



ONTAP® Select 9 Quick Start Guide: Deploying an Evaluation Cluster on KVM

Updated for ONTAP Select 9.3 using Deploy 2.6

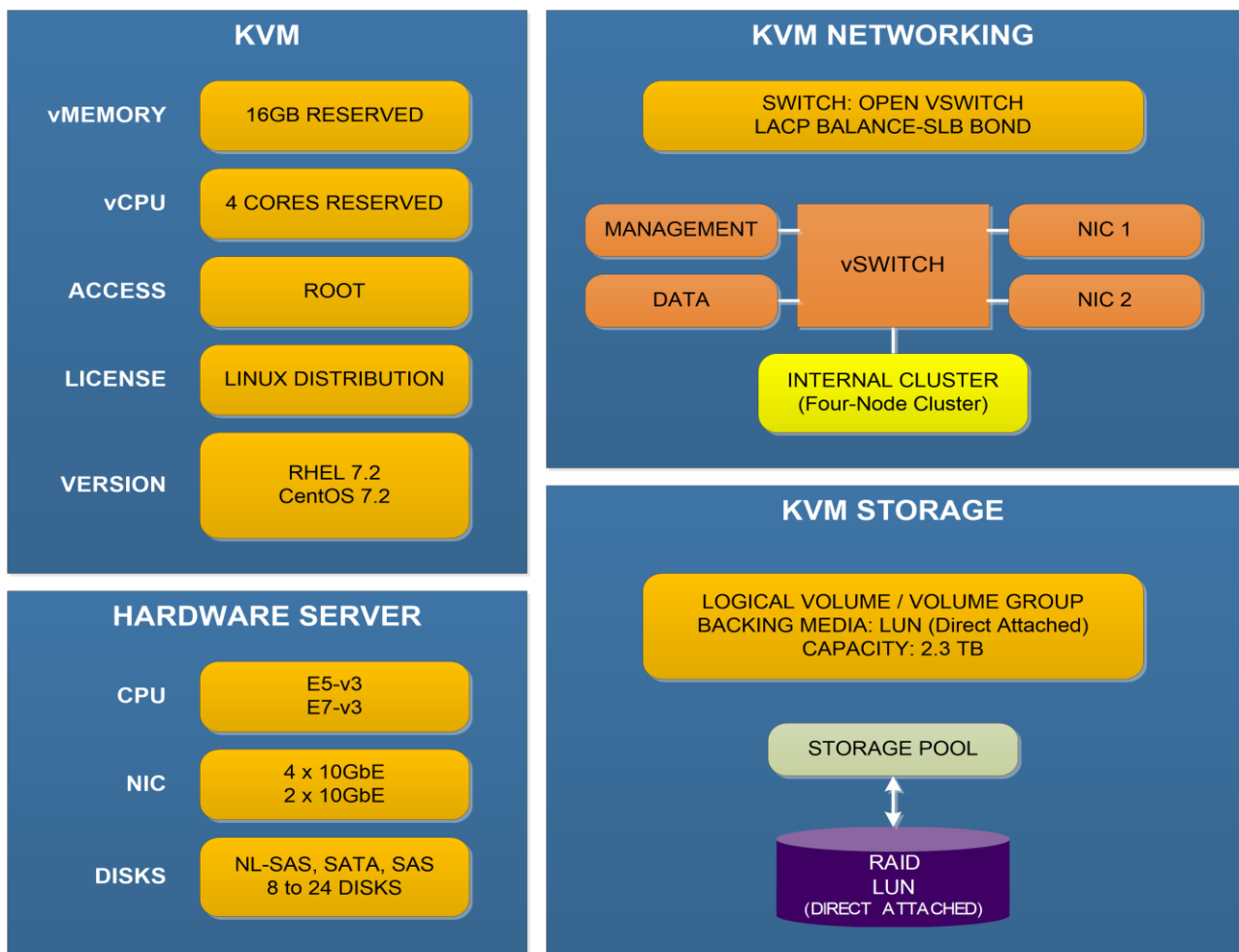
The *ONTAP Select 9 Quick Start Guide: Deploying an Evaluation Cluster on KVM* describes how to quickly deploy a 90-day evaluation instance of an ONTAP Select cluster consisting of one, two, or four nodes.

- Up to 2 TB of storage for user data can be allocated at each node
- You do not need to obtain serial numbers or storage capacity licenses from NetApp
- You cannot upgrade the nodes from an evaluation license to a purchased license

You must first install the ONTAP Select Deploy administration utility and then use the utility to deploy an ONTAP Select cluster. The ONTAP Select Deploy utility provides both a web and CLI user interface for deploying ONTAP Select clusters.

Preparing the ONTAP Select cluster hosts

Use the following minimum requirements to prepare the KVM host(s) where the ONTAP Select cluster is deployed. The platform description is based on the standard or small instance type configuration with local direct-attached storage (DAS). You can also use an external storage array.



With a multi-node cluster, the node management and cluster management networks must be in the same subnet. The internal cluster network is not used with a single-node cluster. Also, the Deploy utility must have connectivity to every host where ONTAP Select is running. You must create a storage pool and configure Open vSwitch on each node. For more detailed information on host configuration, including networking and storage options, see the [ONTAP Select 9 Installation and Cluster Deployment Guide for KVM](#).

Preparing the ONTAP Select Deploy utility host

The Linux KVM hypervisor host where the ONTAP Select Deploy administration utility is installed must meet the following configuration requirements:

- Both hardware and software are 64-bit
- Linux distribution must be one of the following:
 - RedHat Enterprise Linux 7.2
 - CentOS 7.2
- Virtual CPUs (2)
- Virtual memory (4 GB)
- Storage (40 GB)
- DHCP-enabled (if you will dynamically assign an IP address)

In addition, you must have all the information needed to deploy the virtual machine using KVM, including the name of the virtual machine, storage pool, host name, and additional networking details if configuring a static IP address.

Installing the ONTAP Select Deploy utility

Complete the following steps on a supported Linux KVM host server:

1. Download the compressed ONTAP Select Deploy utility virtual machine image from the [NetApp Support Site](#) to your local workstation: click **ONTAP Select** and then **Deploy Install**.
2. Upload the compressed file to the Linux server and extract the raw virtual machine image.
3. With root access, install the virtual machine at the Linux CLI; for example:

```
virt-install --name=deploy-kvm --vcpus=2 --ram=4096 --os-type=linux
--controller=scsi,model=virtio-scsi
--disk path=/home/select_deploy25,device=disk,bus=scsi,format=raw
--network "type=bridge,source=ontap_externalnetwork model=virtio,
virtualport_type=openvswitch" --console=pty --import --wait 0
```

4. Connect to the virtual machine console:

```
virsh console deploy-kvm
```

5. When prompted, provide the host name and select either DHCP or a static IP configuration, responding to all prompts as appropriate.
6. Make sure there is network connectivity between the Deploy VM and the KVM hosts where the ONTAP Select cluster will run.

Deploying an ONTAP Select cluster using the web user interface

You can use the ONTAP Select Deploy web user interface to deploy a cluster.

1. Sign in to the Deploy utility through the web interface using the IP address of the Deploy virtual machine and administrator account. The first time you sign in, provide the default password (admin123) and change the password when prompted.
2. Confirm that you have met the configuration requirements and prerequisites as described in the **Welcome to ONTAP Select** popup window and click **OK**.
3. On the **Getting Started** page, define a hypervisor host and click **Add**. Make sure that the **vCenter** option is off before adding host details.
4. If needed, repeat step 3 to add three additional hosts (four-node cluster) or one additional host (two-node cluster). Refresh the page to confirm that the **Type** value for every host is **KVM**.
5. Click **Next** to begin the multi-step cluster creation process.
6. In the **Cluster Details** section of the page, provide all the required information describing the cluster, including evaluation licensing, and click **Done**.
7. In the **Setup HA Pair 1** (multi-node cluster) or **Setup Host** (single-node cluster) section of the page, click **Select Hosts**.
8. In the **Select hosts for the HA pair** popup window, select the hypervisor configuration instance (Small) and storage pool capacity that applies to the host(s).
9. Select two hosts (multi-node) or one host (single-node cluster) from the list and click **Done**.
10. Click **Configure Hosts** and select the networks and datastores for the host(s) and click **Done**.
11. If you are deploying a four-node cluster:
 - a. In the **Setup HA Pair 2** section of the page, click **Select Hosts**.
 - b. Configure the second HA pair following the same steps used for the first HA pair.
12. Click **Configure Network** and provide all the network configuration parameters for the cluster network in the **Configure Network** window and click **Done**.
13. Review and confirm the configuration of the cluster; you can change the configuration by clicking **Edit** in the applicable section.
14. If you are deploying a multi-node cluster, run the network connectivity checker to test the connectivity among the nodes on the internal cluster network.
15. Click **Create Cluster** to begin the cluster creation process and then click **OK** in the **Cluster create operation started** popup window. It can take up to 30 minutes for the cluster to be created.
16. Select **View Clusters** and on the **Clusters** page select the new cluster and monitor the multi-step cluster creation process.

The page is automatically refreshed at regular intervals. Notice that three tabs are now available at the top of the page: **Clusters**, **Hypervisor Hosts**, **Administration**.

Deploying an ONTAP Select cluster using the command line interface

You can use the ONTAP Select Deploy CLI to deploy a cluster.

1. Sign in to the Deploy utility CLI using SSH with the administrator account. The first time you sign in, provide the default password (admin123) and change the password when prompted.

2. Add the host where the cluster will run:

```
host add --host-id FQDN_hostname --username username  
--password password
```

Example:

```
host add --host-id shost01.select.mycompany.com --username  
admin@myhost.local --password mypwd
```

3. Verify the host status is authenticated:

```
host show --host-id hostname
```

4. Configure the host:

```
host configure --host-id hostname --location location  
--storage-pool name --internal-vlan vlanid --internal-network name  
--management-network name --data-network name --instance-type type --eval
```

Example:

```
host configure --host-id shost01.select.mycompany.com  
--location coco --storage-pool shost01_1 --internal-network shost01_inetwork  
--management-network shost01_mnetwork --data-network shost01_mnetwork  
--instance-type small --eval
```

You can optionally assign a VLAN ID to the networks using the `--internal-vlan` parameter.

5. Verify the host status is configured:

```
host show --host-id hostname
```

6. If needed, repeat steps 2 through 5 to add and configure three additional hosts (four-node cluster) or one additional host (two-node cluster). You must make sure that the parameters on the host add and host configure commands are correct for each of the hosts, including:
`--storage pool --management-network --data-network`

7. Create a four-node cluster:

```
cluster create --name cluster_name --cluster-mgmt-ip address  
--node-mgmt-ips address(4) --netmask mask --gateway address  
--node-names node_name(4) --node-hosts host_name(4)  
--node-mirrors ha1_node1 ha1_node2 ha2_node1 ha2_node2
```

Example:

```
cluster create --name my-cluster01 --cluster-mgmt-ip 10.96.141.17  
--node-mgmt-ips 10.96.141.25 10.96.141.26 10.96.141.27 10.96.141.28  
--netmask 255.255.248.0 --gateway 10.96.141.1 --node-names snode01 snode02  
snode03 snode04 --node-hosts shost01.select.mycompany.com  
shost02.select.mycompany.com shost03.select.mycompany.com  
shost04.select.mycompany.com --node-mirrors snode01 snode02 snode03 snode04
```

Note: To create a two-node cluster, use the same command with only two values for the following parameters: --node-mgmt-ips --node-names --node-hosts

Note: To create a single-node cluster, use the same command with only one value for the following parameters: --node-mgmt-ips --node-names --node-hosts

8. Display the ONTAP Select cluster and verify all settings:

```
cluster show-all
```

Support for evaluation deployments

You should refer to the [NetApp Community](#) site for support. Click **ONTAP Select** to start a discussion and to see all the postings related to ONTAP Select.

For more information

- [NetApp Technical Report 4613: ONTAP Select on KVM Product architecture and Best Practices](#)
- [ONTAP Select Resources portal](#)
- [NetApp Community](#)