CHAPTER 4

Cisco vWAAS on VMware ESXi

This chapter describes how to use Cisco vWAAS on VMware vSphere ESXi, and contains the following sections:

- About Cisco vWAAS on VMware ESXi
- Supported Host Platforms, Software Versions, and Disk Type
- OVA Package Formats for vWAAS on VMware ESXI
- Installing vWAAS on VMware ESXi
- Upgrade/Downgrade Guidelines for vWAAS on VMware ESXi

About Cisco vWAAS on VMware ESXi

Cisco vWAAS for VMware ESXi provides cloud-based application delivery service over the WAN in ESX/ESXi-based environments. Cisco vWAAS on VMware vSphere ESXi is delivered an OVA file. The vSphere client takes the OVA file for a specified vWAAS model, and deploys an instance of that vWAAS model.

Supported Host Platforms, Software Versions, and Disk Type

Table 4-1 shows the platforms and software versions supported for vWAAS on VMware ESXi.

Table 4-1 Platforms and Software Versions Supported for vWAAS on VMware ESXi

PID and Device Type	Minimum WAAS Version	Host Platforms	Minimum Host Version	Disk Type
• PID: OE-VWAAS-ESX • Device Type: OE-VWAAS-ESX	• 5.0.3g	• Cisco UCS (Unified Computing System) • Cisco UCS-E Series	• ESXi 5.0	• VMDK

VMware ESXi for Cisco vWAAS and Cisco WAAS

This section contains the following topics:

VMware ESXi Versions Supported for Cisco WAAS

Table 4-2   VMware ESXi Versions Supported for Cisco WAAS

ESX version	WAAS v5.1	WAAS v5.2	WAAS v5.3	WAAS v5.4	WAAS v5.5	WAAS v6.x
ESXi 6.5 vWAAS fresh installation	x	x	x	x	x	x
ESXi 6.5 vWAAS upgrade	x	x	x	x	x	x
ESXi 6.0 vWAAS fresh installation	x	x	x	x	x	Supported OVA
ESXi 6.0 vWAAS upgrade	x	x	x	x	x	Upgrade with .bin file
ESXi 5.5 vWAAS fresh installation	x	x	Supported OVA	Supported OVA	Supported OVA	Supported OVA
ESXi 5.5 vWAAS upgrade	x	x	Upgrade with .bin file	Upgrade with .bin file	Upgrade with .bin file	Upgrade with .bin file
ESXi 5.0/5.1 vWAAS fresh installation	Supported OVA	Supported OVA	Supported OVA	Supported OVA	Supported OVA	Supported OVA
ESXi 4.1/5.0 vWAAS upgrade	Upgrade with .bin file	Upgrade with .bin file	Upgrade with .bin file	Upgrade with .bin file	Upgrade with .bin file	x
ESXi 4.1 vWAAS fresh installation	Supported OVA	Install vWAAS 5.1 OVA, then upgrade using .bin file, or Migrate from ESXi 4.1 to 5.0/5.1	x	x	x	x

Note   For vWAAS with ESXi Version 5.5 on a Cisco UCS host: if the DRE latency threshold or an AO timeout alarm occurs, check for the I/O command abort in the vWAAS. To do this, use the **copy sysreport** EXEC command.

If the I/O abort is observed:
Upgrade the RAID controller's driver to Version 6.610.19.00 or later.

If the I/O abort is still observed after the RAID controller driver upgrade:
Capture and share the following logs for further analysis:
—Guest-VM sysreport
—VMware's host diagnostic report
—RAID controller's firmware log

ESXi Server Datastore Memory and Disk Space for vWAAS and vCM Models

This section contains the following topics:

- Table 4-3 shows ESXi server datastore memory and disk space per vWAAS model, for WAAS v4.3.1 through v5.3.5, and for WAAS v5.4.x through v6.x.

- Table 4-4 shows ESXi server datastore memory and disk space per vCM model, for WAAS v4.3.1 through v5.3.5, and for WAAS v5.4.x through v6.x.

Table 4-3   vCPUs, ESXi Server Datastore Memory, and Disk Space by vWAAS Model

| vWAAS Model | For WAAS v4.3.1 through v5.3.5 | | | For WAAS v5.4.x through v6.x | | |
	vCPUs	Datastore Memory	Disk	vCPUs	Datastore Memory	Disk
vWAAS-150 (for WAAS Version 6.x)	---	---	---	1	3 GB	160 GB
vWAAS-200	1	2 GB	160 GB	1	3 GB	260 GB
vWAAS-750	2	4 GB	250 GB	2	4 GB	500 GB
vWAAS-1300	2	6 GB	300 GB	2	6 GB	600 GB
vWAAS-2500	4	8 GB	400 GB	4	8 GB	750 GB
vWAAS-6000	4	8 GB	500 GB	4	11 GB	900 GB
vWAAS-12000	4	12 GB	750 GB	4	12 GB	750 GB
vWAAS-50000	8	48 GB	1500 GB	8	48 GB	1500 GB

Table 4-4   vCPUs, ESXi Server Datastore Memory, and Disk Space by vCM Model

| vCM Model | For WAAS v4.3.1 through v5.3.5 | | | For WAAS v5.4.x through v6.x | | |
	vCPUs	Datastore Memory	Disk	vCPUs	Datastore Memory	Disk
vCM-100N	2	2 GB	250 GB	2	2 GB	250 GB
vCM-500N	---	---	---	2	2 GB	300 GB
vCM-1000N	---	---	---	2	4 GB	400 GB
vCM-2000N	4	8 GB	600 GB	4	8 GB	600 GB

OVA Package Formats for vWAAS on VMware ESXI

This section contains the following topics:

- OVA Package for vWAAS on VMware ESXi for WAAS Version 5.x to 6.2.x
- OVA Package for vWAAS on VMware ESXi for WAAS Version 6.4.1 and Later

Note   For a listing of hypervisor OVA, zip, and tar.gz files for vWAAS, see the Cisco Wide Area Application Services (WAAS) Download Software Page and select the WAAS software version used with your vWAAS instance.

OVA Package for vWAAS on VMware ESXi for WAAS Version 5.x to 6.2.x

For vWAAS on VMware ESXi, for WAAS Version 5.x through 6.2.x, Cisco provides an OVA or NPE OVA package for each vWAAS connection profile (examples shown in Table 4-5) and for each vCM connection profile (examples shown in Table 4-6).

Table 4-5   *Cisco OVA Package Format Examples for vWAAS on VMware ESXi*

Package Format	File Format Example
Cisco vWAAS 150 package file	• Cisco-vWAAS-150-6.2.3d-b-68.ova
Cisco vWAAS 150 package file for NPE	• Cisco-vWAAS-150-6.2.3d-npe-b-68.ova
Cisco vWAAS 200 package file	• Cisco-vWAAS-200-6.2.3d-b-68.ova
Cisco vWAAS 200 package file for NPE	• Cisco-vWAAS-200-6.2.3d-npe-b-68.ova
Cisco vWAAS 750 package file	• Cisco-vWAAS-750-6.2.3d-b-68.ova
Cisco vWAAS 750 package file for NPE	• Cisco-vWAAS-750-6.2.3d-npe-b-68.ova
Cisco vWAAS 1300 package file	• Cisco-vWAAS-1300-6.2.3d-b-68.ova
Cisco vWAAS 1300 package file for NPE	• Cisco-vWAAS-1300-6.2.3d-npe-b-68.ova
Cisco vWAAS 2500 package file	• Cisco-vWAAS-2500-6.2.3d-b-68.ova
Cisco vWAAS 2500 package file for NPE	• Cisco-vWAAS-2500-6.2.3d-npe-b-68.ova
Cisco vWAAS 6000 package file	• Cisco-vWAAS-6000-6.2.3d-b-68.ova
Cisco vWAAS 6000 package file for NPE	• Cisco-vWAAS-6000-6.2.3d-npe-b-68.ova
Cisco vWAAS 12k package file	• Cisco-vWAAS-12k-6.2.3d-b-68.ova
Cisco vWAAS 12k package file for NPE	• Cisco-vWAAS-12k-6.2.3d-npe-b-68.ova
Cisco vWAAS 50k package file	• Cisco-vWAAS-50k-6.2.3d-b-68.ova
Cisco vWAAS 50k package file for NPE	• Cisco-vWAAS-50k-6.2.3d-npe-b-68.ova

Table 4-6   *Cisco OVA Package Formats for vCM for WAAS Versions earlier than Version 6.4.1*

Package Format	File Format Example
Cisco vCM 100N package file	• Cisco-vCM-100N-6.2.3d-b-68.ova
Cisco vCM 100N package file for NPE	• Cisco-vCM-100N-6.2.3d-npe-b-68.ova

OVA Package for vWAAS on VMware ESXi for WAAS Version 6.4.1 and Later

For vWAAS on VMware ESXi, for WAAS Version 6.4.1 and later, Cisco provides a single, unified OVA for NPE and non-NPE version of the WAAS image for all the vWAAS models for that hypervisor.

Each unified OVA package is a pre-configured virtual machine image that is ready to run on a particular hypervisor. The launch script for each unified OVA package file provides the model and other required parameters to launch vWAAS with WAAS in the required configuration.

Here are examples of the unified OVA and NPE OVA package filenames for vWAAS in VMware ESXi:

* OVA—Cisco-ESXi-vWAAS-Unified-6.4.1-b-33.ova
* NPE OVA—Cisco-ESXi-vWAAS-Unified-6.4.1-b-33-npe.ova

The unified OVA package for VMware ESXi contains the following files.

* OVF file—Contains all resource information.
* Flash disk image
* Data system disk
* Akamai disk

Use the VMware ESXi OVF template wizard to deploy these files, described in Installing VMware ESXi for vWAAS for WAAS Version 6.4.1 and Later.

Installing vWAAS on VMware ESXi

This section has the following topics:

* Installing VMware ESXi for vWAAS for WAAS Versions 5.x to 6.2.x
* Installing VMware ESXi for vWAAS for WAAS Version 6.4.1 and Later

Installing VMware ESXi for vWAAS for WAAS Versions 5.x to 6.2.x

To install the vWAAS Virtual Machine (VM) with VMware vSphere ESXi, follow these steps:

Step 1   From the vSphere Client, choose **File > Deploy OVF Template**.

The Source window appears (Figure 4-1).

Figure 4-1   vWAAS - Deploy OVF Template
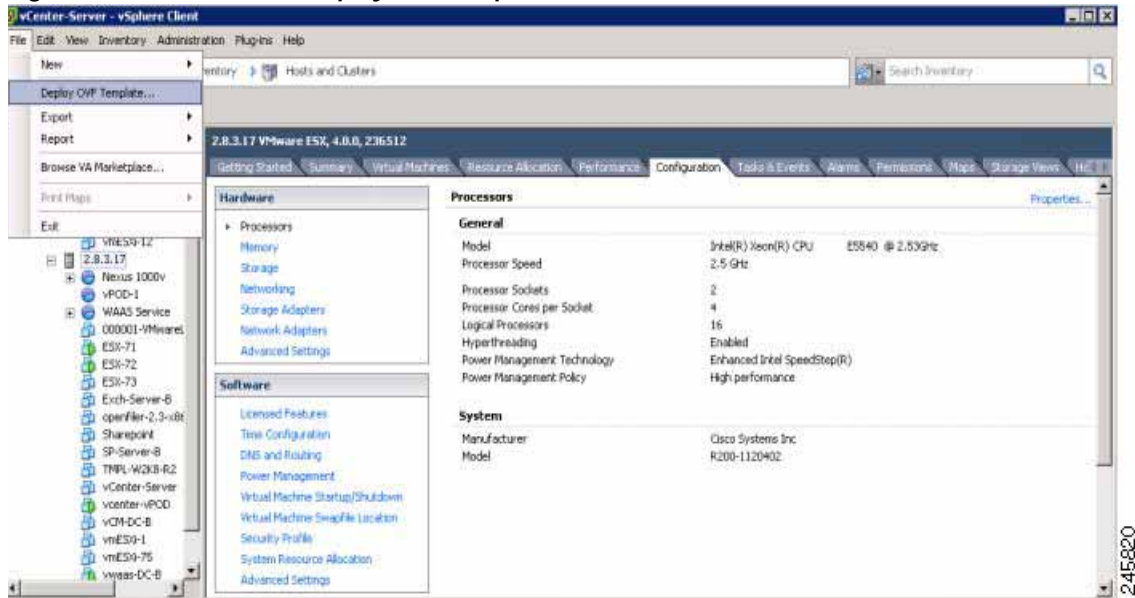
Step 2   Click **Browse**.

The Open window appears.

Step 3   Navigate to the location of the vWAAS OVA file and click **Open**.

- If the virtual host was created using an OVA of vWAAS for WAAS Version 5.1.x or later, proceed to Step 4.

- If the virtual host was created using an OVA file of vWAAS for WAAS Version 5.0 or earlier, and you have upgraded vWAAS from inside WAAS, you must verify that the SCSI Controller Type is set to **VMware Paravirtual**. Otherwise, vWAAS will boot with no disk available, and will fail to load the specified configuration.

    If needed, change the SCSI controller type to **VMware Paravirtual** by following these steps:

    a. Power down the vWAAS.

    b. From the VMware vCenter, navigate to **vSphere Client** > **Edit Settings** > **Hardware**.

    c. Choose **SCSI controller 0**.

    d. From the Change Type drop-down list, verify that the SCSI Controller Type is set to **VMware Paravirtual**. If this is not the case, choose **VMware Paravirtual**.

    e. Click **OK**.

    f. Power up the vWAAS, with WAAS Version 6.1.x or later.

Step 4   Click **Next** to accept the selected OVA file.

The Name and Location window appears.

Step 5   Enter a name for the vWAAS VM, choose the appropriate data center, and then click **Next**.

The Cluster window appears (if a cluster is configured), or the Resource Pool window appears (if a resource pool is configured). Otherwise, the Datastore window appears (in this case, skip to Step 7).

Figure 4-2   vWAAS - Name and Data Center Location
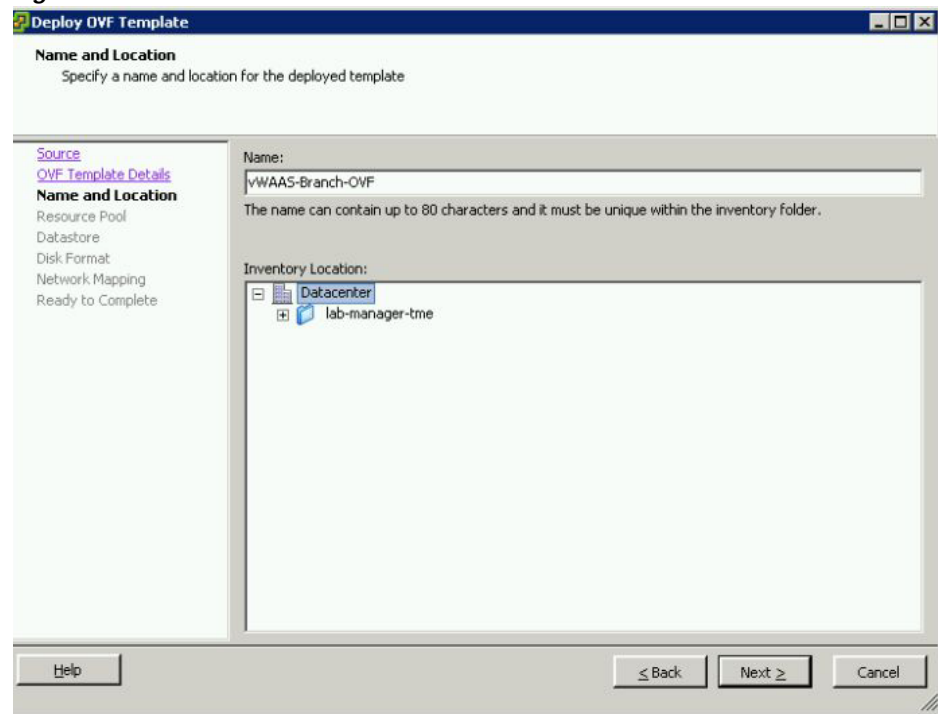
Step 6   If configured, choose a cluster for the vWAAS VM or, if configured, choose the resource pool and then click **Next**.

The Datastore window appears.

Step 7   Choose a datastore to host the virtual machine and click **Next**.

Figure 4-3   vWAAS - Datastore
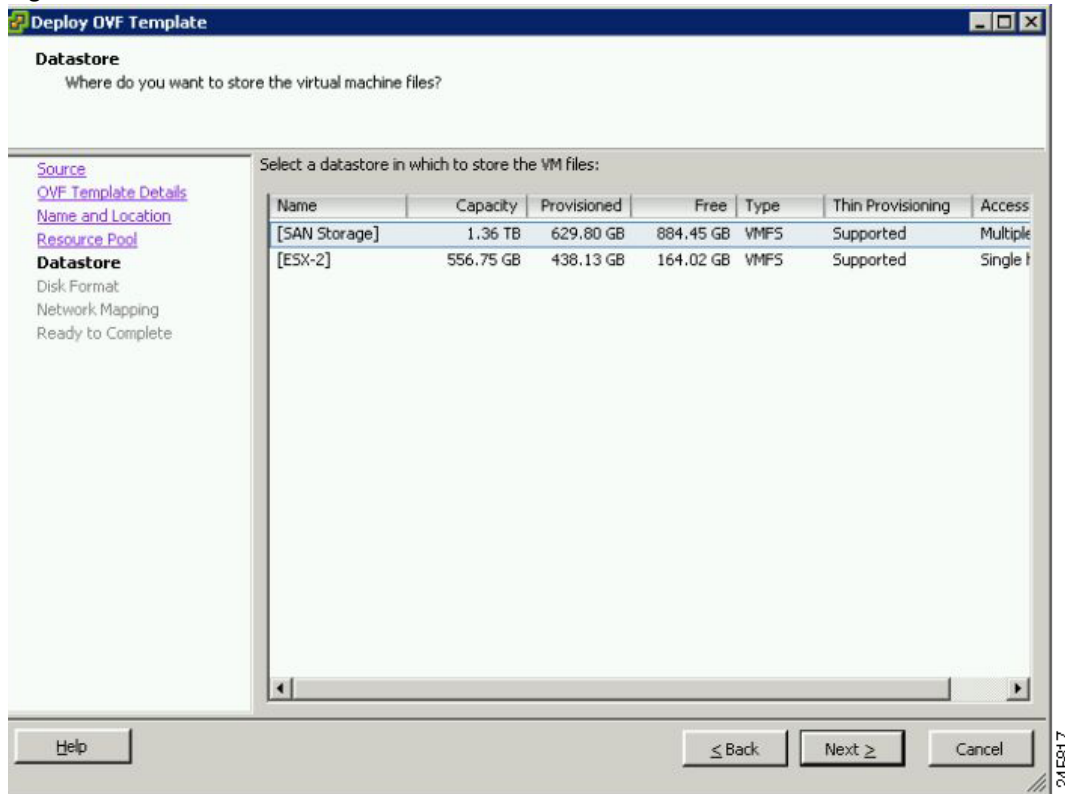
> **Note**   The datastore must be formatted with a block size greater than 1 MB to support file sizes larger than 256 GB.

The Create a Disk window appears.

Step 8   The Disk Provisioning section has three disk format options: Thick Provision Lazy Zeroed, Thick Provision Eager Zeroed, and Thin Provision. Select **Thick Provision Eager Zeroed**.

> **Note**   You must choose the **Thick Provision Eager Zeroed** disk format for vWAAS deployment; this is the format recommended with vWAAS deployment for a clean installation.

Step 9   Click **Next**.

The Network Mapping window appears.

Step 10   Choose the network mapping provided by ESXi and click **Next**. You have the option to change this later if necessary.

The Ready to Complete window appears.

Figure 4-4   vWAAS - Network Mapping
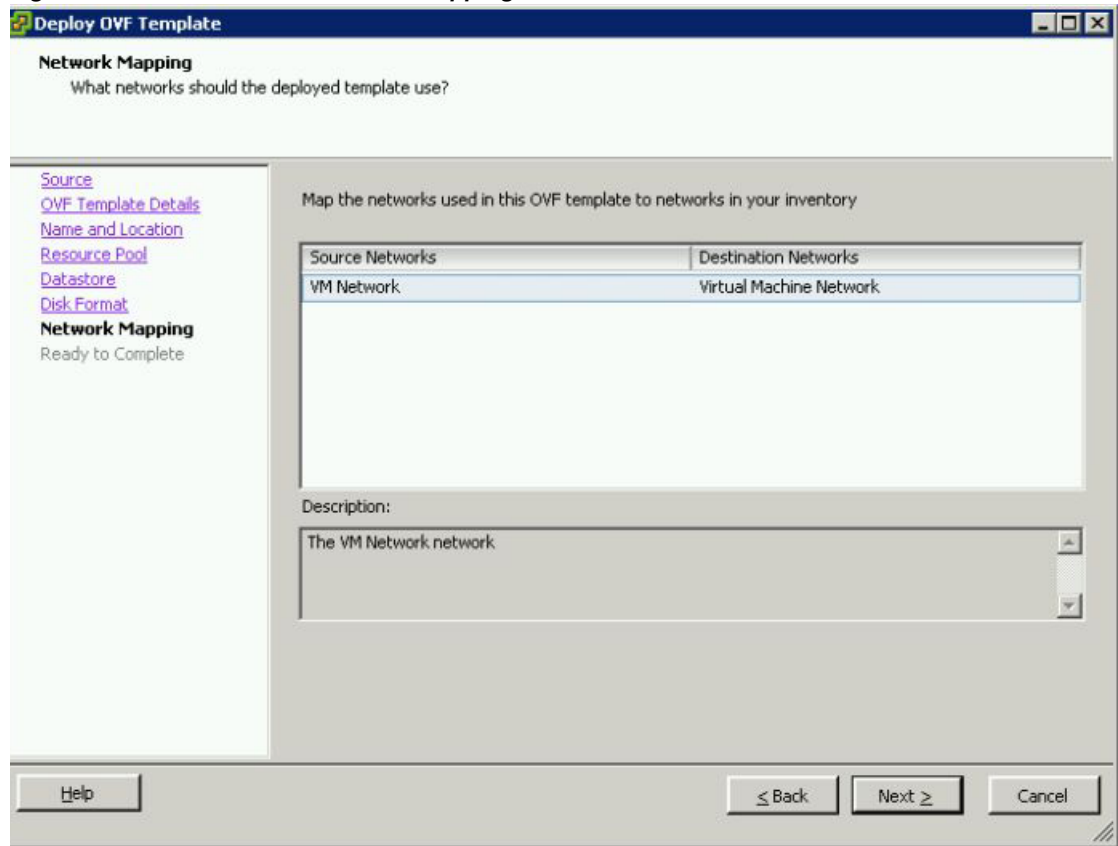
Step 11   Click **Finish** to complete the installation.

The status window appears while the OVA file is being deployed.

Figure 4-5   vWAAS - Status Window
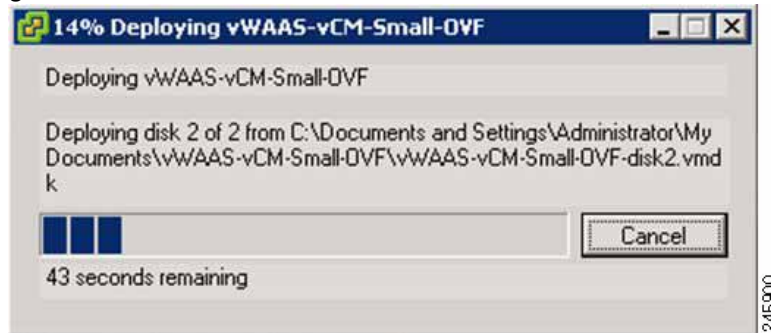
Step 12   When the deployment is finished, the Deployment Completed Successfully window appears.

Figure 4-6   vWAAS - Completed

Step 13   Click **Close**.

Step 14   You are ready to start the VM. Highlight the vWAAS VM and click **Power on Virtual Machine**.

Step 15   After vWAAS finishes booting, click the **Console** tab to view boot up messages.

Figure 4-7   vWAAS - Console
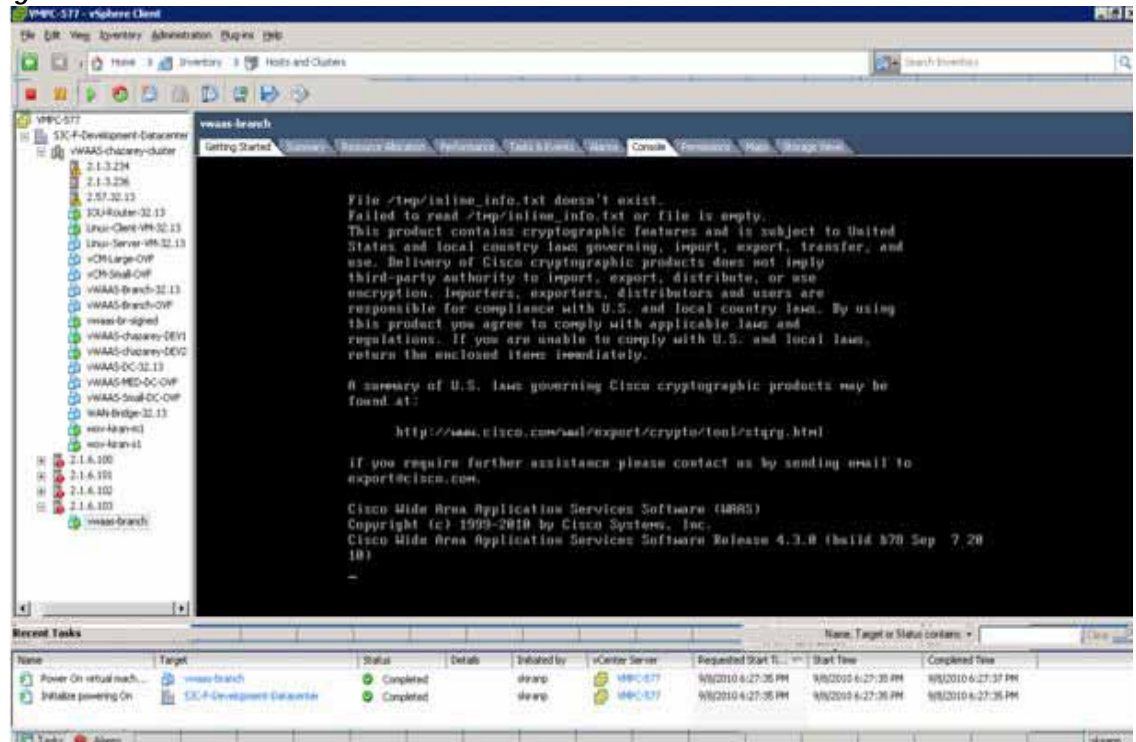
![Note]   Under rare conditions, the vWAAS VM may boot into diskless mode if other VMs on the host VM server do not release control of system resources or the physical disks become unresponsive. For information on how to resolve this situation, see Resolving Diskless Startup and Disk Failure in Chapter 10, "Troubleshooting Cisco vWAAS."

For vWAAS configuration information, see Chapter 2, "Configuring Cisco vWAAS and Viewing vWAAS Components".

Installing VMware ESXi for vWAAS for WAAS Version 6.4.1 and Later

vWAAS for WAAS Version 6.4.1 and later supports VMware vCenter Version 6.0.0. To deploy any vWAAS or vCM Model for WAAS Version 6.4.1 and later on VMware ESXi, register the ESXi host with VMware vSphere vCenter version 6.0.

Note   The OVA deployment for WAAS Version 6.4.1 and later must be done only through VMware vCenter.

To deploy the VMware ESXi hypervisor for vWAAS for WAAS Version 6.4.1 and later, follow these steps:

Step 1   Log in into the VMware vCenter using VMware vSphere Client (Figure 4-8).

Figure 4-8   VMware vSphere Client Login Window
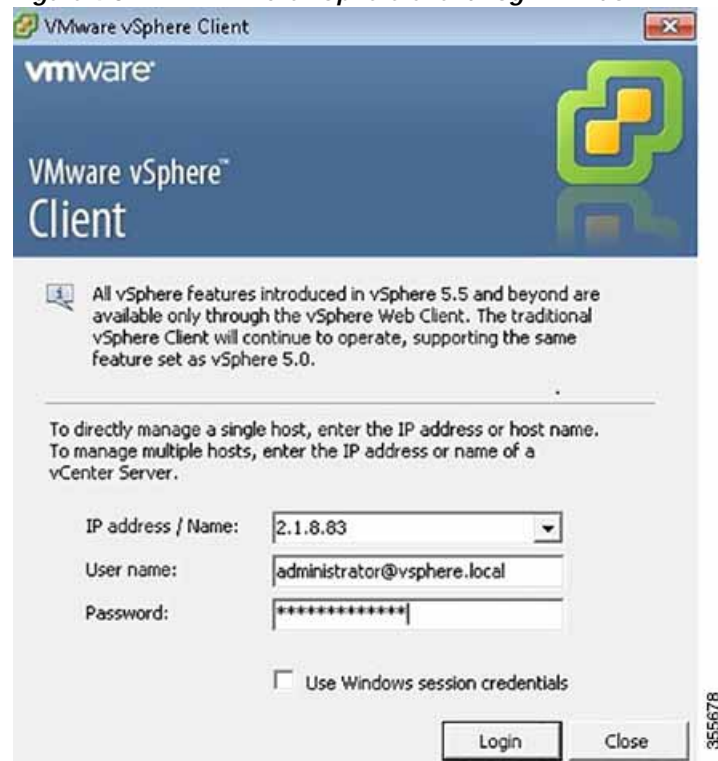
Step 2   To begin the task of adding the ESXi host into the datacenter on VMware vCenter Client, you must first create a datacenter. Navigate to **Actions** > **New Datacenter...** .

Step 3   At the Create Datacenter page, click **Add**.

Step 4   In the **Create Datacenter** dialog box:

    a. In the Name field enter a name for the datacenter. The name can contain up to 16 alphanumeric characters with no spaces and no special characters.

    b. In the Description field enter a description for this datacenter.

Step 5   To add the host into the datacenter on VMware vCenter Client, navigate to the **Getting Started** tab > **Add Host...** menu selection (Figure 4-9).

Figure 4-9   Add Host... Menu Selection
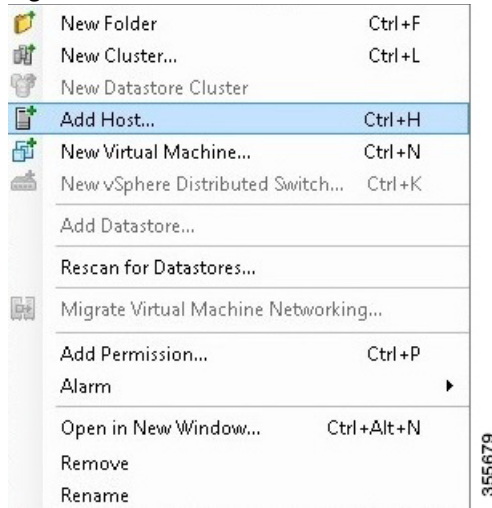
Step 6   Choose **Specify Connection Settings** and the Specify Connection Settings window appears
(Figure 4-10).

Figure 4-10   Specify Connection Settings Window
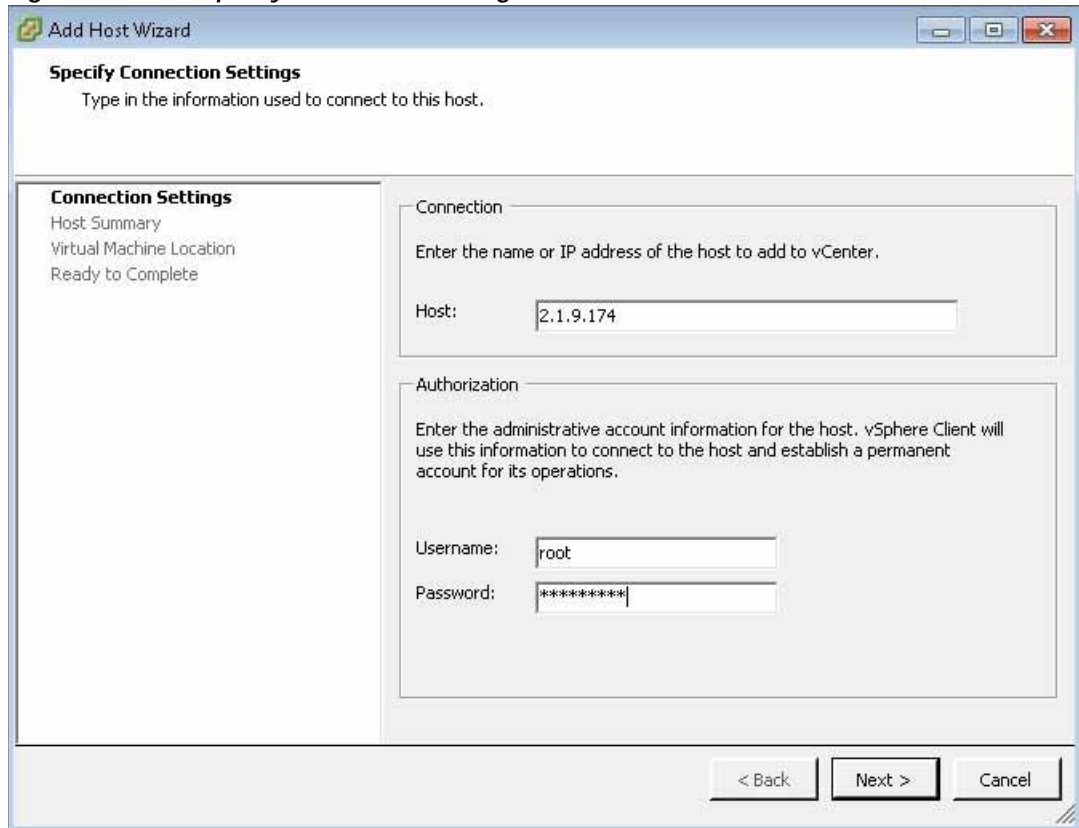
a.   In the Connection pane **Host** field, enter the ESXi host name or IP address.

b.   In the Authorization pane **Username** and **Password** fields, enter the ESXi username and password.

c.   Click **Next**.

Step 7 The Host Information window appears (Figure 4-11), which displays information you can review for the specified host, including host name or IP address, vendor name, model name and number, the VMware version, and the associated virtual machines.

Figure 4-11   Host Information Window
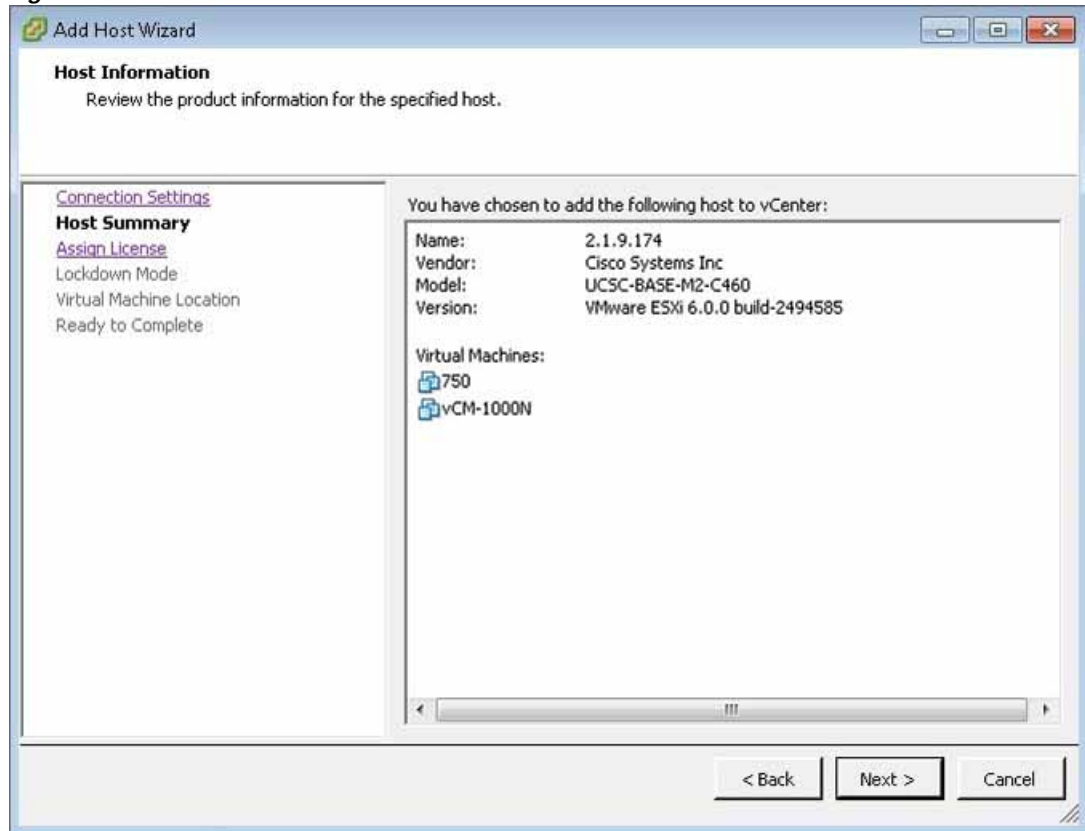
a. If the displayed host information meets your system requirements, click **Next**.

Step 8 The Assign License window appears.

There are two options: **Assign an existing license key to this host** and **Assign a new license key to this host**.

a. Use one of the radio buttons to assign an existing license key or to assign a new license key to this host.

b. Click **Next**.

✎
Note Licenses are installed and managed only on individual devices, not device groups. For more information about licenses, see the "Configuring Other System Settings" chapter, section "Managing Software Licenses" of the *Cisco Wide Area Application Services Configuration Guide*.

Step 9 The Configure Lockdown Mode window appears (Figure 4-12).

Figure 4-12   Configure Lockdown Mode Window
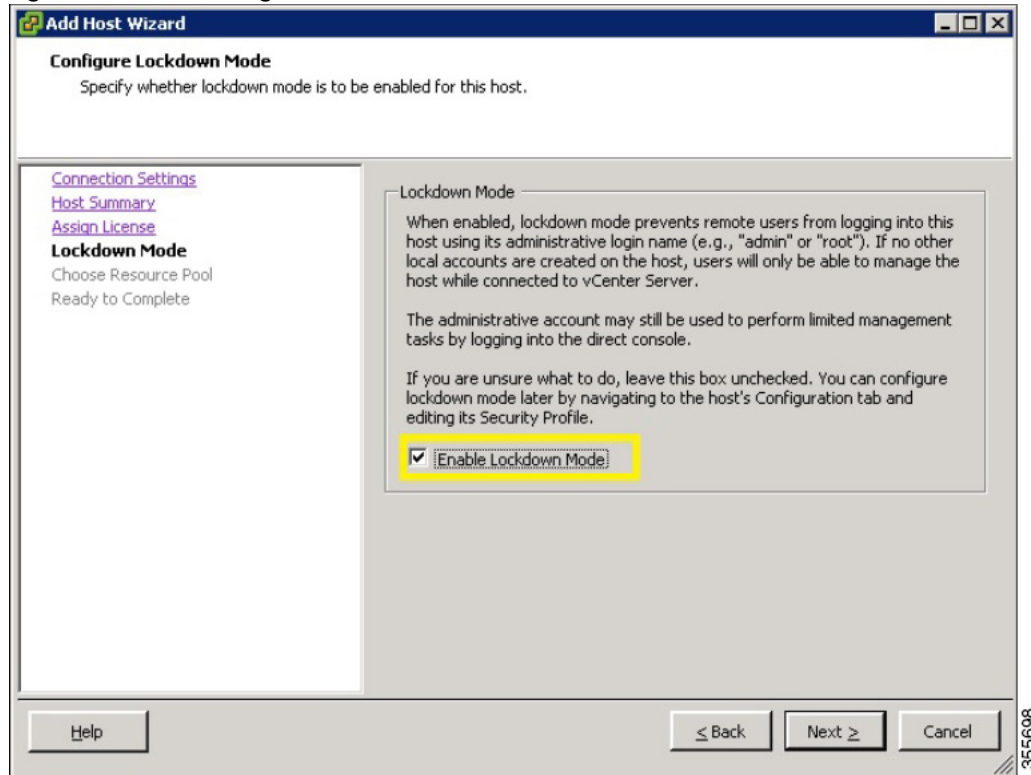
Step 10   Lockdown mode is disabled by default.

- Leave the **Enable Lockdown Mode** check box unchecked to keep lockdown mode disabled.

 When lockdown mode is disabled, all router and module communication commands behave normally.

- Check the **Enable Lockdown Mode** check box to enable lockdown mode.

  When lockdown mode is enabled, the VMware vSphere Hypervisor host can be only be managed by the VMware vCenter Server using its internal user called **vpxuser**. All other configuration methods, such as the vSphere Client, PowerCLI, and vCLI are disabled.

Step 11   Click **Next**.

Step 12   The Virtual Machine Location window appears (Figure 4-13).

Figure 4-13   Virtual Machine Location Window
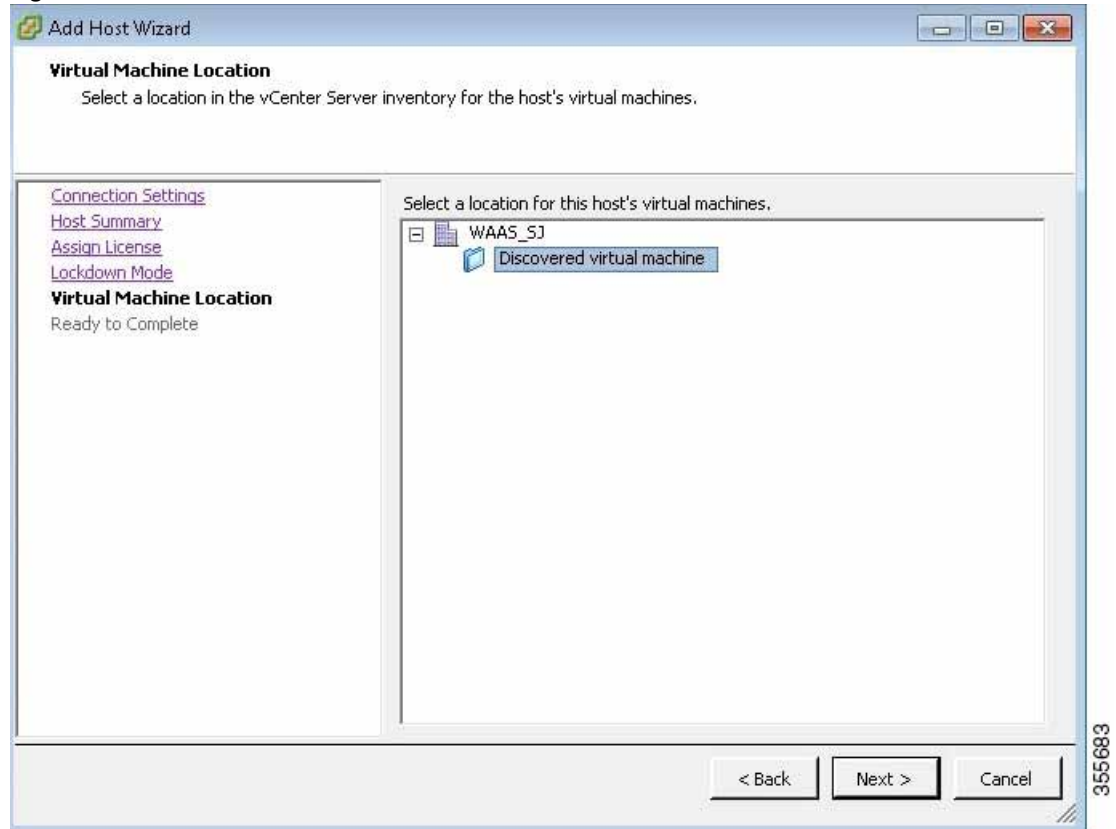
   a.   Select a location in the vCenter Server Inventory for the specified host's virtual machines.

   b.   Click **Next**.

Step 13   The vSphere Client window is displayed with the Recent Tasks pane displaying a Completed status for this task (Figure 4-14).

Figure 4-14   vSphere Client Recent Tasks Pane

Step 14   Navigate to **File** > **Deploy OVF Template...** (Figure 4-15).

Figure 4-15   Deploy OVF Template... Menu Selection
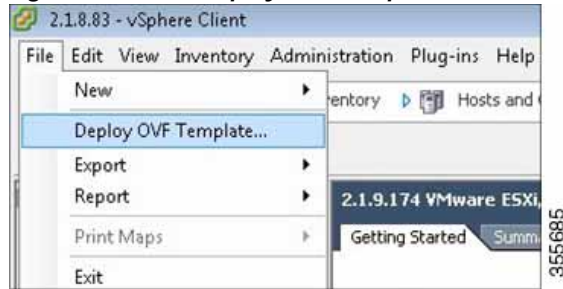
Step 15   Download the vWAAS OVA from the Cisco Wide Area Application Services (WAAS) Download Software Page.

Step 16   Navigate to **File** > **Deploy OVF Template**... > **Source**.

Step 17   The Source window appears (Figure 4-16), where you select the OVA file.

Figure 4-16   Source Window
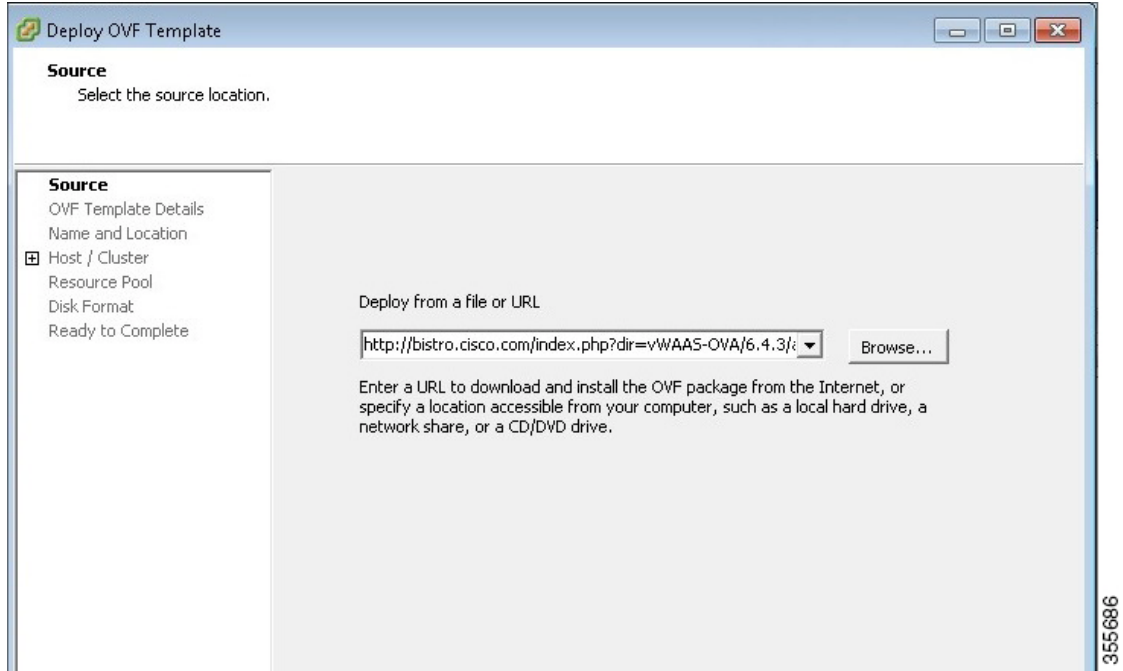
    a.   From the **Deploy from a file or URL** drop-down list, select the OVA file.

Step 18   The OVF Template Details window appears (Figure 4-17), where you can verify the OVF template details including product name, version, vendor, download size, size on disk, and a description.

Figure 4-17   *OVF Template Details Window*
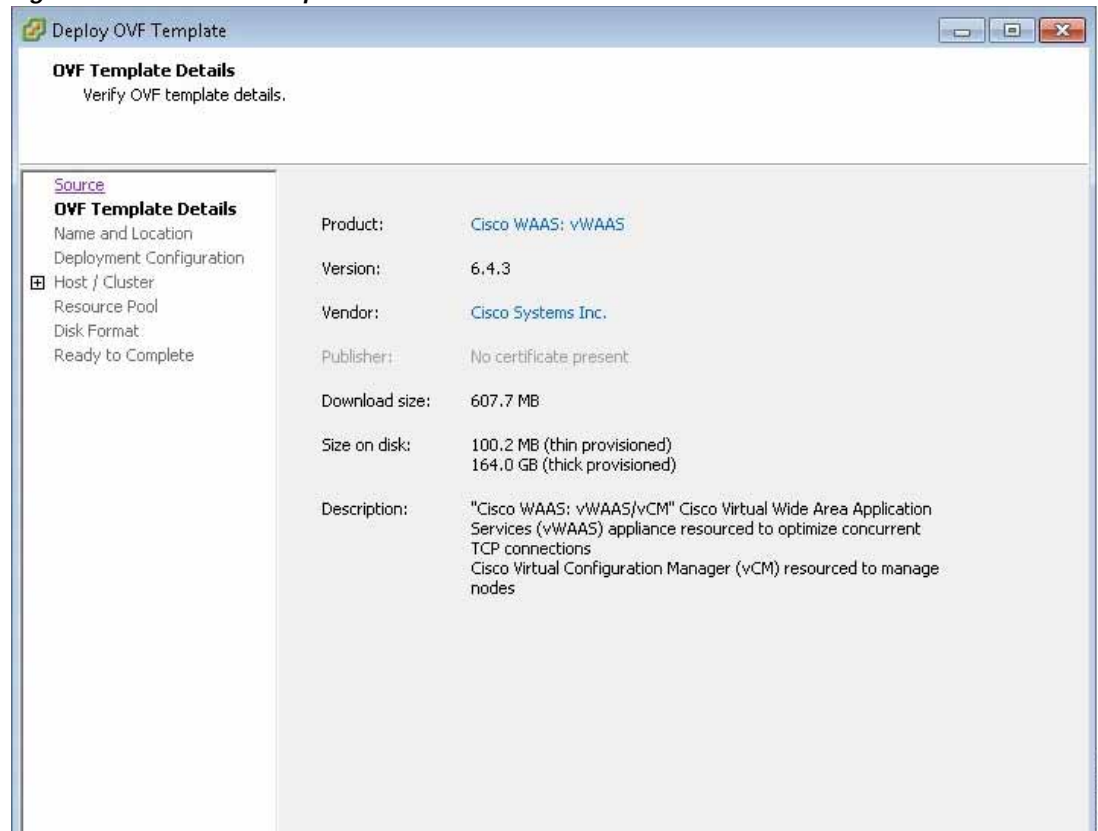
a. To accept the selected OVA file, click **Next**.

Step 19   The Name and Location window appears (Figure 4-18), where you specify a name and location for the deployed template.

Figure 4-18   Name and Location Window
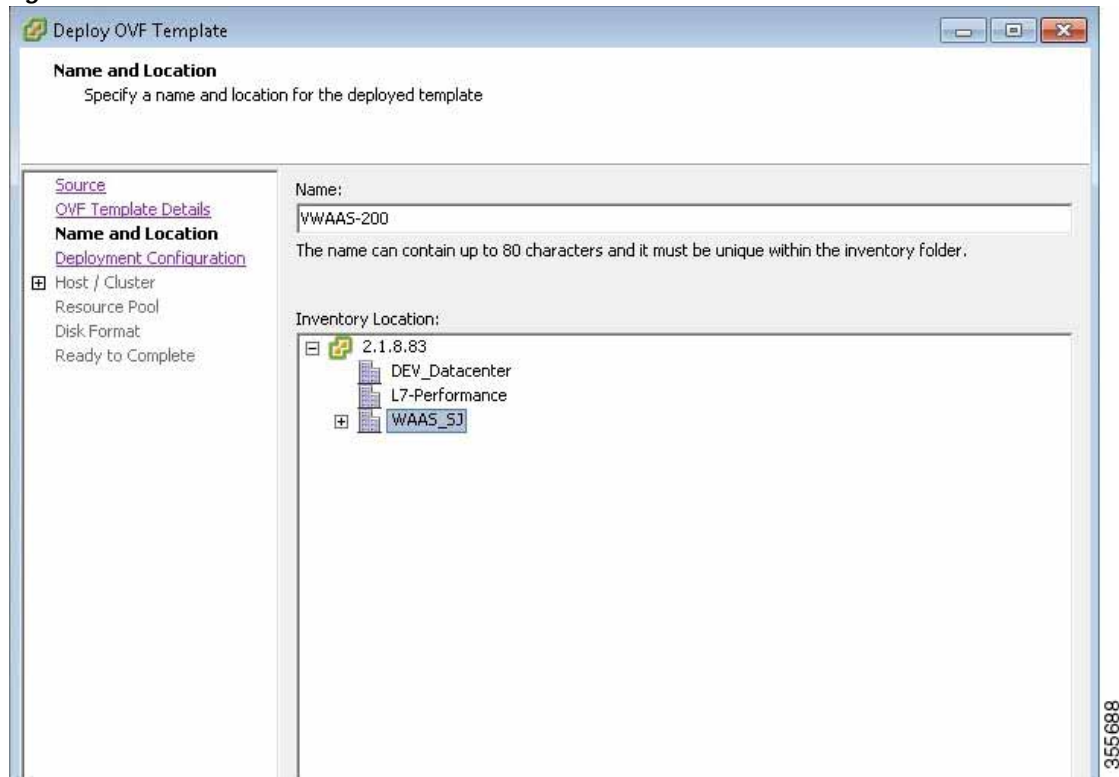
a. In the **Name** field, enter the name for the vWAAS VM.

b. At the **Inventory Location** listing, select the location to deploy (datacenter).
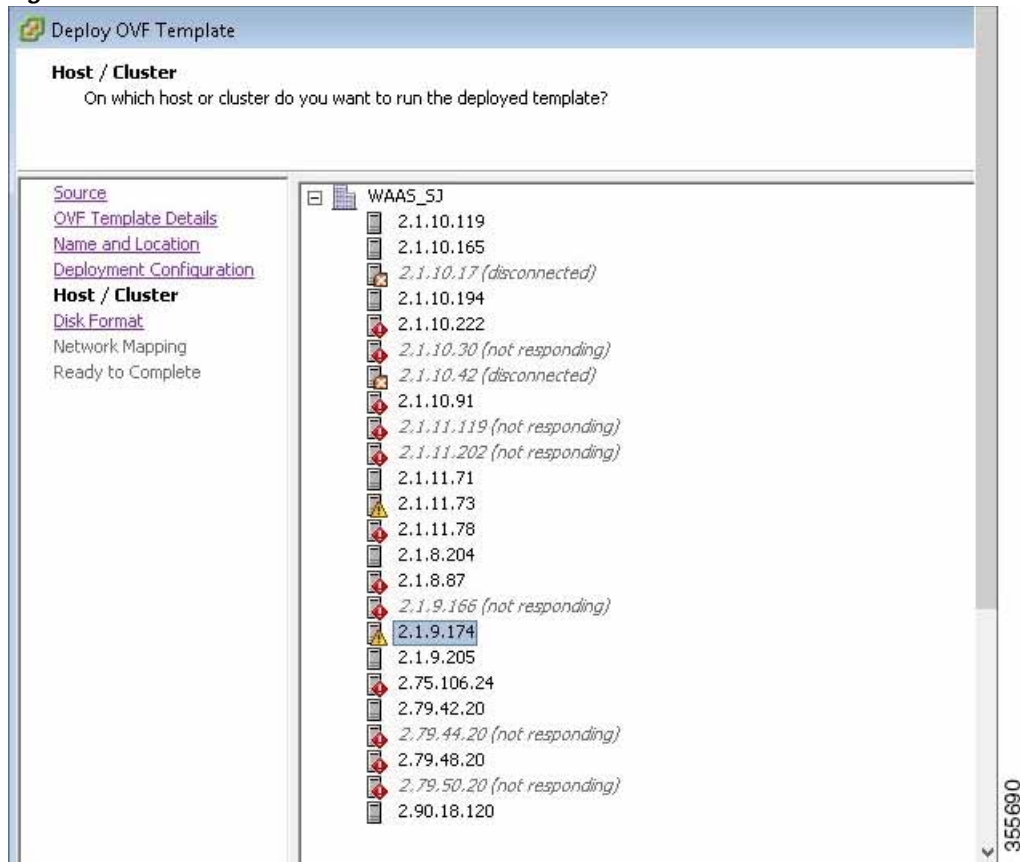
c. Click **Next**.

Step 20   The Deployment Configuration window appears (Figure 4-19).

Figure 4-19   Deployment Configuration Window
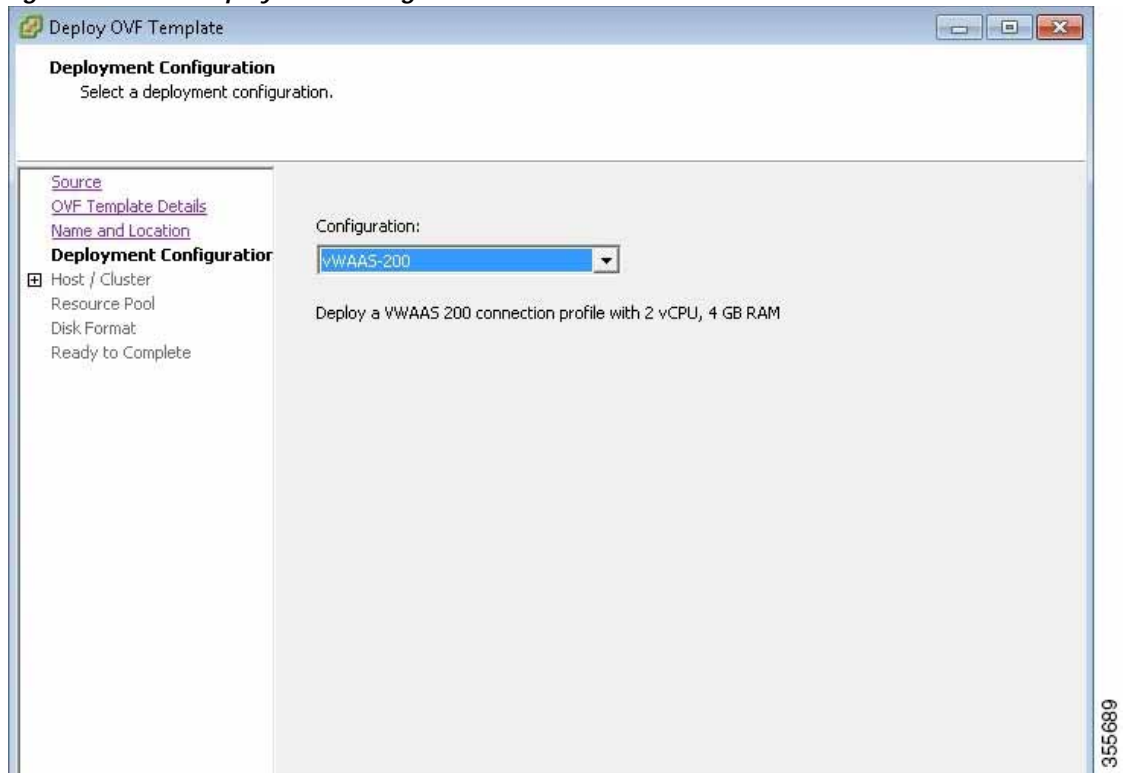
a. From the **Configuration** drop-down list, choose the vWAAS model to deploy. After you choose a vWAAS model, the window displays a description of the vWAAS model, such as "Deploy a vWAAS-200 connection profile with 2 vCPU, 4 GB RAM."

b. Click **Next**.

Step 21 The Host/Cluster window is displayed (Figure 4-20), where you can choose a host or cluster to run the deployed template.

Figure 4-20   Host/Cluster Window

a. Select the ESXi host or cluster where you need to run the deployed template.

b. Click **Next**.

Step 22   The Disk Format window is displayed (Figure 4-21), which displays data store address and available disk space, in GB, and provisioning choices.

Figure 4-21   Disk Format Window
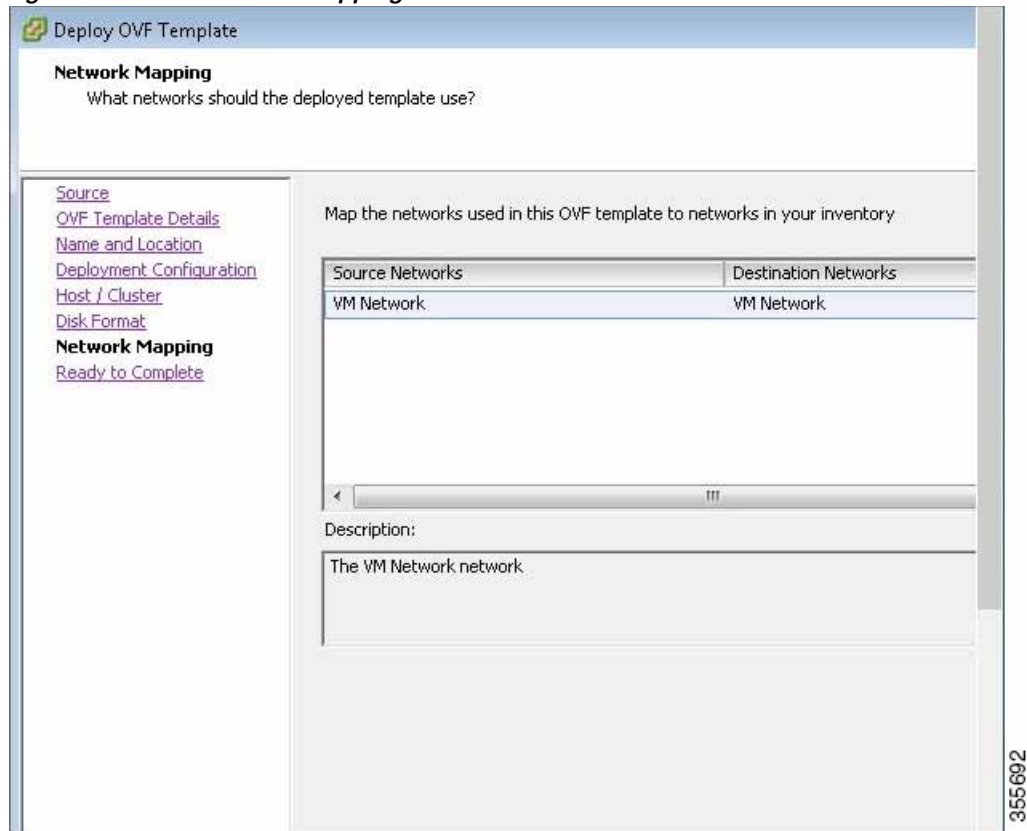

Note   You must choose **Thick Provision Eager Zeroed** for vWAAS deployment.

    a.   Click **Next**.

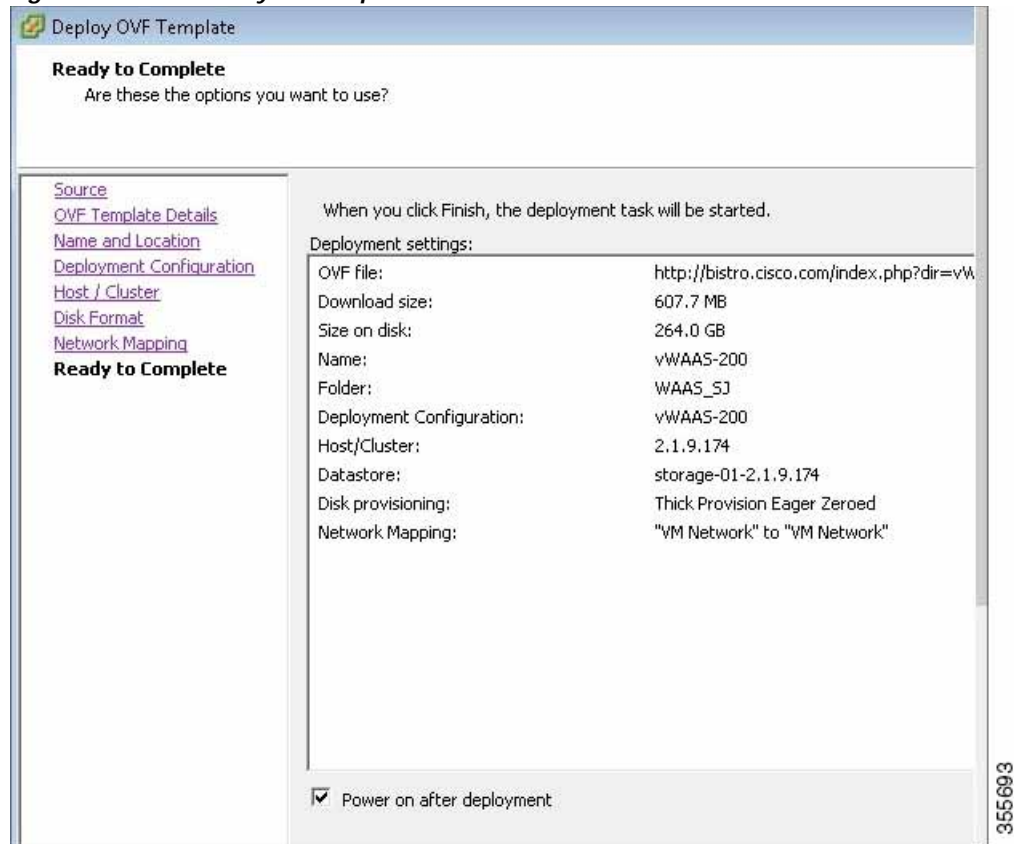**Step 23**   The Network Mapping window appears (Figure 4-22).

Figure 4-22   Network Mapping Window

a. Choose the required network mapping settings for your system.

b. Click **Next**.

Step 24   The Ready to Complete window appears (Figure 4-23), where you can verify the details of your deployment.

Figure 4-23   Ready to Complete Window

a. If the displayed details are the ones you have specified for your deployment, click the **Power on after deployment** check box.

b. To start the deployment task, click **Finish**.

Step 25   The Status window appears while the OVA file is being deployed (Figure 4-24) and then shows a completion message after the deployment has completed successfully (Figure 4-25).

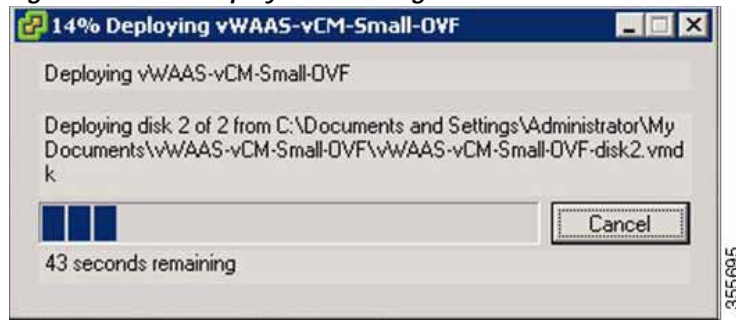*Figure 4-24   Deployment In Progress Status Window*

Figure 4-25   Deployment Completion Status Window

   a.   After deployment is completed, click **Close**.

Step 26   Navigate to Home > Inventory > Hosts and Clusters. The Inventory panel now shows the newly deployed device.

Step 27   Highlight the newly deployed device and open the Console window to display this device (Figure 4-26).

Figure 4-26   Console Window Displaying Newly Deployed Device
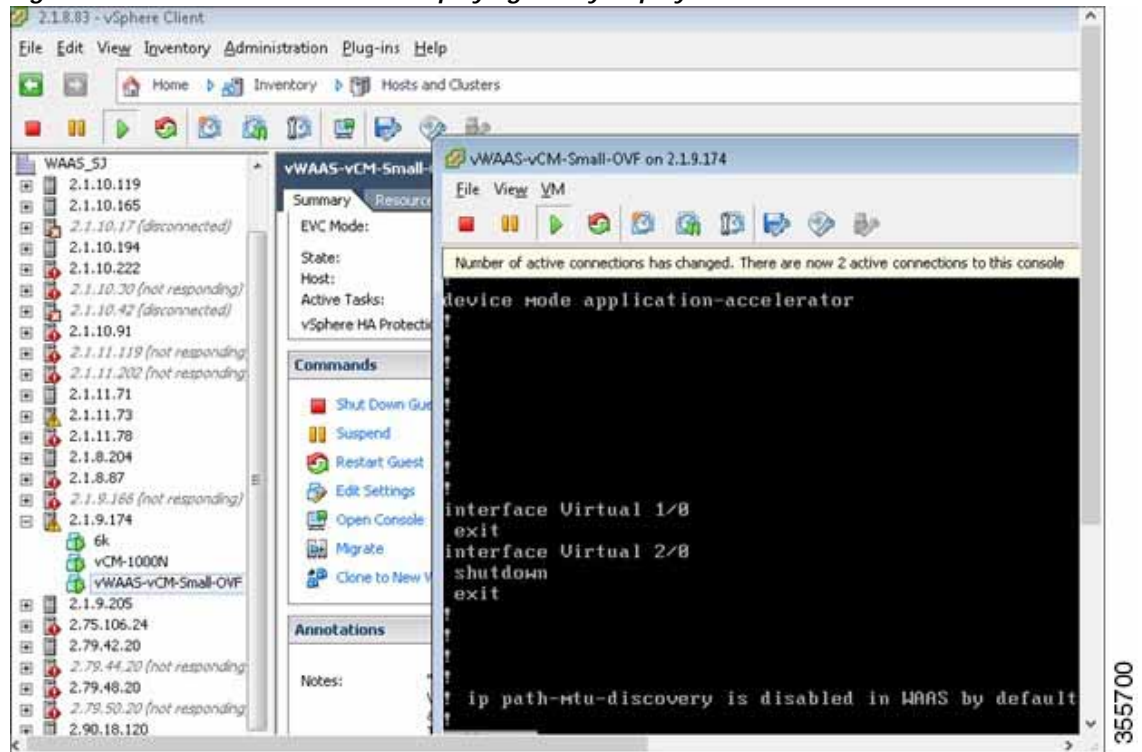
Upgrade/Downgrade Guidelines for vWAAS on VMware ESXi

Consider the following guidelines when upgrading or downgrading your WAAS system with vWAAS on VMware ESXi:

- When upgrading vWAAS, do not upgrade more than five vWAAS nodes at the same time on a single UCS box. Upgrading more than five vWAAS nodes at the same time may cause the vWAAS devices to go offline and into diskless mode.

- If the virtual host was created using an OVA file of vWAAS for WAAS Version 5.0 or earlier, and you have upgraded vWAAS within WAAS, you must verify that the SCSI Controller Type is set to **VMware Paravirtual**. Otherwise, vWAAS will boot with no disk available and will fail to load the specified configuration.

  If needed, change the SCSI controller type to **VMware Paravirtual** by following these steps:

  a. Power down the vWAAS.

  b. From the VMware vCenter, navigate to **vSphere Client** > **Edit Settings** > **Hardware**.

  c. Choose **SCSI controller 0**.

  d. From the Change Type drop-down list, verify that the SCSI Controller Type is set to **VMware Paravirtual**. If this is not the case, choose **VMware Paravirtual**.

  e. Click **OK**.

  f. Power up the vWAAS, with WAAS Version 6.1.x or later.