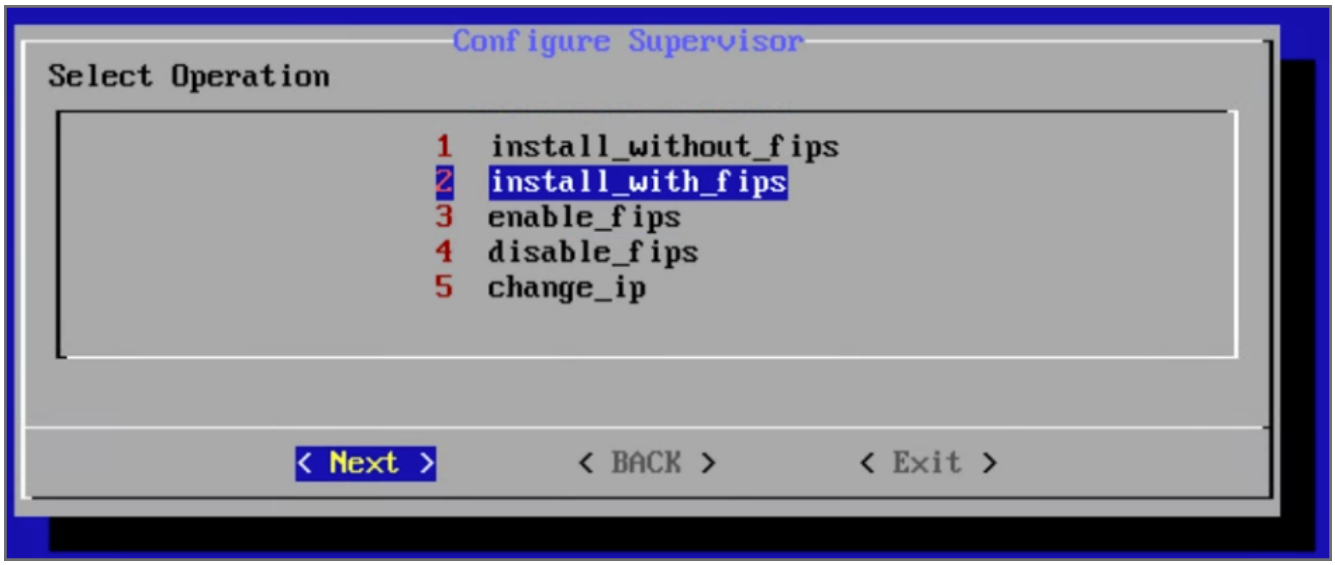
A FIPS enabled fresh installation requires internet access to Fortinet's RockyLinux repository. This can be re-routed to an offline repository by taking the following steps.

Note: For hardware appliance users, make sure to skip step 2.

1. Complete the Local RockyLinux Repository Mirror Installation.
2. Deploy your FortiSIEM VA onto your hypervisor.
3. Log into the FortiSIEM local console through your hypervisor.
   Default login:
   User = `root`
   Password = `ProspectHills`
4. Immediately change the `root` password.
5. Modify the Yum Repository Files to use the local repository by running the following commands.

```
# cd /etc/yum.repos.d
# sed -i 's/baseurl=https\:\/\/os-pkgs-
cdn.fortisiem.fortinet.com\/rockylinux8/baseurl=https\:\/\/<REPOSITORY MIRROR
IP>\/repos\/rockylinux8/g' *.repo
# sed -i 's/https\:\/\/os-pkgs-r8.fortisiem.fortinet.com.*//g' *.repo
# sed -i 's/enabled=1/enabled=1\nsslverify=false/g' *.repo
# dnf clean all
```

6. Use the appropriate Installation Guide from 6.5 Installation Guides to continue.
   You will need to run the following command, and then select **2 install_with_fips**.
   `# configFSM.sh`



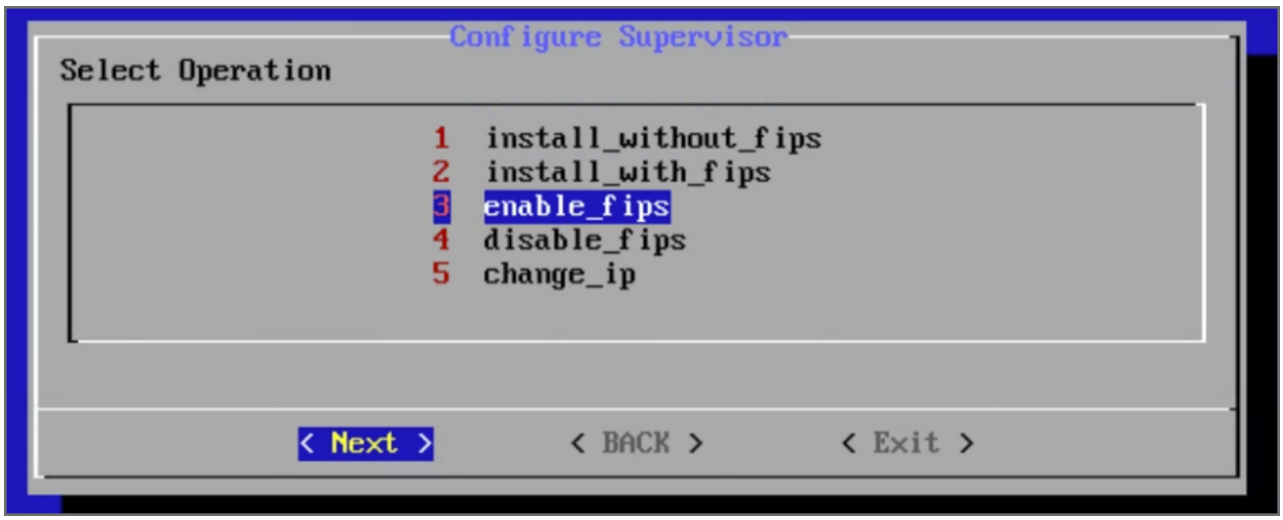
5.3.x or 5.4.0 to 6.1.x Migration

FortiSIEM Migration does not require internet access and can be performed in a closed environment. However, if you want to enable FIPS after migrating to 6.1.x, then internet access is required. Follow the steps below to enable FIPS without requiring Internet access.

Enabling FIPS After Migration

Take the following steps to enable FIPS after migration.

1. Complete the 6.1.x Upgrade and below Local CentOS Repository Mirror Installation.
2. Log into FortiSIEM via SSH.
   ```
   # ssh root@<FortISIEM Super/Worker/Collector>
   ```
3. Modify the Yum Repository Files to use the Local Repository by running the following commands.
   ```
   # cd /etc/yum.repos.d
   # sed -i 's/baseurl=https\:\/\/os-pkgs-cdn.fortisiem.fortinet.com\/centos8/baseurl=https\:\/\/<REPOSITORY MIRROR IP>\/repos\/centos\/84/g' *.repo
   # sed -i 's/https\:\/\/os-pkgs-c8.fortisiem.fortinet.com.*//g' *.repo
   # sed -i 's/enabled=1/enabled=1\nsslverify=false/g' *.repo
   # dnf clean all
   ```
4. Run the following command and select **3 enable_fips**.
   ```
   # configFSM.sh
   ```



6.5.0 Upgrade

The 6.5.0 upgrade is comprised of two parts, the supervisor/worker upgrade and collector upgrade.

Pre-requisite:

Upgrading with a FortiSIEM build earlier than 6.4.0 requires a CentOS 8.5 repository. This is required for migration, as Rocky Linux scripts will reach out to the CentOS repository to pick up any remaining packages to be updated to the latest, prior to transitioning to Rocky Linux.

Supervisor/Worker Upgrade

Take the following steps to prepare an offline upgrade from 6.3.3 or earlier 6.x to 6.5.0 for your supervisor and worker(s). If upgrading from FortiSIEM 6.4.0, start with step 1, otherwise continue with the following instructions.

Note: Upgrading with a FortiSIEM build 6.x build earlier than 6.4.0 requires a CentOS 8.5 repository. Please refer to the 6.3.3 Offline Upgrade Guide - Local CentOS Repository Mirror Installation for information on how to configure a CentOS 8.5 repository.

PDF of guide also available from the following page: https://docs.fortinet.com/document/fortisiem/6.3.3/offline-upgrade-guide/131018/offline-install-and-upgrade

If upgrading to 6.5.0 from a FortiSIEM build earlier than 6.4.0, please run the following commands in order to redirect the current `yum.repos.d` to an offline CentOS 8.5 repository before proceeding with step 1:

<REPOSITORY MIRROR IP> is a place holder and should be replaced by the address of your locally configured offline repository.

For example: 192.168.1.100

```
# cd /etc/yum.repos.d/

# sed -i 's/baseurl=https\:\/\/os-pkgs-
cdn.fortisiem.fortinet.com\/centos85/baseurl=https\:\/\/<REPOSITORY MIRROR IP>
\/repos\/centos\/85/g' *.repo

# sed -i 's/https\:\/\/os-pkgs-c8.fortisiem.fortinet.com.*//g' *.repo

# sed -i 's/enabled=1/enabled=1\nsslverify=false/g' *.repo
```

1. Upload the `FSM_Upgrade_All_6.5.0_build1511.zip` onto the 6.x Supervisor/Worker under the `/tmp/` folder.
2. Log in and unzip the upgrade package by running the following commands.

   ```
   # ssh root@<Super/Worker>
   # mkdir -p /opt/upgrade/
   ```

```
# mv /tmp/FSM_Upgrade_All_6.5.0_build1511.zip /opt/upgrade/
# unzip FSM_Upgrade_All_6.5.0_build1511.zip
```

3. Update the migration script migrate_centos_to_rocky.sh:

```
# cd /opt/upgrade/FSM_Upgrade_All_6.5.0_build1511/install/files/

# sed -i 's/https\:\/\/os-pkgs-
r8.fortisiem.fortinet.com\/rockylinux8/https\:\/\/<REPOSITORY MIRROR
IP>\/repos\/rockylinux8/g' migrate_centos_to_rocky.sh

# sed -i 's/https\:\/\/os-pkgs-
cdn.fortisiem.fortinet.com\/rockylinux8/https\:\/\/<REPOSITORY MIRROR
IP>\/repos\/rockylinux8/g' migrate_centos_to_rocky.sh

# sed -i 's/curl \-o \/etc\/pki\/rpm\-gpg\/RPM\-GPG\-KEY\-PGDG /curl \-k \-o
\/etc\/pki\/rpm\-gpg\/RPM\-GPG\-KEY\-PGDG /g' migrate_centos_to_rocky.sh

# sed -i 's/curl \-o \/etc\/pki\/rpm\-gpg\/RPM\-GPG\-KEY\-rockyofficial /curl \-k \-o
\/etc\/pki\/rpm\-gpg\/RPM\-GPG\-KEY\-rockyofficial /g' migrate_centos_to_rocky.sh

# sed -i 's/curl \-o /curl \-k \-o /g' migrate_centos_to_rocky.sh
```

4. Edit the `migrate_centos_to_rocky.sh` script and go to line 697. You can use vi.

```
# vi migrate_centos_to_rocky.sh
```

5. Add the following on the line right above "# Distrosync"

```
# sed -i 's/baseurl=https\:\/\/os-pkgs-
cdn.fortisiem.fortinet.com\/rockylinux8/baseurl=https\:\/\/<REPOSITORY MIRROR
IP>\/repos\/rockylinux8/g' /etc/yum.repos.d/Rocky*.repo
# sed -i 's/https\:\/\/os-pkgs-r8.fortisiem.fortinet.com.*//g'
/etc/yum.repos.d/Rocky*.repo
# sed -i 's/enabled=1/enabled=1\nsslverify=false/g' /etc/yum.repos.d/Rocky*.repo
```

6. Modify the necessary repository files by running the following set of commands.

Update the Repos Files

```
# cd /opt/upgrade/FSM_Upgrade_All_6.5.0_build1511/install/files/repos/
# sed -i 's/baseurl=https\:\/\/os-pkgs-
cdn.fortisiem.fortinet.com\/rockylinux8/baseurl=https\:\/\/<REPOSITORY MIRROR
IP>\/repos\/rockylinux8/g' *.repo
# sed -i 's/https\:\/\/os-pkgs-r8.fortisiem.fortinet.com.*//g' *.repo
# sed -i 's/enabled=1/enabled=1\nsslverify=false/g' *.repo
```

Update PSQL DB Repo

```
# cd /opt/upgrade/FSM_Upgrade_All_6.5.0_build1511/install/roles/upgrade-db-
server/files
# sed -i 's/baseurl=https\:\/\/os-pkgs-
cdn.fortisiem.fortinet.com\/rockylinux8/baseurl=https\:\/\/<REPOSITORY MIRROR
IP>\/repos\/rockylinux8/g' *.repo
# sed -i 's/https\:\/\/os-pkgs-r8.fortisiem.fortinet.com.*//g' *.repo
# sed -i 's/enabled=1/enabled=1\nsslverify=false/g' *.repo
```

Update Files that Pick Up the GPG Key for PSQL

```
# cd /opt/upgrade/FSM_Upgrade_All_6.5.0_build1511/install/roles/upgrade/tasks/
```

```
# sed -i 's/https\:\/\/os-pkgs-
cdn.fortisiem.fortinet.com\/rockylinux8/https\:\/\/<REPOSITORY MIRROR
IP>\/repos\/rockylinux8/g' main.yml
# sed -i 's/curl \-o /curl \-k \-o /g' main.yml
# cd /opt/upgrade/FSM_Upgrade_All_6.5.0_build1511/install/roles/upgrade-db-
server/tasks/
# sed -i 's/https\:\/\/os-pkgs-
cdn.fortisiem.fortinet.com\/rockylinux8/https\:\/\/<REPOSITORY MIRROR
IP>\/repos\/rockylinux8/g' main.yml
# sed -i 's/curl \-o /curl \-k \-o /g' main.yml
```

Update Clickhouse and Zookeeper Package Files

```
# cd /opt/upgrade/FSM_Upgrade_All_6.5.0_build1511/install/group_vars/all
# sed -i 's/https\:\/\/os-pkgs-cdn.fortisiem.fortinet.com\/rockylinux8/\-k\
https\:\/\/<REPOSITORY MIRROR IP>\/repos\/rockylinux8/g' setup-zookeeper.yml.j2
# sed -i 's/https\:\/\/os-pkgs-cdn.fortisiem.fortinet.com\/rockylinux8/\-k\
https\:\/\/<REPOSITORY MIRROR IP>\/repos\/rockylinux8/g' setup-clickhouse.yml.j2
```

Perform Clean Up

```
# dnf clean all
```

Prepare yum.conf to Ignore SSL Verification

```
# echo sslverify=false >> /etc/yum.conf
```

7. Use the Upgrade Guide located in 6.5 Reference Manuals to continue with your upgrade for the supervisor and worker(s).

Collector Upgrade

For FortiSIEM version 6.5.0, the collector offline upgrade is unsupported at this time. If an offline upgrade is required for the collector, the recommended approach is to re-deploy a new collector on 6.5.0, and update the entry. Please reference Known Issues in the 6.5.0 Release Notes from the FortiSIEM Documentation Library for any possible additional information.

Link for 6.5.0 Collector Deployment Guide: https://docs.fortinet.com/document/fortisiem/6.5.0/esx-installation-guide/131018/fresh-installation#Install_Collectors

Link for 6.5.0 Collector Registration: https://docs.fortinet.com/document/fortisiem/6.5.0/esx-installation-guide/131018/fresh-installation#Register_Collectors

Configuring Existing FSM on RockyLinux Install to use Local Repository Mirror

Sometimes you may want to run a "yum update" on an existing FortiSIEM installation to get the latest patches. Follow these steps to avoid internet access during this step.

Note: This configuration is needed to run Yum updates without needing to go to the internet.

1. Log into all FortiSIEM Supervisor/Worker(s)/Collector(s) that will pull from the new repository by running the following commands.

   ```
   # ssh root@<Super/Worker/Collector IP>
   # cd /etc/yum.repos.d
   ```

2. Modify necessary repository files by running the following commands.

   ```
   # sed -i 's/baseurl=https\:\/\/os-pkgs-
   cdn.fortisiem.fortinet.com\rockylinux8/baseurl=https\:\/\/<REPOSITORY MIRROR
   IP>\/repos\/rockylinux8/g' *.repo
   # sed -i 's/https\:\/\/os-pkgs-r8.fortisiem.fortinet.com.*//g' *.repo
   # sed -i 's/enabled=1/enabled=1\nsslverify=false/g' *.repo
   # dnf clean all
   ```

3. Connect and update from the local repository mirror by running the following the following command.

   ```
   # dnf update -y / # yum update -y
   Rocky Linux 8 - AppStream
                              90 MB/s | 9.5 MB     00:00
   Rocky Linux 8 - BaseOS
                             103 MB/s | 8.6 MB     00:00
   Rocky Linux 8 - Extras
                             289 kB/s |  12 kB     00:00
   Rocky Linux 8 - PowerTools
                              42 MB/s | 2.3 MB     00:00
   ELRepo.org Community Enterprise Linux Repository - el8
                             8.9 MB/s | 293 kB     00:00
   Extra Packages for Enterprise Linux 8 - x86_64
                              17 MB/s | 955 kB     00:00
   Extra Packages for Enterprise Linux 8 - x86_64
                              97 MB/s |  11 MB     00:00
   PostgreSQL common RPMs for RHEL/CentOS 8 - x86_64
                              17 MB/s | 545 kB     00:00
   PostgreSQL 13 for RHEL/CentOS 8 - x86_64
   ```

```
                            12 MB/s | 440 kB     00:00
Dependencies resolved.
Nothing to do.
Complete!
```

Local RockyLinux 8 Repository Mirror Installation

Follow these steps to setup a local RockyLinux repository mirror in your internal network. FortiSIEM will only communicate with this local RockyLinux repository mirror whenever needed, thereby avoiding internet access.

You will be going through these general steps:

1. Deploying the base VM to state and setup access to the repository
2. Replicating the remote repository into your new internal mirror
3. Testing the internal mirror for accessibility
4. A walk through for all the FSM nodes in order to reach the internal mirror

Instructions are broken down into the following sections.

Repository Mirror Deployment and Apache Staging

This server is required to have internet access and be able to resolve [`os-pkgs-cdn.fortisiem.fortinet.com`] or [`os-pkgs-r8.fortisiem.fortinet.com`] in order to prepare the repository mirror. Once the Repository Mirror is completed, the internet connection can then be cut off from this repository mirror until the next time the mirror needs to be updated.

When the above conditions are met, take the following steps:

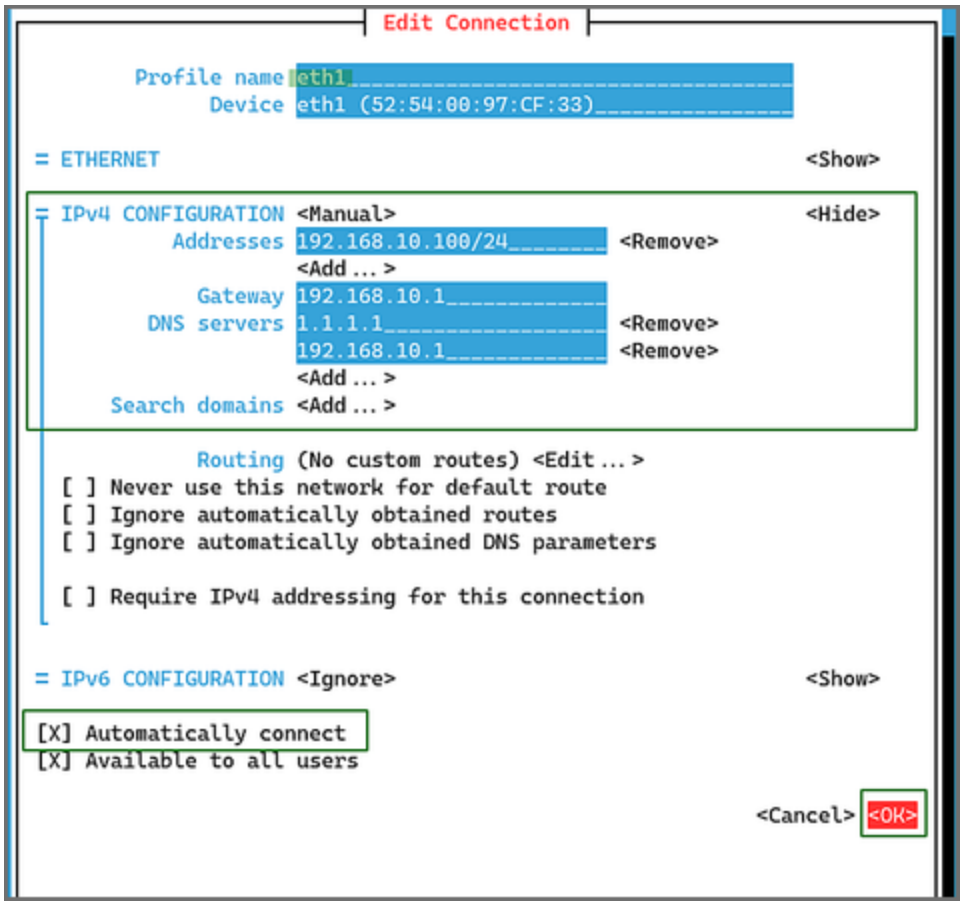
1. Download the 6.5.0.1511 FortiSIEM image and create a VM on your preferred hypervisor.
2. Add an 100GB disk to the FortiSIEM image that was deployed by taking the following steps:
   Note: Instructions to add a disk is based off of vSphere 6.7. Your hypervisor may differ in instructions, but the concept is the same.
   a. Right click the **FortiSIEM VM > Editing Settings**.
   b. In the pop-up, click "Add New Device".
   c. Find "Hard Disk" and select it.
   d. Configure it for 100GB.
   e. Click "OK" to save the configuration.
   f. Boot the FortiSIEM image.

Configuring the Network Adapter

To complete the configuration, take the following steps:

1. Log into the FortiSIEM console through your hypervisor.
   Default login:
   User = root
   Password = `ProspectHills`
2. Immediately change the root password.
3. Enter the IP address configuration utility by running the following command:
   `# nmtui-edit eth0`
4. Go to **IPv4 CONFIGURATION**, toggle **Automatic**, and select **Manual** from the menu.
5. Toggle **Show** to expand the configuraion.
6. In the **Addresses** field, add an IP address/netmask (CIDR).
   Example: `192.168.1.1/24`
   Note: Use the tool at this URL to convert netmask to CIDR.
   https://www.xarg.org/tools/subnet-calculator/
7. In the **Gateway** field, enter the Gateway IP address.
   Example: `192.168.1.254`
8. In the **DNS Servers** field, toggle Add, and select IP of DNS.
   Example: 1.1.1.1
9. In the **DNS Servers** field, Toggle Add, and add the IP of the second DNS.
   Example: 1.0.0.1
10. Toggle the **Automatically connect setting** to enable.
11. Toggle the **Available to all users setting** to enable.

12. Toggle to **OK**.



13. Restart the network adapter.
    ```
    # ifdown eth0
    # ifup eth0
    ```
14. Check if the IP address is assigned to the network adapter.
    ```
    # ifconfig eth0
    ```
    The IP address will be assigned to eth0.
15. Ping an external address to verify network connectivity.
    ```
    # ping <ip address>
    ```
    or
    ```
    # ping google.com
    ```

Installing the Yum-Utils Package

Take the following steps to install the yum-utils package.

1. Clean the current respository from the VM.
   ```
   # dnf clean all
   ```
2. Install the yum-utils package.
   ```
   # dnf install yum-utils -y
   ```

Preparing the Disk for the Local Repository Mirror

Take the following steps to prepare your disk for the local repository mirror.

1. Look for the 100GB disk created when the ova was deployed.

```
# lsblk
NAME         MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda            8:0    0   25G  0 disk
├─sda1         8:1    0    1G  0 part /boot
└─sda2         8:2    0   24G  0 part
├─cl-swap 253:0    0  2.5G  0 lvm  [SWAP]
└─cl-root 253:1    0 21.5G  0 lvm  /
sdb            8:16   0   100G  0 disk                    << New disk
```

2. Format the disk using xfs file system.

```
# mkfs.xfs /dev/sdb
```

3. Create a new mount point for the new disk.

```
# mkdir /repos
```

4. Mount the disk.

```
# mount -t xfs /dev/sdb /repos
# chmod 755 /repos
```

5. Edit `/etc/fstab` and add the mount entry permanently.

```
# vi /etc/fstab
/dev/sdb /repos                    xfs     defaults        0 0
```

6. Test `/etc/fstab` to verify configuration.

```
# mount -a
```

Configuring Apache to Publish the Local Repository Mirror

Take the following steps to configure Apache to publish the local repository mirror.

1. Create the link to the repository path.

```
# cd /var/www/html/
# ln -sf /repos repos
# ls -l /var/www/html/
result: lrwxrwxrwx. 1 root root 6 Mar 26 16:18 repos -> /repos
```

2. Restart Apache.
```
# systemctl restart httpd
```

Verifying Remote Connectivity to the Local Repository Mirror

Take the following step to verify remote connectivity with the repository mirror.

1. From the local network workstation's browser, go to: `https://<Repository Mirror IP Address>/`

Syncing the Local Repository Mirror

Take the following steps to sync the local repository mirror.

1. Sync the FSM Mirror to the repository mirror.
```
# mkdir -p /repos/rockylinux8/gpg-keys
# cd /repos/rockylinux8/gpg-keys
# wget https://os-pkgs-cdn.fortisiem.fortinet.com/rockylinux8/gpg-keys/RPM-GPG-KEY-EPEL-8
# wget https://os-pkgs-cdn.fortisiem.fortinet.com/rockylinux8/gpg-keys/RPM-GPG-KEY-PGDG
# wget https://os-pkgs-cdn.fortisiem.fortinet.com/rockylinux8/gpg-keys/RPM-GPG-KEY-elrepo.org
# wget https://os-pkgs-cdn.fortisiem.fortinet.com/rockylinux8/gpg-keys/RPM-GPG-KEY-rockyofficial
# wget https://os-pkgs-cdn.fortisiem.fortinet.com/rockylinux8/gpg-keys/RPM-GPG-KEY-rockytesting
# wget https://os-pkgs-cdn.fortisiem.fortinet.com/rockylinux8/gpg-keys/CLICKHOUSE-KEY.GPG
# wget https://os-pkgs-cdn.fortisiem.fortinet.com/rockylinux8/gpg-keys/RPM-GPG-KEY-FortiSIEM-rocky
# cd /repos/rockylinux8
```

Note: Reposync will take a longer period of time as it's replicating the entire mirror.
```
# reposync --newest-only --download-meta --downloadcomps
# reposync --repoid=epel-testing
# reposync --repoid=plus
```

Note: Zookeeper has a single file and will not utilize reposync.
```
# mkdir -p /repos/rockylinux8/zookeeper
# cd zookeeper
```

```
# wget https://os-pkgs-cdn.fortisiem.fortinet.com/rockylinux8/zookeeper/apache-
zookeeper-3.7.0-bin.tar.gz
```

2. Verify repository mirror's folder paths.

```
# ls -la
total 96
drwxrwxr-x.  4 root root    73 Mar 23 17:29 appstream
drwxrwxr-x.  4 root root    73 Mar 23 17:34 baseos
drwxr-xr-x.  3 root root  4096 Mar 23 18:40 clickhouse
drwxrwxr-x.  4 root root    52 Mar 23 17:19 elrepo
drwxr-xr-x.  4 root root    52 Mar 23 17:18 elrepo-testing
drwxrwxr-x.  4 root root    55 Jan 19 15:31 epel
drwxrwxr-x.  4 root root    38 Jan 19 15:30 epel-modular
drwxr-xr-x.  4 root root    75 Dec 14 18:38 epel-testing
drwxrwxr-x.  4 root root    38 Mar 23 17:36 extras
drwxrwxr-x.  2 root root   177 Jan 19 17:08 gpg-keys
drwxrwxr-x.  3 root root 32768 Jan 19 15:35 pgdg13
drwxrwxr-x.  3 root root 32768 Jan 19 15:35 pgdg-common
drwxr-xr-x.  4 root root    56 Dec 14 18:38 plus
drwxrwxr-x.  4 root root    73 Mar 23 17:36 powertools
drwxr-xr-x.  2 root root    47 Jan 19 18:12 zookeeper
```

3. Modify Permissions and Restart Apache on the repository mirror.

```
# chmod -R 755 /repos
# systemctl restart httpd
```

4. Check repository mirror.
   Locally, run the following command:
   `# curl -k https://localhost/repos/rockylinux8/`
   Remotely:
   Open a browser, and go to: `https://<Repository Mirror IP>/repos/rockylinux8/`

www.fortinet.com