CHAPTER 7

Managing Virtual Machines

A virtual machine is a software computer (just like a physical computer), which runs an operating system and applications. Virtual machines run on the VMware vSphere Hypervisor™. You can use the same VMware vSphere Hypervisor™ to run several virtual machines. Use the vSphere Client GUI to create and manage virtual machines.

Note We recommend that you use the vSphere Client GUI to manage virtual machines, but if you choose to use the CLI, see the commands listed in Chapter 8, "Managing Virtual Machines Using the Cisco SRE-V CLI."

This chapter contains the following section:

- Configuring the VMware vSphere Hypervisor Default Gateway, page 7-1
- Downloading and Installing the vSphere Client, page 7-3
- Important Information About Creating Virtual Machines, page 7-5
- Information About vSwitches, page 7-8

Configuring the VMware vSphere Hypervisor Default Gateway

To manage virtual machines, configure the VMware vSphere Hypervisor™ default gateway. See the following sections:

- Setting up the VMware vSphere Hypervisor Default Gateway, page 7-1
- Changing the VMware vSphere Hypervisor Default Gateway, page 7-2

Setting up the VMware vSphere Hypervisor Default Gateway

To configure the VMware vSphere Hypervisor™ default gateway, use the following command:

hypervisor set ip default-gateway *hypervisor-default-gateway-ip-address*

SUMMARY STEPS

From the Console Manager interface, enter:

1. **hypervisor set ip default-gateway** *hypervisor-default-gateway-ip-address*

DETAILED STEPS

To perform configuration tasks on the Cisco SRE Service Module, you must enter the Cisco SRE-V command environment, and then enter the configuration commands. See the "Entering the Cisco SRE-V Command Environment" section on page 5-3.

	Command or Action	Purpose
Step 1	**hypervisor set ip default-gateway** *hypervisor-default-gateway-ip-address* **Example:** `SRE-Module# hypervisor set ip default-gateway 20.0.0.100`	Specifies the IP address for the default gateway. Typically, this is the IP address for the router side of the router-to-VMware vSphere Hypervisor™ link. See Figure 3-2. • *hypervisor-default-gateway-ip-address*—IP address for the default gateway.

Related Topic

- Downloading and Installing the vSphere Client, page 7-3

Changing the VMware vSphere Hypervisor Default Gateway

To change the VMware vSphere Hypervisor™ default gateway, you must first remove the existing default gateway, and then reconfigure the new default gateway.

To remove the existing VMware vSphere Hypervisor™ default gateway, use the following command:

hypervisor set ip default-gateway 0.0.0.0

To reconfigure the VMware vSphere Hypervisor™ default gateway, see the "Setting up the VMware vSphere Hypervisor Default Gateway" section on page 7-1.

SUMMARY STEPS

From the Console Manager interface, enter:

1. **hypervisor set ip default-gateway 0.0.0.0**

DETAILED STEPS

To perform configuration tasks on the Cisco SRE Service Module, you must enter the Cisco SRE-V command environment, and then enter the configuration commands. See the "Entering the Cisco SRE-V Command Environment" section on page 5-3.

	Command or Action	Purpose
Step 1	**`hypervisor set ip default-gateway 0.0.0.0`** **Example:** `SRE-Module# hypervisor set ip default-gateway 0.0.0.0`	Removes the IP address of the default gateway from the VMware vSphere Hypervisor™.

Downloading and Installing the vSphere Client

To manage the virtual machine, you must download and install the vSphere Client.

The vSphere Client contains an online tutorial for first time users. It also contains embedded in-line getting started assistance, which allows you to set up your virtual infrastructure through an easy to use, step-by-step process. If you are an experienced user, you can choose to turn-off the getting started in-line assistance.

Note To download the vSphere Client, connection to the Internet is required. Before you download the vSphere client, verify that you have network connectivity.

To download and install the vSphere client, complete the following steps:

Step 1 Go to https://*hypervisor-ip-address*. You are directed to the VMware website and the Welcome page opens.

Step 2 Click **Download vSphere Client**, and then click **Run** to download the vSphere Client. The VMware vSphere Client is installed and a shortcut icon to the client appears on your desktop.

Step 3 Click the **VMware vSphere Client** icon to open the login window.

Step 4 To manage a single VMware vSphere Hypervisor™, enter the IP address or hostname of the VMware vSphere Hypervisor™ and the username and password, and then click **Login**. The vSphere Client GUI opens.

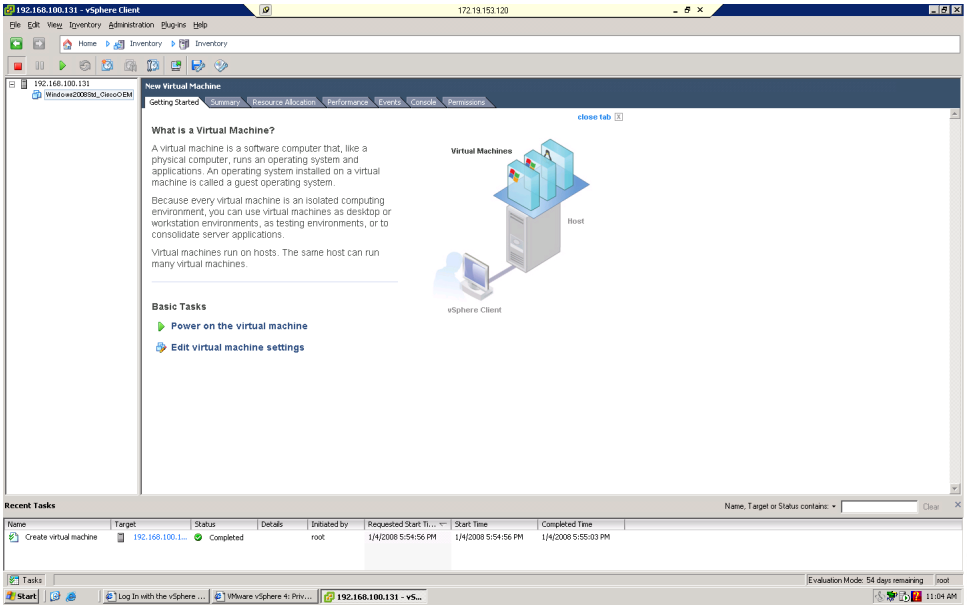
Note If you are a first-time user of the VMware vSphere Hypervisor™, use **esx-admin** for the user name; and use **change_it** for the password. We highly recommend that you change the default password after the first reboot.

Note If you purchased the Cisco SRE-V Option 3 (Hardware, plus Virtualization software, plus Microsoft Windows software), a virtual machine is provided to you by default. For Cisco SRE-V options, see Figure 1-3.

Step 5 From the vSphere Client main page, do one of the following:

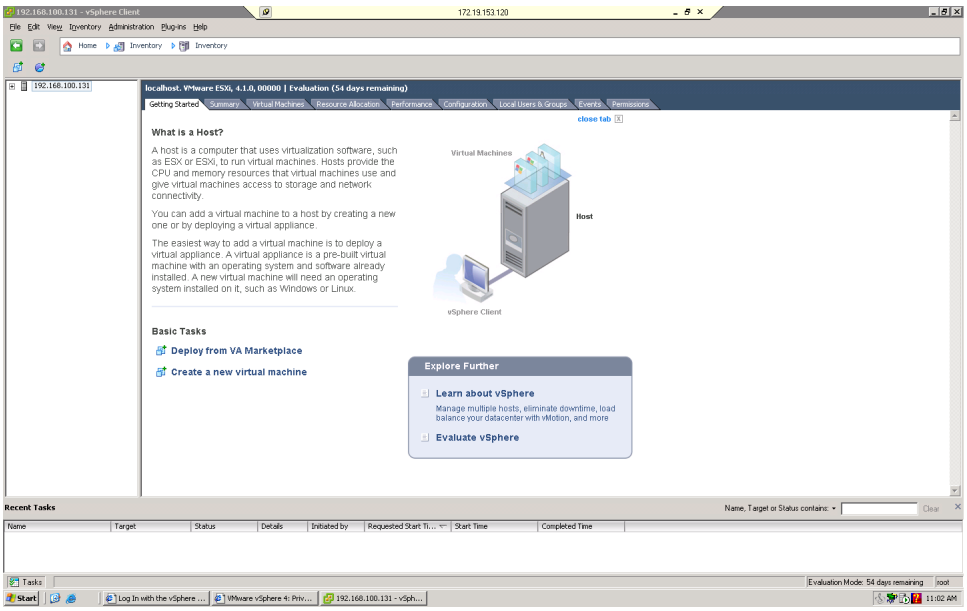
- To use the existing virtual machine that is provided to you by default with your Cisco SRE-V software Option 3, do the following:
  - From the left navigation tree, click the host name to expand it, and then choose the virtual machine.
  - Follow the instructions that are displayed in the right pane under the Getting Started tab. See Figure 7-1.

Figure 7-1 vSphere Client Inventory Page with a Virtual Machine Selected



- To create a new virtual machine, see the "Important Information About Creating Virtual Machines" section on page 7-5, and then do the following:
  - From the left navigation tree, choose the host name.
  - Follow the instructions that are displayed in the right pane under the Getting Started tab. See Figure 7-2.

Figure 7-2 vSphere Client Inventory Page with the Host Name Selected



Note If you are an experienced user, you can choose to remove the Getting Started tab from your view. Go to **Edit > Client Settings**. The General tab is selected by default. From the Tasks pane, uncheck the **Show Getting Started Tab** checkbox.

Step 6 To manage the virtual machines, use the functionality provided by the vSphere Client:

- To access the online tutorial that is embedded in the vSphere Client GUI, click **Help > Tutorial**.
- To access the vSphere Client online help, click **Help > Help Topics**.

Important Information About Creating Virtual Machines

If you purchased the Cisco SRE-V Option 3 (Hardware, plus Virtualization software, plus Microsoft Windows software), a virtual machine with VMware tools and datastore(s) is provided to you by default. You can create additional virtual machines if needed.

If you purchased the Cisco SRE-V Option 1 (Hardware only, without the Virtualization or Microsoft Windows software); or Option 2 (Hardware plus Virtualization software), you must create virtual machines.

For Cisco SRE-V options, see Figure 1-3.

See the following sections:

- Basic Workflow for Creating Virtual Machines, page 7-6
- Limitations for Creating Virtual Machines, page 7-6
- Networking Prerequisites for Creating Virtual Machines, page 7-6
- Installing VMware Tools, page 7-7

Basic Workflow for Creating Virtual Machines

1. (Optional) Create a datastore in Cisco SRE-V.
2. Create the virtual machine.
3. Install the operating system on the virtual machine.
4. Configure networking (external) for a virtual machine.
5. Configure networking (internal) for a virtual machine.

For instructions, see the vSphere Client online help.

Limitations for Creating Virtual Machines

Before creating virtual machines, note the following limitations:

- Each virtual machines has its own resource limitations, such as CPU core number and memory size.
- Virtual Symmetric Multiprocessing (vSMP) is not supported.
- Physical peripheral devices, such as serial port is not supported.
- The physical USB device, which is plugged into the USB port in the front panel of the Cisco SRE Service Module, must not exceed 500 mA (2.5 Watt). For information about assigning USB devices to a virtual machine, see the vSphere user guide.

Related Topic

- Downloading and Installing the vSphere Client, page 7-3

Networking Prerequisites for Creating Virtual Machines

If you want to assign virtual machines on different VLANs, you must configure VLANs on the ISR G2. For instructions, see the "Configuring VLANs" section on page 3-26.

Example

```
interface SM1/1
description Internal switch interface connected to Service Module
 switchport mode trunk
!
interface Vlan50
 ip address 50.50.50.5 255.255.255.0
!
interface Vlan60
 ip address 60.60.60.6 255.255.255.0
```

Related Topic

- Downloading and Installing the vSphere Client, page 7-3

Installing VMware Tools

VMware Tools are a suite of utilities that enhances the performance of the virtual machine's guest operating system and improves the management of the virtual machine.

If you purchased the Cisco SRE-V Option 3 (Hardware, plus Virtualization software, plus Microsoft Windows software), a virtual machine with VMware tools is provided to you by default so you do not need to install VMware tools on that machine. But, if you create a new virtual machine, you must install VMware tools on that virtual machine.

If you purchased the Cisco SRE-V Option 1 (Hardware only, without the Virtualization or Microsoft Windows software) or Option 2 (Hardware plus Virtualization software), you must install VMware tools after you create the virtual machine.

For Cisco SRE-V options, see Figure 1-3.

Note Before you install VMware tools, make sure that you have installed the supported guest operating system on the virtual machine.

To install VMware tools on a virtual machine, complete the following steps:

Step 1 Go to the vSphere Client GUI main page.

Step 2 From the left navigation tree, click the host name to expand it.

Step 3 Right-click the virtual machine in which you want to install VMware tools, and then choose **Power > Power On**.

Step 4 Click the **Console** tab to make sure that the guest operating system starts successfully, and log in if necessary.

Step 5 Right-click the virtual machine in which you want to install VMware tools, choose **Guest**, and then choose **Install/Upgrade VMware Tools**. The Install VMware Tools confirmation dialog box opens.

Step 6 Click **Ok** in the confirmation dialog box.

Step 7 Log into the virtual machine.

Step 8 Go to **Start > Open Windows Explorer**.

Step 9 Under Computer, click on the **VMware Tools** folder, and then choose **VMware Tools** or **VMware Tools 64** as appropriate. The VMware Installation Wizard opens.

Step 10 Follow the steps in the wizard to complete the installation.

Step 11 Click **Finish**.

Step 12 Choose **Yes** when prompted to restart your system.

Step 13 To verify the VMware tools installation status, click the **Summary** tab in the vSphere Client GUI. You should see VM Tools - Status OK.

For more information, see *The VMware Tools Installation Guide For Operating System Specific Packages* document.

Related Topic

- Downloading and Installing the vSphere Client, page 7-3

Information About vSwitches

The system creates the following vSwitches in the VMware vSphere Hypervisor™:

- vSwitch0—Uses the MGF interface to connect the VMware vSphere Hypervisor™ and the guest virtual machines to the router. The MGF interface is sm *slot*/1.

  The vSwitch0 contains two port groups:

  – Management Network—Used by the vSphere client to connect to the VMware vSphere Hypervisor™.

  Note Do not modify the Management Network port group.

  – VM Network—Used by the guest virtual machines for sending and receiving network traffic through the Cisco ISR G2.

  Note You can modify the VM Network port group.

- ciscoSwitchLocal—Contains the ciscoReservedLocal port group. The ciscoSwitchLocal along with the ciscoReservedLocal port group is used for internal communication within the Cisco SRE Service Module.

  Note Do not modify the ciscoSwitchLocal or the ciscoReservedLocal port group.

- ciscoSwitch—Contains the CiscoReserved port group. The ciscoSwitch along with the CiscoReserved port group is used for the following:

  – Internal communication between the Cisco ISR G2 and the Cisco SRE Service Module.

  – External connection to the Cisco SRE Service Module management interface, such as SSH, CLM, and web service API.

  Note Do not modify the ciscoSwitch or the CiscoReserved port group.

To display the vSwitches and port groups in the VMware vSphere Hypervisor™, use the **show hypervisor vswitch** command from the console manager interface. For details, see the "Viewing vSwitches in the VMware vSphere Hypervisor" section on page 8-14.

Example

```
SRE-Module# show hypervisor vswitch
Switch Name      Num Ports   Used Ports  Configured Ports  MTU     Uplinks
vSwitch0         128         3           128               1500    vmnic2

  PortGroup Name        VLAN ID  Used Ports  Uplinks
  VM Network            0        0           vmnic2
  Management Network    0        1           vmnic2

Switch Name      Num Ports   Used Ports  Configured Ports  MTU     Uplinks
ciscoSwitchLocal          8           3           8                 1500

  PortGroup Name        VLAN ID  Used Ports  Uplinks
  CiscoReservedLocal                0        2

Switch Name      Num Ports   Used Ports  Configured Ports  MTU     Uplinks
ciscoSwitch      8           3           8                 1500    vmnic1
PortGroup Name        VLAN ID  Used Ports  Uplinks
  CiscoReserved         0        1           vmnic1
```