

Frequently Asked Questions: Dell EMC UnityVSA™

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Overview

What is UnityVSA?

UnityVSA (Virtual Storage Appliance) is a software defined storage platform that provides users with a low acquisition cost option for hardware consolidation, multi-tenant storage instances, remote/branch office storage environment, and easier to build/maintain/destroy environments for staging and testing. UnityVSA is deployed on a VMware ESXi host and is available in two editions:

- Community Edition is a free downloadable 4TB solution recommended for non-production use.
- Professional Edition is a licensed subscription-based offering available at capacity levels of 10 TB, 25 TB, and 50 TB. The subscription includes access to online support resources, Dell EMC Secure Remote Support (ESRS), and on-call software- and systems-related support.

Both editions can optionally be deployed on a VxRail appliance.

What are the specifications for UnityVSA?

The following table describes the basic specifications for UnityVSA:

Storage Processors (SPs)	1
Virtual processor cores	2 (2GHz+)
Virtual system memory	12 GB
Virtual network adapters	6 (4 ports for I/O, 1 for Unisphere, 1 for system use)
VMware ESXi	ESXi 5.5 or later
Storage objects (virtual disks)	16 maximum in addition to 3 system disk
Connectivity	iSCSI, NFS, SMB
Hardware CPU Processor	Xeon E5 Series Dual Core CPU 64-bit x86 Intel 2GHz+ (SSE4.2 or greater)
Hardware memory	<ul style="list-style-type: none"> • 16 GB minimum for ESXi 5.5 • 18 GB minimum for ESXi 6.0 • 20 GB minimum for ESXi 6.5
Hardware network	1GbE or 10GbE
Hardware RAID	(Recommended) RAID card 512 MB NV cache, battery backed

How do UnityVSA specifications compare to the physical Unity models?

The following table compares UnityVSA specifications to the physical Unity models. The Unity 300 is used for this comparison.

	Unity 300	UnityVSA
Max drives per SP	150 (Dual SP)	16 virtual disks
Total system memory per SP	24 GB	12 GB
Supported drive types	3.5"/2.5" SAS, NL-SAS, SAS Flash 2, SAS Flash 3	Virtual disk
Supported protocols	SMB, NFS, iSCSI, Fibre Channel (FC)	SMB, NFS, iSCSI
Embedded I/O ports per SP	2x10 Gb Base-T (copper) with 2 embedded Converged Network Adapters (CNAs)	4x1 GbE or 4x10 GbE (recommended) Note: You can deploy the UnityVSA on a VxRail appliance that has 2 or 4 physical ports. VxRail uses a shared port architecture that may result in lower performance during high traffic windows.
Optional FC connectivity	4x16 Gb FC	N/A
Backend connectivity per SP	1x12 Gb/s x4 SAS	Virtual disk
Max capacity	2400 TB raw capacity	4 TB usable capacity (Community Edition) 10TB, 25TB, and 50TB usable capacity (Professional Editions)
Max pool LUN size	256 TB	16 TB
Max pool LUNs per system	1000	64
Max pools per system	20	16

How do UnityVSA features compare to the physical Unity models?

The following table compares UnityVSA features to the physical Unity models. The Unity 300 is used for this comparison.

	Unity 300	UnityVSA
Goal	High performance, reliability	Virtual deployment on reliable block
HTML 5 GUI	Yes	Yes
Front end services	Yes	Yes
FAST VP	Yes	Yes
Fibre Channel	Yes	No
64-bit file system	Yes	Yes
Read caching	Yes	Yes
Write caching	Yes	No
Replication	Yes	Yes (asynchronous replication only)
Snapshots	Yes	Yes
Data at Rest Encryption	Yes	No
Disk sector	520 bytes	512 bytes
Disk firmware upgrades	Yes	N/A
Pool members	RAID groups	Virtual disks
Hardware components	Physical	Virtual
Dual-SP	Yes	No
Hypervisor	N/A	ESXi
ESRS VE	Integrated Centralized	Centralized
REST API	Yes	Yes

What storage resources can UnityVSA use for underlying storage?

The UnityVSA can use Dell EMC arrays, third party arrays, or commodity disks for underlying storage.

Deploying and licensing

How do I install and license UnityVSA?

For UnityVSA Professional Edition, install your license file in Unisphere using the System UUID after you register the product. The online help contains instructions for obtaining a license.

For the UnityVSA Community Edition license, see the *Obtain and activate the evaluation license for UnityVSA Community Edition* link on the Dell EMC Community Network website for instructions on how to obtain and activate a license.

Note: Use the License Activation Key instead of the serial number or UUID as the unique identifier for setting up Dell EMC Secure Remote Services (ESRS) and for obtaining customer support (professional editions).

Can I deploy UnityVSA to an ESXi cluster that has server hardware platforms that do not support CPU instruction set SSE 4.2?

Starting in the UnityVSA 4.3 release, server hardware platforms that do not support CPU instruction set SSE 4.2 are no longer supported. If you are running in an ESXi cluster environment, your Enhanced VMotion Compatibility (EVC) settings are set to strict, and you have a non-supported server in your cluster, you might encounter an error that prevents you from deploying your new 4.3 OVA, even if the server you intend to install it on supports SSE 4.2.

If you deploy a 4.3 UnityVSA on a single server and you receive this error, choose a newer server platform on which to run ESXi. If you deploy or upgrade a previously running 4.0, 4.1, or 4.2 version of UnityVSA within an ESXi cluster, update your EVC settings so that the 4.3 UnityVSA will run only on the servers in the cluster whose CPUs support SSE 4.2. Otherwise, you must remove the older, non-supported servers from your cluster environment. For instructions for modifying the EVC setting within an ESXi cluster, see the VMware documentation.

Note: Changes to your EVC control require you to power cycle the UnityVSA within VMWare. A shutdown, restart, or a reboot of UnityVSA is not sufficient to correct this issue after modifying the EVC settings. Power cycling a UnityVSA is a disruptive operation that should be scheduled in advance.

What else should I watch out for when I deploy UnityVSA?

- When you deploy UnityVSA VM, three virtual disks are automatically created for the VM's system data (these are always the virtual disks identified as 1-3). Do not touch these!
- (For non-VxRail deployments) It is strongly recommended that the user's storage (on virtual disks) is allocated on a datastore built on different physical disks than the default UnityVSA VM datastore. Failure to follow this recommendation can lead to system and I/O performance degradation.
- If there is a possibility of upgrading your UnityVSA license at a later time, it is important to avoid using all 16 virtual disks. This leaves virtual disks with more capacity after the upgraded license is installed. Otherwise, storage resources may need to be deleted in order to free up a virtual disk for expansion. Expanding virtual disks that are already configured in a storage pool is not supported and could result in data unavailable conditions.
- Dynamic IP addresses (DHCP) should not be used for any components of the Dell EMC Secure Remote Services (ESRS) servers, Policy Manager servers, or managed devices. Leases for the IP addresses that Dell EMC devices use cannot be set to expire. It is recommended that you assign static IP addresses to those devices you plan to have managed by ESRS.

Note: If you use DHCP to assign IP addresses to any Dell EMC Secure Remote Services (ESRS) components (ESRS servers, Policy Manager, or managed devices), you must change these to static IP addresses.

Can I install/upgrade VMware Tools on my UnityVSA VM?

No. UnityVSA ships with a qualified version of VMware Tools. Installing a different version or upgrading to another version is not supported.

Can I use the Virtual Storage Integrator (VSI) to manage my UnityVSA VM?

VSI does not currently support UnityVSA.

If user data is allocated on the same datastore where UnityVSA is deployed, can I migrate the data to a different datastore?

Yes. To perform the migration:

1. Back up the users' data.
2. Shut down the UnityVSA system.
3. Use vSphere to detach the users' virtual disks from the UnityVSA VM.
4. Migrate the data.
5. Use vSphere to reattach the virtual disks to the UnityVSA VM.
6. Restart UnityVSA.

After installation, how can I differentiate between the Community Edition and Professional Edition of UnityVSA?

The difference between editions can be seen in many different places across Unisphere. One way to check this is by selecting **Settings > Software Upgrades**. The Model field displays the UnityVSA model name.

What if I need more capacity than my model allows?

You can buy a subscription for a larger capacity and upgrade the existing VSA. Subscriptions are offered for one year intervals. If you upgrade before the subscription period ends, the subscription price is prorated based on the expiration of the original license.

Using and managing

How do I create initial and additional storage capacity?

Use VMware vSphere to create virtual disks, as described in the *UnityVSA Installation Guide*.

How do I create a storage pool with UnityVSA?

Creating a storage pool with UnityVSA is similar to creating a storage pool with Unity, except for the following:

- The underlying storage is different. UnityVSA uses virtual disks on the VMware backend, while a physical deployment of Unity uses physical disks on its own hardware.
- With the UnityVSA, you have to assign tiers to the virtual disks you are including in the pool, if the virtual disks do not already have an assigned tier. The tier you select for a disk must be based on the underlying disk characteristics.

For more information, see *Configuring Storage Pools*, which is available on the UnityOE Features Info Hub at http://bit.ly/unityoe_infohub.

What kind of replication is supported for UnityVSA?

UnityVSA supports native asynchronous block and file replication to and from the following types of storage systems:

- Another UnityVSA
- A physically-deployed Unity system

For more information about replication, see *Configuring Replication*, which is available on the UnityOE Features Info Hub at http://bit.ly/unityoe_infohub.

Why does Unisphere not show the speed of the physical NIC ports to which my UnityVSA I/O ports are mapped?

There is a virtual switch layer between the UnityVSA I/O ports and the physical NIC ports of your host. The physical NIC ports serve as uplink ports to that switch. The speed reported in Unisphere is the maximum speed of the virtual NIC and virtual switch combination. Like with physical switches, the uplink speed throttles traffic that needs to leave the virtual switch.

Can I use VMware to modify the physical configuration of the UnityVSA VM? For example, can I add or remove network interfaces or modify the VM's cache size?

Using VMware to modify the physical configuration of a UnityVSA VM, other than to add or remove virtual disks, is not supported and may cause boot issues for the VM.

Can I use VMware to resize a virtual disk?

Resizing a virtual disk through VMware is not supported in UnityVSA. However, if the virtual disk is not part of a storage pool, you can remove it from UnityVSA and add a new one of the preferred size. Virtual disks that are already part of a storage pool should never be resized, because this can result in a failed, unrecoverable pool.

If VMware automatically adds an additional SCSI adapter when I add disks to UnityVSA, what adapter type should I select?

Select **VMware Paravirtual** as the adapter type. If you select another adapter type, your newly added disks will be inaccessible and you will encounter boot issues with the UnityVSA VM.

Can I use all VMware features with UnityVSA?

No, UnityVSA does not support VMware Fault Tolerance or VM-level replication, snapshots, and data protection.

Do not use VMotion and DRS unless UnityVSA is powered off first. For more information, see the *UnityVSA - A Detailed Review* white paper, which is available on the UnityVSA Info Hub at <http://bit.ly/unityvsainfohub>.

Troubleshooting

What should I do if an offline pool has failed drives?

Do not remove a storage pool that has failed drives. Restore the failed drives first, and then delete the pool. If a drive cannot be repaired and you have the Professional Edition of UnityVSA, contact your service provider. Otherwise you have to redeploy UnityVSA to formally remove the offline pool.

I accidentally removed virtual disks from my UnityVSA before deleting the pool they were in, and now I cannot delete the pool. What should I do?

If you did not delete the virtual disks, you can restore them on the host directly or by using vSphere. Then you will be able to delete the pool. If you deleted the virtual disks, you can do one of the following:

- Leave the pool in error state.
- Contact your service provider if you have the Professional Edition of UnityVSA.
- Redeploy UnityVSA to formally remove the offline pool.

If I have the Professional Edition with Dell EMC support, what information should I provide to Dell EMC when I have an issue?

The following information must be provided to properly diagnose issues related to the UnityVSA:

- The UnityVSA License Activation Key, which uniquely identifies the system to Dell EMC support.
- Data collection from UnityVSA. To obtain this output, use the `svc_dc` command or the **Collect Service Information** task on the **Service** page in Unisphere.
- ESXi logs. In vSphere, select **Actions > All vCenter Actions > Export System logs**.
- Performance data from ESXi.
- Any logs from the storage backend.

For more information about the `svc_dc` command, see the *Unity Service Commands Technical Notes*, which is available on the UnityVSA Info Hub at <http://bit.ly/unityvsainfohub>. For more information using the **Collect Service Information** task in Unisphere, see the Unisphere online help.

Getting additional information and support

Where can I get more information about UnityVSA?

For more information about UnityVSA, see the posts on the Dell EMC Community Network website, the *UnityVSA Installation Guide*, and additional UnityVSA documentation. You can view a list of UnityVSA documents, white papers, and videos by accessing the UnityVSA Info Hub at <http://bit.ly/unityvsainfohub>.

Where can I get instructions for managing virtual disks?

For information about managing virtual disks, see the VMware vSphere documentation on the VMware support website.