Zerto Virtual Replication Test Plan
Amazon Web Services (AWS) Environment
ZERTO VIRTUAL REPLICATION TEST PLAN

The Zerto Virtual Replication test plan environment should be designed to support the required software components and TCP connectivity described in the Zerto Virtual Replication Installation Guide.

Accessing the Zerto User Interface

You manage replication in your protected site environment, including the protection and replication of virtual machines between the protected and recovery sites, using the Zerto User Interface.

You can test Zerto Virtual Replication using the Zerto User Interface, which can be accessed from either the protected site or the recovery site.

To access the Zerto User Interface in an AWS recovery site:
1. In a browser, enter the following URL: https://zvm_IP:9669
   where zvm_IP is the IP address of the Zerto Virtual Manager for the AWS site. Ensure that port 9669 is open and set as an inbound rule in the security group of the instance where Zerto Virtual Replication is installed.
2. Log in using the user name and password of the instance on AWS on which you installed the Zerto Cloud Appliance.

To access the Zerto User Interface in a VMware vSphere protected site:
1. In a browser, enter the following URL: https://zvm_IP:9669
   where zvm_IP is the IP address of the Zerto Virtual Manager for the site you want to manage.
2. Log in using the user name and password for the vCenter Server connected to the Zerto Virtual Manager.

To access the Zerto User Interface in a Microsoft SCVMM protected site:
1. In a browser, enter the following URL: https://zvm_IP:9669
   where zvm_IP is the IP address of the Zerto Virtual Manager for the site you want to manage.
2. Log in using the user name and password for the machine where you installed Zerto Virtual Replication.
   - **Username** – The user name of the user for the machine where the Zerto Virtual Manager is installed. If the user is part of a domain, you must also specify the domain, with the following format: domain\username
   - **Password** – A valid password for the given user name.

Zerto Virtual Replication Tests

This document includes the following tests:
- Test 1: Create a VPG
- Test 2: Test failing over the VPG
- Test 3: Add a VM to an existing VPG
- Test 4: Configure a recovery VM IP address
- Test 5: Restore a file from the recovery site

These tests demonstrate the basic Zerto Virtual Replication functionality.
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**TEST 1: CREATE A VPG**

**Procedure**

- In the Zerto User Interface for the protected site, select ACTIONS > CREATE VPG.

  ![Create VPG Wizard](image)

  The NEW VPG step of the Create VPG wizard is displayed.

  - Specify the name of the VPG. Leave the default value for the **Priority**.

  ![Create VPG - Name](image)

  - Click **NEXT** and select the virtual machine to be protected and click the arrow pointing right to include this machine in the VPG.

  ![Create VPG - Select VM](image)

  - Click **NEXT**.

  The **Recovery Site** is the AWS site to which you want to recover the virtual machines.
Click NEXT to select the default recovery settings.

Select the settings for both failover/move and failover test operations.

**VPC Network** - The virtual network dedicated to your AWS account. A security group and subnet must be assigned to this VPC.

**Subnet** - The subnet mask for the VPC network.

**Security Group** - The AWS security to be associated with the virtual machines in this VPG.

**Instance Family** - The instance family from which to select the type. AWS instance families are optimized for different types of applications. Choose the instance family appropriate for the application being protected in the VPG.

**Instance Type** - The instance type, within the instance family, to assign to recovered instances. Different types within an instance family vary, for example in vCPU, RAM, and local storage size. Choose the instance type appropriate for the application being protected in the VPG. The price per instance is related to the instance configuration.

Continue clicking NEXT to review the remaining settings (BACKUP and SUMMARY) but leave these with the default values and click DONE.

### Expected result

A VPG is created with initial syncing, resulting in Meeting SLA, protecting, status.

### Notes

When creating a VPG, add the virtual machines that are part of an application to the VPG such as the machine hosting the application as well as the web server and database machines, if these are required to successfully run the application. Only virtual machines that are supported by AWS can be protected by Zerto Virtual Replication. Refer to AWS documentation for the supported operating systems, which include the following:

- **Windows (32- and 64-bit)**
  
  *Note*: .NET 3.5 or higher must be installed on the Windows machine.

- **Linux/Unix (64-bit)**

  Each machine that you intend to protect must have at least 250MB free space because AWS adds files to the recovered machines during failover, move, test failover, and clone operations. Protected volumes are recovered in EC2 as EBS disks with magnetic disk type. Virtual machines with disks that are less than 1GB are recovered with disks of 1GB.

  A VPC must exist, and a security group and subnet must be assigned to it and to all other VPCs you want to use for recovered virtual machines.

  Note the following limitations:

  - You cannot protect machines that have a disk larger than 16TB.
  - Virtual machines with more than 12 volumes, including the boot disk, cannot be protected.

  Zerto Virtual Replication does not check if the protected virtual machines can be recovered in Amazon.

### Actual Result

Replace with actual result.
TEST 2: TEST FAILING OVER THE VPG

**Procedure**

- In the Zerto User Interface for either the protected or recovery sites set the operation to TEST and click FAILED.

- In the Failover Test wizard, select the VPG to test.
- Click NEXT to review the test setting that are available but leave the defaults.

- Click NEXT and to start the test, click START FAILOVER TEST.
- Verify that the test virtual machine was recovered successfully by checking that the virtual machine files are up to date.
- Click the Stop test icon to stop the test in the specific VPG tab or via the TASKS popup dialog in the status bar, or in the TASKS tab under the MONITORING tab.

- In the Stop Test dialog, in the Result field, specify whether the test succeeded or failed.
- Optionally, in the Notes field, add a description of the test. For example, specify where external files that describe the tests performed are saved.
- Click STOP.
Create a text file on each protected virtual machine. After creating the text file wait a few minutes before creating a second text file on each machine.

- In the Zerto User Interface, set the operation to TEST and click FAILOVER. The Failover Test wizard is displayed.
- In the Failover Test wizard, select the VPG to test.
- Click NEXT to set the checkpoint for the test.

Click the Checkpoint link.

The {VPG-Name}: Checkpoints dialog is displayed.

Select a checkpoint to recover to. Specify a checkpoint between the times the two text files on each machine were created.

- Click OK.
- Click NEXT and to start the test, click START FAILOVER TEST.
- Verify that the protected test VMs were recovered successfully to the desired points-in-time by verifying the text file contents of the recovered virtual machines files.
- Click the Stop test icon to stop the test as described above and in the Stop Test dialog in the Result field specify whether the test succeeded or failed and then click STOP.

**Expected result**
The recovery virtual machine is created in the recovery site with the names `vmname - failover test`.

**Notes**
Zerto Virtual Replication enables recovering to any checkpoint that is displayed, even as soon as 10 seconds after the disaster. This provides an almost zero RPO.

**Actual Result**
Replace with actual result.
TEST 3: ADD A VM TO AN EXISTING VPG

**Procedure**

- In the Zerto User Interface for either the protected or recovery sites, select the VPG in the VPGs tab and click **MORE > Edit VPG**. You can also select the VPG to display the VPG details and click **EDIT VPG**. The **Edit VPG** wizard is displayed, enabling editing the VPG, including adding and removing virtual machines from the VPG.

- In the **VMs** step, select the virtual machine to be added to the VPG and click the arrow pointing right to include this machine in the VPG.

- Click **DONE**.

**Expected result**

The VPG definition is updated, and then the additional virtual machine is synced with the recovery site. When the sync process for the virtual machine is complete, Zerto Virtual Manager adds a checkpoint: **VM ‘XXX’ is fully synced**

where XXX is the name of the virtual machine that was synced.

**Notes**

- Only virtual machines that are supported by AWS can be protected by Zerto Virtual Replication. Refer to AWS documentation for the supported operating systems.

- Each machine that you intend to protect must have at least 250MB free space because AWS adds files to the recovered machines during failover, move, test failover, and clone operations.

- Protected volumes are recovered in EC2 as EBS disks with magnetic disk type. Virtual machines with disks that are less than 1GB are recovered with disks of 1GB. Additional volumes might be created in the recovered instance, dependent on the instance type used for the recovery. These volumes can be ignored.

  **Note:** By default, every m3.xlarge instance is created with two SSD disks. These disks are in addition to the disks associated with each protected virtual machine.

- A VPC must exist, and a security group and subnet must be assigned to it and to all other VPCs you want to use for recovered virtual machines.

  The following limitations apply when protecting to AWS:

  - You cannot protect machines that have a disk larger than 1TB.
  - AWS supports virtual machines running a Windows operating system with up to 26 volumes, including the boot disk.
  - AWS supports virtual machines running a Linux operating system with up to 40 volumes, including the boot disk.

While the VPG definition is being updated, you cannot perform any operation on the VPG, such as adding a checkpoint, editing its properties, or moving or failing it over. After the VPG definition is updated and while the virtual machine that was just added is being synced, the VPG can be failed over but the failover only includes the original virtual machines in the VPG, and does not include the virtual machine that you added.

**Actual Result**

*Replace with actual result.*
TEST 4: CONFIGURE A RECOVERY VM IP ADDRESS

Procedure

- In the Zerto User Interface, in the VPGs tab, select the VPG and click MORE > Edit VPG.
- In the Edit VPG wizard, in the RECOVERY step, specify network details to use for the recovered virtual machines after a live failover, a test failover, or migration.

![Edit VPG wizard](image)

- Click ADVANCED VM SETTINGS to set a specific private IP address for each virtual machine.

![Advanced VM Settings](image)

- Select a virtual machine and click EDIT SELECTED. The Edit VM Network dialog is displayed.

![Edit VM Network](image)

- In the Failover Test column, specify a private IP to use for the recovered virtual machine when testing replication and click SAVE and then in the Edit VPG wizard, click DONE.
- Check that recovered VMs will have the IP you defined by running Test 2: Test failing over the VPG.

Expected result

The VPG is updated. In a failover test, the IP address of the VMs will be the settings that were defined.

Notes

You can use the same procedure for a failover or move operation via the Failover/Move Recovery column.

Actual Result

Replace with actual result.
TEST 5: RESTORE A FILE FROM THE RECOVERY SITE

Procedure

- In the Zerto User Interface select ACTIONS > RESTORE FILE. The File and Folder Restore: Select VM wizard is displayed.
- Select the virtual machine on which the file or folder to be restored is located and click NEXT.

![Image of the File and Folder Restore: Select VM wizard]

The CHECKPOINT step is displayed. By default, all available checkpoints are displayed.

![Image of the File and Folder Restore: Select VM wizard with checkpoint selection]

- Select the checkpoint from which to recover the file or folder and click NEXT.
  The DISK step is displayed. All disks associated with the selected virtual machine are displayed.

![Image of the File and Folder Restore: Select VM wizard with disk selection]

- Select a disk to mount and click NEXT.
The MOUNT step is displayed with the settings you selected.

- Click START MOUNT to mount the disk. 
  Mounting the disk may take some time, depending on the selected checkpoint and the number of files and folders on the disk. When the disk is mounted, icons appear next to the completed task.

- Click the folder icon ( ) to browse the files and folders on the disk.  
  **Note:** Click the unmount icon ( ) to unmount the disk without restoring any files or folders.  
  The File and Folder Restore: Download wizard is displayed.

- Click NEXT. 
  The FILE/FOLDER step is displayed.

- Select the files and folders you want to download.  
  The selected files or folders are displayed in the right pane.
TEST 5: RESTORE A FILE FROM THE RECOVERY SITE (CONTINUED)

- Click NEXT.
  The DOWNLOAD step is displayed with details of the files and folders to restore.

![DOWNLOAD step](image)

**Note:** By default, when you select multiple files or one or more folders, the data is compressed before it is downloaded. If you select only one file, for download, you can choose whether or not the file is compressed.

3. Click START DOWNLOAD.
   The files and folders are downloaded to the downloads folder on the computer where you ran the download.

**Expected result**
The file or folder you selected to restore is downloaded to the computer from which you ran the restore. The file is restored with its name unless it is zipped, in which case it is in the ZertoDownloads.zip file.

**Notes**
Zerto recommends that you unmount the disk after the files or folders are downloaded.

**Actual Result**
Replace with actual result.