

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. The installation includes:

- A *Zerto Virtual Manager (ZVM)*, a Windows service and manages the replication at the site level, and the ability to install *Virtual Replication Appliances (VRAs)*, virtual machines installed on each ESX/ESXi host to move the data to be replicated from the protected to recovery site.
- A *Virtual Backup Appliance (VBA)*, a Windows service that 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.

All sites can be managed from a centralized user interface, the *Zerto Cloud Manager (ZCM)*, a Windows service, or each site can be managed separately via a Zerto user interface, accessed from a browser or from within the vSphere Web Client or Client console. Zerto Virtual Replication is installed on both the protected and recovery sites. Zerto Virtual Replication also supports both the protected and recovery sites being managed by a single vCenter Server, for small branch offices. For example, from one datacenter to another datacenter, both managed by the same vCenter Server¹.

For Each Site

- VMware vCenter Server version 4.0U1 and higher with at least one ESX/ESXi host. The Zerto Virtual Manager must have access to the vCenter Server via a user with administrator level privileges to the vCenter Server.
- On the machines where Zerto Virtual Replication is installed:
 - Windows Server 2003 SP2 or higher, or Windows Server 2008, 2008R2, 2012 or 2012R2 using a subnet accessible by other Zerto Virtual Replication sites.
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, depending 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.
Note that installing Zerto Virtual Replication on a 32-bit Windows operating system limits the memory to 2GB. This limits the number of virtual machines that can be protected.
 - Microsoft .NET Framework 4 (included with the Zerto Virtual Replication installation kit) or higher.
 - At least 4GB of free disk space (plus 1.8GB if you need to install Microsoft .NET Framework).

For Virtual Replication Appliances

To install a VRA you require the following:

- 12.5GB datastore space.
- At least 1GB of reserved memory.
- The ESX/ESXi version must be 4.0U1 or higher and Ports 22 and 443 must be enabled on the host during the installation.

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

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

- The password to access the host root account, for ESXi 4.x and 5.x.
- The datastore 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 recommendation², the IP address, subnet mask, and default gateway to be used by the VRA.

1. When the protected and recovery sites are the same site, only one installation of Zerto Virtual Replication is required.

2. 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.

For Zerto Cloud Manager

Zerto Cloud Manager is installed on a machine running a Windows operating system with the following requirements:

- Windows Server 2003 SP2 or higher, Windows Server 2008, 2008R2, 2012, or 2012R2 with at least 1 CPU and 2GB RAM reserved.
- At least 4GB of free disk space.
- Microsoft .NET Framework 4 or higher.

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

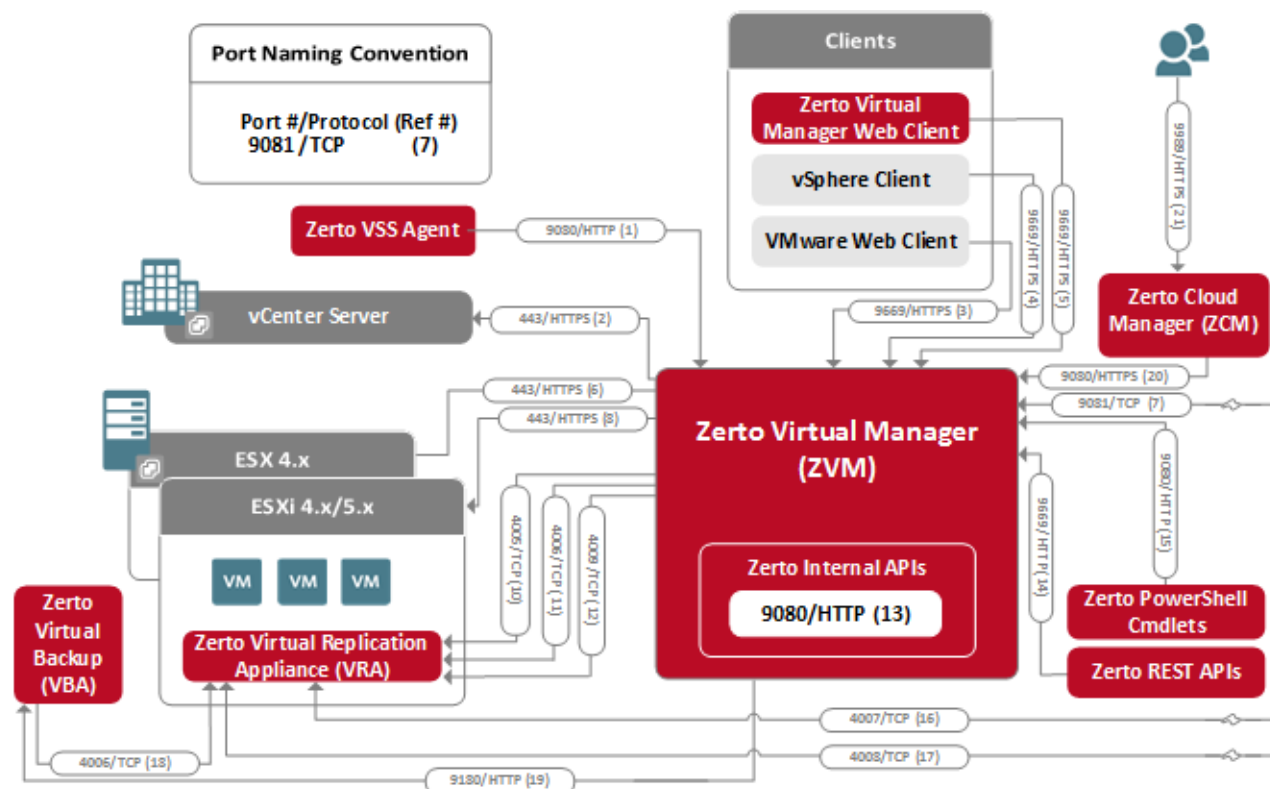
The connectivity between sites must have the bandwidth capacity to handle the data to be replicated between the sites. The minimum bandwidth must be at least 5 Mb/sec.

The Zerto User Interface

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. The minimum recommended screen resolution is 1024*768.

Open Firewall Ports

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



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

REF. #	PORT	PURPOSE
1, 13, 15, 20	9080 ¹	Communication between the Zerto Virtual Manager and Zerto internal APIs, Zerto cmdlets, Zerto VSS Agents and a Zerto Cloud Manager.
2	443	Required between the Zerto Virtual Manager and the vCenter Server.
3, 4, 5, 14	9669 ¹	Communication between a machine running the Zerto User Interface, vSphere Web Client or Client console and the Zerto Virtual Manager for the relevant vCenter Server and between the Zerto Virtual Manager and Zerto REST APIs.
6	443	Required between an ESXi 4.x host and the Zerto Virtual Manager during installation of a Virtual Replication Appliance (VRA).
7	9081 ¹	Communication between paired Zerto Virtual Managers ² .
8	443	Required between an ESXi 5.x host and the Zerto Virtual Manager during installation of a VRA.
9	22	Required between an ESXi host and the Zerto Virtual Manager during installation of a VRA.
10	4005	Log collection between the Zerto Virtual Manager and site VRAs.
11, 18	4006	Communication between the Zerto Virtual Manager and site VRAs and the site Virtual Backup Appliance.
12	4009	Communication between the Zerto Virtual Manager and site VRAs to handle checkpoints.
16	4007	Control communication between protecting and recovering VRAs.
17	4008	Communication between VRAs to pass data from protected virtual machines to a VRA on a recovery site.
19	9180 ¹	Communication between the Virtual Backup Appliance and VRA.
21	9989	HTTPS communication between the browser and the Zerto Cloud Manager.

1. The default port provided during the Zerto Virtual Replication installation which can be changed during the installation.

2. When the same vCenter Server is used for both the protected and recovery sites, Zerto Virtual Replication is installed on one site only and this port can be ignored.

If a site uses a proxy server, specify the IP address of the Zerto Virtual Manager in the Proxy Server settings exception list.

Recommended Best Practices

Zerto recommends the following best practices:

- Install Zerto Virtual Replication on a dedicated virtual machine with a dedicated administrator account and with VMware High Availability (HA) enabled. Avoid installing other applications on this machine. If other applications are installed, the Zerto Virtual Manager service must receive enough resources and HA must remain enabled.
- 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. When protecting a vApp, you **must** install a VRA on every host in the cluster on both the protected and recovery sites and ensure that DRS is enabled for the clusters.
- Install VRAs using static IP addresses and not DHCP for a production environment.
- Set any antivirus software not to scan the folder where Zerto Virtual Replication is installed.
- Synchronize the clocks on the machines where Zerto Virtual Replication is installed with UTC and with each other (the timezones can be different). Zerto recommends synchronizing the clocks using NTP.

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 at support@zerto.com.