

Using the Zerto Red Hat Cluster Manager, you can protect a Red Hat Cluster that is comprised of two virtual machines sharing a disk and is managed by Red Hat Clustering Services.

Using Jenkins infrastructure hosted by Docker on a Linux virtual machine, Zerto Red Hat Cluster Manager periodically checks the status of the active and passive hosts. If they have changed, the Zerto Cluster Manager:

- Pauses the VPG that contains the newly passive virtual machine, also known as the passive node.
- Resumes the VPG that contains the newly active virtual machine, also known as the active node.
- Forces a sync to ensure that the newly active virtual machine, the active node, is fully synchronized with the recovery site.

You can also manually perform the tasks that the Zerto Red Hat Cluster Manager performs.

This document describes the following:

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## Zerto Red Hat Cluster Manager Requirements

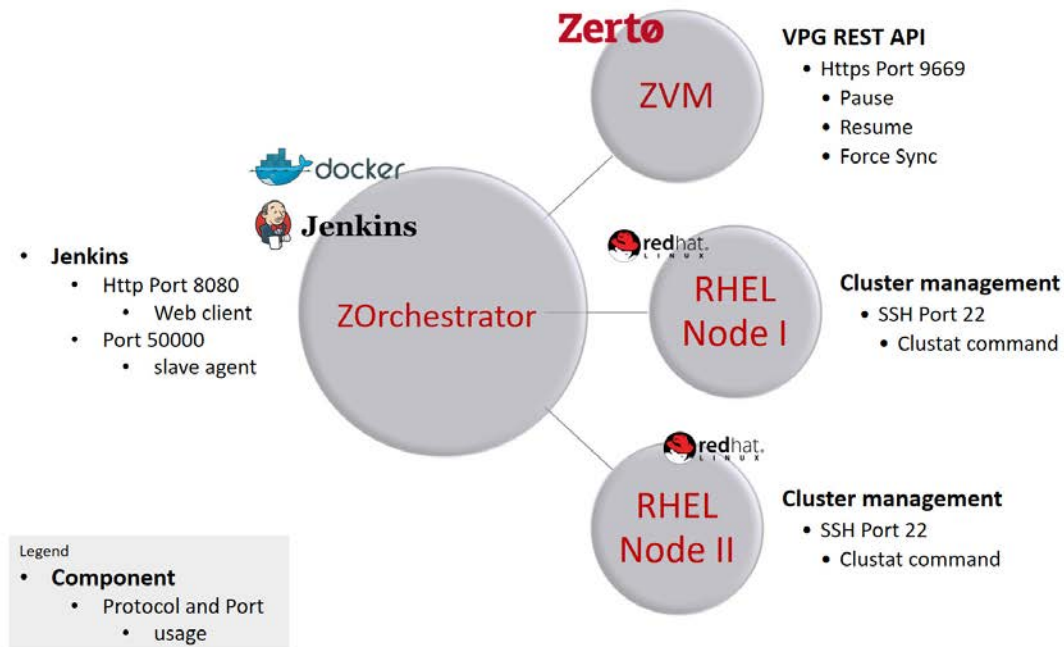
- The Zerto Red Hat Cluster Manager works with:
  - Zerto Virtual Replication 4.5 U1 and higher.
  - vCenter Server only.
  - Docker 1.10 and higher.
- The shared disk in the cluster in the recovery site must be defined as an eager zeroed thick disk. Use this disk for preseeding after the VPG is created.
- One task in the Zerto Red Hat Cluster Manager can work with a maximum of two nodes. Multiple tasks can be defined to support additional nodes.
- To work with the Zerto Red Hat Cluster Manager, the following ports on Red Hat Cluster nodes must be open:

Port	Description
22	This port on the Red Hat nodes must be open and must be accessible with SSH.
9669	This port is used for communication between the virtual machine running the Zerto User Interface, vSphere Web Client or Client console, and the Zerto Virtual Manager for the relevant vCenter Server.
8080	This port is on the Jenkins Web client. This is the default value but can be changed.
50000	This port is used by Jenkins to communicate with the slave agent.

Note the following:

- The Docker hub that contains the Zerto image is public; you do not need to log in to access it.
- A OVF to create a virtual machine in vCenter Server, which contains a Docker image and has Jenkins installed, is available from Zerto.
- If you plan to use `sudo`, configure it so that when you use the `clustat` command, a password is not required.

The configuration of the Red Hat Cluster Manager is shown in the following diagram.



## Installing and Configuring the Zerto Red Hat Cluster Manager

The installation of the Zerto Red Hat Cluster Manager consists of two parts:

1. Install Docker on a Linux machine.
  - You can deploy Docker on a Linux machine without help from Zerto.
  - You can obtain an OVF from Zerto that contains Docker.
2. Install the Zerto Red Hat Cluster Manager image and then run the container, or perform both actions with the command described in step 2 in the following section.

The general process to configure and run the Zerto Red Hat Cluster Manager involves the following:

- Create a VPG for each node — each virtual machine — in the Red Hat Cluster.
- The shared disk in the cluster in the recovery site must be an eager zeroed thick disk.
- Connect to Jenkins and configure the Zerto parameters in it.

### To install and configure the Zerto Orchestrator, do the following:

1. Install Docker on a Linux virtual machine.
 

**Note:** If using the OVF, deploy the OVF. If you choose this option, go to step 3.
2. Install the Zerto image and run the container. For example, execute:

```
sudo docker run -d -p 8080:8080 -p 50000:50000 -v volume_name
--name container-name zerto/zorchestrator
```

The value `zerto/zorchestrator` is the repository name; use this value.

If you want, check that the image installation was successful by running:

```
sudo docker images
```

You can check the container status by running:

```
sudo docker ps -a
```

3. Connect to Jenkins with HTTP, using the IP of the virtual machine in the protected site and port 8080.

For example, enter: `http://142.10.25.123:8080`

4. In the Jenkins GUI, go to the RHEL cluster definitions and enter values for the following parameters.

# To enter RHEL node connection information, you must have permission to connect in SSH and # to run the `clustat` command.

```
rhel_nodes = {
    ConnectionParams('NODE1.FQDN', 'RHEL_USERNAME', 'RHEL_PASSWORD'),
    ConnectionParams('NODE2.FQDN', 'RHEL_USERNAME', 'RHEL_PASSWORD')
}
```

# Map RHEL nodes to their VPG IDs.

# The node address must be the same as in the '`clustat`' command.

# The VPG ID can be extracted from the URL when viewing information about a specific VPG.

# For example:

# `https://localhost:9669/zvm#/main/vpg_details/status?id=1d864f3a-9192-4b19-9fe9-4bd810d58529`

# The VPG ID is: `1d864f3a-9192-4b19-9fe9-4bd810d58529`

```
node_name_to_vpg_id = {
    'NODE1.FQDN': 'node1-vpg-id-NNN-NNN-xxx',
    'NODE2.FQDN': 'node2-vpg-id-NNN-NNN-xxx',
}
```

# Use `sudo` when running `clustat` to get the status of the node:

```
use_sudo = 'true'
```

# The name of the service this RHEL cluster manages

# This must match the service name in '`clustat`'.

```
service_name = 'RHEL_HOSTED_SERVICE_NAME'
```

**Note:**

The VPG ID can be found when viewing the URL in the VPG view of the Zerto User Interface.

5. In Jenkins, configure the Zerto scripts that check the status of the active and passive hosts to run periodically.

For example, to run the scripts every 15 minutes, do the following:

- a) In the Jenkins GUI, go to `Build periodically`.
- b) In the schedule, put "`H/15 * * * NA`"  
(The value 15 represents 15 minutes.)
- c) Click `Save`.

Now, Jenkins will run the Zerto scripts periodically, according to these configuration values.

If you want to run the script manually, in the left panel of the Jenkins GUI, click `Build Now`. This executes the Zerto scripts.

## Upgrading a Docker Container

The standard way to upgrade a Docker container is to replace the old container with an updated one. Therefore, the data should be kept on a Docker volume, and not inside the container.

**To upgrade a Docker container:**

1. Stop the container by running the command:  
`sudo docker stop zerto_jenkins`
2. Remove the container by running the command:  
`sudo docker rm zerto_jenkins`
3. Pull from Docker Hub:  
`sudo docker pull zerto/zorchestrator`
4. Run the new Docker container.

## Protecting a Red Hat Cluster with the Zerto Orchestrator

This section describes:

- “Creating VPGs To Protect a Red Hat Cluster”, on page 4
- “Performing a Recovery Operation”, on page 4

### Creating VPGs To Protect a Red Hat Cluster

Create two VPGs, one for each node in the cluster.

- a) Create dedicated eager zeroed thick disk VMDKs on the recovery site.  
The target VMDKs must be the same size as the protected VMDKs.
- b) In the *STORAGE* step, select 'Preseeded volume' and enter the disk names of the disks you created in step a in the *Datastore* field.

After the VPG is created, preseed the volumes of the RHEL cluster into eager zeroed thick disks on the recovery (target) site.

For detailed instructions on how to create VPGs, see the *Zerto Virtual Manager Administration Guide VMware vSphere Environment*.

### Performing a Recovery Operation

#### To perform a recovery operation:

1. Follow the procedure to do a failover or move as described in the *Zerto Virtual Manager Administration Guide VMware vSphere Environment*.  
In the *EXECUTION PARAMETERS* step, make sure that reverse protection is **not** selected.
2. After the recovery process has ended, manually delete both VPGs in the recovery site. This can be done in the Zerto User Interface.
3. Optionally, do the following:
  - a) Recreate the RHEL cluster in the disaster recovery site.
  - b) Protect the RHEL cluster with Zerto Virtual Replication.

**Note:** A move without reverse protection deletes the virtual machines on the original — protected — site.

Protecting a Red Hat Cluster with the Zerto Orchestrator

#### ABOUT ZERTO

Zerto is committed to keeping enterprise and cloud IT running 24/7 by providing scalable business continuity software solutions. Through the Zerto Cloud Continuity Platform, organizations seamlessly move and protect virtualized workloads between public, private and hybrid clouds. The company's flagship product, Zerto Virtual Replication, is the standard for protection of applications in cloud and virtualized datacenters.

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For further assistance using Zerto Virtual Replication, contact [@Zerto Support](https://twitter.com/ZertoSupport).