Zerto Virtual Replication Test Plan
Amazon Web Services (AWS) Environment
Version 5.5
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: \url{https://zvm_IP:9669}
   where \textit{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: \url{https://zvm_IP:9669}
   where \textit{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: \url{https://zvm_IP:9669}
   where \textit{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.
   \begin{itemize}
   \item \textbf{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
   \item \textbf{Password} – A valid password for the given user name.
   \end{itemize}

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.

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

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

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

- To select virtual machines that are already protected in other VPGs, click Select VMs.
TEST 1: CREATE A VPG (CONTINUED)

- 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.

Note: The zImport virtual machine must have access to the internet in order to access the S3 Bucket and the AMI in EC2. The only network in the customer environment that is certain to have internet access is the network that the ZCA is connected to. If a subnet is chosen in a network that is not in the same Availability Zone as the one in which the ZCA resides, the two options that use the zImport method will not be made available for selection.

The Subnet drop-down list shows the options available when either the Zerto Import for data volumes or the Zerto Import for all volumes is selected. Only the subnets that are supported by the zImport method are selectable. Other Subnets are grayed out and are not selectable.

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.

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:

- For **Linux**, AWS supports virtual machines with up to **12 volumes**, including the boot disk.
- For **Windows**, AWS supports virtual machines with up to **22 volumes**, including the boot disk.
- GBT formatted disks are supported for data volumes only.
- Depending on the Import Type, the following limitations apply:
  - **zImport for Data Volumes:** The maximum protected data volume size is **16TB**, while the boot volume can be up to **1TB**.
  - **zImport for All Volumes:** The maximum protected data volume size is **16TB**, while the boot volume can be up to **2047 GiB**.
  
  **Note:** Some VMs use the MBR partitioning scheme, which only supports up to **2047 GiB** boot volumes. If your instance does not boot with a boot volume that is 2 TB or larger, the VM you are using may be limited to a 2047 GiB boot volume. See the relevant AWS documentation for more information: [http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumeTypes.html](http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumeTypes.html)
  - **AWS Import:** The maximum protected data volume and boot volume size is **1TB**.

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 FAILOVER.

■ 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.
TEST 2: TEST FAILING OVER THE VPG (CONTINUED)

- 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:

\[
\text{VM ‘XXX’ is fully synced}
\]

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

### Notes

Note the following limitations:

- For **Linux**, AWS supports virtual machines with up to **12 volumes**, including the boot disk.
- For **Windows**, AWS supports virtual machines with up to **22 volumes**, including the boot disk.
- GBT formatted disks are supported for data volumes only.

Depending on the Import Type, the following limitations apply:

- **zImport for Data Volumes**: The **maximum** protected **data volume** size is **16TB**, while the **boot volume** can be up to **1TB**.
- **zImport for All Volumes**: The **maximum** protected **data volume** size is **16TB**, while the **boot volume** can be up to **2047GiB**.

**Note**: Some VMs use the MBR partitioning scheme, which only supports up to **2047 GiB** boot volumes. If your instance does not boot with a boot volume that is 2 TB or larger, the VM you are using may be limited to a 2047 GiB boot volume. See the relevant AWS documentation for more information: [http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumeTypes.html](http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumeTypes.html)

- **AWS Import**: The **maximum** protected **data volume** and **boot volume** size is **1TB**.

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.

![Screenshot of Zerto User Interface showing VPG settings]

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

![Screenshot of Advanced VM Settings dialog]

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

![Screenshot of Edit VM Settings dialog]

- 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.

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.

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

- 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.

- 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)

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.