



**everRun<sup>®</sup>**

# Setup and Installation Guide

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**MARATHON**  
The Application Availability Experts™

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## SOFTWARE REVISION

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# Installation Overview

# 1

This chapter describes the main tasks required for a complete everRun installation and lists the source of information for each task. As you install, you can return to this chapter to find an information source.

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**NOTE:** Throughout this guide, key terms are displayed in a **blue bold font**. The first instance of a key term links to a brief definition in the glossary at the end of the book. After you check a term, you can return to the text by clicking the section bookmark in the navigation panel at left.

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## Installation Sequence

The everRun<sup>®</sup> software must be installed onto an existing Citrix<sup>®</sup> XenServer<sup>™</sup> virtualization environment. Before you begin, please review the tasks you'll perform.

1. Plan your configuration, obtain system components, and set up hardware.
2. Obtain the required Citrix and Marathon software, documentation, and licenses.
3. Install and configure your **XenServer hosts** and the **XenCenter** management GUI, then add the XenServer license to the hosts in the pool.
4. Create a XenServer **resource pool** from the configured hosts and verify the network connection.

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**NOTE:** Marathon recommends adding the XenServer hosts to a pool before installing everRun. If you do not, your everRun software may not perform as designed.

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5. Locate and install any XenServer updates required.
6. Create or import one or more Windows **virtual machines (VMs)**.

7. Now or at any later time you can install the Windows application(s) you want to protect — email server, database, and so forth — onto the VMs in the pool.
8. Install the everRun software onto each XenServer host in the pool.
9. Using the URL provided during the install process, open the **everRun Availability Center (eAC)** management GUI.
10. Use the eAC for the post-install configuration tasks: applying the everRun license, checking the pool isolation IP address, configuring the availability-link (A-link) networks, and enabling/configuring **quorum service** if it is required in your configuration.

## Information Sources

Table 1 explains where to find the information needed for each of these tasks.

**Table 1: Information Sources**

Step	Information Source(s)
<ol style="list-style-type: none"> <li>1. Plan your configuration, obtain system components, and set up hardware, including: <ul style="list-style-type: none"> <li>• XenServer hosts</li> <li>• A Windows management computer hosting XenCenter software</li> <li>• Storage repositories to address the needs of your configuration.</li> <li>• NICS, switches, gateways, and networking hardware needed for your configuration</li> <li>• If quorum service is used, two Windows computers hosting the quorum service software</li> </ul> </li> </ol>	<p>For a list of specific hardware and software recommended by Citrix, see <a href="http://hcl.xensource.com/">http://hcl.xensource.com/</a>.</p> <p>Citrix XenServer documentation is available from <a href="http://www.citrix.com/">http://www.citrix.com/</a>. The <i>XenServer Installation Guide</i>, available on the Citrix download site, describes the hardware and software requirements for the virtualization environment.</p> <p>The <i>everRun Configuration Planning Guide</i> lists the components recommended and describes the configurations supported for this release.</p>

**Table 1: Information Sources**

Step	Information Source(s)
<p>2. Download the required software (.iso files) and documentation as directed by your Citrix and/or Marathon software provider. Obtain license information from your provider.</p> <p>For each software product, create installation CDs from the <b>ISO image</b> supplied and place the license information in a known location. If your XenServer host does not support the use of a CD, you can create a shared directory on your management computer, and store the downloaded ISO images in that directory.</p>	<p>You may obtain XenServer software, documentation, and license through Citrix channels or your Marathon representative.</p> <p>If you have purchased product(s) from Marathon, download instructions are included in the communication from Marathon Order Administration.</p>
<p>3. Install, configure, and verify your XenServer environment, including:</p> <ul style="list-style-type: none"> <li>• XenServer hosts and XenCenter</li> <li>• Network configuration</li> <li>• Storage configuration</li> <li>• Quorum service configuration</li> </ul> <p>After you have installed XenCenter, connect to each XenServer host and activate the software. If you elect to upgrade to Citrix Essentials, install the required license.</p>	<p>The <i>everRun Configuration Planning Guide</i> provides guidelines for network and storage, and quorum server configurations for several deployment options.</p> <p>Chapter 3 of this guide, “System Configuration and Setup,” describes the XenServer setup recommended for use with everRun.</p> <p>The <i>XenServer Installation Guide</i> describes how to install the XenServer software on host machines and the XenCenter software on a <b>management computer</b>. Use XenCenter online help (<b>Server &gt; Install License Key</b>) for license instructions.</p>
<p>4. Use XenCenter to create a resource pool that contains master and member hosts. Then connect to the XenServer master host and create a bonded NIC for the XenServer management LAN. Check the network connectivity on both master and member hosts.</p>	<p>Instructions in Chapter 3, “System Configuration and Setup,” describe how to use XenCenter Online Help for this work. The <i>XenServer Administrator’s Guide</i> provides information on NIC bonding and “Create a NIC Bond on the Master Host” on page 20 of this guide describes how to create the NIC bond.</p>

**Table 1: Information Sources**

Step	Information Source(s)
5. If everRun documentation indicates XenServer updates are required for the release, update the XenServer software.	Check <i>everRun Release Notes</i> to identify updates required for the release. The required updates are available at the Marathon download site for the release.
6. Create the desired Windows guest VMs and install XenServer tools (the paravirtualization drivers) on each VM.	The XenCenter Online Help describes how to create Windows guest virtual machines (VMs) and install XenServer tools.
7. Install the Windows applications you want to protect.	Use your software vendor's instructions to install application(s).
8. Install everRun software on the XenServer hosts, and install the quorum service (QS) software on designated QS computers.	Chapter 4 of this guide, "Installing the everRun Software," describes the installation of everRun software and quorum service software.
9. Use the URL provided by the everRun installer to open the eAC management GUI and connect to the XenServer <b>master host</b> .	In Chapter 4, see "Step 9: Launch the eAC Management GUI" on page 29.
10. Configure your XenServer/everRun resource pool by: <ul data-bbox="154 951 610 1373" style="list-style-type: none"><li>• Installing the everRun license for your system</li><li>• Configuring an A-link network scheme suitable for your deployment</li><li>• Enabling quorum service and providing suitable IP addresses for preferred and alternate quorum service computers, if used</li><li>• Verifying the isolation IP failover address for the pool and adjusting it if necessary</li></ul>	In Chapter 4, see "Step 10: Configure the Resource Pool in the eAC" on page 30.

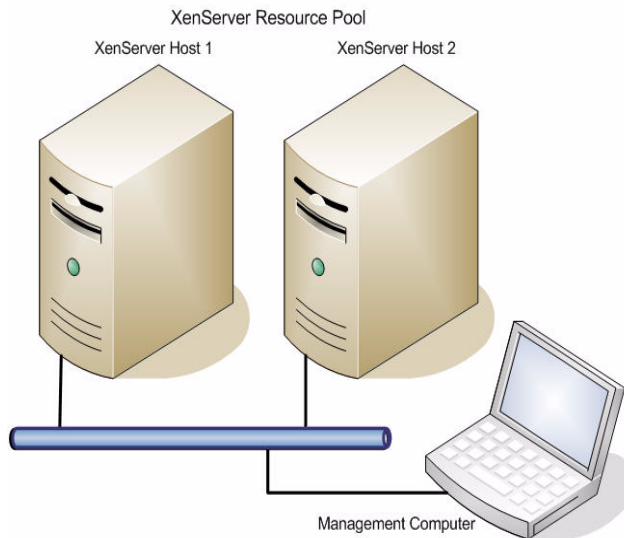
# System Requirements

# 2

This chapter describes everRun configuration basics, as well as the hardware, software, disk space, and network requirements for the system.

## Basic everRun Configuration

Figure 2-1 shows a schematic of a basic everRun configuration, which is a **resource pool** containing two **XenServer hosts** and a separate **management computer**.



**Figure 2-1** A basic everRun configuration is a pool of two XenServer hosts that can support virtual machines, as well as a general-purpose PC that can run both the XenCenter management application and the browser-based everRun Availability Center management client.

The XenServer software must be installed on two x64 (64-bit) servers, which are known as the XenServer hosts. The XenServer hosts are dedicated to the task of hosting **virtual machines (VMs)**. All hosts must be members of the same XenServer resource pool.

The **management computer** that runs the XenCenter management application and the browser-based **everRun Availability Center (eAC)** management client can run on any general-purpose Windows machine that satisfies the hardware requirements. This computer can also be used to run other Windows applications.

If the resource pool contains more than two XenServer hosts (using point-to-point cable links), or if the hosts in the pool are geographically separated (as in a SplitSite<sup>®</sup> deployment), two **quorum service computer** must be connected to the network, as described in the *everRun Configuration Planning Guide*.

## Hardware Requirements

The hardware requirements are based on those given in the *XenServer Installation Guide*. A list of hardware and software components that have been reported to work with XenServer, as tested by Citrix, by the individual vendors, or by the Xen community, is available at <http://hcl.xensource.com/>.

For the most reliable operation, choose components tested by Citrix or by the individual vendors.

## XenServer Hosts

Each XenServer host is an x64 server-class machine devoted to hosting multiple VMs. This machine runs a customized distribution of the Linux operating system, with a XenServer-enabled kernel that controls the interaction between the virtualized devices accessible by VMs and the physical hardware.

Table 3 lists the requirements for each system host. The processors in each host must support hardware virtualization, as shown in the CPU row of the table.

**Table 3: Requirements for XenServer Host Computers**

Category	Requirements
CPUs	One or more x64 CPUs, 1.5 GHz minimum, 2 GHz or faster multicore CPU recommended. For VMs running Windows, the processors must be virtualization-capable Intel models with one or more (up to 32) CPUs.  A second computer with identical processors is required for use as a redundant server for everRun PVMs. The CPUs for every XenServer host computer must have hardware support for virtualization enabled in the BIOS.

**Table 3: Requirements for XenServer Host Computers**

Category	Requirements
CPUs ( <i>cont.</i> )	<p>For a list of processors supported by Marathon products (required for Level 2 and Level 3 protection, for example), see <a href="http://www.marathontechnologies.com/documents/Hardware_Qualifications.pdf">http://www.marathontechnologies.com/documents/Hardware_Qualifications.pdf</a></p> <p>If you are not certain whether your hardware supports everRun operation, download the <b>everRun_CompatibilityCheck</b> utility, available in the <b>Tools and Utilities</b> section of the Marathon customer web portal. Download the <i>Compatibility Check Readme</i> document, also at the web site, for instructions.</p>
Supported guest OS	<p>Guests that are candidates for everRun protection must be running Windows Server 2003 Standard or Enterprise (32- or 64-bit, SP2), Windows Server 2008 Standard or Enterprise (64-bit, SP1 or SP2), Windows Small Business Server (SBS) 2003 or 2008, or Windows Server 2008 Release 2.</p>
RAM	<p>2 GB minimum, 4 GB or more recommended.</p>
Disk space for storage	<p>Locally attached storage (<b>PATA</b>, <b>SATA</b>, <b>SCSI</b>, or <b>FC-SAN</b>) with a minimum of 72 GB of total disk space recommended. Shared storage repositories (<b>NFS</b> share, <b>iSCSI</b>, and FC-SAN as described in the <i>XenServer Installation Guide</i>) are also supported.</p>
Disk space required	<ul style="list-style-type: none"> <li>• 4 GB for XenServer in the host control domain, <b>Domain0 (Dom0)</b>, and 4 GB for everRun in a supported <b>storage repository (SR)</b>.</li> <li>• Allow 10 GB minimum (Windows boot disk) for each Windows VM. This may be located in local attached storage or shared storage, as described under “Disk space for storage” above.</li> <li>• Additional storage as required for applications and data on each VM.</li> </ul>
Network	<p>For optimum performance and reliability, Marathon recommends five 1 GB network interface cards (NICs), with network switches to provide separate network channels, if necessary. If possible, use identical NICs. As detailed in Chapter 3, the network configuration should contain four active networks, with each NIC connected to a separate Ethernet card. The fifth NIC is bonded to the management LAN, as described in “Create a NIC Bond on the Master Host” on page 20. All network components must have &gt;155 MBps minimum capacity.</p>
IP Addresses	<p>Each XenServer host must have a static IP address assigned for use by the management software. Obtain IP addresses for DNS primary and secondary servers, as well as gateway and subnet mask information for your management network, from your IT network administrator.</p>

**Table 3: Requirements for XenServer Host Computers**

Category	Requirements
Ports	<p>XenCenter uses port 443 in the local firewall for HTTPS communications, port 22 for <code>ssh</code>, and 5900 for VNC with Linux VMs. Make sure your firewall allows traffic via the appropriate ports. The eAC uses TCP ports 8080 and 8081 for communication, but you can change these defaults. (See Appendix A for more information.)</p> <p>Firewalls must permit everRun protected VMs to contact quorum service computers using UDP port 2189, and quorum service computers to contact everRun-enabled XenServer hosts using UDP port 2188.</p>

## Management and Quorum Service Computers

The management computer can support the two management interfaces that control the everRun system:

- the **XenCenter** GUI that controls XenServer software
- the **everRun Availability Center (eAC)** GUI

XenCenter, the client application for remote management of XenServer hosts, can be installed and run on any XP/Vista workstation or laptop.

The browser-based eAC everRun management GUI can be loaded and run by a Flash-enabled web browser on any computer, including the management computer. Table 4 shows the system requirements for the management computer.

---

**NOTE:** The everRun eAC requires management network access and a compatible Flash-enabled browser. If you are running a 64-bit operating system on this computer, use a Flash-enabled 32-bit browser to access everRun. (At the time of this release, 64-bit browsers do not support Adobe Flash Player.)

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**Table 4: Requirements for the Management Computer**

Category	Requirements
OS	Windows XP, Windows Server 2003; Windows Vista .NET framework version 2.0 or above, Windows 7.
CPU Speed	750 MHz minimum, 1 GHz or faster recommended
RAM	1 GB minimum, 2 GB or more recommended
Disk Space	100 MB minimum

**Table 4: Requirements for the Management Computer**

Category	Requirements
NIC	One 100 MB or faster

Quorum service software, if deployed, can be installed on any general-purpose Windows computer or laptop meeting the requirements listed in Table 5. Marathon recommends two quorum service computers: a preferred quorum server and an alternate.

**Table 5: Requirements for Quorum Service Computers**

Category	Requirements
OS	Windows XP (SP2 or newer), Windows Server 2003, Windows Vista or Windows 7; always powered on.
Disk Space	100 MB minimum
NIC	1 GB
Connectivity	Configure local configurations on A-link LANs

As noted in the *everRun Configuration Planning Guide*, quorum service computers are not required for a two-host local deployment with point-to-point private LANs.

## Software Requirements and Sources

The software requirements for everRun MX are listed below.

**Table 6: Required Software for everRun MX**

Product	Source
everRun and XenServer software and documentation.	Marathon customer web portal.  Download instructions are provided with your Marathon software order confirmation email.
everRun and XenServer license keys.	Your Marathon software order confirmation email.
Required XenServer software, documentation, and optional license keys.	As specified in your Marathon software order confirmation email.

**Table 6: Required Software for everRun MX**

Product	Source
Windows 2003 Standard or Enterprise (32- or 64-bit, SP2) or Windows 2008 Standard or Enterprise (64-bit, SP 1 and SP2) software for the virtual machines.	Your Windows software vendor.
Application software to run on the Windows environment.	Your application software vendor.

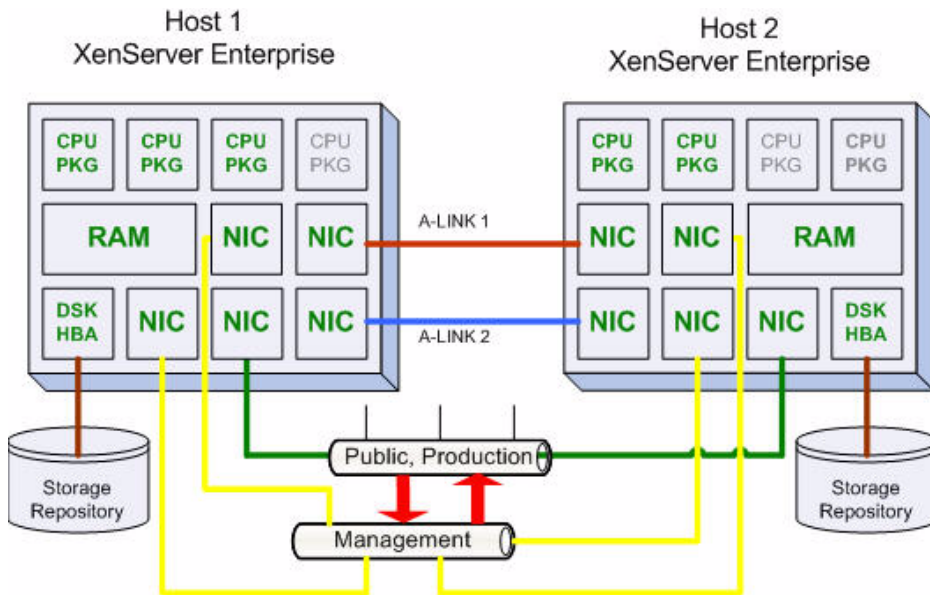
# System Configuration and Setup

# 3

This chapter describes a basic, local two-host XenServer pool. For details on other deployment options, refer to the *everRun Configuration Planning Guide*.

## Local Two-Host everRun Pool

everRun software runs as a turnkey application in a XenServer virtual environment. Figure 3-1 illustrates a basic two-host setup with four networks.



**Figure 3-1** Two private networks called **availability links (A-links)** synchronize and maintain redundancy between the components of two XenServer hosts. Separate network adapters connect the hosts to the production LAN and to the management LAN.

The two servers in Figure 3-1 also contain two directly cabled A-link connections. The *everRun Configuration Planning Guide* guide describes this configuration in greater detail. The guide also includes more complex configurations — having two or more hosts — that require active, switched networks. In a switched configuration, additional **quorum service computers**, running on separate subnets, coordinate the redundant everRun software running on the two physical hosts.

The two interconnected XenServer hosts shown in Figure 3-1 are members of the same XenServer **resource pool**. In the recommended configuration, Host 1 is designated the **master host** and Host 2 is the **member host**. A separate, general-purpose **management computer** with access to the management LAN contains the **XenCenter** management console and provides browser access to the **everRun Availability Center (eAC)** client.

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**NOTE:** In Figure 3-1, the configuration shows four networks that use five NICs. The fifth NIC is used to create a bonded management LAN, as recommended when you plan to enable XenServer High Availability (HA). This bonded NIC is not required for the everRun evaluation deployment, or any configuration that does not include XenServer HA.

---

## Step 1: Plan Your Configuration, Obtain Components

The *everRun Configuration Planning Guide* provides information to help you select the everRun deployment most suitable for your needs, obtain qualified components, and assemble the physical system. If you require assistance in customizing the deployments described in that guide, consult Marathon Professional Services.

## Step 2: Download Software and Documentation

Download instructions are included with your email from Marathon Order Administration.

In each everRun release you must check the *everRun Release Notes* to determine what version of the Citrix XenServer software, and what updates to that software, are required for the release. *Only the updates identified in the everRun documentation should be installed.*

You can download the ISO images for both the Citrix software and the Marathon software from the Marathon download site or you can obtain the Citrix software from other sources.

Note that the Citrix XenServer download area contains two ISO images: the XenServer Product CD Image (ISO) and the XenServer Linux Guest Support CD Image (ISO). The XenServer Product CD Image is required for the everRun installation, but the XenServer Linux Guest Support CD Image is not. However, you may want to download

both ISO images to obtain the complete XenServer distribution. (In that way, you can burn a Linux CD to create virtual machines that do not use everRun.)

In addition, you will need the license information obtained when you acquired XenServer and everRun.

## Installation Alternatives

This guide documents two alternative procedures to use for everRun installation:

- Installation from a CD-ROM drive attached to your management computer
- Installation from a shared directory on your management computer

### *CD-ROM Method*

Use this method throughout the install process if you want to create CD-ROMs containing the XenServer and everRun ISO images, then insert that CD-ROM into a drive on the XenServer management computer (the computer that contains the XenCenter software) to install the software on each XenServer host in the pool.

#### **To prepare for installation using a CD-ROM:**

1. Use any web browser to download the Citrix and Marathon ISO images to the XenCenter management computer.
2. After downloading the files, use your company's commonly accepted methodology to save the ISO images onto three bootable CD-ROMs — two for the Citrix ISOs, and another for the Marathon everRun ISO.

---

**NOTE:** The Citrix software requires a separate CD for the Linux VM templates. These templates are used by the XenServer product, but not by everRun.

---

You will also need to store your Citrix and Marathon license information in a directory on your management computer that is accessible to the XenServer hosts. Note the directory name for later use.

### *Shared Directory Method*

Use this method throughout the install process if you want to create a shared directory on the Windows management computer and then run the installers from that directory.

### To prepare for installation using a shared directory:

1. Create a shared directory on the management computer, using the standard Windows procedure for sharing a drive or folder on the network.
2. Download the Citrix and Marathon ISO images to the shared directory on the XenServer management computer using your favorite web browser.

If you wish, you can add license files or other relevant material to this directory.

You will also need to store your Citrix and Marathon license information to a location on your management computer that is accessible to XenCenter. Note the directory name for later use.

---

**NOTE:** This procedure requires that you install the XenServer software on the master and member hosts over a network. Refer to the XenServer Installation Guide appendix entitled “PXE installation of XenServer host” for more information.

---

## Step 3: Set Up the XenServer Environment

You must set up a running XenServer environment before you install the everRun software. You will install XenServer software on each host and install the XenCenter management application on a separate Windows management computer.

### Set Up XenServer Hosts

A XenServer resource pool requires a minimum of two physical servers with Intel hardware virtualization technology. This section contains instructions for setting up the local area networks, storage repositories, and XenServer environment for the pool.

---

**NOTE:** To run Windows VMs, the XenServer host must have hardware support for virtualization enabled in the BIOS. This option is normally disabled by default. Check your BIOS settings before you install the XenServer software.

---

### Define the Network Configuration

Set up the basic configuration shown in Figure 3-1; it contains four LANs that use five physical network interface cards (NICs) on each server.

---

**NOTE:** Do not use DHCP to set up the XenServer hosts. Instead, use the static IP addresses you obtained from your local IT administrator.

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The management LAN uses two NICs to create the bonded NIC.) This section describes the recommended network configuration for the basic deployment supported in this release.

---

**NOTE:** Remember, if you do not plan to use XenServer HA, you do not need to create a bonded NIC for the management network.

---

Marathon recommends the following network assignments:

- **eth0 — XenServer management LAN**

The system management LAN provides connectivity to the XenServer hosts for clients running the XenCenter management application and the Marathon's everRun Availability Center (eAC) management software. Choose **eth0**, as recommended in the *XenServer Installation Guide*. For maximum reliability, it is highly recommended that you this network card with **eth4**, as described below.

- **eth1 — availability link 1**

Availability link 1 (A-link 1) is a direct-cabled, or an active, switched network connection from **eth1** on one host to **eth1** on a second host.

- **eth2 — availability link 2**

Availability link 2 (A-link 2) is a second direct-cabled, or an active, switched network connection from **eth2** on one host to **eth2** on the second host.

- **eth3 — production LAN**

This is the network used to provide connectivity from application clients to applications operating on virtual machines resident on the XenServer hosts.

- **eth4 — bond with eth0, XenServer management LAN**

Use this NIC to create the bonded NIC for the XenServer management LAN, as described in “Create a NIC Bond on the Master Host” on page 20.

XenServer automatically creates a virtual bridge called a **Xen bridge (xenbr)**, which is named to correspond to each Ethernet adapter during XenServer installation. The XenServer convention names **xenbr0** to provide a virtual bridge to **eth0**, **xenbr1** to provide a virtual bridge to **eth1** and so forth. When you configure networks for use by the virtual machines or everRun software, you can refer to the corresponding virtual bridge name to understand the physical path connectivity. For more information, see the XenServer documentation.

### **Define the Storage Configuration**

The configuration shown in Figure 3-1 can use local storage attached to each of the XenServer hosts or it can use shared storage based on NFS, iSCSI, fibre channel (FC) SAN, NetAPP® etc.

- ❖ Use the instructions for setting up local and shared storage in the relevant sections of the *XenServer Installation Guide*.

---

**NOTE:** For a basic discussion of how physical storage hardware is mapped to VMs in XenServer, see the *XenServer Administrator's Guide*.

---

## Install the XenServer and XenCenter Software

After you have attached the network and storage devices to the network, you are ready to install the XenServer and XenCenter software. To ensure a successful XenServer setup, perform the following tasks in the sequence listed:

- Install the XenServer software on the first host (the master host).
- Install the XenServer software on the second host.
- Install XenCenter software on the management computer.
- Activate the XenServer software as requested, or, if you are using Citrix Essentials, use XenCenter to apply a XenServer license to each host.

Instructions for each of these tasks are given in the following sections.

### *Install XenServer Software on the XenServer Hosts*

Follow instructions in the XenServer documentation to install the XenServer software on each XenServer host.

---

**NOTE:** As you install, remember that XenServer hosts require static IP addresses in order to be included in a XenServer pool.

---

### To install XenServer using a CD-ROM:

1. Load the installation CD you created after download into the CD-ROM drive of XenServer Host 1 (the master host). Follow the installation instructions in the *XenServer Installation Guide*, setting **eth0** as the XenServer management network.
2. Install the XenServer software on the additional host(s). Again follow the installation instructions in the *XenServer Installation Guide*, setting **eth0** as the XenServer management network.
3. If you are installing additional hosts, repeat step 2 on each member host in the pool.

### To install XenServer using other bootable media:

---

**NOTE:** The XenServer software cannot be installed from a shared directory. You can use any bootable medium or use the PXE boot instructions documented in the *XenServer Installation Guide*.

---

1. Transfer the downloaded Citrix ISO to other bootable media, then install the software on the master XenServer host. Follow the installation instructions in the *XenServer Installation Guide*, setting **eth0** as the XenServer management network.
2. Install the XenServer software on the other host(s) in the pool. Again follow the installation instructions in the *XenServer Installation Guide*, setting **eth0** as the XenServer management network.
3. If you are installing additional hosts, repeat step 2 on each member host in the pool.

### *Install XenCenter Software on the Management Computer*

Before you install the XenCenter software, use the Windows Add or Remove Programs option on the Windows Control Panel to remove any previous version of XenCenter, as recommended by Citrix.

#### To install XenCenter using a CD-ROM:

1. Put the XenServer CD you created from the Citrix ISO file into the CD drive of your management computer.

If Auto-play is enabled for the CD drive, the XenCenter installer launches automatically after a few moments.

If Auto-play is not enabled for the CD drive, browse to the `\client_install` directory on the CD and find the file named **xenCenter.msi**. Double-click on the file icon to launch the XenCenter installer.

2. Follow the instructions displayed in the installer window. When prompted for the installation directory, either click **Browse** to change the installation location, or click **Next** to accept the default path `C:\Program Files\Citrix\XenCenter`.

#### To install XenCenter using a shared directory:

1. If you are installing from a shared directory, browse to the `\client_install` directory within the XenServer file structure and find the file named **xenCenter.msi**. Double-click on the file icon to launch the XenCenter installer.
2. Follow the instructions displayed in the installer window. When prompted for the installation directory, either click **Browse** to change the installation location, or click **Next** to accept the default path `C:\Program Files\Citrix\XenCenter`

## **Connect to XenServer Hosts and Install Licenses**

As noted in the *XenServer Installation Guide*, Citrix XenServer is available for free production use with no restrictions or time limits. All you need to do is activate the product within 30 days of installation, and then again on an annual basis. If you want to add more advanced features, you can upgrade to Citrix Essentials via a license key, with no additional software installation.

If you do add a license, you should first connect in XenCenter to the server you want to use as the pool master host and install a XenServer license on that host. The license file should be on the management computer, in the directory where you stored it after obtaining it from your software provider. After you have licensed the first host, you will be able to connect to and add a license to additional XenServer host(s).

### **To connect to a XenServer host and apply a license:**

1. Click the Add New Server icon at the top left.
2. When the Add New Server dialog box opens, enter the server IP address of XenServer Host 1 in the Hostname field, then enter the user name and password you created when you set up the server and click Connect.
3. To add the XenServer license, open the XenCenter Server menu and choose the Install License Key command.
4. Browse to the directory where you saved the license file.
5. Double-click the **\*.xslc** license file. XenCenter automatically applies the license.
6. Repeat steps 1-5 to apply a license to any other XenServer hosts in the pool.

## **Step 4: Create a XenServer Resource Pool**

To complete your XenServer setup, add each host to a resource pool that contains a master host and a member host (sometimes called the “slave” in CLI commands). Then use the XenCenter console (or any console window) to verify the network connections on both hosts.

### **Add the Master Host and Member Host(s) to a Pool**

In the XenCenter Online Help, open the Help Contents and follow instructions in “Working with resource pools,” “Creating a pool,” and “Adding a server to the pool.”

### **Verify Network Connections**

To verify your XenServer setup, take a moment to verify your network connections. This step is critical to the success of an everRun installation.

XenServer software uses PIF objects to represent physical network interfaces. As explained in the “NIC/PIF Ordering in Resource Pools” section of the Networking chapter of the *XenServer Administrator’s Guide*, you can use XenServer **xe** commands to review the MAC address and carrier (link state) parameters associated with each PIF and to verify that the devices discovered (**eth0**, **eth1**, etc.) correspond to the appropriate physical port on the server.

Use two commands for this task. First use **xe pif-list** to get the UUID (user ID) of the PIF you want to verify. Then use **xe pif-param-list** and the PIF UUID to identify which connector controls each network. You can run these commands from the console command line in XenCenter or from any remote console that can access the XenServer hosts.

As you verify each network cable, you may want to label the associated port with the network name, or create a simple table that lists the network connectivity for each port.

### To get the UUID of a network PIF:

1. With all cables connected to your system, select a XenServer host in the XenCenter resource pane, then issue the following command in XenCenter to obtain network UUIDs:

```
# xe pif-list
```

You will see a display that looks something like this:

```
uuid ( RO)                : 5b430bc0-d4fd-098f-5d33-4f9cbf84c4a4
                        device ( RO): eth0
                        currently-attached ( RO): true
                        VLAN ( RO): -1
                        network-uuid ( RO): 7a002152-ed55-bbfe-01a9-1aa4c24cea1b

uuid ( RO)                : b7f1fae1-911f-5305-60be-cbeccf801127
                        device ( RO): eth2
                        currently-attached ( RO): true
                        VLAN ( RO): -1
                        network-uuid ( RO): df6b1575-4b72-b606-458b-67dd06e222db

uuid ( RO)                : efb710d-dba8-75a4-d024-8479fd81dd4e
                        device ( RO): e*h1
                        currently-attached ( RO): true
                        VLAN ( RO): -1
                        network-uuid ( RO): 67b4ee16-390b-b947-a604-5e760fd3eb31
```

2. Use this display to cut and paste each UUID you want to verify, as shown in the following sequence.

### To use the UUIDs verify the connectivity of your networks:

1. With the cables still attached, look at the parameters for the network identified as **eth0** by issuing the following command using the UUID for **eth0**:

```
#xe pif-param-list uuid=5b430bc0-d4fd-098f-5d33-4f9cbf84c4a4
params=all
```

XenServer returns a long list of parameters associated with that UUID.

```
uuid ( RO)                : 5b430bc0-d4fd-098f-5d33-4f9cbf84c4a4
                           device ( RO): eth0
                           MAC ( RO): 00:1e:4f:f5:7f:7e
                           physical ( RO): true
                                   etc...
```

2. Scan down the list to find the carrier parameter:

```
carrier ( RO): true
```

The value of **true** indicates network connectivity.

3. Now remove the cable from **eth0** and issue the command again:

```
#xe pif-param-list uuid=5b430bc0-d4fd-098f-5d33-4f9cbf84c4a4
params=all
```

XenServer should return the following parameter set:

```
      : 5b430bc0-d4fd-098f-5d33-4f9cbf84c4a4
      device ( RO): eth0
      MAC ( RO): 00:1e:4f:f5:7f:7e
      physical ( RO): true
                                   etc...

      carrier ( RO): false
```

The value of **false** indicates the network is not connected.

Repeat the sequence for each of the network PIFs (**eth1**, **eth2**, **eth3**...) to verify that the physical cable corresponds to the network

IP addresses are not available for all networks at this time. When the information becomes available, you may want to add it to your table. The information will be useful if you need to modify or troubleshoot the networks later on.

## Create a NIC Bond on the Master Host

It is highly recommended that your network configuration contain five NICs, including a bonded NIC on the XenServer management network as described in “Define the Network Configuration” on page 14. This is recommended to provide maximum redundancy of the management network; it is also required to provide management network resiliency for Level 1 (XenServer High Availability or HA) protection.

### To create a bonded NIC on the master host:

1. Highlight the master host and click the **NICs** tab.  
You should see five networks, with NICs numbered 0 to 4.
2. Click the **Create Bond** button.
3. Choose **NIC 0** from the Available NICs box at left, then click the **Add >** button to move NIC 0 to the Bonded NICs column
4. From the list of available NICs, choose **NIC 4**, and click the **Add >** button to move NIC 4 to the Bonded NICs column.
5. Click **Create**.

During bonding, a progress bar displays in the lower-right corner of your screen. Wait for it to complete.

When you create a NIC bond on the pool master host, the bond should replicate to the pool member host(s). However, you should check to make sure the bonded network on the member host is connected, as described in the following process.

### To check the status of the network on the member host:

1. In the XenCenter resource pane, select the member host.
2. Click the **Networks** or **NICs** tabs to see if the bonded NIC displays as Connected.
3. If it is not connected, use the following steps to connect:
  - Right-click the member host and select **Management Interfaces**.
  - From the list of interfaces, choose **0+4 bonded**.
4. Click **Finish** to apply the bonded interface.

## Step 5: Check for XenServer Updates

---

**NOTE:** Install *only* XenServer updates that are identified in the *everRun Release Notes* for the current release. If you have any questions about an update, contact your Marathon support provider.

---

The Marathon download area for the everRun release you are installing contains all required everRun and XenServer software.

The everRun 6.0 software requires XenServer release 5.5.0 with Updates 2 and 3. The required XenServer components are included in the software on the Marathon download site.

**To download and install the required XenServer updates:**

1. Always check the *everRun Release Notes* to see if any Citrix XenServer updates are required for the current release. In some cases, updates may not be required.
2. Download the required updates and install them onto the pool master host and member host.

---

**NOTE:** If you apply XenServer update(s) manually, remember to reboot the server in order to apply the update. If you proceed without doing this, the update(s) will not be available on your system.

---

## Step 6: Create Windows Guest Virtual Machines

Now you can create one or more Windows virtual machines (VMs) and install the XenCenter tools on those VMs. Use the XenCenter GUI and the XenServer documentation listed in the following procedure.

**To create a new guest VM and install the XenServer tools:**

1. Open the VM menu at the top of the XenCenter interface and choose the New command to display the Create VM wizard. See the XenCenter Online Help topics under “Working with VMs” for instructions on installing and configuring a guest VM.
2. Use appropriate Windows installation media to install the operating system on the new VM.
3. See the XenCenter Online Help topic “Working with VMs > Installing XenServer Tools” for instructions on adding the required drivers on each VM.

---

**TIP:** To determine whether the XenServer tools have been installed, highlight a VM in the XenCenter resource pane and open the General tab. If the tools are required for that VM, a red **Tools not installed** message displays.

---

4. See the XenCenter Online Help topic “Working with VMs > Configuring Virtual network interfaces” for instructions on adding a network to your VM.

---

**NOTE:** If you are creating a new VM, you must install the Windows operating system and the XenServer tools on the VM. A VM imported from a template may already have Windows and the XenServer tools installed on it.

---

Additional topics in the XenCenter Online Help describe alternatives to creating a new VM: using templates, copying a VM, or importing a VM.

## **Step 7: Install Your Windows Applications**

You can install applications on your Windows VMs before or after installing and configuring everRun.

### **Next: Installing Marathon Software**

You can install the everRun software (and quorum service software, if used) before or after you create XenServer VMs or install Windows applications. In general, however, it is recommended that you establish a reliable XenServer environment— including a resource pool — before you install everRun.

In Chapter 4, follow the step-by-step instructions for loading the everRun software (and quorum service software, if used), accessing the everRun Availability Center, and performing the post-installation steps on the resource pool.



# Installing the everRun Software

# 4

This chapter provides instructions for installing everRun in your XenServer environment. Then it describes how to open the everRun Availability Center (eAC), the everRun management client, and install the everRun license.

---

**NOTE:** This chapter describes the remaining steps of the installation process in terms of the default options. If you would like to change any installer options, refer to Appendix A, “everRun Installer Online Help”.

---

## Preparing to Install everRun

For the final installation steps you will need to use *either* the everRun CD-ROM created after downloading the everRun software kit from the Marathon web site or the shared directory that contains the downloaded ISO files.

## Accessing Dom0 from the Management Computer

The CD or shared directory contains the everRun installer file, **everRun-6.0RL-installer.bin**. To execute this binary file in Dom0 on each XenServer host, you can do one of the following:

- Mount the CD in a location that is visible to Dom0, then use the host console in XenCenter to run the install binary.
- Mount the shared directory in a location that is visible to Dom0, then use the host console in XenCenter to run the install binary.

By connecting to your XenServer host from XenCenter, you created a link to Dom0, which resides on the XenServer host. This section describes how to open a command-line interface so you can run the everRun installer in Dom0.

### To connect to Dom0:

1. Highlight the XenServer host name in the left panel (the resource pane) of the XenCenter interface.

You will see a series of tabs to the right.

2. Click the **Console** tab to open a command-line interface where you can access Dom0.

## Step 8: Using the everRun Installer Wizard

First install the everRun software on XenServer Host 1 (the master host), then repeat the process to install it on the XenServer member host. The master host must be running when you install the software on the member host.

### To start the installer wizard using a CD-ROM:

For this alternative you need the CD you created from the Marathon ISO image. The CD contains the everRun installer file, **everRun-6.0RL-installer.bin**. To execute this binary file from Dom0 on the XenServer host, you mount the CD in a location that is visible to Dom0, then use the host console in XenCenter to run the install binary.

The following instructions explain how to create a CD mount point by typing a simple Linux command from the XenCenter host console.

1. Place the everRun installation CD into the CD-ROM drive of XenServer Host 1.
2. In XenCenter, type the following command at the host console # prompt to make sure you are connected to the running XenServer Host 1:  
**mount -r /dev/cdrom /mnt**
3. To launch the everRun Installer wizard from the host console, type the following command at the # prompt in the Host 1 console window:  
**bash /mnt/everRun-6.0RL-installer.bin --install**
4. Press Enter to start the installer.

### To start the wizard using a shared directory:

1. In XenCenter, make sure your Windows management computer is connected to your XenServer hosts.
2. Make sure the contents of the ISO file containing the everRun software are stored in the shared directory.
3. In XenCenter, select the pool master host in the resource pane at left, then click the Console tab.

4. In the XenCenter host console, enter the mount command at the # prompt:

```
mount -t cifs //<yourcomputername>/<sharedfoldername>
/mnt -o user=<yourusername>
```

5. When the screen prompts you, enter the password for your Windows computer.
6. To run the installer file from the master host, enter the following command at the # prompt:

```
bash /mnt/everRun-6.0RL-installer.bin --install
```

## Running the Installer Wizard

The Installer wizard is very similar to the installer you used to install your XenServer software. After you begin the install process, the Marathon license agreement displays.

### To run the Installer wizard:

1. Press the Tab key so the scroll bar at right changes to red, then scroll down and read the Marathon license agreement. Press the Tab key to highlight **Accept** and press **Enter**.

The next screen shows the Sun Java Runtime Environment license.

2. Again, scroll down and read the Sun Java Runtime Environment license agreement. Then press the Tab key to highlight **Accept** and press **Enter**.

Next the installer asks you to select the XenServer storage repository (SR) where it should install everRun, and requires that the storage system should have at least 3.9 GB of available disk space. The screen displays all the SRs you have configured to have access to the XenServer host. SRs are listed in the order of priority as recommended by Marathon — with local storage at the top of the list, followed by shared storage.

3. Select the storage repository where you want to install the everRun software. When you have decided on a location for the software, tab to **OK** and press the space bar to enter your choice.

The rest of the installation process is automatic, and runs without user interaction.

The final screen provides the URL you will need to open the everRun Availability Center (eAC) — the GUI client that enables you to monitor and manage virtual machines. The URL is the IP address of the pool master host, which the Flash-enabled browser accesses over the network.

4. Make a note of the URL for use in opening the eAC GUI.
5. Press **OK** to close the Installer wizard.

6. If you used a CD-ROM to install everRun, type **eject cdrom** at the # prompt and press Enter to remove the CD-ROM from the CD drive.

OR

If you used a mount point to install everRun, type **umount /mnt** at the # prompt to remove the mount point.

## Installing everRun on Additional XenServer Host(s)

To install the software on additional XenServer hosts, return to “Step 8: Using the everRun Installer Wizard” on page 26 and repeat the sequence on each host in the pool. Note that the final installer screen contains the same IP address as it did when you installed on the pool master, because you always log into the eAC via the pool master host.

## Installing Quorum Service Software (When Used)

If you plan to use quorum service (QS) in a multi-host pool with switched A-link networks, you need to install the QS software on each of the two computers that maintains the quorum service — the so-called quorum servers.

---

**NOTE:** Quorum service — and the need for two quorum servers — is described in the *everRun Configuration Planning Guide*.

---

The installer for the quorum service is **Setup\_QSVC\_6.0RL.exe**, a Windows executable that is part of the everRun ISO image. Use the following process to install the software on each quorum service computer.

### To install the quorum service software:

1. Copy the file from the downloaded everRun ISO onto the quorum servers.
2. On each server, locate the **Setup\_QSVC\_6.0RL.exe** file and double-click it. The software installs automatically on the Windows computer.
3. Later, after you open the eAC, you can configure the quorum servers as part of the pool configuration process. If the quorum server is not on the A-link subnet, you may need to supply a gateway address that will enable the A-link network to reach the quorum server.

## (Optional) Updating Quorum Service Communication Ports

As installed, protected VMs contact quorum service computers using UDP port 2189, and quorum service computers contact everRun-enabled XenServer hosts using UDP port 2188. If these port assignments conflict with your local infrastructure, you can use the following procedure to update the receiving port.

### To update the port number on a previously installed quorum service:

1. From a command window on the quorum service computer, change to the directory where the Marathon software is installed:

```
CD/D C:\Program Files\Marathon
```

2. Run the following command:

```
mtcgsrver -install <nnnn>
```

where <nnnn> is the port number on which the quorum server receive messages from protected VMs.

For the change to take effect, you must stop the quorum service and restart it.

## Step 9: Launch the eAC Management GUI

You have installed all the elements of the XenServer-everRun system. Now open the everRun Availability Center (eAC) GUI and configure your everRun resource pool.

### To open the eAC:

1. Type the URL provided at the end of the installation program — for example, <http://10.40.196.10:8080> — into any Flash-enabled browser that has access to the XenServer management network.

---

**NOTE:** This release supports any Flash-enabled browser such as Internet Explorer 6, 7, or 8, or Firefox 3. If you are running a 64-bit operating system on your management computer, use a Flash-enabled 32-bit browser to access everRun. Appendix B contains more information about browser troubleshooting.

---

By default, the URL directs your browser to TCP port 8080 of your pool master host. If you specified another port when you installed everRun, that port number will be part of the URL.

When the browser connects to the specified URL, a screen opens where you can log in to the eAC GUI for your XenServer pool.

---

**NOTE:** Because you'll use the same URL each time you open the eAC, it's a good idea to bookmark the address of the master host in your browser.

---

2. Enter the username and password created during the XenServer installation, then click the **Login** button.

Before you can start to protect applications with everRun, you need to use the eAC to perform several pool-wide configuration tasks, which are described under Step 10.

## Step 10: Configure the Resource Pool in the eAC

The final step in everRun installation is to use the eAC to configure the resource pool. Before you can protect or manage VMs with everRun, you must perform the following steps.

- Install the everRun license key.
- Set the pool isolation IP address for everRun failover. This provides access to the network device that guarantees automatic everRun fault handling within the pool.
- Configure the everRun availability link (A-link) networks.
- Configure the quorum service computers, if used in your configuration.

---

**NOTE:** In the Getting Started column of the eAC Welcome screen, click **Pool-Wide Configuration Tasks** for links to more information about any of these steps.

---

### Installing the License Key

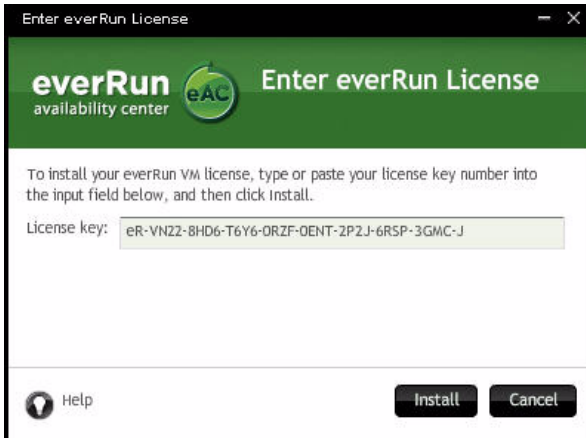
---

**NOTE:** For the Release 6.0 program, everRun contains an embedded license that enables the software on your pool. There is no need to install an additional license key for the program.

---

#### To apply the everRun license key:

1. When the eAC workspace opens for the first time, it displays a message that lets you choose the (single-host) default evaluation license or install a different everRun license. Choose **Install License** to display the license pop-up window.



2. Locate the license key you obtained from Marathon Order Support.
3. Copy the license key from the text file, paste it into the License Key field of the Enter everRun License dialog box, and click **Install**.

A message informs you that the license was accepted and applied.

4. Click **OK** to close the dialog box.

If you require additional details, see the Online Help topics under **Configuring an everRun Pool > License Management**.

## Setting the Pool Isolation IP Address

You must also set a **pool isolation IP address** before you begin to protect VMs, in order to guarantee high availability operation during a host outage.

For information on setting the IP address for maximum reliability, start with the following topics in Online Help: **Configuring an everRun Pool > Pool Isolation IP Address**.

---

**NOTE:** When planning your IPv4 pool network design, consult your network administrator if you need help in planning IP address ranges, netmasks, and other network details that are consistent with your existing infrastructure.

---

## Configuring the everRun Availability-Link (A-link) Networks

Provide an IPv4 network IP address scheme for your A-link networks that has no conflicts with existing addresses in your infrastructure. These A-links, which are critical to the successful operation of everRun, require private, dedicated subnets for each protected VM (PVM). Once you set up a pool-wide system of IP addresses, each protected VM is automatically assigned IP addresses from this scheme.

In the *everRun Configuration Planning Guide*, consult Chapter 4, Network Fundamentals, as well as the appendix that describes your configuration option, for recommendations and best practices for configuring private A-link LANs. See also **Configuring an everRun Pool > Pool-Wide Network Configuration** in the Online Help.

## Configuring Quorum Service (When Applicable)

As outlined in the *everRun Configuration Planning Guide*, Chapter 5, Quorum Service Fundamentals, quorum service is mandatory when XenServer HA is not configured and:

- The pool contains more than two hosts.

- A-link network(s) are configured with active components (switches, gateways, routers — anything except short point-to-point cables).
- A configuration consists of multiple sites (SplitSite®), including multiple computer rooms.

See *everRun Configuration Planning Guide*, Chapter 5, Quorum Service Fundamentals, for recommendations and best practices for configuring a preferred and alternate quorum server. For specific guidelines, choose the configuration option you prefer and use the quorum service guidelines recommended for that option.

---



**NOTE:** Quorum service is not used on a direct-connected two-host configuration.

---

For information on using the eAC GUI controls to configure quorum service, see the following topics in Online Help: **Configuring an everRun Pool > Quorum Service Management**.

## Working with the eAC: An Overview

The everRun eAC GUI illustrated in this section lets you monitor and manage your protected VMs using menus, buttons, and icons to simplify task management. To provide a quick orientation, the illustration uses circled numbers to identify the five main areas of the workspace; the following list briefly describes each area.

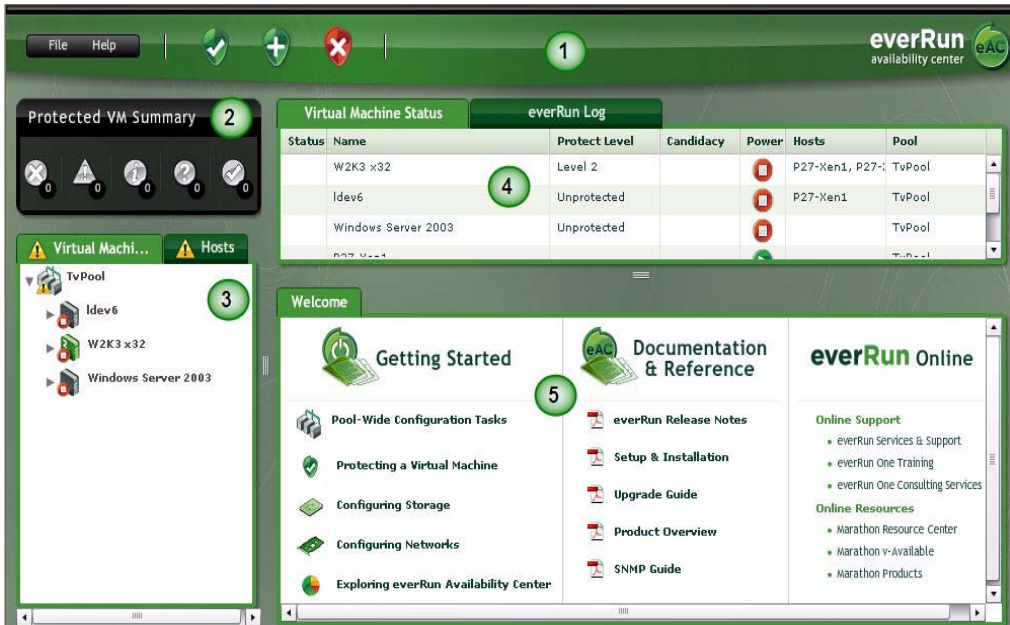
- ① The **task bar** area contains the File and Help menus, as well as the shortcut buttons for the Protect (  ) and Unprotect (  ) functions.
- ② The **Protected VM Summary** area provides a quick way to view the status, by category, of all VMs and protected PVMs on the XenServer hosts.
- ③ The **resource pane** shows all system resources in a Windows tree view. This pane contains two tabs: **Virtual Machines** and **Hosts**. When you select a resource on one of these tabs, an orange bar highlights it, and the same resource is highlighted in the Virtual Machine Status table (circle 4). At the same time, the Detail tab at the lower right of the workspace (circle 5) displays detailed information for that resource.
- ④ The **Virtual Machine Status** table contains key information about each of the hosts, VMs, and protected VMs in the system. Check this table to learn if a VM is a candidate for protection and to identify the level(s) of protection it qualifies for.
- ⑤ Information in the **Detail** tab is context-sensitive: its display is determined by the resource selected in the resource tree. This space also contains a Welcome tab that links you to a number of basic help topics, online documentation, and customer support sites.

In the eAC, most tabs display in dark green, but selected tabs display in light green.

---

**NOTE:** In addition to this browser-based client, everRun has a command-line management tool, the everRun (**ev**) CLI, which is described in the everRun Online Help.

---



## Learning More About everRun Management

After your pool has been configured, you can use the eAC to protect, unprotect, and otherwise manage the candidate VMs. To become more familiar with the eAC, consult the everRun Online Help as you learn how to use the eAC controls.

### To learn about everRun system management:

1. Open the Help menu in the task bar, click **Search**, and type **everRun Protection Overview** into the search field.
2. Click the topic entitled **everRun Protection Overview**.

This topic describes how to identify candidates (and non-candidates) for protection, and how to protect and unprotect a VM. Follow the links from this topic for more information about each task.

The everRun online Help also contains a section called **Exploring the everRun Availability Center** that explains each part of the GUI interface. As you begin to work with your protected virtual environment, use the Online Help topics when

you want to learn more about the interface, the management tasks, the interfaces to use for specific management tasks, system troubleshooting, and CLI command syntax.

## Viewing the Installer Online Help

Chapter 4, “Installing the everRun Software” describes how to run the installer wizard with the default options. In most cases, it is expected that the installer defaults will be used.

However, you may want to change some options because of your local network constraints. This appendix contains examples describing the use of the installer help options.

### To display everRun Installer options:

To see all the options available in installer online help, along with a brief description of each option, issue the install command with [OPTIONS] *while the CD-ROM is still in the CD drive*:

```
❖ # bash /mnt/everRun-6.0RL-installer.bin --install [OPTIONS]
```

The installer displays the following information:

<code>--install</code>	This parameter must be specified
<code>--version</code>	Reports version information for this installer
<code>--port=n</code>	Overrides default port numbers used for management software. Two ports are used: n and n+1
<code>--sr-uuid=uuid</code>	Optional UUID of the SR storage repository to use for creation of the product installation logical volume
<code>--help</code> or <code>-h</code>	Displays this text and additional information about ports, and the SR and VG options

### To display everRun Installer online help text:

- ❖ To see online help that contains more descriptive text about each option, enter one of the following commands *while the CD-ROM is still in the CD drive*:
  - `# bash /mnt/everRun-6.0RL-installer.bin --help`
  - `# bash /mnt/everRun-6.0RL-installer.bin -h`
  - `# bash /mnt/everRun-6.0RL-installer.bin`

## An Example: Assigning Communications Ports

The installer configures two TCP ports in the firewall on the XenServer host. These ports, which eAC uses to access the everRun application, are identified as ports 8080 and 8081 by default. If those port assignments are inconsistent with your network usage, this example describes how the installer options can be used to assign new port numbers for eAC access.

The everRun installer online help displays the following information about the port option:

```
The web-based management software requires two ports to be
enabled to accept remote connections. You may wish to override
the default port numbers with your own settings. These ports must
be configured identically across all XenServer hosts within the
management pool. The default configuration set up by the
installer is:
```

```
ports: 8080 and 8081
```

```
The ports are enabled by the firewall rules set via iptables.
```

### To change the default communication ports:

1. When you issue the install command, include the specific port(s) to use:

```
bash /mnt/everRun-6.0RL-installer.bin - install --PORT=6900
```

This example sets ports 6900 and 6901 as the communication ports.

## An Example: Managing Logical Volume Storage

If the installer reports an error in the installation process, you can use command-line options to correct the problem. The text in the online help briefly explains what to do:

### **sr-uuid option**

The product installation creates a logical volume for storing the product executables, scripts, and logfiles. By default the installer attempts to create the logical volume using storage from the default local storage repository (SR). If the installation cannot create the logical volume, you should use the SR option to specify the storage repository to use. Please refer to the product documentation [or Marathon Customer Support] for more information.

In this example, the installer reported an error in the installation process, which involved the **logical volume** required for everRun storage. Instead of successfully completing the installation, the installer sent the following message.

```
Could not mount logical volume storage for product installation.
Examine the logfile for additional details.
```

The location of the logfile is included in the final lines of the installer script.

```
logfiles saved to tmp/everRun...[directory path].
```

In the example, the logfile contained the following line:

```
Attach everRun storage status: No default SR
```

### To locate and specify the UUID for the storage repository:

1. To see a list of local storage of type LVM in the pool (let's say you are **root@test1-master ~**), type the following at the console command line:

```
[root@test1-master ~]# xe sr-list type=lvm
```

When the list displays, you can select the local storage located on the test1-master host.

```
uuid ( RO) : c4571f60-cee4-f929-f19a-e7e816a8d545
name-label ( RW): Local storage
name-description ( RW):
host ( RO): test1-master
type ( RO): lvm
content-type ( RO): user
```

```
uuid ( RO) : 88d5ddb-b-a864-5cf9-e6dc-68ba4a5dd0d7
name-label ( RW): Local storage
name-description ( RW):
```

```
host ( RO): test1-slave
type ( RO): lvm
content-type ( RO): user
```

In this case, the first example shows the local storage on test1-master, so the UUID you want is **c4571f60-cee4-f929-f19a-e7e816a8d545**.

2. Alternatively, to guarantee seeing local storage on test1-master, you can add the hostname to the command:

```
[root@test1-master ~]# xe sr-list type=lvm host=$(hostname)
```

This command shows the UUID for local storage on that host.

```
uuid ( RO) : c4571f60-cee4-f929-f19a-e7e816a8d545
name-label ( RW): Local storage
name-description ( RW):
host ( RO): test1-master
type ( RO): lvm
content-type ( RO): user
```

3. Now you can specify the UUID for the local storage repository when you rerun the everRun install command:

```
bash /mnt/everRun-6.0RL-installer.bin --install --sr=c4571f60-
cee4-f929-f19a-e7e816a8d545
```

---

**NOTE:** Although the option name is **--sr-uuid**, it can be abbreviated to **--sr**.

---

## Resolving Problems with Internet Explorer

If you are experiencing difficulty using Internet Explorer to access the everRun Availability Center, try one or more of the troubleshooting procedures documented in this appendix.

### Internet Explorer Security Level Settings

eAC requires Adobe Flash Player 9 or later. On startup, the eAC application detects whether or not the correct version of the Flash Player is installed on your browser. If it does not detect a suitable version of Flash Player, the eAC launcher offers the option to download from the Adobe Flash Player site or from a local version stored on the everRun server. To ensure operation with the latest runtime it is recommended that, if you have an Internet connection, you always choose the Adobe download site.

If you are experiencing trouble installing Flash Player, verify that your Internet Explorer security level is not set to High or to a custom level that does not permit viewing of ActiveX controls. Before attempting to launch eAC, you or your system administrator should verify that the following settings are in effect on your browser.

The Medium Default Level Security permits you to view Flash content. Should you need to implement any Custom Level, ensure that both the Download Signed ActiveX controls and Run ActiveX controls and plug-ins options are set to Prompt.

#### To change your security level:

1. Open Internet Explorer.
2. Choose **Tools > Internet Options**.
3. Select the **Security** tab.
4. Select **Custom Level**.

5. Locate the section ActiveX controls and plugins.
6. Set Download Signed ActiveX Controls to **Prompt**.
7. Set Run ActiveX Controls And Plug-ins to **Prompt**.

## Windows Vista Installation Failure

When used with some Windows Vista platforms the Adobe Flash Player may be installed but may not display Flash content. Update to the latest Flash Player to correct the User Account Control settings that cause this problem.

### To run the utility:

1. Locate the installed Flash folder and right-click  
**C:\Windows\System32\Macromed\Flash\FlashUtil9d.exe.**  
The letter changes with each Flash version, so may be **FlashUtilb.exe** or **FlashUtile.exe**.
2. Select **Run as Administrator**.
3. Follow the steps to complete the Flash Player installation.
4. Restart your computer.

## Windows Server 2003, 64-bit version

If you are running 64-bit Windows Server 2003 on your management computer, Marathon recommends the 32-bit Firefox 3 browser.

## Additional Troubleshooting Tips

If you are still experiencing trouble installing or running the Flash Player, please refer to the Adobe TechNote located at the following site for additional troubleshooting tips:

[http://kb.adobe.com/selfservice/viewContent.do?externalId=tn\\_19166&sliceId=1](http://kb.adobe.com/selfservice/viewContent.do?externalId=tn_19166&sliceId=1)

# Brief Glossary



*Here are some common terms you'll encounter in this guide. everRun terms and XenServer/Industry terms are listed separately. You'll find a more extensive glossary in the Online Help system, available from the **everRun Availability Center (eAC)**.*

## **everRun® Terminology**

### **availability links (A-links)**

The connectivity path(s) between two availability managers (typically located on separate XenServer hosts) in an everRun-protected virtual machine (PVM).

### **Availability Manager (AM)**

A purpose-built virtual appliance containing the everRun software that applies protection to a target virtual machine (VM). The AM, which exists on each everRun-enabled XenServer host, implements the logic and context required to create the protected VM.

### **bonded network interface card (NIC)**

An everRun “bonded” NIC aggregates two separate network interface cards into a single logical interface. everRun uses a bonded NIC on the XenServer management network to provide a hot standby in case one NIC should fail.

### **Compute Instance (CI)**

A component of the protected virtual machine (PVM) that represents a single instance of the everRun PVM on a XenServer host. A duplicate instance is cloned on another XenServer host.

### **Storage subsystem data protection**

A path-redundant protection option, available to users whose configuration includes intelligent SAN systems that provide onboard data redundancy.

### **everRun Availability Center (eAC)**

The browser-based everRun graphical user interface (GUI) used to manage and monitor everRun-protected virtual machines.

### **everRun mirroring**

A process for creating and maintaining a set of identical disk images on separate physical disks. Each everRun protected VM relies on a pair of storage repositories (SRs), known as a **mirror set**, which maintain identical information.

### **pool isolation IP address**

The IP address of an independent network device on the XenServer management network. everRun software pings this device to detect the health of the host's management network

connection. The results of the ping help isolate master/member failures and determine corrective action. By default the isolation IP address is that of the network's gateway device, which is the first usable IP address on the subnet.

### **protected VMs (PVMs)**

Virtual machines (VMs) that have Marathon availability software applied. For optimum availability, a PVM should run on two physical XenServer hosts.

### **quorum service**

An everRun communication service, installed on one or more Windows clients on the LANs, that prevents host servers from operating independently in a non-communicating, partitioned mode of operation (commonly known as *split brain*). Also enables unattended restarts in failure modes that impact all networks (such as loss of connectivity between the two AMs in a PVM).

### **quorum service computer**

The network-accessible PC that runs the everRun quorum service. The eAC provides a dialog box where you can specify an IP address for the preferred (or primary) quorum computer, as well as an alternate quorum server. All PVMs in a resource pool use the same quorum service computers.

### **split brain**

An undesirable condition in which the two availability managers (AMs) servicing the two halves of an everRun protected VM are partitioned and operating independently.

## **XenServer™ and Industry Terminology**

### **domain**

In XenServer terminology, refers to the execution context that contains a running virtual machine (VM). The relationship between VMs and domains in XenServer is similar to that between programs and processes in an operating system: like a program, a VM is a persistent entity that resides on disk. When it is loaded for execution, a VM runs in a domain with a distinct domain ID. See **Domain0**, **DomainU**.

### **Domain0 (Dom0)**

A privileged virtual machine (VM) that provides the platform management and drives the physical I/O devices and platform resources. Dom0 (rhymes with Mom) is the first domain started by the XenServer hypervisor at boot, running a Linux OS. Dom0 is sometimes referred to as the “control domain.”

### **DomainU (DomU)**

An unprivileged domain on a XenServer, running a guest operating system that has been ported to XenServer; for example, each Windows guest VM runs in a DomU. The U stands for “user.”

### **FC-SAN**

In storage virtualization, fibre-channel (FC) storage area networks (SAN) allow you to aggregate disks and logical units (LUNs) from disparate systems into shared storage pools.

### **iSCSI**

Internet SCSI, an IP-based standard for linking data storage devices over a network and transferring data by carrying SCSI commands over IP networks. For an overview, see [wikipedia.org](http://wikipedia.org).

## **ISO image**

A disk image (archive file) of an optical disc using a conventional ISO format supported by many software vendors. The name "ISO" is taken from the ISO 9660 file system used with CD-ROM media.

## **logical unit number (LUN)**

An address for an individual disk drive. The term is used in the SCSI protocol as a way to differentiate individual disk drives within a common SCSI target. In everRun, the LUN provides address information for individual storage volumes within a mirror set.

## **logical volume**

In computer storage, logical volume management (LVM) is a method of allocating space on mass storage devices that is more flexible than conventional partitioning schemes. Volume management is one of many forms of storage virtualization. A volume manager can concatenate, stripe together, or otherwise combine partitions (volumes) into larger virtual ones that can be resized or moved.

## **management computer**

In a XenServer configuration, the general-purpose Windows computer that is used to manage the XenServer software as well as the everRun software. Also called **client computer**.

## **master host**

The physical node in a XenServer resource pool that contains an administration interface and forwards commands to individual member nodes.

## **member host**

A physical node in a XenServer resource pool that has no administration interface and receives commands from the pool's master node. Also called **pool member**.

## **NFS**

Network File System, an industry-standard client/server application that allows network users to access shared files stored on computers of different types. Users can manipulate shared files as if they were stored locally on the user's own hard disk.

## **PATA**

Parallel Advanced Technology Attachment. One type of standard interface for connecting storage devices in personal computers. For an overview, see AT Attachment at wikipedia.org.

## **resource pool**

A connected group of homogeneous XenServer hosts that, combined with shared storage, provide a platform on which virtual machines (VMs) run. Servers in a resource pool monitor the state and availability of their peers. Also called **pool**.

## **SATA**

Serial Advanced Technology Attachment. One type of standard interface for connecting storage devices in personal computers. For an overview, see AT Attachment at wikipedia.org.

## **SCSI**

A type of hard disk drive used in high-performance workstations and servers. For an overview see SCSI at wikipedia.org.

## **storage repository**

In XenServer, any storage target that contains physical disks.

## **virtual disk image (VDI)**

A disk abstraction that contains the contents of a virtual disk.

## **virtual machines (VMs)**

File-based abstractions of dedicated machines, which provide the environment in which a hosted operating system (OS) runs. A VM is also known as a guest domain or "DomU" in XenServer terminology.

## **Xen bridge (xenbr)**

In XenServer network configuration, the bridge parameter defines a method of connecting objects. For example, if a physical interface (PIF) object connects a network object (n) to a host object (h), the network corresponding to n is bridged onto a physical interface specified by the fields of the PIF object. Thus, if a NIC is named **eth0**, the associated bridge is **xenbr0**.

## **XenCenter**

A Windows client (GUI) application that enables you to manage XenServer hosts, resource pools, and shared storage. It also lets you deploy, manage, and monitor VMs.

## **XenServer API (xapi)**

The Citrix XenServer management API, the applications programming interface that supports both XenCenter GUI and the `xe` command line interface (CLI).

## **XenServer hosts**

As defined by Citrix, a host is a homogeneous system — aggregated into a single management entity — that can contain virtual machines. For detailed information, see the XenServer documentation.