VMware Infrastructure 3 Primer

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About This Book

This manual, the *VMware Infrastructure 3 Primer*, is a companion guide to the on-screen instructions in the Getting Started tabs of the VMware® Infrastructure 3 user interface (the VMware Infrastructure Client). The Getting Started tabs provide information on the currently selected inventory item (a host, a virtual machine, and so on) in the interface. If you do not have any inventory items, the Getting Started tabs provide guided help for setting up VMware VirtualCenter Server, including helpful wizards for creating or adding inventory items. The purpose of this manual is to help you install VirtualCenter Server and, after you have connected, follow the guided help in the Getting Started tabs to build your inventory.

After you have completed the steps in this guide, you will have:

- Installed VirtualCenter Server,

- Followed the guided help in the Getting Started tabs to add your existing VMware ESX Server 3.5 or VMware ESX Server 3i host to VirtualCenter, and

- Built or imported a working virtual machine.

This manual also provides information about the basic components of the VMware Infrastructure 3 environment.

The *VMware Infrastructure 3 Primer* covers both ESX Server 3.5 and ESX Server 3i version 3.5. For ease of discussion, this book uses the following product naming conventions:

- For topics specific to ESX Server 3.5, this book uses the term "ESX Server 3."

- For topics specific to ESX Server 3i version 3.5, this book uses the term "ESX Server 3i."

- For topics common to both products, this book uses the term "ESX Server."

- When the identification of a specific release is important to a discussion, this book refers to the product by its full, versioned name.

- When a discussion applies to all versions of ESX Server for VMware Infrastructure 3, this book uses the term "ESX Server 3.x."

Intended Audience

This manual is intended for new users of VMware Infrastructure 3. Specifically, it is intended for users who:

- Have a computer with ESX Server software installed on it and

- Do not yet have VirtualCenter Server installed.

Users who have VirtualCenter Server installed, but do not have any inventory items set up, can also benefit from this manual.

The information in this manual is written for experienced Windows or Linux system administrators who are familiar with datacenter operations.

This guide assumes that you have VMware ESX Server software installed on a physical machine. If you do not have ESX Server software, go to:
http://www.vmware.com/products

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VMware Infrastructure Documentation

The VMware Infrastructure documentation consists of the combined VMware VirtualCenter and ESX Server documentation set.

Technical Support and Education Resources

The following sections describe the technical support resources available to you. To access the current versions of this book and other books, go to:

http://www.vmware.com/support/pubs.

Online and Telephone Support

Use online support to submit technical support requests, view your product and contract information, and register your products. Go to:

http://www.vmware.com/support

Customers with appropriate support contracts should use telephone support for the fastest response on priority 1 issues. Go to:

http://www.vmware.com/support/phone_support.html

Support Offerings

Find out how VMware support offerings can help meet your business needs. Go to:

http://www.vmware.com/support/services

VMware Education Services

VMware courses offer extensive hands-on labs, case study examples, and course materials designed to be used as on-the-job reference tools. For more information about VMware Education Services, go to:

http://mylearn1.vmware.com/mgrreg/index.cfm

VMware Infrastructure 3 Primer

VMware Infrastructure 3 is a suite of applications that uses virtualization to:

- Run multiple operating systems on a single physical computer simultaneously.
- Reclaim idle resources and balance workloads across multiple physical computers.
- Work around hardware failures and scheduled maintenance.

The VMware Infrastructure 3 components you will set up are described in "Understanding VMware Infrastructure 3 Components." The steps you to set up these components are outlined in the "VMware Infrastructure 3 Setup Procedure."

Understanding VMware Infrastructure 3 Components

Familiarity with the components that make up the VMware Infrastructure environment helps you understand the setup process and, ultimately, the process of running virtual machines using VMware VirtualCenter.

VMware Infrastructure 3 includes the following components:

- **Host** – A host is a computer that uses virtualization software, such as ESX Server 3.5 or ESX Server 3i, to run virtual machines. Hosts provide CPU and memory resources, access to storage, and network connectivity to virtual machines that reside on them. You must have a host before following the steps in this manual.

- **The VirtualCenter Server** – The VirtualCenter Server manages multiple hosts at the same time. The VirtualCenter Server unifies resources from individual hosts so that those resources can be shared among virtual machines in the entire datacenter. Managing multiple hosts through a VirtualCenter Server allows you to use advanced VMware Infrastructure features such as VMware Distributed Resource Scheduler (DRS), VMware High Availability (VMware HA), and VMware VMotion™.

- **The VMware Infrastructure Client** – The VI Client is the remote management client to the VirtualCenter Server and to hosts. You can connect to and manage the VirtualCenter Server with the VI Client, and you can also connect to individual ESX Server hosts with the VI Client. The interface displays different options depending on which type of server you are connected to. The VI Client also provides console access to virtual machines.

- **Datacenter** – A datacenter is a structure under which you add hosts and organize their associated virtual machines in the VirtualCenter inventory.

- **Virtual Machine** – A virtual machine is a software computer that, like a physical computer, runs an operating system and applications. Multiple virtual machines can run on the same host at the same time. Virtual machines managed by VirtualCenter Server can also run on a cluster of hosts.

The relationships among the basic components of VMware Infrastructure are shown in Figure 1.

Figure 1.   VMware Infrastructure 3 Components
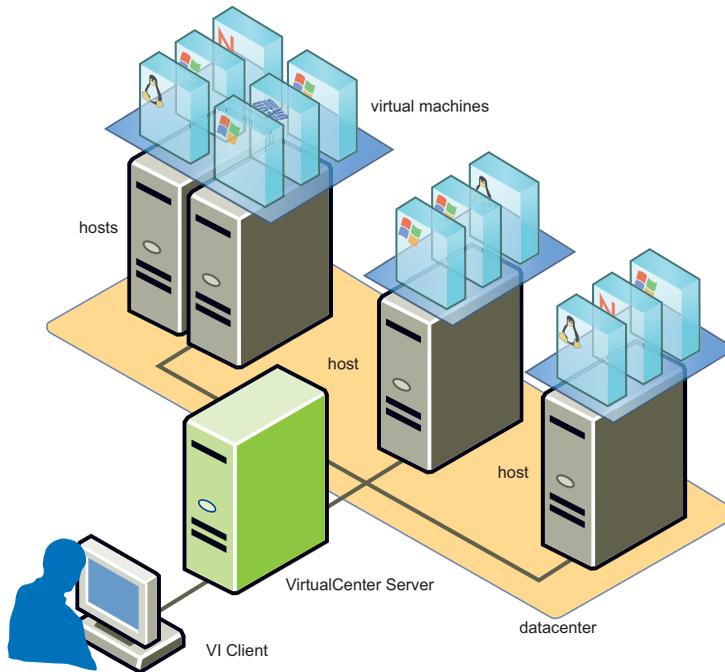
Using This Manual with VI Client Guided Help

Now that you understand the components that make up VMware Infrastructure 3, you can use this manual to follow the guided help in the VI Client.

The following sections describe the guided help components found in the VI Client:

■   What Are the Getting Started Tabs?

■   What Is the Tutorial?

What Are the Getting Started Tabs?

The Getting Started tabs provide information on the currently selected inventory item (a host, a virtual machine, and so on) in the interface. If you do not have any inventory items, the Getting Started tabs provide guided help for setting up VirtualCenter Server including helpful wizards for creating or adding inventory items. This manual helps you follow the guided help in the Getting Started tabs to build your inventory after you have installed VirtualCenter Server and logged in.

The Getting Started tabs are always the first tab from the left in the Information Panel of the VI Client. They provide information about the object that is currently selected in the Inventory Panel.

Figure 2.   Getting Started Tab in VI Client
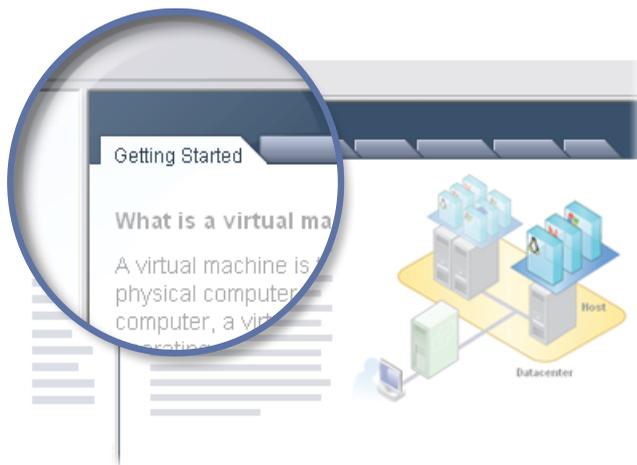
What Is the Tutorial?

The VMware Infrastructure Tutorial is available from the Getting Started tabs and the Help menu in the VI Client. It provides detailed information about VirtualCenter components, inventory items, and tasks. Explore the tutorial when you want to learn more about the topic covered on the currently displayed Getting Started tab.

VMware Infrastructure 3 Setup Procedure

VMware Infrastructure 3 setup includes installing VirtualCenter 2.5 and the VI Client, connecting to VirtualCenter Server through the VI Client, creating a datacenter, adding your existing host to the VirtualCenter inventory, and building or importing a virtual machine. You will have a working virtual machine after completing the following steps:

1   **Installing VirtualCenter Server and the VI Client**

Install VirtualCenter Server and the VI Client to manage your existing host and the virtual machines that will run on it.

2   **Starting the VI Client and Logging In to the VirtualCenter Server**

Connect to the VirtualCenter Server through the VI Client to start setting up your VMware Infrastructure environment.

3   Creating a Datacenter

Create a datacenter to contain your VirtualCenter inventory objects such as hosts and virtual machines. You must create a datacenter before you add your existing host to VirtualCenter.

4   Adding a Host

Add your existing ESX Server 3.5, VMware Server,or ESX Server 3i host to VirtualCenter. You must have a host before following the steps in this manual. (SEE UPDATE)

5   Adding a Virtual Machine

Add a virtual machine to your host by importing a prebuilt virtual machine or by building a virtual machine from scratch and installing a guest operating system and VMware Tools on it.

Installing VirtualCenter Server and the VI Client

The first step in setting up VMware Infrastructure 3 is installing some of the components. You already have a host. This section describes how to install the VirtualCenter Server and the VI Client.

Before you begin, make sure the system on which you install these components meets the system requirements listed in the Requirements section below. Then, follow the instructions in the Installation Procedure.

Requirements

The following sections list the requirements for VirtualCenter Server and the VI Client installations.

- VirtualCenter Server Requirements
- VI Client Requirements

VirtualCenter Server Requirements

The VirtualCenter Server must be installed on a physical or virtual machine configured with access to a database. The following sections list VirtualCenter Server hardware and software requirements.

VirtualCenter Server Hardware Requirements

VirtualCenter Server hardware must meet the following requirements:

■ **Processor** – 2.0GHz or higher Intel or AMD x86 processor. Processor requirements can be larger if your database is run on the same hardware.

■ **Memory** – 2GB RAM minimum. RAM requirements can be larger if your database is run on the same hardware.

■ **Disk storage** – 560MB minimum, 2GB recommended. You must have 245MB free on the destination drive for installation of the program, and you must have 315MB free on the drive containing your `%temp%` directory.

> **NOTE** Storage requirements can be larger if your database runs on the same hardware as the VirtualCenter Server machine. The size of the database varies with the number of hosts and virtual machines you manage. Using default settings for a year with 25 hosts and 8 to 16 virtual machines each, the total database size can consume up to 2.2GB (SQL) or 1.0GB (Oracle).

■ **Microsoft SQL Server 2005 Express disk requirements** – The database requires up to 2GB free disk space to decompress the installation archive. However, approximately 1.5GB of these files are deleted after the installation is complete. The bundled Microsoft SQL Server 2005 Express is supported for small deployments with up to 5 hosts and 50 virtual machines. For larger deployments, VMware supports several Oracle and Microsoft SQL Server databases.

■ **Networking** – Gigabit recommended.

VirtualCenter Server Software Requirements

The VirtualCenter Server is supported on 32-bit versions of the following operating systems: Windows 2000 Server SP4 with Update Rollup 1, Windows XP Pro SP2, Windows 2003 Server SP1, Windows 2003 Server SP2, and Windows 2003 Server R2.

For any operating system except Windows Server 2003 SP1, make sure to install Microsoft Windows Installer 3.1, otherwise your VirtualCenter installation can fail. See http://support.microsoft.com/?id=893803 for information on downloading Windows Installer 3.1.

VirtualCenter 2.x installation is not supported on 64-bit operating systems.

The VirtualCenter installer requires Internet Explorer 5.5 or higher in order to run.

VI Client Requirements

The following sections list VI Client hardware and software requirements.

VI Client Hardware Requirements

The VI Client hardware must meet the following requirements:

- **Processor** – 266MHz or higher Intel or AMD x86 processor (500MHz recommended).

- **Memory** – 256MB RAM minimum, 512MB recommended.

- **Disk Storage** – 150MB free disk space required for basic installation. You must have 55MB free on the destination drive for installation of the program, and you must have 100MB free on the drive containing your `%temp%` directory.

- **Networking** – Gigabit recommended.

VI Client Software Requirements

The VI Client is designed for these operating systems: Windows 2000 Pro SP4, Windows 2000 Server SP4 with Update Rollup 1, Windows XP Pro SP2, Windows 2003 SP1 and SP2 (all releases except 64-bit), Windows 2003 Server R2, Windows Vista Business, and Windows Vista Enterprise.

NOTE The VI Client requires the Microsoft .NET 2.0 Framework. If your system doesn't have it installed, the VI Client installer automatically installs it.

Installation Procedure

A wizard guides you through the installation of both VirtualCenter Server and the VI Client.

To install VMware VirtualCenter Server and the VI Client

1 Log in to the Windows system as the administrator, and insert the installation CD.

2 Choose a language for the installer and click **OK**.

3 When the VMware Infrastructure Management Installer screen appears, click **Next**.

   If you downloaded the installation package, double-click the autorun.exe icon, and click **Next**.

   An Introduction page that describes the benefits of installing VirtualCenter Server appears.

4 Click **Next**.

5 Select **I accept the terms in the license agreement**, and click **Next**.

6   Type your user name and company name on the Customer Information page, and click **Next**.

7   On the Installation Type, select **VMware VirtualCenter Server**, and click **Next**.

8   On the Database Selection page, select **Install Microsoft SQL Server 2005 Express**.

The VMware Infrastructure Management Installer installs Microsoft SQL Server 2005 Express database for you.

If you choose this option, the enterprise-level edition of VirtualCenter is installed in evaluation mode. The VMware License Server is also installed so that you can switch to licensed mode during or after the evaluation period. The bundled Microsoft SQL Server 2005 Express is supported for small deployments with up to 5 hosts and 50 virtual machines. For larger deployments, VMware supports several Oracle and Microsoft SQL Server databases.

NOTE   If you already have a VirtualCenter license, you can install it on the License Server later.

9   Click **Next**.

10   Enter the Windows administrator user name and password that you use when you log into the system on which you are installing VMware Infrastructure, and click **Next**.

NOTE   You will need this user name and password when you use the VI Client to log in to the VirtualCenter Server.

11   Click **Install**.

Installation might take several minutes. Multiple progress bars appear during installation of the selected components.

12   For each component that you install, enter the port and proxy information or accept the default information shown on screen.

Click **Next** to continue through the screens.

13   Click **Finish** to complete the VMware Infrastructure Management installation.

After you have completed the installation, use the VI Client to connect to the VirtualCenter Server.

Starting the VI Client and Logging In to the VirtualCenter Server

Connect to the VirtualCenter Server with the VI Client. When you connect to a VirtualCenter Server, you can manage the VirtualCenter Server as well as all of the hosts and virtual machines managed by it.

To start a VI Client session

1   Double-click a shortcut or choose **Start > Programs > VMware > VMware Infrastructure Client** to start the VI Client.

2   Log in to the VirtualCenter Server as the administrator.

    a   Enter the IP address or VirtualCenter Server name.

    b   Enter your Windows administrator user name.

    c   Enter your Windows administrator password.

3   Click **Login**.

After you connect to VirtualCenter Server with the VI Client, create a datacenter.

Creating a Datacenter

The first step in setting up VMware Infrastructure 3 components is creating a datacenter. A datacenter is a structure under which you organize hosts and their associated virtual machines in the VirtualCenter inventory.

If you are logging in to the VirtualCenter Server for the first time, you should have no inventory items in the Inventory panel on the left. The Getting Started tab on the right guides you through adding inventory items.

To create a datacenter

1   Select the root node folder **Hosts & Clusters** in the Inventory Panel on the left.

2   Follow the on-screen instructions in the Getting Started tab on the right, and click **Create a datacenter**.

3   Name the datacenter by selecting it, entering a name, and pressing Enter.

After you create a datacenter, add a host to it.

Adding a Host

A host is a computer that uses virtualization software, such as ESX Server or ESX Server 3i software, to run virtual machines. When you add a host to a datacenter, you bring it under VirtualCenter management.

NOTE ESX Server software must be installed on the computer you wish to add to VirtualCenter.

To add a host

1 In the Inventory panel on the left, select the datacenter you just created.

2 Follow the on-screen instructions in the Getting Started tab and click **Add a host**.

3 Follow the on-screen instructions in the Add Host wizard.

After you add a host, add virtual machines to run on it.

Adding a Virtual Machine

There are several ways to add virtual machines to hosts. In the inventory, select the host you just added, and the Getting Started displays instructions on importing a virtual appliance and building a new virtual machine. Choose one of these options to add your first virtual machine.

Importing a Virtual Appliance

A virtual appliance is a prebuilt virtual machine with an operating system and applications already installed.

To import a virtual appliance

1 In the Inventory panel, select the host you just added to your inventory.

2 Follow the on-screen instructions in the Getting Started tab and click **Import a Virtual Appliance**.

3 Follow the on-screen instructions in the Import Virtual Appliance wizard.

After you import the virtual appliance, explore its functionality by powering it on and viewing it trough the Console tab on the VI Client. To release the cursor from the Console, press **Alt** + **Control** simultaneously. To view the Console in full screen mode, from the Inventory, right-click the virtual machine and select **Open Console**.

To learn more about using virtual machines, click the **Explore Further** link in the bottom right corner of the Getting Started tab to access the VMware Infrastructure Tutorial.

Creating a Virtual Machine

Creating a new virtual machine is like building a computer: after you have finished, you need to install a guest operating system, applications, and VMware Tools on it. Before you create a new virtual machine, decide which host or cluster the new virtual machine will reside on, the type of guest operating system you will install on the new virtual machine, and the location of the CD or image files for the installation.

To create a virtual machine

1   In the Inventory panel, select the host you just added to your inventory.

2   Follow the on-screen instructions in the Getting Started tab, and click **Create a New Virtual Machine**.

3   Follow the on-screen instructions in the Create New Virtual Machine wizard.

After you have created the new virtual machine, install a guest operating system and VMware Tools on it. Make sure that you have an ISO image and a license for the operating system you want to install on the virtual machine. You can find instructions on installing a guest operating system and VMware Tools in the VMware Infrastructure Tutorial. Follow the **Explore Further** links in the Getting Started tab to access the tutorial.

Updates for the VMware Infrastructure 3 Primer

Last Updated: August 15, 2008

This document provides updates to the Update 2 release for ESX Server 3.5, ESX Server 3i version 3.5, VirtualCenter 2.5 version of the *VMware Infrastructure 3 Primer*.

The following is an update to the *VMware Infrastructure 3 Primer*:

■ Updates for the VMware Infrastructure 3 Setup Procedure on Page 13

Updates for the VMware Infrastructure 3 Setup Procedure on Page 13

Step 4, "Adding a Host," of the VMware Infrastructure 3 Setup Procedure incorrectly lists VMware Server as a host type that can be added to VirtualCenter. ESX Server 3.5 and ESX Server 3i hosts can be added to VirtualCenter 2.5, but VMware Server cannot be added to VirtualCenter 2.5.