



# Extreme Management Center® High Availability Guide Version 8.3

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# Extreme Management Center Failover with vSphere High Availability

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Extreme Management Center's Failover solution, the VMware vSphere High Availability (HA) feature, provides a recovery plan in the event of a host power or hardware failure (such as a hard disk, memory, or CPU failure). With vSphere HA, you can monitor your Extreme Management Center servers and services. In addition, VMs can be reinitiated in the event of server and service failures without manual intervention.

Extreme Management Center's servers are organized into clusters within the vCenter Server. The cluster servers running the vCenter Server software are called hosts. The vCenter Server monitors the health of hosts in a cluster by sending heartbeat requests to each host. If a host does not respond within a configured interval, the vCenter Server identifies that the host has failed and restarts the VM on a new host within the cluster. Once the VM has been started on another host, normal Extreme Management Center server operation resumes.

vSphere HA also protects VMs against network isolation by restarting them if the host becomes isolated on the management network, or loses connectivity on any of the management or data storage interfaces. Additionally, the Extreme Management Center vSphere HA solution restarts the server VMs in the event that certain mission-critical services (such as database and server services) have stopped and not restarted under normal automated operating and recovery procedures.

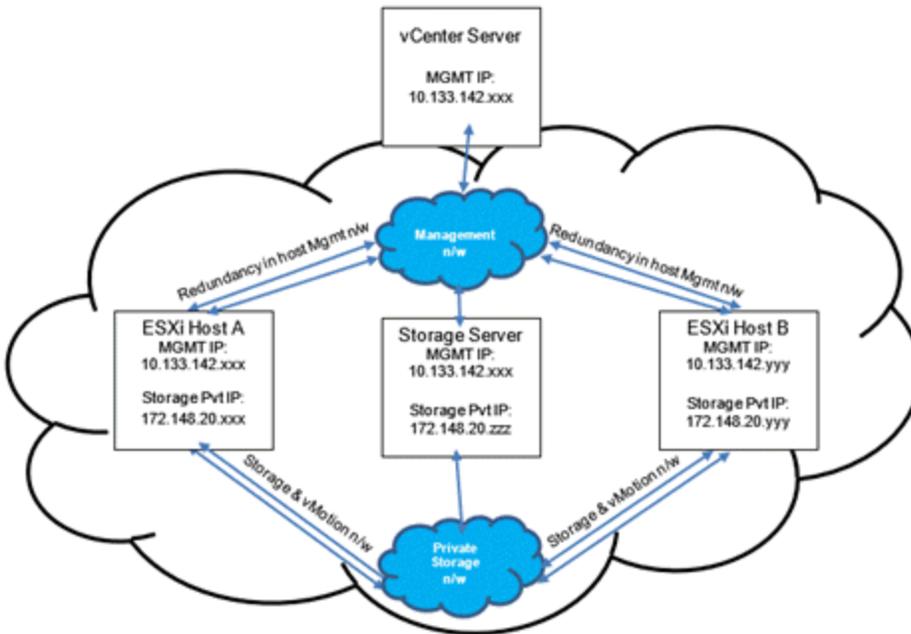
vSphere HA does not require user intervention or reliance on database backups, which can be hours or days old. It does not require a secondary Extreme Management Center server to be separately maintained and kept up-to-date, and it does not rely on administrators or other networks that monitor for either the detection or recovery of host failures.

The HA solution provided falls under the Active/Cold-Standby category. vSphere HA enables you to pool physical servers into a logical group called a HA cluster. In the HA solution provided, there will be only one instance of the Extreme Management Center deployed in the cluster. This instance will be migrated and restarted across the available active ESXi hosts, depending on the type of failure.

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- NOTES:**
- vSphere HA is supported by VMware 6.0 version and 6.5 only.
  - vSphere HA is not extended to the Hyper-V platform.
- 

## Hardware Configuration

The following diagram shows a typical hardware configuration for the Extreme Management Center Failover solution using vSphere's High Availability (HA) feature.



The vCenter Server is configured to manage two or more ESXi hosts in a cluster. In this configuration, there are two hosts with VMware's ESXi servers installed on them: Host A and Host B. Host A and Host B provide their servers redundancy by backing each other up in case of an outage or failure. Both hosts utilize the same data storage. VMDK (virtual machine disk) files must be stored on shared storage that is accessible to all servers. Also, the VMDK should be housed on a separate network to avoid network outage. vMotion networks are required within the vCenter Server clusters, and should use the same private storage network for quicker and seamless VM migrations.

- 
- NOTE:** The Extreme Management Center Failover solution requires that vCenter Server is used to manage both hosts, and that the hosts are licensed for vSphere HA.
-

vSphere HA monitors ESXi host availability and to restart failed VMs. Each host in the HA cluster communicates via a heartbeat, which indicates whether it is running as expected. If there's a failure to detect a heartbeat from any host within the cluster, vSphere HA is instructed to take corrective action. If the VM fails, vSphere HA attempts to restart the VM on the same host. If the host fails, the VMs from that host are migrated to other hosts in the cluster.

The datastore is the persistent storage for the virtual machine. It is where the Extreme Management Center server software is installed, the configuration information is kept, and where the database tables are stored. The virtual engine code is executed on the host. When a host fails, the virtual engine execution moves to the other host and all of the data is maintained in the datastore. This allows the Extreme Management Center server to continue functioning without having to restore a database backup.

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**NOTES:** A Distributed Resource Scheduler (DRS) is often used with vSphere HA to redistribute workloads on alternate physical servers. A DRS is not required for vSphere HA.

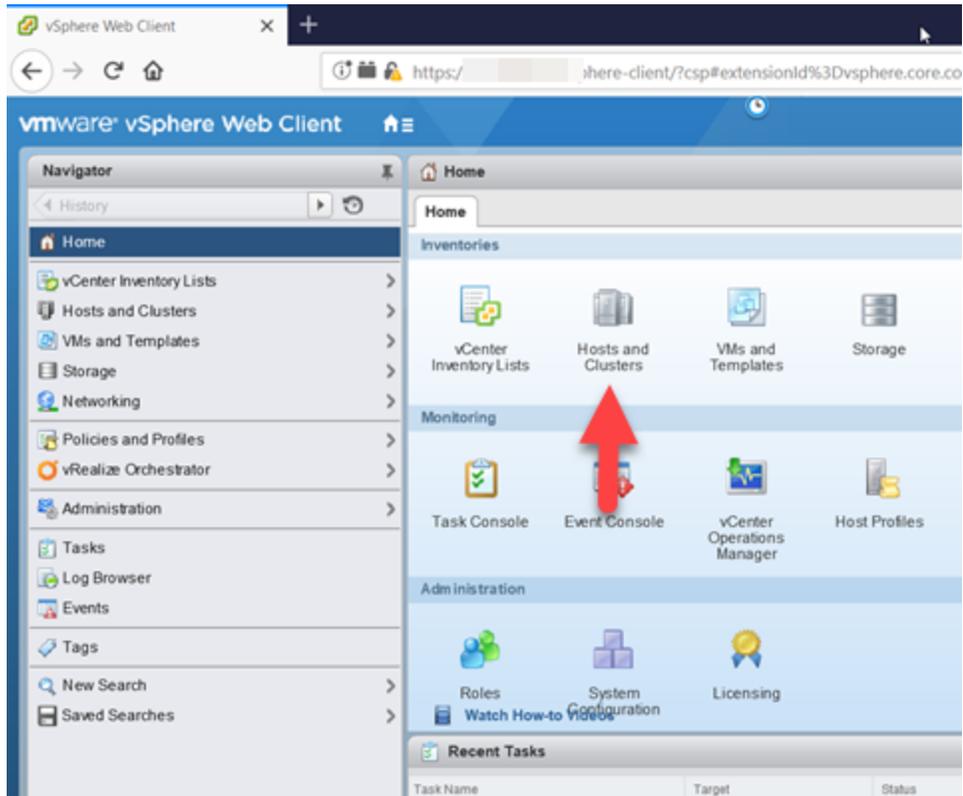
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## Enabling vSphere HA

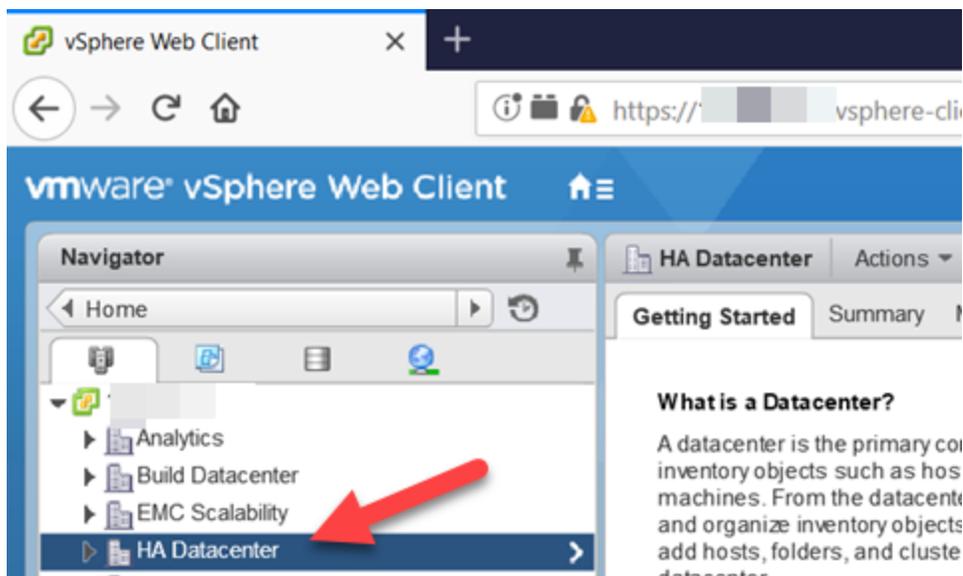
Once the licensed hosts are included in a cluster, you can enable vSphere HA using the cluster's settings in the New Cluster window. Refer to your VMware documentation for more information on configuring clusters.

1. Log in to your vSphere Client.

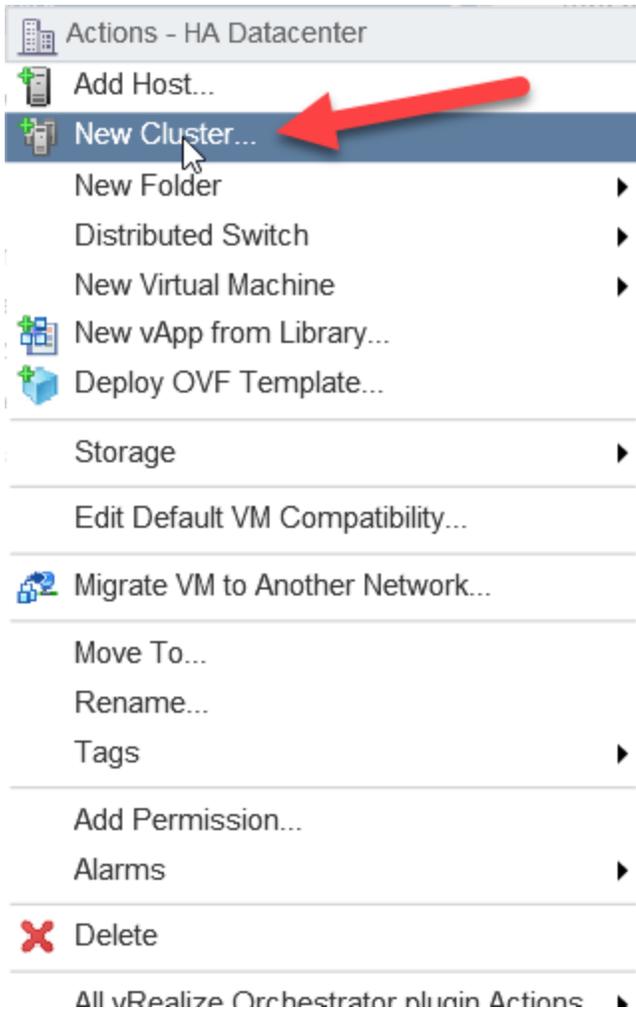
2. Select **Hosts and Clusters** in the Inventories section.



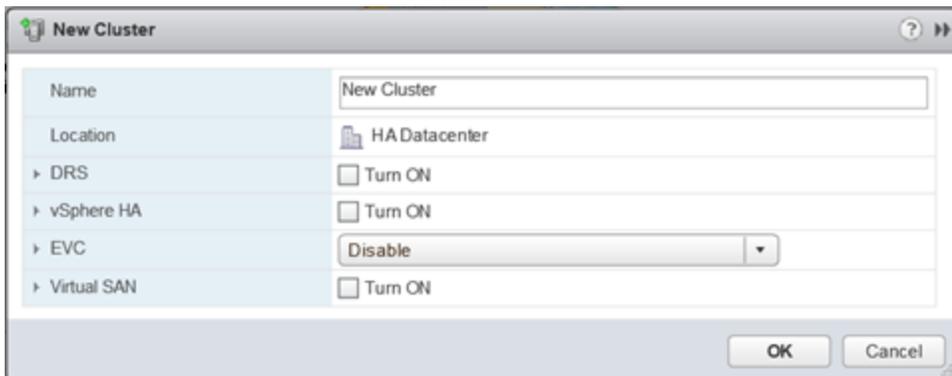
3. Select the data center in the left-panel on which you are adding the cluster.



4. Right-click the data center and select **New Cluster** from the menu.



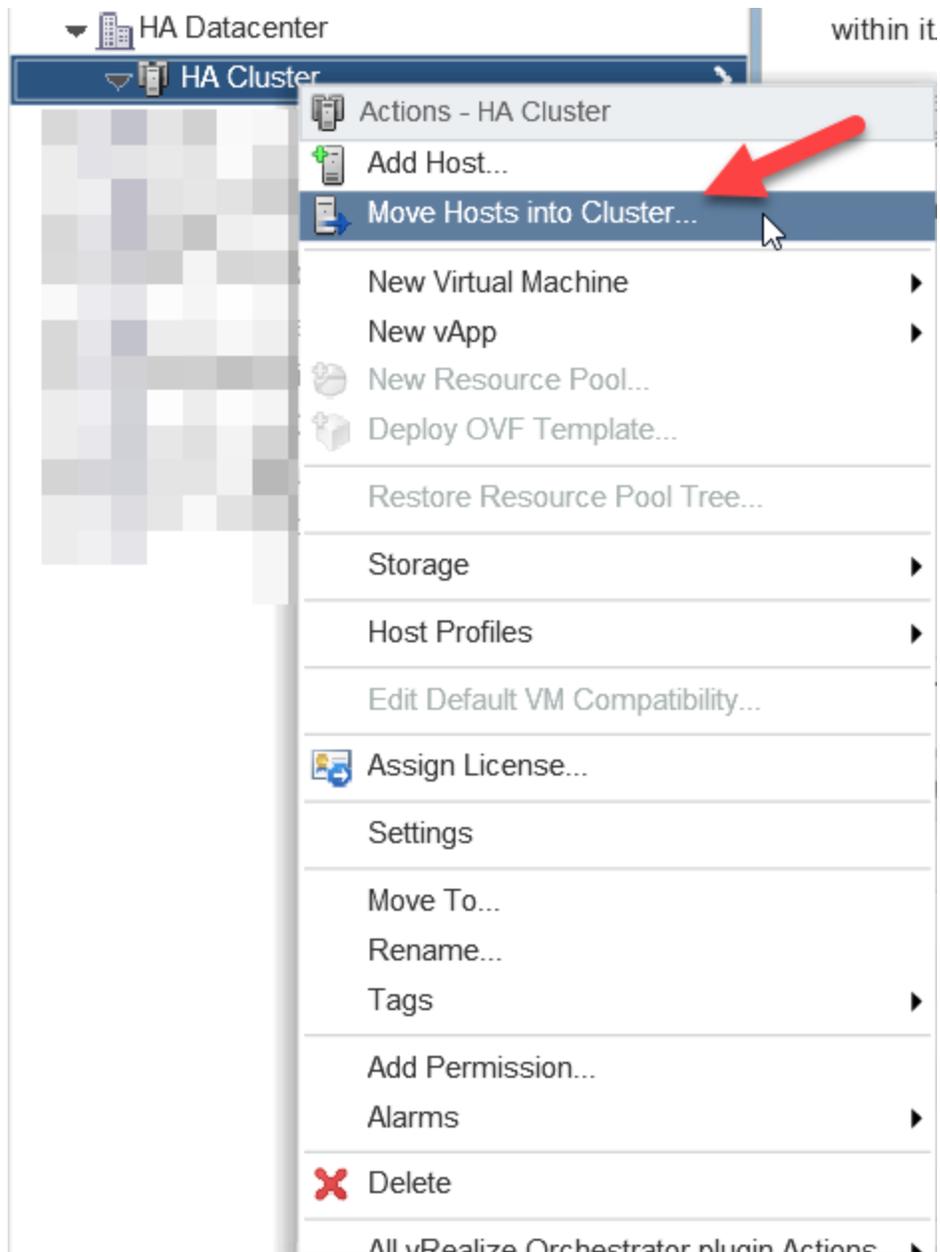
The New Cluster window displays.



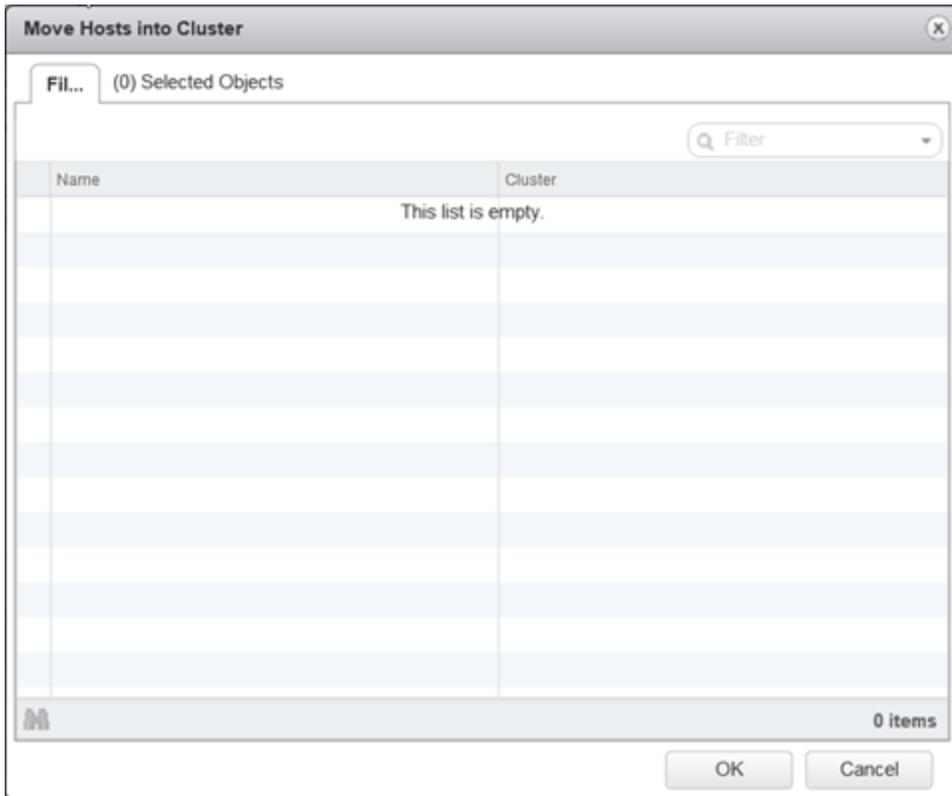
5. Configure the fields in the New Cluster window.

**NOTE:** Do NOT select the **Turn ON** checkbox for DRS or vSphere HA.

6. Click **OK** to create an empty cluster.
7. Expand the data center in the left-panel so the cluster displays.
8. Right-click the cluster and select **Move Hosts into Cluster** from the menu.

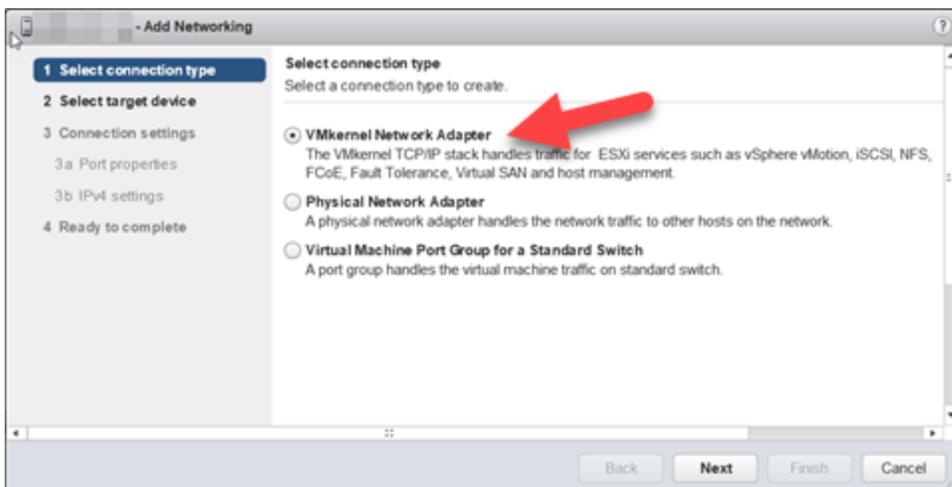


The Move Hosts into Cluster window displays.



9. Select the appropriate hosts to add to the cluster and click **OK**.
10. Expand the cluster in the left-panel.
11. Right-click a host from the left-panel and select **Add Networking** from the menu.

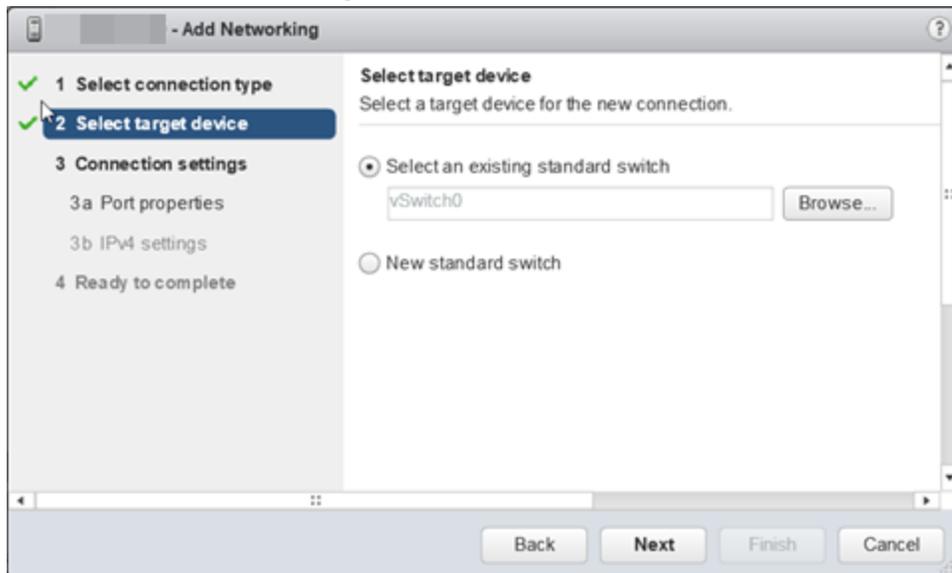
The Add Networking wizard displays.



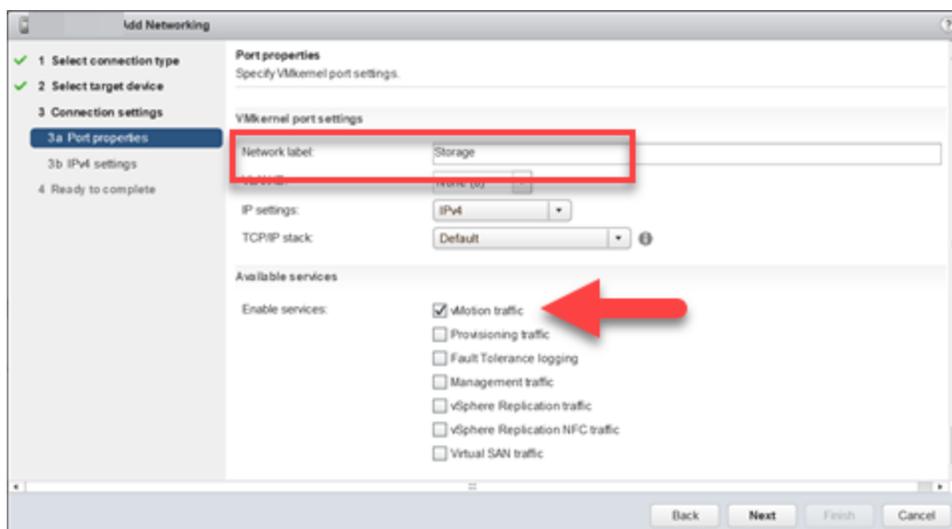
12. Select **VMkernel Network Adapter** and click **Next**.
13. Click **Select an existing standard switch** radio button and click **Browse**.

The Select Switch window displays.

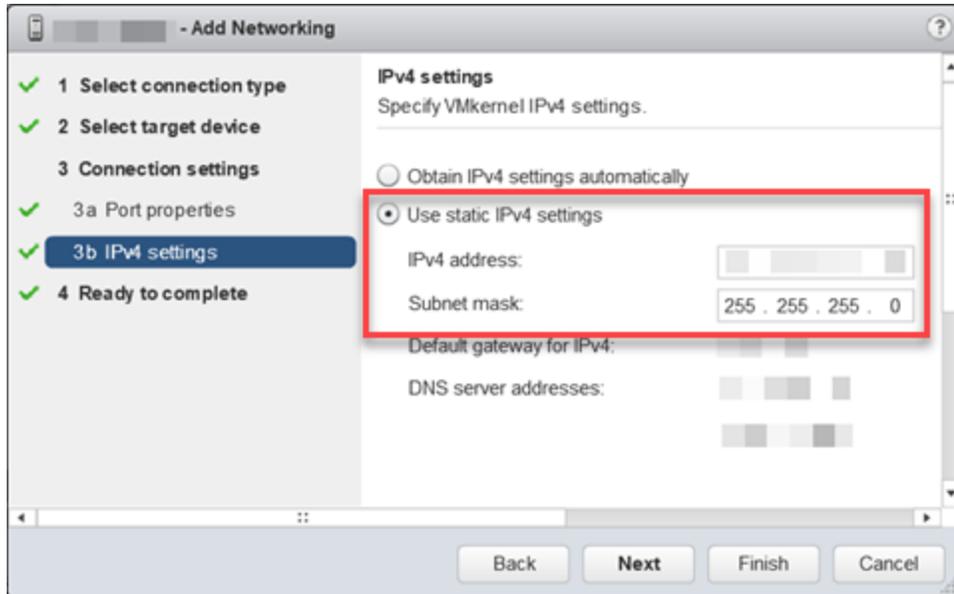
14. Select an unused existing vmnic from the list, click **OK**, and click **Next**.



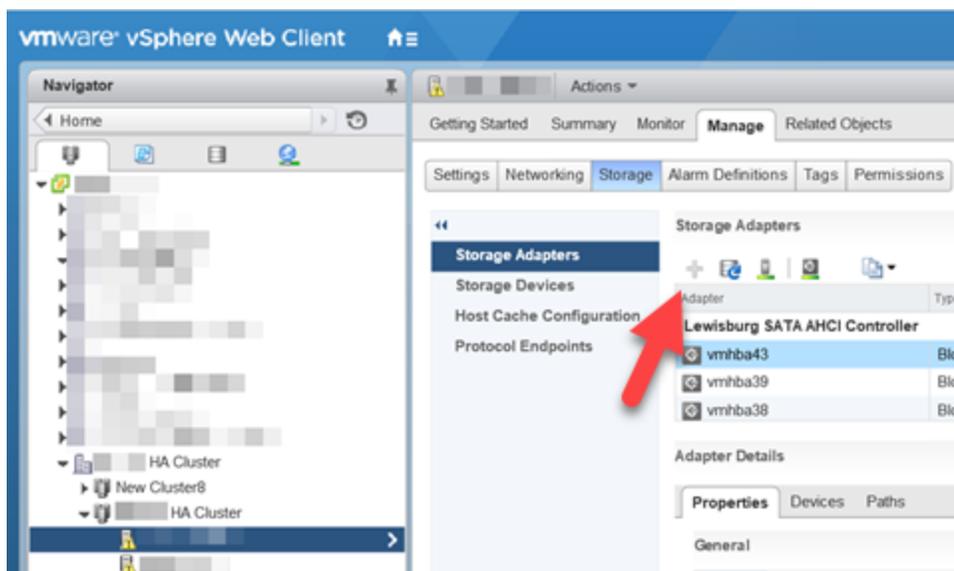
15. Enter **Storage** for Network label and select the **vMotion traffic** checkbox, then click **Next**.



16. Select **Use static IPv4** settings, enter the IP address for the storage server for the host being configured in the **IPv4 address** field, enter **255.255.255.0** in the **Subnet mask** field and click **Finish**.

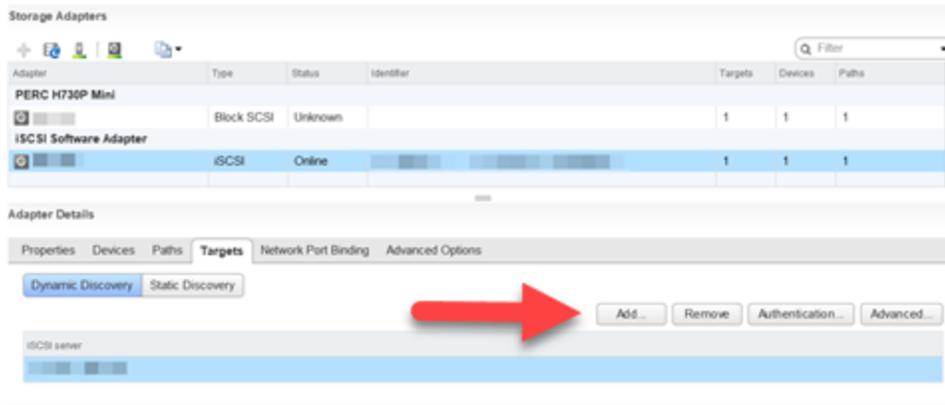


17. Repeat for all hosts in the cluster.
18. Select a host in the cluster in the left-panel, select the **Storage** tab, click **Storage Adapters**, and click the **Add** icon.

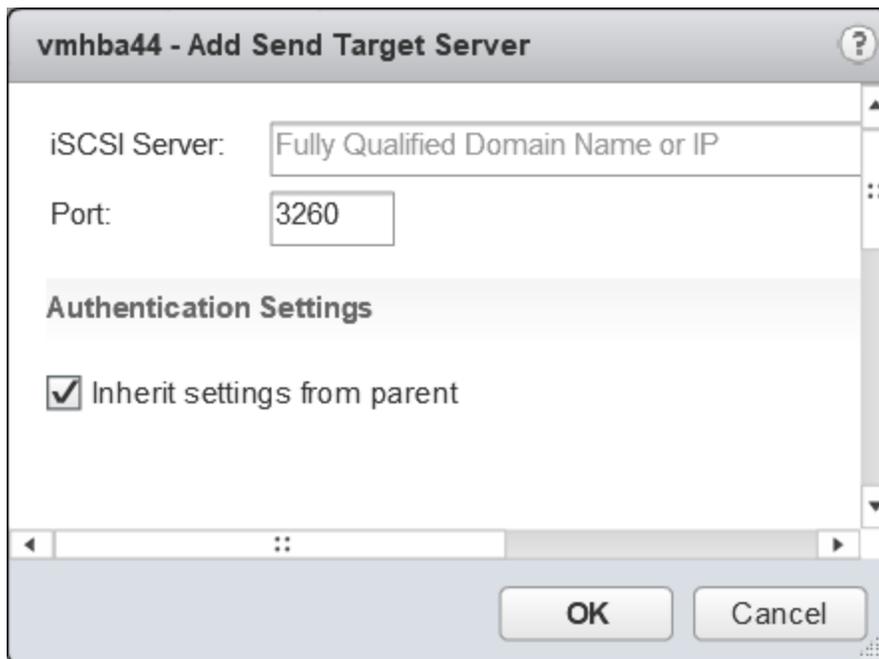


The adapter appears in the iSCSI Software Adapter section of the table.

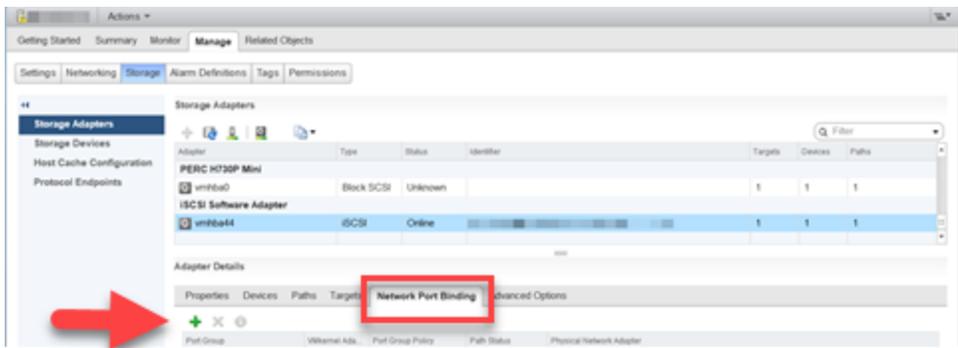
19. Select the new adapter.
20. Select the **Targets** tab.
21. Select **Dynamic Discovery** and click **Add**.



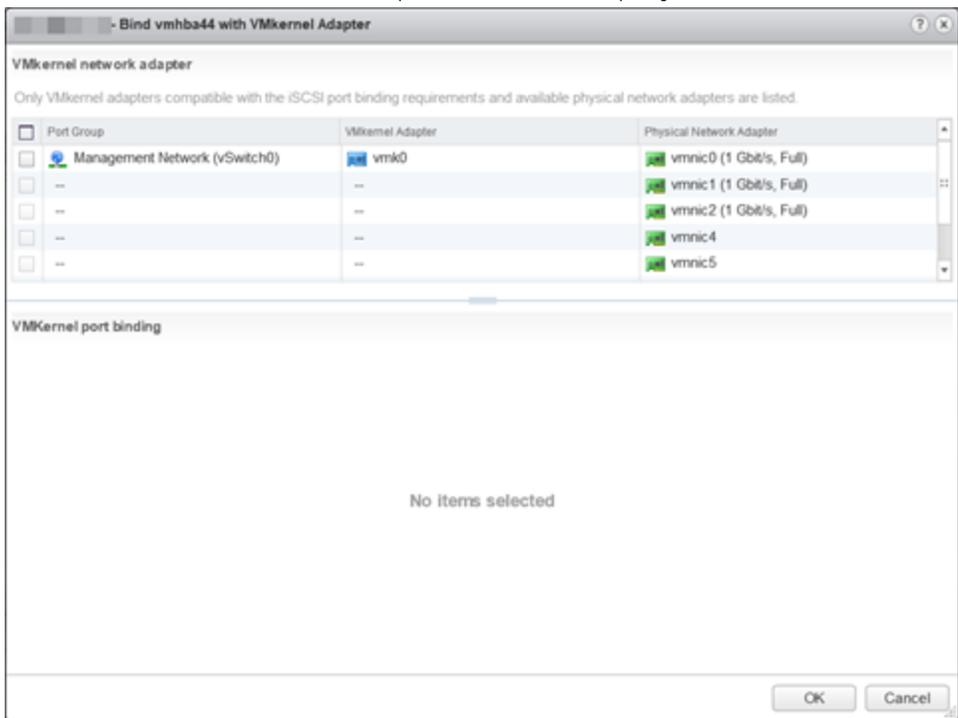
The Add Send Target Server window displays.



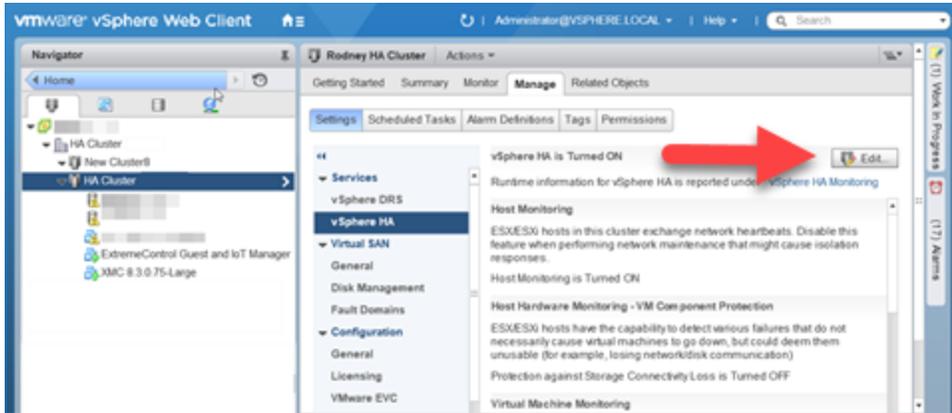
22. Enter the IP address of the storage server or full domain name in the **iSCSI Server** field and the port in the **Port** field.
23. Click **OK**.
24. Select the **Network Port Binding** tab and click the **Add** icon.



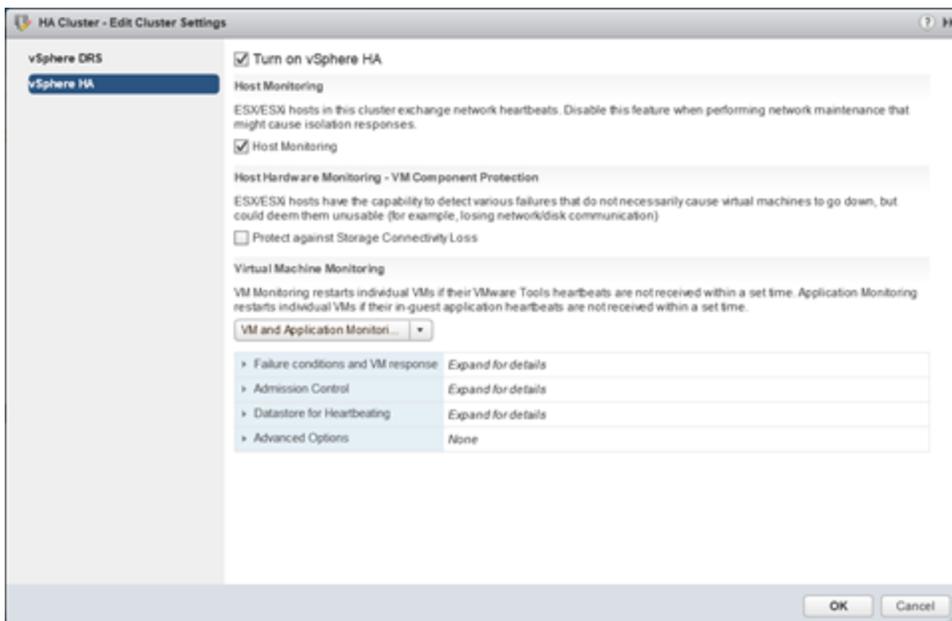
The Bind with VMkernel Adapter window displays.



25. Select the Storage created in Step 16.
26. Select the cluster you created in Step 6 in the left-panel.
27. Select the **Manage** tab in the right-panel and select **Settings**.
28. Select **vSphere HA** in the Services menu and click **Edit**.

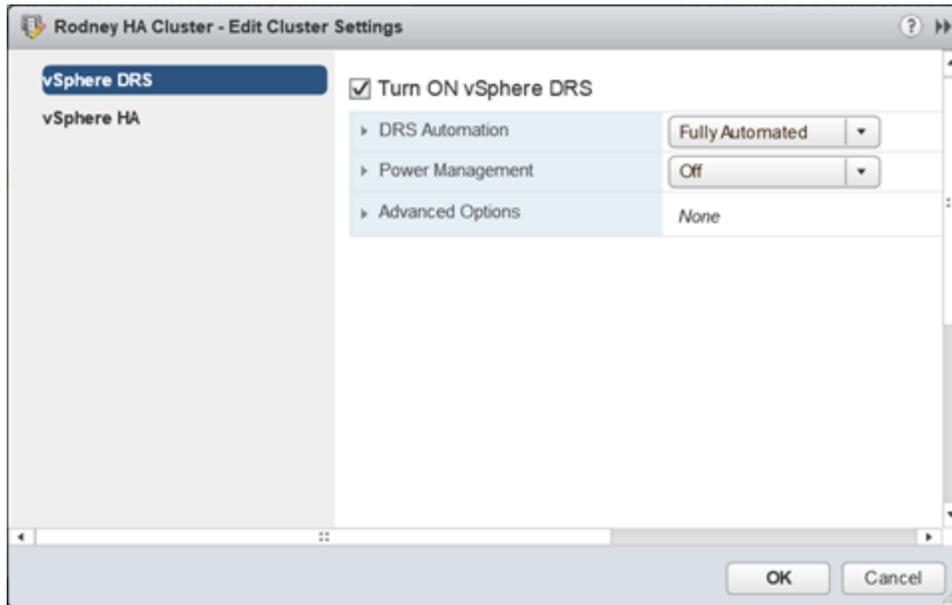


The Edit Cluster Settings window displays.

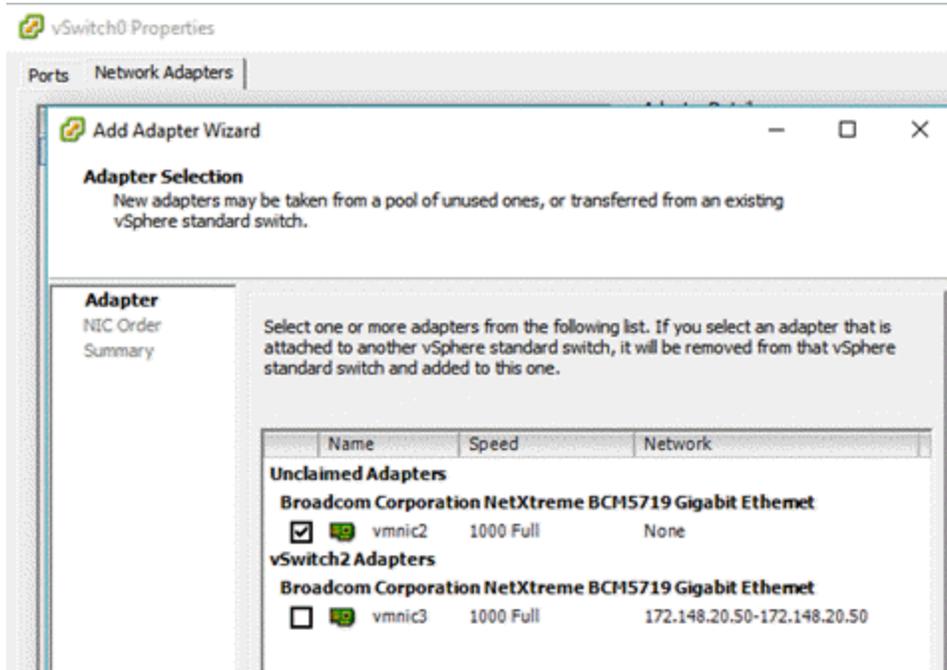


29. Select the **Turn on vSphere HA** checkbox.
30. Select **VM Monitoring Only** or **VM and Application Monitoring** in the Virtual Machine Monitoring drop-down list:
  - **VM Monitoring Only** — Virtual machines restart if vSphere does not receive the heartbeat within a certain amount of time.
  - **VM and Application Monitoring** — Enables Extreme Management Center monitoring via the [Watchdog Service](#).
31. Select a Datastore for Heartbeating to monitor hosts and virtual machines when the management network fails. This is optional.

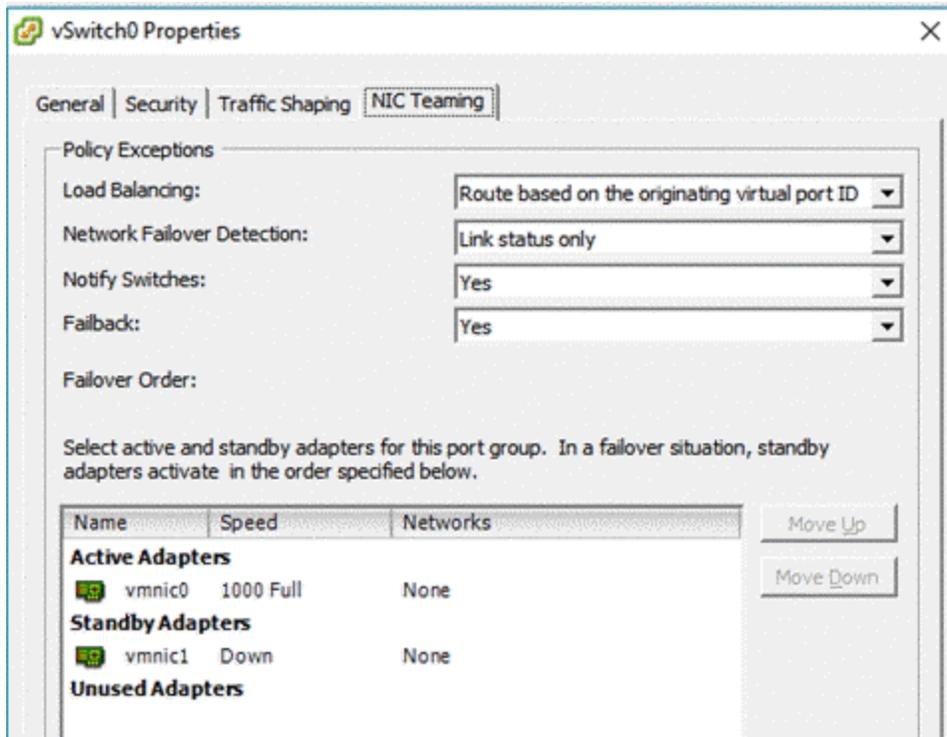
- a. Expand the Datastore for Heartbeating section.
  - b. Select the radio button that describes the desired heartbeat functionality for your network.
32. Select vSphere DRS in the left-panel of the window.



33. Select the **Turn ON vSphere DRS** checkbox.
34. Use the default values in the fields on this screen and click **OK**.
35. Additionally, network redundancy can be created on the host management network.
- a. Add an unused network adaptor on the ESXi host on to the vSwitch that has the management network



- b. On the vSwitch properties, go to the 'NIC Teaming' tab.
- c. Move the newly added adaptor to the active/standby adaptors based on requirement.



- d. It is recommended to route the traffic on these active/standby adaptors via different physical routes.

## Application Monitoring

Extreme Management Center uses a Watchdog Service (a Java process) to start database and/or server processes and services in the engine. Should the database and/or server processes fail, the Watchdog Service monitors their status and restarts any that fail without the need for user intervention.

After multiple restarts, if the services fail to recover, a VM restart might be the recommended solution, which is not a function of the Extreme Management Center Watchdog Service. vSphere HA includes an Application Monitoring SDK that performs VM resets if one or more heartbeats are missed.

The Extreme Management Center Watchdog System sends an enable request to vSphere HA start the application monitoring, followed by a heartbeat signal. Once the application monitoring is enabled and the Watchdog Service is initialized, the application monitoring status changes from gray to green. The application monitoring program continues to send the heartbeat and the status of the application monitoring remains green.

The vSphere infrastructure sends the signal from the HA application monitoring program to the VM, and then to the ESXi host. If a monitored service or process fails to recover even after three service restarts by the Watchdog Service, the application monitoring program stops sending the heartbeat. The status of application monitoring turns red if the heartbeat is not received in the first 30 seconds. After another 30 seconds, if the vSphere HA fails to receive another heartbeat, it activates the VM to reset.

This solution is a fully automated recovery process that provides protection against application failure by continuously monitoring VMs and resetting if failure is detected.

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- NOTES:**
- vSphere HA application monitoring is limited to the Linux platform.
  - vSphere HA application monitoring currently monitors Wildfly service and the MySQL DB service.
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The vSphere HA feature also monitors the health of guest operating systems and their applications, and restarts the VM if a guest OS or application failure occurs.

The vSphere HA feature monitors guest OS and application heartbeats via the VMware Tools process.

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### **Related Information**