

Zerto

Zerto Virtual Replication Installation Guide

Microsoft Azure Environment

Version 6.5

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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 using a Long Term Retention process mechanism.

You install a Zerto Cloud Appliance (ZCA) in the Azure site that is to be used for recovery. The Zerto Cloud Appliance is comprised of the following:

Zerto helps customers accelerate IT transformation by eliminating the risk and complexity of modernization and cloud adoption. By replacing multiple legacy solutions with a single IT Resilience Platform™, Zerto is changing the way disaster recovery, retention and cloud are managed. This is done by providing enterprise-class disaster recovery and business continuity software for virtualized infrastructure and cloud environments.

In on-premise environments, Zerto Virtual Replication is installed with virtual machines to be protected and recovered.

In public cloud environments, Zerto Cloud Appliance (ZCA) is installed in the public cloud site that is to be used for recovery.

The installation includes the following:

- **Zerto Virtual Manager (ZVM):** A Windows service that manages everything required for the replication between the protection and recovery sites, except for the actual replication of data. The ZVM interacts with the hypervisor management user interface, such as vCenter Server or Microsoft SCVMM, to get the inventory of VMs, disks, networks, hosts, etc. and then the Zerto User Interface manages this protection. The ZVM also monitors changes in the hypervisor environment and responds accordingly. For example, a VMware vMotion operation, or Microsoft Live Migration of a protected VM from one host to another is intercepted by the ZVM and the Zerto User Interface is updated accordingly.
 - For the maximum number of virtual machines, either being protected or recovered to that site, see [Zerto Scale and Benchmarking Guidelines](#).
 - **Virtual Replication Appliance* (VRA):** A virtual machine installed on each hypervisor hosting virtual machines to be protected or recovered, to manage the replication of data from protected virtual machines to the recovery site.
 - For the maximum number of volumes, either being protected or recovered to that site, see [Zerto Scale and Benchmarking Guidelines](#).
- Note:** *In vSphere installations, OVF to enable installing Virtual Replication Appliances.
- **Virtual Backup Appliance (VBA):** A Windows service that manages File Level Recovery operations within Zerto Virtual Replication.
 - **Zerto User Interface:** Recovery using Zerto Virtual Replication is managed in a browser or, in VMware vSphere Web Client or Client console.

When Zerto Virtual Replication is installed to work with an on-premise hypervisor it also comprises the following component:

- **Data Streaming Service (DSS):** Installed on the VRA machine, and runs in the same process as the VRA. It is responsible for all the retention data path operations.

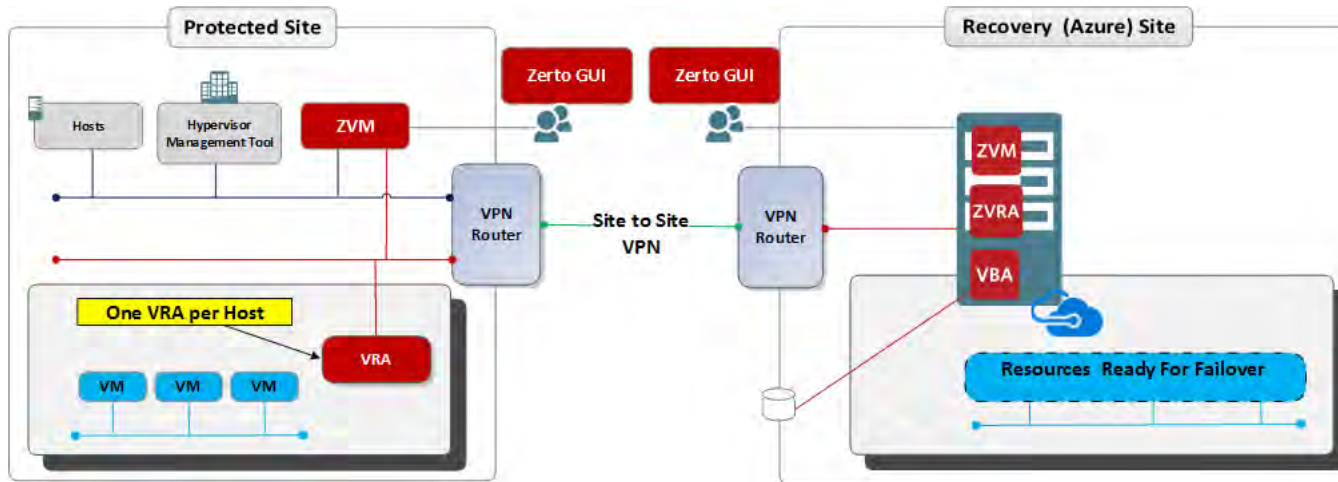
The following topics are described in this section:

- [“Zerto Virtual Replication Architecture in Azure Environments”, below](#)
- [“Requirements - Zerto Virtual Replication in Microsoft Azure Environments”, on page 5](#)
- [“Database Requirements in Microsoft Azure Environments”, on page 5](#)
- [“Firewall Considerations in Microsoft Azure Environments”, on page 6](#)
- [“Deploy Zerto Cloud Appliance from Azure Marketplace Portal”, on page 7](#)
- [“Installing Zerto Virtual Replication in Microsoft Azure Environments”, on page 9](#)
- [“Installing Zerto Virtual Replication Cmdlets”, on page 21](#)
- [“Uninstalling Zerto Virtual Replication”, on page 21](#)

Zerto Virtual Replication Architecture in Azure Environments

The following diagram shows how the main components of Zerto Virtual Replication are deployed across protected sites and Azure to provide disaster recovery.

Note: For cloud-based architecture diagrams for cloud service providers, see Zerto Cloud Manager Installation Guide



Zerto Virtual Replication can be installed at multiple sites, all of which can be paired to Azure. For information about the ports used by Zerto Virtual Replication, see ["Firewall Considerations in Microsoft Azure Environments"](#), on page 6.

Requirements - Zerto Virtual Replication in Microsoft Azure Environments

For complete and detailed requirements, see [Enterprise Guidelines for Microsoft Azure Environments](#).

Database Requirements in Microsoft Azure Environments

During the Zerto Virtual Manager installation, the user is able to select whether to install and use an **embedded** SQL Server (**localdb**) as the database.

Alternatively, and also during the installation, the user is able to choose whether to instead select and use an **external** SQL Server instance. To use an externally managed database, during the installation select the **Custom Installation** option.

The larger the environment protected by Zerto Virtual Manager, the larger the database size required to support it.

Supported **Microsoft SQL Server** versions: **2008, and higher**.

Before installing Zerto Virtual Manager, click to thoroughly review the following guides:

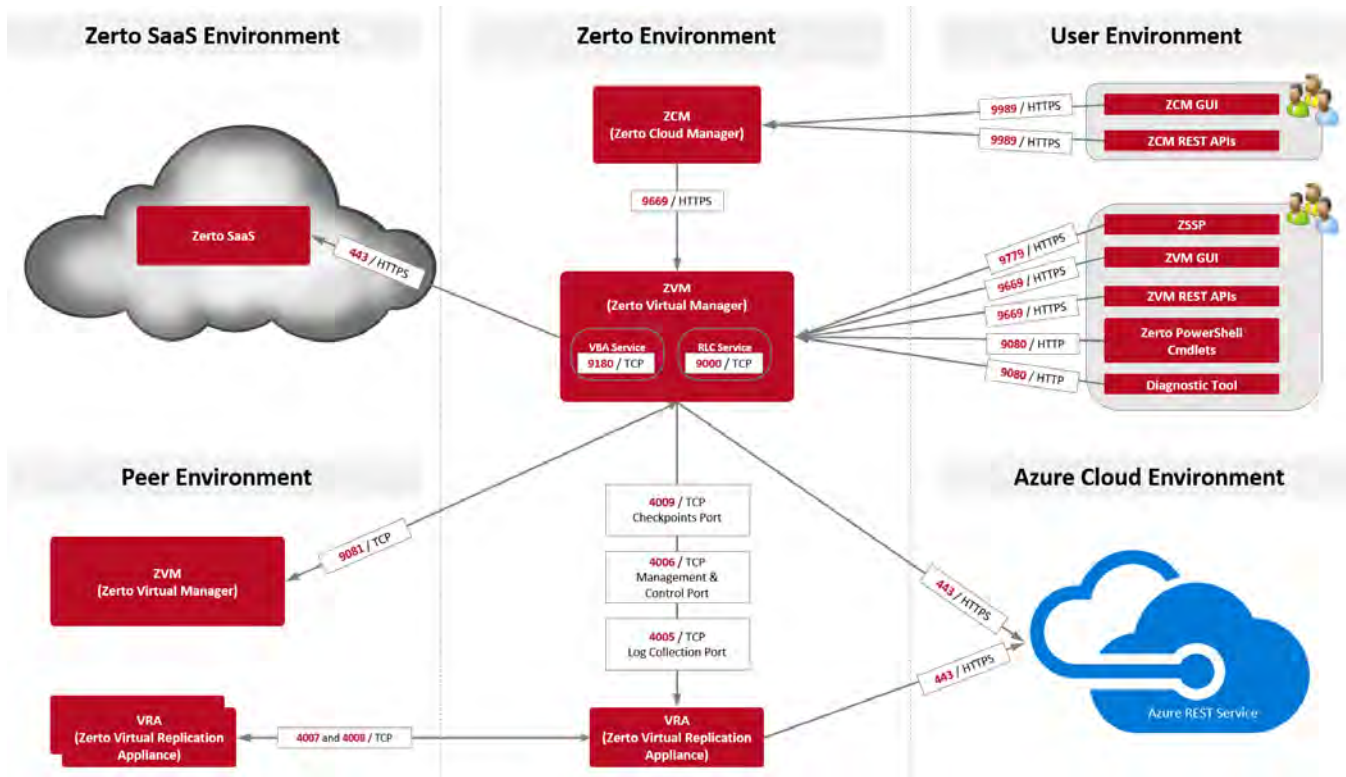
- [Migrating the Zerto Virtual Replication Database to Microsoft SQL Server](#).
- [Zerto Scale and Benchmarking Guidelines](#).

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.

Firewall Considerations in Microsoft Azure Environments

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



The following table provides basic information about the ports shown in the above diagram by Zerto Virtual Replication. Zerto Cloud Appliance (ZCA) requires the following **ports** to be open in the **Azure site firewall**, set in the **Azure network security group**:

PORT	DESCRIPTION
443	Required between the ZVM and the Azure Cloud environment.
443	Required between the Azure REST Service 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.
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.

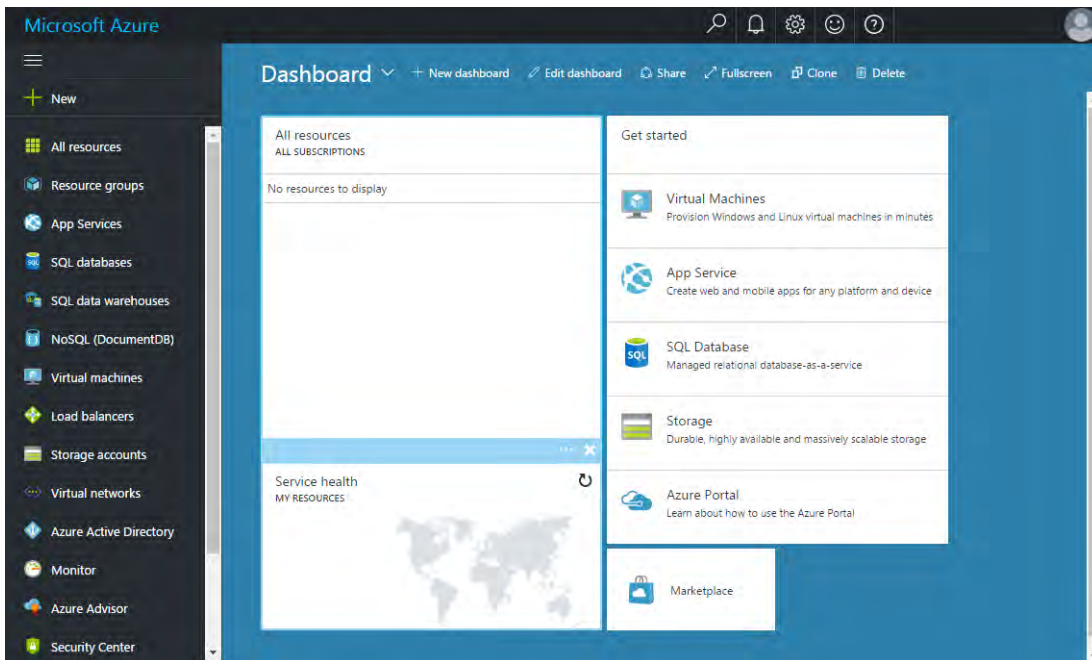
*The default port provided during the ZVR installation which can be changed during the installation.

Deploy Zerto Cloud Appliance from Azure Marketplace Portal

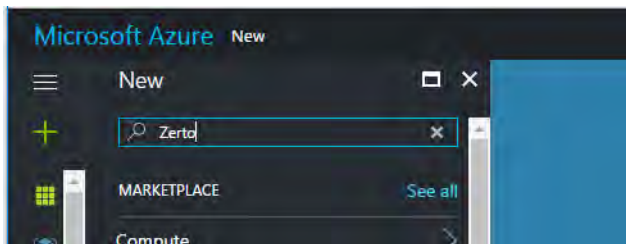
In order to install Zerto Virtual Replication, you must first deploy Zerto Cloud Appliance VM. You will find Zerto Cloud Appliance in the Azure marketplace portal.

To deploy Zerto from the Microsoft Azure Marketplace:

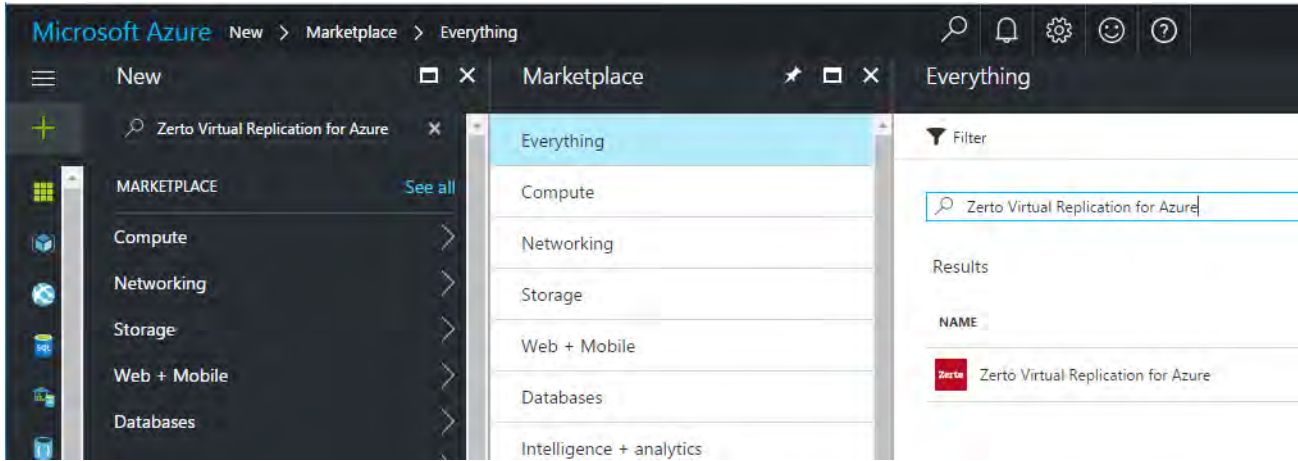
1. Enter the URL: <https://portal.azure.com>. The Microsoft Azure portal opens.



2. In the left pane at the top, click **New**, and in the search field that appears, enter the text **Zerto**. The predefined name, Zerto Virtual Replication for Azure, appears in a drop-down.



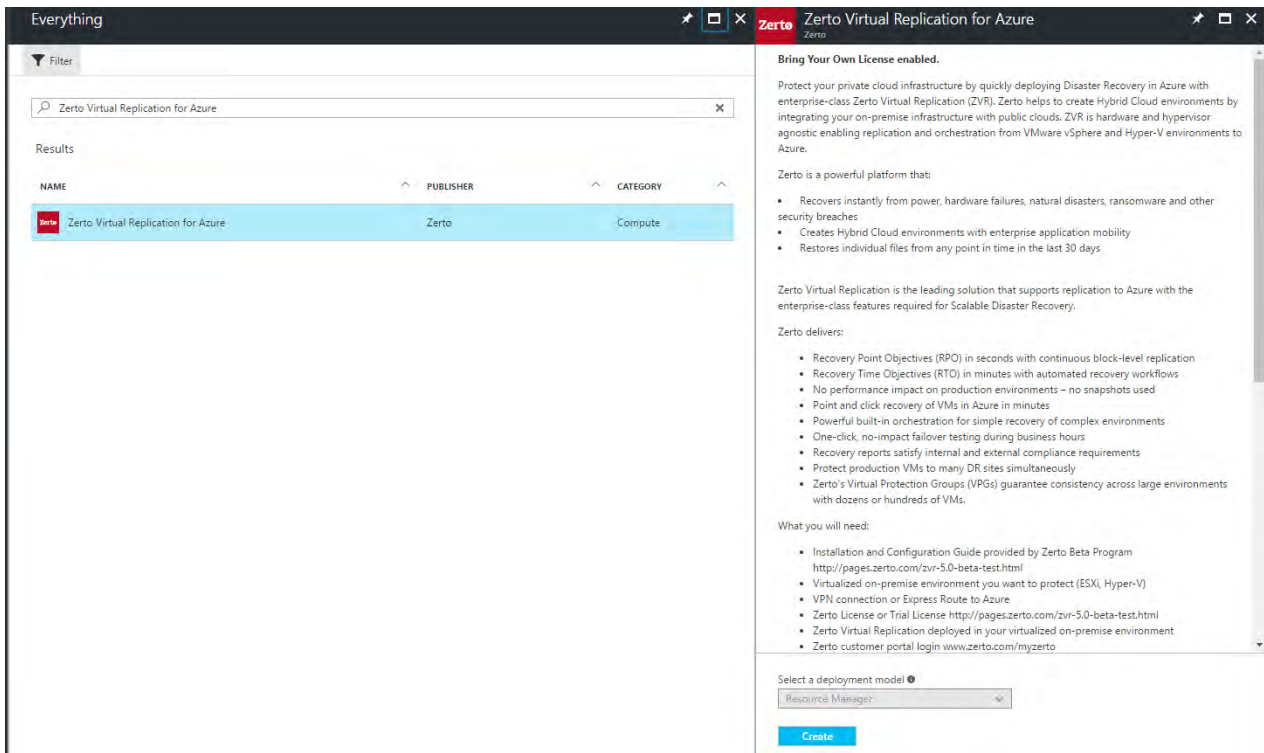
3. Select the predefined name, **Zerto Virtual Replication for Azure**. The Zerto Virtual Replication for Azure application appears in the right pane.



4. Click the Zerto Virtual Replication for Azure application icon.



The Zerto Virtual Replication for Azure application page appears.
Scroll down to read the section What you will need, and verify



5. Click **Create**, then define and deploy the VM. This VM is your **Zerto Cloud Appliance**.

6. Log into the Zerto Cloud Appliance VM, and install Zerto Virtual Replication. To do this, continue with “[Installing Zerto Virtual Replication in Microsoft Azure Environments](#)”, on page 9.

Installing Zerto Virtual Replication in Microsoft Azure Environments

The process of installing the Zerto Virtual Manager in Azure also installs the Virtual Replication Appliance and the Zerto Backup Appliance.

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

- [“Performing an Express Installation”, below](#)
- [“Performing a Custom Installation”, on page 12](#)

Performing an Express Installation

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

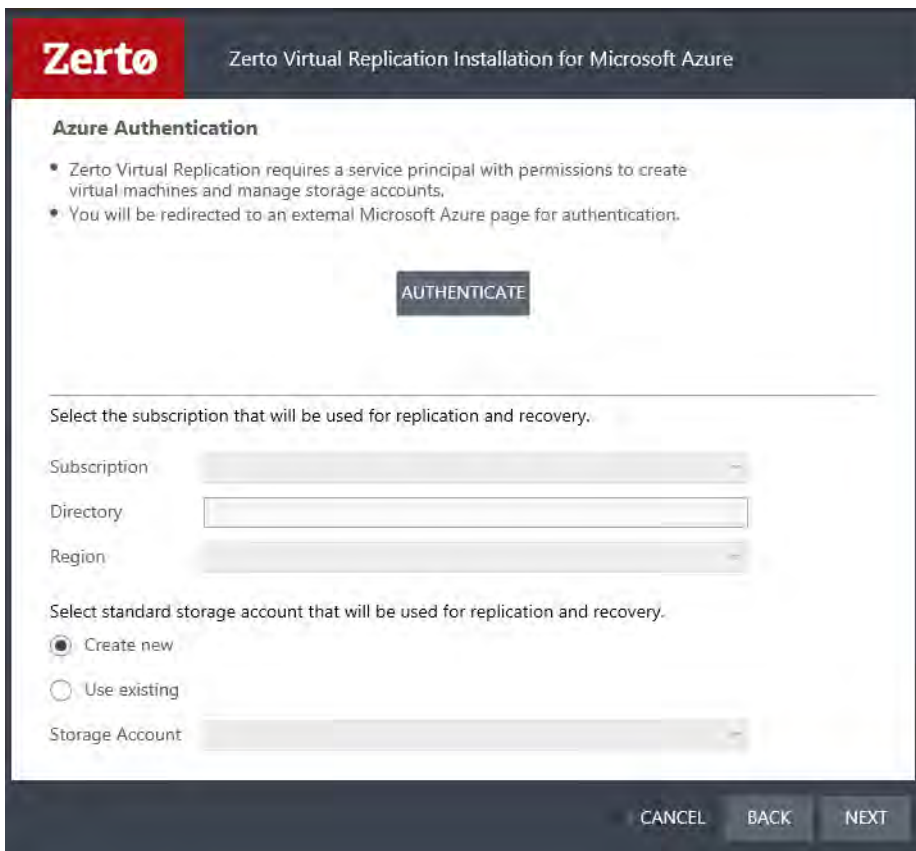
Before you Begin:

- Make sure you deployed Zerto Cloud Appliance.
- Make sure you reviewed [“Database Requirements in Microsoft Azure Environments” on page 5.](#)

To perform an express install of Zerto Virtual Replication:

1. Run the Zerto Virtual Replication Installer for Microsoft Azure.
2. Follow the wizard through the installation until the window for the Installation Type and select the **Express Installation** option.
3. Click **NEXT**.

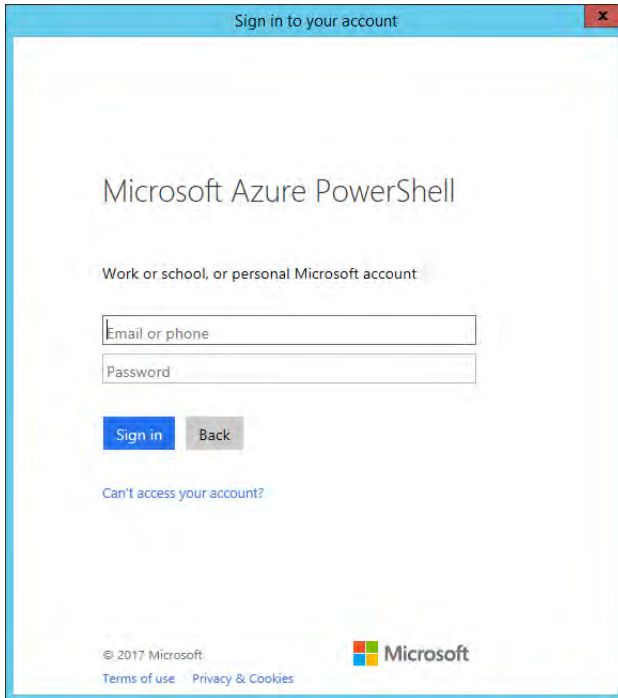
The Azure Authentication window is displayed.



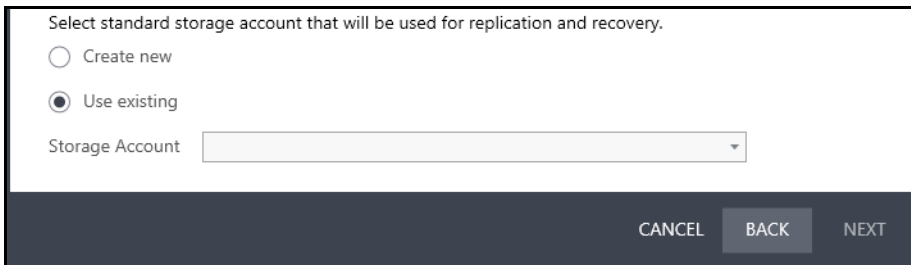
The screenshot shows the 'Azure Authentication' window of the Zerto Virtual Replication Installer. The window title is 'Zerto Virtual Replication Installation for Microsoft Azure'. The main heading is 'Azure Authentication'. Below the heading, there are two bullet points: 'Zerto Virtual Replication requires a service principal with permissions to create virtual machines and manage storage accounts.' and 'You will be redirected to an external Microsoft Azure page for authentication.' A large 'AUTHENTICATE' button is centered below the text. Below the button, there is a section titled 'Select the subscription that will be used for replication and recovery.' with three dropdown menus: 'Subscription', 'Directory', and 'Region'. Below that, there is a section titled 'Select standard storage account that will be used for replication and recovery.' with two radio buttons: 'Create new' (selected) and 'Use existing'. Below the radio buttons is a 'Storage Account' dropdown menu. At the bottom right of the window, there are three buttons: 'CANCEL', 'BACK', and 'NEXT'.

4. To proceed, click **AUTHENTICATE**.

An external Microsoft Azure authentication window is displayed.



5. In the **external Microsoft Azure authentication page**, specify the following:
 - a) The email or phone number of the account who is the Azure subscription User Access Administrator. For instruction on how to add a user as a subscription User Access Administrator, see <https://azure.microsoft.com/en-us/documentation/articles/role-based-access-built-in-roles/>.
 - b) The password of the account.
 - c) Click **Sign in**.
6. The **Region** where ZCA is installed is automatically populated in the Azure Authentication window.
7. Select a **Subscription**. Only subscriptions **related to the region** where the ZCA is installed are displayed.
8. Once you select a subscription, a **Directory related to the subscription** is populated.
9. Define a **new** storage account that will be used for replication and recovery **or** select one from a list of **existing storage accounts** in the drop down menu.



BEST PRACTICE: It is recommended to use a separate storage account per ZCA. Although Azure ZCAs can use the same storage account for protecting VMs, the system does not recognize if the two ZCAs are protecting the same VM, even if they're not paired to each other.

10. Selecting an existing storage account is available under the following **conditions**:
 - The site where the Zerto Virtual Replication is installed is of version **5.5.1 and higher**.
 - The site paired to the site where Zerto Virtual Replication is installed is of version **5.5 and higher**.
11. By default, the **Create new** storage account option is selected.
12. To select an existing storage account, click **Use existing**. When you select this option, the drop down menu becomes active.

- Only **Standard storage accounts** existing in the **selected region and subscription** are displayed in the storage account drop down menu.

NOTES:

- General-purpose v1 (GPv1) accounts are supported
- Blob Storage accounts are not displayed for selection since the Blob Storage account type is not supported.

- If you selected an **existing** storage account, the account is automatically **tagged** with a **Zerto unique tag**.
- If you selected **Create New** in the **Storage Account field**, the installation creates a **new** resource group and a **Standard** storage account.
- When a storage account is either **created or selected**, the following occurs:
 - The **journal and recovery disks** are created in the storage account.
 - The selected storage account appears in **Site Settings**, in the Site Information tab.
- Click **NEXT**.
The Connectivity window is displayed.

Zerto Zerto Virtual Replication Installation for Microsoft Azure

Connectivity

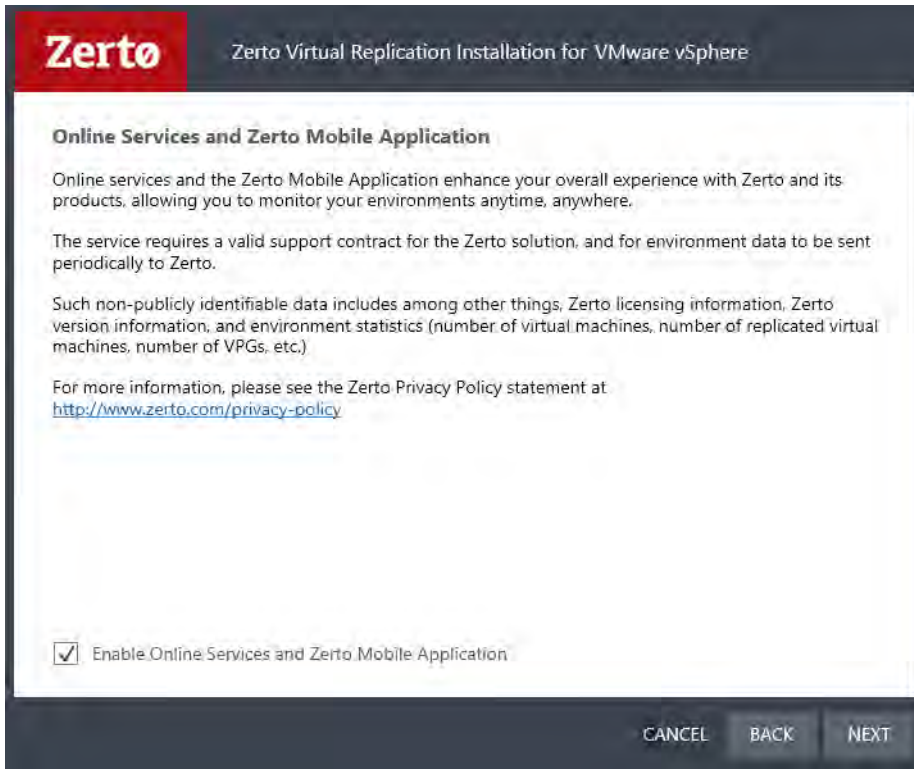
Select the IP address of the machine on which you are installing the Zerto Cloud
The protected site accesses the Azure site through VPN using this IP.

IP Address: 172.49.0.88

Site Name:

CANCEL BACK NEXT

- Select the IP address of the machine on which you are installing the Zerto Cloud Appliance. The protected site accesses the Azure site through VPN using this IP.
- Specify a name to identify this site.
- Click **NEXT**.
The Online Services and Zerto Mobile Application window is displayed.



21. Click **NEXT**.
22. If you reached the subscription's **maximum limit of storage accounts**, a message appears informing the user that creating a new storage account has **failed**.
23. After the checks complete successfully, click **RUN** and continue to the end of the installation.
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 Azure instance on which you installed the Zerto Virtual Manager. In this user interface you set up Zerto Virtual Replication, as described in "[Initial Configuration](#)", on page 20.
24. 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.

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.

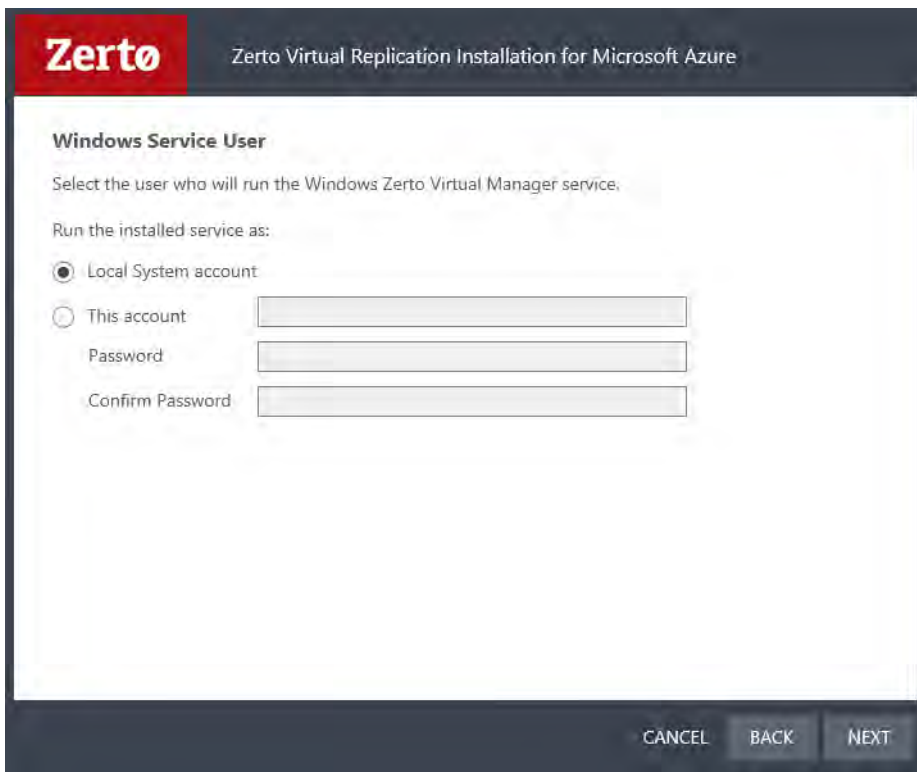
Before you Begin:

- Make sure you deployed Zerto Cloud Appliance.
- Make sure you reviewed "[Database Requirements in Microsoft Azure Environments](#)" on page 5.

To perform a custom install of Zerto Virtual Replication:

1. Run the Zerto Virtual Replication Installer for Microsoft Azure.
2. Follow the wizard through the installation until the window for the *Installation Type* and select the **Custom Installation** option.
3. Click **NEXT**.

The Windows Service User window is displayed.



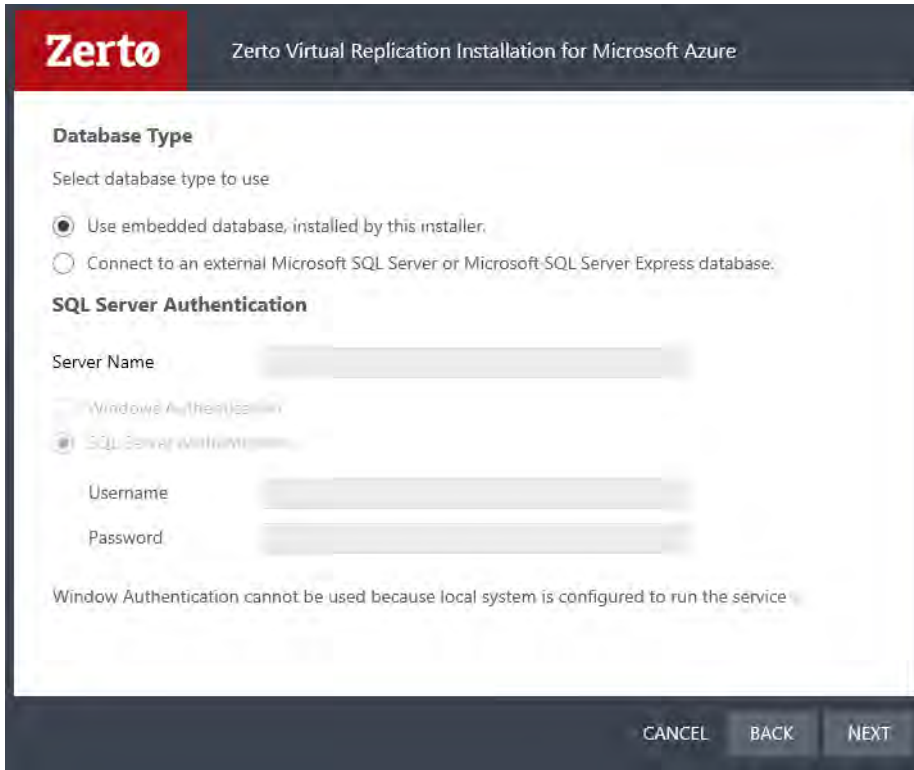
4. Select either **Local System account** or **This account**:

- **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.

Note: The account under which the Zerto Virtual Manager service runs must be able to authenticate against the Azure Active Directory Server if login authentication to the Zerto Virtual Manager is to be handled by Azure Active Directory.

5. Click **NEXT**.

The Database Type window is displayed.



Information required by Zerto Virtual Replication is stored 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 Appliance and the volumes it uses, and points-in-time recorded for recovery purposes. By default an embedded SQL-based database is used, but you can use an externally managed database, either Microsoft SQL Server or SQL Server Express.

Note: Protection and recovery can only be performed when the database is running. Therefore, if you use an external database and it is down for any reason, protection and the possibility of recovery ceases.

- To use the embedded database, leave the default, or select the option to connect to an external Microsoft SQL Server database.

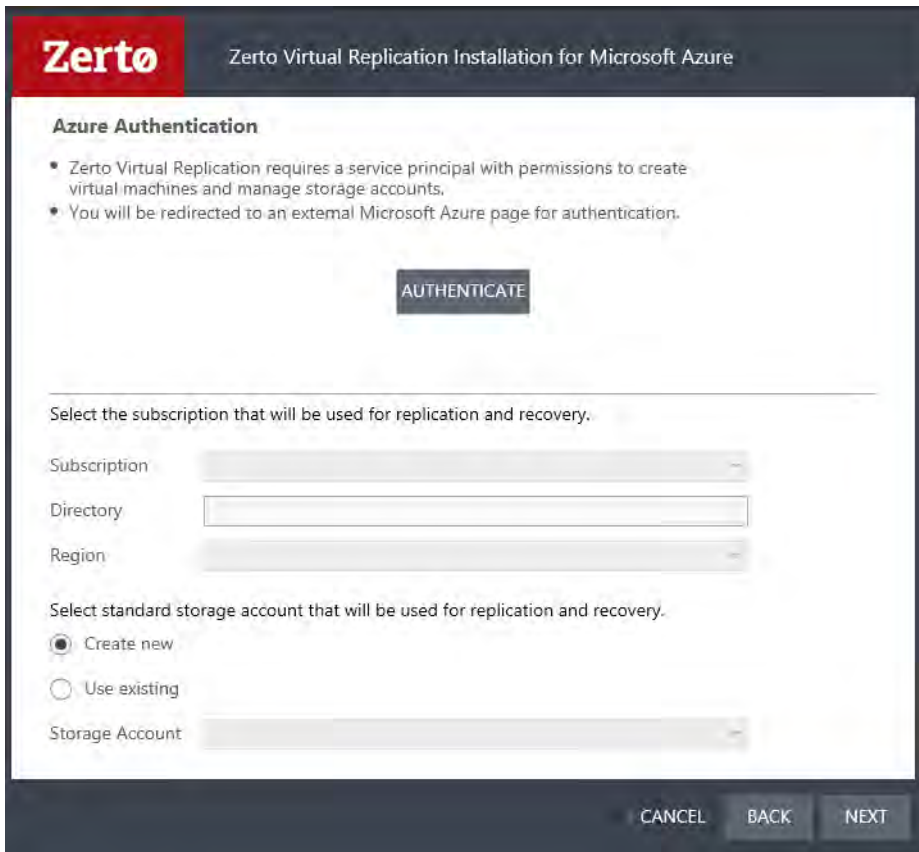
Zerto recommends using SQL Server when a site has more than 40 hosts that have virtual machines that need protecting, and the site has more than 400 virtual machines that need protecting.

If you select the external database option, the SQL Server Authentication section is enabled.

- Enter the following details to enable access to the SQL Server database:
 - Server Name:** The domain name and server instance to connect to, with the format **<server_name>\<instance_name>** or **<Server_IP>\<instance_name>**
 - Specify one of the following authentication options:
 - Windows Authentication:** Use Windows authentication. This option is only enabled if a specific service user account was specified in the previous Windows Service User dialog, in which case the service account name and password are used.
 - SQL Server Authentication:** Use SQL Server authentication.
 - Username:** The user name for the SQL Server database.
 - Password:** A valid password for the given user name.
 - When you select SQL Server authentication and enter a user name and password, click **TEST AUTHENTICATION**, which is displayed.

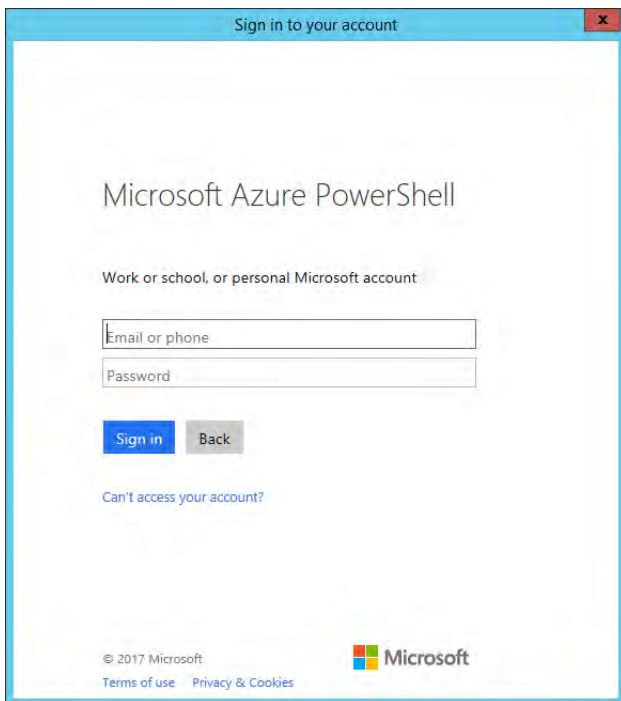
The installer checks whether it can connect to the specified database with the specified username and password. You can only continue when the authentication is successful.
- Click **NEXT**.

The Azure Authentication window is displayed.



8. Click **AUTHENTICATE**.

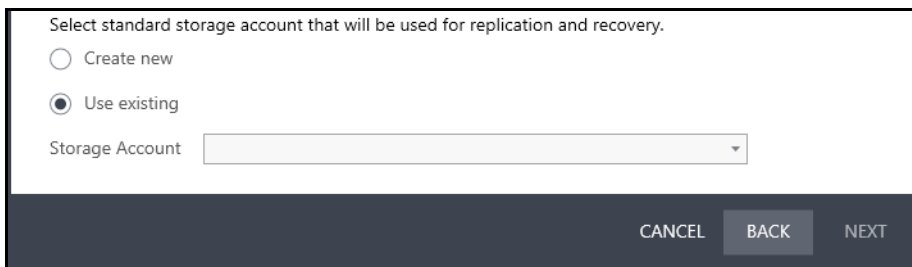
An external Microsoft Azure authentication window is displayed.



9. In the **external Microsoft Azure authentication page**, specify the following:
a) The email or phone number of the account who is the Azure subscription User Access Administrator.

For instruction on how to add a user as a subscription User Access Administrator, see <https://azure.microsoft.com/en-us/documentation/articles/role-based-access-built-in-roles/>.

- b) The password of the account.
 - c) Click **Sign in**.
10. The **Region** where ZCA is installed is automatically populated in the Azure Authentication window.
 11. Select a **Subscription**. Only subscriptions **related to the region** where the ZCA is installed are displayed.
 12. Once you select a subscription, a **Directory related to the subscription** is populated.
 13. Define a **new** storage account that will be used for replication and recovery **or** select one from a list of **existing storage accounts** in the drop down menu.



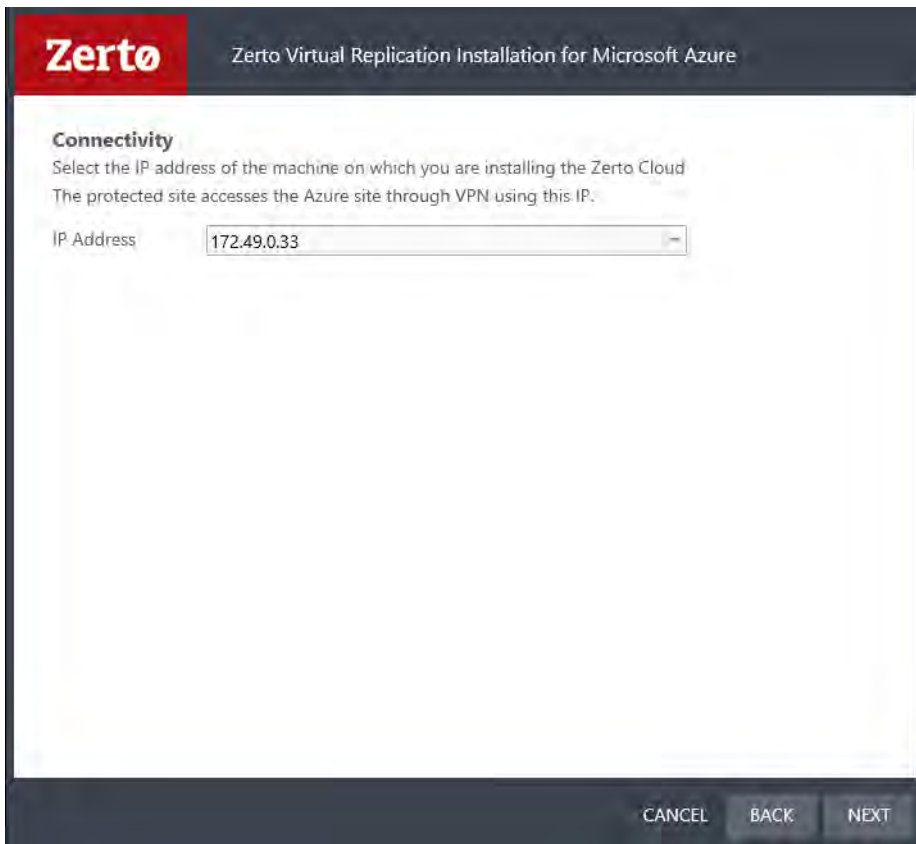
BEST PRACTICE: It is recommended to use a separate storage account per ZCA. Although Azure ZCAs can use the same storage account for protecting VMs, the system does not recognize if the two ZCAs are protecting the same VM, even if they're not paired to each other.

14. Selecting an existing storage account is available under the following **conditions**:
 - The site where the Zerto Virtual Replication is installed is of version **5.5.1 and higher**.
 - The site paired to the site where Zerto Virtual Replication is installed is of version **5.5 and higher**.
15. By default, the **Create new** storage account option is selected.
16. To select an existing storage account, click **Use existing**. When you select this option, the drop down menu becomes active.
17. Only **Standard storage accounts** existing in the **selected region and subscription** are displayed in the storage account drop down menu.

NOTES:

- General-purpose v1 (GPv1) accounts are supported
- Blob Storage accounts are not displayed for selection since the Blob Storage account type is not supported.

18. If you selected an **existing** storage account, the account is automatically **tagged** with a **Zerto unique tag**.
19. If you selected **Create New** in the **Storage Account** field, the installation creates a new resource group and a **Standard** storage account.
20. When a storage account is either **created or selected**, the following occurs:
 - The **journal and recovery disks** are created in the storage account.
 - The selected storage account appears in **Site Settings**, in the Site Information tab.
21. Click **NEXT**.
The Connectivity page is displayed.



22. Select the IP address of the machine on which you are installing the Zerto Cloud Appliance. The protected site accesses the Azure site through VPN using this IP.
23. Click **NEXT**.

The Zerto Virtual Manager Site Details window is displayed.

Zerto Zerto Virtual Replication Installation for Microsoft Azure

Zerto Virtual Manager Site Details

Enter details to identify the Zerto Virtual Manager site in vCenter Server. The details can be changed after the installation.

Site Name

Location

Contact Information

Contact Email

Contact Phone

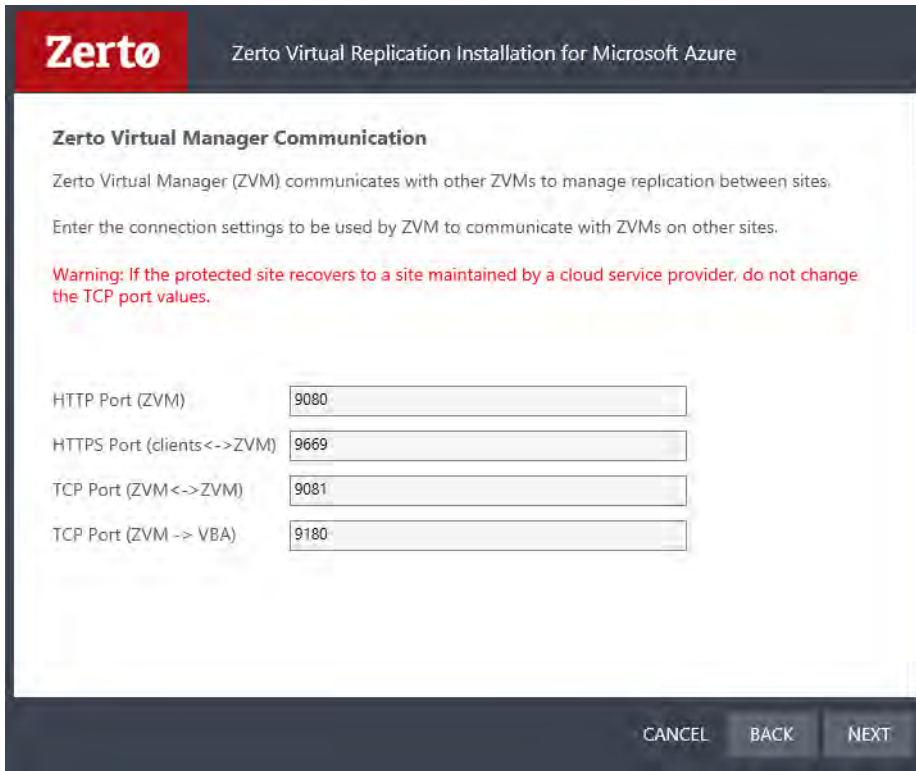
CANCEL BACK NEXT

24. 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. Optional.
- **Contact Information:** The name of the person to contact if a need arises. Optional.
- **Contact Email:** The email address to contact if a need arises. Optional.
- **Contact Phone:** The phone number to contact if a need arises. Optional.

25. Click **NEXT**.

The Zerto Virtual Manager Communication window is displayed.



PORT DESCRIPTION PARAMETER	COMMUNICATION DIRECTION	BETWEEN...	COMMENTS
HTTP Port (ZVM)	Inbound	Zerto Virtual Manager - and - Zerto internal APIs, and Cmdlets	
HTTPS Port (clients<->ZVM)	Inbound	Zerto User Interface - and - Zerto Virtual Manager	
TCP Port (ZVM<->ZVM)	Inbound and outbound	Zerto Virtual Manager - and - Zerto Virtual Manager	If you change the value, when pairing sites, use the TCP port value you specify here. Pairing the sites is described in "Pairing an Azure Site" , on page 24.
TCP Port (ZVM->VBA)	Inbound and outbound	Zerto Virtual Manager - and - Virtual Backup Appliance (VBA)	

26. Click **NEXT**.
 The Validation window is displayed. The installation checks that the installation can proceed successfully.
27. If you reached the subscription's **maximum limit of storage accounts**, a message appears informing the user that creating a new storage account has **failed**. After you see that Zerto Virtual Replication can be installed successfully, click **RUN** and continue to the end of the installation.

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 Azure instance on which you installed the Zerto Virtual Manager. In this user interface you set up Zerto Virtual Replication, as described in [“Initial Configuration”](#), on page 24.

28. 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.

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:

1. 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.

2. 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*.

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 Zerto Cloud Appliance.
- All the virtual protection groups defined to protect virtual machines, including all the target disks managed by the Zerto Cloud Appliance for the virtual machines that were being protected.

If, for any reason, a Zerto Cloud Appliance cannot be removed, contact Zerto support.

You manage the protection and replication of virtual machines 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, as described in [“Adding a Security Certificate for the Zerto User Interface”](#), below. Zerto also provides a set of RESTful APIs and PowerShell cmdlets to enable incorporating some of the disaster recovery functionality within scripts or programs.

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.

To use the Zerto Virtual Manager Web Client:

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 Azure site. Ensure that port 9669 is open and set as an inbound rule in the security group of the instance where Zerto Virtual Replication is installed.
2. Log in using the user name and password of the instance in Azure on which you installed the Zerto Cloud Appliance.

Adding a Security Certificate for the Zerto User Interface

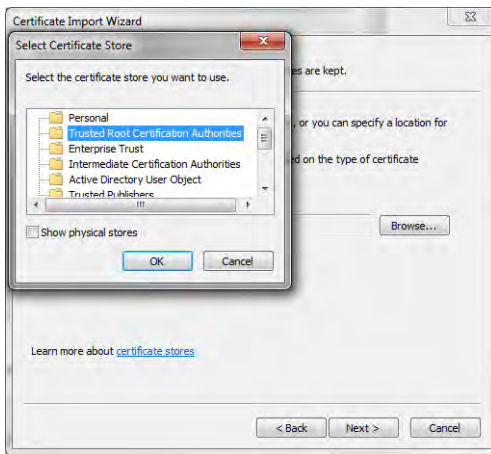
Communication between the Zerto Virtual Manager and the user interface uses HTTPS. On the first login to the Zerto User Interface, you must install a security certificate in order to be able to continue working without each login requiring acceptance of the security.

To install a security certificate for the Zerto User Interface:

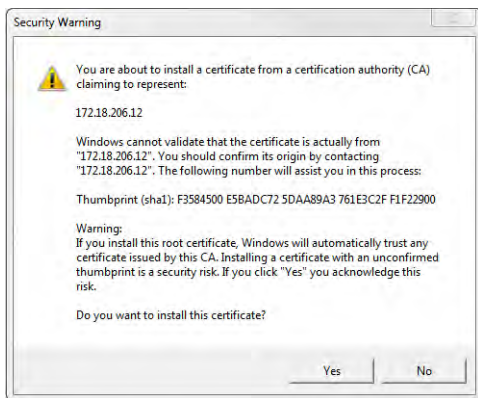
On first access to the Zerto User Interface, if you haven't installed the security certificate, a security alert is issued.

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.

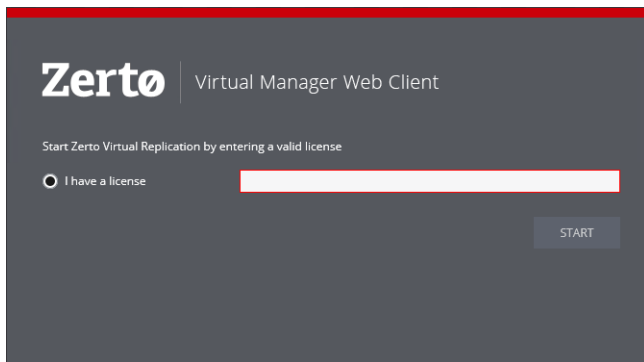
After installing Zerto Virtual Replication, you configure the site. Zerto Virtual Replication is configured and managed from within the Zerto User Interface. This section describes the initial configuration required after installing Zerto Virtual Replication.

The following topics are described in this section:

- “Registering the Zerto Virtual Replication License”, below
- “Pairing an Azure Site”, on page 24

Registering the Zerto Virtual Replication License

When you first access the Zerto User Interface, you must register your use of Zerto Virtual Replication by entering the Zerto Cloud Appliance (ZCA) license, or Zerto Virtual Replication Enterprise Cloud Edition (ZVRCE) license supplied by Zerto.



After entering a valid license, the *DASHBOARD* tab is displayed with a summary of the site.

In order to protect virtual machines to Azure, you must first pair the protected site containing the virtual machines that you want to protect with the Azure site on which you installed the Zerto Cloud Appliance. This is described in “Pairing an Azure Site”, below.

Pairing an Azure Site

Zerto Virtual Replication is installed on both the protected and Azure sites and these two sites are paired to enable disaster recovery across the sites.

To pair sites:

1. In the Zerto User Interface, in the *SITES* tab click *PAIR*.
The *Add Site* dialog is displayed.



You cannot pair to any of the following:

- Another Azure site.

Initial Configuration

- An AWS site.
 - Any site running Zerto Virtual Replication prior to Zerto Virtual Replication version 5.0.
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 on the protected site is connected to - paired with - the Zerto Virtual Manager on the Azure site.

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

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:

- [“Guidelines to Upgrading Zerto Virtual Replication”, on page 26](#)
- [“Upgrading Multiple Sites Running Different Versions”, on page 28](#)
- [“Upgrading To More Than One Version Higher”, on page 29](#)
- [“Upgrading Zerto Virtual Replication PowerShell Cmdlets”, on page 31.](#)
- [“Upgrading Zerto Cloud Manager”, on page 32](#)
- [“Upgrading Zerto Cloud Connectors”, on page 32](#)

Guidelines to Upgrading Zerto Virtual Replication

Before upgrading, review the following documents for **compatibility**:

- [Product Version Lifecycle Matrix for Zerto Virtual Replication](#)
- [Zerto Virtual Replication Interoperability Matrix](#)
- [Zerto Scale and Benchmarking Guidelines](#)

Then, review the following considerations:

- Zerto recommends upgrading to the **latest version** of Zerto Virtual Replication that supports the environment you are using. See 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.
 - When upgrading from versions prior to Zerto Virtual Replication 6.0U2, changing the Journal Size Hard Limit requires restarting the VRAs.
 - During an upgrade from v6.0x to v6.5, all back up and repositories configurations are deleted.
- Note:** Upgrade releases are considered to be upgrades of the same version. Releases 6.0, 6.0U1, 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:
5.0, 5.0Ux	5.5Ux
5.5, 5.5Ux	6.0Ux
6.0Ux	6.5

- You do **not** need to move workloads during an upgrade.
- When upgrading a protected vSphere or Hyper-V environment, after the upgrade, a bitmap sync is performed for VPGs on the protected VRA.
- In a Hyper-V environment, SCVMM 2016 is supported on ZVR installations from version 6.0x.
- Zerto Cloud Appliance is supported for Azure and AWS (ZCA) on:
 - Windows 2016
 - Windows 2012R2
- 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)
4.5, 4.5Ux	5.0, 5.0Ux	5.5, 5.5Ux
5.0, 5.0Ux	5.5, 5.5Ux	6.0, 6.0Ux
5.5, 5.5Ux	6.0, 6.0Ux	6.5

- See the following sections:
- [“Before Upgrading Zerto Virtual Replication”, on page 27](#)
- [“Upgrading the Current Installation”, on page 27](#)
- [“Upgrading Environments Which are Connected to Zerto Cloud Manager”, on page 28](#)

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 may temporarily cause 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.

Note:

- **VRAs** from the **existing** installation are **not automatically upgraded** when upgrading Zerto Virtual Replication.
- Zerto recommends that you always upgrade the VRAs on your site to the latest version.
- 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 upgrade** these VRAs from within the Zerto User Interface.

To upgrade the version:

1. Run the Zerto Virtual Replication installation executable for your environment.
The Zerto Replication Installation Wizard is displayed.
2. Select *Upgrade* and click *Next*.

The upgrade proceeds automatically.

3. Proceed to **completion**.

Upgrading Environments Which are Connected to Zerto Cloud Manager

For environments using the Zerto Cloud Manager:

- Upgrade the Zerto Cloud Manager **before** upgrading the **Zerto Virtual Managers**.
- Zerto Cloud Manager (ZCM) supports Zerto Virtual Manager (ZVM) of N and N-1 versions.
For Example: ZCM of version 6.0 supports ZVM of versions 6.0, 5.5 and their updates.
- 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.

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.

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 5.0U3, which are paired to a site running 5.5U4.
- You are planning to upgrade to 6.0U2.
- Upgrade first the 5.0U3 site to a 5.5U4 version, and then both of the sites to 6.0U2.

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

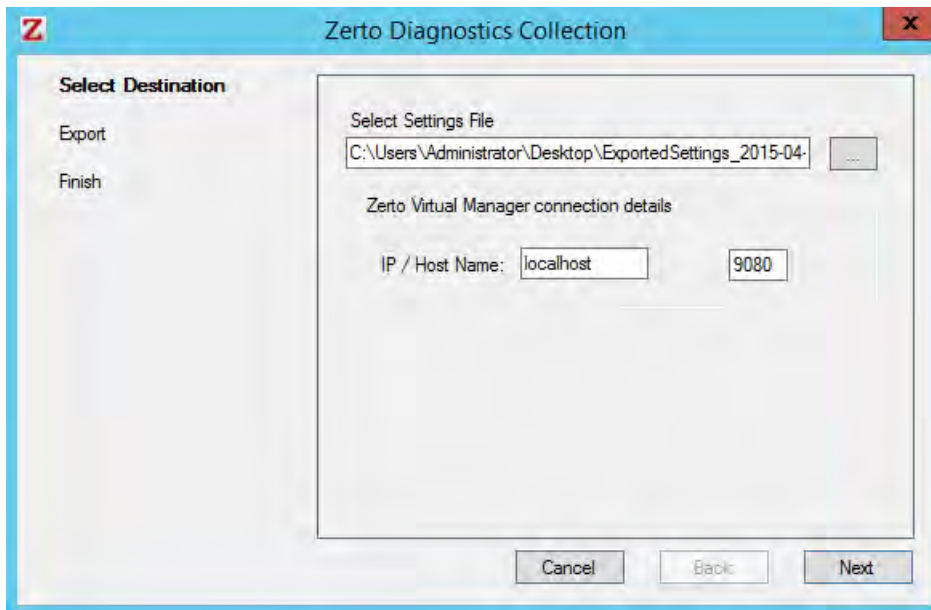
To upgrade Zerto Virtual Replication using the Zerto Diagnostics utility:

1. Click **Start > Programs > Zerto Virtual Replication > Zerto Diagnostics**.
The Zerto Virtual Replication Diagnostics menu dialog is displayed.

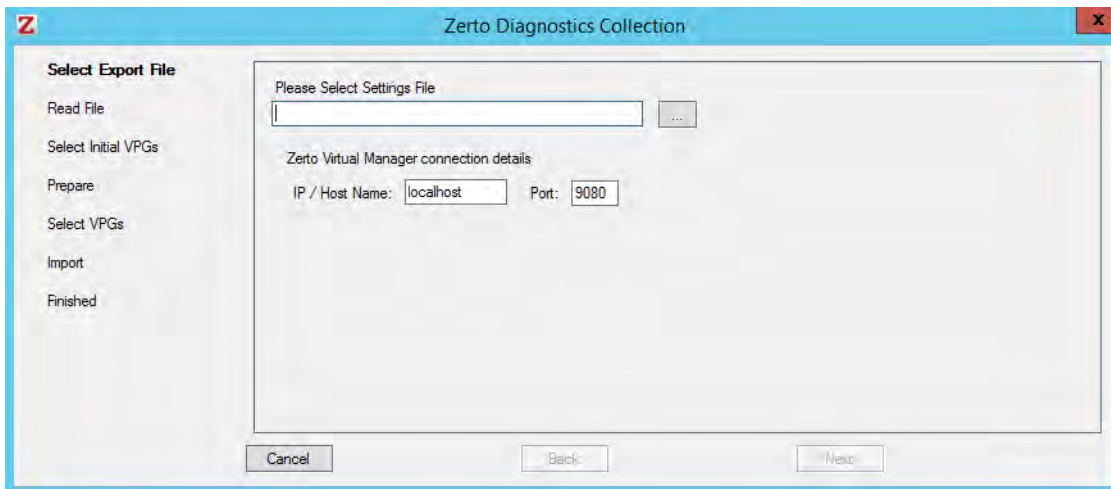


2. Select the **Export Virtual Protection Group (VPG) settings** option and click **Next**.

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



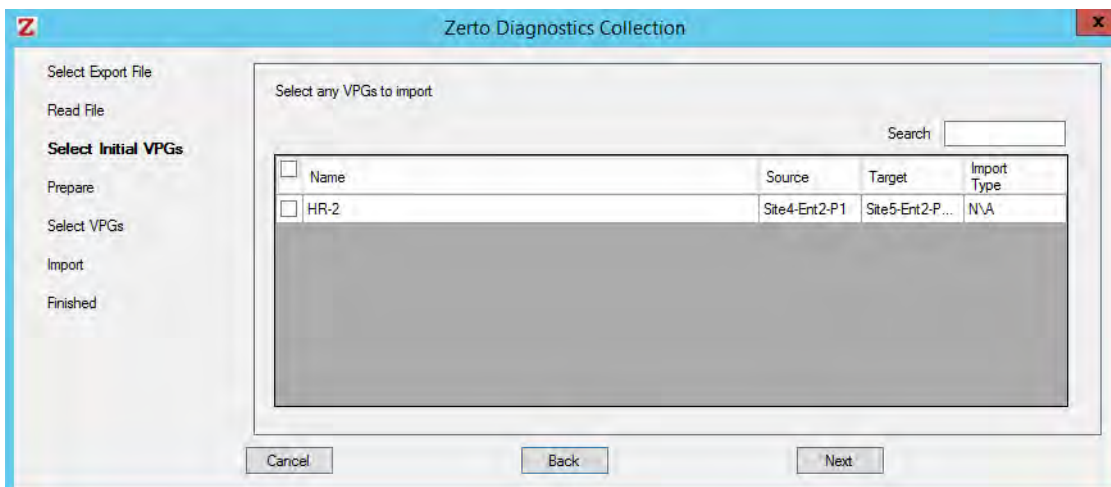
3. Select the destination for the file that will contain the exported settings and enter the Zerto Virtual Manager IP address and port for the protected site.
4. Click **Next**.
The list of exported VPGs is displayed.
5. Click **Done**.
6. In the Zerto User Interface delete the VPGs, and keep their target disks.
Note: If you did not export the settings, Zerto Virtual Replication regularly exports settings to the folder **<Zerto_Installation_Folder>\Zerto Virtual Replication\ExportedSettings**. 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 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 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. If an existing installation is identified, that is one version lower than the new version, you can upgrade or uninstall the existing version.



IMPORTANT!

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.

Upgrading Zerto Cloud Manager

Zerto helps customers accelerate IT transformation by eliminating the risk and complexity of modernization and cloud adoption. Replacing multiple legacy solutions with a single IT Resilience Platform, Zerto is changing the way disaster recovery, data protection and cloud are managed. With unmatched scale, Zerto's software platform delivers continuous availability for an always-on customer experience while simplifying workload mobility to protect, recover and move applications freely across hybrid and multi-clouds. Zerto is trusted by over 6,000 enterprise customers globally, and is powering resiliency offerings for Microsoft Azure, IBM Cloud, AWS, Sungard and more than 350 cloud services providers.

For assistance using Zerto Virtual Replication, contact: @Zerto_Support.