



# Cisco Crosswork Network Controller 6.0.4

## Release Notes

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The Cisco Crosswork Network Controller 6.0.4 release includes minor enhancements and important bug fixes. This document describes what’s new, the resolved bugs, and how to install the patch.

If you have additional questions not addressed in this document, contact Cisco Customer Experience.

### What's new in this release

This table lists the primary new features and functionality introduced in Crosswork Network Controller 6.0.4:

*Table 1: New features in Crosswork Network Controller 6.0.4*

Category	What's new
Support for SR-TE path validation through Optimization Engine integration	Two new plays are available to automate the verification of SR-TE paths against the network's Label Switch Path (LSP). By using these plays together, you can ensure that the paths meet optimal performance and reliability standards. <ul style="list-style-type: none"><li>• <b>Get Head-End TE-Router-ID play:</b> Retrieves the head-end TE-Router-ID of the SR-TE path, enabling precise path identification and validation.</li><li>• <b>Request SR Policy from Optimization Engine play:</b> Collects the SR policy hop details using Optimization Engine API. This play verifies the SR-TE hop list against the network model's specific criteria, such as bandwidth availability, minimal delay, and efficient resource utilization.</li></ul>
Third-party device support	Support of configured IP addresses on interfaces for generic third-party devices. This feature allows Element Management Functions to collect and populate IP addresses for interfaces into its database, improving device management and network visibility.
Device support	Support added for IOS-XR Device (Cisco NCS 55A1-24Q6H-SS).

### Resolved bugs

- The Crosswork Network Controller 6.0.4 patch resolved bugs:
- [Table 2: Platform Infrastructure](#)
  - [Table 3: Data Gateway](#)
  - [Table 4: Element Management Functions](#)
  - [Table 5: Optimization Engine](#)

- [Table 6: Active Topology](#)
- [Table 7: Service Health](#)
- [Table 8: Topology](#)

See the [Find additional bug details](#) section on how to use the [Cisco Bug Search Tool](#) to find more information on these bugs.

**Table 2: Platform Infrastructure**

Bug ID	Bug description
<a href="#">CSCwk74493</a>	After failover, the external Kafka certificate update does not get distributed to Data Gateway
<a href="#">CSCwk88190</a>	After scrolling down on a collection job, if the list of tasks is more than 100, the Tasks (RHS) information is cut off
<a href="#">CSCwn15848</a>	Crosswork Network Services Orchestrator function pack deployer fails with sshd_config MaxSessions=1 on Crosswork Network Services Orchestrator server
<a href="#">CSCwn20844</a>	A Tyk restart issue occurs during the certificate upload
<a href="#">CSCwn48318</a>	Failure to update external Kafka mutual authentication certificates
<a href="#">CSCwn88424</a>	The standby GEO cluster returns status 100 for GET request on port 30652

**Table 3: Data Gateway**

Bug ID	Bug description
<a href="#">CSCwn98076</a>	Messages from ICON, indicating size is more than 1MB, are not being published to Kafka

**Table 4: Element Management Functions**

Bug ID	Bug description
<a href="#">CSCwn04728</a>	Collect Product ID for 3rd party generic devices
<a href="#">CSCwn19505</a>	Crosswork Network Controller does not expose the bundle MAC address
<a href="#">CSCwn61457</a>	Identified a delay in LAG discovery between Crosswork Network Controller and TP API correlation
<a href="#">CSCwn63879</a>	Inconsistency identified in TPs API call response and Crosswork Network Controller UI
<a href="#">CSCwn77303</a>	Small Form-factor Pluggables (SFPs) are not appearing for the ASR9K

**Table 5: Optimization Engine**

Bug ID	Bug description
<a href="#">CSCwj51681</a>	The Traffic Engineering (TE) dashboard is unable to recover, post recovery, from a hybrid node being powered-down
<a href="#">CSCwm84132</a>	Optima-engine and optima-ui service are showing as healthy even though they were not working as expected

**Table 6: Active Topology**

Bug ID	Bug description
<a href="#">CSCwk44191</a>	Service visualization failure for L2vpn/L3vpn and when selecting to view detail
<a href="#">CSCwm13217</a>	Error: cat-service-overlay degraded with NATS connection error
<a href="#">CSCwn76895</a>	The Active Topology function pack is not working properly when service YANG has enumerations with space characters

**Table 7: Service Health**

Bug ID	Bug description
<a href="#">CSCwn64309</a>	Heuristic package customization with Nokia GNMI Sensor returns <b>Unsupported Type</b>
<a href="#">CSCwn87025</a>	Heuristic package customization requires logging support for Python plugin
<a href="#">CSCwo11807</a>	Pipeline issue identified with parsing logic of the 'json-ietf' fields within Nokia device feeds

**Table 8: Topology**

Bug ID	Bug description
<a href="#">CSCwn45448</a>	Topo-SVC is sending repeated OP_DELETE_ALL after a topology rebuild
<a href="#">CSCwn98069</a>	Duplicate L2 LAG links found in the Crosswork Network Controller UI

## Find additional bug details

You can use the Cisco Bug Search Tool to see additional details for selected bug IDs listed in the Cisco Crosswork Network Controller 6.0.4 component tables.

1. Go to the [Cisco Bug Search Tool](#).
2. Enter your registered Cisco.com username and password, and click **Log In**.

The Bug Search page opens.



**Note** If you do not have a Cisco.com username and password, you can [register here](#).

3. From the **Product** list, select **Cloud and Systems Management > Routing and Switching Management > Cisco Crosswork Network Automation**.
4. Enter **6.0.4** in the **Release** field.
5. (Optional) You can enter additional criteria (such as bug ID, problem description, a feature, or a product name) in the **Search For** field.
6. Click **Search**. When the search results are displayed, use the filter tools to narrow the results. You can filter the bugs by status, severity, and so on.



**Note** To export the results to a spreadsheet, click **Export Results to Excel**.

## Patch installation workflow

This section provides the high-level workflow for installing the Crosswork Network Controller 6.0.4 patch.

You can upgrade to Crosswork Network Controller version 6.0.4 from either version [6.0.0](#) or version [6.0.3](#). Differences between these upgrades are mentioned in this table.



**Note** If your Crosswork Network Controller version is 6.0.1 or 6.0.2, you must upgrade to version [6.0.3](#) before installing the 6.0.4 patch files.

**Table 9: Patch installation workflow**

Step	Action
1. Compare the versions of your current Crosswork applications with the new patch versions to determine which applications need an upgrade. Download only the upgrades for the versions you need.	See <a href="#">Download Cisco Crosswork Network Controller 6.0.4 component patch files</a> for more information.
2. Ensure that your environment meets all the installation prerequisites.	Refer to the guidelines in <a href="#">Patch installation prerequisites</a> .
3. Install Cisco NSO version 6.1.14 on your machine. <b>Note</b> This step is applicable only if you are upgrading from Crosswork Network Controller version 6.0.	Refer to the <a href="#">Cisco NSO 6.1.x documentation</a> for installation instructions.

Step	Action
4. Extract and validate the Crosswork Network Controller 6.0.4 patch files.	Refer to the guidelines in <a href="#">Extract and validate 6.0.4 patch files</a> .
5. Copy and execute the Crosswork Infrastructure MOP script.	Refer to the guidelines in <a href="#">Copy and execute the Crosswork Infrastructure MOP</a> .
6. Add and install the 6.0.4 patch files in the Crosswork Network Controller UI.	Refer to the guidelines in <a href="#">Add and install 6.0.4 patch files</a> .
(Optional) 7. Add and install the Geo Redundancy patch.  <b>Note</b> The installation of this patch is only required if geo redundancy is in use. If you are not using geo redundancy, there is no need to install this patch.	Refer to the guidelines in <a href="#">Install Geo Redundancy 6.0.4 patch</a> .
8. Install the Cisco NSO function packs.	Refer to the guidelines in <a href="#">Install the Cisco NSO function packs</a> .
9. Verify and update the Crosswork Data Gateway container image.	Refer to the guidelines in <a href="#">Verify and update the Crosswork Data Gateway container image</a> .

**Caution**

The upgrade process is disruptive and should be performed during a maintenance window. The time required for the applications to restart is typically less than 30 minutes per application. If you encounter any error while installing the patch, contact the Cisco Customer Experience team before attempting to move forward with the next step.

## Download Cisco Crosswork Network Controller 6.0.4 component patch files

This section provides the overview and installation sequence of all the component patch files released in the Crosswork Network Controller 6.0.4 release. Note that some patch files may be optional for your specific needs.

Please review the list and download all the required patch files from the Cisco Software Download page to a local machine.

1. (Mandatory) Crosswork Infrastructure MOP file: *signed-cw-na-infra-6.0.4-MOP-250221.tar.gz*
2. (Mandatory) Crosswork Infrastructure patch: *signed-cw-na-infra-patch-6.0.4-11-release-250228.tar.gz*
3. (Mandatory) Crosswork Optimization Engine: *signed-cw-na-coe-patch-6.0.4-4-release-250129.tar.gz*
4. (Mandatory) Crosswork Active Topology: *signed-cw-na-cat-patch-6.0.4-4-release-250313.tar.gz*
5. (Mandatory) Element Management Functions:  
*signed-cw-na-element-management-functions-patch-6.0.4-25-releaseeems604-250312.tar.gz*
6. Crosswork Service Health: *signed-cw-na-aa-patch-6.0.4-8-release-250317.tar.gz*
7. Crosswork Change Automation: *signed-cw-na-ca-patch-6.0.4-5-release-250306.tar.gz*

8. Crosswork Health Insights: *signed-cw-na-hi-patch-6.0.4-2-release-250213.tar.gz*
9. Crosswork Zero Touch Provisioning: *signed-cw-na-ztp-patch-6.0.4-8-release-250214.tar.gz*
10. Geo Redundancy patch: *signed-cw-na-geo-patch-6.0.4-1-release-250130.tar.gz*

## Patch installation prerequisites

This section describes the installation prerequisites needed to install the Crosswork Network Controller 6.0.4 patch.

- Ensure the target system has Crosswork Network Controller version 6.0.0 or 6.0.3 installed. For more information, see the instructions in [Cisco Crosswork Network Controller 6.0 Installation Guide](#).
- Ensure that you have your Cisco Crosswork Administrator user credentials.
- Ensure that you have the Management IP address (either a physical IP address or the Virtual IP address) used for your Crosswork VM deployment.
- Ensure that a version of the component (version 6.0.0 or 6.0.3) is installed on the target system before applying the patch upgrade.
- Ensure that your SCP server, where the patch files are downloaded, is accessible via `scp` by the Crosswork Network Controller.
- In a geo redundant setup, ensure that all relevant files, such as the Crosswork cluster, application CAPPs, and data gateways, are installed on both the active and standby clusters. Perform an on-demand synchronization operation before starting the patch installation process.
- Take a backup of both your data and the NSO data. Additionally, ensure that the server being patched has sufficient space to unarchive and copy the MOP scripts. Please make sure to clean up at least 5GB of space in the `/home/cw-admin/` directory and 1GB of space in the `/tmp/` directory to prevent any space constraints during script execution.



### Caution

The upgrade process is disruptive and should be performed during a maintenance window. The time required for the applications to restart is typically less than 30 minutes per application. If you encounter any error while installing the patch, contact the Cisco Customer Experience team before attempting to move forward with the next step.

## Extract and validate 6.0.4 patch files

This section explains how to extract and validate the downloaded 6.0.4 patch files. Repeat these steps for each 6.0.4 patch file you plan to install.



### Attention

It is crucial that you extract the `.tar.gz` file from the signed file. You must add and install this specific file through the Crosswork Network Controller UI.

## Procedure

- Step 1** After downloading the patch file, navigate to the folder where the tar file was downloaded. As an example, consider the Crosswork Infrastructure signed patch image (*signed-cw-na-infra-patch-6.0.4-11-release-250228.tar.gz*) for this procedure.

```
cd <folder where the tar file was downloaded>
```

- Step 2** Extract the file using this command.

```
tar -xzf <signed image file>
```

The file unpacks into the patch and the necessary tools to validate its contents.

Example:

```
tar -xzf signed-cw-na-infra-patch-6.0.4-11-release-250228.tar.gz
```

Output:

```
README
cw-na-infra-patch-6.0.4-11-release-250228.tar.gz
cw-na-infra-patch-6.0.4-11-release-250228.tar.gz.signature
CW-CCO_RELEASE.cer
cisco_x509_verify_release.py3
```

- Step 3** Validate the extracted patch file using this command.

```
python3 cisco_x509_verify_release.py3 -e <.cer file> -i <.tar.gz file> -s <.tar.gz.signature
file> -v dgst -sha512
```

### Important

You must include this command as a single line, and the tool will wrap it according to the screen width.

Example:

```
python3 cisco_x509_verify_release.py3 -e CW-CCO_RELEASE.cer -i
cw-na-infra-patch-6.0.4-11-release-250228.tar.gz -s
cw-na-infra-patch-6.0.4-11-release-250228.tar.gz.signature -v dgst -sha512
```

Output:

```
Retrieving CA certificate from http://www.cisco.com/security/pki/certs/crcam2.cer ...
Successfully retrieved and verified crcam2.cer.
Retrieving SubCA certificate from http://www.cisco.com/security/pki/certs/innespace.cer
...
Successfully retrieved and verified innespace.cer.
Successfully verified root, subca and end-entity certificate chain.
Successfully fetched a public key from CW-CCO_RELEASE.cer.
Successfully verified the signature of cw-na-infra-patch-6.0.4-11-release-250228.tar.gz
using CW-CCO_RELEASE.cer
```

## Copy and execute the Crosswork Infrastructure MOP

This section explains how to copy and execute the Crosswork Infrastructure 6.0.4 MOP file.

**Before you begin**

Ensure you have extracted and validated the Crosswork Infrastructure MOP, *cw-na-infra-6.0.4-MOP-250221.tar.gz*, using the instructions in [Extract and validate 6.0.4 patch files](#).

**Procedure**

- Step 1** Copy the extracted MOP file using the VIP address to the `/home/cw-admin/` folder on one of the Crosswork hybrid nodes.

```
scp {MOP file} cw-admin@{Crosswork VIP Address}:/home/cw-admin/
```

Example:

```
scp cw-na-infra-6.0.4-MOP-250221.tar.gz cw-admin@10.10.10.10:/home/cw-admin/
```

- Step 2** SSH into the Crosswork hybrid node where you copied the files, and change to root using `sudo su -` command.
- Step 3** Extract the MOP file:

Example:

```
cd /home/cw-admin
tar -xzf cw-na-infra-6.0.4-MOP-250221.tar.gz
```

Output:

```
signed-cw-na-k8s-orchestrator-6.0.4-7-release-250221.tar.gz
update_orch.sh
```

- Step 4** Update the permissions.
- ```
chmod 755 update_orch.sh
```

- Step 5** Run the script file.
- ```
./update_orch.sh
```

When you run the script you will be asked for the password for the **cw-admin** user account.

**Note**

Do not enter the password more than once even if you are prompted repeatedly to do so. The script will reuse the password that it read from the earlier input.

Wait 10 to 15 minutes for the update to complete and verify that system is healthy.

**Add and install 6.0.4 patch files**

This section explains how to add and install the 6.0.4 patch files in the Crosswork Network Controller UI.



**Important** A patch upgrade is only supported if the component's 6.0.x version is already installed on the target system.

### Before you begin

Ensure you have extracted and validated the required 6.0.4 patch files using the instructions in [Extract and validate 6.0.4 patch files](#).

### Procedure

- 
- Step 1** Click on **Administration > Crosswork Management**, and select the **Application Management** tab. The Crosswork Platform Infrastructure and any applications that are added are displayed here as tiles.
- Step 2** Click on the **Add File (.tar.gz)** option to add the patch file that you extracted. As an example, consider the Crosswork Infrastructure patch file, *cw-na-infra-patch-6.0.4-11-release-250228.tar.gz* for this procedure.
- Attention**  
It is crucial that you extract the .tar.gz file from the signed file. You must add and install this specific file through the Crosswork Network Controller UI.
- The **Add File (tar.gz) via Secure Copy** popup window is displayed.
- Step 3** Enter the relevant information and click **Add**.
- Step 4** Once the patch file is added, you can observe the existing application tile displaying an upgrade prompt. Click the upgrade prompt to install the patch file.
- In the **Upgrade** pop-up screen, select the new version that you want to upgrade to, and click **Upgrade**. Click on **Job History** to see the progress of the upgrade operation.
- Step 5** After the installation is complete, go to **Administration > Crosswork Manager** and confirm all of the applications are reporting a Healthy status.
- Note**  
It is expected that some processes will be reported as unhealthy or degraded as the upgrade is deployed (an updated status may take up to 30 minutes before reporting). If, after 30 minutes, the status does not change to Healthy, contact your Cisco Customer Experience representative. It is recommended to wait until the system is back to Healthy status before proceeding to install the next patch file.
- Step 6** Repeat steps 1 to 5 to add and install the remaining Crosswork Network Controller application patch files that you need.
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## Install Geo Redundancy 6.0.4 patch

This section explains how to add and install the 6.0.4 geo redundancy patch files in the Crosswork Network Controller UI. The geo redundancy patch must be installed on both the active and standby clusters.



### Important

The installation of this patch is only required if geo redundancy is in use. If you are not using geo redundancy, there is no need to install this patch.

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**Before you begin**

Ensure you have extracted and validated the geo redundancy 6.0.4 patch, *signed-cw-na-geo-patch-6.0.4-1-release-250130.tar.gz*, using the instructions in [Extract and validate 6.0.4 patch files](#).

**Procedure**

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- Step 1** On the active cluster, click on **Administration > Crosswork Management**, and select the **Application Management** tab.
- Step 2** Click on the **Add File (.tar.gz)** option to add the patch file. The **Add File (tar.gz) via Secure Copy** popup window is displayed.
- Attention**  
It is crucial that you extract the .tar.gz file from the signed file. You must add and install this specific file through the Crosswork Network Controller UI.
- Step 3** Enter the relevant information and click **Add**.
- Step 4** Once the patch file is added, you can observe the existing application tile displaying an upgrade prompt. Click the upgrade prompt to install the patch file.
- In the **Upgrade** pop-up screen, select the new version that you want to upgrade to, and click **Upgrade**. Click on **Job History** to see the progress of the upgrade operation.
- Step 5** After the installation is complete, go to **Administration > Crosswork Manager** and confirm all of the applications are reporting a Healthy status.
- Step 6** Log in to the standby cluster and repeat steps 1 to 5.
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**Install the Cisco NSO function packs**

As the final step of the patch installation workflow, you must install or upgrade the Cisco NSO function packs to ensure compatibility with the Crosswork Network Controller 6.0.4 patches.



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- Attention** These NSO function packs have been updated for the 6.0.4 patch release:
- [Cisco NSO Transport SDN Function Pack Bundle 6.0.4 Installation Guide](#)
  - [Cisco Network Services Orchestrator DLM Service Pack 6.0.4 Installation Guide](#)

For the remaining NSO function packs, you must use their 6.0.3 versions.

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- Caution** If Cisco NSO function packs were already installed on Crosswork Network Controller version 6.0, they must be upgraded manually.
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## Procedure

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- Step 1** **Fresh Installation:** If Cisco NSO function packs are not already installed on Crosswork Network Controller version 6.0, please download the 6.0.4 versions of the function packs from [Cisco Software Download](#), and install them from the Crosswork Network Controller UI. For more information, refer to [Install Cisco NSO Function Pack Bundles from Crosswork UI](#).
- Step 2** **Existing Installation:** If Cisco NSO function packs were already installed on Crosswork Network Controller version 6.0, they must be upgraded manually.
- **If you are upgrading from Crosswork Network Controller version 6.0:** Update the NSO function packs manually using the instructions in these guides:
    - [Cisco NSO Transport SDN Function Pack Bundle 6.0.4 Installation Guide](#)
    - [Cisco Crosswork Change Automation NSO Function Pack 6.0.3 Installation Guide](#)
    - [Cisco Network Services Orchestrator DLM Service Pack 6.0.4 Installation Guide](#)
    - [Cisco Crosswork NSO Telemetry Traffic Collector Function Pack 6.0.3 Installation Guide](#)
  - **Upgrading from Crosswork Network Controller version 6.0.3:** Update the DLM Service Pack manually using the instructions in [Cisco Network Services Orchestrator DLM Service Pack 6.0.4 Installation Guide](#).
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## Verify and update the Crosswork Data Gateway container image

To ensure the successful application of the patch, verify and update the container image versions.

## Procedure

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- Step 1** Verify the Crosswork Data Gateway container image versions: Confirm the image version to ensure that the patch has been applied successfully. To do this, follow the instructions for checking image tags using the interactive menu. For more information, see [View Crosswork Data Gateway Vitals](#).
- If the image versions displayed are still the old version, it indicates that the patch was not applied correctly.
- Step 2** Resolve the image version issue: If the image versions are old, the next step is to add the gateway IP to the Data Gateway's data interface. For more information, see [Configure Interface Address](#).
- Step 3** Recheck the image versions: After adding the gateway IP, return to Step 1 to verify the image versions again. The image tags should now reflect the updated version, and the Crosswork Data Gateway should transition to the operational 'UP' state.
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