



# Deploy utility

## ONTAP Select

NetApp

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# Deploy utility

## Upgrading a Deploy instance

You can upgrade an existing Deploy utility virtual machine in-place using the command line interface.

### Before you begin

Make sure that Deploy is not used to perform any other tasks during the upgrade. You should see the current release notes for information and restrictions about upgrading the Deploy utility.

### Downloading the upgrade package

To begin the upgrade process, you must download the appropriate Deploy virtual machine upgrade file from the NetApp Support Site. The upgrade package is formatted as a single compressed file.

#### *Steps*

1. Access the NetApp Support Site using a web browser and click **Support Quick Links**.
2. Click **Download Software** under **Top Tasks** and sign in.
3. Click **Find your product**.
4. Scroll down and click **ONTAP Select Deploy Upgrade**.
5. Select the desired release of the upgrade package.
6. Review the End User License Agreement (EULA) and click **Accept & Continue**.
7. Select and download the appropriate package, responding to all prompts as needed for your environment.

#### *Related information*

[NetApp Support](#)

## Uploading the package to the Deploy virtual machine

After acquiring the upgrade package, you must upload the file to the Deploy virtual machine.

#### *Before you begin*

You must have the upgrade file available on your local workstation. You must also have the password for the administrator user account.

#### *About this Tasks*

This task describes one method for uploading the file to the Deploy virtual machine. There may be other options more suitable for your environment.

### *Steps*

1. In a command shell on your local workstation, use the sftp utility to upload the image file to the Deploy virtual machine.

### *Example*

```
sftp admin@10.234.81.101 (provide password when prompted)
put ONTAPdeploy2.12_upgrade.tar.gz
exit
```

### *Result*

The upgrade file is stored in the home directory of the admin user.

## **Applying the upgrade package**

After the upgrade file has been uploaded to the Deploy virtual machine, you can apply the upgrade.

### *Before you begin*

You must know which directory the upgrade file has been placed in at the Deploy utility virtual machine. Also, assure that Deploy is not used to perform any other tasks while the upgrade is performed.

### *Steps*

1. Sign in to the Deploy utility CLI using SSH with the administrator account.
2. Perform the upgrade using the appropriate directory path and file name:

```
deploy upgrade -package-path FILEPATH
```

### *Example*

```
deploy upgrade -package-path /home/admin/
ONTAPdeploy2.12_upgrade.tar.gz
```

### *After you finish*

After the upgrade procedure completes, you are asked to create a backup of the Deploy virtual machine configuration. You should also clear the browser cache to be able to view the newly created Deploy pages.

## **Migrating a Deploy instance to a new virtual machine**

You can migrate an existing instance of the Deploy administration utility to a new virtual machine using the command line interface.

This procedure is based on creating a new virtual machine that uses the configuration data from the original virtual machine. The new and original virtual machines must run the same version and release of the Deploy utility. You cannot migrate to a different version and release of the Deploy utility.

## Backing up the Deploy configuration data

You must create a backup of the Deploy configuration data as part of migrating the virtual machine. You should also create a backup after deploying an ONTAP Select cluster. The data is saved to a single encrypted file that you can download to your local workstation.

### *Before you begin*

Make sure that Deploy is not performing any other tasks during the backup operation.

### *About this task*

The backup file you create captures all the configuration data from the virtual machine. This data describes aspects of your deployment environment, including the ONTAP Select clusters.

### *Steps*

1. Sign in to the Deploy utility CLI using SSH with the administrator account.
2. Create a backup of the Deploy configuration data, which is stored in an internal directory at the Deploy server:

```
deploy backup create
```

3. Provide a password for the backup when prompted.

The backup file is encrypted based on the password.

4. Display the available backups in the system:

```
deploy backup show -detailed
```

5. Select your backup file based on the date in the **Created** field and record the **Download URL** value.

You can access the backup file through the URL.

6. Using a web browser or utility such as Curl, download the backup file to your local workstation with the URL.

## Installing a new instance of the Deploy virtual machine

You must create a new instance of the Deploy virtual machine which you can update with the configuration data from the original virtual machine.

### *Before you begin*

You must be familiar with the procedures used to download and deploy the ONTAP Select Deploy virtual machine in a VMware environment.

### *About this task*

This task is described at a high level.

### *Steps*

1. Create a new instance of the Deploy virtual machine:
  - a. Download the virtual machine image.
  - b. Deploy the virtual machine and configure the network interface.
  - c. Access the Deploy utility using SSH.

### *Related information*

[Installing ONTAP Select Deploy](#)

## **Restoring the Deploy configuration data to the new virtual machine**

You must restore the configuration data from the original Deploy utility virtual machine to the new virtual machine. The data is in a single file that you must upload from your local workstation.

### *Before you begin*

You must have the configuration data from a previous backup. The data is contained in a single file and must be available on your local workstation.

### *Steps*

1. In a command shell on your local workstation, use the sftp utility to upload the backup file to the Deploy virtual machine.

#### Example

```
sftp admin@10.234.81.101 (provide password when prompted)
put deploy_backup_20190601162151.tar.gz
exit
```

2. Sign in to the Deploy utility CLI using SSH with the administrator account.
3. Restore the configuration data.

```
deploy backup restore -path PATHNAME -filename FILENAME
```

#### Example

```
deploy backup restore -path /home/admin -filename deploy_backup_20180601162151.tar.gz
```

## **Adding an ONTAP Select image to Deploy**

You can add an ONTAP Select image to your instance of the Deploy administration

utility. After the image has been installed, you can use it when deploying an ONTAP Select cluster.

## Before you begin

At a high level, the process used to add an ONTAP Select image to an instance of Deploy consists of four steps:

1. Downloading the install image
2. Uploading the install image to the Deploy virtual machine
3. Adding the install image
4. Displaying the available install images

Before adding any new ONTAP Select images to Deploy, you should first remove any unneeded images.



You should only add an ONTAP Select image with a version that is earlier than the original version included with your instance of the Deploy utility. Adding later versions of ONTAP Select as they become available from NetApp is not a supported configuration.

## Downloading the install image

To begin the process of adding an ONTAP Select image to an instance of the Deploy utility, you must download the install image from the NetApp Support Site. The ONTAP Select install image is formatted as a single compressed file.

### *Steps*

1. Access the NetApp Support Site using a web browser and click **Support Quick Links**.
2. Click **Download Software** under **Top Tasks** and sign in to the site.
3. Click **Find your product**.
4. Scroll down and click **ONTAP Select**.
5. Under **Other Available Select Software** click **Deploy Upgrade, Node Upgrade, Image Install**.
6. Select the desired release of the upgrade package.
7. Review the End User License Agreement (EULA) and click **Accept & Continue**.
8. Select and download the appropriate package, responding to all prompts as needed for your environment.

## Uploading the install image to Deploy

After acquiring the ONTAP Select install image, you must upload the file to the Deploy virtual machine.

### *Before you begin*

You must have the install image file available on your local workstation. You must also have the password for the Deploy administrator user account.

### *About this task*

This task describes one method for uploading the file to the Deploy virtual machine. There may be other options more suitable for your environment.

### *Step*

1. In a command shell on your local workstation, upload the image file to the Deploy virtual machine.

#### Example

```
scp image_v_93_install_esx.tgz admin@10.234.81.101:/home/admin (provide password when prompted)
```

#### Example

```
sftp admin@10.234.81.101 (provide password when prompted)
put image_v_93_install_esx.tgz
exit
```

### *Result*

The node install file is stored in the home directory of the admin user.

## **Adding the install image**

You can add the ONTAP Select installation image to the Deploy images directory so it is available when deploying a new cluster.

### *Before you begin*

You must know which directory the install image file has been placed in at the Deploy utility virtual machine. It is assumed the file is in the administrator's home directory.

### *Steps*

1. Sign in to the Deploy utility CLI using SSH with the administrator (admin) account.
2. Start the Bash shell:  
  
`shell bash`
3. Place the install image file into the images directory.

#### Example



```
tar -xf image_v_93_install_esx.tgz -C /opt/netapp/images/
```

## Displaying the available install images

You can display the ONTAP Select images that are available when deploying a new cluster.

### Steps

1. Access the online documentation web page at the Deploy utility virtual machine and sign in using the administrator (admin) account:

```
http://<FQDN|IP_ADDRESS>/api/ui
```

Use the domain name or IP address of the Deploy virtual machine.

2. Navigate to the bottom of the page and click **Deploy** and then click **GET /images**.
3. Click **Try it out!** to display the available ONTAP Select images.
4. Confirm that the desired image is available.

## Removing an ONTAP Select image from Deploy

You can remove ONTAP Select images from your instance of the Deploy administration utility when they are no longer needed.

### About this task

You can remove older ONTAP Select images that are not currently in use by a cluster or planned for use with a future cluster deployment.



You should not remove any ONTAP Select images that are in use by a cluster.

### Steps

1. Sign in to the Deploy utility CLI using SSH with the administrator (admin) account.
2. Display the clusters managed by Deploy and record the ONTAP images in use:

```
cluster show
```

Note the version number and hypervisor platform in each case.

3. Start the Bash shell:

```
shell bash
```

4. Display all of the available ONTAP Select images:

```
ls -lh /opt/netapp/images
```

5. Optionally remove an ESXi image.

Example

```
rm -r /opt/netapp/images/DataONTAPv-9.3RC1-vidconsole-esx.ova
```

6. Optionally remove a KVM image.

Example

```
rm -r /opt/netapp/images/DataONTAPv-9.3RC1-serialconsole-kvm.raw.tar
```

## Recovering the Deploy utility for a two-node cluster

If the ONTAP Select Deploy utility fails or becomes unavailable for some reason, you lose the ability to administer ONTAP Select nodes and clusters. In addition, all two-node clusters lose HA capability because the mediator service included with Deploy is unavailable. If an unrecoverable failure occurs, you must recover the Deploy utility instance to restore administrative and HA functionality.

### Before you begin

You should prepare before attempting to recover an instance of the Deploy utility to assure success.

### Required skills and information

You should be familiar with several administrative procedures and have the required information.

### Installing the Deploy virtual machine

You must be able to install a new instance of the ONTAP Select Deploy utility in your hypervisor environment.

### ONTAP command line interface

You must be able to sign in to the ONTAP CLI of the ONTAP Select cluster and use the shell interface.

### Availability of Deploy utility configuration backup

You must determine if you have a backup of the configuration data from the failed Deploy utility instance that contains the ONTAP Select two-node cluster. You might have a backup that does not contain the cluster.

### Restoring a backup of the Deploy configuration

You should be able to restore a backup of the Deploy configuration data, depending on the recovery procedure used.

**IP address of the original Deploy virtual machine**

You must know the IP address of the original Deploy utility virtual machine that failed.

**Storage capacity licensing**

You must determine whether capacity pools or capacity tiers licensing is used. If you use capacity pools licensing, you must reinstall each capacity pool license after recovering or restoring the Deploy instance.

**Deciding which recovery procedure to use**

You must decided which procedure to use when recovering an instance of the ONTAP Select Deploy utility. Your decision is based on whether or not you have a backup of the configuration data from the original failed Deploy utility that contains the ONTAP Select two-node cluster.

Do you have a Deploy backup containing the two-node cluster?	Recovery procedure to use
Yes	Restoring a Deploy utility instance using a configuration backup
No	Reconfiguring and recovering a Deploy utility instance

**Restoring a Deploy utility instance using a configuration backup**

If you have a backup of the failed Deploy utility instance containing the two-node cluster, you can restore the configuration data to the new Deploy virtual machine instance. You must then complete the recovery by performing additional configuration of the two nodes in the ONTAP Select cluster.

*Before you begin*

You must have a backup of the configuration data from the original failed Deploy virtual machine that contains the two-node cluster. You must be able to sign in to the ONTAP CLI of the two-node cluster and know the ONTAP names of the two nodes.

*About this task*

Because the configuration backup you restore contains the two-node cluster, the mediator iSCSI targets and mailboxes are recreated in the new Deploy utility virtual machine.

*Steps*

1. Prepare a new instance of the ONTAP Select Deploy utility:
  - a. Install a new Deploy utility virtual machine.
  - b. Restore the Deploy configuration from a previous backup to the new virtual machine.

Refer to the related tasks for more detailed information about the install and restore procedures.

2. Sign in to the ONTAP command line interface of the ONTAP Select two-node cluster.

3. Enter advanced privilege mode:

```
set adv
```

4. If the IP address of the new Deploy virtual machine is different than the original Deploy virtual machine, you must remove the old mediator iSCSI targets and add new targets:

```
storage iscsi-initiator remove-target -node * -target-type mailbox

storage iscsi-initiator add-target -node <node1_name> -label mediator -target-type mailbox -target-portal <ip_address> -target-name <target>

storage iscsi-initiator add-target -node <node2_name> -label mediator -target-type mailbox -target-portal <ip_address> -target-name <target>
```

The `<ip_address>` parameter is the IP address of the new Deploy virtual machine.

These commands allow the ONTAP Select nodes to discover the mailbox disks on the new Deploy utility virtual machine.

5. Determine the names of the mediator disks:

```
disk show --container-type mediator
```

6. Assign the mailbox disks to the two nodes:

```
disk assign -disk <mediator-disk1-name> -owner <node1-name>
disk assign -disk <mediator-disk2-name> -owner <node2-name>
```

7. Verify that storage failover is enabled:

```
storage failover show
```

*After you finish*

If you use capacity pools licensing, you must reinstall each capacity pool license. See *Reinstalling a capacity pool license* for additional details.

## Reconfiguring and recovering a Deploy utility instance

If you do not have a backup of the failed Deploy utility instance containing the two-node cluster, you must configure the mediator iSCSI target and mailbox in the new Deploy virtual machine. You must then complete the recovery by performing additional configuration of the two nodes in the ONTAP Select cluster.

*Before you begin*

You must have the name of the mediator target for the new Deploy utility instance. You must be able to sign in to the ONTAP CLI of the two-node cluster and know the ONTAP names of the two nodes.

#### *About this task*

You can optionally restore a configuration backup to the new Deploy virtual machine even though it does not contain the two-node cluster. Because the two-node cluster is not recreated with the restore, you must manually add the mediator iSCSI target and mailbox to the new Deploy utility instance through the ONTAP Select online documentation web page at the Deploy. You must be able to sign in to the two-node cluster and know the ONTAP names of the two nodes.



The goal of the recovery procedure is to restore the two-node cluster to a healthy state, where normal HA takeover and giveback operations can be performed.

#### *Steps*

1. Prepare a new instance of the ONTAP Select Deploy utility:
  - a. Install a new Deploy utility virtual machine.
  - b. Optionally restore the Deploy configuration from a previous backup to the new virtual machine.

If you restore a previous backup, the new Deploy instance will not contain the two-node cluster. Refer to the related information section for more detailed information about the install and restore procedures.

2. Sign in to the ONTAP command line interface of the ONTAP Select two-node cluster.
3. Enter advanced privileged mode:

```
set adv
```

4. Get the mediator iSCSI target name:

```
storage iscsi-initiator show -target-type mailbox
```

5. Access the online documentation web page at the new Deploy utility virtual machine and sign in using the admin account:

```
http://<ip_address>/api/ui
```

You must use the IP address of your Deploy virtual machine.

6. Click **Mediator** and then **GET /mediators**.
7. Click **Try it out!** to display a list of mediators maintained by Deploy.

Note the ID of the desired mediator instance.

8. Click **Mediator** and then **POST**.
9. Provide the value for mediator\_id.

10. Click the **Model** next to `iscsi_target` and complete the name value.

Use the target name for the `iqn_name` parameter.

11. Click **Try it out!** to create the mediator iSCSI target.

If the request is successful, you will receive HTTP status code 200.

12. If the IP address of the new Deploy virtual machine is different than the original Deploy virtual machine, you must use the ONTAP CLI to remove the old mediator iSCSI targets and add new targets:

```
storage iscsi-initiator remove-target -node * -target-type mailbox

storage iscsi-initiator add-target -node <node1_name> -label mediator -target-type mailbox -target-portal <ip_address> -target-name <target>

storage iscsi-initiator add-target -node <node2_name> -label mediator -target-type mailbox -target-portal <ip_address> -target-name <target>
```

The `<ip_address>` parameter is the IP address of the new Deploy virtual machine.

These commands allow the ONTAP Select nodes to discover the mailbox disks on the new Deploy utility virtual machine.

1. Determine the names of the mediator disks:

```
disk show --container-type mediator
```

2. Assign the mailbox disks to the two nodes:

```
disk assign -disk <mediator-disk1-name> -owner <node1-name>

disk assign -disk <mediator-disk2-name> -owner <node2-name>
```

3. Verify that storage failover is enabled:

```
storage failover show
```

*After you finish*

If you use capacity pools licensing, you must reinstall each capacity pool license. See [Reinstalling a capacity pool license](#) for additional details.

*Related information*

[Installing ONTAP Select Deploy](#)

Restoring the Deploy configuration data to the new virtual machine  
Reinstalling a capacity pool license

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