



Update HA cluster components

BeeGFS on NetApp with E-Series Storage

NetApp
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Update HA cluster components

Update BeeGFS version

Follow these steps to update the HA cluster's BeeGFS version using Ansible.

Overview

BeeGFS follows a `major.minor.patch` versioning scheme. BeeGFS HA Ansible roles are provided for each supported `major.minor` version (e.g., `beegfs_ha_7_2` and `beegfs_ha_7_3`). Each HA role is pinned to the latest BeeGFS patch version available at the time of the Ansible collection's release.

Ansible should be used for all BeeGFS upgrades, including moving between major, minor, and patch versions of BeeGFS. To update BeeGFS you will first need to update the BeeGFS Ansible collection, which will also pull in the latest fixes and enhancements to the deployment/management automation and underlying HA cluster. Even after updating to the latest version of the collection, BeeGFS will not be upgraded until `ansible-playbook` is ran with the `-e "beegfs_ha_force_upgrade=true"` set.



For more information on BeeGFS versions see the [BeeGFS Upgrade documentation](#).

Tested upgrade paths

Each version of the BeeGFS collection is tested with specific versions of BeeGFS to ensure interoperability between all components. Testing is also performed to ensure upgrades can be performed from the BeeGFS version(s) supported by the last version of the collection, to those supported in the latest release.

Original Version	Upgrade Version	Multirail	Details
7.2.6	7.3.2	Yes	Upgrading beegfs collection from v3.0.1 to v3.1.0, multirail added
7.2.6	7.2.8	No	Upgrading beegfs collection from v3.0.1 to v3.1.0
7.2.8	7.3.1	Yes	Upgrade using beegfs collection v3.1.0, multirail added
7.3.1	7.3.2	Yes	Upgrade using beegfs collection v3.1.0
7.3.2	7.4.1	Yes	Upgrade using beegfs collection v3.2.0
7.4.1	7.4.2	Yes	Upgrade using beegfs collection v3.2.0

BeeGFS upgrade steps

The following sections provide steps to update the BeeGFS Ansible collection and BeeGFS itself. Pay special attention to any extra step(s) for updating BeeGFS major or minor versions.

Step 1: Upgrade BeeGFS collection

For collection upgrades with access to [Ansible Galaxy](#), run the following command:

```
ansible-galaxy collection install netapp_eseries.beegfs --upgrade
```

For offline collection upgrades, download the collection from [Ansible Galaxy](#) by clicking on the desired `Install Version` and then Download tarball`. Transfer the tarball to your Ansible control node and run the following command.

```
ansible-galaxy collection install netapp_eseries-beegfs-<VERSION>.tar.gz
--upgrade
```

See [Installing Collections](#) for more information.

Step 2: Update Ansible inventory

Make any required or desired updates to your cluster's Ansible inventory files. See the [Version Upgrade Notes](#) section below for details about your specific upgrade requirements. See the [Ansible Inventory Overview](#) section for general information on configuring your BeeGFS HA inventory.

Step 3: Update Ansible playbook (when updating major or minor versions only)

If you are moving between major or minor versions, in the `playbook.yml` file used to deploy and maintain the cluster, update the name of the `beegfs_ha_<VERSION>` role to reflect the desired version. For example, if you wanted to deploy BeeGFS 7.4 this would be `beegfs_ha_7_4`:

```
- hosts: all
  gather_facts: false
  any_errors_fatal: true
  collections:
    - netapp_eseries.beegfs
  tasks:
    - name: Ensure BeeGFS HA cluster is setup.
      ansible.builtin.import_role: # import_role is required for tag
        availability.
        name: beegfs_ha_7_4
```

For more details on the contents of this playbook file see the [Deploy the BeeGFS HA cluster](#) section.

Step 4: Run the BeeGFS upgrade

To apply the BeeGFS update:

```
ansible-playbook -i inventory.yml beegfs_ha_playbook.yml -e
"beegfs_ha_force_upgrade=true" --tags beegfs_ha
```

Behind the scenes the BeeGFS HA role will handle:

- Ensure the cluster is in an optimal state with each BeeGFS service located on its preferred node.
- Put the cluster in maintenance mode.
- Update the HA cluster components (if needed).

- Upgrade each file node one at a time as follows:
 - Place it into standby and failover its services to the secondary node.
 - Upgrade BeeGFS packages.
 - Fallback back services.
- Move the cluster out of maintenance mode.

Version upgrade notes

Upgrading from BeeGFS version 7.2.6 or 7.3.0

Changes to connection based authentication

BeeGFS versions released after 7.3.1 will no longer allow services to start without either specifying a `connAuthFile` or setting `connDisableAuthentication=true` in the service's configuration file. It is highly recommended to enable connection based authentication security. See [BeeGFS Connection Based Authentication](#) for more information.

By default the `beegfs_ha*` roles will generate and distribute this file, also adding it to the Ansible control node at `<playbook_directory>/files/beegfs/<beegfs_mgmt_ip_address>_connAuthFile`. The `beegfs_client` role will also check for the presence of this file and supply it to the clients if available.



If the `beegfs_client` role was not used to configure clients, this file will need to be manually distributed to each client and the `connAuthFile` configuration in the `beegfs-client.conf` file set to use it. When upgrading from a previous version of BeeGFS where connection based authentication was not enabled, clients will loose access unless connection based authentication is disabled as part of the upgrade by setting `beegfs_ha_conn_auth_enabled: false` in `group_vars/ha_cluster.yml` (not recommended).

For additional details and alternate configuration options see the step to configure connection authentication in the [Specify Common File Node Configuration](#) section.

Upgrade E-Series storage array

Follow these steps to upgrade the HA cluster's E-Series storage arrays (block nodes).

Overview

Keeping your HA cluster's NetApp E-Series storage arrays up-to-date with the latest firmware ensures optimal performance and improved security. Firmware updates for the storage array are applied using SANtricity OS, NVSRAM, and drive firmware files.



While the storage arrays can be upgraded with the HA cluster online, it is recommended to place the cluster into maintenance mode for all upgrades.

Block node upgrade steps

The following steps outline how to update the storage arrays's firmware using the `Netapp_Eseries.Santricity` Ansible collection. Before proceeding, review the [Upgrade considerations](#)

for updating E-Series systems.



Upgrading to SANtricity OS 11.80 or later releases is only possible from 11.70.5P1. The storage array must first be upgraded to 11.70.5P1 before applying further upgrades.

1. Validate your Ansible control node is using the latest Santricity Ansible Collection.

- For collection upgrades with access to [Ansible Galaxy](#), run the following command:

```
ansible-galaxy collection install netapp_eseries.santricity --upgrade
```

- For offline upgrades, download the collection tarball from [Ansible Galaxy](#), transfer it to your control node, and execute:

```
ansible-galaxy collection install netapp_eseries-santricity-  
<VERSION>.tar.gz --upgrade
```

See [Installing Collections](#) for more information.

2. Obtain the latest firmware for your storage array and drives.

a. Download the firmware files.

- **SANtricity OS and NVSRAM:** Navigate to the [NetApp support site](#) and download the latest release of SANtricity OS and NVSRAM for your storage array model.
- **Drive Firmware:** Navigate to the [E-Series disk firmware site](#) and download the latest firmware for each of your storage array's drive models.

b. Store the SANtricity OS, NVSRAM, and drive firmware files in your Ansible control node's `<inventory_directory>/packages` directory.

3. If necessary, update your cluster's Ansible inventory files to include all storage arrays (block nodes) requiring updates. For guidance, see the [Ansible Inventory Overview](#) section.

4. Ensure the cluster is in an optimal state with each BeeGFS service is on its preferred node. Refer to [Examine the state of the cluster](#) for details.

5. Place the cluster in maintenance mode following the instructions in [Place the cluster in maintenance mode](#).

6. Create a new Ansible playbook named `update_block_node_playbook.yml`. Populate the playbook with the following content, replacing the Santricity OS, NVSRAM, and drive firmware versions to your desired upgrade path:

```

- hosts: eseries_storage_systems
gather_facts: false
any_errors_fatal: true
collections:
  - netapp_eseries.santricity
vars:
  eseries_firmware_firmware: "packages/<SantricityOS>.dlp"
  eseries_firmware_nvram: "packages/<NVSRAM>.dlp"
  eseries_drive_firmware_firmware_list:
    - "packages/<drive_firmware>.dlp"
  eseries_drive_firmware_upgrade_drives_online: true

tasks:
  - name: Configure NetApp E-Series block nodes.
    import_role:
      name: nar_santricity_management

```

7. To start the updates, execute the following command from your Ansible control node:

```
ansible-playbook -i inventory.yml update_block_node_playbook.yml
```

8. After the playbook completes, verify each storage array is in an optimal state.
9. Move the cluster out of maintenance mode and validate the cluster is in an optimal state with each BeeGFS service is on its preferred node.

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