



# Clustering ExtremeZ-IP 4.1

Installing and Configuring  
ExtremeZ-IP 4.x on a Cluster

Version: 1.3  
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Product Version: 4.1

## Introduction

This document provides instructions and background information on clustering ExtremeZ-IP 4.x on a new cluster configuration.

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## Overview: Clustering ExtremeZ-IP 4.x

Microsoft Cluster Servers are specially linked servers running the Microsoft Cluster Service (MSCS). If one server fails or is taken offline, other server(s) in the cluster will immediately take over the failed server's operations. The primary purpose of clustering is to provide fast failover and quick restart of the application services provided by the failed server node. This configuration delivers the benefit of high availability for applications running on the cluster. Resources running on multiple servers appear to connected clients as a single system, referred to as a "virtual server." When a successful failover occurs because of a problem, the connected user usually cannot tell that there was actually a very brief interruption in service.

### ExtremeZ-IP 4.1 Cluster Improvements

ExtremeZ-IP 4.1 clustering provides increased availability, scalability, and support for server consolidation efforts. ExtremeZ-IP 4.1 supports fast failover with no indexing at startup, and can run on multi-node clustered configurations.

Additionally, multiple instances of ExtremeZ-IP can run on each node of the cluster. Each instance has its own IP address and is assigned its own set of shared volumes independently. The configuration of multiple ExtremeZ-IP instances provides high reliability because each instance runs in isolation from the others.

## About Microsoft Cluster Service

MSCS uses the following terms to describe the component parts of a cluster configuration. It is important not to confuse these terms as you proceed with installing ExtremeZ-IP.

- **Node** - A single member server in a cluster.
- **Resource** - A hardware or software component that runs in a cluster, such as a disk, an IP address, a network name, or an instance of ExtremeZ-IP.
- **Group** - A combination of resources that are managed as a unit of failover. Groups are also known as *resource groups* or *failover groups*.

*A typical ExtremeZ-IP failover group consists of a disk, an IP address, a network name, and an instance of ExtremeZ-IP.*

- **Dependency** – A service or other resource that must be available first in order for the dependant service to start.
- **Failover** - The process of moving resources or resource groups from one server to another. Failover can occur when one server experiences a failure of some sort or when you, the

administrator, initiate the failover yourself. This term is equivalent to the Microsoft Cluster Administrator action of moving a cluster group to another node.

- **Quorum Resource** – A disk resource containing the failover information that is shared between nodes in a cluster.
- **Heartbeat** – The communication between Cluster nodes that allow for failover communication to occur.
- **Virtual Server** - A virtual server is a combination of configuration information and cluster resources, such as an IP address, network name and an application resource.

*An ExtremeZ-IP virtual server is defined by its unique IP address. In this document, you will see the abbreviation “EVS,” meaning “ExtremeZ-IP Virtual Server.*

- **Active/Active** – This describes a configuration where all nodes can be active ExtremeZ-IP file servers running in production.
- **Active/Passive** - This describes a configuration where one node is active in production and another node sits idle until a failover occurs.
- **Shared Storage** - This refers to the external SCSI or fibre channel storage system. Shared storage is a requirement for multi-node clusters. Although this storage is shared, only one node can access an external storage resource at any given time.

## Installing ExtremeZ-IP 4.1

### Prerequisites

This document assumes you are installing ExtremeZ-IP 4.x on a new cluster and have already installed and configured Microsoft Cluster Service on one of the following operations systems:

- Windows 2000 [Advanced Server, or Datacenter Edition]
- Windows 2003 Server [Enterprise, Storage Node Server, or Datacenter Edition]

In addition;

- The serial number for version 4.x has encoded in it the number of nodes and virtual servers for which it is licensed. A single serial number will be used for all the nodes of the cluster.
- You will require a shared disk(s) where the ExtremeZ-IP shared volumes reside.
- You will need to have available an IP address and network name for each ExtremeZ-IP virtual server you want to create. We also suggest that you use a DNS entry for each IP address.
- If there will be folders shared over SMB (for Windows clients) residing on the same physical disk as ExtremeZ-IP shares, Group Logic recommends configuring DFS (Distributed File System) in order to conveniently access your shared volumes, using one IP address or hostname.

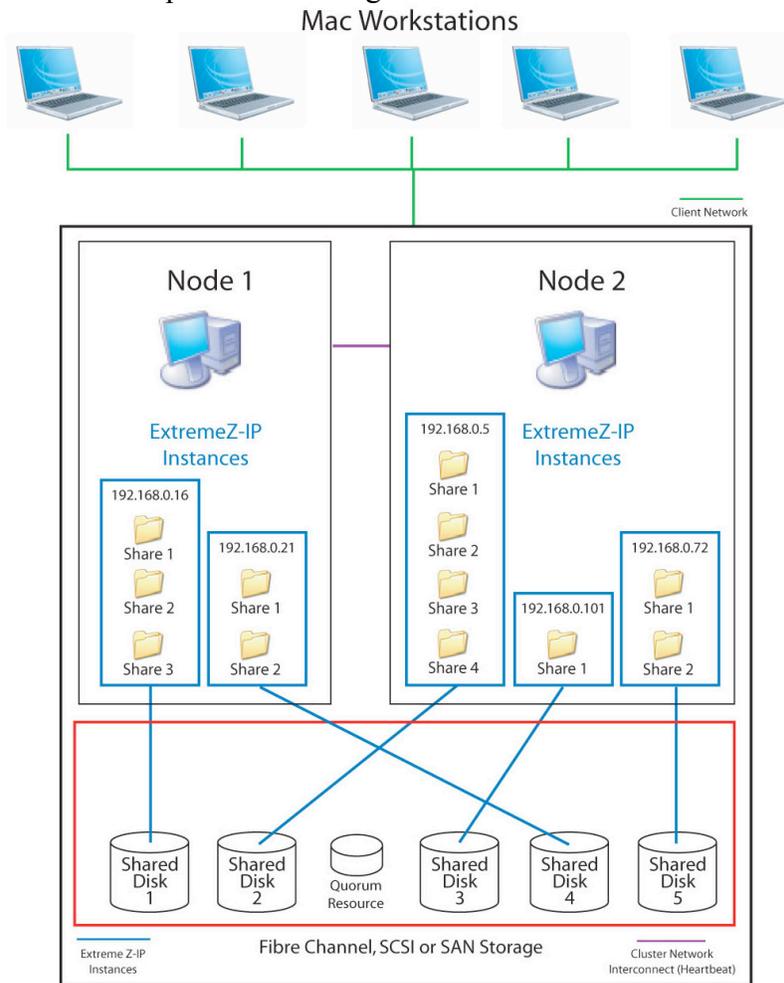
# Installing and Configuring an ExtremeZ-IP Cluster

## Installation Overview

Installation consists of three parts, each with a number of steps described in detail below:

1. Install the ExtremeZ-IP program files using the installer and serial number provided by Group Logic.
2. If you are going to use multiple virtual servers configure the ExtremeZ-IP service using the command prompt.
3. Configure MSCS using the Microsoft Cluster Administrator application. This application is provided with the operating system.
4. Configure shared folders and other features of the service using the ExtremeZ-IP Administrator application.

The diagram below shows an example of an active/active, two-node ExtremeZ-IP cluster. Note that each virtual server can have multiple shares configured and has its own IP address.



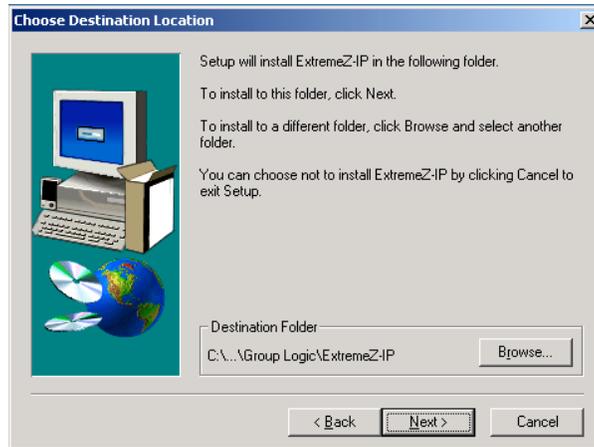
## Installing and Configuring an ExtremeZ-IP Cluster

Diagram: A 2-Node ExtremeZ-IP 4.x Clustered Configuration

5.

### Part 1: Install ExtremeZ-IP 4.x

1. On the first node of the cluster, run the ExtremeZ-IP installer. At the *Choose Destination Location* dialog select a **local drive** on the current node. In most cases, the installer's default directory on the "C:" drive is recommended.



2. Finish the installation and do not launch the ExtremeZ-IP administrator.
3. Perform this installation on all nodes that will run ExtremeZ-IP. ***When installing, repeat the above instructions.***

### Part 2: Configuring ExtremeZ-IP Services

The previous section installed ExtremeZ-IP application software, and the installer automatically registered a single generic ExtremeZ-IP service. This section deals with configuring multiple ExtremeZ-IP services.

Although ExtremeZ-IP clustering supports multiple virtual servers (Active/Active Clustering), by default it is setup with only one virtual server on the cluster (Active/Passive). In order to support Active/Passive mode a special 'ExtremeZ-IP' service has been automatically created. This special service differs from other virtual servers because it will accept connections on all IP addresses of the cluster.

If you intend to run multiple virtual servers you should remove this special 'ExtremeZ-IP' service and create a unique service for each virtual server using the command line utility.

Four components are required for ExtremeZ-IP to operate:

- IP Address
- Network Name
- Physical Disk
- ExtremeZ-IP Service

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**NOTE:** Group Logic recommends these components be placed in their own **group** and **virtual server** (ExtremeZ-IP Virtual Server or “EVS”). Following this model, the recommended number of EVSs created is based on how many physical disks need to be shared out with ExtremeZ-IP. For example, if the shared items are on three physical disks it is recommended three EVSs be created. Although this allows the most flexibility there may be cases where you do not want to use up multiple IP addresses, and in that case it is possible to have multiple physical disks shared out by one EVS.

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### Installing ExtremeZ-IP Services:

For each ExtremeZ-IP virtual server, an ExtremeZ-IP service instance is required. Each ExtremeZ-IP service requires a unique Service Name

To remove the existing generic “ExtremeZ-IP” Service:

1. Open a command window and navigate to the ExtremeZ-IP installation directory.
2. Use the following command to remove the generic ExtremeZ-IP service called “ExtremeZ-IP”.

```
ExtremeZ-IP.exe -REMOVE -SERVICENAME="ExtremeZ-IP"
```

To create an ExtremeZ-IP Service:

1. Open a command window and navigate to the ExtremeZ-IP installation directory.
2. Use the following command to create an ExtremeZ-IP service called “Marketing”.

```
ExtremeZ-IP.exe -INSTALL -SERVICENAME="Marketing"
```

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**NOTE:** Write down the exact service name you use in this command line. You will need the exact name when configuring MSCS in the next section.

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3. Perform this command on each node this ExtremeZ-IP service will run on.

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**IMPORTANT:** Each ExtremeZ-IP service needs to be setup on each of the nodes it is running on. For example, if you are installing 3 ExtremeZ-IP services, all three must be installed on all of the nodes they are running on. More information along with diagrams is available in the “Best Practices” section below.

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### Part 3: Configuring Cluster Administrator

1. Launch *Cluster Administrator*,
2. Right click on *Groups* and select **Configure Application**. Click *Next* to begin the wizard.
3. Select **Create a new virtual server** and click *Next*.
4. Select **Create a new resource group** and click *Next*.
5. Enter a **Group Name**, click *Next*.
6. Enter a **Network Name** and an IP Address. click *Next*.

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**NOTE:** This will be the IP Address that Macintosh clients will use to connect to ExtremeZ-IP.

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## Installing and Configuring an ExtremeZ-IP Cluster

- Click **Next** on the *Advanced properties for the new virtual server* dialog.
- Select **Create a cluster resource for my application now** and click **Next**.
- Select the type to be **Generic Service**.

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**NOTE:** A common mistake is to select “Generic Application,” which is the default entry. Please ensure this selection is set to “Generic Service” before proceeding.

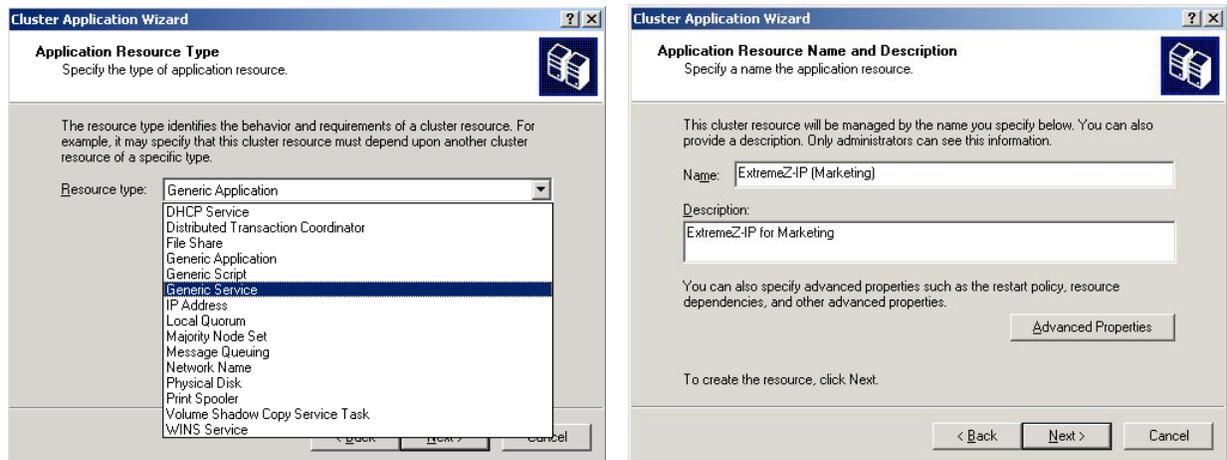
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- Give the resource a name in the “Name” field.

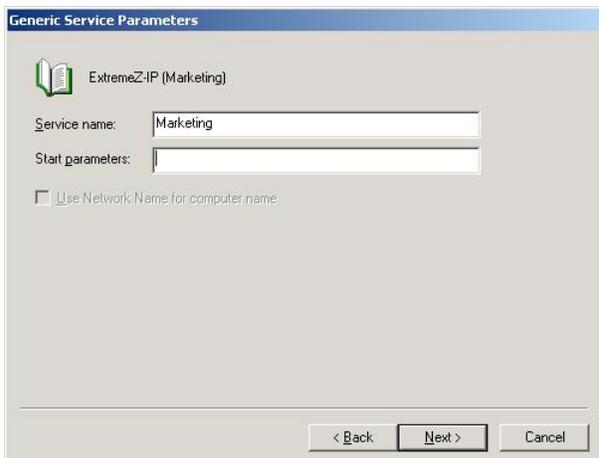
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**NOTE:** This name can be any name you wish. Group Logic recommends that you give this a meaningful name such as “ExtremeZ-IP Service-Marketing”

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- Next, enter the service name with **no Start parameters**.



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**IMPORTANT:** The service name in the step above must match the service name in the command line configured in part 2.

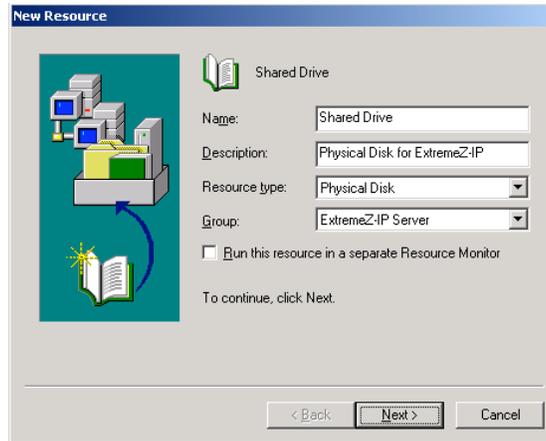
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- Click **Next** on the “registry replication” dialog.
- Click **Finish**.

## Installing and Configuring an ExtremeZ-IP Cluster

From the *Cluster Administrator*, we will add a new resource to the newly created group.

14. Select the *Resource Type* to be *Physical Disk*. Click *Next*.



15. Configure the owners to be all of the nodes ExtremeZ-IP will run under. You can add dependencies if needed, but this is not required for ExtremeZ-IP.
16. Finally, select the physical disk where you want the ExtremeZ-IP server to share from
17. Click *Finish*.
18. From the *Cluster Administrator*, right-click on the ExtremeZ-IP service resource.
19. Click *Properties*.
20. Select the *Dependencies* tab and click *Modify*.
21. Add the IP Address, Network Name, and the Physical Disk as dependencies.

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*NOTE: Since the ExtremeZ-IP resource was created under the virtual server wizard the owners for the resource will be all of the nodes in the cluster. If this is not desired click the **General** tab and modify the **Possible Owners** accordingly.*

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22. Click *OK*.

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*MSCS Setup is complete after MSCS is configured on all nodes of the cluster for each ExtremeZ-IP group.*

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Bring the cluster group on-line by right-clicking, the Group and selecting “*Bring Online...*”

### Part 4: Add ExtremeZ-IP Shares

You can add volumes and configure server settings via the ExtremeZ-IP administrator on the node currently running the ExtremeZ-IP Virtual Server you want to administer. Be sure all of the ExtremeZ-IP volumes are located on shared drives which are Physical Disk resources of the cluster group that ExtremeZ-IP is a member of. For more information on how to share folders, please see the ExtremeZ-IP administration PDF manual located in the installation directory.

### Administering ExtremeZ-IP:

In a clustered environment, the ExtremeZ-IP administrator behaves differently than in a non-clustered environment.

- Services can only be administered from the node they are running on.

The reason for the first point is so the user can always create volumes. On a cluster, a node can only access the disks that it has ownership of. This enforces that correct paths are used when creating volumes via the *Browse for folder* dialog.

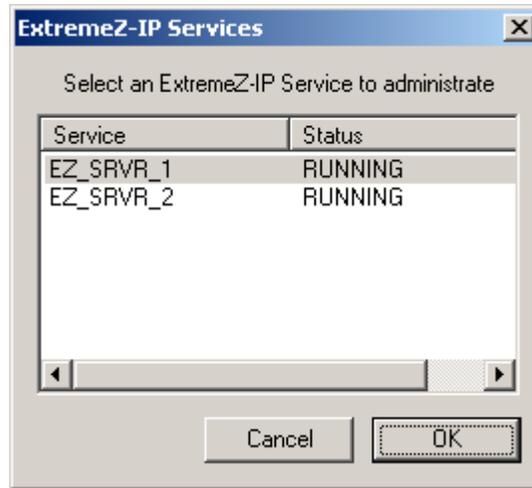
- Services **cannot** be started from the ExtremeZ-IP Administrator or the Services control panel. This feature is disabled for clustered configurations.

Clustered services should be started ONLY from the cluster administrator. If the service is started by some other means (an application or the Services Control Panel) the Cluster Administrator may not know the service is running and will not be able to manage a failover if required.

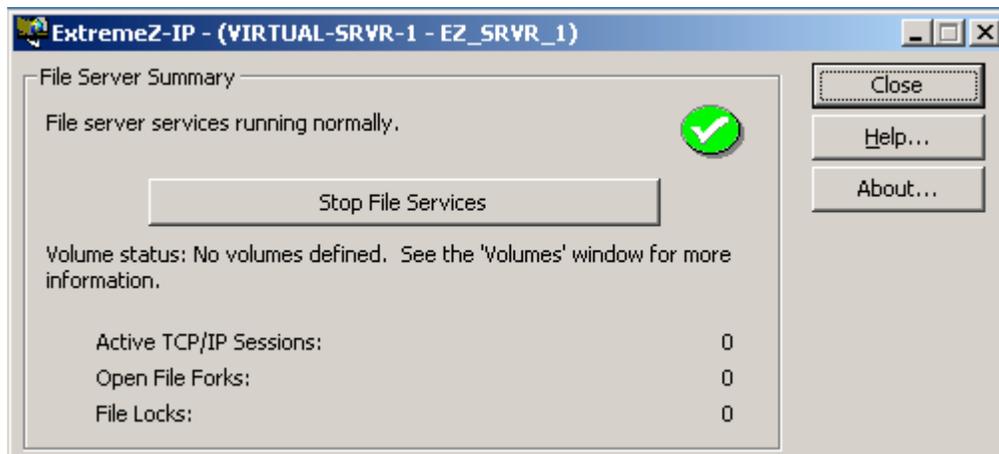
- ExtremeZ-IP Administrator can only be used to configure a local node.

When the ExtremeZ-IP administrator is launched it will only allow you to administer servers running on that node. If more than one service is running on the node, a list of services you administrate will be presented. When the service fails over you will lose the connection to the service, but you can reconnect to it if it fails back to that node later.

## Installing and Configuring an ExtremeZ-IP Cluster



Once a service is chosen, the Administrator will launch and connect to that service. The Administrator title bar will inform the user which server it is connected to in the format “(Network Name – Service Name)”.



If the connection to the server is broken (that server is failed over) the administrator will be unable to re-connect to that service since it is on another node. However it can now be administered on the node to which it has been moved.

## Best Practices, Troubleshooting & Tips

### Port Conflicts with ExtremeZ-IP:

The two default ports used by ExtremeZ-IP are 548 for file sharing and 515 for print sharing. If Microsoft Services for Macintosh (SFM) is installed, it will use port 548 and ExtremeZ-IP file sharing will not work. This is also true if a print server is installed using 515. ExtremeZ-IP's ports can be changed so that you do not have to stop these other services. This can be done through the ExtremeZ-IP Administrator under the *Settings* dialog. However, the best way to avoid this port conflict is to disable the Windows SFM service in the services control panel.

## Installing and Configuring an ExtremeZ-IP Cluster

Note that if you change ExtremeZ-IP to use a different port on a particular node (node 1) it will use that same port when it fails to the next node (node 2). All changes made on one node will be applied automatically to subsequent nodes the service is run on. In addition if you use a non-default port then Macintosh client computers will need to specify the port to use when they connect to the server.

### **Adding ExtremeZ-IP to an Existing Cluster with Windows Shares:**

If folders shared over SMB for Windows clients reside on the same physical disk as your ExtremeZ-IP shares, you can add the ExtremeZ-IP service to an existing group. If you want to run more than one virtual server, we recommend that you create a new group for ExtremeZ-IP.

In addition, when using an active/active configuration with Windows SMB shares, Group Logic recommends that you install and configure Windows DFS (Distributed File System). DFS makes it easier for connected users to find shared folders on the network without have to learn multiple IPs or DNS names. For more information, see Microsoft's DFS documentation.

### **Cluster Configuration Recommendation:**

For best load balancing, granularity, and performance, Group Logic recommends having one ExtremeZ-IP Virtual Server for each physical disk. See the diagram at the beginning of the document to see what is recommended.