NexentaStor VSA for Tintri

Installation Guide

Date: June, 2019

Part Number: ns-VSA-Tintri-installationguide-RevA

Table of Contents

1 Preface

This documentation presents information specific to NexentaStor VSA for Tintri products. The information is for reference purposes and is subject to change.

Intended Audience

This Installation Guide demonstrates the basic steps and commands for configuring and managing the NexentaStor VSA for Tintri on VMware using the OVA.

This document includes the instructions to install NexentaStor VSA and covers the following tasks:

- Ensure that the NexentaStor installation requirements are met.
- This document covers supported hardware and software versions and configurations.
- Deploy NexentaStor appliance in any of the following ways:
    - Upgrade to the latest version from a previously installed version.
    - Perform a new installation.
- Activate the product license.

For additional user documentation, see https://nexenta.com/products/documentation.

Document History

Revision	Date	Description
ns-VSA-Tintri-installationguide-RevA-v1	June, 2019	5.2 GA version

2 NexentaStor VSA for Tintri Overview

NexentaStor is a software-based storage appliance providing network-attached storage (NAS). NexentaStor supports file and block services and a variety of advanced storage features such as replication between various storage systems and unlimited snapshots.

Today's modern datacenter has a combination of compute, storage and networking options. This includes an ever-growing use of hyperconverged and block only storage systems. These systems are great for running virtual machines, but users and applications still require file services to conduct daily business. Deploying a file services solution for NFS or SMB connections can be a labor intensive and expensive proposition; to combat that, Nexenta provides a quick and easy way for administrators to add file services to their existing virtual infrastructure. One of the many deployment models of the NexentaStor solution is as a virtual storage appliance (VSA). To make this even simpler and faster for our end users, we have packaged NexentaStor as an OVF appliance. You can install NexentaStor in a virtualized environment and manage NexentaStor 5.x appliances with its Command Line Interface (CLI) and REST APIs, or with the NexentaFusion graphical user interface (GUI).
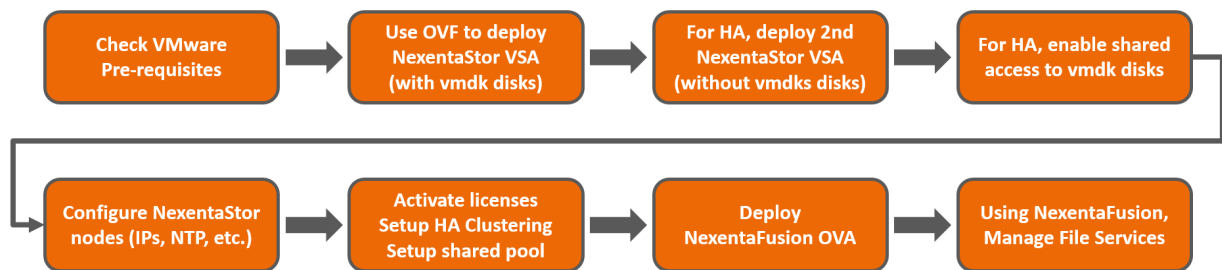
To deploy the NexentaStor Virtual Storage Appliance you simply choose "Deploy OVF" from the vCenter interface and enter the url. To simplify the solution even more we have customized the OVF to provide you with a best practice configuration for four different VSA builds.

- Essential – Basic configuration with 8 TiB disk
- Small – Suitable for smaller deployments with 16 TiB disk
- Medium – Higher performance and capacity, Branch Office File Services with 32 TiB disk
- Large – Enterprise File services starting at 64 TiB disk, add additional disks as needed

OVA deployments programmatically comply with the Enterprise configuration. Each of these will select the correct CPU and Memory, add 1 network interface for management and data and add the disks needed to create the first pool for file services.

Installation Process

This section provides the high level instructions to deploy a new NexentaStor instance. The sequence of steps to install the NexentaStor VSA for Tintri is outlined in the next chapter.

```
Check VMware         Use OVF to deploy      For HA, deploy 2nd     For HA, enable shared
Pre-requisites   →   NexentaStor VSA    →   NexentaStor VSA    →   access to vmdk disks
                     (with vmdk disks)      (without vmdks disks)

Configure NexentaStor   Activate licenses     Deploy              Using NexentaFusion,
nodes (IPs, NTP, etc.) → Setup HA Clustering → NexentaFusion OVA → Manage File Services
                         Setup shared pool
```

www.nexenta.com

3 Installing NexentaStor VSA for Tintri

This section covers how to do a brand new installation of the NexentaStor software in a VMware virtual machine. For simplicity and consistency this can be accomplished using a NexentaStor Virtual Storage Appliance (VSA) packaged as an Open Virtual Appliance.
The NexentaStor VSA can be installed directly from a single URL:

https://prodpkg.nexenta.com/nstor/5.2.1.8/addons/NexentaStorVSA-Tintri-5.2.1.8.ovf

Prerequisites

Supported VMware Versions
VMware ESXi 6.0 and later
vSphere Web Client Flash/Flex UI and NOT HTML5 based version

Minimum Virtual Machine Configurations
OVA deployments programmatically comply with the Enterprise configuration.
The default sizes of the pre defined configurations are:
Essential:
        2 vCPU and 8 GB RAM
        8 TiB disk
Small:
        2 vCPU and 16 GB RAM
        16 TiB disk
Medium:
        4 vCPU and 24 GB RAM
        32 TiB disk
Large:
        4 vCPU and 32 GB RAM
        64 TiB disk
Small, Medium and Large have HA no-disk versions but Essential does not.

Reserved Ports
NexentaStor 5.x appliance uses the ports listed in Table 1. You must add these ports as exceptions when configuring your firewall to allow connections to the corresponding NexentaStor services.

Table 1: List of Network Ports for Firewall Rules

| Protocols and Services	Port Number
Incoming to NexentaStor Management Interface	TCP ports 22 (SSH), 6557, 5557, 8443 (REST API)

Outgoing from NexentaStor appliance	SNMP (UDP 161, 162), DNS (53 UDP/TCP) , NTP (UDP 123), ICAP (port 1344)
Outgoing to Internet	https://licensingservice.nexenta.com/ (443) (ssl) https://logcollector.nexenta.com (443/20/21/7000-8000) (ssl/ftp) https://logcollector02.nexenta.com (443/20/21/7000-8000) (ssl/ftp) https://prodpkg.nexenta.com (443) (ssl) For the list of updated URLs and IP addresses can be accessed from the support portal. For Support bundles, Dial home, License activation and upgrades.
Outgoing to the mail server	TCP port 25 or 587 for relay only (SMTP)
Between the interfaces with the hpr.dataAddress for Replication Data Protocol	TCP port 6000 by default but can be changed
Between NexentaStor Management Interfaces of the clustered nodes	UDP and TCP port 1195

For data traffic on any data interfaces:

|	
iSCSI Target	TCP port 3260
SMB	UDP ports: 137, 138, TCP ports 137, 139
CIFS	UDP and TCP port 445
NFSv3	UDP ports: 111, 2049, 4045, 32768:65535 TCP ports: 111, 2049, 4045, 32768:65535
NFSv4	TCP port: 2049

Install NexentaStor from the OVA

Deployment of the OVA can be done through the vSphere Web Client (Flex). Note that in the event of a slower connection to the internet, the OVFTool will be needed to avoid a timeout.

To install NexentaStor through VMware vCenter:
1. Log in to vSphere Web Client (Flex).
2. Navigate to Hosts and Clusters.
3. Right-Click on your cluster and select "Deploy OVF Template".
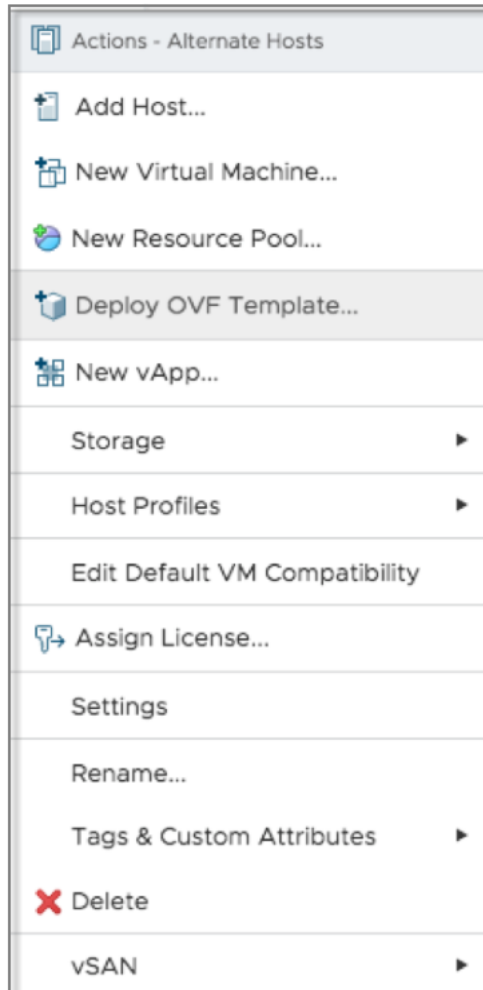
4. Enter the following URL for the NexentaStor VSA for Tintri:
   https://prodpkg.nexenta.com/nstor/5.2.1.8/addons/NexentaStorVSA-Tintri-5.2.1.8.ovf
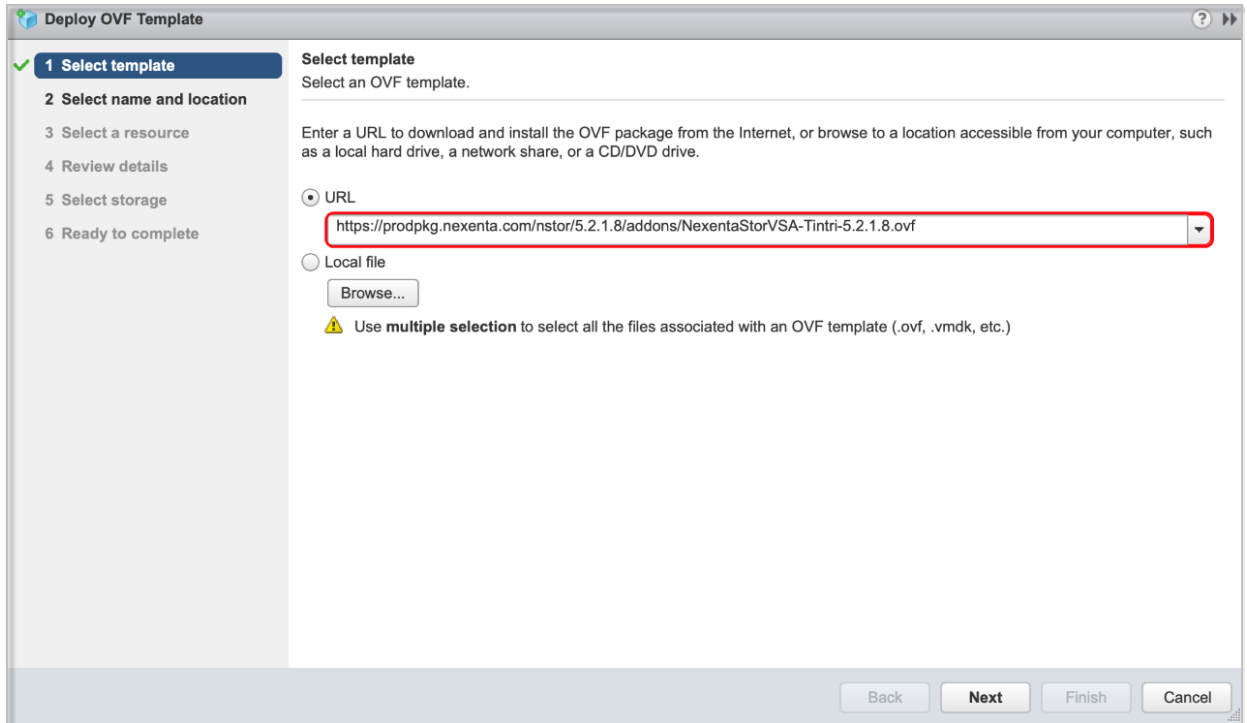

5. If prompted, accept the SSL Certificate and continue.
6. Pick the name and folder for the NexentaStor VSA.
7. Select the destination compute resource where you want to run the VSA.
8. Review and confirm the details.
   Note that the size of the dynamic disks (default: 8 TiB) will be adjusted later in the configuration process.
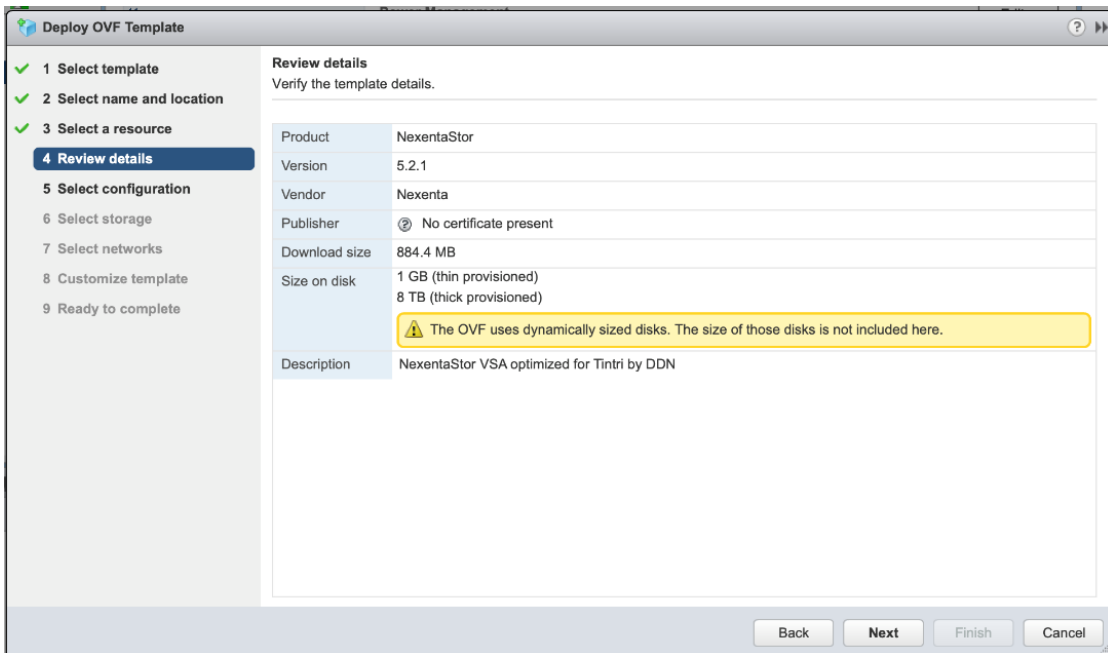
9. Select the size VSA you would like to deploy. All the virtual hardware options can be edited after deployment if needed as well, including adding more drives.
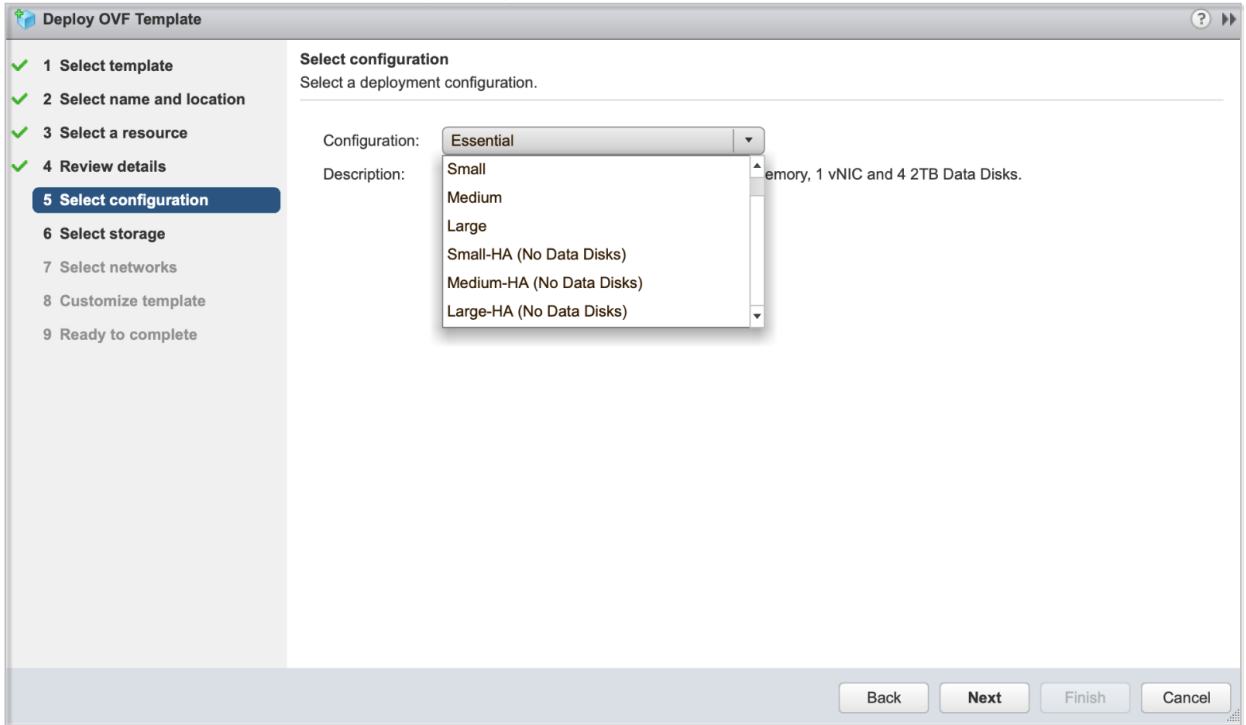

10. Select where you would like your storage to be deployed.
To be able to cluster the VSA the storage must be thick and provisioned with eager zero.
Non-HA VSA's can use thin provisioned storage, but those data disks can never be clustered as VMWare prohibits sharing thin provisioned disks across VMs.
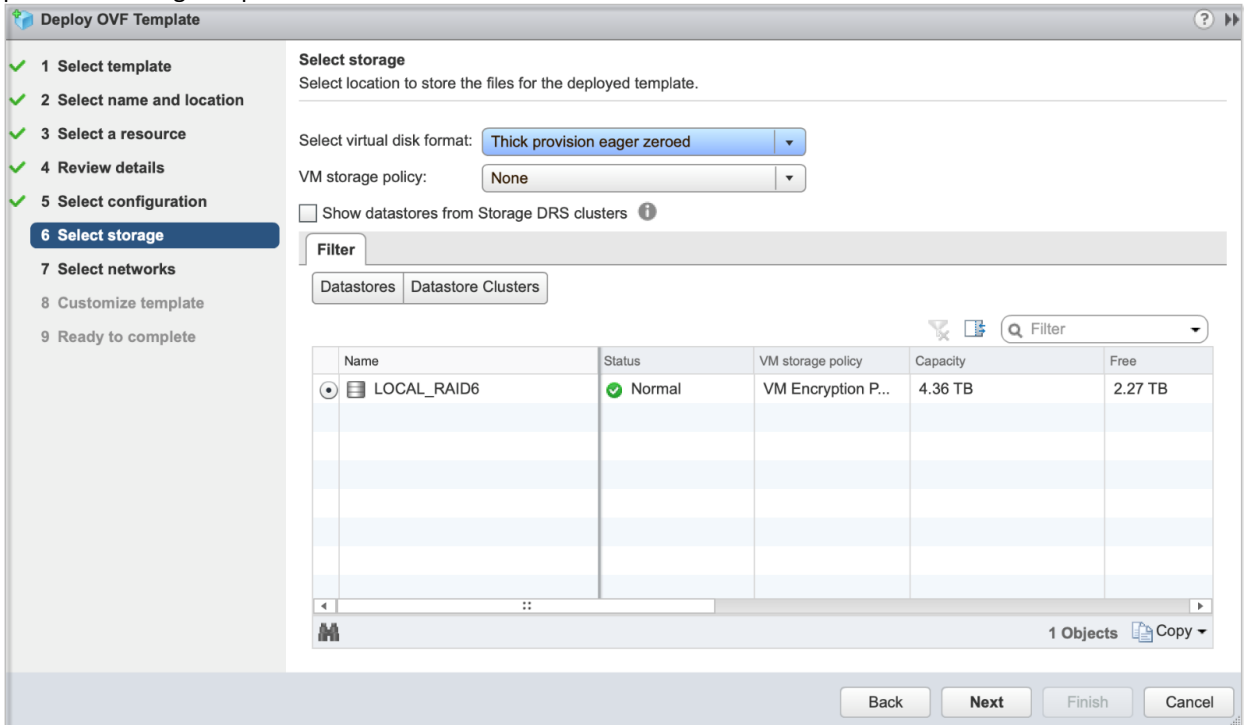
Ensure that the right datastore is selected and also that the storage is created as "Thick provisioned eager zero".

11. Select a network for access, normally "VM Network".
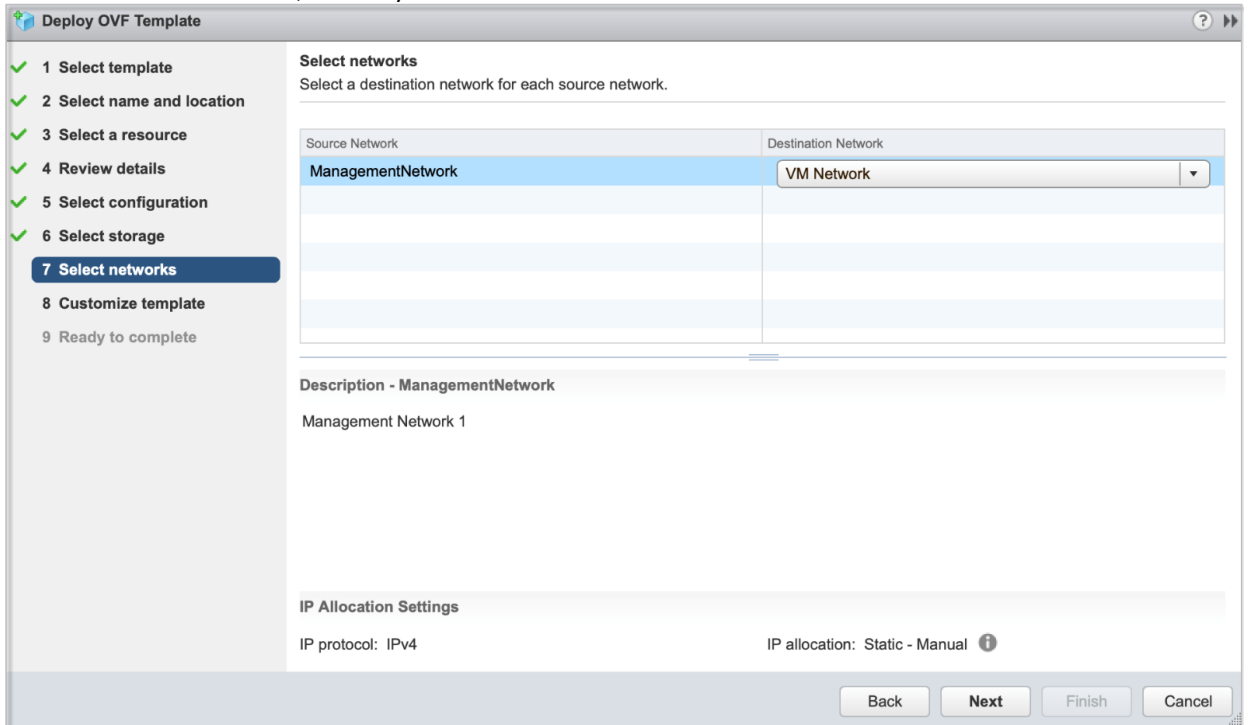
12. Accept or adjust the default disk sizes for the VM size you have chosen. "In Essential, Small and all HA configurations some or all of the disks will have a size of "0" to indicate that they will not be provisioned for this configuration"
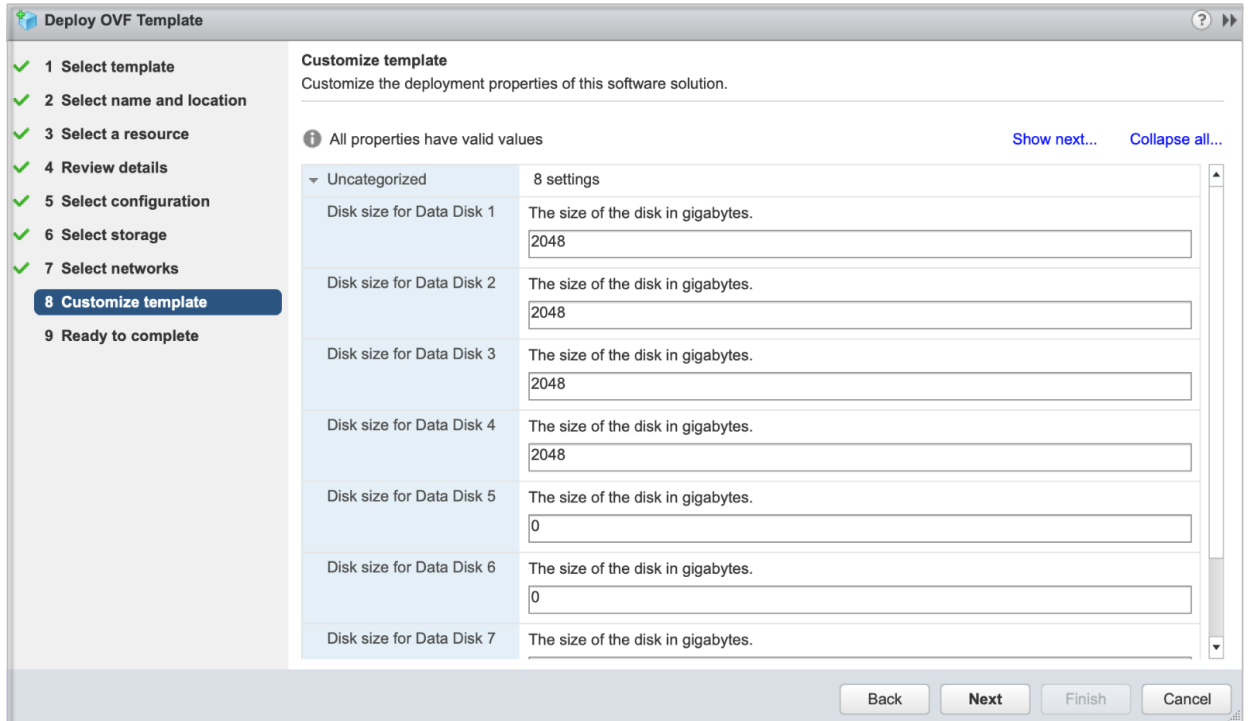
13. Click accept/finish and let vCenter provision the VM.
Complete the wizard and the new VSA will be listed in your vCenter Inventory.
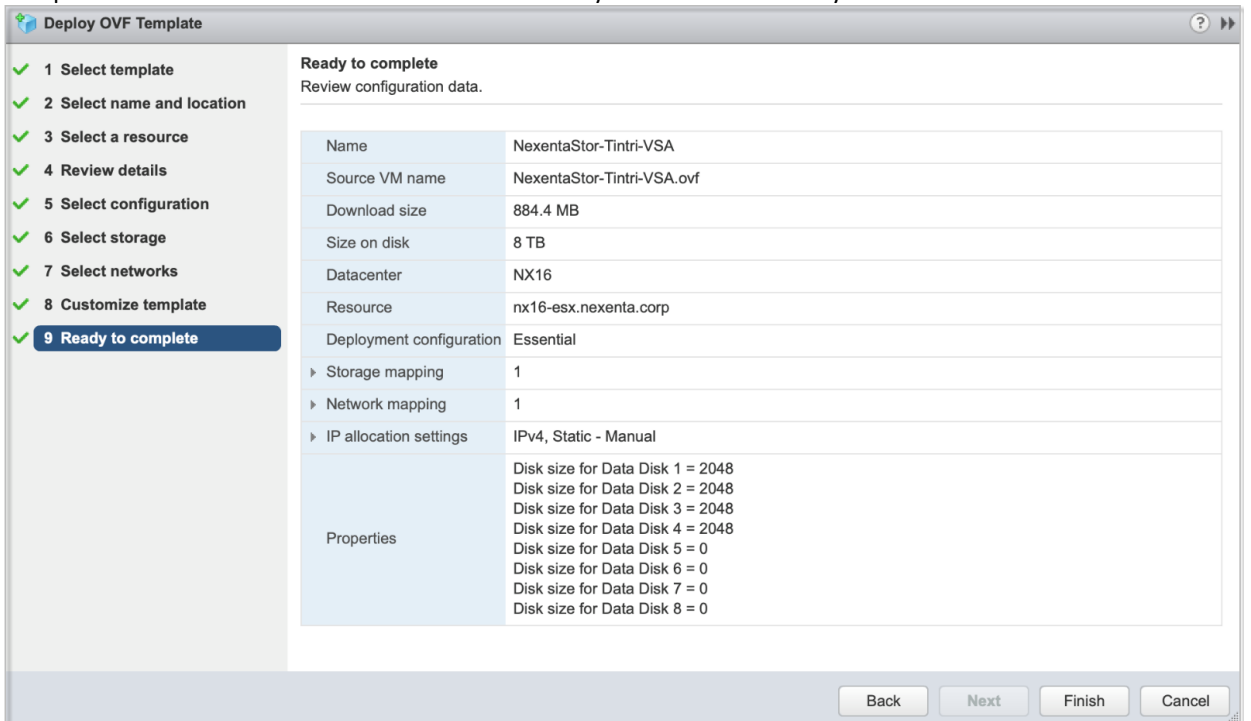
14. Power On the VSA.
15. If you are going to use HA follow the steps listed in the following section to adjust the configuration of the second SCSI controller so that the data drives can be shared between virtual machines.

Preparing for NexentaStor VSA High Availability

Deployment of an HA Cluster requires two VSAs to be created with shared VMDKs. For maximum availability the VSAs should be placed on different ESXi Hosts with affinity rules set within VMware to not allow them to co-exist on the same ESXi host.

Preparing Virtual Machines
You must configure the appliances to see the shared VMDK using the steps below.

The rough procedure of installing a Small HA configuration would be:
1. Follow the above instructions to install a "Small" configuration.
2. Install another VSA using the "Small-HA" configuration.
3. Power off both and start configuring them for HA
4. Edit settings on VSA 1.
5. Edit SCSI Controller 1 to change SCSI Bus Sharing to Physical.
6. Edit settings on VSA2.
7. Edit SCSI Controller 1 to change SCSI Bus Sharing to Physical.
8. Add new device: Existing Hard Disk; point to the VDMKs on VSA 1 that were created as part of installation; select each shared VMDK individually and confirm it is connected to SCSI Controller 1.
9. Power On both VSAs and follow the instructions for configuring a HA Cluster.

4 Configure NexentaStor Software

NexentaStor Post Installation Steps

1. Open VM console and log into NexentaStor as admin using the default password Psswd1234.
2. Complete the basic appliance configuration through the interactive question session by running the following command:

   `CLI@VSA> system setup`

   Now you will be prompted with configuration questions to complete the initial configuration. The default entries will be listed in square brackets. To choose the default entry, skip to the next question leaving a blank space.

Activate the License

To use NexentaStor, you must activate a license. The online activation process uses the activation key you received from Nexenta Systems.

Issued to	Nexenta
Product Name	NexentaStor Ver 5.0.0
License Type	Enterprise Trial
Expiration Date	28-Oct-2016
Storage Capacity	NA
Activation Token*	7544643E-EE5A-478F-928C-49EE1FF650A6
ECCN**	5D992

To activate the license online:

Use online license installation if the deployment node has access to the Internet. You enter the activation key with the `license activate` command. `License activate` contacts the Nexenta license server, which uses the activation key to generate your license. This command downloads your license and installs it in the system.

1. To activate the license on each NexentaStor appliance, use the following command.

   `CLI@nexenta> license activate <Activation Token>`

2. Scroll to the end of the license agreement by using the scroll bar and type y to agree to the license agreement.
3. You can view the license attributes with the command below. Table 2 lists the significant license attributes.

   `CLI@nexenta> license show`

Configure HA Cluster

This section provides the link to the doc that has the configuration steps that should be executed on the VMware side and on the NexentaStor side to set up NexentaStor HA on VMware. However, these sections only provide examples of the standard NexentaStor CLI commands that should be executed on the NexentaStor Virtual Machines. For details on the configurations on the VMware side, please refer to the corresponding VMware documentation.
See the section "**NexentaStor VSA HA Cluster Setup**" in *NexentaStor 5.2 HA CLI Configuration Guide* for information on configuring cluster in Vmware.

This guide demonstrates the basic steps and commands to configure and manage the NexentaStor 5.2 High Availability (HA) cluster using the NexentaStor 5.2 Command Line Interface (CLI).

Configure Pool

To create a storage pool for the pre-configured VSA sizes run the following command from the command line:

```
Essential:    pool create-auto -M 4 -N stripe <name of pool>
Small:        pool create-auto -M 4 -N stripe <name of pool>
Medium:       pool create-auto -M 8 -N stripe <name of pool>
Large         pool create-auto -M 8 -N stripe <name of pool>
```

Deploy NexentaFusion

NexentaFusion is a graphical user interface that provides centralized management of multiple NexentaStor/NexentaCloud appliances, tracks performance analytics trends, and monitors system faults. From a single pane, NexentaFusion provides appliance-specific summary views of hardware components, services, and storage logical objects such as shares, snapshots, and clusters. You can navigate the GUI using its intuitive tabs, drill-down menus, action cogwheels, and expand / contract arrows.

NexentaFusion is deployed as an OVA and can be downloaded from NexentaFusion-1.2.1-FP1.ova

See *NexentaFusion 1.2 Installation Guide* for information on deploying NexentaFusion.

Configure HA Service using NexentaFusion

This section provides the link to NexentaFusion documentation that has information on how to plan for, create, edit, and configure an HA service for a shared pool

The primary benefit of an HA Service is to provide high availability access to user data. This is accomplished by detecting Nexenta node failures along with client communication drops and transferring ownership of the shared pools to the alternate NexentaStor node.

A VIP is a virtual address associated with a shared pool service. The network clients use the VIP to connect to the shared pool.

See the chapter "**Managing High Availability**" in *NexentaFusion 1.2 User Guide* for information on configuring HA service.

This documentation provides easy to follow step-by-step instructions for common configuration and monitoring tasks.

Additional Resources

After installing NexentaStor 5.2 and NexentaFusion 1.2.1, use the resources listed in Table 4 for more information. These documents are posted in https://nexenta.com/products/documentation.

NexentaStor & NexentaFusion Product Guide
This document includes an overview of NexentaStor and its core components, describes key features, and provides relevant CLI commands. This manual is intended as a guide to NexentaStor concepts and not as a configuration guide.

NexentaStor 5.x Hardware Certification List (HCL)
This document provides a list of certified hardware for NexentaStor 5.x and is intended for Nexenta Partners and Nexenta customer-facing organizations. The latest version of Nexenta Hardware Certification List (HCL) is posted on Partner Portal.

NexentaStor 5.2 Installation Guide
This document includes the instructions to install and upgrade NexentaStor.

NexentaStor 5.2 CLI Configuration Guide
This guide demonstrates the basic steps and commands to configure and manage NexentaStor 5.2 appliances. Use this document in conjunction with the *NexentaStor 5.2 CLI Reference Guide,* and the *NexentaStor 5.2 HA CLI Admin Guide.*

NexentaStor 5.2 CLI Reference Guide
This reference guide provides a summary of the CLI commands. Use it in conjunction with the *NexentaStor 5.2 CLI Configuration Guide*.

NexentaStor 5.2 HA CLI Configuration Guide
This guide demonstrates the basic steps and commands to configure and manage the NexentaStor 5.2 High Availability (HA) cluster using the NexentaStor 5.2 Command Line Interface (CLI).

NexentaStor 5.2 vCenter Plugin QuickStart
This guide includes instructions to install NexentaStor 5.2 vCenter Web Client Plugin (vCenter Plugin), which enables VMware customers to configure and manage storage and virtualization through a single interface. You can use this plugin to access summary and detailed analytics and real time status monitoring of single and clustered NexentaStor appliances.

NexentaStor 5.2 High Performance Replication (HPR) User Guide
This document demonstrates how to configure High Performance Replication (HPR) to replicate datasets using the NexentaStor Command Line Interface (CLI) and using the NexentaFusion GUI.
For details on the list, see portal.nexenta.com.

NexentaFusion 1.2 Installation Guide
This document includes the instructions to install and upgrade NexentaFusion.

NexentaFusion 1.2 User Guide
This documentation provides easy to follow step-by-step instructions for common configuration and monitoring tasks.

Multi-Tenant File Services NexentaStor 5.2 CLI User Guide
This guide demonstrates the basic steps and includes tenant specific commands to create a tenant and manage its resources from a host storage system as a host admin.