Software Upgrade Workflow

Table 1: Feature History

Feature Name	Release Information	Description
Software Upgrade Workflow	Cisco IOS XE Catalyst SD-WAN Release 17.8.1a Cisco vManage Release 20.8.1 Cisco SD-WAN Release 20.8.1	This feature introduces a guided workflow through which you can upgrade the software image on your Cisco IOS XE Catalyst SD-WAN devices and Cisco vEdge devices and monitor the status of the software upgrade. With this workflow, you can choose to download, install, and activate the new software image in discrete steps or in a single step.
Schedule the Software Upgrade Workflow	Cisco IOS XE Catalyst SD-WAN Release 17.9.1a Cisco vManage Release 20.9.1 Cisco SD-WAN Release 20.9.1	This feature introduces an option to schedule software upgrades for edge devices using Cisco SD-WAN Manager.
Software Upgrade Workflow Support for Additional Platforms	Cisco vManage Release 20.9.1	Added support for Cisco Enterprise NFV Infrastructure Software (NFVIS) and Cisco Catalyst Cellular Gateways.
Software Upgrade Scheduling Support for Additional Platforms	Cisco vManage Release 20.10.1	Added support for software upgrade scheduling for Cisco Catalyst Cellular Gateways.

Feature Name	Release Information	Description
Device Software Upgrade Workflow Enhancements	Cisco Catalyst SD-WAN Manager Release 20.18.1	The new workflow for device software upgrade includes the following key enhancemnets: • Uploading software image from local drive. • Filtering devices for software upgrade using device tags and network hierarchy. • Scheduling a software upgrade based on a device's local time zone.

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Information About Software Upgrade Workflow

Using this workflow, you can download and upgrade software images on the various supported Cisco devices with an option to schedule the upgrade process at your convenience. The workflow also shows the status of the software upgrade. This workflow provides you with two options to perform the software upgrade and they are: **Download and Upgrade** and **Dowload Only**.

Benefits of Software Upgrade Workflow

- The software upgrade workflow helps you prevent various device software upgrade failures by displaying device upgrade status. For example, if the upgrade process fails at any particular stage, the workflow flags it as **failed**.
- With this workflow, you can choose to download, install, and activate the new software image in discrete steps or in a single step. You can schedule the workflow at your convenience as well.

Information About Device Software Upgrade Workflow in Cisco Catalyst SD-WAN Manager Release 20.18.1 or Later

From Cisco Catalyst SD-WAN Manager Release 20.18.1, the Software Upgrade Workflow is renamed to Device Software Upgrade Workflow. The new workflow is easy to manage and reduces the chances of upgrade failure.

This workflow includes the following enhancement in device software upgrade:

- Uploading software image from your local drive.
- Adding the platform details for each software image. It ensures you do not upload an incompatible software image for upgrade.

Note Starting Cisco Catalyst SD-WAN Manager Release 20.18.1, you cannot choose different software images for each device platform class. You can only choose one software image version that is compatible with all device platforms.

- Filtering devices for software upgrade using network hierarchies, device tags and software version.
- Scheduling the software upgrade in the device's local time zone.
- Additional preupgrade and postupgrade checks to reduce the chances of upgrade failures.

Supported Devices for the Software Upgrade Workflow

Devices	Minimum Supported Releases	Comments
Cisco IOS XE Catalyst SD-WAN devices	Cisco SD-WAN Manager: Cisco vManage Release 20.8.1 Devices: Cisco IOS XE Catalyst SD-WAN Release 17.8.1a	Scheduled software upgrade supported from: Cisco IOS XE Catalyst SD-WAN Release 17.9.1a
Cisco vEdge devices	Cisco SD-WAN Manager: Cisco vManage Release 20.8.1 Devices: Cisco SD-WAN Release 20.8.1	Scheduled Software Upgrade feature supported from: Cisco SD-WAN Release 20.9.1
Cisco Catalyst 8200 uCPE Series Edge Platforms	Cisco SD-WAN Manager: Cisco vManage Release 20.9.1 Devices: Cisco IOS XE Catalyst SD-WAN Release 17.9.1a	None

Devices	Minimum Supported Releases	Comments
Cisco 5400 Series Enterprise Network Compute System (ENCS)	Cisco SD-WAN Manager: Cisco vManage Release 20.9.1 Devices: Cisco IOS XE Catalyst SD-WAN Release 17.9.1a	None
Cisco Catalyst Cellular Gateways	Cisco SD-WAN Manager: Cisco vManage Release 20.9.1 Devices: Cisco IOS CG Release 17.9.1	Scheduled software upgrade supported from: Cisco vManage Release 20.10.1 and Cisco IOS CG Release 17.9.1

Prerequisites for Using the Software Upgrade Workflow

- Ensure that the Cisco devices are running the required software versions for using the software upgrade workflow feature. For the respective device requirements, see Supported Devices for the Software Upgrade Workflow, on page 3.
- From Cisco Catalyst SD-WAN Control Components Release 20.18.1, if you want to filter devices for software upgrade using tags, ensure that you have already assigned tags to the devices. For more information about device tagging, see Device Tagging.
- You cannot use a software image from a remote repository directly in the workflow. Navigate to **Maintenance** > **Software Repository** and edit the software image to add the version and platform information.

Restrictions for software upgrade

TLOC extension configuration

If a device

- is using Cisco IOS XE Catalyst SD-WAN Release 17.9.x or earlier, and
- the device has a tunnel interface configuration includes a TLOC extension,

then you cannot upgrade to one of these:

- 17.12.1 through 17.12.4
- 17.15.1 through 17.15.2

Attempting such an upgrade causes the device to crash and enter a rollback state.

If you have a TLOC extension configured and need to perform such an upgrade, remove the TLOC extension configuration from the tunnel interface configuration before upgrading.

This issue was fixed and does not apply for upgrades to one of these releases:

- 17.12.5 and later releases of 17.12.x

- 17.15.3 and later releases of 17.15.x
- 17.18.1a and later

Access the Software Upgrade Workflow

Before You Begin

To check if there is an in-progress software upgrade workflow:

From the Cisco SD-WAN Manager toolbar, click the **Task-list** icon. Cisco SD-WAN Manager displays a list of all running tasks along with the total number of successes and failures.

Access the Software Upgrade Workflow

1. In the Cisco SD-WAN Manager menu, click **Workflows** > **Workflow Library**.

Note In the Cisco vManage Release 20.8.1, the **Workflow Library** is titled **Launch Workflows**.

2. Start a new software upgrade workflow: **Library** > **Software Upgrade**.

   OR

   Alternatively, resume an in-progress software upgrade workflow: **In-progress** > **Software Upgrade**.

3. Follow the on-screen instructions to start a new software upgrade workflow.

Note Click **Exit** to exit from an in-progress software upgrade workflow. You can resume the in-progress workflow at your convenience.

Note In a multi-node cluster setup, if the control connection switches to a different node during a device upgrade from Cisco SD-WAN Manager, the upgrade may be impacted due to NetConf session timeout. The device then establishes control connection to a different node. You need to re-trigger the upgrade activity.

Verify the Status of the Software Upgrade Workflow

To check the software upgrade workflow status:

1. From the Cisco SD-WAN Manager toolbar, click the **Task-list** icon.

   Cisco SD-WAN Manager displays a list of all running tasks along with the total number of successes and failures.

2. Click the + icon to view the details of a task.

   Cisco SD-WAN Manager opens a pane displaying the status of the task and details of the device on which the task was performed.

Device Software Upgrade Workflow in Cisco Catalyst SD-WAN Manager Release 20.18.1 and Later

Before you begin

To filter devices for upgrade using tags, ensure the devices that you want to choose have tags. For more information, see Prerequisites for Using the Software Upgrade Workflow.

Procedure

Step 1 In the Cisco SD-WAN Manager menu, click **Workflows** > **Workflow Library**.

Step 2 Start a new software upgrade workflow: **Workflow Library** > **Device Software Upgrade**.

Step 3 Choose the devices using the network hierarchy panel.

Alternatively, use the filters **Search**, **Device tags**, and **Software version** options or a combination of these filters to search and choose devices.

Note
In the workflow, you can choose a specific software image version from a dropdown to upgrade devices. Before choosing the software image version, you must select the devices for upgrade. Software image versions only show up in the dropdown if all choosen devices in the workflow have the necessary images available in a local or remote repository. If the supported software image version is not available in the repository for one or more devices, then you cannot choose that software image version from the dropdown.

Note
In the upgrade workflow, do not choose different types of devices together. Specifically, avoid the combination of the following devices: Cisco IOS XE Catalyst SD-WAN devices together, Cisco Enterprise NFVIS (Cisco Enterprise Network Function Virtualization Infrastructure Software) devices, or Cisco Catalyst Cellular Gateway devices.

Step 4 Choose one for the following upgrade type:

a. **Upgrade**: To install and activate the software image.

b. **Patch**: To apply patch fixes on the existing software.

Step 5 Choose one of the following options to add a software image:

- **+ Add New Image** to upload an image from local drive.
- **+ Add New Remote Server** to add a remote server for upgrade and then add a software image.

  Note
  For adding software images from a remote server, provide the version and platform for the images.

Step 6 Follow the on-screen instructions to complete the software upgrade workflow.

Note

Click **Exit** to exit from an in-progress software upgrade workflow. You can resume the in-progress workflow at your convenience.

Note
For an error during device software upgrade, see Error message during software upgrade or setting default software version.

What to do next

To view the list of successful upgrades on the devices. Click the **Task log** in the task bar.

Schedule Software Upgrade Workflow

Introduced in Cisco vManage Release 20.9.1, the scheduler in the software upgrade workflow enables you to schedule workflows at your convenience and avoid any downtime due to the software upgrade process. A scheduler enables you to schedule the upgrade workflow either **Now** or **Later**. If you choose to schedule an upgrade for a later time, you can enter the **Start Date**, **Start time**, and **Select Timezone**.

Schedule Software Upgrade Workflow

Use the following steps to schedule a software upgrade workflow:

1. In the Cisco SD-WAN Manager menu, click **Workflows** > **Workflow Library**

   OR

   Starting from Cisco vManage Release 20.9.1, click **Workflows** > **Popular Workflows** > **Software Upgrade.**.
2. Start a new software upgrade workflow: **Workflow Library** > **Software Upgrade**.

   OR

   Alternatively, resume an in-progress software upgrade workflow: **In-progress** > **Software Upgrade**.
3. In the **Scheduler** section, choose **Later**.

Note Use the **Now** option to perform the software upgrade for the selected devices immediately.

4. Choose the **Start Date**, **Start Time**, and **Select Timezone**.

Note Start date and time should always be greater than the Cisco SD-WAN Manager server date and time.

5. Click **Next**.
6. The software upgrade workflow is scheduled.

Schedule a Device Software Upgrade Workflow in Cisco Catalyst SD-WAN Manager Release 20.18.1 or Later

Before you begin

Procedure

Step 1 In the Cisco SD-WAN Manager menu, click **Workflows** > **Workflow Library**.

Step 2 Start a new software upgrade workflow: **Workflow Library** > **Device Software Upgrade**.

Step 3 After choosing the devices, in the **Action** section, choose **Download and Upgrade** to schedule upgrade.

Step 4 In the **Scheduler** section, choose **Later**.

Note
Choose the **Now** option to upgrade device software immediately after completing the workflow.

Step 5 Add a **Task Name** and choose the **Start Date**, **Start Time**, and **Select Timezone**.
Alternately, choose **Site Time** to perform the software upgrade in the device's local time zone.

Step 6 Follow the on-screen instructions to complete the workflow.

What to do next

To view the list of sucessful upgrades on the devices. click on the **Task log** in the task bar.

Cancel the Scheduled Software Upgrade Workflow

To cancel a scheduled software upgrade workflow,

1. From the Cisco SD-WAN Manager menu, click **Maintenance** > **Software Upgrade**.
2. Choose the device that is scheduled for a software upgrade from the list of devices.
3. Click **Cancel Software Upgrade**.

Delete a Downloaded Software Image

To delete downloaded software images from WAN edge devices:

1. From the Cisco Catalyst SD-WAN Manager menu, choose **Maintenance** > **Software Upgrade**.
2. Click **WAN Edge**.
3. Click **Delete Downloaded Images**

4. In the **Delete Downloaded Images** pop-up window, choose the image or images to delete.
5. Click **Delete**.