

Zerto Virtual Replication is installed in a site with virtual machines to be protected as well as in the site where these virtual machines will be recovered.

This document describes **Zerto Virtual Replication - Prerequisites and Requirements for Microsoft Hyper-V Environments**.

For the requirements of VMware, Microsoft Azure or AWS protected sites, go to [myZerto > Technical Documentation](#) portal.

- The Zerto Virtual Replication installation includes:
 - A **Zerto Virtual Manager (ZVM)**: This is a Windows service, and manages replication at the site level.
 - A **Virtual Replication Appliance (VRA)**: This is a virtual machine installed on each Hyper-V host to move the data to be replicated from the protected to the recovery site.
 - A **Virtual Backup Appliance (VBA)**: This is a Windows service and manages offsite backups within Zerto Virtual Replication on each site. The VBA service runs on the same machine as the Zerto Virtual Manager service.
- Zerto Virtual Replication can be installed at **multiple** sites and each site can be paired to any other site.
- Each site is managed with the **Zerto User Interface**.
- Zerto Virtual Replication also supports both the **protected** and **recovery** sites being **managed by one SCVMM**, for small branch offices. For example, from one datacenter to another datacenter, both managed by the same SCVMM.

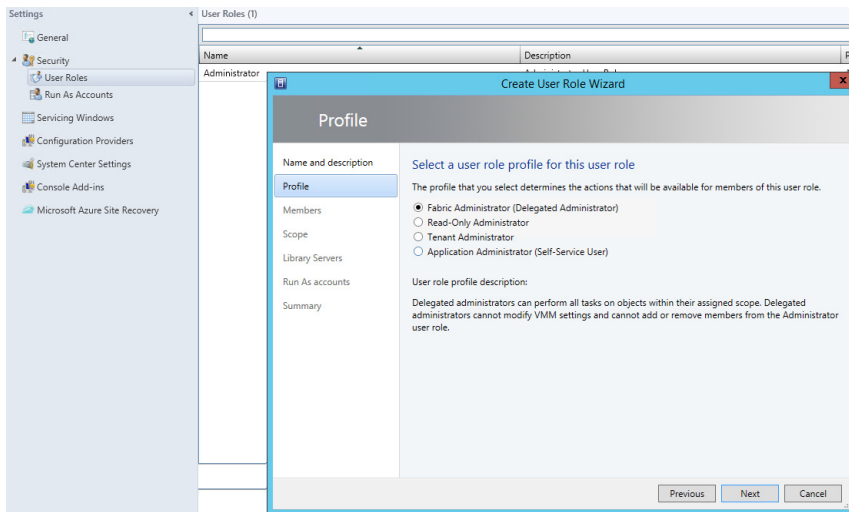
See the following sections:

- [“For Each Zerto Virtual Replication Hyper-V Site”, on page 1](#)
- [“Considerations and Guidelines”, on page 2](#)
- [“For Virtual Replication Appliances on the Hyper-V Host”, on page 3](#)
- [“Routable Networks”, on page 3](#)
- [“Minimum Bandwidth”, on page 3](#)
- [“Requirements for the Zerto Virtual Manager Web Client”, on page 3](#)
- [“Recommended Best Practices for the Zerto Virtual Replication Hyper-V Site”, on page 4](#)
- [“Open Firewall Ports for Hyper-V Environments”, on page 5](#)

For Each Zerto Virtual Replication Hyper-V Site

- **Microsoft System Center 2012 R2, or 2016 with VMM (SCVMM)** and at least one **Hyper-V host**.
- Only 2012 R2 and 2016 Hyper-V hosts are supported.

- The Zerto Virtual Manager must have access to **SCVMM** via a user with **administrator level privileges to SCVMM**.
 - The user must be a member of an SCVMM User Role with a Fabric Administrator (Delegated Administrator) profile, accessible via *Settings > Security > User Roles* in the SCVMM Console.



- On the machines where **Zerto Virtual Replication** is installed:
 - 64-bit Operating System
 - The Operating system version number must be 6.1 or higher
 - The Windows operating system must be Server Edition
 - Supported Operating Systems:
 - Windows Server 2008 R2 SP1 with KB3033929 and KB2864202
 - Windows Server 2012 base
 - Windows Server 2012 R2
 - Windows Server 2016
 - Microsoft **.NET Framework 4.5.2. or higher**
 - The 4.5.2 installation executable is **included** as part of the Zerto Virtual Replication installation kit and it needs an additional **1.8GB of free disk space**
 - If you install .NET Framework 4.5.2 as part of the Zerto Virtual Replication installation, you will be prompted to restart
 - Minimum PowerShell version: **4.0**
 - Reserve at least **2 CPUs** and **4GB RAM** for the machine.

The following CPU and RAM are **recommended** by Zerto for the machine running Zerto Virtual Replication, dependent on the size of the site:

 - Sites protecting **up to 750** virtual machines and **up to 5** peer sites: 2 CPUs and 4GB RAM
 - Sites protecting **751-2000** virtual machines and **up to 15** peer sites: 4 CPUs or 2 Dual Core CPUs and 4GB RAM
 - Sites protecting **over 2000** virtual machines and **over 15** peer sites: 8 CPUs or 4 Dual Core CPUs and 8GB RAM
 - The **clocks** on the machines where Zerto Virtual Replication is installed must be **synchronized with UTC** and with each other (the timezones can be different). Zerto recommends synchronizing the clocks using NTP.
 - At least **4GB** of free disk space.
 - 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.

Considerations and Guidelines

- The following **restriction** applies 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.

For Virtual Replication Appliances on the Hyper-V Host

To **install a VRA** you require the following on the **Hyper-V host**:

- **15GB** storage space
- At least **1GB** of **reserved memory**.
- **Port 8100** must be enabled on **SCVMM**.
- Minimum PowerShell version: **4.0**
- The following PowerShell cmdlet has been run:

```
Install-WindowsFeature -Name Hyper-V -IncludeManagementTools -Restart
```

You must know the following information to install a VRA:

- 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.
- If a **static IP** is used, instead of DHCP, which is the Zerto recommendation, you need to know 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.

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.

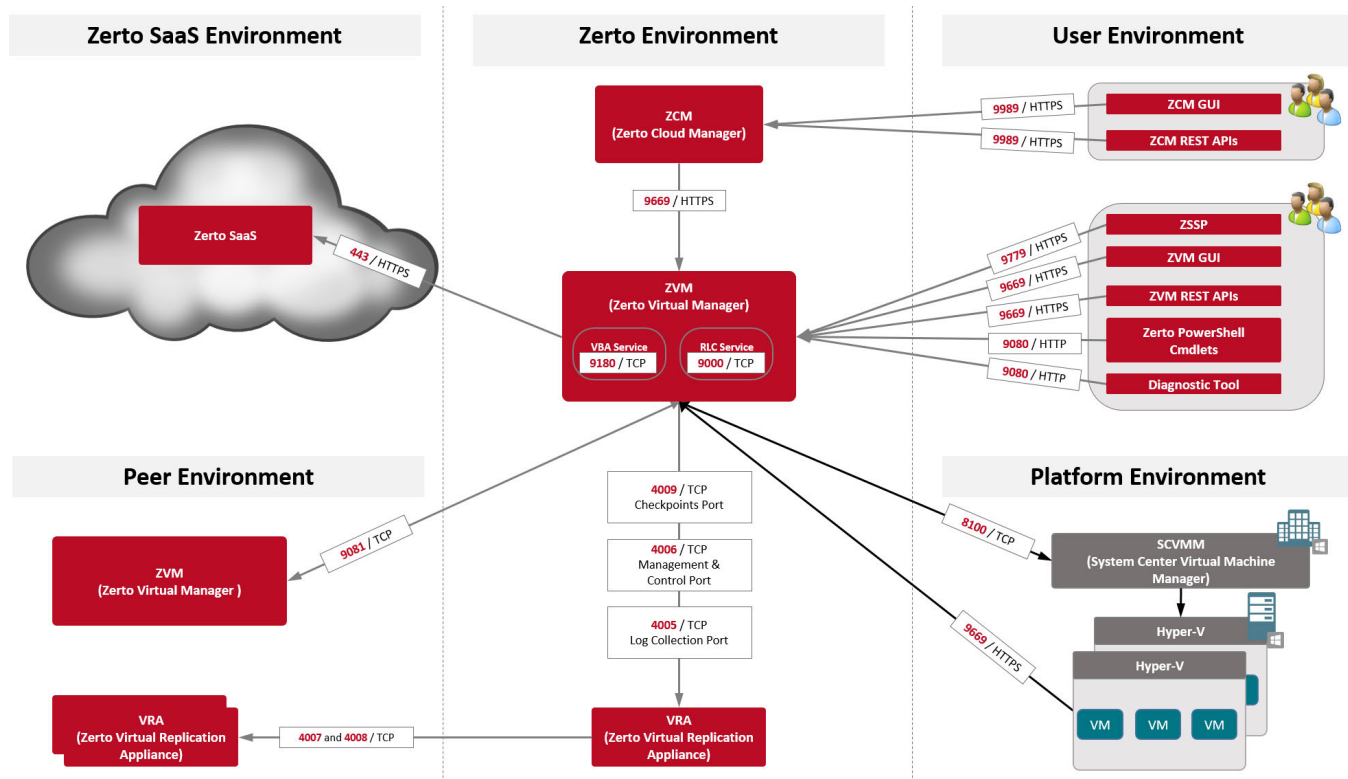
Recommended Best Practices for the Zerto Virtual Replication Hyper-V Site

Zerto recommends the following best practices:

- 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 the `VM Restart Policy` set to `High`.
- 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.
- Install a VRA on every host in a cluster so that if protected virtual machines are moved from one host to another, there is always a VRA to protect the moved virtual machines.
- Install VRAs using static IP addresses and not DHCP.

Open Firewall Ports for Hyper-V Environments

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 any of the other sites.

Zerto Virtual Replication supports both the protected and recovery sites being managed by a single System Center Virtual Machine Manager. For example, in the following scenario:

- From a branch office, to the main office, both managed by the same System Center Virtual Machine Manager.
- From one host to a second host, both managed by the same System Center Virtual Machine Manager.
- To the same host but using different storage for recovery.

it is recommended to install Zerto Virtual Replication in the main office site where protected machines will be recovered.

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

PORT	PURPOSE
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.
8100	Communication between the ZVM and the SCVMM (System Center Virtual Machine Manager).
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.

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

**When the same System Center Virtual Machine Manager is used for both the protected and recovery sites, Zerto Virtual Replication is installed on one site only and this port can be ignored.

PORT	PURPOSE
9081*	<p>Communication between paired ZVMs**</p> <p>Note:</p> <ul style="list-style-type: none"> ■ When a single SCVMM is used for both protection and recovery, only one ZVM is installed and port 9081 is not used. ■ Recovery to a different SCVMM uses port 9081 between the ZVMs in each site.
9180*	Communication between the ZVM and the VBA.
9669*	<p>Communication between ZVM and ZVM GUI and ZVM REST APIs, and the ZCM.</p> <p>Communication between every Hyper-V host and the Zerto Virtual Manager.</p>

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

**When the same System Center Virtual Machine Manager is used for both the protected and recovery sites, Zerto Virtual Replication is installed on one site only and this port can be ignored.

Open Firewall Ports for Hyper-V Environments

ABOUT ZERTO

Zerto is committed to keeping enterprise and cloud IT running 24/7 by providing scalable business continuity software solutions. Through the Zerto Cloud Continuity Platform, organizations seamlessly move and protect virtualized workloads between public, private and hybrid clouds. The company's flagship product, Zerto Virtual Replication, is the standard for protection of applications in cloud and virtualized datacenters.

www.zerto.com

For further assistance using Zerto Virtual Replication, contact [@Zerto Support](https://twitter.com/ZertoSupport).