Zerto

Zerto Virtual Replication Installation Guide

VMware vSphere Environments

Version 5.5 Update 3

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Zerto

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CHAPTER 1: INSTALLING ZERTO VIRTUAL REPLICATION

Zerto Virtual Replication provides a business continuity (BC) and disaster recovery (DR) solution in a virtual environment, enabling the replication of mission-critical applications and data as quickly as possible, 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.

Zerto Virtual Replication is installed in every site with virtual machines to be protected and recovered. The installation includes the following:

- **Zerto Virtual Manager** (ZVM) – A Windows service that manages the replication at the site level. The ZVM monitors the vCenter Server to get the inventory of VMs, disks, networks, hosts, etc. For example, a VMware vMotion operation of a protected VM from one host to another is monitored by the ZVM and the protection and recovery is updated accordingly. Each Zerto Virtual Manager can manage up to 5000 virtual machines, either being protected or recovered to that site.
- **OVF to enable installing Virtual Replication Appliances** (VRAs) – A virtual machine installed on **each ESX/ESXi hosting virtual machines** to be protected or recovered, to manage the replication of data from protected virtual machines to the recovery site.

  A VRA can manage a maximum of 1500 volumes, whether these are volumes being protected or recovered.
- **Virtual Backup Appliance** (VBA) – A Windows service that manages back-ups within Zerto Virtual Replication.

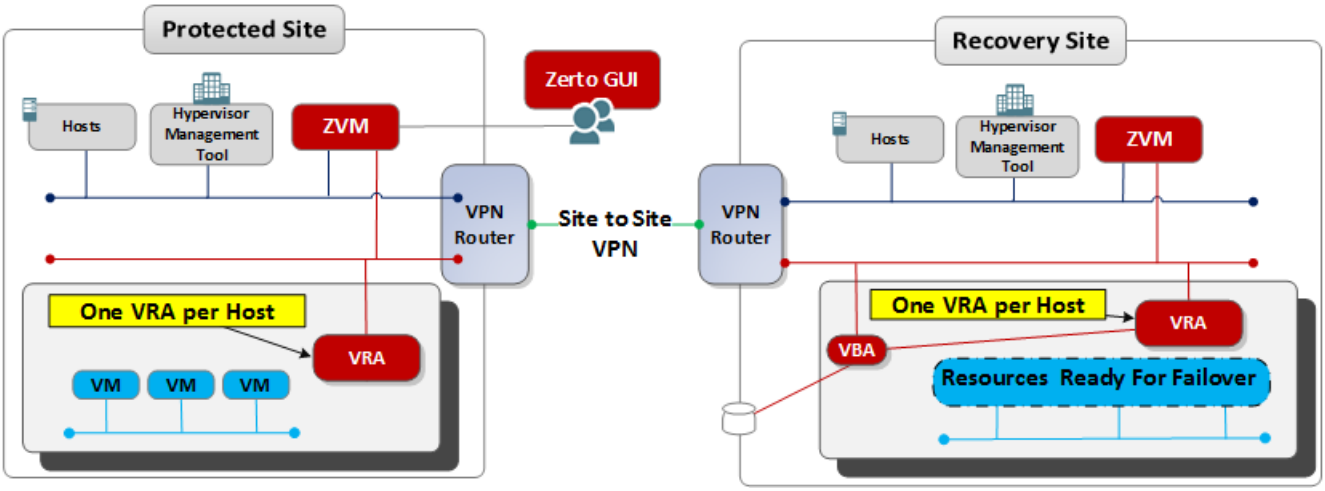
  The VBA service runs on the same machine as the Zerto Virtual Manager service and manages the repositories where offsite backups are stored. These repositories can be local or on a shared network.
- **Zerto User Interface** – Recovery using Zerto Virtual Replication is managed in a browser or in the VMware Web Client or Client console.

The following topics are described in this section:

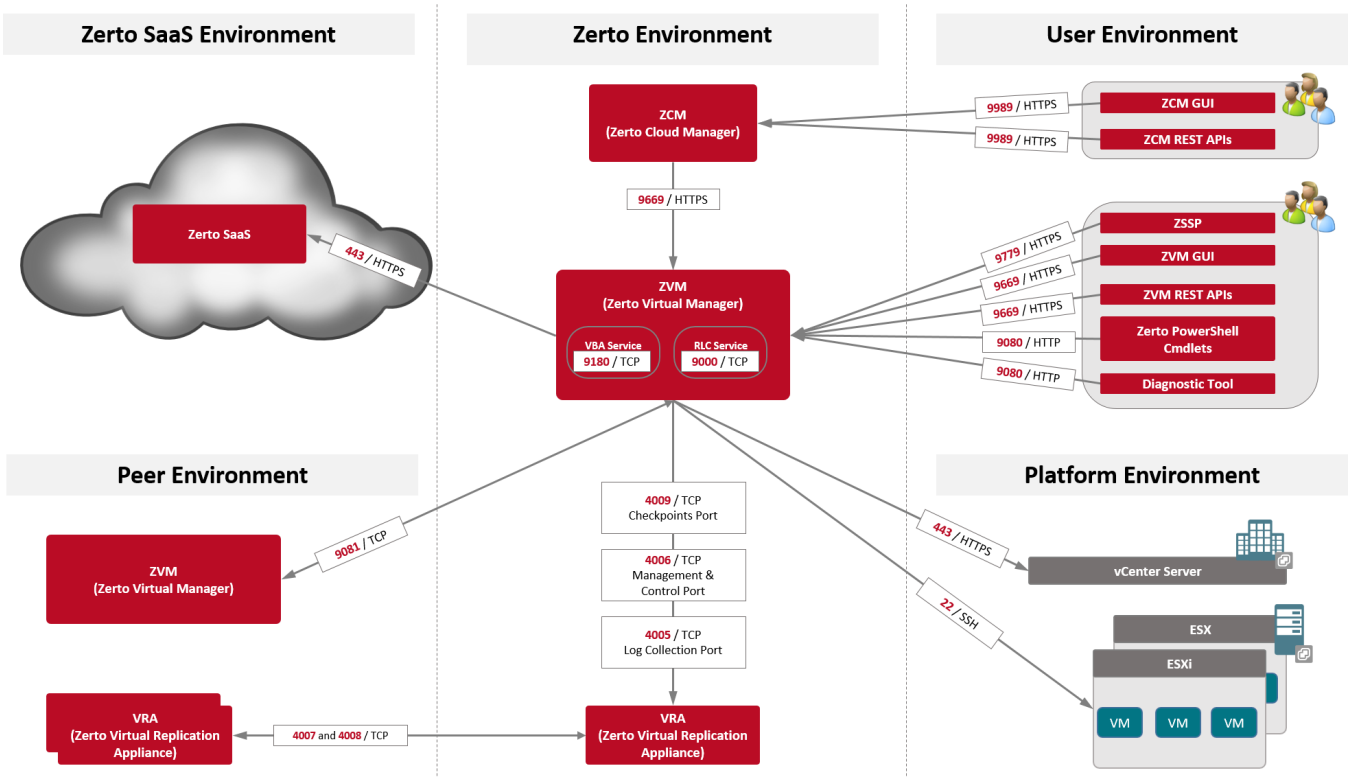
Zerto Virtual Replication Architecture

The following diagram shows your environment after you have set it up for replication and recovery. The diagram also shows how the main components of Zerto Virtual Replication are deployed across sites to provide disaster recovery across these sites.

Note: For details of the architecture and ports used in a cloud-based architecture environment, see *Zerto Cloud Manager Installation Guide*.



The following architecture diagram shows the **ports** that must be opened in the firewalls **on all sites**.



- Zerto Virtual Replication can be installed at multiple sites and each of these sites can be paired to another site enabling protection across sites.
- Zerto Virtual Replication also supports protection and recovery on a site being managed by a single vCenter Server.
- If a **proxy server** is used at the site, specify the IP address of the Zerto Virtual Manager in the **exception list** in the Proxy Server settings.

The following scenarios are examples of protection and recovery with a **single vCenter Server**.

When a single vCenter Server is used, port 9081 shown in the above diagram is not used.

- From one datacenter, a branch office, to another datacenter, the main office, both managed by the same vCenter Server. Zerto recommends installing Zerto Virtual Replication in the main office site where protected machines will be recovered.
- From one host to a second host, both managed by the same vCenter Server.
- To the same host but using a different datastore for recovery.

The following table provides basic information, shown in the above diagram, about the ports used by Zerto Virtual Replication.

Consider firewall rules if the services are **not** installed on the same network.

PORT	PURPOSE
22	Required between an ESXi host and the ZVM during installation of a VRA.
443	Required between the ZVM and the vCenter Server.
443	Required between an ESXi host and the ZVM during installation of a VRA.
4005	Log collection between the ZVM and site VRAs.
4006	Communication between the ZVM and local site VRAs and the site VBA.
4007	Control communication between protecting and peer VRAs.
4008	Communication between VRAs to pass data from protected virtual machines to a VRA on a recovery site.
4009	Communication between the ZVM and local site VRAs to handle checkpoints.
5672	TCP communication between the ZVM and vCloud Director for access to AMQP messaging.
9779	Communication between ZVM and ZSSP (Zerto Self Service Portal).
9989	Communication between ZCM, and ZCM GUI and ZCM REST APIs.
9080*	Communication between the ZVM, Zerto Powershell Cmdlets, and Zerto Diagnostic tool.
9081*	Communication between paired ZVMs**
9180*	Communication between the ZVM and the VBA.
9669*	Communication between ZVM and ZVM GUI and ZVM REST APIs, and the ZCM.

*The **default** port provided during the ZVR installation which can be changed during the installation.
When the same vCenter Server is used for both the **protected and **recovery** sites, ZVR is installed on one site only and this port can be ignored.

Zerto Virtual Replication Interoperability Matrix

For details about what is supported, refer to the Zerto Virtual Replication Interoperability Matrix.

Prerequisites and Requirements - VMware vSphere with Zerto Virtual Replication

For **VMware vSphere requirements** with Zerto Virtual Replication, see Zerto Virtual Replication Requirements for vSphere Environments.

- Zerto recommends installing the **Zerto Virtual Manager** with the following **profile**:
  - On a dedicated virtual machine.
  - With a dedicated administrator account.
  - No other applications installed on this machine. If additional applications are installed, the Zerto Virtual Manager service must receive enough resources and HA remain enabled.
  - With VMware vSphere High Availability (HA) enabled.
  - With the `VM Restart Policy` set to `High`.

Note: If a proxy server is used at the site, specify the IP address of the Zerto Virtual Manager in the exception list in the Proxy Server settings.

Considerations - VMware vSphere with Zerto Virtual Replication

Review the following considerations:

- The following **restrictions** apply to **recovering individual files and folders**, and not to recovering the whole virtual machine:
  - The operating system of the machine on which the recovery site Zerto Virtual Manager is installed determines the types of file systems from which individual files and folders can be recovered.
  - When the recovery site Zerto Virtual Manager virtual machine operating system supports a file system, files and folders can be recovered from this file system in virtual machines that this Zerto Virtual Manager will manage the recovery of.
    For example, if a protected virtual machine running Windows 2012 has files using the ReFS file system and requires one or more of these files to be recovered and the recovery site Zerto Virtual Manager is on a machine with Windows 2008, which does not support ReFS, the protected virtual machine files and folders cannot be recovered, **but the whole virtual machine can be recovered**.
- You cannot take snapshots of the Zerto Virtual Manager as snapshots cause operational problems for the Zerto Virtual Manager, such as creating inconsistencies with peer site Zerto Virtual Managers.

Routable Networks

The Zerto Virtual Replication architecture supports the following network configurations:

- Flat LAN networks
- VLAN networks, including private VLANs and stretched VLANs
- WAN emulation
- VPN IPsec

The Zerto Virtual Replication architecture does not support NAT (Network Address Translation) firewalls.

Minimum Bandwidth

- The connectivity between sites must have the bandwidth capacity to handle the data to be replicated between the sites. The **minimum dedicated bandwidth** must be **at least 5 Mb/sec.**

Requirements for the Zerto Virtual Manager Web Client

- Zerto recommends using Chrome, Firefox, Microsoft Edge, or later versions of Internet Explorer.
- Microsoft Internet Explorer 10 and all versions below, are **not** supported.
- The minimum recommended screen resolution is 1024*768.

The Zerto User Interface in a vSphere Client

When using either the vSphere Web Client or Client console, you must use Internet Explorer version 10 or higher.

Zerto recommends using an Internet Explorer version later than version 10.

Database Requirements

By default, an embedded SQL-based database is used but it is possible to use an externally managed database, Microsoft SQL Server. To use an **externally managed** database, during the installation choose the **Custom Installation** option.

The following Microsoft SQL Server versions are supported: 2008, 2008R2, 2012, 2014, 2016.

You must have the following permissions set:

- **Public** and **dbcreator** server roles.
- Permission to connect to the database engine.
- Login enabled.
- In **User Mapping** choose the **master** database under which to create the Zerto Virtual Replication database and set both **db_owner** and **public** for database role membership.

Zerto recommends using **SQL Server Enterprise Edition** if you have 4 or more sites, or 40 or more hosts with virtual machines being protected or recovered, or more than 400 virtual machines to be protected.

Using an **externally managed database** requires the following configuration for the machine running SQL Server:

- 4 CPUs or 2 Dual Core CPUs and 16GB RAM.
- 20GB to accommodate the database and the logs generated by the Zerto Virtual Manager.

Note: If SQL Server is used, it is your responsibility to make sure that database downtime is planned in coordination with your disaster recovery and business continuity requirements. During database downtime, there will be inconsistencies between Zerto Virtual Managers, such as the management of checkpoints, resulting in problems if a recovery is required.

VMware Privileges Required by Zerto Virtual Replication

When Zerto Virtual Replication accesses the **vCenter Server**, it requires the **vSphere privileges** assigned to Administrator roles, which includes the following privileges.

Note: The **Zerto** role must also be available. This role is **added** to the **Administrator user** during the Zerto Virtual Replication installation.

CATEGORY	PRIVILEGE	NOTES	DESCRIPTION
ALARM			
	Create alarm	Only during install and uninstall	When Zerto is installed in vSphere environments, all Zerto alerts are propagated as Alarms in vCenter. As such, upon installation, the alarms matching the alerts are created. Zerto controls enabling and disabling the alarms. See the correlation between alerts and alarms here: http://s3.amazonaws.com/zertodownload_docs/Latest/Guide%20to%20vSphere%20Alarms,%20Alerts%20and%20Events.pdf
	Remove alarm	Only during install and uninstall	When Zerto is uninstalled, the alarm definitions added above are removed.
AUTHORIZATION			
(from vCenter 5.5 and 6.0) Permissions			

CATEGORY	PRIVILEGE	NOTES	DESCRIPTION
	Modify permission	Only during install and uninstall	When Zerto is installed in vSphere environments, it creates seven different privileges that can be assigned to vCenter users that login to Zerto (or when viewing Zerto UI from within vSphere Client).
DATASTORE			
	Allocate space	For source/target replication of datastores	Needed to allocate datastore space when Zerto creates or reconfigures VMs.
	Browse datastore	For source/target replication of datastores	Needed for in-GUI datastore browser and VPG import.
	Configure datastore	For source/target replication of datastores	Needed to create/remove directories within the Datastore.
	Remove file	For source/target replication of datastores	Used for cleanup of volumes in a number of situations (for example, cleanup of VRAs, journals, folders, etc.).
	Low level file operations	For source/target replication of datastores	Needed to move files managed by Zerto (for example, mirrors, journals, etc.) between folders. Specifically used in recovery operations (for example, Failover), but may be used during other procedures.
	Update virtual machine files	For source/target replication of datastores	
DATASTORE CLUSTER			
	Configure a datastore cluster	For installation of VRAs	Used when installing VRAs to enable/ disable storage DRS within datastore clusters
EXTENSION			
	Register extension	Only during install and uninstall	Needed to create the vSphere Client plugin, 'ManagedBy' extension, and other features related to Zerto's integration with vCenter.
	Unregister extension	Only during install and uninstall	Needed to remove the vSphere Client plugin, 'ManagedBy' extension, and other features when removing ZVR.
FOLDER			
	Create folder		Used during recovery operations to create VM folders.
GLOBAL			
	Cancel task		Used to remove tasks created by ZVR to track operations.
	Diagnostics		Used when pulling diagnostic logs from vCenter/ESXi.
	Disable methods		Used to disable methods on protected objects like VRAs and 'Testing Recovery' VMs.
	Enable methods		Used to re-enable methods disabled by Zerto.

CATEGORY	PRIVILEGE	NOTES	DESCRIPTION
	Log event		Used for pushing Zerto events to vSphere for tracking.
Host > Configuration			
	Advanced settings		Not used by Zerto.
	Virtual machine autostart configuration		Used when creating new VRAs/diskboxes.
	Change settings		Used during VRA deployment.
	Security profile and firewall		Used during VRA deployment.
	Query Patch		Used during VRA deployment.
HOST > INVENTORY			
	Modify cluster		Used for settings affinity rules for VRAs, and disabling DRS/HA for recovery VMs before commit.
NETWORK			
	Assign network		Used for assigning VMs to various networks.
RESOURCE			
	Assign vApp to resource pool		Used for moving recovery vApps into the correct resource pools.
	Assign virtual machine to resource pool		Used for moving recovery VMs into the correct resource pool.
	Migrate a powered off virtual machine		Used for migrating VRAs back to the correct host if they've been moved off. Also for migrating recovery VMs back to the correct host when they are migrated by vCD when adding VMs into vCD vApp.
	Migrate a powered on virtual machine		Used for migrating VRAs back to the correct host if they've been moved off. Also for migrating recovery VMs back to the correct host when they are migrated by vCD when adding VMs into vCD vApp.
SESSIONS			
	Validate session		Used for validating the current session between ZVM and vCenter.
TASKS			
	Create task		Used for creating tracking tasks within vCenter.
	Update task		Used for updating tracking tasks created by Zerto.
vApp			
	vApp application configuration		Used for configuring recovery vApps created by ZVR.
	Assign resource pool		Used for moving recovery vApps into the correct resource pool.
	Add virtual machine		Used for moving recovery VMs into the correct vApp.

CATEGORY	PRIVILEGE	NOTES	DESCRIPTION
	Create		Used for creating recovery vApps.
	Delete		Used for deleting recovery vApps (for example, when stopping FOT).
	Import		Used during VRA OVF deployment.
	Power off		Used for powering off recovery vApps (for example, when stopping FOT).
	Power on		Used for powering on recovery vApps.
VIRTUAL MACHINE > CONFIGURATION			
	Add existing disk	TempDatafile placement is required to restore an offsite backup.	Used to attach disks to VRAs/recovery VMs.
	Add new disk	TempDatafile placement is required to restore an offsite backup.	Used to create new journal/mirror disks on VRAs.
	Add or remove device	TempDatafile placement is required to restore an offsite backup.	Used for adding various devices (NIC, SCSI adapter, etc.) to recovery VMs.
	Advanced	TempDatafile placement is required to restore an offsite backup.	Used to set ExtraConfig on Zerto appliances (ZCC/VRA/Diskbox).
	Change CPU count	TempDatafile placement is required to restore an offsite backup.	Used to set number of CPUs on VRA deployment.
	Extend virtual disk	TempDatafile placement is required to restore an offsite backup.	Used to resize mirror disks when disk resize occurs on protected site.
	Modify device settings	TempDatafile placement is required to restore an offsite backup.	Used to change settings of existing devices, such as NICs or SCSI adapters, on VRAs.
	Configure managedBy	TempDatafile placement is required to restore an offsite backup.	Used for setting the 'ManagedBy' property on VMs, such as the Zerto appliances and 'Testing Recovery' VMs.
	Memory	TempDatafile placement is required to restore an offsite backup.	Used to configure memory for VRA VMs.
	Raw device	TempDatafile placement is required to restore an offsite backup.	Used to assign RDM LUNs to VRAs and recovery VMs.
	Remove disk	TempDatafile placement is required to restore an offsite backup.	Used to detach disks from VMs during recovery operations/rollbacks.
	Change resource	TempDatafile placement is required to restore an offsite backup.	Used for configuring the resource allocation of a VM within a Resource Pool - specifically when creating a recovery vApp.
	Settings	TempDatafile placement is required to restore an offsite backup.	Used to change VM settings not covered by other permissions.

CATEGORY	PRIVILEGE	NOTES	DESCRIPTION
	Swapfile placement	TempDatafile placement is required to restore an offsite backup.	Used to set swapfile placement on recovery VMs where the protected VM has a custom setting.
	Upgrade virtual machine compatibility	TempDatafile placement is required to restore an offsite backup.	Used to upgrade VRA VM hardware version when upgrading VRA version.
VIRTUAL MACHINE > INTERACTION			
	Power off		Used for powering off VMs, such as when stopping/rolling back a Failover, or when shutting down protected VMs during a Failover/Move.
	Power on		Used for powering on VMs during recovery operations.
VIRTUAL MACHINE > INVENTORY			
	Create from existing		Used to deploy Zerto appliances.
	Create new		Used to create recovery VMs.
	Register		Used to move VMs into VM folders during recovery operations.
	Remove		Used to remove existing VMs (uninstall Zerto appliance, remove recovery VMs when stopping FOT, rolling back FOL, or on protected site when committing FOL or Move with reverse protection).
	Unregister		Used to remove VMs from inventory. Only used as part of Undo events, after failed task.

Installing Zerto Virtual Replication in VMware vSphere Environments

The Zerto Virtual Replication installation deploys the Zerto Virtual Manager (ZVM) and copies the installation software for the Virtual Replication Appliance (VRA).

A complete installation includes installing Zerto Virtual Replication on the protected and peer, recovery, sites. When both these sites are managed by a single vCenter Server, Zerto Virtual Replication is installed on only one site. In this case, Zerto recommends the following:

- Install Zerto Virtual Replication in the site where protected machines will be recovered.
- Make sure that the machine running the vCenter Server is also in the datacenter used for the recovery and not protection.

In all cases, Zerto recommends that you do not install Zerto Virtual Replication on the machine running the vCenter Server service.

You can install Zerto Virtual Replication using the defaults provided by Zerto or perform a custom install, in which you can determine the ports that will be used by Zerto Virtual Replication.

- "Performing an Express Installation", below
- "Performing a Custom Installation", on page 15

Performing an Express Installation

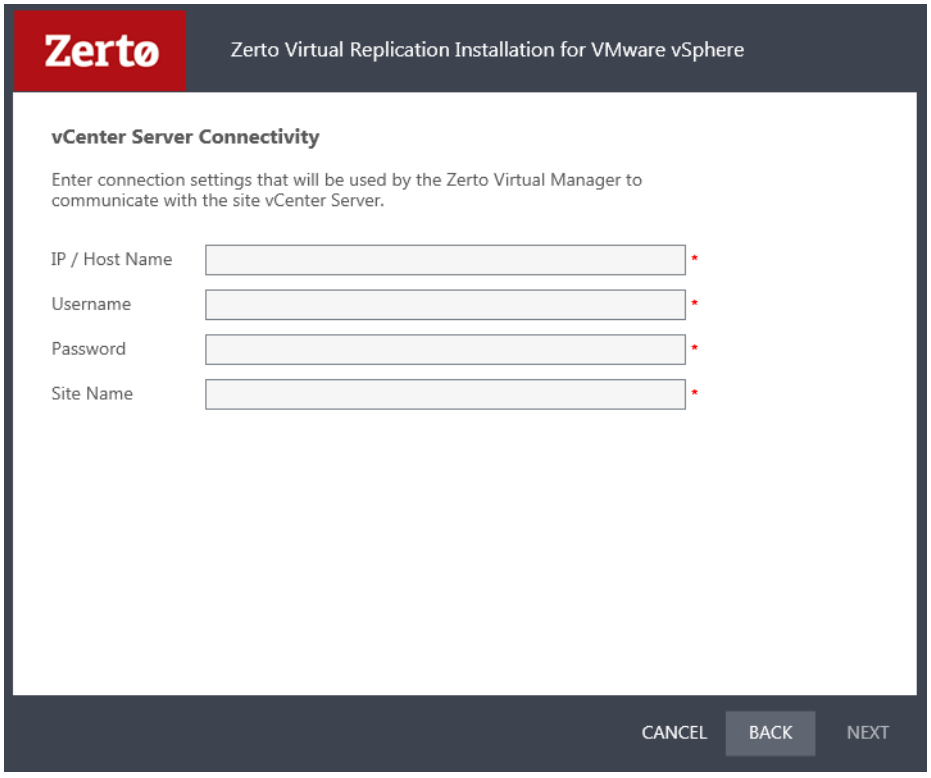
You can install Zerto Virtual Replication using the defaults provided by Zerto. Site information and information to connect to vCloud Director can be provided, if required, after the installation in the Zerto User Interface.

Note: You cannot install Zerto Virtual Replication on the same machine where another version of Zerto Virtual Replication has been installed, for example, if the Zerto Virtual Replication for Microsoft Hyper-V version has been installed on the machine.

To perform an express install of Zerto Virtual Replication:

1. Run the Zerto Virtual Replication installer for VMware.
   - If the required version of **Microsoft .NET Framework** is not installed, you are prompted to install the required version of .NET Framework, which is **included** as part of the Zerto Virtual Replication installation package.
     After .NET is installed, the machine **automatically restarts** and the Zerto Virtual Replication installation begins.
2. Follow the wizard through the installation until the Choose Installation Type dialog and select the **Express installation** option.
3. Click **NEXT**.

   The vCenter Server Connectivity window appears.



4. Specify the following:
   - **IP / Host Name:** The IP address or host name of the machine where the vCenter Server runs.
   - **Username:** The user name of a user with **administrator level privileges** in the vCenter Server. The name can be entered using either of the following formats:
     - **username**
     - **domain\username**
   - **Password:** A valid password for the given user name.
   - **Site Name:** A name to identify the site.
5. Click **NEXT**.

   The Validation window appears.

   The installation performs checks to make sure that the installation can proceed successfully.
6. After the checks complete successfully, click **RUN** and continue to the end of the installation.

As part of the installation, the **Zeus driver (jFLR)** is also installed. This installation is **mandatory** for the Zerto Virtual Replication installation.

a) During the installation, you are prompted with a Windows Security message to install the **Zerto Storage controller**, which will install the Zeus driver (jFLR).

b) Click **Install**, and continue with the installation.
If you do not install the additional software when prompted, **the Zerto Virtual Replication installation will fail**.

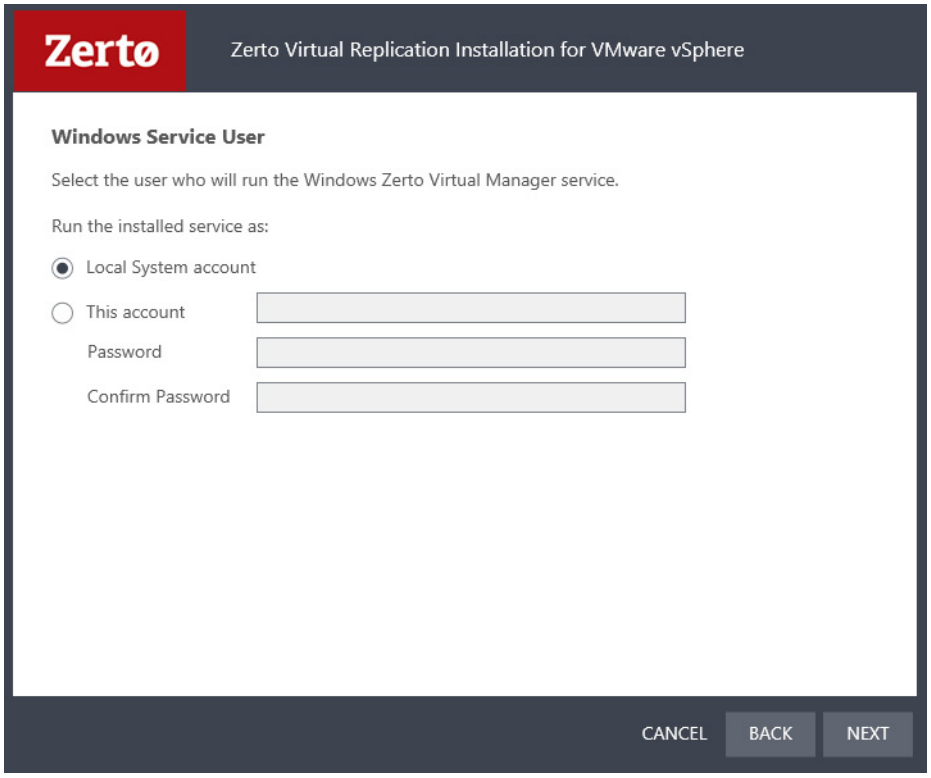
7. If you intend **managing** your disaster recovery **from this machine**, you can select to open the Zerto Virtual Manager (ZVM) Interface at the end of the installation, logging in with the user name and password for the vCenter Server connected to the Zerto Virtual Manager. In this user interface you set up Zerto Virtual Replication, as described in "Initial Configuration", on page 32.
8. You **must exclude** the Zerto Virtual Replication folder **from antivirus scanning**. Failure to do so may lead to the ZVR folder being incorrectly identified as a threat and in some circumstances corrupt the ZVR folder.
9. Add the machine to the relevant **host boot configuration**, so that on starting up the host, this machine, running the Zerto Virtual Manager, is also powered on automatically.
10. Install Zerto Virtual Replication on the peer sites.

Performing a Custom Installation

You can install Zerto Virtual Replication providing specific details including the ports that will be used by Zerto Virtual Replication and full contact details. In addition, when performing a custom install, you can provide information to connect to vCloud Director.

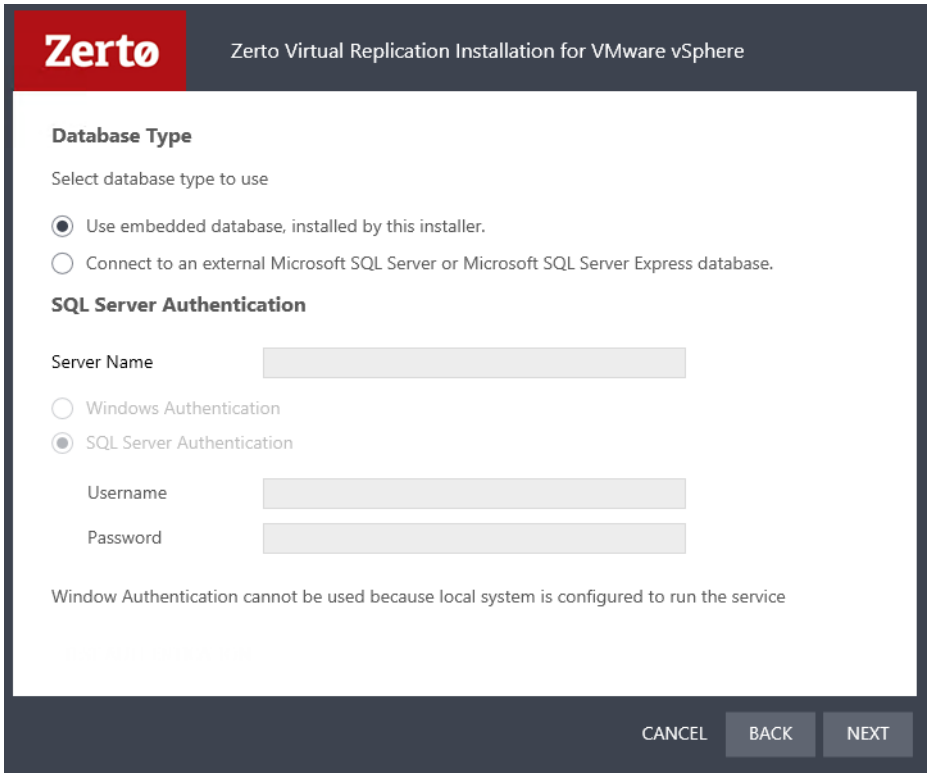
To perform a custom install of Zerto Virtual Replication:

1. Run the Zerto Virtual Replication installer for VMware.
   - If the required version of **Microsoft.NET Framework** is not installed, you are prompted to install the required version of .NET Framework, which is **included** as part of the Zerto Virtual Replication installation package.
     After .NET is installed, the machine **automatically restarts** and the Zerto Virtual Replication installation begins.
2. Follow the wizard until the Installation Type window appears, then select the option, **Custom Installation**.
3. Click **NEXT**. The Windows Service User window appears.



4. Select either **Local System account** or **This account**:
   - **Local System account:** Use the Local System account to run the Zerto Virtual Manager service, which is installed as part of Zerto Virtual Replication. The Local System account has unrestricted access to local resources.
   - **This account:** Use a **specific account** as the user account to run the Zerto Virtual Manager service, which is installed as part of Zerto Virtual Replication. The account must have **unrestricted access to local resources**.
     - **Password:** The password to use to run the service under the specified account.
     - **Confirm Password:** Confirmation of the password.
5. Click **NEXT**.

The Database Type window appears.



- Information required by Zerto Virtual Replication is stored by default in a database embedded in the Zerto Virtual Manager. This information includes details of the site where the Zerto Virtual Manager is installed, details of the Virtual Replication Appliances and the volumes they use, and points-in-time recorded for recovery purposes.
- By default an **embedded SQL-based database** is installed, but you can use an **externally managed database**, either Microsoft SQL Server or SQL Server Express.
- Protection and recovery can only be performed when the **database is running**.
- If you use an **external database** and it is down for any reason, **protection ceases**.

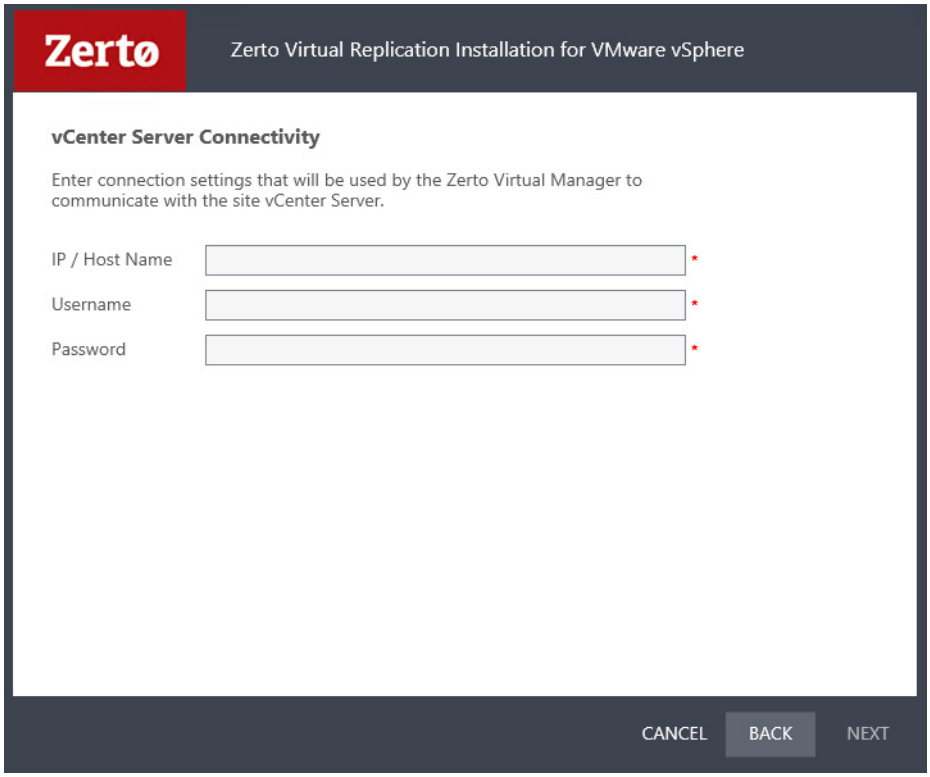
6. To use the **embedded database**, leave the **default** which is installed with this installation, then continue with step 9.
7. To use an **external database**, select the option, **Connect to an external Microsoft SQL Server or Microsoft SQL Server Express database**.

   Zerto recommends that you use the **external database** when the:
   - Number of hosts is greater than **40**
   - Number of sites is greater than **4**
   - Number of protected virtual machines is greater than **400**
   - Number of VPGs is greater than **200**
8. If you selected an **external database**, the SQL Server Authentication area is enabled. Enter the following authentication details to enable access to the SQL Server database:
   a) **Server Name:** The domain name and server instance to connect to, with the format: **<server_name>\<instance_name> or <Server_IP>\<instance_name>**
   b) You must specify an authentication method. Select one of the following:
      - **Windows Authentication**

        - or -
      - **SQL Server Authentication**
   c) If you selected **Windows Authentication:** This option is enabled only if a specific service user account was specified in Windows Service User, in step 3. In this case, the service account name and password are used.
   d) If you selected **SQL Server Authentication**, the Test Authentication button is also displayed.
      After you define the following, click **Test Authentication**:
      - **Username:** The user name for the SQL Server database.
      - **Password:** A valid password for the given user name.

The installer checks whether it can connect to the specified database with the specified username and password. **You can only continue when the authentication is successful.**

9. Click **NEXT**. The vCenter Server Connectivity dialog is displayed.



10. Enter connection settings that the **Zerto Virtual Manager** uses to communicate with the **vCenter Server**:

    IP / Host name: The IP address or host name of the machine where the vCenter Server runs.

    Username: The user name of a user with administrator level privileges in the vCenter Server. The name can be entered using either of the following formats:

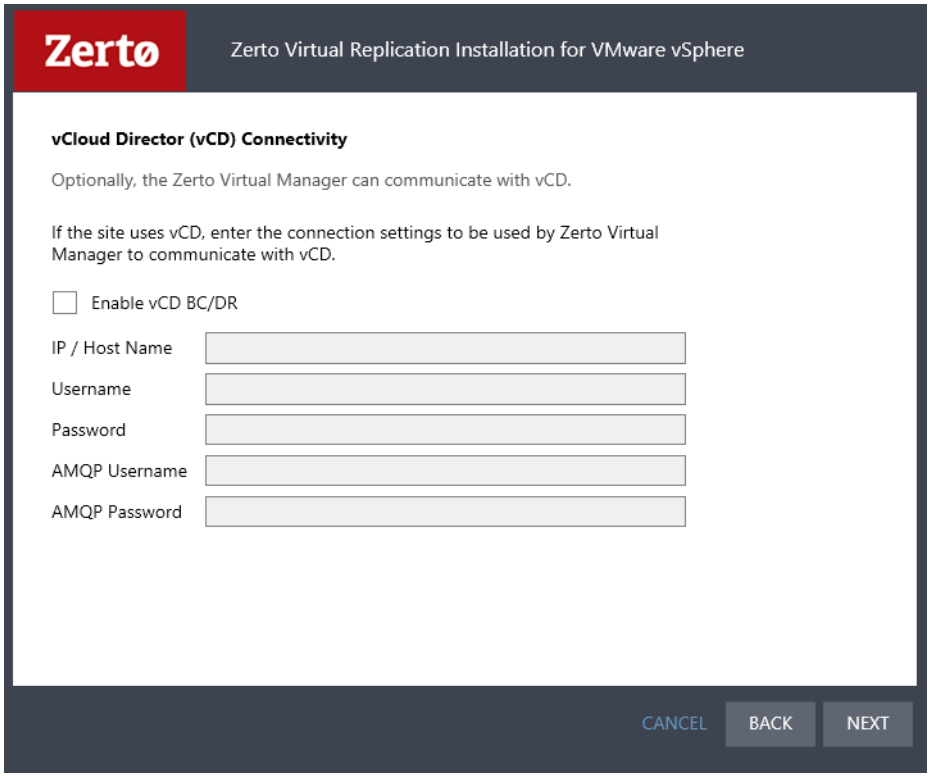
    username

    domain\username

    Password: A valid password for the user name.

11. Click **NEXT**.

The vCloud Director Connectivity dialog is displayed.



12. When using vCloud Director and you have installed an AMQP server, click the `Enable vCD BC/DR` checkbox and enter the VMware vCloud Director access details:
    - **IP / Host name:** The IP address or host name of the machine where vCD runs. When connecting to vCD with multiple cells, enter the virtual IP for the network load balancing used by the cells.
    - **Username:** The user name for an administrator to vCD.
    - **Password:** A valid password for the given user name.
    - **AMQP Username:** The user name for the AMQP server.
    - **AMQP Password**: A valid password for the given AMQP user name.

    If the vCD connection settings are not specified, for example, when you do not have an AMQP server installed, they can be set in the **Advanced Settings** dialog in the **Site Configuration** panel, in the Zerto User Interface after installation, as described in the *Zerto Cloud Manager Administration Guide*.

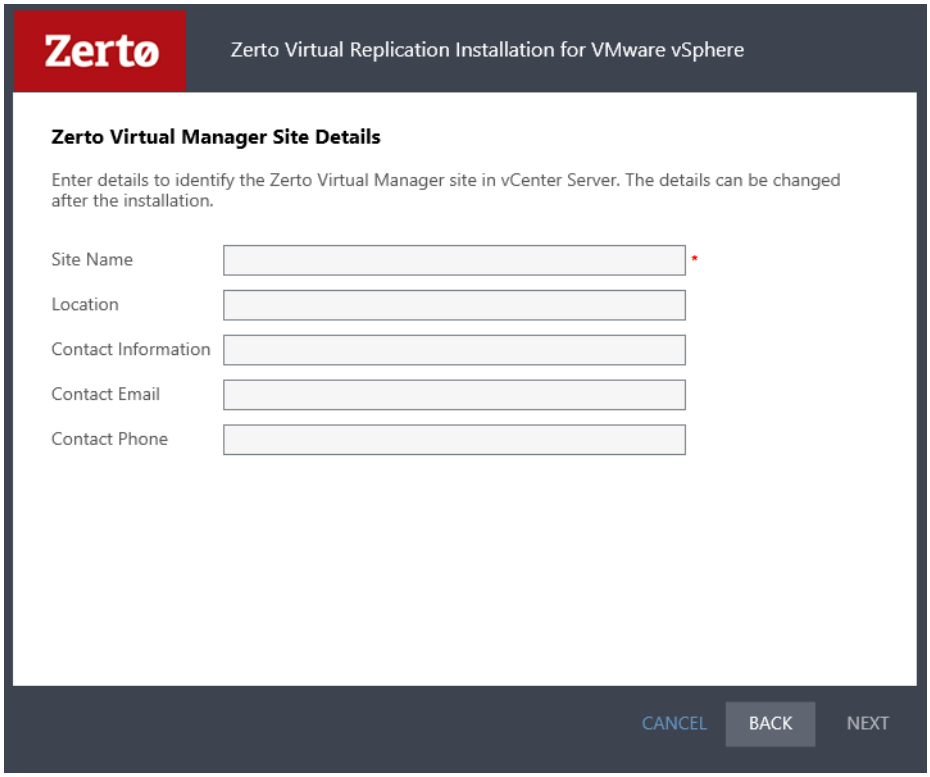
    TIP:

    Zerto provides an AMQP installation kit if you do not have one installed for vCD.

    i. Run **ZertoAMQPInstallWizard.exe** as described in the *Zerto Cloud Manager Administration Guide*, and enter the following credentials:
    - **Username:** The AMQP user account Zerto will use. RabbitMQ prior to version 3.3 installs with a default administrator user: guest. In RabbitMQ version 3.3 and higher, specify a user with administrator privileges.
    - **Password:** The password for the user. RabbitMQ prior to version 3.3 installs with a default password of guest.

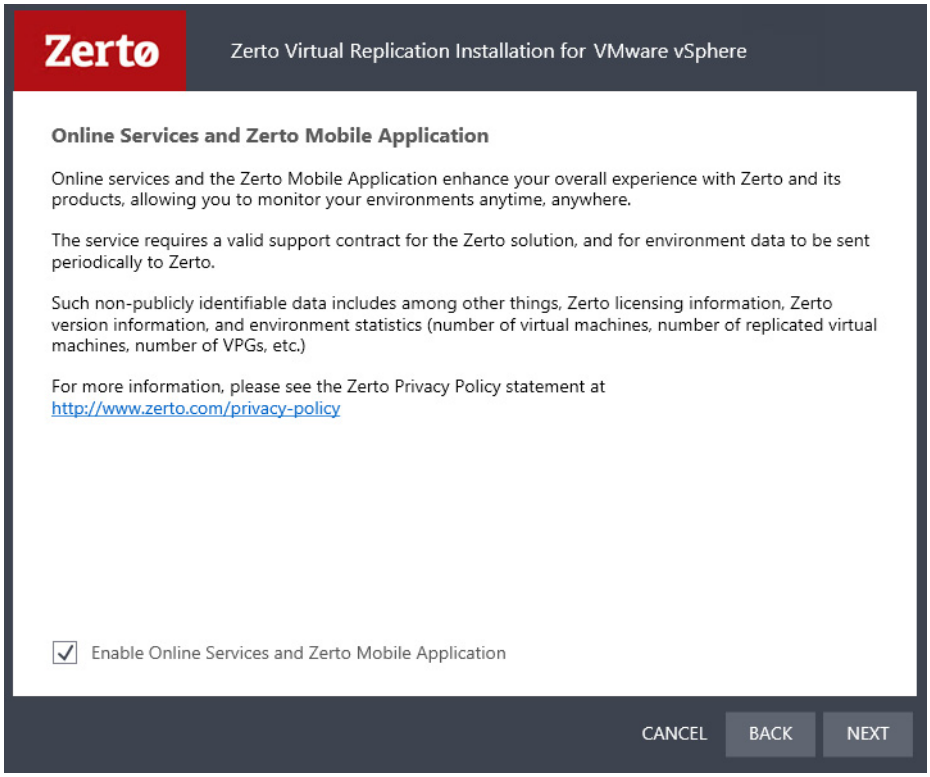
13. Click **NEXT**.

The Zerto Virtual Manager Site Details dialog is displayed.



14. Enter the site details:
    - **Site Name:** A name to identify the site. This name is displayed in the Zerto User Interface. **This field is mandatory.**
    - **Location:** Information such as the address, or name of the site to identify it. This field is optional.
    - **Contact Information:** The name of the person to contact if a need arises. This field is optional.
    - **Contact Email:** The email address to contact if a need arises. This field is optional.
    - **Contact Phone:** The phone number to contact if a need arises. This field is optional.
15. Click **NEXT**.

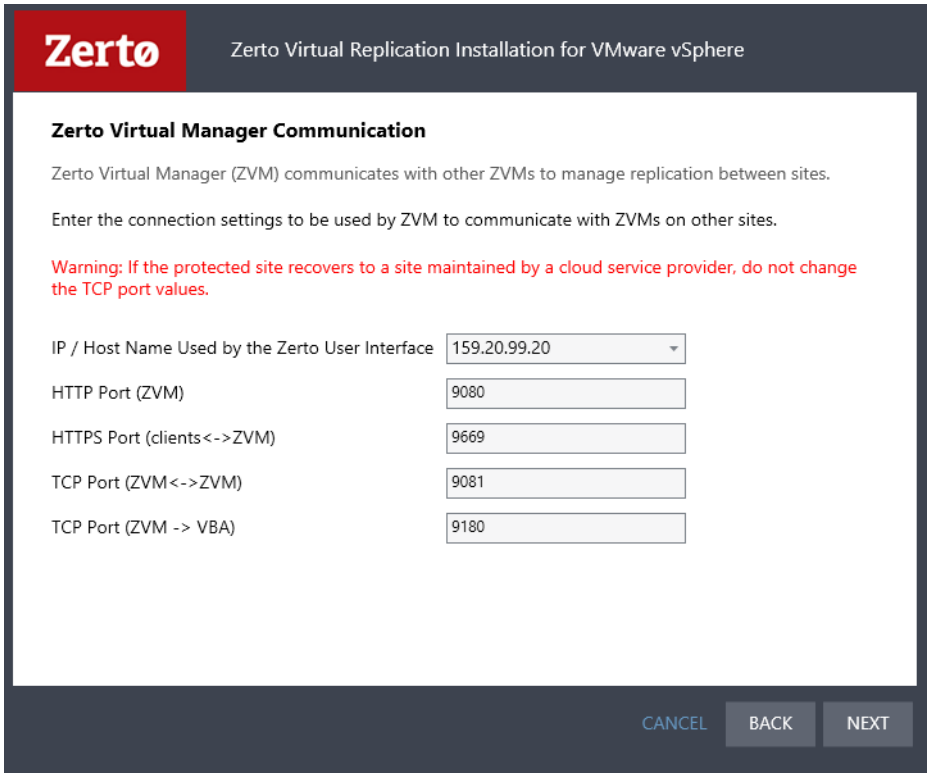
The Online Services and Zerto Mobile Application dialog is displayed.



- The checkbox to **Enable Online Services and Zerto Mobile Application** is selected by **default**.
- You can **disable** these services by deselecting **Enable Online Services and Zerto Mobile Application**.

16. Click **NEXT**.

The Zerto Virtual Manager Communication dialog is displayed.



17. Enter the connection setting as follows:

PORT DESCRIPTION PARAMETER	DEFAULT PORT NUMBER	COMMUNICATION DIRECTION	BETWEEN...	COMMENTS
IP/Host Name Used by the Zerto User Interface	NA		Zerto User Interface *- and -* Zerto Virtual Manager	IP to access the Zerto Virtual Manager from the Zerto User Interface. If the machine has more than one NIC, select the appropriate IP from the list. Otherwise, the IP that is displayed is the only option.
HTTP Port (ZVM)	9080	Inbound	Zerto Virtual Manager *- and -* Zerto internal APIs, Cmdlets and a VSS Agent	
HTTPS Port (clients<->ZVM)	9669	Inbound	Zerto User Interface *- and -* Zerto Virtual Manager	
TCP Port (ZVM<->ZVM)	9081	Inbound and outbound	Zerto Virtual Manager *- and -* Zerto Virtual Manager	■ When **both** the protected **and** recovery sites **belong to the same enterprise**: ■ If you change this value, when pairing sites, use the TCP port value specified here. Pairing the sites is described in "Pairing Sites", on page 36. ■ When an enterprise **uses a cloud service provider** to **supply** disaster recovery services: ■ Do not change this value
TCP Port (ZVM->VBA)	9180	Inbound and outbound	Zerto Virtual Manager *- and -* Virtual Backup Appliance (VBA)	

18. Click **NEXT**.

    The installation performs checks to verify that the installation can proceed successfully.

19. After the checks complete successfully, click **RUN** and continue to the end of the installation.

    As part of the installation, the **Zeus driver (jFLR)** is also installed. This installation is **mandatory** for the Zerto Virtual Replication installation.

    a) During the installation, you are prompted with a Windows Security message to install the **Zerto Storage controller**, which will install the Zeus driver (jFLR).
    b) Click **Install**, and continue with the installation.
    If you do not install the additional software when prompted, **the Zerto Virtual Replication installation will fail**.

20. If you intend **managing** your disaster recovery **from this machine**, you can select to open the Zerto Virtual Manager (ZVM) Interface at the end of the installation, logging in with the user name and password for the vCenter Server connected to the Zerto Virtual Manager. In this user interface you set up Zerto Virtual Replication, as described in "Initial Configuration", on page 32.
21. You **must exclude** the Zerto Virtual Replication folder **from antivirus scanning**. Failure to do so may lead to the ZVR folder being incorrectly identified as a threat and in some circumstances corrupt the ZVR folder.
22. Add the machine to the relevant **host boot configuration**, so that on starting up the host, this machine, running the Zerto Virtual Manager, is also powered on automatically.
23. Install Zerto Virtual Replication on the peer sites.
    - The installation creates the Zerto Virtual Manager and Virtual Backup Appliance as services, and the installation package to enable installing Virtual Replication Appliances on hosts.

Note: If the vSphere Client console was open during the installation, close it and reopen it to ensure you have the Zerto Virtual Replication user interface loaded.

Performing a Silent Installation

You can perform a silent installation of Zerto Virtual Replication, by running the installation executable in a script with the -s option.

```
<installation>.exe [-s] [-uninstall] [-l <logfile>] [[PROPERTY=VALUE] ...]
```

where:

uninstall – runs the uninstall procedure.
l <logfile> – writes log entries to the specified file.
s – runs the installation, uninstall, repair or upgrade silently. If Zerto Virtual Replication does not exist on the machine, an installation is performed. If the same version of Zerto Virtual Replication exists on the machine, a repair is performed. If a previous version of Zerto Virtual Replication exists on the machine, an upgrade is performed.

PROPERY=VALUE – sets the property PROPERTY to VALUE. The PROPERTY can be any of the following:

PROPERTY	DESCRIPTION	MANDATORY
VCenterHostName	The host name of the machine on which Zerto Virtual Replication is installed.	Yes
VCenterPassword	A valid password for the given user name.	Yes
VCenterUserName	The user name for an administrator to vCD.	Yes
AmqpPassword	The password to access AMQP.	No
AmqpUserName	The username to access AMQP.	No
AutoRestart	When running on Windows 2012 platforms a restart to the computer might be required to complete the installation. Set this value to 1 to automatically restart the computer after the installation, if it is required.	No
DBType	Either the default embedded database, `DBType=ssce`, or a Microsoft SQL Server, `DBType=sqlserver`. Default is to use the embedded database.	No
IsWindowsAuthentication	Use Windows authentication.	No
ServiceAccount	The user account to run the Zerto Virtual Manager service. Default = '.\LocalSystem'	No
ServicePassword	The password to use to run the service under the specified account.	No
SiteCertificatePassword	The default is taken from Zerto.	No
SiteContactEmail	The email address to contact if a need arises.	No
SiteContactInfo	The name of the person to contact if a need arises.	No
SiteContactPhone	The phone number to contact if a need arises.	No

PROPERTY	DESCRIPTION	MANDATORY
SiteExternalIP	The IP address used by vCenter Server get the Zerto UI plug-in to incorporate in the vCenter UI.	No
SiteHttpPort	The port used for inbound communication between the Zerto Virtual Manager and Zerto internal APIs, Cmdlets and a VSS Agent. Default is 9080.	No
SiteHttpsPort	The port used for inbound communication between the Zerto User Interface and the Zerto Virtual Manager. Default is 9669.	No
SiteIpAddress	The IP address or host name of the machine where the vCenter Server runs.	No
SiteExternalIp	The IP address used by vCenter Server to get the Zerto User Interface plug-in to incorporate in the vCenter UI.	
SiteKeepPreviousIdentifier	The default is true.	No
SiteLocation	Information to identify the site location.	No
SiteName	A name to identify the site. This name is displayed in the Zerto User Interface.	No
SiteTcpPort	The port used for communication between Zerto Virtual Managers. Default is 9081.	No
SiteTcpPortVba	The port used for communication between the Zerto Virtual Manager and the Virtual Backup Appliance. Default is 9180.	No
SqlPassword	A valid password for the given user name.	No
SqlServerName	The domain name and server instance to connect to, with the format `domain\instance`.	No
SqlUserName	The user name for the SQL Server database.	No
VcdHost	The IP address or host name of the machine where vCD runs. When connecting to vCD with multiple cells, enter the virtual IP for the network load balancing used by the cells.	No
VcdPassword	The password to access vCloud Director.	No
VcdUserName	The username to access vCloud Director.	No

The following is an example command line to run a silent installation:

```
"Zerto Virtual Replication VMware Installer.exe" -s vCenterHostName=199.10.10.20
vCenterUserName=Administrator vCenterPassword=mypassword
```

Installing Zerto Virtual Replication Cmdlets

Windows PowerShell is a command-line shell running under Windows for system administrators. The Windows PowerShell includes both an interactive command line prompt and a scripting environment. Each can be used independently or they can be used together.

Windows PowerShell is built on top of the .NET Framework common language runtime (CLR), enabling it to accept and return .NET Framework objects.

To run the Zerto Virtual Replication cmdlets you must first run the installation package supplied by Zerto.

Note: You must have both Microsoft .NET Framework 4 and Windows PowerShell installed.

To install the Zerto Virtual Replication cmdlets:

1. Make sure that Windows PowerShell is closed.
2. Run the installation file.

After installing the Zerto Virtual Replication cmdlets, either add the cmdlets each time you open the Windows PowerShell or create a Windows PowerShell profile. The following procedure describes how to add the Zerto Virtual Replication cmdlets to every Windows PowerShell session.

To add the Zerto Virtual Replication cmdlets to the current session:

- Open Windows PowerShell with the following arguments:

```
-NoExit -Command Add-PSSnapIn Zerto.PS.Commands
```

The `Add-PSSnapin` cmdlet adds registered Windows PowerShell snap-ins to the current session.

To add the Zerto Virtual Replication cmdlets to every session, in the *Properties* dialog for a PowerShell shortcut specify a `Target` value similar to the following:

```
C:\Windows\SysWOW64\WindowsPowerShell\v1.0\powershell.exe -NoExit
-Command Add-PSSnapIn Zerto.PS.Commands
```

Note: You can create a Windows PowerShell profile, as described in the Windows PowerShell Help, to add the snap-in to all future Windows PowerShell sessions.

For more details, see *Zerto Virtual Replication PowerShell Cmdlets Guide*.

Installing the VSS Agent

The Microsoft Volume Shadow Copy Service (VSS) enables taking manual or automatic backup copies or snapshots of data, even if it has a lock, on a specific volume at a specific point-in-time over regular intervals. This ensures not just that the data is crash consistent but also application consistency if recovery is needed.

Zerto Virtual Replication enables adding **checkpoints** to the **journal** that are synchronized with **VSS snapshots**.

To use Zerto Virtual Replication with VSS and to ensure application consistency, you must install the **ZertoVssAgent** on every virtual machine that uses VSS, and that you want to protect with Zerto Virtual Replication.

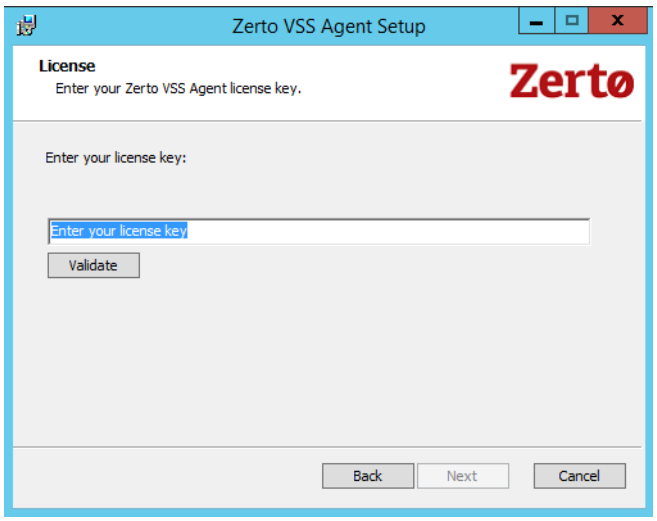
You can install the ZertoVssAgent on the following supported Windows operating systems:

OPERATING SYSTEMS
Windows Server 2008, all versions (SPs and R2)
Windows Server 2012, all versions (SPs and R2)

To install the ZertoVssAgent:

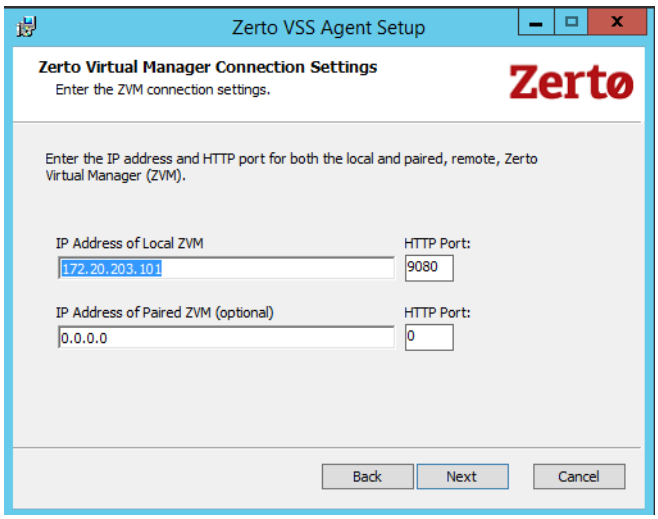
1. Download the ZertoVssAgent, *ZertoVss64Agent.msi*, from the Zerto Support Portal downloads page, on the virtual machines that use VSS and that you want to protect with Zerto Virtual Replication.
2. Run the ZertoVssAgent on the virtual machines that use VSS and that you want to protect.

   Note: Only a single virtual machine in a VPG can have application consistent checkpoints and the VSS checkpoint is only applied to the virtual machine where the ZertoVssAgent is installed. Thus, even if more than one virtual machine runs VSS, you only install the Zerto VssAgent on one of the virtual machines in the VPG. Also, the virtual machine where the ZertoVssAgent is installed must have network connectivity to the local Zerto Virtual Manager in order to be able to add VSS checkpoints successfully.
3. Enter the license key and click *Validate*.



4. Follow the wizard through the installation.

   The `Zerto Virtual Manager Connections Settings` dialog is displayed.



5. Specify the IP address and HTTP port number for the Zerto Virtual Managers managing the protection of the virtual machines, both for the local site and optionally, for the paired, remote site. If the same hypervisor manager is used both for protecting and recovering virtual machines, specify the IP address and HTTP port number for the single Zerto Virtual Manager installed.

   Note: The default HTTP port number when Zerto Virtual Replication is installed is 9080.

   If you enter a wrong IP address or port you can correct the address or port after the installation completes by editing the `ZertoVssAgentGUI.exe.conf` file in the `ZertoVssAgent` folder under the folder where the *ZertoVssAgent* is installed, for example, `C:\Program Files\Zerto`.

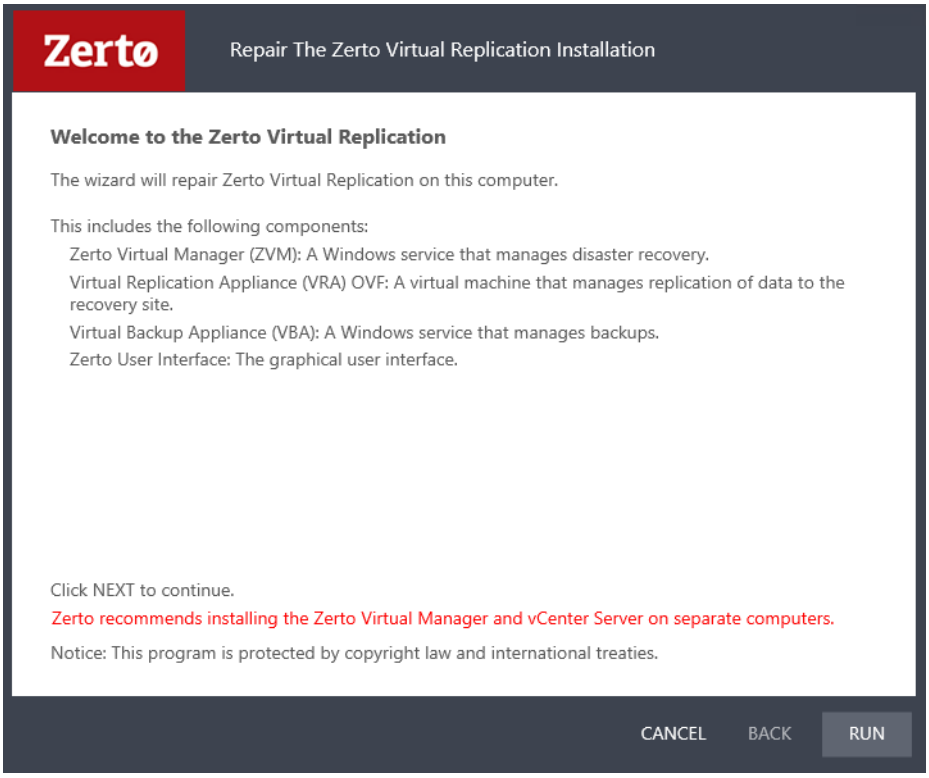
6. Click *OK*.

The ZertoVssAgent is installed and the *Add VSS Checkpoint* icon is placed on the desktop. The agent runs as a Windows service, *ZertoVssprovider*.

For more details about the ZertoVssAgent, see the *Zerto Virtual Manager Administration Guide*.

Repairing the Current Installation

If a new installation is the same version as the installed version, the *Repair the Zerto Virtual Replication Installation* dialog is displayed.



When repairing the version, all pairing, VRAs and VPGs defined for the site are removed. Use the *Zerto Diagnostics* utility options *Export* and *Import* options, as described in "Upgrading To More Than One Version Higher", on page 41 to save the settings.

If the vSphere Client console was open during the repair, close it and reopen it to ensure you use the upgraded Zerto User Interface.

CHAPTER 2: ACCESSING THE ZERTO USER INTERFACE

You manage the protection and replication of virtual machines in vSphere, between the protected and recovery sites, using the Zerto User Interface. On first access to the user interface, you might have to add a security certificate to set up secure communication. Zerto also provides a set of RESTful APIs and PowerShell cmdlets to enable incorporating some of the disaster recovery functionality within scripts or programs.

You manage the protection and replication of virtual machines between the protected and recovery sites, using one of the following:

- The Zerto Virtual Manager Web Client.
- The vSphere Web Client.
- The vSphere Client console.

Note: Microsoft Windows Explorer 9 is not supported and version 10 does not work well with the user interface. Zerto recommends using Chrome, Firefox, or later versions of Internet Explorer.

Note: It is required to exclude the Zerto Virtual Replication folder from antivirus scanning. Failure to do so may lead to the ZVR folder being incorrectly identified as a threat and in some circumstances corrupt the ZVR folder.

The following topics are described in this chapter:

Using the Zerto User Interface From a Browser

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. Login using the user name and password for the vCenter Server connected to the Zerto Virtual Manager.

Using the Zerto User Interface Within vSphere

The Zerto User Interface is embedded in both the vSphere Web Client and Client console as a plug-in. When accessing the Zerto User Interface from within vSphere the interface is available via a tab in the vSphere user interface. When using the Zerto User Interface via vSphere you have the following additional feature:

- You can protect a virtual machine, that is not already included in a VPG, directly via the *Zerto* tab for the virtual machine in vSphere Client console.

See also:

Using the vSphere Web Client

You can use the VMware Web Client to manage Zerto Virtual Replication.

The vSphere Web Client is a service that when installed enables a browser-based interface for configuring and administering virtual machines enabling you to connect to a vCenter Server system to manage an ESXi host through a browser. The following procedure describes how to configure the vSphere Web Client to display Zerto Virtual Replication dialogs.

This procedure is valid for vSphere Web Client version 5.1 communicating with vCenter Server from version 5.0 and higher.

Note: The following procedure assumes that the vSphere Web Client version 5.1 has been installed. Although you can run the vSphere Web Client version 5.1 with vSphere Server 5.0 and 5.1, when installing the vSphere Web Client you need access to a vSphere Server version 5.1 which includes an option for single sign on, required by the vSphere Web Client installation.

Note: Setting up Zerto Virtual Replication to be used via the vSphere Web Client disables the use of other VMware plug-ins, such as VDP and VSA, causing them to disappear from the web client. This is a known VMware problem, see http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=2042455. To resolve this issue, set up two web clients, on different servers. On one run Zerto Virtual Replication and on the other run the VMware plug-ins.

To set up the vSphere Web Client to work with Zerto Virtual Replication:

1. When the vSphere Web Client service is installed on a **Microsoft Windows platform**:
   a) Copy and run `VsphereWebClientPluginEnabler.exe` to the machine where you run the web client service. This file is located in the `Zerto Virtual Replication` folder under the folder where Zerto Virtual Replication was installed. You can copy `VsphereWebClientPluginEnabler.exe` to any folder on the relevant machine.
   b) Run `VsphereWebClientPluginEnabler.exe` as an administrator.
2. When the vSphere Web Client is installed on a **Linux platform**, via the **vCenter Server Linux Virtual Appliance** (vCSA):
   a) Depending on your vCenter Server version, navigate to:
      - Up to vCenter Server **5.5.x**, navigate to: `/var/lib/vmware/vsphere-client`
      - From vCenter Server **6.0.x,** navigate to: `/etc/vmware/vsphere-client/`
   b) Open the `webclient.properties` file in a text editor and add the following to the file:.

   ```
   scriptPlugin.enabled = true
   ```

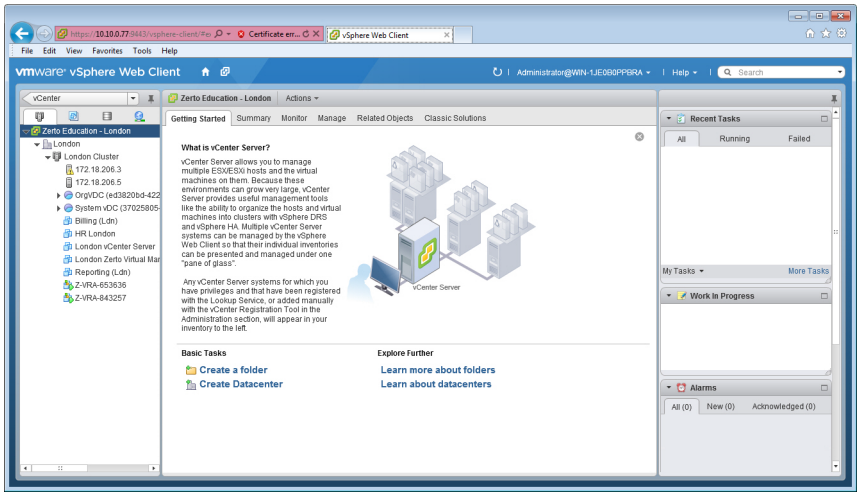
3. Restart the vSphere Web Client service.

   After the service has started you might have to **wait a few minutes** before you can open the vSphere Web Client in your browser.

To use the vSphere Web Client:

1. Log in using the vCenter Server access credentials (user name and password) for the vCenter Server connected to the Zerto Virtual Manager.
2. In the browser, navigate to a vSphere node supported by Zerto Virtual Replication, such as the root node or a virtual machine, and choose the `Classic Solution`s tab, which is now displayed after the `Related Objects` tab.

   Note: With Chrome and Firefox browsers, you must load the script plug-in page in an external tab at least once before it appears inside the vSphere Web Client. The `Classic Solutions` tab is displayed when there is a plug-in installed, in this case the Zerto Virtual Replication user interface plug-in.
3. If prompted, allow blocked content to be displayed.



4. If more than one plug-in is installed, click *Zerto* to display the Zerto Virtual Replication user interface.

Using the vSphere Client Console

To use the vSphere Client console:

1. Login using the user name and password for the vCenter Server connected to the Zerto Virtual Manager.
2. Access the *Zerto* tab, displayed for the root node.

   Note: The *Zerto* tab is also displayed for a datacenter node showing the same information as for the root node. For a virtual machine the *Zerto* tab displays information specific to the virtual machine.

Adding a Security Certificate

Communication between the Zerto Virtual Manager and the user interface uses HTTPS. On the first login to the Zerto User Interface, you must install a security certificate in order to be able to continue working without each login requiring acceptance of the security.

To install a security certificate for the Zerto User Interface:

On first access to the Zerto User Interface, if you haven't installed the security certificate, a security alert is issued.

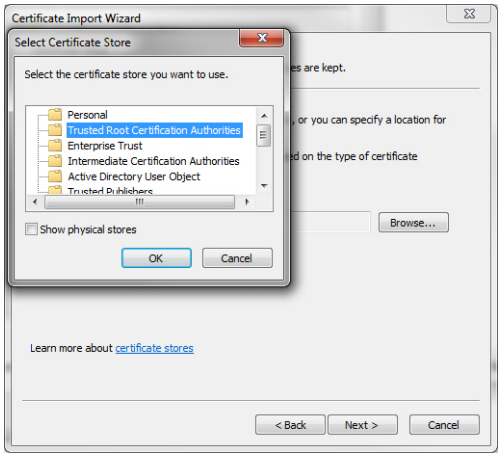
Note the following:

- To run this procedure run Microsoft Internet Explorer as administrator. The procedure is similar for Google Chrome and for Mozilla Firefox.
- Access the Zerto User Interface using the IP and not the name of the machine where Zerto Virtual Replication is installed.

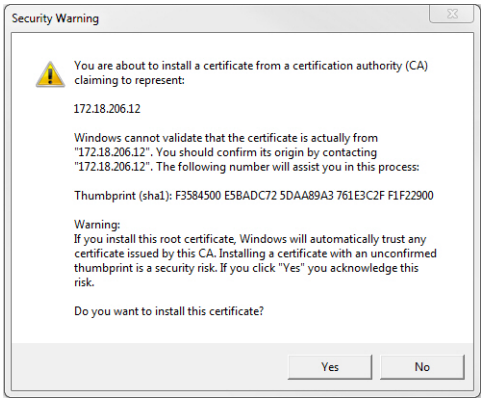
1. Click *View Certificate*.

   The *Certificate* dialog is displayed.
2. Click *Install Certificate*.

   The *Certificate Import wizard* dialog is displayed.
3. Follow the wizard: Place all the certificates in the `Trusted Root Certification Authorities` store: Select the `Place all certificates in the following store` option and browse to select the `Trusted Root Certification Authorities` store.



4. Continue to the end of the wizard. Click *Yes* when the Security Warning is displayed.



5. Click *OK* that the installation was successful.
6. Click *OK* when prompted and then *Yes* in the *Security Alert* dialog to continue.

CHAPTER 3: INITIAL CONFIGURATION

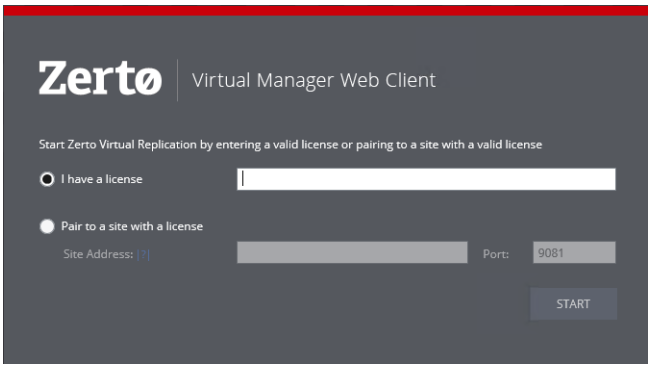
After installing Zerto Virtual Replication, you configure the site. Zerto Virtual Replication is configured and managed from within the Zerto User Interface. This section describes the initial configuration required after installing Zerto Virtual Replication.

The following topics are described in this section:

Cloud service providers must configure both Zerto Virtual Manager and a Zerto Cloud Manager as described in *Zerto Cloud Manager Installation Guide* and *Zerto Cloud Manager Administration Guide*.

Registering the Zerto Virtual Replication License

On the very first access to the Zerto User Interface, you must either register your use of Zerto Virtual Replication, by entering the license key supplied by Zerto or pair to a site where a license has already been entered.



Note: A customer using a Cloud Service Provider (CSP) to manage the disaster recovery, pairs to the CSP using the IP address supplied by the CSP and does not enter a license key. A CSP with more than one cloud site must enter a license at each cloud site instead of pairing to a licensed cloud site. The license can be the same license used in another cloud site. The CSP can then pair the sites as described in "Pairing Sites", on page 36. If the CSP registers Zerto Virtual Replication by pairing to another site with a license, instead of registering by entering a license, the registration works and the CSP can use both sites but customers cannot successfully pair to the site without a license.

After entering a valid license, the *DASHBOARD* tab is displayed with a summary of the site. Before you can start protecting virtual machines in this site, you must install Virtual Replication Appliances on the hosts in the site and pair the protected and recovery sites, as described in the following sections.

Installing Virtual Replication Appliances

The Zerto Virtual Replication installation includes the OVF template for Virtual Replication Appliances (VRAs). A VRA is a Zerto Virtual Replication virtual machine that manages the replication of virtual machines across sites. A VRA must be installed on every host that manages virtual machines that require protecting in the protected site and on every host that

manages virtual machines in the recovery site. The VRA compresses the data that is passed across the WAN from the protected site to the recovery site. The VRA automatically adjusts the compression level according to CPU usage, including totally disabling it if needed.

A VRA can manage a maximum of 1500 volumes, whether these volumes are being protected or recovered.

The VRA is a custom, very thin, Linux-based virtual machine with a small footprint, disk – memory and CPU – and increased security since there are a minimum number of services installed.

Zerto recommends installing a VRA on every hypervisor host so that if protected virtual machines are moved from one host in the cluster to another host in the cluster there is always a VRA to protect the moved virtual machines.

VRA Installation Requirements

To install a VRA you require the following:

- 12.5GB datastore space.
- At least 1GB of reserved memory.
- The ESX/ESXi version must be in accordance with supported ESX/ESXi versions in the Interoperability Matrix, and Ports 22 and 443 must be enabled on the host during the installation.

You must also know the following information to install a VRA:

- If the ESXi version is 5.5 or higher and the VRA should connect to the host with user credentials, or if the ESXi version is lower than 5.5 (4.x or 5.x), the password to access the host root account.

  Note: For ESXi versions 5.5 or higher, by default the VRA connects to the host with a vSphere Installation Bundle, VIB. Therefore, it is not necessary to enter the password used to access the host root account.
- The storage the VRA will use and the local network used by the host.
- The network settings to access the peer site; either the default gateway or the IP address, subnet mask, and gateway.

  Note: When the gateway is not required, you can specify 0.0.0.0 as the gateway, for example when performing self replication.
- If a static IP is used, which is the Zerto recommendation, instead of DHCP, the IP address, subnet mask, and default gateway to be used by the VRA.

  Note: In a non-production environment it is often convenient to use DHCP to allocate an IP to the VRA. In a production environment this is not recommended. For example, if the DHCP server changes the IP allocation on a reboot, the VRA does not handle the change.

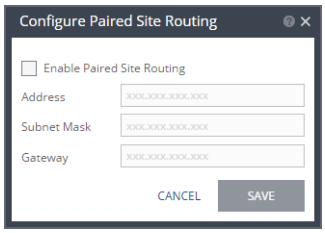
Note: For the duration of the installation of the VRA, the Zerto Virtual Manager enables SSH in the vCenter Server.

If the peer site VRAs are not on the default gateway, you must set up routing to enable the VRAs on this site to communicate with the peer site VRAs before defining the VRAs. Setting up routing after defining VRAs only applies to VRAs installed after the routing is set. Any existing VRA is not affected and access to these VRAs continues via the default gateway. If the default gateway stops being used, you must reinstall the VRAs that were installed before setting up paired site routing.

To set up routing:

1. In the *SETUP > VRAs* tab, select *MORE > Paired Site Routing*.

   The *Configure Paired Site Routing* dialog is displayed.



2. Click *Enable Paired Site Routing*.

3. Specify the following and then click *SAVE*:

   Address – The IP address of the *next hop* at the local site, the router or gateway address, that is used to access the peer site network.

   Subnet Mask – The subnet mask for the peer site network.

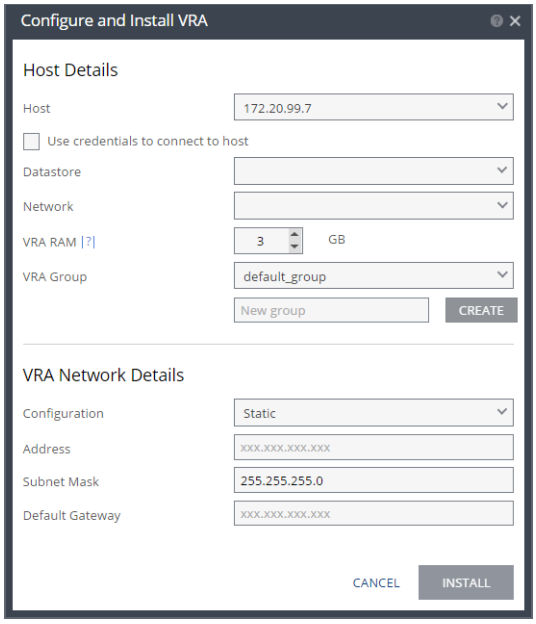
   Gateway – The gateway for the peer site network.

These access details are used to access all VRAs installed on the peer site after the information is saved.

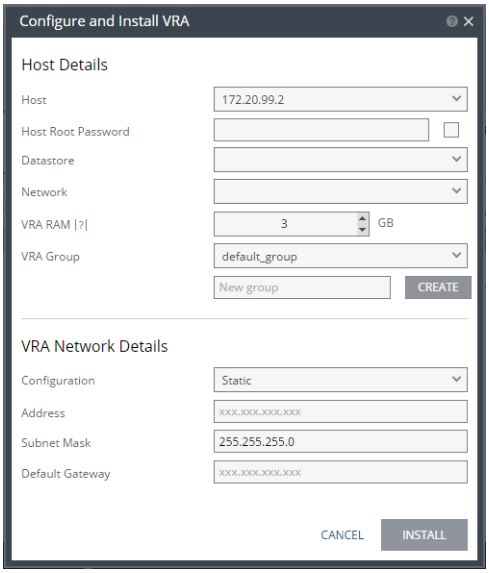
To install Zerto Virtual Replication Appliances (VRAs) on ESX/ESXi hosts:

1. In the Zerto User Interface, click *SETUP* > *VRAs*.
2. Select a host which requires a VRA and click *NEW VRA*.

   The *Configure and Install VRA* dialog is displayed. The dialog displayed depends on the ESX/i version:



ESXi versions from 5.5



ESXi versions before version 5.5

Note: If you selected a cluster or multiple hosts, the VRA is installed on the first host in the displayed list.

Specify the following `Host Details`:

Host – The host on which the VRA is installed. The drop-down displays the hosts that do not have a VRA installed, with the selected host displayed by default.

From ESXi 5.5, by default, Zerto Virtual Manager uses a vSphere Installation Bundle, VIB, to connect to the host. When using VIB:

- The user does not enter a password.
- Once a day, Zerto Virtual Manager checks that the VRA and host can connect. If the connection fails, Zerto Virtual Manager re-initiates the connection automatically and logs it.

For ESX/i versions earlier than 5.5, when using a password, root access is required. Once a day, Zerto Virtual Manager checks that the password is valid. If the password was changed, an alert is issued, requesting the user enter the new password.

Use credentials to connect to host – When unchecked, the Zerto Virtual Manager uses VIB to connect to the host. This field is only relevant for ESXi 5.5 and later.

Host Root Password – When the VRA should connect to the host with a password, check *Use credential to connect to host* and enter the root user password used to access the host. When the box on the right side is checked, the password is displayed in plain text.This field is only relevant for ESXi 4.x and 5.x hosts. This field is disabled for ESX 4.x hosts.

Datastore – The datastore that the VRA will use for protected virtual machine data on the recovery site, including the journals. You can install more than one VRA on the same datastore.

Network – The network used to access the VRA.

VRA RAM – The amount of memory to allocate to the VRA. The amount determines the maximum buffer size for the VRA for buffering IOs written by the protected virtual machines, before the writes are sent over the network to the recovery VRA. The recovery VRA also buffers the incoming IOs until they are written to the journal. If a buffer becomes full, a `Bitmap Sync` is performed after space is freed up in the buffer.

AMOUNT OF VRA RAM	VRA BUFFER POOL SIZE
1GB	450MB
2GB	1450MB
3GB	2300MB
4GB	3,300MB
5GB	4,300MB
6GB	5,300MB
7GB	6,300MB
8GB	7,300MB
9GB	8,300MB
10GB	9,300MB
11GB	10,300MB
12GB	11,300MB
13GB	12,300MB
14GB	13,300MB
15GB	14,300MB
16GB	15,300MB

The protecting VRA can use 90% of the buffer for IOs to send over the network and the recovery VRA can use 75% of the buffer. That is, for example, a protecting VRA defined with 2GB of RAM can buffer approximately 1305MB before the buffer is full and a `Bitmap Sync` is required.

Note: The number of virtual machines that a VRA can support is not dependent on the amount of VRA RAM.

VRA Group – Choose the `VRA Group` from the dropdown list. If you want to create a new VRA group, type in the name of the new group and click *CREATE*. You can then choose the new group from the dropdown list.

You group VRAs together when VRAs use different networks so they can be grouped by network, for example when the protected and recovery sites are managed by the same vCenter Server and you want to replicate from the branch site to the main site. Within a group the priority assigned to a VPG dictates the bandwidth used and is applicable within a group and not between groups. Thus, a VPG with a high priority is allocated bandwidth before VPGs with lower priorities. VPGs that are on VRAs with different VRA groups, for example, VPG1 on VRA1 in group1 and VPG2 on VRA2 in group2, do not affect each other, as the priority is relevant only within each group.

3. Specify the following `VRA Network Details`:

   Configuration – Either have the IP address allocated via a static IP address or a DHCP server. If you select the `Static` option, which is the recommended option, enter the following:

   Address – The IP address for the VRA.
   Subnet Mask – The subnet mask for the network. The default value is `255.255.255.0`.
   Default Gateway – The default gateway for the network.

4. Click *INSTALL*.

   The VRA installation starts and the status is displayed in the *TASKS* popup dialog in the status bar and under *MONITORING* > *TASKS*.

The VRA displayed name and DNS name is `Z-VRA-hostname`. If a virtual machine with this name exists, for example when a previous VRA was not deleted, the VRA name has a number appended to it.

Add a VRA to every host that hosts virtual machines that you want replicated. Zerto recommends installing a VRA on every listed host. An alert is issued after the first VRA is installed in a cluster that tells you to install a VRA on the other hosts in the cluster. The alert is automatically removed when all the hosts in the cluster have VRAs installed.

A VRA can manage a maximum of 1500 volumes, whether these are volumes being protected or recovered.

Note: VRAs are configured and managed by the Zerto Virtual Manager. You cannot take snapshots of VRAs as snapshots cause operational problems for the VRAs.

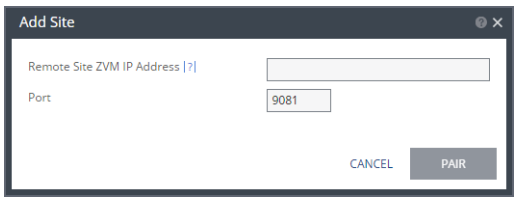
Pairing Sites

Zerto Virtual Replication can be installed at multiple sites and each of these sites can be paired to any other site on which Zerto Virtual Replication has been installed. Virtual machines that are protected on one site can be recovered to any paired site.

To pair sites:

1. In the Zerto User Interface, in the *SITES* tab click *PAIR*.

   The *Add Site* dialog is displayed.



2. Specify the following:

   Remote Site ZVM IP Address – IP address or fully qualified DNS host name of the remote site Zerto Virtual Manager to pair to.

   Port – The TCP port communication between the sites. Enter the port that was specified during installation. The default port during the installation is 9081.

3. Click *PAIR*.

   The sites are paired meaning that the Zerto Virtual Manager for the local vCenter site is connected to the Zerto Virtual Manager on the remote vCenter site.

After the pairing completes the content of the *SITES* tab changes to include summary information about the paired site.

Setting Up a Remote Site

When you are recovering to a remote site, and not the same site, you set up a remote site by pairing to the site as described in "Pairing Sites", on page 36 and then installing VRAs in the site.

To install VRAs on hosts in the remote site:

- Repeat the procedure, "Installing Virtual Replication Appliances", on page 32, via the Zerto User Interface for the remote site.

If you install a VRA on a remote site before pairing the site, you have to enter the license to use Zerto Virtual Replication, as described in "Registering the Zerto Virtual Replication License", on page 32.

Note: You can install VRAs on all the sites from within the Zerto Cloud Manager user interface.

CHAPTER 4: UNINSTALLING ZERTO VIRTUAL REPLICATION

You uninstall Zerto Virtual Replication via the *Uninstall a program* in the Windows Control Panel.

When you uninstall Zerto Virtual Replication the following are also removed:

- The Virtual Replication Appliances.
- All the virtual protection groups defined to protect virtual machines, including all the target disks managed by the VRA for the virtual machines that were being protected.
- The Zerto Virtual Backup Appliance.
- Any Zerto Cloud Connectors.

If, for any reason, a Virtual Replication Appliance cannot be removed, for example, in a VMware vSphere environment, when the vCenter Server is down or when the Virtual Replication Appliance was installed on an ESXi host and the password to the host was changed, you can continue with the uninstall and later remove the Virtual Replication Appliance manually from within the vSphere Web client or Client console. If this does not work, contact Zerto support.

Note: You can uninstall Zerto Virtual Replication silently, by running the silent installation with the `-uninstall` switch, as described in "Performing a Silent Installation", on page 23.

CHAPTER 5: UPGRADING ZERTO VIRTUAL REPLICATION

Zerto Virtual Replication releases regular updates. VMware and Microsoft also release new versions of their products which can impact Zerto Virtual Replication. This document describes different options for different upgrade scenarios.

The following topics are described in this section:

You can upgrade Zerto Virtual Replication silently, by running the **silent installation**, as described in "Performing a Silent Installation", on page 23.

Guidelines to Upgrading Zerto Virtual Replication

- Zerto recommends upgrading to the **latest version** of Zerto Virtual Replication that supports the environment you are using. Refer to the Zerto Virtual Replication Interoperability Matrix for the list of environments supported by this version of Zerto Virtual Replication.
- The **order** you upgrade the sites, protected or recovery, is not relevant as long as **paired sites** remain only one version apart, that is, only **one version higher or lower**.

  Note: Upgrade releases are considered to be upgrades of the same version. Releases 5.0, 5.0U1, etc., are the *same* version.
- The following table shows what version you can **upgrade to**, based on the **current version** running at the site.

CURRENT VERSION:	CAN UPGRADE TO:
4.0, 4.0Ux	4.5Ux
4.5, 4.5Ux	5.0Ux
5.0, 5.0Ux	5.5

- A Zerto Virtual Manager can be used with a **different version on another site**, as long as the other version is only **one version higher or lower**.
- You can upgrade from version n to the next version (n+1) of Zerto Virtual Replication including to any update *within* the current version. You cannot do an n+2 upgrade directly.

  The following table shows what versions can be used on a **peer site**, based on the version on the **current site**.

VERSION (N-1)	CURRENT VERSION (N)	VERSION (N+1)
3.5Ux	4.0Ux	4.5Ux
4.0Ux	4.5Ux	5.0Ux
4.5Ux	5.0Ux	5.5

See the following sections:

Before Upgrading Zerto Virtual Replication

Before upgrading to a new version, either by installing the new version over the existing version or by uninstalling the existing version and then installing the new version, Zerto recommends doing the following:

- **Clear the Microsoft Internet Explorer cache** of temporary Internet files. Not clearing the cache of temporary files can result in problems when accessing the Zerto Virtual Manager.
- Make sure that all VPGs are in the **state Protecting**, and not in a sync state, such as `Delta Sync`, or in an error state, such as `Needs Configuration`.
- **Complete any recovery operation** before starting the upgrade.
- **Stop** the **Zerto Virtual Manager service**.
- Create a **backup** of the **machine where the Zerto Virtual Manager runs**, which you will use if the upgrade fails. Zerto recommends taking a snapshot of the machine after stopping the Zerto Virtual Manager service.

  Note: The snapshot should only be used to rollback to the pre-upgrade state immediately after the upgrade has completed. The snapshot should not be used after the protection of virtual machines has restarted.

The installation procedure checks for an existing installation that is either one version lower than the new version or is the same version. If an installation is found you can upgrade the installation.

Upgrading the Current Installation

The **existing** Virtual Replication Appliances and protected virtual machines, together with all other information, such as checkpoints, journals, sites, and pairing details, are **retained and are available in the upgraded installation**.

The upgrade is performed **without disrupting the protection**, but **no new checkpoints are written** to the journal during the actual upgrade.

This temporarily causes alerts to be issued, even if only a single site was affected, stating that the journal history and RPO do not meet their specified target settings.

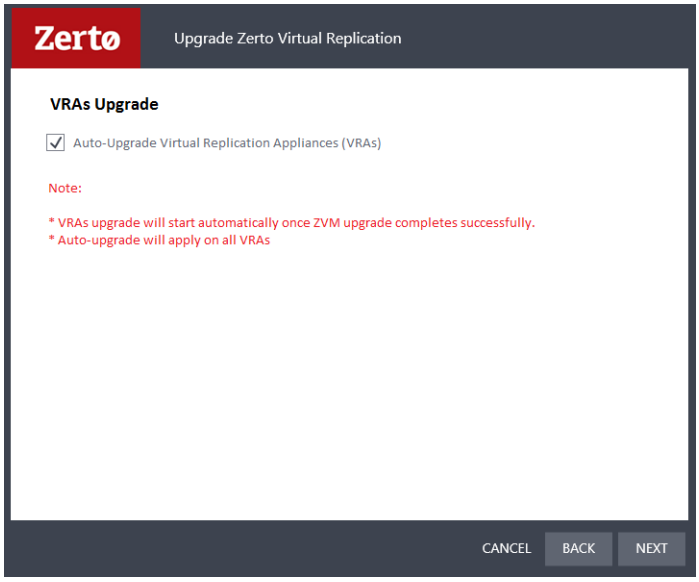
To upgrade the version:

1. Run the Zerto Virtual Replication installation executable for your environment.

   The Zerto Replication Installation Wizard is displayed.
2. Click **NEXT** to continue.

   Zerto Virtual Replication validates that your system meets the upgrade requirements.
3. Select the checkbox to accept the license agreement, and click **NEXT** to continue.

The VRAs Upgrade window is displayed.



The Auto-Upgrade Virtual Replication Appliances checkbox is selected by default, meaning that all the VRAs will be automatically upgraded once the upgrade completes successfully.

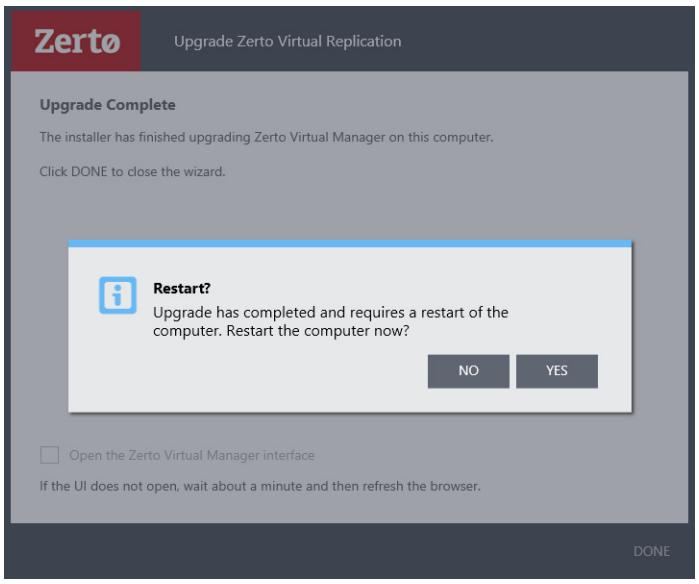
- Optionally, deselect the checkbox if you want to manually upgrade VRAs after the version upgrade completes.

Note: *(For vSphere environments only)* For **version upgrades**, for VRAs at the protected site and recovery sites, a **bitmap sync is performed** following the upgrade.

4. Click **Next**.
   - The version upgrade proceeds automatically, displaying a Validation box followed by an Upgrade progress box.
   - The Upgrade Complete window is displayed, with the checkbox **Open the Zerto Virtual Manager interface** already selected.
   - It is highly recommended that you track the VRA upgrade via the Zerto Virtual Manager interface. You may, however, deselect the checkbox if you do not want to track the VRA upgrade progress.
5. Click **DONE** to close the wizard.

   The Zerto Virtual Manager interface opens at the **Setup > VRAs** tab, displaying the Upgrading VRA tasks.

   Note: If during the upgrade, system requirements are identified that require a restart, a window is displayed informing the user that the upgrade is complete and whether to restart the computer.



In such a case, the ZVM service will be started, and the automatic VRA upgrades will begin, only after the VM is restarted.

- Select **YES**, if it is convenient to restart the VM immediately:
  - The VM will restart.
  - The ZVM service will be started and the automatic VRA upgrades will begin.
- Select **NO** - if it is not convenient to restart the VM immediately:
  - Logging in to the ZVM UI will not be possible because the ZVM service will not have been started yet.

Note: If the vSphere Client console was open during the upgrade, close it and reopen it.

For the manual upgrade procedure for existing VRAs see "Upgrading VRAs", on page 44.

Upgrading Environments Which are Connected to Zerto Cloud Manager

For environments using the Zerto Cloud Manager you must:

- Upgrade the **Zerto Cloud Manager** to be **consistent** with the latest version of **Zerto Virtual Replication** run by the **CSP**.
- Upgrade the version of **Zerto Virtual Replication** run by the **CSP** after the Zerto Cloud Manager, so that they are **never** more than one version separated from each other.

In other words, the **Zerto Cloud Manager** version should be: N or N+1, where N is the ZVM version.

For details about upgrading Zerto Cloud Manager, see *Zerto Cloud Manager Installation Guide*.

Note: Zerto no longer supports vCenter Server vApps. Any VPG protecting a vAPP should be recreated using the virtual machines in the vApp. When upgrading to 5.0Ux, if there is a VPG protecting a vCenter Server vApp, the following error appears, and the upgrade is stopped: *Zerto no longer supports protection of vCenter Server vApps. Create a new VPG with the virtual machines from the vApp added separately to the VPG*.

Upgrading Multiple Sites Running Different Versions

A Zerto Virtual Manager can be installed on a site running a different version, as long as each version is **only one version higher or lower** than the other.

When you have **multiple sites**, make sure that the version of Zerto Virtual Manager is never more than one version higher or lower than any of the versions running on the **paired sites**.

To upgrade Zerto Virtual Replication installed on multiple sites:

1. Upgrade a site whose version is lower than the required version. Start the upgrades with the site whose version is **lowest**.
   Make sure, at all times, that **no site is more or less than one version** higher or lower than any of the **paired sites**.
2. If the VRAs on the site need upgrading, upgrade these VRAs to ensure that they are no less than one version higher or lower than any of the VRAs on any of the paired sites.
3. Repeat the above step for **all sites**.

For Example:

- You have sites running versions 4.0U3, which are paired to a site running 4.5U4.
- You are planning to upgrade to 5.0U2.
- Upgrade first the 4.0U3 site to a 4.5U4 version, and then both of the sites to 5.0U2.

Upgrading To More Than One Version Higher

Before upgrading to a new version, make sure that all VPGs are in **Protecting** state and not in a sync state, such as **Delta Sync**, or an error state, such as **Needs Configuration**.

If you need to upgrade **more than one version higher**, do **one** of the following:

1. Upgrade versions stepwise, one version at a time, as described above in **Upgrading Multiple Sites Running Different Versions**, until you reach the required version.

   - or -

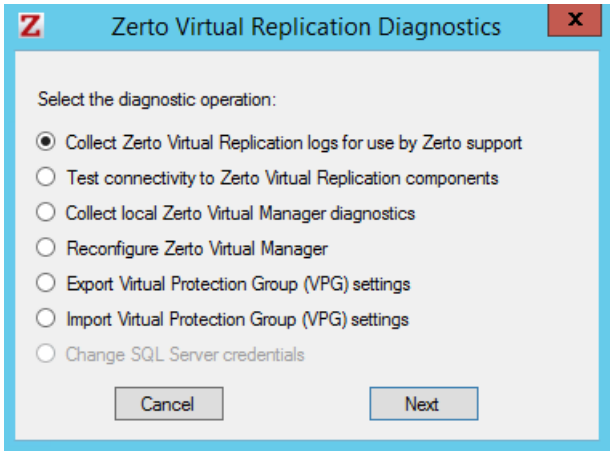
2. Use the **Zerto Diagnostics** utility's export option to **export** the existing VPG definitions, then uninstall the old version of Zerto Virtual Replication. Install the new version, then use the *Zerto Diagnostics* utility's *import* option to re-create the VPGs. Use the following procedure.

Upgrading Zerto Virtual Replication Using the Zerto Diagnostics Utility

To upgrade Zerto Virtual Replication using the Zerto Diagnostics utility:

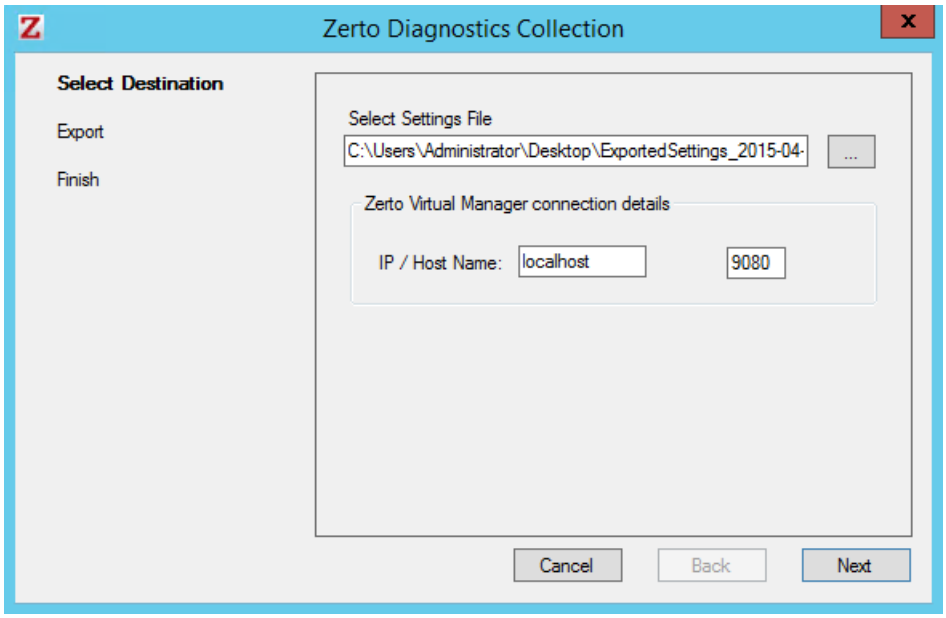
1. Click **Start > Programs > Zerto Virtual Replication > Zerto Diagnostics**.

   The **Zerto Virtual Replication Diagnostics** menu dialog is displayed.



2. Select the **Export Virtual Protection Group (VPG)** settings option and click **Next**.

   Note: Zerto Virtual Replication regularly exports settings to the *Zerto_Installation_Folder*`\Zerto Virtual Replication\ExportedSettings` folder. You can use the last exported file. The default location of *Zerto_Installation_Folder* is `C:\Program Files\Zerto`.



3. Select the destination for the file that will contain the exported settings and enter the Zerto Virtual Manager IP address and port for the protected site.

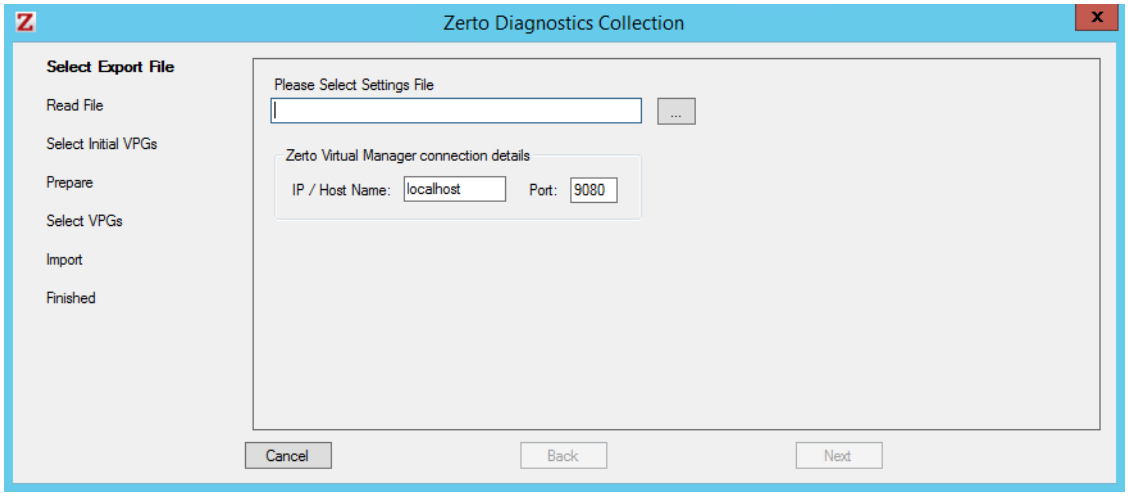
4. Click **Next**.

   The list of exported VPGs is displayed.
5. Click **Done**.
6. In the Zerto User Interface delete the VPGs, and keep their target disks.

   Note: If you did not export the settings, Zerto Virtual Replication regularly exports settings to the *Zerto_Installation_Folder*`\Zerto Virtual Replication\ExportedSettings` folder. You can use the last exported file as input to recreate the VPGs to this point in time. The default location of *Zerto_Installation_Folder* is `C:\Program Files\Zerto`.
7. Uninstall the existing Zerto Virtual Replication version.
8. Install the new Zerto Virtual Replication version, as described in the *Zerto Virtual Replication Installation Guide*.
9. Install the VRAs on the hosts in the site and pair the sites, as described in *Zerto Virtual Replication Installation Guide*.

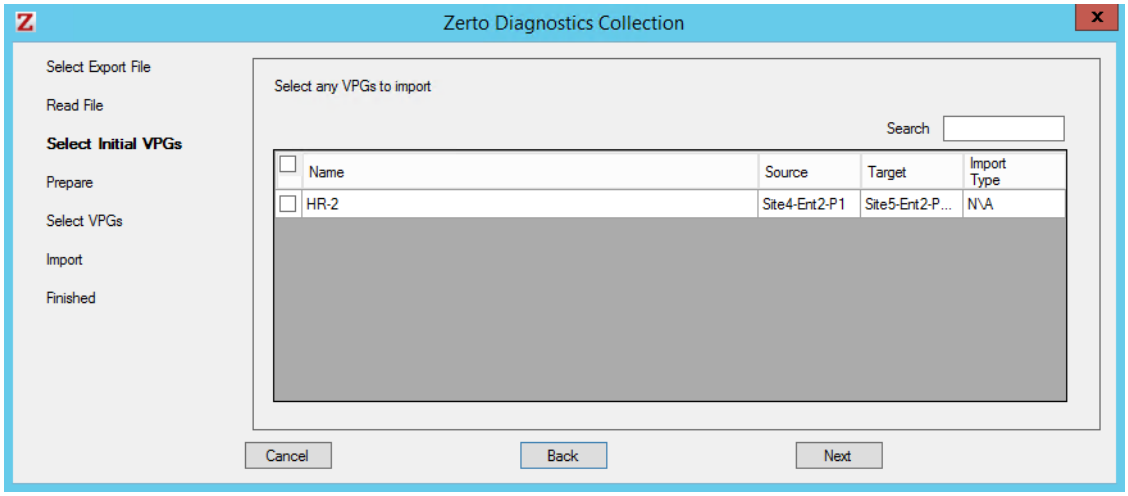
   Note: If the protected site and recovery site are the same for any of the VPGs that were exported, set **Enable replication** to **Self** in the **Advanced Settings** dialog, as described in *Zerto Virtual Manager Administration Guide for the VMware vSphere Environment*.
10. Click **Start > Programs > Zerto Virtual Replication > Zerto Diagnostics**.

    The **Zerto Virtual Replication Diagnostics** menu dialog is displayed.
11. Select **Import Virtual Protection Group (VPG) settings**.
12. Click **Next**.



13. Select the file previously exported and enter the Zerto Virtual Manager IP address and port for the protected site.
14. Click **Next**.

The list of exported VPGs is displayed.



15. Select the VPGs to import. You cannot import VPGs that have the same name as a VPG that is already defined in current installation. If a VPG in the import file has the same name as an existing VPG, it is disabled and is grayed-out.
16. Click **Next**.

    The list of imported VPGs is displayed. If the VPG cannot not be imported, the reason is specified.
17. Click *Done*.

Upgrading VRAs

This section is applicable if *Auto-Upgrade Virtual Replication Appliances* was not selected when upgrading Zerto Virtual Replication, or if a manual VRA upgrade is required.

- If a newer version of the installed VRAs exists, you can continue to use the current VRAs with the new version of Zerto Virtual Replication, or you can upgrade these VRAs from within the Zerto User Interface.
- VRAs installed with the previous version of Zerto Virtual Replication can work with VRAs installed with the current version of Zerto Virtual Replication in any combination (all from one version or a mix of VRA versions) as long as the VRAs are only one version lower than the version of Zerto Virtual Replication installed on the site.
- Zerto **recommends** that you **always upgrade the VRAs** on your site to the latest version.
- Not all new installations of Zerto Virtual Replication require upgrading VRAs. If your VRA is **outdated relative to your current version of Zerto Virtual Replication** and an upgrade is available, the VRA version will be reported in the column as **outdated .** In addition, an alert is issued on the site using the old VRA and on any site that is paired with it.

  Note: You can move the mouse over the `Outdated` value to display the VRA version as a tooltip.

See the following sections:

- "Site Specific Considerations when Upgrading VRAs", on page 44
- "Procedure: Upgrading VRAs", on page 45

Site Specific Considerations when Upgrading VRAs

- *(For **VMWare** Environments)* VRAs managing protected virtual machines: Either **vMotion the protected virtual machines and datastores** managed by the VRA to another host with a VRA, or **upgrade the VRA** without vMotioning the virtual machines and a **bitmap sync** will be performed following the upgrade.
- Upgrading a VRA that manages the **recovery of virtual machines** results in a **bitmap sync** being performed after the upgrade. Note that the time to upgrade a VRA is short so the bitmap sync should also be quick.

Procedure: Upgrading VRAs

Use the following procedure to upgrade your VRAs.

To upgrade VRAs:

1. *For **VMWare** Environments:* For a VRA protecting virtual machines, if **vMotioning** the protected virtual machines:
   a) Remove affinity rules for protected virtual machines on the host with the VRA to be upgraded.
   b) vMotion these protected machines from the host to another host with a VRA.
2. In the Zerto User Interface, click **SETUP > VRAs**, select the VRAs to upgrade, and then click **MORE > Upgrade**.
   The *Upgrade VRAs* dialog is displayed, listing the selected VRAs, and whether an upgrade is available.
3. Review the list for the VRAs that you want to upgrade. Deselect any VRAs that you decide not to upgrade.
4. Click **Upgrade Selected VRAs**.
5. The upgrade progress is displayed in the **VRAs** tab.
   - *(For **VMWare** Environments)* After the upgrade, a **bitmap sync** is performed at both the protected and recovered sites.

   Note: The VRA name does not change, even if the naming convention in the latest version is different.

Upgrading Zerto Virtual Replication PowerShell Cmdlets

When upgrading Zerto Virtual Replication PowerShell cmdlets, make sure that **Windows PowerShell** is **closed** before installing the new version.

Upgrading or Reinstalling VMware Components

Prior to installation or upgrade, see VMware documentation for complete information regarding installation and upgrading of VMware products.

Before beginning the installation or upgrade, verify that your **version of Zerto Virtual Replication** supports the **new VMware version**.

See the Zerto Virtual Replication Interoperability Matrix for the list of VMware environments supported by this version of Zerto Virtual Replication.

See the following sections:

- "Upgrading a vCenter Server", on page 46
- "Reinstalling a vCenter Server", on page 46
- "Upgrading vCloud Director", on page 46
- "Upgrading VMware Tools", on page 46
- "Upgrading or Reinstalling a Host", on page 46

Upgrading a vCenter Server

- Zerto recommends that you **upgrade a vCenter Server** rather than reinstalling it.
- When upgrading **both** vCenter and an ESX/ESXi, you must **first upgrade the vCenter**.
- Zerto Virtual Replication components are **not affected by a vCenter Server upgrade**. Protection continues and no additional procedures are required.
- When upgrading a vCenter Server, make sure that you **preserve** the **vCenter database**. Preserving the existing database is required in order to continue using the existing Zerto Virtual Replication installation.

  Note: If the recovery vCenter Server service is stopped, recovery operations are not possible until the service is restarted.
- When upgrading a vCenter Server make sure to close the ZVM UI.

Reinstalling a vCenter Server

If you need to **reinstall the vCenter Server, including rebuilding the database**, contact **Zerto support** for help throughout the re-installation.

Upgrading vCloud Director

- Zerto recommends that you **upgrade vCD** rather than reinstalling it.
- Zerto Virtual Replication components are **not affected by a vCD upgrade**. Protection continues, and no additional procedures are required.
- When **upgrading vCD** from version **1.5**, to **5.1 or higher**, you must change the **storage profile** for **each** protected virtual machine from `*` (any) to a **valid storage profile** to use for that virtual machine. Contact Zerto support for help with the upgrade of VPGs.
- If you need to **reinstall vCloud Director**, contact **Zerto support** for help throughout the re-installation.

Upgrading VMware Tools

You do not need to upgrade VMware Tools on a VRA.

Upgrading or Reinstalling a Host

When upgrading **both** vCenter and an ESX/ESXi, you must **first upgrade the vCenter**.

When **upgrading**, including applying **patches**, or **reinstalling a host with an active VRA**:

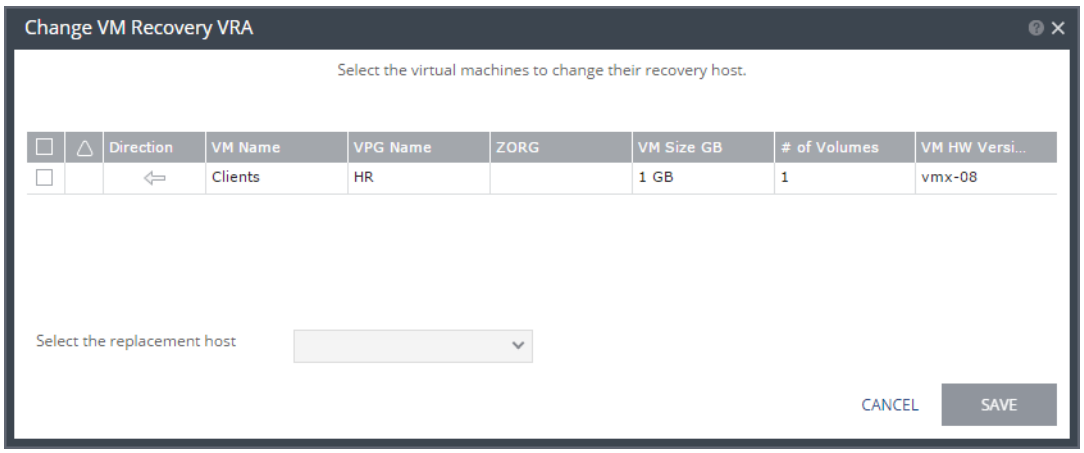
1. First change the **recovery host of every virtual machine in every VPG that recovers to this host**, to avoid a `Delta Sync` after the host has been upgraded and the VRA started up.
2. Then **upgrade the host**. You can move the virtual machines to a different host from within the Zerto User Interface, as described below, or by using cmdlets, as described in *Zerto Virtual Replication PowerShell Cmdlets Guide*.

Use the following procedure.

To change a recovery VRA:

1. In the Zerto User Interface, click *SETUP* > *VRAs*.
2. Select the VRA to change and click *MORE* > *Change VM Recovery VRA*.

The *Change VM Recovery VRA* dialog is displayed, listing all the virtual machines being recovered on that host.



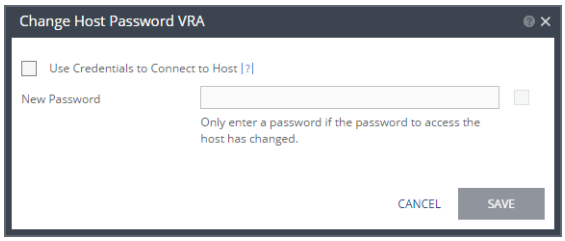
3. Review the list and select the virtual machines to change the target host to another specified target host.
4. Select the target host for these virtual machines in the `Select the replacement host` drop-down list.

   You can move some virtual machines to one replacement target host, and then by repeating the operation, you can move other virtual machines to a different target host.
   - Validation is performed to make sure the selected target host can be used. For example, the datastores used by both the VRAs are accessible from both hosts.
   - Any implications of the change, such as whether synchronization might be required after the change is also displayed.
5. Click *SAVE*.
   - The VPG recovery host definitions are changed and the affected target data, including the journals, storage vMotioned to the VRA under the replacement host.
   - During this procedure you **cannot edit the affected VPGs** nor attempt a failover, move, failover test, or clone operation.
   - At the end of the procedure a **Delta Sync might be required** to resynchronize the protected machines with the recovery VRAs.
     - In order not to affect the recover ability of other VPGs replicating to the VRA, a **new virtual machine is created** to handle moving the disks.
     - This virtual machine is named **Z-VRAH-ESXi*hostname-xx***, where *hostname* is the name of the ESXi host where the original VRA is installed and *xx* is a unique index used for the virtual machine, with a format of *yy-xxxx* or *xxxx*.
6. Repeat this procedure for all the virtual machines.
7. VRAs installed using a password to access the host, that require the password to be updated, for example, when the host is upgraded, must be updated with the new password.

   To do this, see the following procedure.

1. **To change the host password required by a VRA:**In the Zerto User Interface, click *SETUP* > *VRAs*.
2. Select the VRAs that need to be updated and click *MORE* > *Change Host Password*.

   The *Change Host Password VRA* dialog is displayed.



3. To change the connection method or host password, do one of the following:
   - If the VRA is using a password to connect to the host and should use vSphere Installation Bundle, VIB, uncheck *Use credentials to connect to host*.

- If the VRA is using VIB to connect to the host and should use a password, check *Use credentials to connect to host* and enter the password. To display the password in plain text, click in the box next to the field.
- If the VRA is connecting to the host with a password and the password for the host has changed, enter the new password. To display the password in plain text, click in the box next to the field.

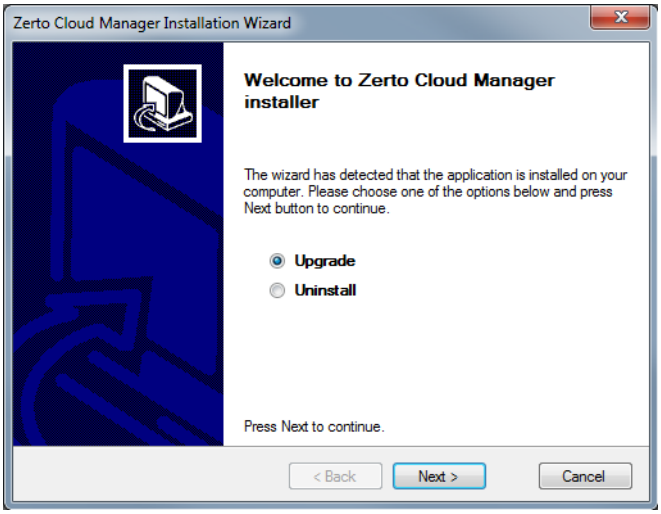
4. Click *SAVE*.

Upgrading Zerto Cloud Manager

The Zerto Cloud Manager version must be the same as the Zerto Virtual Manager version.

An upgrade of the Zerto Cloud Manager moves all configuration definitions from the old version to the new version.

The installation checks for an existing installation and if an existing installation is identified, that is one version lower than the new version, you can upgrade or uninstall the existing version.



You must upgrade Zerto Virtual Replication and Zerto Cloud Manager in parallel, making sure that you **upgrade** the version of Zerto Cloud Manager **before** you upgrade the version of **Zerto Virtual Replication** which is run by the **CSP**. This is done so that they are never more than one version apart.

To upgrade the version:

1. Run `Zerto Cloud Manager Installer.exe`.
   The Zerto Cloud Manager Installation Wizard is displayed.
2. Select **Upgrade** and click **Next**.
   The upgrade proceeds automatically.

Upgrading Zerto Cloud Connectors

Zerto Cloud Connectors do not require upgrading when a new Zerto Virtual Replication version is released.