

CloudVision Mastery Workshop Lab Guide



IMAGE MANAGEMENT

Create and manage image bundles, which can be pushed to devices in Network Provisioning. Each bundle can contain an image, one or more extensions, or both. Bundling an image with extensions allows you to create a software package that can be repeatedly pushed to different devices.

Images and Image Bundles

CloudVision simplifies image management for all network devices. A more recent CloudVision feature now allows users to download Arista images and extensions directly from within CloudVision, minimizing the steps required to deploy images to network devices.

NOTE: The Compliance Token added in the previous section is required to be able to download images from within CloudVision

First, we must enable the feature that allows images to be downloaded from within CloudVision.

1. Let's navigate to **Settings > General Settings**.
2. The General Settings page has a section called "**Features**" On the right side of your screen. Let's enable the "**Upload and Download Images and Extensions**" feature.

General Settings

View version and build information, enable or disable features, and configure cluster settings

Access Control

- Providers
- Users
- Roles
- Service Accounts

Audit Logs

- Compliance Updates
- License Management
- Packaging
- Profiles
- Provisioning Settings
- Developer Tools
- NetSQL Editor
- Metric Explorer
- REST API Explorer
- Telemetry Browser
- Resource Explorer
- AQL Notebook
- Client Logging

General Settings

Basic Settings

- Time Zone Display (Local Time)
- ISO 8601 Format (Enabled)

Cluster Management

- Logo
- Cluster Name: Z_ROCKIES-ATD-00
- WiFi Cloud Connector: launchpad.wifi.arista.com
- Non-Author Change Control Review (Enabled)
- ZTP Access Control (Enabled)
- Minimal Mode (Enabled)
- Stream Interface Queue Counters (Enabled)
- Allow Login with Email (Enabled)
- Allow Roles Mapping with Providers (Enabled)
- Allow Bearer Token Login (Enabled)
- Allow Identity Provider Initiated Login for SAML (Enabled)
- Display Studios Secret Values (Enabled)
- Device Decommission (Disabled)

Session Management

- Persistent Login (Enabled)
- Session Duration: 24 hours
- Maximum Idle Time: Disabled
- Maximum Sessions per User: Disabled

Features

- Auto-Upgrade EOS Image during ZTP (Enabled)
- Campus Features (Enabled)
- Pathfinder Features (Enabled)
- Prioritize TerminAttr IP as Management IP (Enabled)
- Show Management Devices (Enabled)
- Upgraded Provisioning Actions (Enabled)
- Vertical Navigation (Enabled)
- Additional Dashboard Panels (Beta)
- Additional Dashboards (Beta)
- Additional Events (Beta)
- Campus Beta Features (Beta)
- Filter Management (Beta)
- Import and Export Studio Inputs (Beta)
- PTP Counters (Beta)
- Studios - End-to-End Provisioning (Beta)
- UNO Features (Beta)
- Upload and Download Images and Extensions (Beta) (Selected)

3. Now let's Navigate to Provisioning > Image Repository > Upload and Download Images

Provisioning

Network Provisioning

Image Repository

- Upload and Download... (Selected)
- Tasks
- Actions
- Change Control
- Action Bundles
- Templates
- Studios
- Workspaces
- Snapshot Configuration
- Public Cloud Accounts
- Tags
- Zero Touch Provisioning

Upload and Download Images

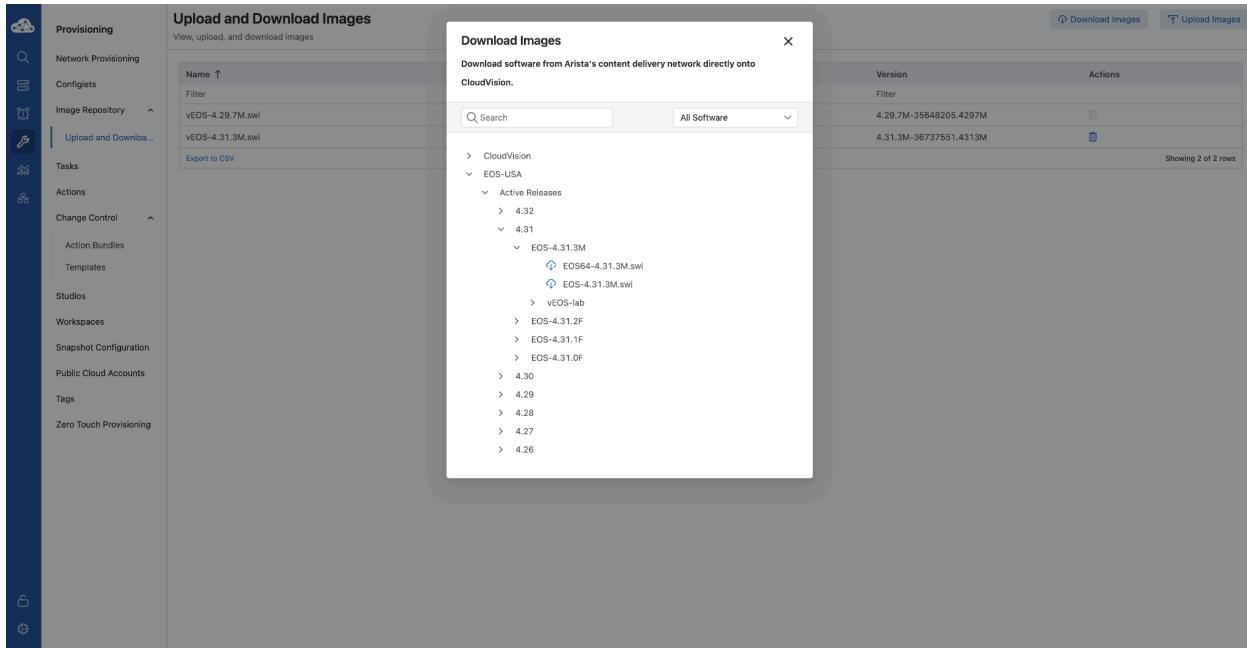
View, upload, and download images

Name ↑	Type	Version	Actions
vEOS-4.29.7M.swi	SWI	4.29.7M-35648205.4297M	
vEOS-4.31.3M.swi	SWI	4.31.3M-36737551.4313M	

[Export to CSV](#)

Showing 2 of 2 rows

- In the upper right corner, select “Download Images”
- A pop-up window will appear showing the available images to be downloaded.
- Expand **EOS-USA > Active Releases > 4.31 > EOS-4.31.3M**



4. Typically, you would click on the blue cloud icon to download an image, but we don't need to download any images for this lab.

NOTE: The images required for this lab are unique and have already been uploaded to CloudVision. Please use the provided images in the steps going forward!

5. Now that the image is downloaded, we need to create the Image Bundle that can be assigned to devices. Head to **Provisioning > Image Repository**.
6. Click on the “+” icon near the top of the right side of the screen.

The screenshot shows the Arista Image Repository interface. On the left is a navigation sidebar with various options like Provisioning, Network Provisioning, Configlets, and Image Repository (which is selected). The main area is titled "Image Repository" and "Manage images and image bundles". It has a search bar and a table titled "Images". The table has columns: Name, Containers, Devices, Notes, Uploaded by, and Uploaded Date. One row is visible: "vEOS-4.29.7M" with 0 containers, 0 devices, and uploaded by "aolson" on 2024-05-30 10:36:29. There are 1-1 of 1 results.

- In the “Name” field, enter a meaningful name for the image. For this lab, we’ll use “**vEOS-4.31.3M**”.

The screenshot shows the "Create Image Bundle" dialog box. The left sidebar is identical to the previous screenshot. The main area shows a "Create Image Bundle" form with a "Name" field containing "vEOS-4.31.3M". Below the form are two large icons: a large disk icon in the center and a smaller disk icon in the top right corner. At the bottom are "Save" and "Cancel" buttons.

- To add the Image to the Image Bundle, you can select either the large disk icon in the center of the page or the smaller disk icon on the upper right side of the screen.
- An “**Images**” dialog box will appear. Select **vEOS-4.31.3M.swi** and then select the “**Add**” button.

The screenshot shows the Arista Network's Image Repository interface. On the left, a sidebar navigation menu includes options like Provisioning, Network Provisioning, Conflicts, Image Repository (which is selected), Upload and Download, Tasks, Actions, Change Control, Action Bundles, Templates, Studios, Workspaces, Snapshot Configuration, Public Cloud Accounts, Tags, and Zero Touch Provisioning. The main content area is titled 'Image Repository' and 'Manage images and image bundles'. It shows a 'Create Image Bundle' page with a 'Name' field containing 'vEOS-4.31.3M'. Below this is a modal window titled 'Images' with a search bar and a table of uploaded files:

Name	Size	Version	Uploaded by	Uploaded Date	SHA512
vEOS-4.29.7M.swi	519.2 MB	4.29.7M-3564...	solsson	2024-05-30 ...	27b8294c1d8e...
vEOS-4.31.3M.swi	551.9 MB	4.31.3M-3673...	pfeit	2024-05-23 0...	aa759615c22...

At the bottom of the main page, there are 'Save' and 'Cancel' buttons.

10. You'll be returned to the “Create Image Bundle” page and should see the Image you just added. Click the “Save” button to save the image bundle.

The screenshot shows the Arista Network's Image Repository interface. The sidebar and main navigation are identical to the previous screenshot. The main content area shows the 'Create Image Bundle' page with the bundle name 'vEOS-4.31.3M'. Below it is a table listing the image bundle:

1	vEOS-4.31.3M.swi	<input type="checkbox"/> Reboot Required	4.31.3M-367375514313M	551.9 MB			
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At the bottom of the page, there are 'Save' and 'Cancel' buttons.

11. The **vEOS-4.31.3M** image bundle will now appear in the Image Repository

Name	Containers	Devices	Notes	Uploaded by	Uploaded Date
VEOS-4.31.3M	0	0	Add Note Add Note	olssson	2024-05-30 10:44:23
VEOS-4.29.7M	0	0	Add Note	olssson	2024-05-30 10:36:29

Image Assignment

Now that an Image Bundle has been created, we can assign it to the devices in the topology.

1. Let's start by navigating to **Provisioning > Network Provisioning**
2. Right-click on the “DC1” container and select **Manage > Image Bundle**

Name	IP Address	Mac Address	Serial No.	Container	Status
Leaf-1A	192.168.225.245	0ce:82:86:04:2d	SIN-P1-Leaf1A	Leaf1	
Leaf-1B	192.168.225.246	0cf:22:b9:44:b7	SIN-P1-Leaf1B	Leaf1	
Leaf-2A	192.168.225.242	0c:08:5d:7e:54:43	SIN-P1-Leaf2B	Leaf2	
Leaf-2B	192.168.225.244	0cca:70:50:02:34	SIN-P1-Leaf2A	Leaf2	
Spine-1	192.168.225.240	0cd:a8:8e:e3:3e	SIN-P1-Spine1	Spines	
Spine-2	192.168.225.241	0c:2faf:fb:c3:73	SIN-P1-Spine2	Spines	

3. Select the one created in the previous step, **vEOS-4.31.3M**, from the available image bundles.
4. Select the “**Update**” button at the bottom of the screen to assign the Image Bundle to all devices in the DC1 container.

Name	Containers	Notes	Uploaded by	Uploaded Date
vEOS-4.28.7M	0		adolsson	2024-05-30 10:36:29
vEOS-4.31.3M	0		adolsson	2024-05-30 10:44:23

5. You will now see a green hue surrounding the “**DC1**” container and the switches under the “**DC1**” hierarchy, indicating that changes must be saved. Click the “**Save**” button at the bottom of the screen to save the image assignment changes.

6. You'll now see the switches are all shown in yellow with a "T" in the status section, indicating that these devices have available tasks.

The screenshot shows the Arista Network Provisioning interface. On the left, there's a sidebar with various navigation options like Provisioning, Network Provisioning, Configlets, Image Repository, Tasks (which is selected), Actions, Change Control, and others. The main area is titled "Network Provisioning" and "Assign devices to containers and manage device-specific configuration". It features a search bar and a table titled "Network Provisioning" with columns: Tenant, Name, IP Address, Mac Address, Serial No., Container, and Status. The table lists 6 devices under Tenant "DC1": Leaf-1A, Leaf-1B, Leaf-2A, Leaf-2B, Spine-1, and Spine-2. All devices show a yellow status icon with a 'T'. A tooltip "11" is visible in the top right corner. At the bottom, there are "Preview", "Save", and "Cancel" buttons.

7. On the left side of the screen, select “Tasks.” You should see 6 pending tasks, one for each device in the topology.
 8. Select the 6 “Upgrade Image” tasks in the “Assignable Tasks” section.

The screenshot shows the Arista Tasks interface. The left sidebar includes Provisioning, Network Provisioning, Configlets, Image Repository, Tasks (selected), Actions, Change Control, and others. The main area has a "Tasks" header with a "+ Create Change Control" button and a "Cancel 6 Tasks" button. Below it is a "Assignable Tasks" section with a table showing 6 tasks for devices Spine-1 through Spine-2 and Leaf-1A through Leaf-2B, all marked as "Pending". There's also an "All Tasks" section below it showing the same 6 tasks. At the bottom, there are "Export to CSV" and "Showing 6 of 6 rows" links.

9. Now, we need to create a change control with those tasks, so select the “+ Create Change Control” button at the top of the screen.
10. The “Create Change Control” screen should pop up. Ensure all 6 tasks are selected and that “Series” is chosen. Then, choose “Create Change Control with 6 Tasks” on the top left of the pop-up.

The screenshot shows the Arista Network UI with the 'Tasks' section selected in the sidebar. A modal window titled 'Create Change Control > Change 2024-05-30-13-37-08' is open. Inside the modal, under 'Select an Arrangement', 'Series' is selected. Below it, a table lists 'Assignable Tasks' with columns: ID, Device, Creator, Type, Updated, and Status. The tasks listed are: Spine-1, Leaf-2A, Leaf-1B, Leaf-1A, Leaf-2B, and Spine-2. All tasks are marked as 'Pending'. At the bottom right of the modal, there is a button labeled 'Create Change Control with 6 Tasks'.

ID	Device	Creator	Type	Updated	Status
Spine-1	MAC: 24:6f:d0:dba0:7f IP: 192.168.0.13	aolsson	Upgrade Image	7 minutes ago	Pending
Leaf-2A	MAC: 24:ed:2c:17:34:53 IP: 192.168.0.17	aolsson	Upgrade Image	7 minutes ago	Pending
Leaf-1B	MAC: 24:b8:ba:90:62:ee IP: 192.168.0.11	aolsson	Upgrade Image	7 minutes ago	Pending
Leaf-1A	MAC: 24:d4:99:e9:e0:f0 IP: 192.168.0.16	aolsson	Upgrade Image	7 minutes ago	Pending
Leaf-2B	MAC: 24:c6:e0:df:0f:06 IP: 192.168.0.10	aolsson	Upgrade Image	7 minutes ago	Pending
Spine-2	MAC: 24:74:37:51:86:7a IP: 192.168.0.12	aolsson	Upgrade Image	7 minutes ago	Pending

Showing 6 of 6 rows

Status	Change Control
Filter	Filter

Showing 6 of 6 rows

11. You'll then be taken to the change control screen. Let's continue by giving the change control a meaningful name. At the top of the change control where it says “Name,” click the little pencil icon and enter “4.31.3 Image Upgrade” and press enter.

As you can see in the change control, every device in our topology will be upgraded in series. While that might look good, it's not an optimal upgrade process for our environment. For example, how do we know that MLAG Health is in a good state so we don't have an outage during the upgrade? How do we know that the MLAG timers have been completed and the switch is back online before taking down its peer for the upgrade? Let's leave the change control as is for now and return to it once we've completed the following steps.

ACTION BUNDLES

An action bundle is a collection of actions that are applied to the stage rule(s) of a change control template. The template is then used in a change control action, to organize the tasks into logical steps as administratively defined where the actions contained in its action bundles are executed.

Each action bundle can contain up to one task action and an unlimited number of non-task actions. You can apply the same action bundle to multiple change control templates.

Create an Action Bundle for the Leafs

Let's create a new action bundle for our Leafs that can help us do MLAG validation as part of the upgrade process.

1. Start by navigating to **Provisioning > Action Bundles**.

2. Select “**New Action Bundle**”.

The screenshot shows the Arista AIRISIA web interface. On the left, there's a vertical sidebar with icons for cloud, search, file, tasks, actions, change control, action bundles (which is currently selected), templates, studios, workspaces, snapshot configuration, public cloud accounts, tags, and zero touch provisioning. The main content area has a header 'Action Bundles' with a sub-instruction 'Group actions into bundles for use in change control templates'. In the top right corner, there's a user profile with the name 'aolson' and the identifier 'Z_ROCKIES-ATD-01'. A blue button labeled '+ New Action Bundle' is located in the top right of the main content area. Below the header, it says 'No data' with a small folder icon.

3. In the “**Bundle Name**” field, enter a meaningful description for this action bundle. This Action Bundle will be used for Leaf upgrades, so we’ll use the name “**Leaf Upgrade Action Bundle**.”

This screenshot shows the 'New Action Bundle' dialog box overlaid on the main interface. The dialog has a title 'New Action Bundle'. It contains fields for 'Bundle Name' (with 'Leaf Upgrade Action Bundle' typed in) and 'Description (optional)' (empty). Below these is a dropdown menu labeled 'Add action...' with options 'Series' and 'Parallel'. At the bottom right of the dialog are 'Cancel' and 'Save' buttons. The background shows the same 'Action Bundles' page as the previous screenshot, with the sidebar and the 'No data' message visible.

4. Select the “**Add action**” dropdown box and choose the “**Lightweight Check MLAG Health**” action.

Action Bundles

Group actions into bundles for use in change control templates

No data

New Action Bundle

Bundle Name

Leaf Upgrade Action Bundle

Description (optional)

Lightweight Check MLAG Health

DeviceID

Select a device...

checkDuration

Parallel

Cancel Save

- In the “DeviceID” section, choose the “Provide via template” option and set the “checkDuration” to 600 (5 Minutes).

Action Bundles

Group actions into bundles for use in change control templates

Leaf Upgrade Action Bundle

Action Bundle: Leaf Upgrade Action Bundle

Add action... Series Parallel

1. Lightweight Check MLAG Health

DeviceID

Provide via template

checkDuration

600

Cancel Save

NOTE: The “Add action” dropdown may stay populated with the name of the last action that was chosen

- Select the “Add action” dropdown box and select the “Execute Task” action.

Action Bundles

Group actions into bundles for use in change control templates

Leaf Upgrade Action Bundle

Action Bundle: Leaf Upgrade Action Bundle

Bundle Name: Leaf Upgrade Action Bundle

Description (optional):

Add action...

1. Lightweight Check MLAG Health

DeviceID:

Provide via template:

checkDuration:

2. Task

Run this action with a pre-defined TaskID to execute the specified network changes.

TaskID:

(assigned by template)

Cancel

- Select the “Add action” dropdown box again and select the “Lightweight Check MLAG Health” action.
- In the “DeviceID” section, choose the “Provide via template” option and set the “checkDuration” to 600 (5 Minutes).

Action Bundles

Group actions into bundles for use in change control templates

Leaf Upgrade Action Bundle

Action Bundle: Leaf Upgrade Action Bundle

Leaf Upgrade Action Bundle

Description (optional):

Lightweight Check MLAG Health

1. Lightweight Check MLAG Health

DeviceID:

Provide via template:

checkDuration:

2. Task

Run this action with a pre-defined TaskID to execute the specified network changes.

TaskID:

(assigned by template)

3. Lightweight Check MLAG Health

DeviceID:

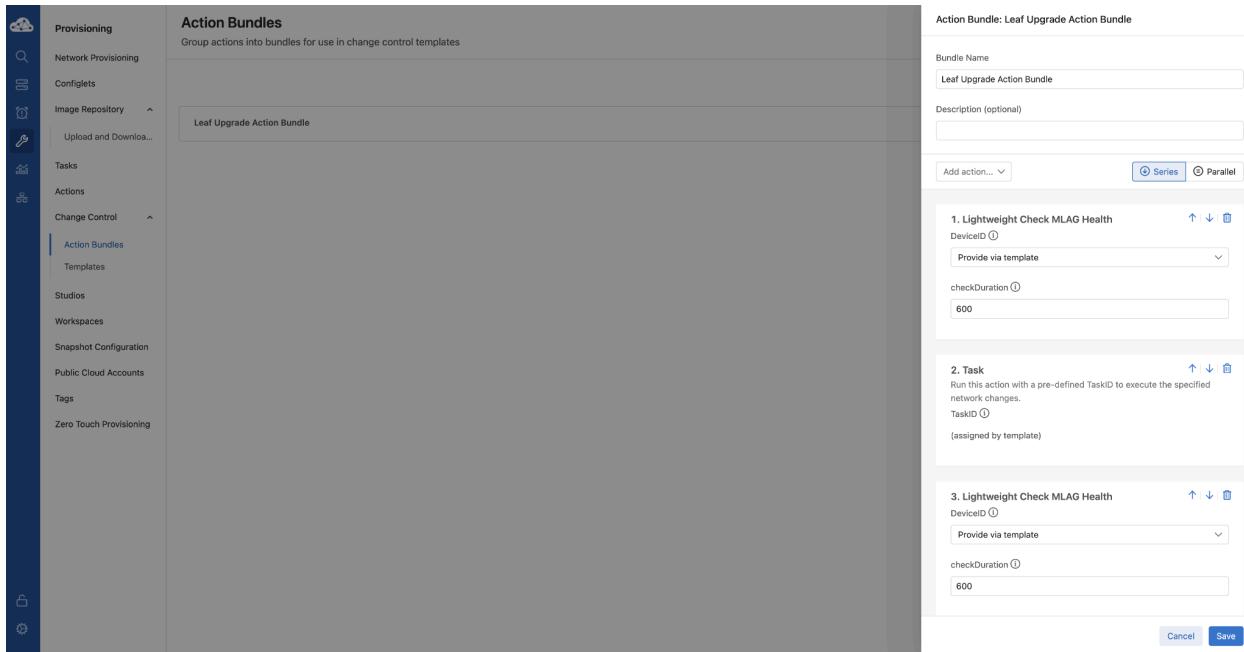
Provide via template:

checkDuration:

Cancel

- Select the “Series” option so that the actions in this Action Bundle are in series.

10. Select “Save” once the Action Bundle looks like the one in the screenshot below.



Create an Action Bundle for the Spines

Now, let's repeat the process we just went through with a few changes tailored to the Spines. Since the Spines aren't in an MLAG pair, we don't need to do the MLAG Health Check, but we can use BGP Maintenance Mode since all the peers are running BGP and support the BGP GSHUT community.

1. Let's start by creating a new Action Bundle. Click “**New Action Bundle**” on the top right of the screen.

2. In the “**Bundle Name**” field, enter a meaningful description for this action bundle. This Action Bundle will be used for Spine upgrades, so we’ll use the name “**Spine Upgrade Action Bundle**.”

3. Select the “**Add action**” dropdown box and select the “**Enter BGP Maintenance Mode**” action.
4. In the “**DeviceID**” section, choose the “**Provide via template**” option.

NOTE: The “Add action” dropdown may stay populated with the name of the last action that was chosen

5. Select the “Add action” dropdown box and select the “Execute Task” action.

6. Select the “Add action” dropdown box again and select the “Exit BGP Maintenance Mode” action.

7. In the “**DeviceID**” section, choose the “**Provide via template**” option.

Action Bundles

Group actions into bundles for use in change control templates

Action Bundle: Spine Upgrade Action Bundle

Bundle Name: Spine Upgrade Action Bundle

Description (optional):

Add action... Series Parallel

1. Enter BGP Maintenance Mode

Pair this action with Exit BGP Maintenance Mode to run specific tests detailed in the EOS User Manual before reinserting the device into the network.

DeviceID:

2. Task

Run this action with a pre-defined TaskID to execute the specified network changes.

TaskID:

3. Exit BGP Maintenance Mode

Pair this action with Enter BGP Maintenance Mode to run specific tests detailed in the EOS User Manual before reinserting the device into the network.

DeviceID:

Cancel Save

8. Select “**Series**” so that the actions in this Action Bundle are in series.

9. Select “**Save**.”

Action Bundles

Group actions into bundles for use in change control templates

Action Bundle: Spine Upgrade Action Bundle

Bundle Name: Spine Upgrade Action Bundle

Description (optional):

Add action... Series Parallel

1. Enter BGP Maintenance Mode

Pair this action with Exit BGP Maintenance Mode to run specific tests detailed in the EOS User Manual before reinserting the device into the network.

DeviceID:

2. Task

Run this action with a pre-defined TaskID to execute the specified network changes.

TaskID:

3. Exit BGP Maintenance Mode

Pair this action with Enter BGP Maintenance Mode to run specific tests detailed in the EOS User Manual before reinserting the device into the network.

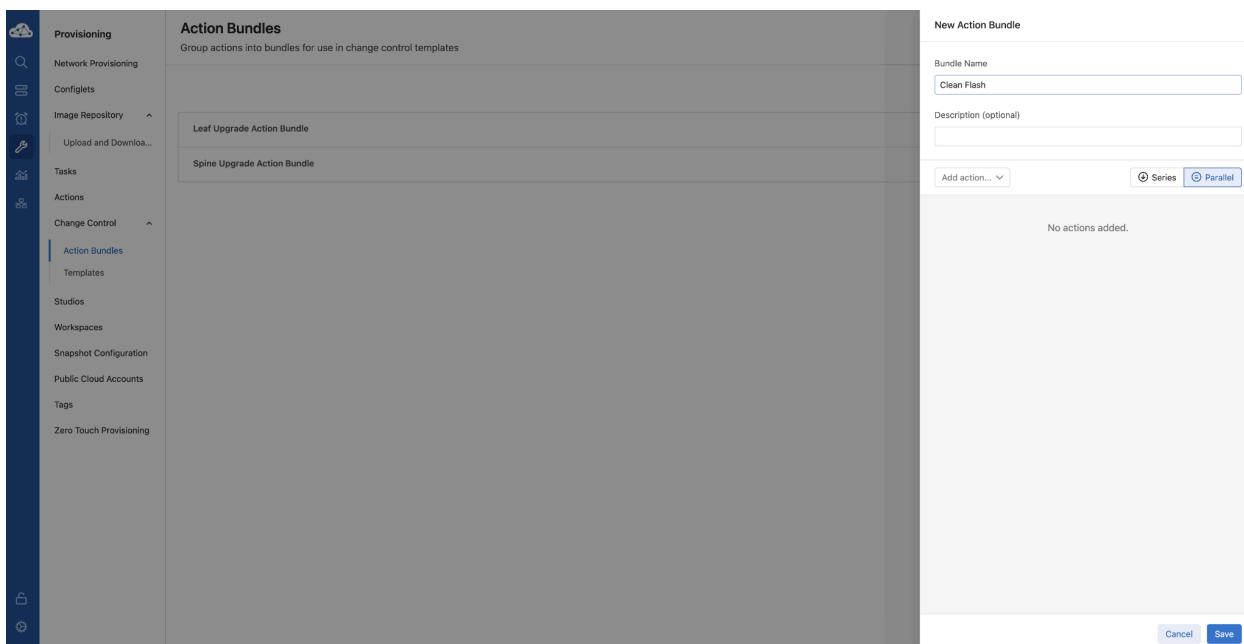
DeviceID:

Cancel Save

Create an Action Bundle to Cleanup the Flash

The final action bundle that we'll create will remove the old images from Flash so we can keep the Flash nice and tidy and not have old images hanging around forever.

1. Select “**New Action Bundle**”
2. In the “**Bundle Name**” field, enter a meaningful description for this action bundle. This Action Bundle will be used to clean up the flash, so we’ll use “**Clean Flash**.”



3. Select the “**Add action**” dropdown box and select the “**Clean Flash**” action.
4. In the “**DeviceID**” section, choose the “**Provide via template**” option.
5. In the “**FileSpecAndGlob**” section, enter:

```
flash:*.swi
```

6. Select “**Save**.”

Action Bundles

Group actions into bundles for use in change control templates

Clean Flash

Leaf Upgrade Action Bundle

Spine Upgrade Action Bundle

Action Bundle: Clean Flash

Bundle Name

Clean Flash

Description (optional)

Add action... ▾

DeviceID

Provide via template

FileSpecAndGlob

flash:*.swi

Cancel Save

7. You should now see the three Action Bundles that have been created.

Action Bundles

Group actions into bundles for use in change control templates

Clean Flash

Leaf Upgrade Action Bundle

Spine Upgrade Action Bundle

+ New Action Bundle

Edit Delete

Edit Delete

Edit Delete

TEMPLATES

A change control template is used as a structure for repeatable change control operations. It enables you to complete common and frequent changes in your network without needing to configure the details of the change control operation each time.

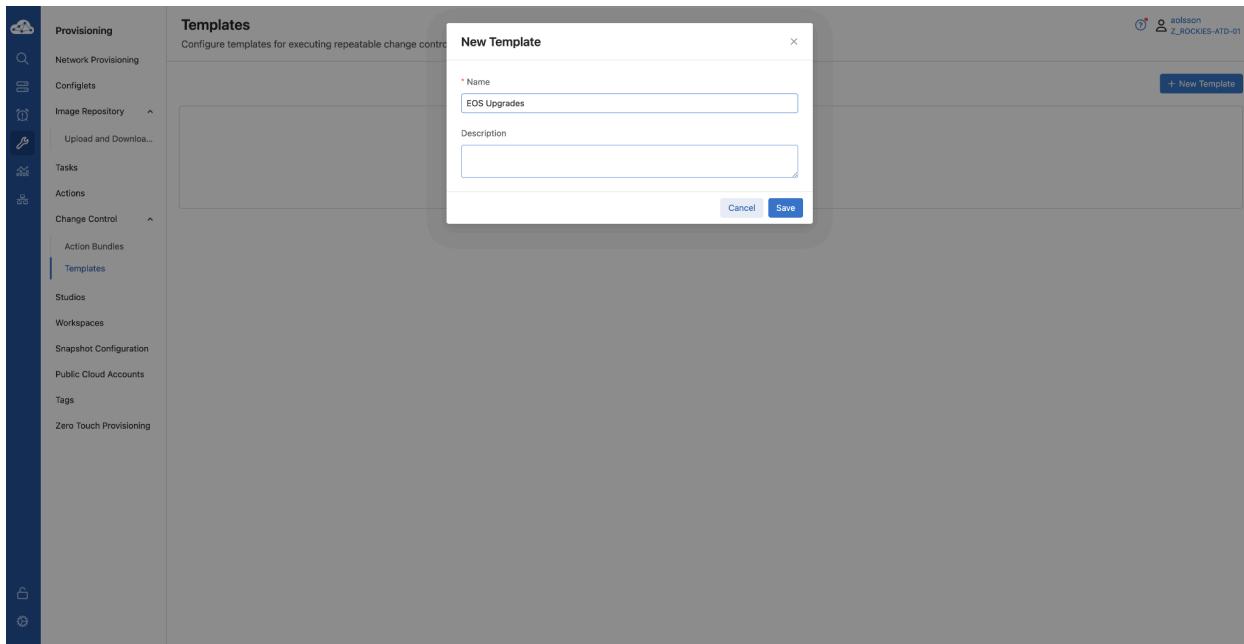
Two elements are used to construct a change control template, action bundles, and templates. Once a template has been created, you can then use it in all future change control operations.

Create a Template

1. The first thing we need to do is navigate to **Provisioning > Templates**.
2. Create a new template by selecting “**+ New Template**”.

The screenshot shows the Arista Provisioning interface. On the left is a sidebar with various navigation options: Network Provisioning, Configlets, Image Repository (with Upload and Download), Tasks, Actions, Change Control (selected), Action Bundles, and Templates (selected). Below these are Studios, Workspaces, Snapshot Configuration, Public Cloud Accounts, Tags, and Zero Touch Provisioning. At the bottom of the sidebar are three icons: a lock, a gear, and a user. The main content area is titled "Templates" with the subtitle "Configure templates for executing repeatable change control operations". It shows a message "No data" with a small cloud icon. In the top right corner, there is a user profile with a blue circle, a gear icon, and the text "jolsson" and "Z_ROCKIES-ATD-01". A blue button labeled "+ New Template" is located in the bottom right corner of the main content area.

3. The “**New Template**” dialog box should appear. Enter a name for the new template. Since this template will be for upgrades, let’s call it “**EOS Upgrades**.”
4. Click “**Save**.”



5. Next, you'll be taken to a page where you can define the template options.

6. Now, let's add the first stage to the Template. On the right side of the page, select “**+ Add Stage Rule**”.

NOTE: The Stage rules need to match the order they are in the lab guide. Ensure you are clicking the “**Add Stage Rule**” of the last Stage in the Template.

7. Click on the pencil icon next to the “**Stage Rule Name**” of the first stage rule and name it “**Upgrade B Leafs.**” As you can probably tell from the name, this stage will only be used to upgrade the B Leafs.
8. Since we’ll upgrade the Leafs in this Template stage, choose “**Leaf Upgrade Action Bundle**” in the “**Action Bundle**” dropdown.
9. In the “**Device Filter**” dropdown, change the selection to “**Tag Query.**”
10. In the box just to the right of the “**Tag Query**” dropdown, we must select Leaf-1B and Leaf-2B. To do this, type “**Device:**” and choose Leaf-1B from the dropdown followed by a “,” then select Leaf-2B.

NOTE: Keep in mind that the Tag Key:Value pairs are case sensitive.

11. Change the “**Arrange Bundles**” dropdown from “**Series**” to “**Parallel**” so that this action can be run on both B switches at the same time.

12. Repeat the steps completed for the “**Upgrade B Leafs**” stage, but for “**Upgrade A Leafs.**” Be sure to select both Leaf-1A and Leaf-2A in the Tag Query.

13. Now that the stages for the Leafs are complete, we can create the next stage, which will be used to upgrade the spines. Click on “**+ Add Stage Rule**” once again.
14. Change the name of the stage to “**Upgrade Spines**.”
15. For the “**Action Bundle**,” we need to use the “**Spine Upgrade Action Bundle**”.
16. The Tag Query will be a bit different, we will use the “**Container**” tag for the Spines since both Spines are in the same container in Network Provisioning. Enter “**Container: Spines**” in the Tag Query field.
17. We'll leave the Arrange Bundles dropdown as “**Series**” because we want to upgrade one Spine at a time.

18. Add a final stage to the Template to clean the flash. We'll name it "**Clean Flash**". This will remove the old EOS Image after all the upgrades are completed. Select the "**Clean Flash**" action bundle created in the previous section in the Action Bundle dropdown.
19. The "**Device Filter**" can remain unchanged because we want to clean the flash on all the devices in the change control as part of this stage in the Template.
20. Change the "**Arrange Bundles**" dropdown from "**Series**" to "**Parallel**" so that this action can be run on all devices simultaneously.

21. Change the “**Stage Rules**” section at the top left of the page to “**Series**” so all stages in the template happen in series.
22. Click on “**Save Template**” on the top right of the screen.

Now that the Action Bundles and Upgrade Template have been created, they can be added to the change control created previously.

23. Head over to **Provisioning > Change Control**.
24. Select the “**4.31.3 Image Upgrade**” Change Control.

Change Control

Manage, review, and execute change control operations

+ Create Change Control

solsson z_ROCKIES-ATD-01

Date Range 2024-05-24 → 2024-05-31

Device Filter (show all)

Recently Executed 2 Days

1 Change Control

- Change 2024-05-30-12-27-07
 - Succeeded
 - May 30, 2024 12:28:38 GMT-6
- Change 2024-05-30-12-27-07
 - Started by solsson
 - May 30, 2024 12:28:28 GMT-6
- Change 2024-05-30-12-27-07
 - Approved by solsson
 - May 30, 2024 12:28:24 GMT-6
- Change 2024-05-30-12-27-07
 - Created by solsson
 - May 30, 2024 12:27:12 GMT-6

25. Once in the change control, click the blue “**Select a Template**” dropdown box.
26. In the “**Change Control Template**” dialog box, select the “**EOS Upgrades**” Template created in the previous section.
27. Select “**Apply Template**”.

The screenshot shows the Arista Network's Change Control interface. On the left, a sidebar navigation menu includes: Provisioning, Network Provisioning, Configlets, Image Repository (selected), Upload and Download..., Tasks, Actions, Change Control (selected), Action Bundles, Templates, Studios, Workspaces, Snapshot Configuration, Public Cloud Accounts, Tags, and Zero Touch Provisioning. The main content area is titled "Change Control" and "4.31.3M Image Upgrades". It displays a list of actions under "Change Control Stages": Spine-2, Leaf-2B, Leaf-1A, Leaf-1B, Leaf-2A, and Spine-1. Each stage has an "Upgrade Image" task associated with it. A "Select a Template" dropdown is open, showing "EOS Upgrades". To the right, there is a "Change Control Summary" section with tabs for "Parallel" and "Series" execution, and status indicators for "Edit", "Approval", "In Progress", and "Completed". A "Recent Activity" section shows a log entry from "aoisson" 1m ago. Below the summary is an "Action Summary" section with a count of 6 actions and an "Image" link. At the bottom, a "Device Status" section lists devices: Leaf-1A, Leaf-1B, Leaf-2A, Leaf-2B, Spine-1, and Spine-2, all marked as "Active".

The change control will reflect what was defined in the upgrade template. While expanding the newly added stages and looking at the change control, remember that the green circle with the arrow in the center means that the action will be completed in series, and the purple circle with the two parallel lines means that those actions will be completed in parallel.

The screenshot shows the Arista Network's Change Control interface. On the left, a sidebar navigation menu includes: Provisioning, Network Provisioning, Configlets, Image Repository (selected), Tasks, Actions, Change Control (selected), Action Bundles, Templates, Studios, Workspaces, Snapshot Configuration, Public Cloud Accounts, Tags, and Zero Touch Provisioning. The main content area displays a "Change Control" section for a task named "4.31.3M Image Upgr...". The task details include a "Name" field (4.31.3M Image Upgr...), a "Description" field (Upgrading to 4.31.3M Image), and a "Schedule Start" button. A "Select a Template" dropdown is present. Below the task details is a search bar and a list of actions under "Change Control Stages": Upgrade B Leafs (6 actions), Upgrade A Leafs (6 actions), Upgrade Spines (6 actions), and Clean Flash (6 actions). To the right, the "Change Control Summary" shows a timeline with "Root Execute" (Parallel) and "Last Edit" by "aolsson 1m ago". The "Action Summary" shows counts for Image (6), Clean Flash (6), and Misc (12). The "Device Status" section lists devices: Leaf-1A, Leaf-1B, Leaf-2A, Leaf-2B, Spine-1, and Spine-2, all marked as Active. The "Image Changes" section shows 6 changes. The top right corner shows the user "aolsson" and the group "Z_ROCKIES-ATD-01".

28. Expand each stage of the change control by Clicking the “+” next to each stage.
29. Validate that your change control looks similar to the screenshot below.

This screenshot is identical to the one above, but the "Change Control Stages" section is fully expanded. The expanded stages show the detailed actions for each stage: Upgrade B Leafs (6 actions), Upgrade A Leafs (6 actions), Upgrade Spines (6 actions), and Clean Flash (6 actions). Each stage is further broken down into sub-tasks like "Leaf-2B Upgrade Image" or "Spine-1:Clean Flash". The rest of the interface, including the summary, device status, and user information, remains the same.

Now that the change control has been updated using the template, it can be executed as is. However, there's a process that can be used to preload the images on the devices to minimize upgrade times during a maintenance window.

30. On the bottom right section of the change control, click on “**Image Changes**”

The screenshot shows the Arista Cloud interface. The left sidebar has a 'Change Control' section selected. The main content area is titled '4.31.3M Image Upgrade'. It lists various actions: Upgrade B Leafs (6 actions), Upgrade A Leafs (6 actions), Upgrade Spines (6 actions), Clean Flash (6 actions), and specific device upgrades for Leaf-1B, Leaf-1A, Leaf-2A, Leaf-2B, and Spine-1. To the right, there's a 'Change Control Summary' with a timeline showing 'Last Edit' (aoisson 35s ago), 'Approval' (Pending), 'In Progress' (0), and 'Completed' (0). Below it is an 'Action Summary' with counts: 6 Images, 6 Clean Flash, and 12 Misc. At the bottom, there's a 'Device Status' section with a 'Preload Images (6)' button, followed by four entries for Leaf-1A, Leaf-1B, Leaf-2A, and Leaf-2B, each with a 'View Diff' link.

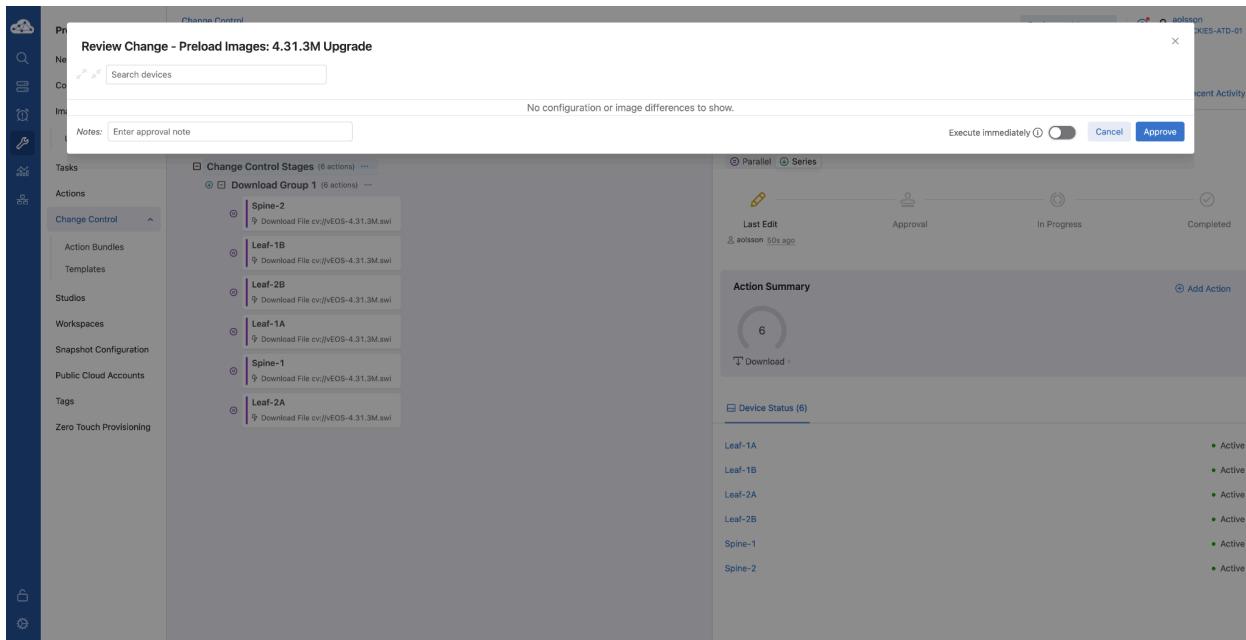
31. Select the blue “**Preload Images**” button.
32. A “**Preload Software Images**” dialog box appears. From here, the number of Parallel Downloads, which can be 6 for the lab, can be specified.
33. Click “**Create Change Control**” to generate a new change control to preload the images on all devices.

The screenshot shows the Arista CloudVision Change Control interface. On the left sidebar, 'Change Control' is selected under 'Provisioning'. In the main area, a task named '4.31.3M Upgrade' is listed with a 'Schedule Start' button. A modal window titled 'Preload Software Images' is open, containing a 'Summary' section with instructions about upgrading device images and a 'Parallel Downloads' section showing a count of 6. At the bottom of the modal is a 'Create Change Control' button. The background shows a 'Change Control Summary' with sections for 'Root Execute', 'Parallel', and 'Series' actions, and a timeline from 'Last Edit' to 'Completed'.

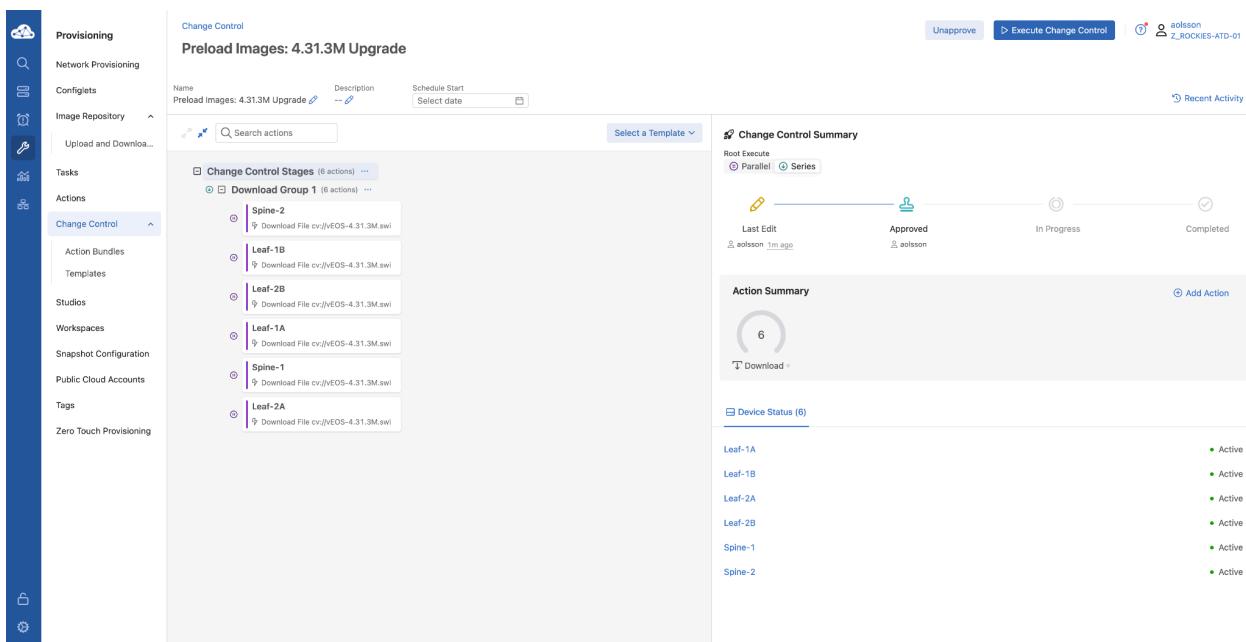
34. CloudVision will redirect you to the new “**Preload Images: 4.31.3M Upgrade**” change control.
35. Select “**Review and Approve**” in the upper right corner to review the change control.

The screenshot shows the Arista CloudVision Change Control interface with the 'Preload Images: 4.31.3M Upgrade' task selected. A 'Review Change' pop-up is displayed, stating 'No changes to the device are being made.' Below the task list, the 'Change Control Summary' and 'Action Summary' sections are visible, showing the status of various devices like Leaf-1A through Leaf-2A and Spine-1, Spine-2.

36. The “**Review Change**” pop-up will appear and show no changes to the device are being made. This is expected because we’re just transferring the EOS image to the device, so no actual changes are being made.
37. Once satisfied with the change control review, select “**Approve**.”



38. Select the blue “**Execute Change Control**” button.



39. An “**Execute Change Control**” pop-up will appear. Select **Execute** to begin the change control execution.

40. The change control animations will appear next to each task in the change control, showing that all tasks are being executed.

41. As the tasks are complete, a green check will appear at the right of each task. Once the change control has been completed, a green “**Success**” message/label will appear to the right of the change control name.

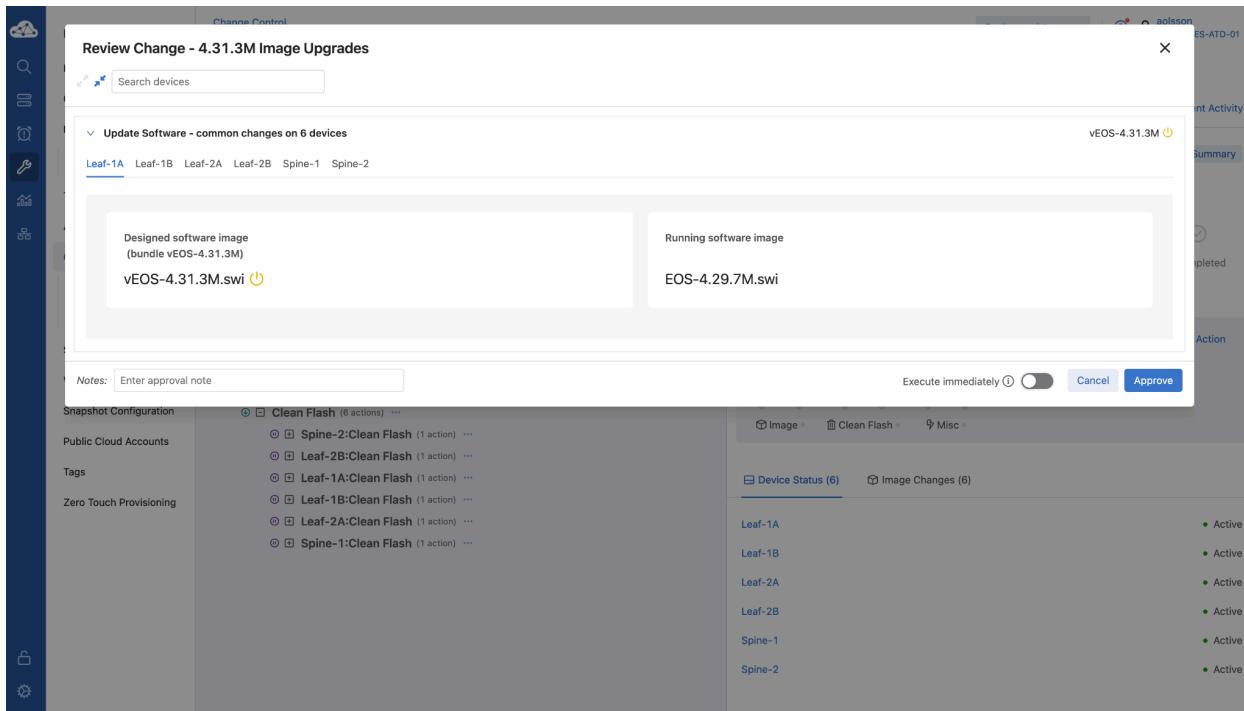
The screenshot shows the Arista Provisioning interface. On the left, a sidebar navigation includes: Provisioning, Network Provisioning, Configlets, Image Repository (selected), Upload and Download..., Tasks, Actions, Change Control (selected), Action Bundles, Templates, Studios, Workspaces, Snapshot Configuration, Public Cloud Accounts, Tags, and Zero Touch Provisioning. The main content area displays a "Change Control" section titled "Preload Images: 4.31.3M Image Up... [Success]". It shows a table of actions for "Download Group 1" across six devices: Spine-2, Leaf-2B, Leaf-2A, Leaf-1B, Spine-1, and Leaf-1A. Each action is marked with a green checkmark. To the right, a "Change Control Summary" section shows a timeline from "Last Edit" to "Completed" (3m ago, 45s ago, 19s ago). A "Action Summary" box shows 100% completion with a download icon. Below it, a "Device Status" table lists six devices: Leaf-1A, Leaf-1B, Leaf-2A, Leaf-2B, Spine-1, and Spine-2, all marked as "Active". In the top right corner, there is a user profile for "aolsson" and a link to "Recent Activity".

42. The upgrade change control can be executed now that the EOS images have been preloaded onto all devices. Head to **Provisioning > Change Control** and select the upgrade change control, which is named "**4.31.3M Image Upgrades**".

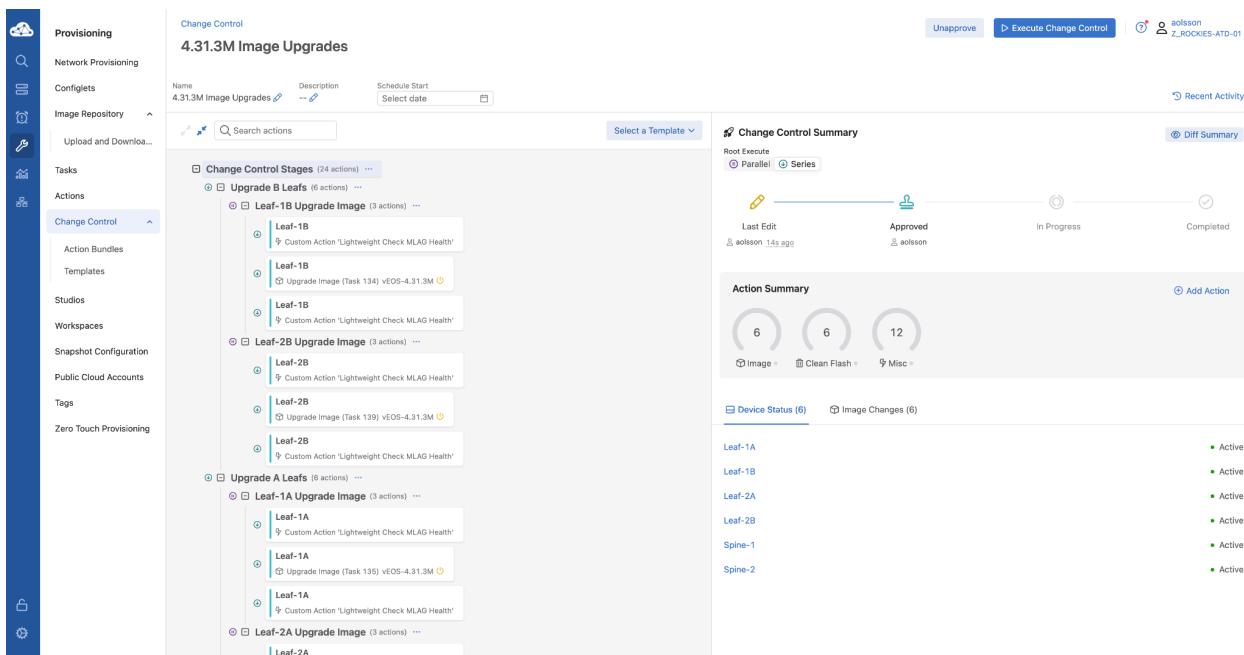
The screenshot shows the Arista Provisioning interface with the same sidebar navigation as the previous screenshot. The main content area displays a "Change Control" section titled "Manage, review, and execute change control operations". It shows a list of recent changes: "Preload Images: 4.31.3M Image Upgrades" (Completed 1 minute ago, Approved by aolsson), "4.31.3M Image Upgrades" (Edited 4 minutes ago, Approved by aolsson), "Change 2024-05-30-12-27-07" (Completed 1 day ago, Approved by aolsson), and several other entries like "Preload Images: 4.31.3M Image Up..." and "Change 2024-05-30-12-27-07" with their respective details. To the right, a "Recently Executed" sidebar shows a list of changes over the last 2 days, including their status (Succeeded or Started), date, and time. The sidebar also includes a "+ Create Change Control" button.

43. Select the blue "Review and Approve" button in the upper right corner.

44. The “**Review Change**” pop-up will appear for this change control and should indicate that EOS is being upgraded. The changes for each of the 6 devices should be grouped together because all 6 devices are running the same version of EOS and are being upgraded to the same version of EOS. Select the blue “**Approve**” button to approve the changes.



45. Select the blue “**Execute Change Control**” button in the upper right corner.



46. An “**Execute Change Control**” pop-up will appear. Select **Execute** to begin the change control execution.

The screenshot shows the Arista Network Change Control interface. On the left, a sidebar lists various network management options like Provisioning, Network Provisioning, Configlets, and Change Control. The main area is titled 'Change Control' and shows a task named '4.31.3M Image Upgrades'. The task is listed as 'Running'. The interface includes a search bar, a 'Select a Template' dropdown, and a 'Recent Activity' section. The central part of the screen displays the 'Change Control Stages' (24 actions) for the task. These stages include 'Upgrade B Leafs' (6 actions), 'Leaf-1B Upgrade Image' (3 actions), 'Leaf-2B Upgrade Image' (3 actions), and 'Upgrade A Leafs' (6 actions). Each stage contains specific actions such as 'Custom Action "Lightweight Check MLAG Health"', 'Upgrade Image (Task 134) vEOS-4.31.3M', and 'Custom Action "Lightweight Check MLAG Health"'. To the right, there is a 'Change Control Summary' section with a timeline showing 'Last Edit' (29s ago), 'Approved' (aoisson), 'in Progress', and 'Completed'. Below this is an 'Execute Change Control' modal with 'Cancel' and 'Execute' buttons. At the bottom, there are sections for 'Device Status' (6 devices) and 'Image Changes' (6 changes).

47. Once again, the change control animations will appear next to each task in the change control as it runs. A green check mark will appear just to the right of each task when it is completed.

The screenshot shows the Arista Network Change Control interface after the task has been completed. The task status is now 'Completed'. The 'Change Control Stages' section shows the completed stages with green checkmarks next to the task names. The 'Change Control Summary' section shows the timeline with 'Last Edit' (1m ago), 'Approved' (aoisson), 'Started' (aoisson 13s ago), and 'Completed'. The 'Action Summary' section shows completion percentages for Image (0%), Clean Flash (0%), and Misc (17%). The 'Device Status' and 'Image Changes' sections remain the same as in the previous screenshot.

48. When the change control has been successfully completed, a green “**Success**” message/label will appear next to the change control name.

The screenshot shows the Arista CloudVision Change Control interface. A successful "4.31.3M Image Upgrades" task is displayed. The task tree includes "Upgrade B Leafs" (16 actions), "Leaf-1B Upgrade Image" (3 actions), "Leaf-2B Upgrade Image" (3 actions), "Leaf-1A Upgrade Image" (3 actions), and "Leaf-2A Upgrade Image" (3 actions). The "Action Summary" shows 100% completion for Image, Clean Flash, and Misc. The "Change Control Summary" timeline indicates the task was last edited by aolsson 35m ago, approved by aolsson, started by aolsson 34m ago, and completed 6m ago.

COMPLIANCE

CloudVision continuously computes image and configuration compliances. If a device is either configuration, image, or extension non-compliant, CVP automatically generates a non-compliant event on the Compliance dashboard and flags the device as non-compliant on the Inventory screen.

1. Navigate to **Devices > Inventory**.

The Inventory page will show that all devices are now running 4.31.3M but will also show a red “**Page**” icon in the “**Issues**” column that wasn’t there before the upgrade. This icon indicates that the running configuration on the devices differs from what CloudVision thinks it should be running. This happened because “**ribd**” was the default routing model before EOS 4.30, and “**multi-agent**” was the default for EOS 4.30 and later.

NOTE: Changing the routing model protocol from “**ribd**” to “**multi-agent**” requires a reboot for the changes to take effect. This lab will skip the reboot due to time limitations.

The screenshot shows the Arista CloudVision interface. On the left is a sidebar with icons for Devices, Inventory, Device Registration, Compliance Overview, Endpoint Overview, Connectivity Monitor, Traffic Flows, Endpoint Search, Comparison, Multi-Cloud Dashboard, and Network Segmentation. The main area is titled "Inventory" and displays a table of 7 devices. The columns include Device, Streaming, Issues, Model, Software, Streaming Agent, IP Address, MAC Address, and Device ID. The table lists devices like Leaf-1A, Leaf-1B, Leaf-2A, Leaf-2B, Spine-1, Spine-2, and sw-10.18.168.61, each with its specific details. A "Show all 7 devices" link is at the top right, and a "Export to CSV" button is at the bottom.

- Click on the red "Page" icon next to one of the devices. This will take you to that device's configuration "Compare Config" section.

The screenshot shows the "Compare Config" tab for the device Leaf-1A. The left sidebar includes sections for System, Processes, Storage, Log Messages, Hardware Capacity, Configuration (selected), Hardware, Snapshots, CVE and Bug Exp., Tags, Switching (selected), ARP Table, NDP Table, Bridging Capability, MAC Address Table, MLAG, VXLAN, Routing (selected), IPv4 Routing Table, IPv6 Routing Table, IPv4 Multicast Table, BGP, and iBGP. The main area shows two tabs: "Designed Configuration" and "Running Configuration". The "Designed Configuration" tab displays a configuration snippet with a line 18 highlighted: "service routing protocols model multi-agent". The "Running Configuration" tab shows a similar snippet with a line 18 highlighted: "service routing protocols model fibd". A "Config Sources" tab is also visible. At the bottom is a timeline from 15:00 to 13:00 with a "Show: Live" button.

NOTE: It's always a good idea to validate device configuration compliance within CloudVision after an upgrade in case EOS default values have changed.

- To bring the device configuration back into compliance, head to **Devices > Compliance Overview**

Bug Exposure
7 devices

CVE Threats
7 devices

Identifier	Type	Summary	Severity	Device Count	Exposed Devices
500322	Bug	Management interfaces may flap with kernel message "transmit timed out, resetting" and should come back up automatically. On rare occasions an interface will remain down after such flap until the interface PCI device is reset or the system reloaded.	High	7	Leaf-1A, Leaf-1B, Leaf-2A, and 4 other devices
543510	Bug	The "show daemon" cli command displays the last PID if the agent has died and not yet restarted	Low	1	sw-10.1B.168.61
613653	Bug	"logging level" CLI in startup config does not work after reload. The workaround is to reconfigure the CLI after reload.	Low	7	Leaf-1A, Leaf-1B, Leaf-2A, and 4 other devices
672269	Bug	ConnectivityMonitor may restart unexpectedly if more than 250 http probes are configured	High	1	sw-10.1B.168.61
678460	Bug	After EOS upgrade on an MLAG pair, one or both peers may show unexpected/incorrect "show mlag config-sanity" output. To workaround, restart the MLAG agent on the first upgraded peer via "agent Mlag terminate", preferably during a maintenance window.	Low	4	Leaf-1A, Leaf-1B, Leaf-2A, and 1 other device
712490	Bug	Any non-EAPOL packet coming from an unknown MAC address will go through the MBA process and will show up under "show dot1x hosts" as successful/failed authentication based on the AAA server settings for that particular MAC address.	Low	1	sw-10.1B.168.61

- Select the “Configuration and Image” tab near the top.

Configuration Compliance
7 devices

Image Compliance
7 devices

Device	Status	Last Compliance Check
Leaf-1A	Configuration out of sync	Jun 3, 2024 10:16:31
Leaf-1B	Configuration out of sync	Jun 3, 2024 10:10:43
Leaf-2A	Configuration out of sync	Jun 3, 2024 10:16:30
Leaf-2B	Configuration out of sync	Jun 3, 2024 10:10:16
Spine-1	Configuration out of sync	Jun 3, 2024 10:31:04
Spine-2	Configuration out of sync	Jun 3, 2024 10:23:46

- Select all 6 devices that need to be brought back into compliance
- Click the blue “Sync Config” button

The screenshot shows the Arista Compliance Overview page. On the left, a sidebar menu includes: Devices, Inventory, Device Registration, Compliance Overview (selected), Endpoint Overview, Connectivity Monitor, Traffic Flows, Endpoint Search, Comparison, Multi-Cloud Dashboard, and Network Segmentation. The main content area has two donut charts: 'Configuration Compliance' (7 devices) and 'Image Compliance' (7 devices). Below the charts is a table listing device status:

Device	Status	Last Compliance Check
Leaf-1A	Configuration out of sync	Jun 3, 2024 10:16:31
Leaf-1B	Configuration out of sync	Jun 3, 2024 10:16:43
Leaf-2A	Configuration out of sync	Jun 3, 2024 10:16:30
Leaf-2B	Configuration out of sync	Jun 3, 2024 10:10:16
Spine-1	Configuration out of sync	Jun 3, 2024 10:31:04
Spine-2	Configuration out of sync	Jun 3, 2024 10:23:46

At the bottom, there is a timeline from 11:00 to 10:00 showing 'Now'.

7. You'll be redirected to the change control overview screen for the change control created to bring the devices back into compliance.

The screenshot shows the Arista Change Control Overview page for a task named 'Sync Devices 2024-06-03-10-49...'. The left sidebar includes: Provisioning, Network Provisioning, Conflicts, Image Repository (selected), Upload and Download, Tasks, Actions, Change Control (selected), Action Bundles, Templates, Studios, Workspaces, Snapshot Configuration, Public Cloud Accounts, Tags, Zero Touch Provisioning. The main content area shows the 'Change Control Stages' section with tasks for Leaf-1A, Leaf-1B, Leaf-2A, Leaf-2B, Spine-1, and Spine-2. It also displays a 'Change Control Summary' with stages: Last Edit, Approval, In Progress, and Completed. The 'Action Summary' shows 6 actions under 'Config'. The 'Device Status' section lists Leaf-1A, Leaf-1B, Leaf-2A, Leaf-2B, Spine-1, and Spine-2, all marked as Active.

8. By default, all change controls created using the “Compliance Overview” page will be in series. For this lab, we want to run all changes in parallel, so select the “Change Control Stages” line item at the top of the screen in the section showing the tasks to be

- executed. Once the “**Change Control Stages**” line is highlighted, select the “**Parallel**” button on the right side of the screen just under the “**Change Control Summary**.”
- Select the blue “**Review and Approve**” button on the top right of the screen.

- The “**Review Change**” pop-up will appear, showing a single configuration change on all 6 devices. Select the blue “**Approve**” button to approve the change control.

- Select the blue “**Execute Change Control**” button on the top right.

12. The “Execute Change Control” pop-up will appear. Select the “Execute” button to continue.

13. Once completed, green check marks will appear next to each task, and the green “Success” icon will appear to the right of the change control name.

The screenshot shows the Arista Network's Change Control interface. On the left, a sidebar lists various management options like Provisioning, Network Provisioning, Configlets, Image Repository, Tasks, Actions, and Change Control (which is selected). The main area displays a "Sync Devices 2024-06-03-10-49..." task with a "Success" status. The task details show a parallel series of actions across two racks:

- Rack 1A:** Contains Leaf-1A and Leaf-1B. Leaf-1A has one action: "Sync Leaf-1A (1 action)" which completed successfully. Leaf-1B also has one action: "Sync Leaf-1B (1 action)" which completed successfully.
- Rack 2A:** Contains Leaf-2A and Leaf-2B. Leaf-2A has one action: "Sync Leaf-2A (1 action)" which completed successfully. Leaf-2B also has one action: "Sync Leaf-2B (1 action)" which completed successfully.
- Rack 1B:** Contains Spine-1 and Spine-2. Spine-1 has one action: "Sync Spine-1 (1 action)" which completed successfully. Spine-2 also has one action: "Sync Spine-2 (1 action)" which completed successfully.

On the right, a "Change Control Summary" section provides a timeline of the process: Last Edit (48m ago), Approved (48m ago), Started (46m ago), and Completed (45m ago). It also includes an "Action Summary" showing a 100% completion rate for the "Config" action and a "Device Status" section listing six devices (Leaf-1A, Leaf-1B, Leaf-2A, Leaf-2B, Spine-1, Spine-2) all marked as "Active".