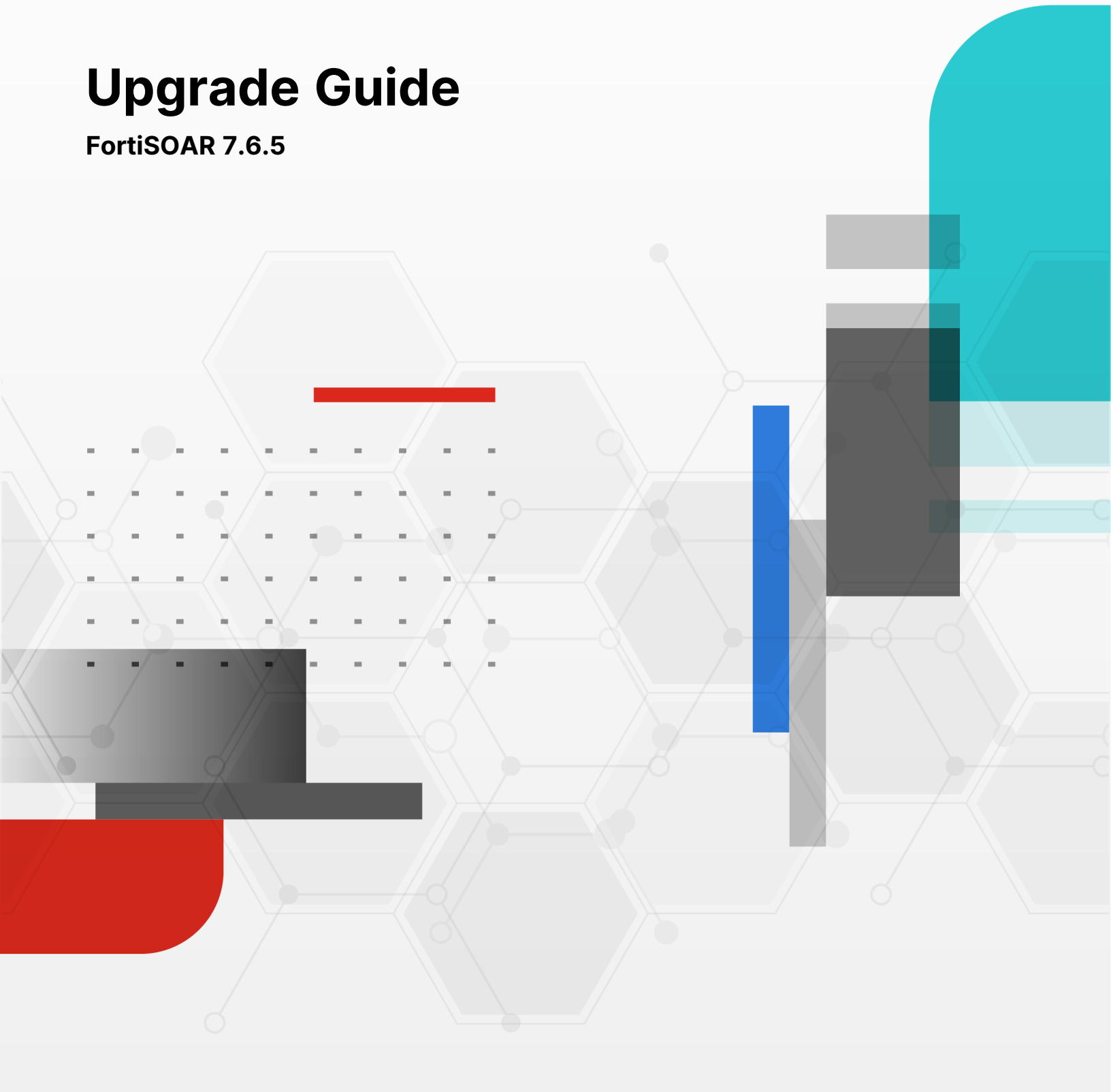
Upgrade Guide

FortiSOAR 7.6.5



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FortiSOAR 7.6.5 Upgrade Guide
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Change Log

Date	Change Description
2026-02-11	Updated information related to upgrading IPv6 systems in the Preparing to Upgrade chapter.
2026-01-19	Enhanced the documentation related to disabling root shell access for `csadmin` users in the Introduction, Upgrading an Enterprise Instance, Upgrading a High Availability Cluster, and Upgrading a Distributed Multi-Tenancy Configuration chapters.
2025-12-17	Initial release of 7.6.5

Introduction

This guide covers upgrading a FortiSOAR™ enterprise instance, High Availability (HA) cluster, or a distributed multi-tenant configuration.

The FortiSOAR UI displays a notification when a new release (always the latest) is available. The notification includes a link to the release notes, where you can review details about the latest version. This feature helps you stay informed about new releases and decide whether to upgrade to the most recent FortiSOAR version.

This document describes how to upgrade FortiSOAR to 7.6.5. This guide is intended to supplement the FortiSOAR Release Notes, and it includes the following sections:

- Preparing to Upgrade FortiSOAR
- Upgrading a FortiSOAR Enterprise Instance
  An "Upgrade Framework" was introduced in release 7.5.0 to improve the flexibility, usability, and efficiency of the FortiSOAR upgrade process.
- Upgrading a FortiSOAR High Availability Cluster
- Upgrading a FortiSOAR Distributed Multi-Tenancy Configuration
- Upgrading FortiSOAR using the Offline Repository
- Upgrading your FortiSOAR Docker image and upgrading your FortiSOAR Docker on an Amazon Elastic Kubernetes Cluster
- Post-Upgrade Tasks

If you encounter issues during the upgrade, see the *Troubleshooting FortiSOAR* chapter in the “Deployment Guide.”

Important considerations before upgrading FortiSOAR

Starting with release 7.6.5, the csadmin user’s sudo privileges are restricted to only the commands required to work with FortiSOAR, instead of providing full 'root' access. This enhancement aligns with the principle of least privilege and reduces exposure to sensitive system files. Therefore, commands such as `yum`, `systemctl`, `csadm`, etc, must be prefixed with `sudo`, for example, `sudo csadm --help`.
To open or edit a file, prefix the command with '`sudo`' and specify the file’s full path (`sudo vi <full path of file>`).
For example, `sudo vi /opt/cyops-auth/utilities/das.ini`.
Additionally note that for security reasons, '`root`' access is provided via the system console and is not available over SSH.

- **Upgrading an HA Cluster from Versions Prior to 7.6.1**: If you are upgrading your FortiSOAR HA cluster from releases 7.6.0, 7.5.1, 7.5.0, etc. to release 7.6.1 or later, follow the steps in the Upgrading FortiSOAR High Availability Cluster for releases prior to 7.6.1 topic.
- **Upgrading an HA Cluster from Version 7.6.1 onwards**: If you are upgrading your FortiSOAR HA cluster from release 7.6.1 to release 7.6.2 or later, you can use the 'rolling upgrades' process. Steps for rolling upgrade are mentioned in the Upgrading FortiSOAR High Availability Cluster for releases post 7.6.1 topic.
- **Post-Upgrade Action**: After upgrading, log out from the FortiSOAR UI and log back in to complete the process.
- **System Downtime**: The upgrade procedure temporarily takes the FortiSOAR application offline. We recommend notifying users of the scheduled upgrade, as they will be unable to log in to the FortiSOAR during this time.

Preparing to Upgrade

Before upgrading FortiSOAR, complete the following preparation tasks to ensure a smooth and successful upgrade:

	Task	Description
☐	**Check Compatibility**	Proceed only if upgrading from version 7.5.0 through 7.5.2 and 7.6.0 through 7.6.4 to 7.6.5.
☐	**Review Release Notes**	Before proceeding review the 'Release Notes' to ensure a smooth and informed upgrade experience. Focus on the following chapters: • '*Special Notices*': Important version-specific requirements and limitations • '*Known Issues*': Current issues that may affect the environment These topics provide details on new features, updates, and behavioral changes introduced in version 7.6.5.
☐	**User Access**	Only users with **sudo privileges** should perform the upgrade.

☐	**Storage Capacity**
	Applicable for upgrades from FortiSOAR release 7.6.0 or earlier to 7.6.1 or later
		Ensure that at least twice the current workflow storage capacity is available.
		Run the following commands:
		`sudo csadm db –getsize`
		`sudo df -h`
		• Verify that the 'pgsql' partition (`/var/lib/pgsql` from the `df` output) is at least twice the size of the workflow log (`workflow` section from the `sudo csadm db --getsize` output).
		• If sufficient space is not available, increase disk space or reduce workflow logs. For details, see the Increasing Workflow Storage Capacity topic in the "Best Practices Guide."

☐	**Upgrade Connectivity**	Ensure that repo.fortisoar.fortinet.com is reachable from your VM.
		If you are connecting using a proxy, then:
		• Verify proxy configuration:
		`sudo csadm network list-proxy`
		• Confirm that `repo.fortisoar.fortinet.com` is permitted through the proxy.
		• Verify proxy entries in the `/etc/wgetrc` file:
		`sudo vi /etc/wgetrc`
		`use_proxy=yes`
		`http_proxy=<proxy_server_ip:port>`

		`https_proxy=<proxy_server_ip:port>`
☐	**Data Ingestion**	Before upgrading, ensure that all data ingestion playbooks and schedules are stopped and make sure there are no playbooks in active / incipient state. To verify playbook status: **1.** Open 'Execution Playbook Log'. **2.** Filter by **Active** or **Incipient** status. **3.** Confirm that all playbooks are complete.
☐	**IPv6**	Disable the IPv6 protocol on the VM if it is not in use before upgrading FortiSOAR.
☐	**External PostgreSQL Database**	For upgrades to FortiSOAR 7.6.0 or later using an external PostgreSQL database: **1.** Upgrade PostgreSQL to version 16 or later before proceeding with the upgrade. **2.** Continue with the upgrade only after the PostgreSQL upgrade is complete. Upgrading to PostgreSQL 16 or later is required because FortiSOAR 7.6.0 and later use the 'pg_squeeze' and 'pg_repack' utilities, available only in PostgreSQL 16 and later, to optimize disk space reclamation. For more information, see the Externalization of your FortiSOAR PostgreSQL database topic in the *Setup & Advanced Configuration* of the "Best Practices Guide.
☐	**Backup**	Take a VM snapshot of the current system before starting the upgrade. Snapshots enable rollback to the last working state in case of upgrade failure. Refer to the documentation of your platform for procedures to create and revert VM snapshots.

☐	**Modified Configurations**	Identify and list all configuration files modified from their default package versions before the upgrade using the following command:
		`sudo find / -name *.rpmnew`
		This step is critical for comparison with any `.rpmnew` files that might be generated during the upgrade process.
		Examples of modified configuration files:
		`/opt/cyops-workflow/sealab/sealab/config.ini`
		`/opt/cyops/configs/database/db_config.yml`
		`/opt/cyops-ui/vendor/config.json`
		Record the modified paths for post-upgrade verification.
		See the "Handling Configuration Changes Post-Upgrade" topic in the Post-Upgrade Tasks chapter for steps on how to review and merge changes from `.rpmnew` files.

☐	**External Monitoring Agents**	Any external monitoring agents must function correctly under FortiSOAR's current SELinux policy. If the required SELinux context is not properly configured, the customer must uninstall

		these agents before performing an FortiSOAR upgrade that includes an underlying OS version upgrade.

☐	**Uninterrupted Upgrade Session**	Recommended to use `tmux` to maintain a persistent upgrade session. Connect to the VM via SSH and perform one of the following as necessary:
		To install:
		`sudo yum install -y tmux`
		To setup a session:
		`tmux`
		To reconnect to an existing session :
		`tmux ls`
		`tmux attach-session -t <session_number>`
		Example:
		`tmux ls`
		`0: 1 windows (created Thu Nov 24 09:37:47 2022) [170x47]`
		`tmux attach-session -t 0`
		Note: Do not run `tmux` from the root shell if you have logged in as the 'csadmin' user.

☐	**Check Readiness** [*Mandatory*	To ensure a successful upgrade and resolve any failures, verify system readiness before upgrading: Run the `sudo csadm upgrade check-readiness --target-version [TARGET_VERSION]` command. For example to upgrade to the 7.6.5 release, use the following command: `sudo csadm upgrade check-readiness --target-version 7.6.5` Resolve any validation failures, then rerun the command to confirm that the system is prepared for the upgrade. For details, see the Upgrading an Enterprise Instance chapter.
☐	**Download Packages locally** [*Highly Recommended*]	Pre-download upgrade packages to a local directory: `sudo csadm upgrade execute --target-version [TARGET_VERSION]--download-packages][--local-download-directory [LOCAL_DOWNLOAD_DIRECTORY]]`. By default, the FortiSOAR packages, OS Packages and third-party packages are downloaded to the `/opt/cyops/packages/fsr-packages` folder, while system-connectors RPMs are downloaded to the `/opt/cyops/packages/fsr-connectors` folder. Specify an alternate directory (absolute path in the local directory) using the `--local-download-directory` argument. This command verifies the availability of sufficient space in the default or user-specified directory. If sufficient space is available, packages are downloaded. If space is insufficient, the command exits with an error message indicating the issue. **NOTE**: • If packages are successfully downloaded locally, the

upgrade process uses those packages. Otherwise, the upgrade process accesses the `yum` repository for the upgrade.

- After the upgrade completes, FortiSOAR reverts to using the `yum` repository for future updates.
- Re-running the `sudo csadm upgrade` command with the `--download-packages` argument downloads the packages again, overwriting any previously downloaded packages.

Ensure that all preparation tasks are completed before proceeding with the upgrade.

Upgrading an Enterprise Instance

Starting with release 7.6.0, the upgrade process has been optimized to minimize application downtime by offering users the option to pre-download the necessary FortiSOAR upgrade packages and store them locally. During the upgrade, these local packages are used, resulting in a faster and more reliable experience. After the upgrade, FortiSOAR automatically reverts to using the `yum` repository for future updates.

After upgrading to FortiSOAR 7.6.3 or later, users running `sudo` commands as the '`csadmin`' user will be prompted for a password on all systems except AWS.
After upgrading to FortiSOAR 7.6.5 or later, the `csadmin` user's `sudo` privileges are restricted to only the commands required to work with FortiSOAR, instead of providing full '`root`' access. This enhancement aligns with the *principle of least privilege* and reduces exposure to sensitive system files.
To open or edit a file, prefix the command with '`sudo`' and specify the file's full path (`sudo vi <full path of file>`).
For example, `sudo vi /opt/cyops-auth/utilities/das.ini`.

It is recommended to upgrade your FortiSOAR instance promptly after downloading the upgrade packages to ensure that the latest versions are installed. Delaying the upgrade may result in installing outdated packages.

All upgrade-related logs are saved to a file named '`upgrade-fortisoar-<version>-<timestamp>.log`' in the `/var/log/cyops` directory.
If an error occurs during the upgrade, review the log file and rerun the `upgrade` command. The upgrade resumes from the point of failure, allowing inline resolution of issues.

Before proceeding with the upgrade, ensure that you have completed all the Preparation Tasks. Run the `check-readiness` command before starting the upgrade to confirm system readiness. For more information, see the FAQs and Details of 'csadmin upgrade' command appendices.

During the upgrade, you are prompted to reset the root password and confirm it. If the two entries match, the password is updated successfully. If they do not match, the prompt is displayed again. If you cancel the prompt by entering n, the upgrade continues without resetting the root password. You are allowed up to three attempts to enter matching passwords. If all attempts are exhausted, the upgrade task is marked as failed.
Carefully review and respond to all upgrade prompts. If the root password reset step is missed, the password must be reset later from the VM console. Refer to the Red Hat or Rocky Linux documentation for instructions on resetting the root password.
Note: After login, the 'csadm' user is assigned limited sudo privileges. For security reasons, '`root`' access is provided via the system console and is not available over SSH.

To upgrade FortiSOAR to 7.6.5:

1. Connect to the FortiSOAR VM via SSH and start a `tmux` session.
2. Run the following command to check if your FortiSOAR system is ready for an upgrade to the target release:
   `sudo csadm upgrade check-readiness --target-version [TARGET_VERSION]`
   Example: To check if your system is ready to upgrade to the 7.6.5 release, use the following command:
   `sudo csadm upgrade check-readiness --target-version 7.6.5`
   The check-readiness report is generated at '`/opt/fsr-elevate/elevate/outputs/`' and will include explanatory messages for any failures.
   Resolve any validation failures and rerun the `csadm upgrade check-readiness` command to confirm that the system is prepared for the upgrade.
   A sample of a check-readiness report is present in the Example of a check-readiness report appendix.
   Important: You must run the `csadm upgrade check-readiness` command prior to upgrading FortiSOAR to ensure a successful upgrade.
3. Run the following command to upgrade your system:
   `sudo csadm upgrade execute --target-version [TARGET_VERSION]`
   Example: To upgrade to 7.6.5, use the `sudo csadm upgrade execute --target-version 7.6.5` command.

   Note: During the upgrade, the system's appliance host key will change.

Notes:

- For a list of available arguments for the `csadm upgrade` command, see the Details of 'csadmin upgrade' command appendix.
- After the upgrade completes, log out of the FortiSOAR UI and log back in to ensure that all updates are applied.
- Ensure that you review and complete all Post-Upgrade Tasks.

Upgrading a High Availability Cluster

This section describes the procedure to upgrade a FortiSOAR High Availability (HA) cluster, assuming the HA setup includes a Reverse Proxy or Load Balancer, such as "HAProxy".

Before you start upgrading your FortiSOAR HA cluster, refer to the Preparing to Upgrade FortiSOAR section to ensure all the prerequisites are met. The upgrade installer will manage all FortiSOAR services.

Starting from release 7.6.1, FortiSOAR supports rolling upgrades for high availability (HA) clusters, reducing downtime from approximately 30 minutes to just 2 minutes. This optimization ensures minimal disruption during upgrades.

If you are upgrading your FortiSOAR HA cluster from releases 7.6.0, 7.5.2, 7.5.1, or 7.5.0 to release 7.6.1 or later, follow the steps in the Upgrading FortiSOAR High Availability Cluster for releases prior to 7.6.1 topic.
If you are upgrading your FortiSOAR HA cluster from release 7.6.1 or later to release 7.6.2 or any subsequent release such as releases, 7.6.3, 7.6.4, 7.6.5, you can use the 'rolling upgrades' process. Steps for rolling upgrade are mentioned in the Upgrading FortiSOAR High Availability Cluster for releases post 7.6.1 topic.

During the upgrade, you are prompted to reset the root password and confirm it. If the two entries match, the password is updated successfully. If they do not match, the prompt is displayed again. If you cancel the prompt by entering n, the upgrade continues without resetting the root password. You are allowed up to three attempts to enter matching passwords. If all attempts are exhausted, the upgrade task is marked as failed.
Carefully review and respond to all upgrade prompts. If the root password reset step is missed, the password must be reset later from the VM console. Refer to the Red Hat or Rocky Linux documentation for instructions on resetting the root password.
Note: After login, the 'csadm' user is assigned limited sudo privileges. For security reasons, 'root' access is provided via the system console and is not available over SSH.

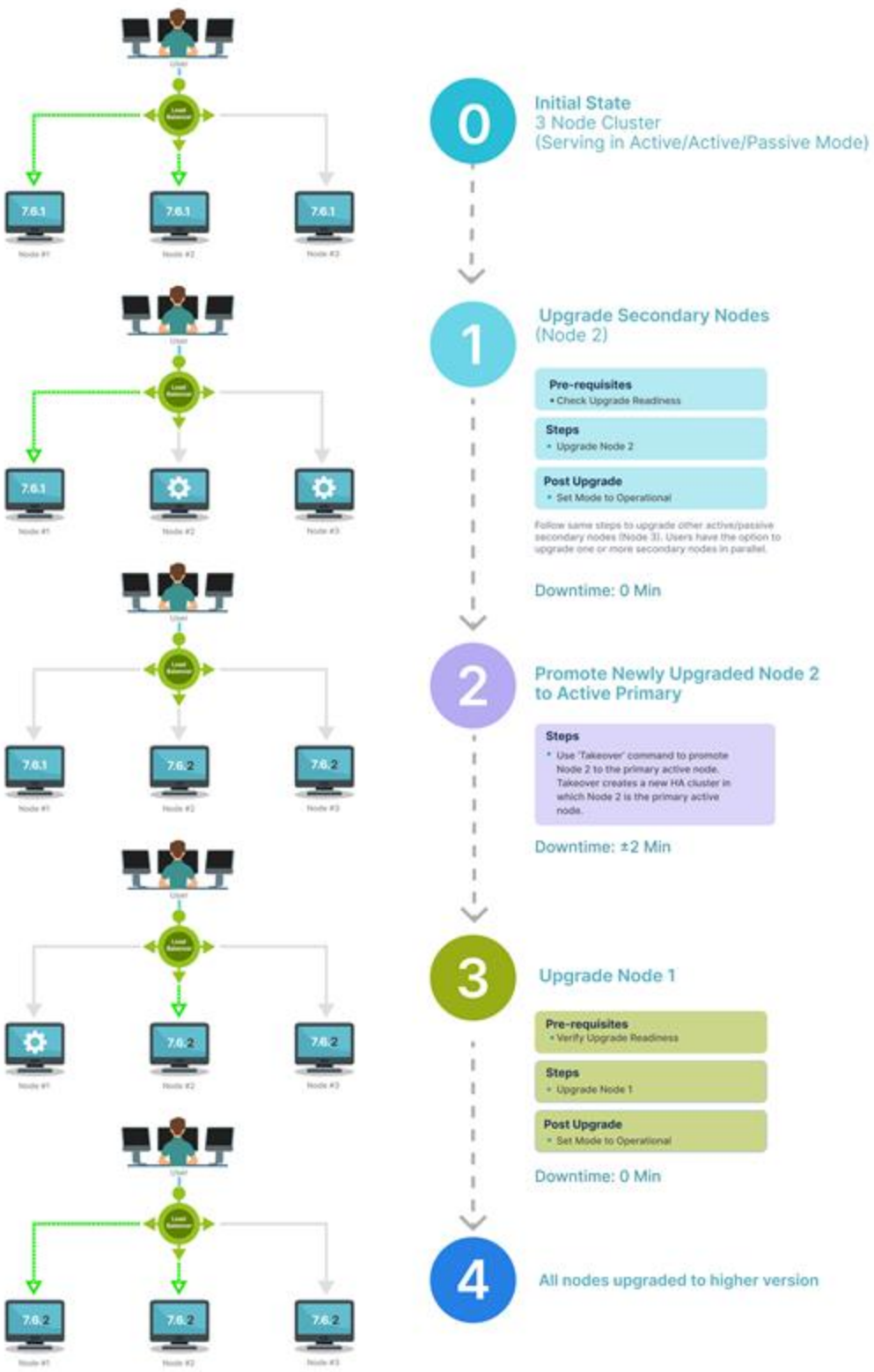
Upgrading to releases post 7.6.1

This section outlines the procedure for upgrading a FortiSOAR HA cluster for releases after 7.6.1 (e.g. from 7.6.1 to 7.6.5). The upgrade steps are the same for both configurations, i.e., Active-Active or Active-Passive HA clusters.

For the purpose of the following procedure:

- *Node1* is set as the Active Primary node
- *Node2* is set as the Active Secondary node,
- *Node 3* is set as the Passive Secondary node.
  NOTE: All the nodes are fronted by a Reverse Proxy or Load Balancer, such as "HAProxy".

The following diagram provides a high-level overview of the rolling upgrade process. The 'Rolling Upgrade' feature was introduced in FortiSOAR release 7.6.1, and it applies to all subsequent releases.


0
Initial State
3 Node Cluster
(Serving in Active/Active/Passive Mode)
1
Upgrade Secondary Nodes
(Node 2)
Pre-requisites
• Check Upgrade Readiness
Steps
• Upgrade Node 2
Post Upgrade
• Set Mode to Operational
Follow same steps to upgrade other active/passive secondary nodes (Node 3). Users have the option to upgrade one or more secondary nodes in parallel.
Downtime: 0 Min
2
Promote Newly Upgraded Node 2 to Active Primary
Steps
• Use 'Takeover' command to promote Node 2 to the primary active node. Takeover creates a new HA cluster in which Node 2 is the primary active node.
Downtime: ±2 Min
3
Upgrade Node 1
Pre-requisites
• Verify Upgrade Readiness
Steps
• Upgrade Node 1
Post Upgrade
• Set Mode to Operational
Downtime: 0 Min
4
All nodes upgraded to higher version

Procedure

Perform all steps in this procedure on all secondary active nodes, except point 3, which is the 'Takeover' operation. The 'Takeover' operation should be performed on only one of the upgraded active secondary nodes.

1. Upgrade the active secondary node, *Node 2*, as follows:
   a. Run the following command to verify if *Node 2* is ready for an upgrade to the target release:
   `sudo csadm upgrade check-readiness --target-version [TARGET_VERSION]`
   For example, `sudo csadm upgrade check-readiness --target-version 7.6.5`
   For details on the `check-readiness` option, see the Upgrading a FortiSOAR Enterprise Instance chapter.
   b. Upgrade *Node 2* using the following command:
   `sudo csadm upgrade execute --target-version [TARGET_VERSION]`
   For example to upgrade to release 7.6.5, use the `sudo csadm upgrade execute --target-version 7.6.5` command.
   In the case of our example, while *Node 2* is being upgraded, traffic will be directed to healthy nodes by the load balancer, i.e., *Node 1* will continue to serve requests, ensuring no downtime. Also, as the nodes are in cluster, data replication will synchronize data on *Node 2*.
   After running the command, the Upgrade Framework begins the upgrade process on *Node 2* and its UI becomes inaccessible. Note that during the upgrade process, some operations on other active nodes in the cluster become temporarily unavailable. These operations include:
   - Publishing of modules
   - Creating a connector
   - Uploading a connector
   - Installing/Uninstalling a connector
   - Publishing a connector/widget
   - Deleting code within a connector/widget

   During the upgrade process, a toaster message will be displayed on the UI of the other nodes in the cluster:
   `'A node in the HA cluster is undergoing an upgrade, temporarily affecting operations such as publishing modules, creating or uploading connectors, installing or uninstalling connectors, and publishing or deleting connectors and widgets.'`
   NOTE: If the UI remains unresponsive for operations such as publishing modules, installing connectors, etc., after the upgrade, log out and log back in to refresh the system.
2. After upgrading, verify *Node 2's* UI is accessible using *Node 2's* hostname or IP address (and not load balancer). Additionally, perform basic sanity checks and once the sanity checks on the system are completed, set *Node 2* to 'Operational' using the following command:
   `sudo csadm system env --mode operational`
   Setting the mode to 'Operational', unmasks and starts the `celeryd` service on *Node 2*. This command also checks all other nodes in the cluster that are not upgraded and sets their mode to 'Upgrade.' This ensures the load balancer directs traffic to the newly upgraded node while blocking traffic to nodes, which are not upgraded.
   Repeat this procedure for any other active or passive secondary nodes. Passive nodes, such as *Node 3*, can be upgraded at any time. You may upgrade one or more active/passive secondary nodes in parallel.
3. Run the `sudo csadm ha takeover` command on the active secondary node, *Node 2* to promote it the Active Primary node. This will cause a brief downtime of approximately 2 minutes.
   NOTE: The 'Takeover' operation should be performed on only one of the upgraded active secondary nodes.
   IMPORTANT: You must promote an active secondary node to the active primary node, before upgrading the original primary node to ensure that requests are served by the new active primary node.

In our example, you must promote *Node 2* before upgrading *Node 1* to ensure that requests are served by *Node 2* during the upgrade.
For details on the Takeover process, see the High Availability Configuration and Maintenance chapter in the "Administration Guide."
Once the takeover is complete, *Node 2* will become the new primary node and begin serving requests. Users will then be prompted to join all other nodes in the cluster to the new primary, and all operational nodes will resume load sharing.

4. Upgrade the previous active primary node (*Node1*) using the same steps:
   a. (Recommended) Verify if the node is ready for an upgrade to the target release: `sudo csadm upgrade check-readiness --target-version [TARGET_VERSION]`
   b. Upgrade the node: `sudo csadm upgrade execute --target-version [TARGET_VERSION]`
   Running this command initiates the upgrade process on *Node1*.
   c. Once *Node 1* is upgraded, verify that the FortiSOAR UI is accessible and perform basic sanity checks, using *Node 1's* hostname or IP address (and not load balancer).
   d. *Only applicable for upgrades from release 7.6.1*. Create the RabbitMQ cluster using the following steps:
      i. On the new primary node, run the following command to allowlist the previous primary node:
      `sudo csadm ha allowlist --nodes <previous-primary-hostname>`
      ii. On the previous primary node, run the following command to allowlist the new primary node:
      `sudo csadm ha allowlist --nodes <new-primary-hostname>`
      iii. Create the RabbitMQ cluster using one of the following methods:
      - *Join using the csadm mq command*:
        i. Run the following command on the previous primary node:
        `sudo csadm mq join-cluster --primary-node <new-primary-hostname`
      - *Join using the config file*:
        i. On the new primary node, generate the config:
        `sudo csadm ha export-conf`
        ii. Copy the exported config file to the previous primary node.
        iii. On the previous primary node, run the following command:
        `sudo csadm mq join-cluster –-config-file <conf-file-path>`
   e. Restart the services on the previous primary node:
   `sudo csadm services --restart`
   f. Set *Node 1* to 'Operational' mode:
   `sudo csadm system env --mode operational`

Troubleshooting: Cluster rejoin fails on new primary node during rolling upgrade in HA Cluster

During a rolling upgrade of a High Availability (HA) cluster from version 7.6.2 to a later version, you may encounter a failure when attempting to rejoin nodes to the new primary.

When the user attempts to run `join-cluster` manually from the previous primary or any secondary node(s), which is on release 7.6.2, the operation fails with the following error message:

```
"Validating SSH credentials
Fetching HA configuration details for qa-env4-swati.fortisoar.in
[2025-10-06 12:34:49] ERROR manager: start(): 492: ------------------------------------------------
```

```
-
Error:
There was an issue accessing all files in the PostgreSQL data directory of the primary node.
Please ensure that all files in the PostgreSQL directory have the correct permissions assigned to
the postgres user to avoid operation failure."
```

Steps to resolve this issue:

1. On the current active primary node, export the HA configuration using the following command:
   `sudo csadm ha export-conf`
2. On the previous primary node or another secondary node where the issue is occurring, import the exported `ha.conf` file.
3. Use the command below to rejoin the node as a secondary in the cluster:
   `sudo csadm ha join-cluster --status active --role secondary --conf ha.conf`
4. Check the cluster status to confirm the node has successfully rejoined as a secondary node.

Upgrading to releases prior to 7.6.1

This section outlines the procedure for upgrading a FortiSOAR HA cluster for releases prior to 7.6.1, such as from 7.6.0 to 7.6.1 or later.

Upgrading an Active-Active HA Cluster

This topic provides instructions for upgrading an Active-Active High Availability (HA) cluster for releases prior to 7.6.1. In this configuration, *Node1* acts as the Active Primary node, and *Node2* is the Active Secondary node. Both the nodes are fronted by a Reverse Proxy or Load Balancer such as "HAProxy".

Upgrading the primary node will result in downtime, which varies based on the amount of data on your system. Additionally, it is highly recommended to upgrade the primary node immediately after the secondary node.

Prerequisites

Before beginning the upgrade, adjust the `wal_keep_size` parameter on all nodes, to prevent WAL rotation during the process:

1. Edit the PostgreSQL configuration file:
   `sudo vi /var/lib/pgsql/16/data/postgresql.conf`
2. Increase the wal_keep_size to 15GB:
   `wal_keep_size = 15360`
3. Reload PostgreSQL configuration to apply the changes:
   `sudo systemctl reload postgresql-16`

Procedure

To upgrade your active-active HA cluster from releases prior to 7.6.1 to release 7.6.1 or later, for example upgrading FortiSOAR release 7.6.0 to release 7.6.2, perform the following steps:

1. Set the Reverse Proxy to direct all requests to *Node1*.
   This ensures that FortiSOAR traffic is handled by *Node1*, allowing *Node2* to be upgraded without interrupting service.
2. Log in and suspend the cluster on *Node2*:
   `sudo csadm ha suspend-cluster`
   This command isolates *Node2*, enabling it to be upgraded.
3. Upgrade *Node2* using the procedure outlined in the Upgrading a FortiSOAR Enterprise Instance chapter.
4. (Optional) Upgrade any remaining secondary nodes, by following the same process used for *Node2*. To do this, first run the `sudo csadm ha suspend-cluster` on each remaining secondary node, and then upgrade the nodes using the procedure outlined in the Upgrading a FortiSOAR Enterprise Instance chapter.
5. Once *Node2* and all other secondary nodes (if any) are upgraded, proceed with upgrading *Node1* using the process described in the Upgrading a FortiSOAR Enterprise Instance chapter.
   Important: Upgrading *Node1* will incur downtime.
6. Add the host names of all HA cluster nodes (except for the node itself) to the 'allowlist' using the following command:
   `sudo csadm ha allowlist --nodes <comma-separated list of host names>`
   For example, on *Node 1* run `sudo csadm ha allowlist --nodes <hostname of Node2>`
   For example, on *Node 2* run `sudo csadm ha allowlist --nodes <hostname of Node1>`
   On a 3-node HA system, on the primary node run `sudo csadm ha allowlist --nodes <all-secondary-hostnames>`
   On a 3-node HA system, on the secondary node run `sudo csadm ha allowlist --nodes <all-secondary-hostname-except-itself>,<primary-hostname>`
7. Once both the nodes are upgraded, run the following command on *Node2* to resume the HA cluster:
   `sudo csadm ha resume-cluster`
8. Create the MQ cluster by running the following command on each active secondary node:
   `sudo csadm mq join-cluster --primary-node <primary-hostname>`
9. Restart all services after the MQ cluster has been created on each active secondary node:
   `sudo csadm services --restart`
10. Adjust the Reverse Proxy settings to route requests to both *Node1* and *Node2*.

Post-Upgrade

After upgrading all the nodes and resuming the cluster, you can verify that the replication lag is zero by running the following command:
`sudo csadm ha get-replication-stat`

Additionally, after the upgrade, FortiSOAR restores the `wal_keep_size` parameter to its original value of 1GB (`wal_keep_size = 1024`).

Upgrading an Active-Passive HA Cluster

This topic provides instructions for upgrading an Active-Passive High Availability (HA) cluster for releases prior to 7.6.1. In this configuration, *Node1* acts as the Active Primary node, and *Node2* is the Passive Secondary node.

Both the nodes are fronted by a Reverse Proxy or Load Balancer such as "HAProxy".

Upgrading the primary node will result in downtime, which varies based on the amount of data on your system. Additionally, it is highly recommended to upgrade the primary node immediately after the secondary node.

Prerequisites

Before starting the upgrade, adjust the `wal_keep_size` parameter, on all nodes, to prevent WAL rotation, as outlined in the Prerequisites section of the *Upgrading an Active-Active HA Cluster* topic.

Procedure

To upgrade your active-passive HA cluster from releases prior to 7.6.1 to release 7.6.1 or later, for example upgrading FortiSOAR release 7.6.0 to release 7.6.2, perform the following steps:

1. Log in and suspend the cluster on *Node2*:
   `sudo csadm ha suspend-cluster`
   This command isolates *Node2*, enabling it to be upgraded.
2. Upgrade *Node2* using the process mentioned in the Upgrading a FortiSOAR Enterprise Instance chapter.
3. (Optional) Upgrade any remaining secondary nodes, by following the same process used for *Node2*. To do this, first run the `sudo csadm ha suspend-cluster` on each remaining secondary node, and then upgrade the nodes using the procedure outlined in the Upgrading a FortiSOAR Enterprise Instance chapter.
4. Once *Node2* and all other secondary nodes (if any) are upgraded, proceed with upgrading *Node1* using the process described in the Upgrading a FortiSOAR Enterprise Instance chapter.
   Important: Upgrading *Node1* will incur downtime.
5. Add the host names of all HA cluster nodes (except for the node itself) to the allowlist using the following command:
   `sudo csadm ha allowlist --nodes <comma-separated list of host names>`
6. Once both the nodes are upgraded, run the following command on *Node2* to resume the HA cluster:
   `sudo csadm ha resume-cluster`

Post-Upgrade

After upgrading all the nodes and resuming the cluster, restore the `wal_keep_size` setting to its original value, on all nodes, as described in the Post-Upgrade section of the *Upgrading an Active-Active HA Cluster* topic.

Upgrading a Distributed Multi-Tenancy Configuration

This section describes the procedure to upgrade a FortiSOAR distributed multi-tenant configuration for managed security services providers (MSSPs) or Distributed SOC configuration.

You must first upgrade the master node of your FortiSOAR distributed multi-tenant configuration and only then upgrade the tenant nodes of your FortiSOAR multi-tenancy setup.

In case of a distributed deployment, both the master and the tenant nodes must be upgraded.

During the upgrade, you are prompted to reset the root password and confirm it. If the two entries match, the password is updated successfully. If they do not match, the prompt is displayed again. If you cancel the prompt by entering n, the upgrade continues without resetting the root password. You are allowed up to three attempts to enter matching passwords. If all attempts are exhausted, the upgrade task is marked as failed.
Carefully review and respond to all upgrade prompts. If the root password reset step is missed, the password must be reset later from the VM console. Refer to the Red Hat or Rocky Linux documentation for instructions on resetting the root password.
Note: After login, the 'csadm' user is assigned limited sudo privileges. For security reasons, '`root`' access is provided via the system console and is not available over SSH.

Upgrading a Master Node

Before you upgrade your FortiSOAR master node, ensure the following:

- All playbooks have completed their execution on the master.
- The tenant node(s) are deactivated from the master node before upgrading the master node, and tenant nodes have disabled communication to the master node from the "`Master Configuration`" page.

If the master node of your multi-tenant configuration is part of an HA setup, i.e., MSSP +HA, then follow the steps mentioned in the Upgrading a FortiSOAR High Availability Cluster chapter.

If the master node of your multi-tenant configuration is not part of an HA setup, then follow the steps mentioned in the Upgrading a FortiSOAR Enterprise Instance chapter.

Upgrading a Tenant node

Before you upgrade your FortiSOAR tenant node, ensure the following:

- Data replication from the tenant node to the master node is stopped. You can stop data replication by logging on to the tenant node and clicking **Settings** to open the `System` page, then in the `Multi Tenancy` section, click the **Master Configuration** menu item and then in the `Communication With Master Node` section, toggle the **Enabled** button to **NO**.
- All playbooks have completed their execution on the tenant.
- All schedule playbooks that fetch data from data sources to the tenant are stopped.
- Any application that pushes data from data sources to the tenant is stopped.

If the tenant node of your multi-tenant configuration is part of an HA setup, i.e., MSSP +HA, then follow the steps mentioned in the Upgrading a FortiSOAR High Availability Cluster section.

If the tenant node of your multi-tenant configuration is not part of an HA setup, then follow the steps mentioned in the Upgrading a FortiSOAR Enterprise Instance section.

After the tenant node has been successfully upgraded, you must toggle the **Allow Module Management** setting to **NO** and then back to **YES**. This is needed only if you were already using the 'Allow Module Management' feature and is required to synchronize the tenant module metadata with the master instance. You can ignore this step, if your 'Allow Module Management' setting was already disabled before the upgrade.

Upgrading a Secure Message Exchange

A secure message exchange establishes a secure channel that is used to relay information to the agents or tenant nodes. To create a dedicated secure channel, you are required to add the reference of the installed and configured secure message exchange, when you add agent or tenant nodes to your environment. For information on agents , see the FortiSOAR Agent Setup and Configuration chapter in the "Administration Guide," and for more information on secure message exchange and tenants, see the "Multi-Tenancy support in FortiSOAR Guide".

1. Ensure that you stop data replication between the master and the tenant nodes. You can stop data replication by logging on to the tenant node and clicking **Settings** to open the `System` page, then in the `Multi Tenancy` section, click the **Master Configuration** menu item and then in the `Communication With Master Node` section, toggle the **Enabled** button to **NO**.
2. SSH to the secure message exchange VM that you want to upgrade.
3. Check your system to see if `tmux` is installed; if not, use the following command for installation:
   `sudo yum install -y tmux`
   Next, check that you are connected to a `tmux` session. A tmux session is needed for situations where network connectivity is less than favorable. You can check your tmux session using the following command:
   `# tmux ls`
   This command returns an output such as the following example:
   `0: 1 windows (created Thu Nov 24 09:37:47 2022) [170x47]`

Log back into the SSH console and run the following command to reattach the `tmux` session:
`tmux attach-session -t 0`
If you do not find any `tmux` session, connect to one using the following command:
`# tmux`

4. (Recommended) Upgrade the secure message exchange to the target release:
   - If your secure message exchange version 7.5.0 or 7.5.1, then upgrade your external secure message exchange to version 7.6.5 as follows:
     i. Download the `upgrade-fortisoar-7.6.5.bin` script from the FortiSOAR repo using `wget`
     ii. Run the `upgrade-fortisoar-7.6.5.bin` script using the "`sh`" command under `tmux`
   - If your secure message exchange version is 7.6.0 or 7.6.1, then upgrade your external secure message exchange to version 7.6.5 as follows:
     i. Run the following command to verify if the secure message exchange is ready for an upgrade to the target release:
     `sudo csadm upgrade check-readiness --target-version [TARGET_VERSION]`
     For details on the `sudo csadm upgrade` command, see the Details of 'csadmin upgrade' command appendix.
     ii. (Recommended) From release 7.6.2 onwards, you can choose to download upgrade packages locally first and then upgrade your SME at a later time, use the following command:
     `sudo csadm upgrade execute --target-version [TARGET_VERSION] --download-packages --local-download-directory [LOCAL_DOWNLOAD_DIRECTORY].`
     By default, the upgrade packages are downloaded to the `/opt/cyops/packages/fsr-packages` folder.
     NOTE: If the upgrade packages are successfully downloaded to the local directory, the upgrade process will utilize those packages for the upgrade. Otherwise, the upgrade process will access the `yum` repository for the upgrade.
     Once the upgrade is complete, any packages downloaded during the upgrade process will be discarded. FortiSOAR will no longer reference these local packages and will instead use the configured `yum` repositories to check for and install future updates.
     Additionally, note that if you re-run the `sudo csadm upgrade` command with the `--download-packages` argument, it will download the packages again, overwriting the previously downloaded ones.
     iii. Upgrade the secure message exchange:
     `sudo csadm upgrade execute --target-version [TARGET_VERSION]`
5. After successfully upgrading the secure message exchange, restart data replication between the master and tenant nodes by clicking **Master Configuration** in the left navigation. Then, in the **Communication With Master Node** section, toggle the **Data Replication** button to **ON**. Finally, verify that the replication is working correctly.

Upgrading a Secure Message Exchange Cluster

RabbitMQ supports clustering, which, when combined with Queue Mirroring, enables an Active-Active configuration. For detailed setup instructions and guidance on monitoring queues, see the Clustering Guide and the Highly Available (Mirrored) Queues article. For optimal performance, the clustered instances should be managed by a TCP Load Balancer such as HAProxy, and clients should connect to the cluster via the proxy's address. For more information, see the *Multi-tenancy support in FortiSOAR* guide.

This procedure covers upgrading a two-node mirrored MQ cluster, both configured with the Reverse Proxy.

1. Configure the Reverse Proxy to route requests exclusively to *Node1*, which is the primary node of the MQ cluster.
   This ensures *Node1* handles all requests, while *Node2* (the secondary node) is available for maintenance.
2. Before upgrading, break the cluster on the secondary node (*Node2*) by executing the following commands:
   a. `sudo rabbitmqctl stop_app`
   b. `sudo rabbitmqctl reset`
   c. `sudo rabbitmqctl start_app`
3. Log into the *Node2* terminal session, and upgrade *Node2* following the steps in the Upgrading a FortiSOAR Secure Message Exchange section.
4. Remove the *Node1* entry from the Reverse Proxy.
   NOTE: Downtime begins at this stage.
5. Log into *Node1* terminal session and upgrade *Node1* following the steps in the Upgrading a FortiSOAR Secure Message Exchange section.
6. Add the *Node1* entry back to the Reverse Proxy.
   NOTE: Downtime ends at this stage.
7. Once the SME cluster is upgraded, use the `join-cluster` command to create the SME cluster. For details, see the Setting up High Availability of the Secure Message Exchange topic in the *Multi-tenancy support in FortiSOAR* guide.
8. Reconfigure the Reverse Proxy to load balance requests between *Node1* and *Node2*.

Troubleshooting upgrade issues for MSSP setups

Replication from tenant to master stops once you upgrade an MSSP with an HA setup

If you have upgraded an MSSP+HA setup, then post-upgrade the replication from tenant nodes to the master node stopped.

Resolution

To resolve this issue, once you have upgraded your MSSP setup and created the HA cluster, you must restart all services on the primary master node and the primary tenant node using the following command:
`sudo csadm services --restart`

Troubleshooting issues after running the `db flush` command

If you have reset the RabbitMQ node, you must reconfigure the server using the `sudo csadm mq db flush` command. However, running this command on a node that is already part of a RabbitMQ cluster requires additional steps:

Resolution

1. On a different active node within the cluster, run the following command to forget the node where the `db flush` command was executed:
   `sudo csadm mq forget-node --nodename <rabbit@hostname>`
2. On the node where you ran the `db flush` command, run the following command:
   `sudo csadm mq join-cluster --primary-node 'other-cluster-nodes-hostname'`
   And then restart all the services using the following command:
   `sudo csadm services --restart`

Post-upgrade, FSR Agent status remains 'Awaiting Remote Node'

After upgrading FortiSOAR, the agent status remains stuck at 'Awaiting Remote Node' instead of 'Remote Node Connected'. This indicates that the agent is unable to establish a connection with the node using the SME.

Resolution

To resolve this issue and update the agent status to 'Remote Node Connected' after upgrading your MSSP setup, restart the RabbitMQ service on the external SME instance using the following command:
`sudo systemctl restart rabbitmq-server`

Embedded SME status displays as 'Not Configured' after upgrading FortiSOAR

After upgrading FortiSOAR, the embedded SME status might appear as 'Not Configured'.

Resolution

To update the embedded SME status to 'Configured', navigate to the `Secure Message Exchanges` page and refresh the SME list grid by clicking the **Refresh** button.

Upgrading using the Offline Repository

1. Ensure that the offline repository host is accessible from the FortiSOAR appliance and to ensure that the upgrade is not affected if the session times out, run the `tmux` command:
   `tmux`
2. If you are using your private repository to upgrade FortiSOAR, then specify the offline repo URL in the "`custom_yum_url`" key that is present in the `/opt/cyops/configs/fsr-elevate/config.yml` file.
3. Upgrade to FortiSOAR 7.6.5 using the process mentioned in the Upgrading a FortiSOAR Enterprise Instance chapter.
4. If you are using a self-signed certificate, then you must add your custom CA certificate in the OS and python trust store as a trusted certificate. For detailed steps, see the Adding a custom CA (self-signed) certificate in Rocky Linux or RHEL as a trusted certificate topic in the Additional configuration settings for FortiSOAR chapter of the "Deployment Guide."

Upgrading Docker Deployments

Do not use the 'Upgrade Framework' to upgrade the Docker images. Instead, follow the steps outlined in this chapter to upgrade Docker instances.
Additionally, also note that the 'rolling upgrade' process, which minimizes downtime for high availability (HA) clusters, ***is not supported*** for Docker images.

After upgrading to FortiSOAR 7.6.3 or later, users running `sudo` commands as the '`csadmin`' user will be prompted for a password on all systems except AWS.
After upgrading to FortiSOAR 7.6.5 or later, the `csadmin` user's `sudo` privileges are restricted to only the commands required to work with FortiSOAR, instead of providing full '`root`' access. This enhancement aligns with the *principle of least privilege* and reduces exposure to sensitive system files.

Upgrading your Docker image

1. Download the FortiSOAR docker image from https://support.fortinet.com; details are in the Downloading the FortiSOAR Docker image section of the "Deployment Guide".
2. Load the downloaded Docker image using the following command:
   `docker load -i <image-path>`
3. Download the FortiSOAR Docker installer from `https://repo.fortisoar.fortinet.com/7.6.5/install-fortisoar-docker-<release_version>.bin`
   For example, `https://repo.fortisoar.fortinet.com/7.6.5/install-fortisoar-docker-7.6.5.bin`
4. Update the `fortisoar.env` file with the ID of the Docker Image that is loaded in step 2. For more information, see Understanding the `fortisoar.env` file topic in the *Deploying FortiSOAR on a Docker Platform* chapter in the "Deployment Guide."
   Important: Ensure that the value of the `PROJECT_NAME` field in the `fortisoar.env` file must be the same as the value in the earlier version of the Docker image.
5. Before you begin the upgrade, it is recommended to take a backup of your FortiSOAR Docker as listed in the following commands.
   Note: The following commands uses `fortisoar_fortisoar_1` as the Docker name. You must replace this sample name with your own Docker name, which you can find using the `docker ps` command.
   a. `docker exec -ti fortisoar_fortisoar_1 bash -c 'export LANG=en_US.UTF-8;csadm db --backup /home/csadmin'`
      Note: This command stores the backup file at `/home/csadmin/DR_BACKUP_<release_version>-*_*_*.tgz` (for example, `/home/csadmin/DR_BACKUP_7.6.5-*_*_*.tgz`) inside your FortiSOAR Docker.
   b. Copy the backup file from your FortiSOAR Docker on the Docker host using the following command:
      `docker cp fortisoar_fortisoar_1:/home/csadmin/DR_BACKUP_<release_version>-*_*_*.tgz /data`
      For example, `docker cp fortisoar_fortisoar_1:/home/csadmin/DR_BACKUP_7.6.5-*_*_*.tgz /data`
      Note: The FortiSOAR Docker backup file is stored in the `/data` directory on your Docker host.
6. Stop your FortiSOAR Docker using the following command:
   `docker stop fortisoar_fortisoar_1`
7. Remove your FortiSOAR Docker using the following command:
   `docker rm fortisoar_fortisoar_1`
8. Run the FortiSOAR Docker using the updated `fortisoar.env` file that contains the ID of the new Docker Image using the following command:
   `./install-fortisoar-docker-<release_version>.bin --env-file fortisoar.env`
   For example, `./install-fortisoar-docker-7.6.5.bin --env-file fortisoar.env`

Upgrading your Docker HA image

For the following procedure, *Node1* is considered as the Active Primary node, *Node2* is considered as the Active Secondary node. Both nodes are fronted by a Reverse Proxy or Load Balancer, such as "HAProxy".

Upgrading the primary node will result in downtime, which varies based on the amount of data on your system. Additionally, it is highly recommended to upgrade the primary node immediately after the secondary node.

To upgrade your active-active HA cluster from releases prior to 7.6.0 to FortiSOAR 7.6.2 or later perform the following steps:

1. Set the Reverse Proxy to direct all requests to *Node1*.
   This ensures that FortiSOAR requests are passed only to *Node1*, and *Node2* can be upgraded without interruption.
2. Use the `#sudo csadm ha` command to run the `suspend-cluster` command on *Node2*.
   This command makes *Node2* a standalone system, allowing for it to be upgraded.
3. Upgrade *Node2* using the process mentioned in the Upgrading your FortiSOAR Docker image topic.
   Important: The `fortisoar.env` file must be updated as per the information present in the FortiSOAR High Availability Support on Dockers topic in the *Deploying FortiSOAR on a Docker Platform* chapter of the "Deployment Guide."
   Once *Node2* is upgraded, proceed to upgrade *Node1*.
   Note: Upgrading *Node1* will incur downtime.
4. Add the host names of all HA cluster nodes (except for the node itself) to the allowlist using the following command:
   `sudo csadm ha allowlist --nodes <comma-separated list of host names>`
   For example, on *Node 1* run `sudo csadm ha allowlist --nodes <hostname of Node2>`
   For example, on *Node 2* run `sudo csadm ha allowlist --nodes <hostname of Node1>`
   On a 3-node HA system, on the primary node run `sudo csadm ha allowlist --nodes <all-secondary-hostnames>`
   On a 3-node HA system, on the secondary node run `sudo csadm ha allowlist --nodes <all-secondary-hostname-except-itself>,<primary-hostname>`
5. After upgrading both nodes, run the `resume-cluster` command on *Node2* to create the HA cluster.
6. SSH to the primary node and export its HA config file using the following command:
   `sudo csadm ha export-conf`
7. Create the MQ cluster by running the following command on each secondary node:
   `sudo csadm mq join-cluster --conf-file <ha.conf file>`
8. Restart all services using the following command:
   `sudo csadm services --restart`
9. Adjust the Reverse Proxy settings to route requests to both *Node1* and *Node2*.

Reverting the Upgrade

In case the FortiSOAR Docker image upgrade fails, and you want to revert to the previous release, then you need to restore the backup of the previous version that was taken in the `/data` directory on your Docker host. Following are the steps for restoring the backup.
Note: The following commands uses `fortisoar_fortisoar_1` as the Docker name. You must replace this sample name with your own Docker name, which you can find using the `docker ps` command.

1. Stop the running FortiSOAR Docker using the following command:
   `docker stop fortisoar_fortisoar_1`

2. Remove the FortiSOAR Docker using the following command:
   `docker rm fortisoar_fortisoar_1`
3. Remove the FortiSOAR Docker volumes using the following command:
   `docker volume rm $(docker volume ls --filter name=fortisoar_fortisoar_* -q)`
4. Update the `fortisoar.env` file with the ID of the previous Docker Image.
5. Run the previous version FortiSOAR Docker using the updated `fortisoar.env` file that contains the ID of the previous Docker Image using the following command:
   `./install-fortisoar-docker-<release_version>.bin --env-file fortisoar.env`
   For example, `./install-fortisoar-docker-7.6.5.bin --env-file fortisoar.env`
6. Wait until you see EULA page on the UI at `https://<docker-host-hostname>:<PORT_UI>/`
7. Copy the FortiSOAR Docker backup file from the `/data` directory on your Docker host using the following command:
   `docker cp /data/DR_BACKUP_<release_version>-*_*_*.tgz fortisoar_fortisoar_1:/home/csadmin/`
   `docker cp /data/DR_BACKUP_7.6.5-*_*_*.tgz fortisoar_fortisoar_1:/home/csadmin/`
8. Restore the Docker image using the following command:
   `docker exec -it fortisoar_fortisoar_1 bash -c “export LANG=en_US.UTF-8;csadm db --restore /home/csadmin/DR_BACKUP_<release_version>-*_*_*.tgz”`
   For example, `docker exec -it fortisoar_fortisoar_1 bash -c “export LANG=en_US.UTF-8;csadm db --restore /home/csadmin/DR_BACKUP_7.6.5-*_*_*.tgz”`

Upgrading your Docker image on an Amazon Elastic Kubernetes Cluster

1. Download the FortiSOAR docker image from https://support.fortinet.com; details are in the Downloading the FortiSOAR Docker image section of the "Deployment Guide".
2. Upload the downloaded FortiSOAR Docker image to your AWS Elastic container registry or any other Docker repository that is accessible from within your Kubernetes cluster. For example:
   `# docker push <account-id>.dkr.ecr.<region>.amazonaws.com/fortisoar/fortisoar:7.6.5`
3. Before you begin the upgrade process, it is recommended to take a backup of your FortiSOAR pod as listed in the following commands.
   The following commands uses `fsr-0` as the pod name. You must replace this sample name with your own pod name that you can find using the `#kubectl get pods -o=name -n fsr` command.
   `#kubectl exec -ti -n fsr -c fsr fsr-0 -- bash -c "csadm db --backup /\home/\csadmin/\ "`
   Note: This command stores the backup file in the `/home/csadmin/DR_BACKUP_<release_version>-*_*_*.tgz` folder inside your FortiSOAR pod. For example, `/home/csadmin/DR_BACKUP_7.6.5-*_*_*.tgz` inside your FortiSOAR pod.
   Copy the backup file from your FortiSOAR pod on the EKS cluster node to your machine using the following command:
   `#kubectl cp fsr-0:/home/csadmin/DR_BACKUP_<release_version>-*_*_*.tgz -c fsr -n fsr DR_BACKUP_<release_version>.tgz`
4. Stop the running FortiSOAR pod using the following command:
   `#kubectl delete statefulset <statefulset_name> -n <fortisoar_namespace>`
5. Update the path of the new FortiSOAR image in the `fortisoar-statefulset.yaml` file.
6. Run the following command to deploy a new statefulset with the latest docker image:
   `#kubectl apply -f fortisoar-statefulset.yaml`

Post-Upgrade Tasks and Notes

Upgrade Utilities Connector on FortiSOAR Agent

If you have upgraded to FortiSOAR 7.6.5 without upgrading the FortiSOARAgents, then you must also upgrade the Utilities Connector on the FortiSOAR Agent to ensure proper functionality.

Handling Configuration Changes Post-Upgrade

If you modify configuration files before an upgrade, the upgrade process preserves your changes by keeping the original configuration file in place. The clean, default version from the new package is saved with an .rpmnew extension. To ensure that no new settings are missed, you must manually compare configuration files that are within the scope of FortiSOAR with their corresponding .rpmnew files and merge any relevant new parameters into your original configuration.

After a software upgrade, new configuration parameters may be introduced. It is crucial to verify and integrate these changes into your existing configuration files.

Follow these steps to verify and apply any configuration changes:

1. Check for `.rpmnew` files
   After a successful upgrade, check whether any `.rpmnew` files were generated for configuration files you identified during the pre-upgrade phase (see Preparing to Upgrade FortiSOAR chapter for details).
   The `.rpmnew` files contain the updated default configurations shipped with the new release. If a configuration file was previously modified, the system may create a corresponding .rpmnew version during the upgrade.
   If you did not record all modified files earlier, you can locate all `.rpmnew` files, using the following command:
   `sudo find / -name *.rpmnew`
2. Compare and merge configuration files
   If there are any new keys or new sections in `.rpmnew` files, then copy these keys or sections and append them to the existing FortiSOAR configuration files.
   Example: Updating `das.ini`
   If `das.ini` was modified prior to the upgrade, perform the following steps:
   a. Navigate to the utilities directory:
      `cd /opt/cyops-auth/utilities`
   b. Check if `das.ini.rpmnew` exists:
      `sudo ls -l | grep das.ini.rpmnew`
   c. If the `das.ini.rpmnew` file exists, compare it with the current `das.ini`:
      `diff das.ini das.ini.rpmnew`
   d. Identify and review any new sections or parameters in the `.rpmnew` file.
      Examples:
      Example of a new parameter added in the `[CLUSTER]` section:
      `[CLUSTER]`

```
allowed_data_lag = 50000
# allowed_data_lag 50MB in KiloBytes
```
Example of new section:
```
[APPLICATION]
squeeze_space_notification=true
sealab_config_location=/opt/cyops-workflow/sealab/sealab/config.ini
```
In this example, the `[APPLICATION]` section is new and should be added to the current `das.ini` file.

3. Apply Changes
   After merging the necessary configuration updates, restart the relevant service to apply the changes.
   For this example, restart the `cyops-auth` service:
   `sudo systemctl restart cyops-auth`

- Do not replace existing values in configuration files. Only add new keys or sections.
- Never modify files that contain passwords, secrets, or encryption keys (for example, `db_config.yml` or `PASSWORD_ENCRYPTION_KEY`).
- Do not update files outside the scope of FortiSOAR, such as configuration files for MQ, Elasticsearch, or Nginx. *Examples of out-of-scope files (do not modify)*:
  `/etc/rabbitmq/rabbitmq-env.conf.rpmnew`
  `/etc/nginx/nginx.conf.rpmnew`
  `/etc/elasticsearch/log4j2.properties.rpmnew`

Updating the Default View for Global Executed Playbook Logs

After upgrading to release 7.6.5 or later, users can remove the restriction on viewing all playbook execution logs or limit the view to a specified number of days (default: 7 days). For details, see the Optimizing and Troubleshooting chapter of the "Playbooks Guide.":

1. (Optional) Open the following file:
   `/opt/cyops-ui/vendor/config.json.rpmnew`
   NOTE: If users have modified `config.json` in earlier releases, only then will they have the `config.json.rpmnew` file, else they can skip this step and directly jump to step 2.
2. Copy the following configuration block:

```
{
    "...": {},
    "historicalLogs": {
        "enableLimit": true,
        "lastXDays": 7
    }
}
```

3. Edit the `config.json` file:
   `sudo vi /opt/cyops-ui/vendor/config.json`
4. Append the copied configuration block to `config.json`.

5. Modify the settings as needed:
   - To view *all* playbook executions, set:
     `"enableLimit": false`
   - To change the default number of days displayed, update the value of:
     `"lastXDays": <desired_number>`
6. Save the `config.json` file.
7. Reload the browser after the changes are saved.

Markdown Editor Customizations

After upgrading to release 7.6.5 or later, you can customize fields defined as 'Rich Text (Markdown Editor)' to improve performance and provide a faster, smoother editing experience.

Available customizations include:

- **Enabling Lazy Loading** - For detailed steps, see the *Enabling Lazy Loading* topic in the Optimizing FortiSOAR chapter of the "Best Practices Guide."
- **Configuring the Word Limit Feature**: For detailed steps, see the *Configuring the Word Limit Feature* topic in the Optimizing FortiSOAR chapter of the "Best Practices Guide."

Manage iFrame Settings

Prior to release 7.6.5, administrators could allow embedded content from internal or external sites by manually editing the `config.json` file (`sudo vi /opt/cyops-ui/vendor/config.json`) and setting the `sandbox` attribute to `false`. For more details, see the iFrame topic in the Working with Template Widgets chapter of the "User Guide."

When upgrading to release 7.6.5 or later, the existing sandbox property from `/opt/cyops-ui/vendor/config.json` is automatically migrated into the new **iFrame Settings** configuration.

Therefore, after upgrading to release 7.6.5 or later, iFrame content is not displayed unless explicitly allowed by administrator(setting `sandbox` attribute to `false`). Instead, the following message appears: `This domain is not added in the 'Allowed Domains list' and cannot be accessed. Please contact your administrator for further assistance.`

This change is due to new iFrame configuration controls introduced in release 7.6.5. Sandbox restrictions are enabled by default to enhance security, and all domains are blocked unless added to the Allowed Domains list. Administrators can adjust these settings as needed in the **iFrame Settings** section of the `Application Configuration` page. For details on how to change these settings, see the *iFrame Settings* topic in the Application Configuration section of the "Administration Guide."

Appendix A - FAQs

What is the FortiSOAR Upgrade Framework?

The "Upgrade Framework" is designed to improve the flexibility, usability, and efficiency of the FortiSOAR upgrade process. Its modular architecture allows users to easily integrate custom tasks at different stages of the upgrade, providing a more personalized and adaptable experience. This framework empowers users to tailor the upgrade process by plugging in specific tasks during any phase, ensuring that the upgrade meets their unique requirements.

The framework also offers greater control by allowing users to selectively execute individual phases or tasks independently. This feature is particularly useful for focused testing, validation, and troubleshooting, as users can complete specific tasks without running the entire upgrade cycle. Additionally, the framework validates the feasibility of the upgrade before proceeding, ensuring that potential issues are identified early in the process. This reduces the risk of errors and enhances the overall reliability of the upgrade.

Furthermore, the Upgrade Framework supports the customization of both pre- and post-upgrade tasks, giving users the flexibility to tailor the upgrade process to their specific needs. It also enhances resilience by separating post-upgrade activities, such as database migrations and other services, from the upgrade process. This separation ensures that the code base for all packages is upgraded first, followed by the necessary post-upgrade tasks, which streamlines the overall process.

Why upgrade requires twice the current workflow storage capacity?

Applicable for upgrades from FortiSOAR release 7.6.0 or earlier to 7.6.1 or later.

The upgrade requires additional storage because, during the post-upgrade process, existing playbook execution logs are moved to historical storage. This movement temporarily doubles storage usage; however, it optimizes workflow log management, reduces active storage consumption, improves performance, and enhances playbook efficiency.

What is the check-readiness command?

The `check-readiness` argument runs various checks including checking if there is sufficient space available for the upgrade. If there is insufficient space in any directory during the space check, appropriate messages will be added to the check-readiness report. The report will contain information on the recommended space, currently available space, and the additional space required to meet the recommendation. The check-readiness report is

generated at '`/opt/fsr-elevate/elevate/outputs/`' and will include explanatory messages for any failures. A sample of a check-readiness report is present in the Example of a check-readiness report appendix.

Appendix B - Details of 'csadmin upgrade' command

The 'upgrade' subcommand was added to the `csadm` utility in release 7.5.0. It is not available in releases prior to 7.5.0. This command can only be used to upgrade from release 7.5.0 to a later release, such as 7.6.0 or higher. For releases prior to 7.5.0, use the upgrade script to upgrade your FortiSOAR system.

Starting with release 7.6.5, the csadmin user's sudo privileges are restricted to only the commands required to work with FortiSOAR, instead of providing full 'root' access. This enhancement aligns with the principle of least privilege and reduces exposure to sensitive system files. Therefore, commands such as `yum`, `systemctl`, `csadm`, etc, must be prefixed with `sudo`, for example, `sudo csadm --help`.
To open or edit a file, use the command: `sudo vi <full path of file>`.
For example, `sudo vi /opt/cyops-auth/utilities/das.ini`.

Arguments available for the 'sudo csadm upgrade' subcommand

- `check-readiness --target-version [TARGET_VERSION]`: This option checks if your FortiSOAR system is prepared for an upgrade to the release specified in the 'target-version' argument, including checking if there is sufficient space available for the upgrade.
  This option executes the pre-upgrade phase and saves a report with the results in JSON format at `/opt/fsr-elevate/elevate/outputs/`, and will include explanatory messages for any failures. All pre-upgrade validations are performed during the 'pre-upgrade' phase. A sample of a check-readiness report is present in the Example of a check-readiness report appendix.
  The format of the JSON file is:

  ```
  {
         <short description of task>:
     {
        "result":<boolean value>,
         "msg":<string value>
     }
  }
  ```

  After addressing any validation failures to ensure system readiness for the upgrade, rerun the `sudo csadm upgrade check-readiness` command to confirm that the system is prepared for the upgrade.
  Note: You must run the `sudo csadm upgrade check-readiness` command prior to upgrading FortiSOAR to ensure a successful upgrade. . For details, see the Upgrading an Enterprise Instance chapter.
- `execute-task --target-version [TARGET_VERSION] --phase [PHASE] --task-name [TASK_NAME]`: This option allows you to run a specific task during a particular phase of the upgrade process. The possible options for the 'phase' argument are `pre-upgrade`, `post-upgrade`.
  For instance, to execute a task file named '01_initialize' in the pre-upgrade phase, use the command: `sudo csadm upgrade execute-task --target-version 7.6.0 --phase pre-upgrade --task-name 01_initialize`
  This option is useful for testing custom task files or modifications in existing task files.

Note the following important points

- Tasks from the 'pre-upgrade' phase can only be executed when the target version is higher than the current version.
- Tasks from the 'post-upgrade' phase can be executed when the target version is higher than or equal to the current version.
- Tasks from the 'upgrade' phase cannot be executed using this command.

Note: After running the check-readiness command to assess their readiness for upgrading to version 7.6.0 or later, users on release 7.5.0 will also see the execute-task argument. However, users on 7.5.0 cannot use the csadm upgrade command with this argument. To utilize this argument, run the following command using "python3":
`sudo /opt/fsr-elevate/elevate/.env/bin/python3 /opt/fsr-elevate/elevate/main.py execute-task[--target-version TARGET_VERSION] [--phase PHASE] [--task-name TASK_NAME]`
For example, to run a task file named '01_remove_security_patch_versions' in the post-upgrade phase, use the following command:
`sudo /opt/fsr-elevate/elevate/.env/bin/python3 /opt/fsr-elevate/elevate/main.py execute-task --target-version 7.6.0 --phase post-upgrade --task-name 01_remove_security_patch_versions`

- `execute-phase --target-version [TARGET_VERSION] --phase [PHASE]`: This option executes the specified phase in the upgrade process of the given version. The possible options for the 'phase' argument are `pre-upgrade`, `post-upgrade`.
  For example, `sudo csadm upgrade execute-phase --target-version 7.6.5 --phase pre-upgrade` executes the pre-upgrade phase of upgrading your FortiSOAR instance to release 7.6.5. This assists in anticipating problems and taking proactive measures to fix them before moving forward with the full upgrade.
  The 'post-upgrade' phase can be executed after upgrading the FortiSOAR instance to the target version. This phase will not be executed if the target version is not the same as the current version. For example, if your FortiSOAR instance is on version 7.6.5, then you can run post-upgrade for version 7.6.5 using the command `sudo csadm upgrade execute-phase --target-version 7.6.5 --phase post-upgrade`. However, if you are on lower version than 7.6.5 such as 7.5.0, 7.5.1, 7.6.0, 7.6.1, and so on, and you try to run post-upgrade phase for target-version 7.6.5 , it will fail with a message such as the command `sudo csadm upgrade execute-phase --target-version 7.6.5 --phase post-upgrade` will fail with a message such as `"The post-upgrade phase can only be executed for the 7.6.5 version after upgrading FortiSOAR to the 7.6.5 version. The current version is 7.6.1, and the post-upgrade phase can be executed for the current version."`
  Additionally, if the `execute-phase` or `execute` options encounter a failure while executing a specific task, the subsequent execution of the same phase starts with the tasks that failed. Tasks that completed successfully prior to the failure are not executed again.
- `execute --target-version [TARGET_VERSION] [--download-packages] [--local-download-directory [LOCAL_DOWNLOAD_DIRECTORY]]`: This option downloads packages that are required during the upgrade of your FortiSOAR instance to the specified release on your system.
  Use the `sudo csadm upgrade execute --target-version 7.6.5 --download-packages` command to download upgrade packages required to upgrade your system to 7.6.5 to the default `/opt/cyops/packages` directory. Additionally, you can use the `--local-download-directory` argument to specify the absolute path in the local directory where the upgrade packages should be downloaded.
  Use the `sudo csadm upgrade execute --target-version [TARGET_VERSION]` command to upgrade your system. For example, to upgrade FortiSOAR from release 7.6.0 to release 7.6.5 after downloading the upgrade packages locally, run the `sudo csadm upgrade execute --target-version 7.6.5` command.
  NOTE: When you execute the command `sudo csadm upgrade execute --target-version <TARGET_VERSION>`, a log file named '`upgrade-fortisoar-<target_version><timestamp>.log`' is created in the `/var/log/cyops` folder. For example, running the command `sudo csadm upgrade execute --target-`

`version 7.6.5` will generate the `upgrade-fortisoar-7.6.5-2024-05-22-1708597271.log` file in the `var/log/cyops` folder.
This log file contains the complete CLI output, allowing you to review all the steps of the FortiSOAR upgrade process and can also be viewed during a '`tmux`' session. You can also use '`sudo tail -f`' to monitor the update from a different system.
If a failure occurs during the upgrade process, the upgrade process is terminated, and errors are logged in '`upgrade-fortisoar-<target_version><timestamp>.log` file. Resolving these errors and executing the upgrade command again resumes the process from the point of failure.

- `create-task --phase [PHASE] --task-name [TASK_NAME] --cls-name [CLS_NAME]`: This option adds a new task file to the specified upgrade phase based on the task name and class name you have specified.
- `create-shell-script --phase [PHASE] --shell-script-name [SHELL_SCRIPT_NAME]`: This option adds a new shell script file to the specified upgrade phase based on the shell script name you have specified.

Appendix C - Example of a check-readiness report


```
{
    "metadata": {
        "Current FortiSOAR version": "7.6.2",
        "File creation time": "24/06/2025, 06:40:03",
        "File modification time": "24/06/2025, 07:05:26"
    },
    "Verify Operating System Compatibility": {
        "result": true,
        "message": "The current operating system is Rocky Linux, which is supported for upgrade."
    },
    "Verify Yum Repo Connection": {
        "result": true,
        "message": "Connection to 'https://repo.fortisoar.fortinet.com' repo is successful"
    },
    "Verify Instance Type Compatibility": {
        "result": true,
        "message": "Current instance is of type 'enterprise'."
    },
    "Check '/' Directory Free Space": {
        "result": true,
        "message": "Required free space is available in '/'."
    },
    "Check '/boot' Directory Free Space": {
        "result": true,
        "message": "Required free space is available in '/boot'."
    },
    "Check '/var/log' Directory Free Space": {
        "result": true,
        "message": "Required free space is available in '/var/log'."
    },
    "Check '/opt' Directory Free Space": {
        "result": true,
        "message": "Required free space is available in '/opt'."
    },
    "Check '/var/tmp' Directory Free Space": {
        "result": true,
        "message": "Required free space is available in '/var/tmp'."
    },
    "Verify Cyops RPM Installation": {
        "result": true,
        "message": "'cyops' rpm is installed on this instance."
    },
    "Verify Publish Status Of All Modules": {
        "result": true,
```

```
        "message": "All modules in current system are in published state"
    },
    "Verify presence of cluster": {
        "result": true,
        "message": "No other cluster nodes found."
    },
    "Install Cyops Repo Update": {
        "result": true,
        "message": "Successfully installed /opt/fsr-elevate/elevate/cyops-repo-update-
7.6.5.el9.x86_64.rpm."
    }
}
```


The '`metadata`' key in the check-readiness report contains the following data:

- The "`Current FortiSOAR version`" key contains the version of FortiSOAR on which the report is generated
- The "`File creation time`" key contains the date and time when the report was generated.
- The "`File modification time`" key contains the date and time when the report was modified upon rerunning the `sudo csadm upgrade check-readiness` command. It will be empty when the report is first generated.

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