Zerto Virtual Replication is an IT Resilience Platform™ to provide business continuity (BC) and disaster recovery (DR) in a virtual environment, enabling the replication of mission-critical applications and data as quickly as possible and with minimal data loss. When devising a recovery plan, these two objectives, minimum time to recover and maximum data to recover, are assigned target values: the recovery time objective (RTO) and the recovery point objective (RPO). Zerto Virtual Replication enables a virtual-aware recovery with low values for both the RTO and RPO. In addition, Zerto Virtual Replication enables protecting virtual machines for extended, longer term, recovery from an offsite backup.

The following topics are described in these Release Notes:
- “End-of-Version Support Notice”, on page 1
- “Prerequisites, Requirements and Installation Instructions”, on page 1
- “Upgrading Zerto Virtual Replication and/or Zerto Cloud Manager”, on page 2
- “What’s New in Zerto Analytics”, on page 3
- “What’s New & Resolved - Zerto Virtual Replication v6.0 Update 4”, on page 6
- “Resolved Issues - Zerto Virtual Replication v6.0 Update 3”, on page 8
- “What’s New & Resolved - Zerto Virtual Replication v6.0 Update 2”, on page 10
- “What’s New & Resolved - Zerto Virtual Replication v6.0 Update 1”, on page 13
- “What’s New & Resolved - Zerto Virtual Replication v6.0”, on page 16
- “Known Issues”, on page 26

End-of-Version Support Notice

To review the Zerto end-of-version support policies for Zerto Virtual Replication, see the document Product Version Lifecycle Matrix.

Prerequisites, Requirements and Installation Instructions

Before installing Zerto Virtual Replication, click to open and review prerequisites and requirements of the relevant platform:

<table>
<thead>
<tr>
<th>VMware vSphere environments</th>
<th>Microsoft Hyper-V environments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Azure environments</td>
<td>Amazon Web Services (AWS) environments</td>
</tr>
<tr>
<td>Cloud Service Providers (CSPs)</td>
<td></td>
</tr>
</tbody>
</table>

For installation instructions, click to open and review the installation guide:

<table>
<thead>
<tr>
<th>VMware vSphere environments</th>
<th>Microsoft Hyper-V environments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Azure environments</td>
<td>Amazon Web Services (AWS) environments</td>
</tr>
<tr>
<td>Zerto Cloud Manager Installation Guide</td>
<td></td>
</tr>
</tbody>
</table>

For Zerto Cloud Appliance The following platforms are supported for the installation:
- The following applications are required:
  - .NET 4.5.2. The .NET 4.5.2 installation package is included with the Zerto Virtual Replication 6.0 installation package.
**Upgrading Zerto Virtual Replication and/or Zerto Cloud Manager**

To review the upgrading guidelines and instructions, see [Upgrading the Zerto Virtual Replication Environment](#).

<table>
<thead>
<tr>
<th>IMPORTANT Upgrade Notice:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting with Zerto Virtual Replication v5.5, Zerto changed the maximum sizing limitations when the ZVM database needs to migrate from an embedded internal database, to an external database.</td>
</tr>
<tr>
<td>Before upgrading, it is important to follow the sizing guidelines. <strong>Failure to follow the sizing guideline can result in software errors, and not just performance degradation.</strong></td>
</tr>
<tr>
<td>For more information, click to review:</td>
</tr>
<tr>
<td>■ Sizing Considerations for Zerto Virtual Replication</td>
</tr>
<tr>
<td>■ Migrating the Zerto Virtual Replication Database to Microsoft SQL Server</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>After upgrading to Zerto Virtual Replication 6.0U2 or higher, if you want to change the Journal Size Hard Limit, you are also required to upgrade the VRAs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>After upgrading from Zerto Virtual Replication 6.0Ux to Zerto Virtual Replication 6.0U3, vCD environment information collection is temporarily reverted back to using the vCD SDK.</td>
</tr>
</tbody>
</table>
What’s New in Zerto Analytics

- “Before Getting Started with Zerto Analytics”, on page 3
- “Accessing the Zerto Analytics Portal”, on page 3
- “Zerto Analytics APIs”, on page 3
- “Zerto Analytics Dashboard”, on page 3
- “Zerto Analytics VPGs List”, on page 4
- “Zerto Analytics VPG Details”, on page 4
- “Zerto Analytics Reporting”, on page 4
- “Zerto Analytics Monitoring”, on page 4
- “Zerto Analytics GUI”, on page 5
- “Zerto Analytics ECE and CSP Licenses”, on page 5
- “Zerto Analytics Licensing Usage”, on page 5

Zerto Analytics allows you to track, monitor and check the health of your data center from any device. All your alerts, tasks, and information on Virtual Protection Groups (VPGs) can be viewed together. This allows you to monitor your Disaster Recovery and Business Continuity status from any location that has internet connectivity. No VPN is required.

Using Zerto Analytics, you can see aggregated information from the Zerto Virtual Managers, and view the status of your environment.

Zerto Analytics is developed with an API first approach, therefore, everything that is presented in the GUI, is also available with APIs.

Before Getting Started with Zerto Analytics

Verify the following:
- At least 1 ZVM is running ZVR v5.0 or higher.
- The Enable Online Services and Zerto Mobile check box is enabled (Settings > About).
- Internet access.
- A myZerto account using your corporate email address.

Accessing the Zerto Analytics Portal

Zerto Analytics can be accessed from https://analytics.zerto.com or through https://www.zerto.com/myzerto/ and signing in using your myZerto credentials.

TIP:
Use the What’s New and Help features in Zerto Analytics to learn more about each of the features available in Zerto Analytics.

Zerto Analytics APIs

Zerto Analytics is developed with an API first approach, therefore, everything that is presented in the GUI, is also available with APIs. APIs are available the same version as their GUI counterparts.

Zerto Analytics information is available in OpenAPI Specification.

The documentation can be accessed via the link: https://docs.api.zerto.com/

Zerto Analytics Dashboard

Availability:
- Available from ZVM v5.0.

From the Dashboard tab, you can view the following information:

What’s New in Zerto Analytics
What's New in Zerto Analytics

Release Notes for Zerto Virtual Replication v6.0 Update 4

- Aggregated information from participating sites.
- The average RPO across all VPGs.
- The sites list.
  - Click the icon next to the site name to open the ZVM site in a new tab.
  - Use the Site List menu to navigate to the list of VPGs, Alerts or Tasks for the specified site.
- The sites network topology view.
- Alerts, Tasks and Events of participating sites. **Note:** Events is available from ZVM v5.5U4.

Zerto Analytics VPGs List

**Availability:**
- Available from ZVM v5.0.

From the VPGs tab, you can view a list of all your VPGs.

- You can search and filter the VPGs list.
- View VPG status.
- Click a specific VPG in the list to view its details.

Zerto Analytics VPG Details

**Availability:**
- Available from ZVM v5.0.
- Journal Size data is available from ZVM v5.5.

Clicking on a specific VPG in the VPGs list, opens the VPG details page. Here you can view the following information:

- RPO
- Journal History
- VMs list
- Active alerts
- Running tasks

Zerto Analytics Reporting

**Availability:**
- Available from ZVM v5.0.
- Journal Size data is available from ZVM v5.5.
- Journal size site level history is available from ZVM v5.5.

You can view metrics in the following report formats:

- **RPO:** displays a single VPG's RPO metrics over a 1 month period.
- **Journal:** displays the Journal History and Journal Size metrics over a 1 month period, filtered by VPG and site.
- **Network:** displays network performance metrics over a 1 month period for: *(Network Reports are available from ZVM v6.0)*
  - **Single VPG:** Network performance at the VPG level (IOPs, Throughput, WAN Traffic over time).
  - **Between 2 Sites:** Total network performance between two sites (IOPs, Throughput, WAN Traffic over time).
  - **Total Outgoing:** Total network outgoing performance from a site (IOPs, Throughput, WAN Traffic over time, Bandwidth throttling).

**NOTE:** Network Reports currently do not support ZORG filtering.

Zerto Analytics Monitoring

**Availability:**
- Available from ZVM v5.0.

From the Monitoring tab, you can:

- View and search alerts. Click an alert in the list to view a detailed description.
- View and search tasks
- View and search events and alert history. **Note:** Events is available from ZVM v5.5U4.
ZORG Filtering

**Availability:**
- Available from ZVM v5.5U4.

Customers using ZORGs can filter the entire application to specific ZORG information.

**NOTE:** Network Reports currently do not support ZORG filtering.

Zerto Analytics GUI

As part of an effort to align Zerto GUI, various enhancements were made to the user interface. Some of these enhancements are: ‘What’s New’ feature that allows you to read about the latest features added to Zerto Analytics. Site List Menu allows you to easily navigate to the list of VPGs, Alerts or Tasks for a specified site.

Zerto Analytics ECE and CSP Licenses

**Availability:**
- Available for Journal Reports from ZVM v5.5.
- Available for Network Reports from ZVM v6.0

Customers with ECE and CSP licenses now have 90 days of history in reports.

Zerto Analytics Licensing Usage

**Availability:**
- Available from ZVM v5.0.

You can view license availability, usage, and more.
What's New & Resolved - Zerto Virtual Replication v6.0 Update 4

What's New - Zerto Virtual Replication v6.0 Update 4, below

Resolved Issues - Version 6.0 Update 4, below

What's New - Zerto Virtual Replication v6.0 Update 4

Zerto Virtual Replication version 6.0 Update 4 includes the following new features and functionalities:

VMware vSphere
- VSAN version 6.7 is now supported. See the Interoperability Matrix for specific features support.
- vSphere version 6.7 U1, which includes vCenter 6.7 U1 and ESXi 6.7 U1, is now supported. See the Interoperability Matrix for specific features support.

Resolved Issues - Version 6.0 Update 4
- “Resolved Issues: Hyper-V”, on page 6
- “Resolved Issues: vSphere”, on page 7
- “Resolved Issues: AWS”, on page 7
- “Resolved Issues: General”, on page 7

Resolved Issues: Hyper-V

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>121273</td>
<td>A datastore selection error is no longer caused when the datastore is a subset of another datastore.</td>
</tr>
<tr>
<td>122284, 00122284</td>
<td>Fixed an issue with the VRA appearing as not available.</td>
</tr>
<tr>
<td>00123223</td>
<td>Fixed failure issues in the VPG creation process which were caused when the VPG had several volumes for each VM.</td>
</tr>
<tr>
<td>121273,122284, 122474, 122656, 123689</td>
<td>Fixed an issue which prevented moving VPGs between recovery hosts.</td>
</tr>
<tr>
<td>00124691</td>
<td>Fixed an issue with data collection following reboot of the ZVM VM on a Hyper-V protected site.</td>
</tr>
</tbody>
</table>
## Resolved Issues: vSphere

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 4</th>
</tr>
</thead>
</table>
| 00128093, 128319, 00128116, 00128158, 00128408, 00127959, 00128553, 00128537, 00128653, 00128913, 00127886, 127886, 00129174 | Resolved an issue which prevented installing VRAs on ESXi 6.7 U1 hosts.  
**Note:** Fixed from version 6.0U4P1                                                                 |
| 00124235                         | Environments with vCenter server version 6.7 (including updates): Resolved an issue where Remote Log Collection could not be enabled.  
**Note:** Fixed from version 6.0U4P1                                                                 |

## Resolved Issues: AWS

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>00124235</td>
<td>Resolved performance issues following upgrade to ZVM v6.0U3, when recovery is to AWS.</td>
</tr>
</tbody>
</table>

## Resolved Issues: General

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 4</th>
</tr>
</thead>
</table>
| 00126284    | Fixed a security vulnerability in Zerto UI.  
**Note:** Fixed from version 6.0U4P1 |
Resolved Issues - Zerto Virtual Replication v6.0 Update 3

- “Resolved Issues: Azure”, on page 8
- “Resolved Issues: AWS”, on page 8
- “Resolved Issues: vCD”, on page 8
- “Resolved Issues: General”, on page 9

Resolved Issues: Azure

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>112987</td>
<td>The Failover time to Azure was improved.</td>
</tr>
</tbody>
</table>

Resolved Issues: AWS

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>117742, 117835</td>
<td>Improved error messages when failing to create instances on AWS.</td>
</tr>
</tbody>
</table>

Resolved Issues: vSphere

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>119384, 120117, 119722, 120101, 120137, 120149</td>
<td>With reference to the VMware vSphere “Known Issues”, on page 26, where a mismatch might occur between the vCenter database and Zerto Virtual Replication, a fix was introduced where, for future Reinitializing or restoring a vCenter database, the issue will not occur. However, if the Reinitializing or restoring a vCenter database occurred prior to the recent ZVM update, this issue may still arise.</td>
</tr>
</tbody>
</table>

Resolved Issues: vCD

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>113105, 116895</td>
<td>The VPG Create and Edit screens no longer take a long time to load when there is a large number of vApps.</td>
</tr>
<tr>
<td>118609</td>
<td>ZVM is now able to run on vCD with multiple Org vDCs without slowing down the user experience. <strong>Note:</strong> Fixed from version 6.0U3P1</td>
</tr>
<tr>
<td>123672</td>
<td>Resolved an issue of unsuccessful Failover from a vCD environment, when the protected site is down or disconnected from the recovery site. <strong>Note:</strong> Fixed from version 6.0U3P2</td>
</tr>
</tbody>
</table>
## Resolved Issues: General

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>117596</td>
<td>Decompressing corrupted data in the journal no longer causes the VRA to crash. Instead, a VPG error message is displayed.</td>
</tr>
<tr>
<td>106723</td>
<td>Changing DNS definitions for several NICs no longer affects IP addresses.</td>
</tr>
<tr>
<td>116006</td>
<td>Volume defragmentation no longer causes a long bitmap sync.</td>
</tr>
<tr>
<td>114413, 117204</td>
<td>Fixed a GUI issue with the Resources Report where the dates ‘to’ and ‘from’ fields appeared reversed.</td>
</tr>
<tr>
<td></td>
<td>Post Backup Scripts are now disabled for CSP’s DRaaS customers.</td>
</tr>
</tbody>
</table>
| 105429, 106501, 106533, 106722, 106930, 106977, 107003, 113245, 122548, 121954, 90093, 104457, 106501, 106977, 107100, 107207, 107342, 107380, 107395, 107649, 107775, 110637, 111789, 120701, 121954 | Resolved several cases where ZVM didn’t correctly manage volumes in a Journal.  
**Note:** Fixed from version 6.0U3P1 |
|             | Resolved an issue where upon ZVM upgrade from version 6.0U2 to v6.0U3 the VRA was not upgraded.  
**Note:** Fixed from version 6.0U3P1 |
What’s New & Resolved - Zerto Virtual Replication v6.0 Update 2

“What’s New - Zerto Virtual Replication v6.0 Update 2”, on page 10
“Resolved Issues - Version 6.0 Update 2”, on page 11

What’s New - Zerto Virtual Replication v6.0 Update 2

Zerto Virtual Replication version 6.0 Update 2 includes the following new features and functionalities:

- “License API”, on page 10
- “LVM Support”, on page 10
- “Hyper-V”, on page 10

License API

- We introduced new APIs enabling users to get license details, apply and delete a license, available under: https://zvm_ip:port/v1/license

LVM Support

- Linux Logical Volume Manager (LVM) based file systems when using File Level Restores is now supported.

Hyper-V

- Installing PowerShell module on Hyper-V hosts is no longer required, improving performance on Hyper-V reflection collection.
Resolved Issues - Version 6.0 Update 2

■ “Resolved Issues: Azure”, on page 11
■ “Resolved Issues: AWS”, on page 11
■ “Resolved Issues: API”, on page 11
■ “Resolved Issues: vCD”, on page 12
■ “Resolved Issues: General”, on page 12

Resolved Issues: Azure

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>114252, 116843</td>
<td>Changes in naming conventions for resource groups in Azure no longer prevent the user from running failover successfully.</td>
</tr>
<tr>
<td>108982</td>
<td>When editing a VPG that recovers to Azure, where the selected subnet in the recovery tab no longer exists, instead of an error message the user is now requested to select an existing subnet from the drop-down list.</td>
</tr>
</tbody>
</table>

Resolved Issues: AWS

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>112366, 114333, 114120, 117293</td>
<td>An issue with the recovery VRA was resolved, enabling the user to run a second failover successfully after performing a rollback following a failed failover.</td>
</tr>
<tr>
<td>114431</td>
<td>An issue with Zerto Diagnostics Reconfigure was fixed in an AWS environment, enabling the user to run test failover successfully and allowing other VPGs to continue replication to AWS.</td>
</tr>
<tr>
<td>114431</td>
<td>An error message related to the AWS CloudTrail, reporting an invalid parameter combination, no longer appears.</td>
</tr>
</tbody>
</table>

Resolved Issues: API

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>90680</td>
<td>Default VPG settings are no longer mandatory.</td>
</tr>
<tr>
<td>108793</td>
<td>Colon (:) in the password is now supported using the ZVM API.</td>
</tr>
<tr>
<td>114871</td>
<td>When using API to create a VPG, journal history SLA no longer ignores the user’s definition.</td>
</tr>
</tbody>
</table>
## Resolved Issues: vCD

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>108744, 112754</td>
<td>The process of importing vSphere VMs into vCD was improved, making failover test more resilient.</td>
</tr>
<tr>
<td>114112</td>
<td>Resolved an issue with datastore clusters in a vCD environment which prevented the user from creating or editing a VPG.</td>
</tr>
<tr>
<td>114780</td>
<td>When the storage profile contains a cluster datastore, the correct list of available datastores is now displayed.</td>
</tr>
<tr>
<td>117818</td>
<td>Upgrading the protected site from 5.5 to 6.0U2 no longer causes VPGs to stop syncing when replicating to vCD and the recovery site is 5.5.</td>
</tr>
</tbody>
</table>

## Resolved Issues: General

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>88410</td>
<td>An error message now appears when the user attempts to change provisioning method to Thick, and the recovery site datastore accepts only Thin provisioning.</td>
</tr>
<tr>
<td>19983, 22676, 100414, 106663, 112144</td>
<td>Zerto now supports importing a VPG with two volumes containing the same name that reside on different datastores.</td>
</tr>
<tr>
<td>114225</td>
<td>If the user performs a failover or a move, and then selects rollback, the recovery site no longer goes into time out while waiting for the protected site to power on all its virtual machines.</td>
</tr>
<tr>
<td>97734, 114154</td>
<td>Fixed an issue with rollback related to test failover, which caused the VRA to crash.</td>
</tr>
<tr>
<td>113795, 114349, 116582, 116529, 118374</td>
<td>The VRA no longer crashes after the following actions failed; changing of the target host, and when setting a new Journal Size Hard Limit.</td>
</tr>
<tr>
<td>104040</td>
<td>On-premise environments only: Improved the ability to export VPGs to CSV by resolving issues related to the VM’s host.</td>
</tr>
<tr>
<td>114672, 115725</td>
<td>On-Premise environments only: Offsite clone no longer fails in cases where the protected volume extension is in upper case letters.</td>
</tr>
<tr>
<td>118250, 118029</td>
<td>When connecting to a VRA port via external software, the VRA no longer crashes.</td>
</tr>
</tbody>
</table>
What's New & Resolved - Zerto Virtual Replication v6.0 Update 1

“What’s New - Zerto Virtual Replication v6.0 Update 1”, on page 13

“Resolved Issues - Version 6.0 Update 1”, on page 14

What's New - Zerto Virtual Replication v6.0 Update 1

Zerto Virtual Replication version 6.0 Update 1 includes the following new features and functionalities:

- “Azure”, on page 13
- “vCloud Director”, on page 13
- “AWS”, on page 13
- “API”, on page 13

Azure
- The ZCA installer now filters out any storage account where the account type is set to Blob Storage.

vCloud Director
- vCD organizations configured for Fast Provisioning are now blocked from configuring Storage Policy per volume.
- The default Storage Policy setting for each volume is now ‘Use VM Defaults’.
- Zerto Virtual Replication supports vCloud Director version 9.1.

AWS
- When protecting to AWS, 40 volumes are now supported for Linux machines, and 26 volumes for Windows machines.

API
- Zerto no longer requires setting an authentication method when creating an API session. Authentication is now automatically set, based on the environment and permission settings. Authentication method is still supported in order to maintain existing scripts. However, as of 6.0 U1, the authentication method will be determined automatically, ignoring user specific authentication method.
- We introduced a new API enabling users to add tagged checkpoints, available under: https://zvm_ip:port/v1/vpgs
Resolved Issues - Version 6.0 Update 1

- “Resolved Issues: vCenter”, on page 14
- “Resolved Issues: Hyper-V”, on page 14
- “Resolved Issues: Azure”, on page 14
- “Resolved Issues: AWS”, on page 14
- “Resolved Issues: Cloud”, on page 15
- “Resolved Issues: General”, on page 15

Resolved Issues: vCenter

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>98745, 107073, 107511, 107775, 109704</td>
<td>Resiliency to errors during VRA upgrade has been improved.</td>
</tr>
<tr>
<td>100411</td>
<td>Zerto will no longer fail the reverse protection after failover live, when copying of the recovery disk to the VM folder takes a long time.</td>
</tr>
<tr>
<td>114809, 114960, 115134, 115407, 115200</td>
<td>When upgrading to ZVR 6.0, Zerto no longer fails to connect to vCenter. The failure was caused by ZVR sending the wrong password to vCenter, which caused the connection failure.</td>
</tr>
</tbody>
</table>

Resolved Issues: Hyper-V

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>It is now possible to install the Host (e.g. VRA) when TLS 1.2 is enabled.</td>
</tr>
</tbody>
</table>

Resolved Issues: Azure

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Premium storage accounts are now filtered out from the Select Storage list in the Installation wizard, since Premium storage accounts are currently not supported.</td>
</tr>
</tbody>
</table>

Resolved Issues: AWS

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>113708</td>
<td>Failover Test timeout periods were extended, making Failover Test to AWS more resilient to network failures.</td>
</tr>
<tr>
<td>114431</td>
<td>Fixed an issue which caused many zSAT instances to be created for a single protected volume.</td>
</tr>
</tbody>
</table>
### Resolved Issues: Cloud

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>105807</td>
<td>When creating or editing a VPG that recovers to the public cloud, the Subnet setting in Recovery tab of the VPG wizard no longer reverts to the default setting, when moving to another step in the wizard before clicking the Done button.</td>
</tr>
</tbody>
</table>

### Resolved Issues: General

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0 UPDATE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>107427, 110597</td>
<td><strong>Recovery Report:</strong> When running a recovery report and exporting it, the times stated in the report are now consistent, and defined as ZVM local time.</td>
</tr>
<tr>
<td>92965</td>
<td><strong>ZSSP:</strong> When creating a VPG in the ZSSP, and in the recovery site there are two networks with the same display name, the user can now access the advanced create VPG wizard.</td>
</tr>
<tr>
<td>105699,110940</td>
<td>Issues with the of bitmap sync were fixed, improving its performance.</td>
</tr>
<tr>
<td>105992</td>
<td>When adding a volume to a protected VM, and no default datastore is configured for the VPG, the VPG no longer goes into &quot;Needs configuration&quot; state.</td>
</tr>
<tr>
<td>106873</td>
<td><strong>Performance Report:</strong> The colors of the graph and legends are now correct when running the Performance Report for more than one VPG.</td>
</tr>
<tr>
<td>106861</td>
<td><strong>GET VPG API:</strong> When there’s a problem collecting ActualHistoryinMinutes for the GET VPG API, for example when the sites are disconnected, ActualHistoryinMinutes now shows a value of -1, representing an invalid sample.</td>
</tr>
<tr>
<td>111472</td>
<td>Sorting protected VMs by size in the VPG Details tab, takes into account size units as well.</td>
</tr>
<tr>
<td></td>
<td>The performance of multiple log volumes was improved and can be now be created simultaneously without any issues.</td>
</tr>
<tr>
<td>113348, 113635</td>
<td>Zerto upgrade from 5.5 to 6.0 no longer fails, when SMB backup repository is configured with credentials.</td>
</tr>
<tr>
<td>113812, 114286, 115264</td>
<td>Resolved issues related to editing of VPGs and incorrect RPO values, after importing VPGs from v4.5.</td>
</tr>
</tbody>
</table>
What’s New & Resolved - Zerto Virtual Replication v6.0

“What’s New - In Zerto Virtual Replication v6.0”, on page 16

“Resolved Issues - Version 6.0”, on page 21

What’s New - In Zerto Virtual Replication v6.0

Zerto Virtual Replication version 6.0 includes the following new features and functionalities:

- “API”, on page 16
- “Azure”, on page 16
- “Replication to, from, and between Azure and AWS”, on page 17
- “AWS”, on page 17
- “Recovery Operations”, on page 17
- “vCloud Director”, on page 18
- “Hyper-V”, on page 18
- “vSphere”, on page 19
- “ZCM”, on page 19
- “Remote Upgrade for Cloud Service Providers”, on page 19
- “Offsite Backup Improvements”, on page 19
- “File Level Restore”, on page 20
- “Scaling”, on page 20
- “VPG”, on page 20

IMPORTANT Notification:

VSS functionality is no longer supported in Zerto Virtual Replication. If you require VSS functionality, see Release Notes for Zerto Virtual Replication with VSS, and Zerto Virtual Replication - VSS Deployment and User Guide.

API

- Added invalid argument validations, ensuring no arguments are misspelled or misused, which might result in unexpected behavior.
- We introduced a new API supporting bulk upgrade of VRAs.
  This allows users to easily and automatically select and upgrade their VRAs after a ZVM upgrade.
- We introduced Datastore Cluster Support in API: The VPG Settings REST API now supports the use of datastore clusters for recovery volumes.

Azure

- “Azure to Azure Replication”, on page 16
- “Failover/Move from Azure with Reverse Protection Using Preseed”, on page 16
- “Export/Import to an Azure VPG Using Delta Sync”, on page 17

Azure to Azure Replication

We now support full replication between different Azure sites.

Failover/Move from Azure with Reverse Protection Using Preseed

To help reduce the amount of data transferred over the network, now, when performing recovery operations from Azure with reverse protection:
The original protected disks in Azure can now be saved as recovery disks, instead of being created from scratch. The system now performs delta sync, instead of an initial sync.

Export/Import to an Azure VPG Using Delta Sync
Import or Export of VPGs to Azure now uses delta sync as well as initial sync. VPG disks can now be saved when un-pairing sites and deleting VPGs, and can later be used for importing VPGs using delta sync.

AWS
- “Replication Out of AWS for Failback and Migration of Workloads”, on page 17
- “Prerequisites when Replicating To and From AWS”, on page 17

Replication Out of AWS for Failback and Migration of Workloads
Failover to AWS now includes the option to configure Reverse Protection during or after Failover, allowing for automated reverse replication and failback from AWS. This includes failback and moves back to vSphere, Hyper-V, and Azure environments. EC2 VMs originating in AWS can also be protected to destinations out of AWS.

Features such as Test and live Failover, Move, pre/post scripts, 30-day journal, and many more are also supported when protecting workloads in AWS.
- Workload Protection is subject to operational costs, as well as additional costs related to protection of those workloads as outlined in Zerto Virtual Replication - Prerequisites & Requirements for Amazon Web Services (AWS). Costs are expected to grow linearly with time as long as the workload runs in AWS.

AWS workload protection is now supported for migration and failback purposes, with the following consideration:
- Consistent recovery of applications writing to multiple disks is supported with the Move operation only and is not guaranteed with the live or Test Failover operation.

Prerequisites when Replicating To and From AWS
Using Re-IP:
ZertoTools is required for the protection of Windows machines.

In this release, ZertoTools is required for protecting VMs running Windows operating systems in VMware, while AWS is the recovery site platform.

ZertoTools enable Re-IP upon failback to on-premises VMware site. Moreover, it is required for a successful failback to on-premises site when using the “zImport for all volumes” recovery method, when recovering to AWS.

Download the tool from the following location: https://www.zerto.com/myzerto/support/downloads/

AWS quota requirements:
AWS quota requirements are outlined in Zerto Virtual Replication - Prerequisites & Requirements for Amazon Web Services (AWS).

Replication to, from, and between Azure and AWS
Workload mobility between Azure and AWS sites is now supported, meaning workloads can be protected and moved from Azure to AWS, and AWS to Azure.

See Azure and AWS for known issues and considerations.
See myZerto > Technical Documentation for any additional considerations or known issues.

Recovery Operations
- Failover Test (FOT) Resiliency: In the event of disconnection between the ZVM, VRA or hypervisor when stopping FOT, or rolling back from a Move/FOL before commit operation, the system will no longer hang in an unknown state. Instead, the
Zerto Virtual Replication v6.0 Update 4

What’s New & Resolved

ZVM will display a system alert and show a proper state. Once the disconnection is resolved, the user will be able to successfully stop the FOT, or roll-back from a Move/FOL before the commit operation.

- Keep VM UUID: We now allow customers to keep the VM BIOS UUID after failing over.
  - VM UUID preservation is not supported when replicating from or to public cloud.
  - VM UUID preservation is not supported for cross replication, Hyper-V to VMware.
- Zerto now prevents users from taking snapshots and creating clones of test VMs, as a clone of a test VM is not consistent.
- Zerto now prevents users from taking snapshots of VRAs.
- Recovery Commit Policy: The default Commit Policy for recovery operations in "Site Settings" was changed from "Auto Commit with no timeout" to "Auto Commit with 60 minutes timeout". In addition, warnings were added to the recovery wizards, specifying the selected commit policy for each VPG.
- Networks with very large latency can now perform faster delta syncs, up to the speed allowed by the disk rate and the rate the CPU calculates the md5 signatures.

**vCloud Director**

- Enhanced the Storage Policy configuration for VPGs. This allows the user to:
  - Configure Storage Policy per Volume in supported vCD versions.
  - Specify the Journal Storage Policy.
  - Supported between ZVM 6.0 versions and above.
- Improved RTO when Guest Customization is enabled.
  - From Zerto Virtual Replication v5.5 Update 3 we improved the RTO when replicating to vCD 9, when Guest Customization is enabled.
  - In Zerto Virtual Replication v6.0, we also improved the RTO when replicating to vCD versions 8.10.1.1 and 8.20.0.2 and above, when Guest Customization is enabled.
- Zerto is gradually shifting to use vCD APIs instead of the vCD SDK. As part of this change, the software is now collecting environment information using vCD API.
  
  **Note:** In Zerto Virtual Replication v6.0U3, vCD environment information was temporarily reverted back to using the vCD SDK. This is due to several issues caused by using the vCD APIs.

**Hyper-V**

- “Hyper-V Events”, on page 18
- “Hyper-V Identifier Mapping”, on page 18
- “Collect Hyper-V Integration Tools Version from the Hyper-V Host”, on page 18

**Hyper-V Events**

Zerto improved the responsiveness of changes which are done in SCVMM, such as 'add volume', from minutes to immediate.

**Hyper-V Identifier Mapping**

Zerto now maps protected VMs and Hosts with a VRA in SCVMM, in order to track cases where the protected VM or the Host with the VRA was removed and then re-added.

In these cases, Zerto will recognize that the protected VM or Host with VRA was re-added, and will also resume the VPG from pause and/or resume the VRA from a ghost state.

- We support Host removal and VM removal.
- Identifier Mapping for Datastore ID and VM Network is not supported in v6.0.
- Depending on the size of the environment, it might take a few minutes to identify that the Host or VM was re-added.

**Collect Hyper-V Integration Tools Version from the Hyper-V Host**

Zerto now allows users to configure and execute re-IP in Hyper-V, even when SCVMM is not updated with the information, and SCVMM falsely reports that IS (Integration Services) is missing.
vSphere

**Up to 96TB per host:** The sum of all VMDKs of all virtual machines protected on a particular ESXi was increased from 48TB to 96TB.

ZCM

ZCM now by default, disables the generation of ZSSP URLs. To enable it, in ZCM go to Settings and select Enable ZSSP URL Factory for all Sites.

Remote Upgrade for Cloud Service Providers

- **Upgrade Manager:** A new feature was introduced in v6.0 which allows Cloud Service Providers to remotely upgrade their end customer sites. This functionality is accessible from MyZerto > Cloud Control > Upgrade Manager tab.
  - Centralized monitoring: Allows Cloud Service Providers an overall view of all their end customers' ZVR versions.
  - Improved service of CSP customers: Cloud Service Providers will be able to keep their customers Zerto Virtual Replication software always up to date.
- Data Protection always-on: Upgrading of Cloud environments is now facilitated by keeping the end customer up-to-date with a compatible version to the provider.
- **Recommended Version:** The latest version that the customer site can be upgraded to, so it will maintain compatibility with its peer cloud sites.
- **Remote upgrade:** The Upgrade Manager will enable remote upgrade of end customers Zerto Virtual Replication.
  - Remote upgrade functionality is permitted when:
    - The customers ZVR instance is paired to a CSP-deployed ZCC and does not have a perpetual license applied.
    - Online Services is enabled on both the CSP ZVR instance and the remote customer instance (enabled by default).
    - The end customer ZVR instance should be able to transmit over port 443.
  - **Prerequisites:**
    - The customer’s ZVM is v6.0 or above, or v5.5U4.

**Considerations:**

- Zerto Recommended Version is based only on the Zerto Virtual Manager version. It does not include VRA versions.
- Prior to the Remote Upgrade operation, the Cloud Service Provider administrator should verify that the end customer VRAs and ZVMs are the same version.
- VRAs are automatically upgraded with the Zerto Virtual Manager. Users cannot upgrade the VRAs only via the application.
- The logged-in Cloud Service Provider needs permissions to preform Remote Upgrade, otherwise the Remote Upgrade option is disabled.
- Users are unable to stop or rollback the Remote Upgrade operation once it has started; the operation begins following a user clicking Upgrade on the confirmation pop up message.
- Cloud Service Providers with Zerto Virtual Replication versions 5.0x and 5.5x will be able to benefit from the centralized monitoring view of all their end customers’ Zerto Virtual Replication versions, but Recommended Version details will not appear. In addition, they will not have the option to Remote Upgrade.
- The end customer site displayed in the new ‘Upgrade Manager’ tab is based on the pairing to the Cloud Provider site. In some cases an end customer will appear without a site. (The details are filled once a VPG is created for the end customer).

Offsite Backup Improvements

**Backup resiliency and reliability:** Improved backup resiliency and reliability by breaking up the backup file into smaller files, then writing them synchronically while adding a retry mechanism.

Additionally, we removed the compression setting from existing and new repositories.
File Level Restore

“JFLR Installation Optimizations”, on page 20  
“File and Folder Restore - Display Unsupported Items”, on page 20  
“JFLR Support of Linux VMs”, on page 20

JFLR Installation Optimizations
The Zeus driver was removed from the Zerto Virtual Replication installation.

File and Folder Restore - Display Unsupported Items
Up until now unsupported items were filtered out. Starting from Zerto Virtual Replication version 6.0 unsupported partitions, folders and files are visible in the User Interface, but will be grayed out and disabled for selection. When hovering over unsupported items, additional data will appear with the reason why the item cannot be selected for restore.

JFLR Support of Linux VMs
JFLR now supports Linux based virtual machines, using a file system reader developed explicitly for this purpose.

For more information on The File and Folder Recovery Process, and supported operating and file server systems in Zerto Virtual Replication v6.0, see the Interoperability Matrix.

Scaling
We raised the number VMware VMs that are supported on a single ZVM from 5,000 VMs to 10,000 VMs.

VPG
Zerto has improved performance by optimizing concurrent VPG operations. This is achieved by multiple changes such as:
■ Modification to the lock mechanism which replaced some global level locks to being per VPG/VM, and thus increasing rate tasks performed in parallel.
■ Performance optimization with the code used to interact with vSphere.
■ Increased some ZVM concurrency configuration defaults to enable a higher concurrency rate.

These optimizations result in:
■ Reduced duration when VPGs are created concurrently (for example when they are created using import).
■ Reduced overall duration when failing over several VPGs to vSphere concurrently.

Note: Improved performance is not applicable when the recovery site is vCD.
Resolved Issues - Version 6.0

- “Resolved Issues: Hyper-V”, on page 21
- “Resolved Issues: vCenter”, on page 21
- “Resolved Issues: Azure”, on page 22
- “Resolved Issues: VRA”, on page 22
- “Resolved Issues: ZCM”, on page 23
- “Resolved Issues: File Level Restore”, on page 23
- “Resolved Issues: General”, on page 24

Resolved Issues: Hyper-V

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>105884, 106030</td>
<td>Collection of SCSI data was optimized to resolve an issue where some of the VMs were not available for protection in large scale environments.</td>
</tr>
<tr>
<td>106728</td>
<td>Fixed an issue where the agent logs successfully collect data from the hosts so that the VM location of its volumes point to the same storage as defined in SCVMM with the same domain.</td>
</tr>
<tr>
<td>106311, 106728</td>
<td>Resolved a domain name configuration issue between the Hyper-V host and the SCVMM, which was causing some VMs to not recognize a recovery host or datastore when adding them to a VPG.</td>
</tr>
<tr>
<td>00103283, 104359, 110167</td>
<td>When replicating from Hyper-V, we added support for VMs with Windows Server 2016 operating systems.</td>
</tr>
<tr>
<td>95762, 95564, 99276</td>
<td>Unavailable hosts caused VRA installation to a Hyper-V host to fail. These hosts are now skipped, and only available hosts are displayed.</td>
</tr>
</tbody>
</table>

Resolved Issues: vCenter

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>00106085, 105215</td>
<td>Resolved a synchronization issue between Cloud Providers recovery sites and their peers, where under some circumstances ZCC SSH connection failed.</td>
</tr>
<tr>
<td>107715, 107924</td>
<td></td>
</tr>
<tr>
<td>108623, 109287</td>
<td></td>
</tr>
<tr>
<td>110906, 111371</td>
<td></td>
</tr>
<tr>
<td>00012335, 00076613, 00088546, 109529</td>
<td>Fixed an issue that occurred on VMs with snapshots so that the original VMDK file is always returned after a failover or VPG move operation. This is so that VPG configuration is maintained after the failover or move.</td>
</tr>
<tr>
<td>00103273</td>
<td>Resolved an issue where some VMs were not booting during recovery operations in a failover test due to the vm boot disk scsi0 not being the one with the lowest pciSlotNumber.</td>
</tr>
</tbody>
</table>
### Resolved Issues: Azure

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>106821</td>
<td>Resolved an issue which could occur when attempting to delete the auto generated blobs, after the user tried to delete the VM from Azure. This was caused by an incorrect comparison of the storage accounts' location when ZVR filtered the storage accounts in the proper subscription and location.</td>
</tr>
<tr>
<td>106821, 108919</td>
<td>Resolved an issue collecting the ZCA storage account information in the reflection, which caused initial sync to fail when performing failover commit from Hyper-V to Azure with reverse protection</td>
</tr>
</tbody>
</table>

### Resolved Issues: VRA

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>98046, 100691</td>
<td>Resolved an issue which caused a VRA to disconnect from an active peer VRA. This issue occurred when there were many unreachable peer VRAs.</td>
</tr>
<tr>
<td>00013220, 21235, 21254, 87488, 109755</td>
<td>Resolved an issue where the ZVM set a critical checkpoint that was older than the earliest checkpoint, which caused the VRA to crash.</td>
</tr>
<tr>
<td>15046</td>
<td>Corrupt journal data was causing the VRA to crash repeatedly. Now when corrupt journal data is detected, the VPG goes into a terminal error state and the other VPGs continue functioning.</td>
</tr>
<tr>
<td>88753</td>
<td>Resolved an issue where VRA gets stuck when it is restarted during live failover, which was caused by failover live or failover move VMs producing very high IO traffic.</td>
</tr>
<tr>
<td></td>
<td>Bitmap sync performance was improved.</td>
</tr>
</tbody>
</table>
## Resolved Issues: ZCM

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>00015892, 90396, 92447, 92656, 94239, 96833, 00009382, 00012159, 00014345, 00017692, 00022585, 00088728, 90846, 92273, 92113, 97712, 96228, 101487, 95838, 101221, 103241, 105869, 109675, 111533</td>
<td>Resolved a compatibility issue for environments with Cisco UCS hosts using the Fiber Channel over Ethernet (FCoE) FNIC driver, which caused the VRAs to become unresponsive, including some protected VMs to not be turned off or VMotioned.</td>
</tr>
</tbody>
</table>

| 83632, 106033, 107395 | vSphere environments: Resolved an issue where the VRA responds slowly to the recovery VM, when another recovery FOT/FOL VM produces IO traffic. |

## Resolved Issues: File Level Restore

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>105632</td>
<td>File Level Restore issues associated with Zeus driver, such as failure to mount the driver, and some file recovery failures, were resolved. The Zeus driver was removed from the ZVR installation.</td>
</tr>
</tbody>
</table>

| 87637 | Resolved several issues with dependency on the recovery ZVM operating system version during File Level Restore operations. Issue was resolved by removing dependency on Zeus driver. |

| 106430 | File Level Restore issues related to the Zeus driver were resolved. The Zeus driver was removed from the ZVR installation. |
### Resolved Issues: General

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>ISSUES RESOLVED IN VERSION 6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>112998, 113069, 113018, 112926, 112961, 113049, 112990, 113118</td>
<td>Fixed an issue that caused the VRA upgrades to fail after upgrading to ZVR 6.0, where different entities in vCenter have duplicate names. <strong>Note:</strong> Relevant from version 6.0P1</td>
</tr>
<tr>
<td>84898</td>
<td>Large scale environments: Resolved an issue where the ZVM’s “IO write” to disk is relatively high, due to massive amount of fully occupied journals.</td>
</tr>
<tr>
<td>101472, 88052, 00089142, 100856, 00101472, 106774, 00107250</td>
<td>Added a constraint to the database to avoid two entries for the same ZVM task, which could have caused the ZVM to fail when starting up.</td>
</tr>
<tr>
<td>94505, 104040, 106439</td>
<td>Resolved an issue which sometimes caused outdated information to be presented in the ZVM Dashboard, and in the VPG details graphs.</td>
</tr>
<tr>
<td>101284</td>
<td>Improved performance when multiple test failovers are running in parallel.</td>
</tr>
<tr>
<td>00099604</td>
<td>The Zerto Conversion storage tool was enhanced so that migrating ZVM to an external SQL instance no longer causes issues relating to localization.</td>
</tr>
<tr>
<td>95162</td>
<td>The DB conversion tool no longer shows the password in clear text. In addition, communication problems are detected and reported.</td>
</tr>
<tr>
<td>89360, 92203, 86561</td>
<td>Updated GUI tooltips to clarify the Bandwidth Regulator feature in the Site Settings window and Edit VRA window. The Bandwidth Regulator lets you assign different VRAs to separate groups, where each VRA group gets its own bandwidth.</td>
</tr>
<tr>
<td>00098343</td>
<td>The alerts counter in the ZVM GUI now decreases when alerts are acknowledged.</td>
</tr>
<tr>
<td>CASE NUMBER</td>
<td>ISSUES RESOLVED IN VERSION 6.0</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6039, 00021174</td>
<td>Fixed an issue which caused the VPG to go into an error state after Stop Failover Test failure.</td>
</tr>
<tr>
<td>88146, 88676</td>
<td></td>
</tr>
<tr>
<td>107775, 108758</td>
<td>Resolved an issue where the ZVM disconnected from the VRAs, by adding a timeout to updating port</td>
</tr>
<tr>
<td>108649</td>
<td>mapping in the ZCC routing table.</td>
</tr>
<tr>
<td>7334, 91851</td>
<td>Resolved several VPG sync issues.</td>
</tr>
<tr>
<td>00007913, 00008092</td>
<td></td>
</tr>
<tr>
<td>00014638, 00019659</td>
<td></td>
</tr>
<tr>
<td>88330</td>
<td></td>
</tr>
</tbody>
</table>
Known Issues

The following are known issues when using Zerto Virtual Replication:

- “Virtual Replication Appliance (VRA)”, on page 26
- “Virtual Protection Group (VPG) and Recovery”, on page 26
- “VPG Management”, on page 26
- “Failover, Move and Test Failovers”, on page 27
- “vCenter Server”, on page 27
- “vCloud Director”, on page 27
- “VMware vSphere”, on page 28
- “Hyper-V”, on page 28
- “AWS”, on page 28
- “Azure”, on page 30
- “Cross-Replication”, on page 30
- “VMware to Hyper-V Cross-Replication”, on page 31
- “Hyper-V to VMware Cross-Replication”, on page 31
- “Remote Upgrade for Cloud Service Providers”, on page 31
- “APIs”, on page 31
- “File Level Restore”, on page 31
- “Offsite Backup Improvements”, on page 31
- “Upgradeability”, on page 32
- “General”, on page 32

Virtual Replication Appliance (VRA)

- You have to wait a few minutes after moving a protected virtual machine to another host before you can forcibly uninstall the VRA ghost on the original host.
- If the VRA IP is allocated via DHCP and the DHCP server at a later date allocates a different IP, the VRA does not change the IP. For this reason it is recommended during production to only use static IPs and use static IPs or DHCP during trials.

Virtual Protection Group (VPG) and Recovery

- Attempting to create a VPG when the target datastore is unavailable fails.
  
  Workaround: Try again after the datastore is up.
- Virtual machines with SATA controllers cannot be included in a VPG.
- When an existing VPG is attached to a ZORG, it is not possible to edit this VPG either after uninstalling the ZCM, or after removing a site from the ZCM.

VPG Management

- If a VM is removed from the hypervisor inventory, Zerto Virtual Replication stops the replication. When adding back this VM to the inventory the ZVR resumes the replication. In Hyper-V environments only, adding back the VM does not resume the replication.
**Failover, Move and Test Failovers**

- After stopping a failover test, the checkpoint that was used for the test has the following tag added to identify the test: `Tested at startDateAndTimeOfTest(OriginalCheckpoint_DateAndTime)`. The `Tested at startDateAndTimeOfTest` value is taken from the Zerto Virtual Manager and not from the UI.
- Recovering a VPG using one of the very earliest checkpoints available can fail when the checkpoint specified is moved out of the journal before the recovery operation can commit.
- After a recovery operation, the field `bios.bootOrder` is not passed to the recovered VM. In some cases, not passing the field `bios.bootOrder` can lead to the wrong boot order in the recovered VM.

**vCenter Server**

- When an ESX/ESXi host is disconnected from the vCenter Server but the network connection is still available, the status of any VPG recovering to this host and the status of the VRA on the host are displayed as OK in the Zerto user interface. However, all recovery operations will fail.
- VMware does not identify the IP origin for Linux virtual machines and therefore Zerto Virtual Replication cannot know whether it is static or DHCP.
- The boot order defined for a vApp is not reproduced for a cloned vApp.
- Increasing the size of an RDM disk is not reflected in the VPG, nor by the recovery VMDK.
  
- After hibernating a laptop running vSphere Client console, you have to restart the console to reload the Zerto Virtual Replication GUI.
- Zerto Virtual Replication is not localized. VMware issues alarms where the language is not English with XXX.
  
  **Workaround:** Start up the vSphere Client console adding the following argument: `-locale en_US`, to display all Zerto Virtual Replication alerts in English.
- If a host is removed from a site, a ghost VRA is created which you can remove. After the host is added back to the site, a ghost virtual machine is displayed in the vCenter hierarchy.
  
  **Workaround:** Remove the ghost virtual machine from the inventory.

**vCloud Director**

- Zerto information retrieving tasks with vCD, such as, 'Get OrgVDCs,' are not performed via the vCD REST APIs.
- A protected VM replicated from vCD to a vCenter Server, that is connected to the `None` network, is recovered with a disconnected NIC, even if configured to connect to a network.
- Adding a new NIC to a protected virtual machine does not update the VPG settings by configuring a network for the NIC, causing an error when setting reverse protection for a Move or Failover operation.
  
  **Workaround:** Manually configure the VPG and add settings for the new NIC.
- After updating a VPG, for example by adding a new virtual machine to it, and then immediately moving it or failing it over to vCD, causes the vCD reflection to be out of date and recovery virtual machines are not powered on, resulting in the promotion hanging.
  
  **Workaround:** Wait a few minutes between changing the VPG and performing the move or failover operation. If you do not wait, manually power on all recovery virtual machines that are not powered on automatically.
- Deleting a VPG and keeping the target disks when the VPG is recovered to a vCD v5.1 with storage profiles defined, does not move the disks to a datastore that is contained in the recovery storage profile. This means that if the disks are saved to a datastore in the storage profile, these disks cannot be used for preseeding later.
- Recovering a VPG to vCD will fail if the vApp name contains any of the following special characters: `! * ( ) ; : @ = $ , / ? % # [ ]`.
- After importing VPG settings, a volume initial sync is performed on all VPGs replicating to vCD.
Release Notes for Zerto Virtual Replication v6.0 Update 4

- When both the recovery site is vCD, if NICs are added to a virtual machine that is included in a VPG and then the VPG is recovered, with reverse protection defined, the VPG for failback needs configuration, but the Zerto User Interface does not enable this configuration.

  **Workaround:** When adding NICs to a virtual machine that is included in a VPG, edit the VPG to add these NICs to the VPG definition, before performing a recovery operation with reverse protection.

- Improved RTO when replicating to vCD 9 and Guest Customization is enabled, by avoiding a redundant VM power on and off, which was used by vCD to identify whether VMTools were installed on the VM.

- Storage Policy configuration for VPGs:
  - Preseeding: Browsing the location of the preseeded disk will show only datastores which belong to the VM Storage Policy, and not all Storage Policies in the orgvDC.
  - Zerto does not maintain the Storage Policy per volume of protected VMs upon reverse protection when replicating between vCD<>vCD - the volumes will be aggregated to the VM Storage Policy.

**VMware vSphere**

- vSphere Web (FLEX) Client 6.7 is not supported.
- Datastore refreshes will occur during environment data collection. These should have no effect and can be ignored.

**Hyper-V**

- Changing the storage used by a VRA from a CSV to non-CSV storage, or from a non-CSV storage to CSV storage, fails.
- You cannot protect virtual machines using storage that is only configured in Hyper-V and not in SCVMM.
- Virtual machines with fixed size disks are always recovered with dynamically expanding disks.
- SCVMM is not automatically refreshed after any recovery operations to or from the SCVMM. This can result in Integration Services not being detected by the Zerto Virtual Manager and this can lead to virtual machines failing to boot and Integration Services functions such as re-IP not working.

  **Workaround:** Manually refresh the virtual machine in SCVMM.

- All management operations that can be executed from SCVMM, must be executed from SCVMM and not from the Hyper-V host. For example, removing a virtual machine must be done from the SCVMM console and not from the Hyper-V console.
- When Hyper-V Replica is used on a virtual machine protected in a VPG, removing the virtual machine from the VPG is not reflected in the user interface.

  **Workaround:** Re-edit the VPG to remove the virtual machine and click DONE.

- A VRA cannot be installed on a Hyper-V host when the host is attached to a LUN via iSCSI along with other Hyper-V hosts.
- Recovery or replication of Hyper-V virtual machines with shared disks does not work.
  If you mark a disk as shared after the virtual machine to which it is attached is already in a VPG, the virtual machine must be refreshed in the SCVMM console immediately, otherwise the VPG enters an error state. Then, remove that virtual machine from the VPG since a virtual machine with a shared disk cannot be recovered or replicated by Zerto.
- When a protected Windows VM configured for DHCP is failed over with re-IP set to DHCP, a failed SCVMM job will appear in the SCVMM console.

**AWS**

- Tagged checkpoints, Force Sync, One-to-Many and Offsite Backup functionalities for VPGs with AWS as the protected site are not supported.
- Preseed to AWS is not supported.
- Restore from backup is not supported for VPGs with AWS as their recovery site.
- When using zImport, the disk type is io1 and cannot be configured.
- Only the ZCA’s Availability Zone (AZ) can be used for faster recovery.
- The instance zASA, and the temporary instances, zImporter and zSATs, require internet access.
- The zImporters, zSATs and zASA are created with a public IP. However, they are connected to a newly created security group.
Known Issues

When using Zerto import for all volumes, the following Operating Systems are not supported:
- CentOS 7
- Ubuntu 13.10
- SUSE 12
- Solaris 11.2

The default c4.8xlarge AWS EC2 maximum instance quota is 20 (default value). To ensure scalability, you must contact AWS support to increase the maximum relatively to the number of protected volumes.

The default m4.large AWS EC2, used for zSATs and zASA, maximum instance quota is 20 (default value). To ensure scalability, you must contact AWS support to increase the maximum relatively to the number of protected volumes.

GPT cannot be used as the boot disk.

Recovery to AWS using "zImport for all volumes" requires installing drivers on the production VM.

FOL to AWS fails when the VPG definition contains an invalid entity such as a security group, subnet, VPC or instance type. An invalid entity might be an entity that was removed from the AWS platform.

Recovery of Windows VMs will freeze when using AWS import method with the PV driver installed.

AWS rounds up all volumes to the closest 1GB. When failing over/ moving to AWS, with reverse protection, if the VM is with disks that are not a round number of 1GB, the VPG goes into a Needs Configuration state after being recovered to AWS. This is due to a volume size mismatch between the protected and recovered sites. After recovery, the user needs to delete this VPG and recreate it.
Azure

The following limitations apply:

- Self replication within a ZCA is not supported.
- Although two ZCAs can share storage accounts (either paired to each other, or each paired to a different site), this is not recommended as ZCAs which point to the same storage account are not aware of each other.
- Preseed is not available in Edit or Create VPG flows.
- Disks saved when deleting a VPG or un-pairing sites cannot be used for preseeding in Edit/Create a VPG.
- For Virtual Machines to be protected in Azure, the VMs’ volumes must reside in the Standard Storage Account (Zerto Storage Account) that was defined during its installation.
- VMs which are not deployed via the Azure Resource Manager cannot be protected from Azure.
- You cannot protect machines that have a disk larger than 4TB.
- The protected virtual machines need to have at least one NIC.
- The supported number of data disks per virtual machine is dependent on the selected instance size. For example, instance size D3_v2 allows up to eight data disks per virtual machine.
- Restore from backup is not supported.
- Zerto Virtual Replication APIs are not supported.
- Azure temp drive is not protected by Zerto (Azure limitation).
- Use Move operation in order to failback from Azure.
- The minimum RPO from Azure is 1 minute.
- Offsite Backup is not supported for “From Azure” VPGs.
- Resizing protected disks on Azure is not supported.
- Reverse protection VM network settings in a VPG are not saved when failing over a VPG from Azure.
- Tag checkpoints, Clone: These operations are not supported for VPGs which have protected VMs in Azure with multiple disks attached.

For additional limitations, see Azure subscription and service limits, quotas and constraints: https://docs.microsoft.com/en-us/azure/azure-subscription-service-limits

For example, see the following default values:

- 20 cores per subscription
- 200 Storage accounts per subscription
- 20 VMs per region per subscription
- VM per series (Dv2, F, etc.) cores per subscription 20 per Region

Additionally, see the following example for maximum values:

- A standard storage account has a maximum total request rate of 20,000 IOPS. The total IOPS across all of your virtual machine disks in a standard storage account should not exceed this limit.

<table>
<thead>
<tr>
<th>VM TIER</th>
<th>BASIC TIER VM</th>
<th>STANDARD TIER VM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disk size</td>
<td>1023 GB</td>
<td>1023 GB</td>
</tr>
<tr>
<td>Max 8 KB IOPS per persistent disk</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>Max number of disks performing max IOPS</td>
<td>66</td>
<td>50</td>
</tr>
</tbody>
</table>

Cross-Replication

- NIC configuration in the VPG definition is not applied.
- Recovery of a virtual machine from Hyper-V to vSphere of a generation 1 virtual machine with more than one SCSI controller, fails.
- Under certain conditions, when the declared OS definition does not match the actual installed OS, recovery operations may not work. To prevent this situation, ensure that the declared and installed OS definitions match. If the two definitions cannot match, use the hypervisor guidelines of the protected virtual machine or contact Zerto support.
- You cannot install VMTools on a Hyper-V VM. VMTools on a Hyper-V VM are needed for re-IP to work.
VMware to Hyper-V Cross-Replication
- When protecting from VMware to Hyper-V, the protected volumes must be multiples of 1MB. If you resize a VMDK, the resize must be a multiple of 1GB.
- In VMware, a virtual machine with a guest operating system booting from UEFI firmware can only be protected by Zerto Virtual Replication if the guest OS is supported by Hyper-V VM Generation 2.
- SUSE and CentOS Linux machines in VMware cannot be recovered to Hyper-V.
- Recovering a VPG to Hyper-V from vSphere will fail if the name contains any of the following special characters: ! * ' ( ) ; : @ & = + $ , / ? % # [ ].

Hyper-V to VMware Cross-Replication
- When recovering from Hyper-V to VMware, the virtual machines are recovered with the same number of sockets as CPUs and not the original number of 19035.
- When protecting Windows 2012 R2 virtual machines from Hyper-V to VMware, after a failover test you may need to re-activate the virtual machine.
- Windows XP virtual machines cannot be protected from Hyper-V to VMware.

Remote Upgrade for Cloud Service Providers
- Upgrade of cloud sites that support Intra-Cloud Disaster recovery is not supported.
- Remote upgrade functionality assumes that both the Cloud Service Providers version and the customers Zerto Virtual Replication version is v6.0 or above, or v5.5U4.
- VSS installers are not supported. Remote Upgrade should be used to download only non-VSS versions.

APIs
- Support of VPG Settings APIs when Creating VPGS from vCD to vCD:
  - VC > vCD is not supported
  - vCD > VC is not supported
- No validations are performed on the inputs provided.
- Invalid Argument Validations:
  - Previously created REST API calls may fail if invalid arguments were used.
- VRA Bulk Upgrade
  - The upgrade of VRAs provided will halt if one of the VRAs fails to upgrade.
- ResourcePoolIdentifier parameter for create VPG capability POST request is now mandatory and should be explicitly defined. v1/vpgs POST method is planned to be deprecated in a future revision. Use v1/vpgsettings to create new VPGs or edit existing VPGs.

File Level Restore
- If the Windows virtual machine with files to be restored uses dynamic disks, files cannot be restored from these disks.
- You can only recover files or folders when an Offsite Backup is not running.
- Journal File Level Restore (JFLR) is not supported with the vSphere plugin.
- File Level Restore (JFLR) is not supported on a volume where data deduplication is enabled.

Offsite Backup Improvements
- Backup resiliency and reliability:
  - The time it takes to generate a backup, and then to restore it may be slightly slower compared to previous versions.
  - It is recommended to use weekly backups and not daily backups.
  - It is recommended to schedule the backups to start at different days and times to balance the work.
Known Issues

Release Notes for Zerto Virtual Replication v6.0 Update 4

- **Repository Type:**
  - SMB and local repositories are not supported.
  - Only NFS Repository is supported.
  - Supported NFS protocol version 3.
  - NFS repository does not support authentication.
  - NFS repository based on PBBA (e.g., data domains and so on), is not supported.

- **Incremental:**
  - Zerto can track and maintain up to 40TB of changes between copies (incremental) for long term retention on a single VRA. In the event of exceeding 40TB at any point, the VRA will be locked for running future retention processes. To release that lock, please contact Zerto Support.
  - Performing incrementals is based on identifying the initial copy and maintaining changes which happened since. In the event where either the changes tracked between copies or the reference to the initial copy are lost, a full copy will be created.

- **Retention Policy:**
  - The retention policy aggregation rule is described in the Administration Guide > Using Zerto's Long Term Retention > Storing Repository Sets.
  - Deleted retention sets are removed from the repository according to the configured retention policy.
    - In scenarios where the total volume consumed size (meaning, the initial copy and incrementals) exceeds 10TB, some of the unreferenced data blocks will not be removed.
  - Only complete Backups and Restores of VMs is allowed. Partial Backups and Restores are not supported.
  - Restoring of VPGs is allowed for VPGs which currently exist, or which were deleted.
  - Reconnecting to a repository is not supported.
  - Attaching an existing repository and leveraging copies for the next incremental is not supported. Therefore, any repository is considered new after defining it, and a complete reading of the volume will be performed.
  - Long Term Retention requires Enterprise Cloud Edition, Cloud One2Many or NFR/Trial license.
  - Certain failures when running retention sets may require Support intervention to re-enable them.
  - Zerto is moving away from Offsite Backup into modern Long Term Retention. Therefore, Offsite Backup will no longer be supported. As such, repositories and backup configurations created in previous versions are deleted as part of the upgrade to v6.5.
    - Backups created in versions prior to ZVR v6.5 cannot be restored in v6.5.
    - Backup configurations in v6.0Ux are deleted upon upgrade to v6.5.
    - Configuring a backup from v6.0Ux to v6.5 is not possible.
    - Restoring of backups which were created in version 6.0 or prior, requires using ZVM version 6.0Ux.

- **Performance:**
  - DSS and VRA consume CPU. As such, if the CPU on the VRA reaches high consumption rates, another CPU should be added to the VRA machine. Adding additional CPUs on top of the additional one is redundant and the additional CPUs will not be utilized.
  - When editing a VPG where the protected site is v6.0Ux, and the recovery site is v6.5x, the user will need to ensure that Long Term Retention is disabled in order to save any changes to the VPG.
  - Long Term Retention is not supported where the recovery site is a Public Cloud.
  - The SETUP tab in the ZCA was removed.
  - Backup Reports are no longer available.
  - Repository failures such as insufficient space or unavailability are not displayed in the GUI.

**Upgradeability**

- **VRA upgrade:** The user is recommended to follow the VRA upgrade via the Zerto Virtual Manager GUI.
  - When an update/hotfix installation occurs and the VRA auto upgrade checkbox is still enabled, there is a second event that is presented in the GUI, even though there was no VRA upgrade.

**General**

- The backslash character (\) is displayed as %5c in the GUI, for example when used in a virtual machine name.
Known Issues

- If the local site Zerto Virtual Replication service is down, you can still recover and clone VPGs. When cloning a VPG, the clone progress bar in the VPG Details screen is not updated.
- In a multi-site environment and when masking is not implemented, adding a virtual machine to a VPG by editing the VPG from the recovery site, displays all virtual machines on the protected site, including those protected to a different recovery site.
- Zerto Cloud Connector *.vswp files are not included in the DATASTORES tab, DR Usage value.
- When creating a VPG and there is no available recovery site, the GUI display is corrupted.
  Workaround: Make sure the connection to the replication site is restored and refresh the browser.
- Increasing a protected virtual machine disk size to greater than 2TB causes the VPG to enter a the state, Needs Configuration.
- When replication is to a VSAN, disk space used by the journal is not deallocated when the journal size decreases.
- Protecting CD/DVD drives is not supported.