



# **Upgrade to optimize your install base**

Active IQ Digital Advisor

NetApp  
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# Upgrade to optimize your install base

## Upgrade the ONTAP version by generating an upgrade plan

You can view the pending upgrades of your storage system and upgrade to a later version of ONTAP by generating an upgrade plan. You should also view the list of risks in the **Risk Advisor** tab which would be mitigate because of the upgrade.

### Steps

1. On the dashboard, view pending upgrades in the **Upgrades** widget.
2. Click the number of **Actions** to view the pending upgrades.
3. Select the required upgrade option.
4. Click the number of systems displayed on the widget to view the **Upgrade Advisor** tab.

You can also check the Release Notes to view detailed information about the release.

5. View the list of risks in the **Risk Advisor** tab, along with their severity level, which would be mitigated because of the upgrade.
6. Click **Generate Upgrade Plan** to navigate to **Upgrade Advisor**.

## Upgrade the support offering

You can purchase an upgrade to the support offering to access more features and functionalities in Active IQ Digital Advisor.

You can upgrade your current support offering to optimize your install base with the help of recommended practices and fixes, upgrade automation with Ansible playbooks, actionable reports and reviews, personalized support, and so on. The upgrade can be purchased when you renew your support contracts or at any other time from the system (node) dashboard.



You can opt for AIQ Upgrade only if you currently use the SupportEdge Premium or SupportEdge Secure support offerings.

### Steps

1. Click **View All Systems** next to the **Inventory** widget.
2. On the Inventory Dashboard, select the node (host) that you want to upgrade.  
You are redirected to the system or node dashboard.
3. Click **Upgrade** in the **Configuration** widget.

## Configuration

 ClusterViewer

[Overview](#) [Customer Details](#)

**Cluster Name:**

HighStor

**Current Support Offering:**

STANDARD [↑ Upgrade](#)

**Hostname:**

HighStor-01

**Serial Number:**

721549000065

**Model:**

FAS8040

**OS Version:**

9.3P5

4. Optionally, click **Compare Support Offerings** to view the comparison chart and pick the support offering that fits your requirements.  
Alternatively, you can click **Support Offerings** on the left navigation menu to view the comparison chart.
5. Select the type of upgrade that you want.
  - a. Add AIQ Upgrade to your SupportEdge Premium or SupportEdge Secure support offerings
  - b. Any other upgrade request
6. Add any comments that you have and click **Send**.  
A request to purchase the support offering upgrade is sent to the NetApp Renewals team.

## Update your AFF and FAS firmware using Ansible Playbook

### Download the AFF and FAS firmware Ansible Automation package


You should update the AFF and FAS firmware using Ansible to mitigate the identified risks and keep your storage system up to date.

#### Before you begin

Before updating AFF and FAS firmware using Ansible, you should:

- [Install and set up Ansible on your storage system](#)
- [Install Ansible 2.9 with collections on your storage system](#)
- Upgrade your storage system to ONTAP 9.1 or later
- Configure your account with an administrator role

#### Steps

1. Click any wellness widget on the dashboard or click **View All Actions** to view a list of all the actions and risks.
2. Click **Firmware Upgrade** to view all firmware upgrade risks.
3. Click **Update AFF and FAS Firmware** to view all available update packages or click  next to each risk

to update the package specific to that risk.

4. Click **Download** to download the zip files and update your storage system.

The zip file contains the following:

- Ansible Playbook - A YAML file containing the Ansible script to perform the disk, shelf, and service processor firmware updates.
- Inventory - A YAML file containing the details of the systems that are applicable for firmware updates.
- Disk, Shelf, and Service Processor/BMC Firmware packages are named as **all.zip**, **all\_shelf\_fw.zip**, and **<SP/BMC>\_<version\_number>\_fw.zip** respectively.



Manual addition of clusters and controllers to the inventory file is not supported.

## Install and execute AFF and FAS firmware Ansible automation package (Experienced Users)

Experienced users can install and execute the AFF and FAS firmware ansible automation package quickly.

### Firmware update with Ansible using NetApp Docker Image

#### Steps

1. Pull the Ansible Docker image to the Linux host:

```
$ docker pull schmots1/netapp-ansible
Using default tag: latest
latest: Pulling from schmots1/netapp-ansible
docker.io/schmots1/netapp-ansible:latest
```

2. Run the docker image as a container on the Linux host:

```
$ docker run -v <downloaded_playbook_path>:/<container_path> -it
schmots1/netapp-ansible:latest /bin/bash
```



The Ansible Playbook and the inventory file should be in the same path.

3. Execute the Ansible Playbook on the Linux host. Firmware updates run in the background for a few hours.

```
$ cd <container_path>
$ ansible-playbook na_ontap_pb_upgrade_firmware.yml

Enter your ONTAP admin username: ****
Enter the password for your ONTAP admin user: ****
Enter the base URL to the firmware package (using HTTP is recommended):
http://<web-server>/path/
PLAY [ONTAP Firmware Upgrade]
*****
```



If the URLs for disk firmware, shelf firmware, and service processor firmware are **http://<web-server>/path/all\_shelf\_fw.zip**, **http://<web-server>/path/all.zip** and **http://<web-server>/path/<SP/BMC>\_<version\_number>\_fw.zip**, provide **http://<web-server>/path/** as the input for the base URL to the firmware package. If there are a set of clusters with different login credentials, the Ansible Playbook must be run on each cluster. There are no changes required to the inventory file as the Ansible Playbook skips the clusters for which the login has failed.

4. Log in to the cluster as the cluster administrator and verify that the new drive firmware has been installed:

```
::> storage disk show -fields firmware-revision,model
disk      firmware-revision model
-----
1.11.0    NA01                X423_HCOBE900A10
1.11.1    NA01                X423_HCOBE900A10
1.11.2    NA01                X423_HCOBE900A10
1.11.3    NA01                X423_HCOBE900A10
1.11.4    NA01                X423_HCOBE900A10
```

## Firmware update if Ansible is already used

### Steps

1. Install Python and Ansible and then download the Python packages using PIP:

```
$ pip install netapp-lib requests paramiko

Installing collected packages: netapp-lib, requests, paramiko
Successfully installed netapp-lib-2020.3.12 requests-2.23.0 paramiko-2.7.2
```

2. Install the NetApp Ansible Collection:

To install the collection only for the current user:

```
$ ansible-galaxy collection install netapp.ontap
```

For universal installation:

```
$ ansible-galaxy collection install netapp.ontap -p
```

```
/usr/share/ansible/collections
```

```
$ chmod -R +rw /usr/share/ansible/collections
```

3. Ensure that the Ansible Playbook and the inventory file are in the same path and then execute the Ansible Playbook. Firmware updates run in the background for a few hours.

```
$ cd <playbook_path>
```

```
$ ansible-playbook na_ontap_pb_upgrade_firmware_disk.yml
```

```
Enter your ONTAP admin username: ****
```

```
Enter the password for your ONTAP admin user: ****
```

```
Enter the base URL to the firmware package (using HTTP is recommended):
```

```
http://<web-server>/path/
```

```
PLAY [ONTAP Firmware Upgrade]
```

```
*****
```



If the URLs for disk firmware, shelf firmware, and service processor firmware are **http://<web-server>/path/all\_shelf\_fw.zip**, **http://<web-server>/path/all.zip** and **http://<web-server>/path/<SP/BMC>\_<version\_number>\_fw.zip**, provide **http://<web-server>/path/** as the input for the base URL to the firmware package. If there are a set of clusters with different login credentials, the Ansible Playbook must be run on each cluster. There are no changes required to the inventory file as the Ansible Playbook skips the clusters for which the login has failed.

4. Log in to the cluster as the cluster administrator and verify that the new drive firmware has been installed:

```
::> storage disk show -fields firmware-revision,model
```

```
disk      firmware-revision model
```

```
-----
1.11.0    NA01                X423_HCOBE900A10
1.11.1    NA01                X423_HCOBE900A10
1.11.2    NA01                X423_HCOBE900A10
1.11.3    NA01                X423_HCOBE900A10
1.11.4    NA01                X423_HCOBE900A10
```

## Install and execute the AFF and FAS firmware Ansible Automation package (Beginners)

### Host firmware files using web server

After you download the automation package, the firmware files should be hosted on a web server.

The web server can be set up in multiple ways. For instructions to set up a simple web server using Python, refer to [Webserver using Python](#).

### Step

1. Save the base URL of the web server. If the URLs for disk firmware, shelf firmware, and service processor firmware are **http://<web-server>/path/all\_shelf\_fw.zip**, **http://<web-server>/path/all.zip**, and **http://<web-server>/path/<SP/BMC>\_<version\_number>\_fw.zip**, save **http://<web-server>/path/** as the base URL.

The filename is automatically detected by the Ansible Playbook.

### Work with inventory file

The inventory file consists of the cluster management LIFs of the systems that are eligible for firmware updates. It contains the list of clusters with disk and shelf firmware filename information wherever applicable.

For service processor firmware update, node hostnames and SP/BMC IP is included in the inventory file.

### Inventory file format

The following is a sample inventory file format with both disk and shelf firmware updates:



```
clusters:
- clustername: <cluster management LIF-1>
  disk_fw_file: all.zip
  shelf_fw_file: all_shelf_fw.zip

- clustername: <cluster management LIF-2>
  disk_fw_file: all.zip
  sp_nodes:
  - hostname: <node hostname 1>
    sp_fw_file: SP_FW_308-03990_11.5.zip
    sp_fw_type: bmc
    sp_fw_ver: '11.5'
    sp_ip: <BMC IP>
  - hostname: <node hostname 2>
    sp_fw_file: SP_FW_308-03991_5.8.zip
    sp_fw_type: sp
    sp_fw_ver: '5.8'
    sp_ip: <SP IP>
```

In the example, both shelf and disk firmware updates are applicable on cluster-1 and disk and SP/BMC firmware updates are applicable on cluster-2.

#### Delete a cluster from the inventory file

In case you do not want to apply firmware updates on a particular cluster, you can remove the cluster from the inventory file.

For example, if you do not want to apply disk firmware updates on cluster-2, you can remove it from the inventory file using the following command:

```
clusters:
- clustername: <cluster management LIF-1>
  disk_fw_file: all.zip
  shelf_fw_file: all_shelf_fw.zip
```

You can observe that all the data for cluster-2 has been deleted.

If you want to apply only disk firmware updates on cluster-1 and not shelf firmware updates, you can do so using the following command:

```
clusters:
- clustername: <cluster management LIF-1>
  disk_fw_file: all.zip
```

You can see that the *shelf\_fw\_file* key and value have been removed from cluster-1.



Manual addition of clusters or controllers is not supported.

## Execute Ansible Playbook using NetApp Docker image

Before you execute the Ansible Playbook, ensure that the **NetApp\_Ansible\_\*.zip** file has been extracted and the web server with disk or shelf firmware files is ready.

### Before you begin

Before executing Ansible Playbook using NetApp docker, you should:

- [Download the AFF and FAS firmware Ansible Automation package](#)
- [Host the Firmware files using the web server](#)
- [Work with the inventory file](#)
- Ensure that NetApp Docker is installed.

### Steps

1. [Set up Docker](#).
2. Pull the NetApp Docker image from DockerHub by executing the following command:

```
$ docker pull schmots1/netapp-ansible

Using default tag: latest
latest: Pulling from schmots1/netapp-ansible
docker.io/schmots1/netapp-ansible:lates
```

For more information about the docker pull command, refer to the [Docker Pull Documentation](#).

3. Run the Docker image as a container and log in to the container to execute the Ansible Playbook.
4. Copy the path of the folder which contains the extracted Ansible Playbook and inventory files, for example, **downloaded\_playbook\_path**. The Ansible Playbook and inventory files should be in the same folder for successful execution.
5. Mount the folder as a volume on the Docker container. For example, to mount the folder **container\_path**, you should execute the following command:

```
$ docker run -v <downloaded_playbook_path>:/<container_path> -it
schmots1/netapp-ansible:latest /bin/bash
```

The container starts and the console is now at bash shell of the container. For more information about the Docker Run command, refer to the [Docker Run Documentation](#).

6. Execute the Ansible Playbook inside the container using the **ansible-playbook** command:

```
$ cd <container_path>
$ ansible-playbook na_ontap_pb_upgrade_firmware.yml

Enter your ONTAP admin username: ****
Enter the password for your ONTAP admin user: ****
Enter the base URL to the firmware package (using HTTP is recommended):
http://<web-server>/path/
PLAY [ONTAP Firmware Upgrade]
*****
```



If there are a set of clusters with different login credentials, the Ansible Playbook must be run on each cluster. There are no changes required to the inventory file as the Ansible Playbook skips the clusters for which the login has failed.

For more information about the **ansible-playbook** command, refer to the [Ansible Playbook Documentation](#) and to execute the Ansible playbook in check mode (dry run), refer to [Ansible: Check mode](#).

After executing the Ansible Playbook, refer to the [Firmware Installation Validations](#) for post-execution instructions.

## Execute Ansible Playbook without NetApp Docker image

### Steps

1. Install [Python](#) and [Ansible](#).
2. Install the required Python packages using **pip**:

```
$ pip install netapp-lib requests paramiko

Installing collected packages: netapp-lib, requests, paramiko
Successfully installed netapp-lib-2020.3.12 requests-2.23.0 paramiko-2.7.2
```

3. Install NetApp Ansible collection using the **ansible-galaxy** command:

```
To install the collection only for the current user
$ ansible-galaxy collection install netapp.ontap

To do a more universal installation,
$ ansible-galaxy collection install netapp.ontap -p
/usr/share/ansible/collections

$ chmod -R +rw /usr/share/ansible/collections
```

For more information about the **ansible-galaxy** command, refer to [Ansible Galaxy Documentation](#) and for

more information about the NetApp Ansible Collection, refer to the [NetApp Ansible Collection page](#).

4. Execute the Ansible Playbook using **ansible-playbook** command:

```
$ cd <downloaded_playbook_path>
$ ansible-playbook na_ontap_pb_upgrade_firmware.yml

Enter your ONTAP admin username: ****
Enter the password for your ONTAP admin user: ****
Enter the base URL to the firmware package (using HTTP is recommended):
http://<web-server>/path/
PLAY [ONTAP Firmware Upgrade]
*****
```



If there are a set of clusters with different login credentials, the Ansible Playbook must be run on each cluster. There are no changes required to the inventory file as the Ansible Playbook skips the clusters for which the login has failed.

For more information about the **ansible-playbook** command, refer to the [Ansible Playbook Documentation](#) and to execute the Ansible Playbook in check mode (dry run), refer to [Ansible: Check mode](#).

After executing the playbook, refer to the [Firmware Installation Validations](#) for post-execution instructions.

### Validate firmware installation

After the execution of the playbook, log in to the cluster as the cluster administrator.

### Validate disk firmware installation

#### Steps

1. Verify that the drive firmware is installed:

```
::*> storage disk show -fields firmware-revision,model
disk      firmware-revision model
-----
1.11.0    NA01                X423_HCOBE900A10
1.11.1    NA01                X423_HCOBE900A10
1.11.2    NA01                X423_HCOBE900A10
1.11.3    NA01                X423_HCOBE900A10
1.11.4    NA01                X423_HCOBE900A10
```

For more information about the command, refer to [storage disk show](#).

2. Verify that the new NVMe Flash Cache firmware is installed:

```
::*> system controller flash-cache show
```

For more information about the command, refer to [system controller flash-cache show](#).

## Validate shelf firmware installation

### Steps

1. Verify that the new shelf firmware is updated:

```
::*> system node run -node * -command sysconfig -v
```

In the output, verify that each shelf's firmware is updated to the desired level. For example:

```
Shelf 1: IOM6 Firmware rev. IOM6 A: 0191 IOM3 B: 0191
```

For more information about the command, refer to [system node run](#).

2. Verify that the new ACP firmware is updated:

```
::*> storage shelf acp module show -instance
```

For more information about the command, refer to [storage shelf acp module show](#).

3. Verify that the desired ACP mode is configured:

```
::*> storage shelf acp show
```

For more information about the command, refer to [storage shelf acp show](#).

4. Change the ACP mode (channel):

```
::*> storage shelf acp configure -channel [in-band | out-of-band]
```

For more information about the command, refer to [storage shelf acp configure](#).

## Validating SP/BMC Firmware installation

The Ansible Playbook for Service Processor/BMC firmware updates is enabled with an option to verify the installation of latest SP/BMC firmware on the controller. After the verification is complete (the updates could take a maximum time of two hours), the Ansible Playbook applies internal switch firmware updates by connecting to the SP/BMC console.

The failure and success information for SP/BMC firmware and the internal switch firmware installations will be

notified at the end of Ansible Playbook execution. Follow the steps mentioned in the Ansible Playbook in case the SP/BMC firmware/internal switch firmware installation fails.

### **Get more information**

You can get help and find more information through various resources.

- [Troubleshooting information](#)
- [Slack workspace](#)
- [Email](#)
- Support button in Active IQ Digital Advisor for support and feedback.

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