



CHAPTER 5

MSE Delivery Modes

The Cisco MSE comes preinstalled on a physical appliance with various performance characters. The MSE is delivered in two modes, the physical appliance and the virtual appliance.

This chapter contains the following sections:

- [Physical Appliance, page 5-1](#)
- [Virtual Appliance, page 5-1](#)

Physical Appliance

When the MSE is located on the physical appliance, you can use the standard license center UI to add new licenses. When the MSE is located on the physical appliance, the license installation process is based on Cisco UDI (Unique Device Identifier). Choose **Administration > License Center** on the NCS UI to add the license.

For more information on the physical appliance, see the *Cisco Prime Network Control System Getting Started Guide, Release 1.0*.



Note

Virtual appliance licenses are not allowed on physical appliances.

Virtual Appliance

MSE is also offered as a virtual appliance, to support lower-level, high, and very high end deployments. When the MSE is located on the virtual appliance, the license is validated against VUDI (Virtual Unique Device Identifier) instead of UDI.



Note

MSE is available as a virtual appliance for Release 7.2 and later. The virtual appliance must be activated first before installing any other service licenses.

The MSE virtual appliance software is distributed as an Open Virtualization Archive (OVA) file. You can install the MSE virtual appliance using any of the methods for deploying an OVF supported by the VMware environment. Before starting, make sure that the MSE virtual appliance distribution archive is in a location that is accessible to the computer on which you are running vSphere Client.

For a virtual appliance, you must have an activation license. Without an activation license, the MSE starts in evaluation mode. Even if service licenses are present on the host, it rejects them if the activation license is not installed.

**Note**

See the VMware vSphere 4.0 documentation for more information about setting up your VMware environment.

You can add and delete a virtual appliance license either using the **Services > Mobility Services Engine > Add Mobility Services Engine** page when you are installing MSE for the first time, or you can use **Administration > License Center** page to add or delete a license.

See the “[Adding a Mobility Services Engine to the NCS](#)” section on page 2-4 and the “[Deleting a Mobility Services Engine from the NCS](#)” section on page 2-7 for more information on adding a license and deleting a license using the mobility services engine wizard.

This section contains the following topics:

- [Operating Systems Requirements, page 5-2](#)
- [Client Requirements, page 5-2](#)
- [Reinstalling the MSE on a Physical Appliance, page 5-3](#)
- [Deploying the MSE Virtual Appliance, page 5-4](#)
- [Adding a License File to the MSE Using the License Center, page 5-8](#)
- [Viewing the MSE License Information Using the License Center, page 5-9](#)
- [Removing a License File Using the License Center, page 5-9](#)

Operating Systems Requirements

The following operating systems are supported:

- Red Hat Linux Enterprise server 5.4 64-bit operating system installations are supported.
- Red Hat Linux version support on VMware ESX/ESXi Version 4.1 and later with either local storage or SAN over fiber channel.

**Note**

The recommended deployments for a virtual appliance are UCS and ESX/ESXi.

Client Requirements

The MSE user interface requires Microsoft Internet Explorer 7.0 or later with the Google Chrome plugin or Mozilla Firefox 3.6 or later releases.

**Note**

We strongly advise that you do not enable third-party browser extensions. In Internet Explorer, you can disable third-party browser extensions by choosing **Tools > Internet Options** and unselecting the **Enable third-party browser extensions** check box on the Advanced tab.

The client running the browser must have a minimum of 1 GB of RAM and a 2-GHz processor. The client device should not be running any CPU or memory-intensive applications.

Prerequisites for Setting Up an MSE Virtual Appliance on a Server

Before setting up an MSE virtual appliance, ensure that you have completed the following:

- Make sure that your computer has at least 500 GB of hard disk space and fast SAS drives with enhanced RAID controllers.
- Use VM ESXi 4.1 or later.
- Insert the ESXi 4.1 or later DVD and boot from the drive. Install ESXi. If there are multiple drives, install in the drive that is configured as the boot drive. If you select the wrong drive for install, you can reformat using a Fedora Live CD and select the other drive when you install ESXi again.
- Default username and password for ESX/i are root and blank, just leave blank and hit enter (no password).
- Configure the IP address and make sure to select the correct Network Adapter (select the ones that are enabled and active, you might have multiple if your host is connected to multiple networks).
- (If you are using UCS box) - You can also set the same IP address during CIMC setup (press F8 during boot up). Also change the default password.
- Once ESXi is setup, you can use a Win XP/7 machine and connect to the ESXi host through vSphere client using the above configured IP address and login credentials.
- Refer to following articles to setup the datastores on ESXi:
 - <http://pubs.vmware.com/vsphere-esxi-4-1-embedded/wwhelp/wwhimpl/js/html/wwhelp.htm>

Virtual Appliance Sizing

See [Table 5-1](#) for information on virtual appliance sizing.

Table 5-1 Virtual Appliance Sizing

Primary MSE Virtual Appliance Level	Resources		Supported License (Individually)	
	Total Memory	CPU	CAS License	wIPS License
Level1	3.5G	1	100	20
Level2	6G	2	2000	2000
Level3	11G	8	18000	5000
Level4	20G	16	50000	10000

Reinstalling the MSE on a Physical Appliance

You must have root privileges to install the MSE on a physical appliance. To reinstall the MSE on a physical appliance, follow these steps:

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- Step 1** Insert the provided MSE software image DVD. The system boots up and a console appears.
- Step 2** Select option 1 to reinstall the MSE software image. The system reboots and the configure appliance screen appears.

- Step 3** Enter the initial setup parameters and the system reboots again. Remove the DVD and follow the provided steps to start the MSE server.
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Deploying the MSE Virtual Appliance

This section describes how to deploy the MSE virtual appliance on an ESXi host using the vSphere Client using the Deploy OVF wizard or from the command line. This section contains the following topics:

- [Deploying the MSE Virtual Appliance from the VMware vSphere Client, page 5-4](#)
- [Configuring the Basic Settings to Start the MSE Virtual Appliance VM, page 5-7](#)
- [Deploying the MSE Virtual Appliance Using the Command-Line Client, page 5-8](#)

Deploying the MSE Virtual Appliance from the VMware vSphere Client

The MSE virtual appliance is distributed as an OVA file that can be deployed on an ESXi using the vSphere Client. An OVA is a collection of items in a single archive. In the vSphere Client, you can deploy the OVA wizard to create a virtual machine running the MSE virtual appliance application as described in this section.



Note While the following procedure provides general guidelines for how to deploy the MSE virtual appliance, the exact steps that you must perform may vary depending on the characteristics of your VMware environment and setup.

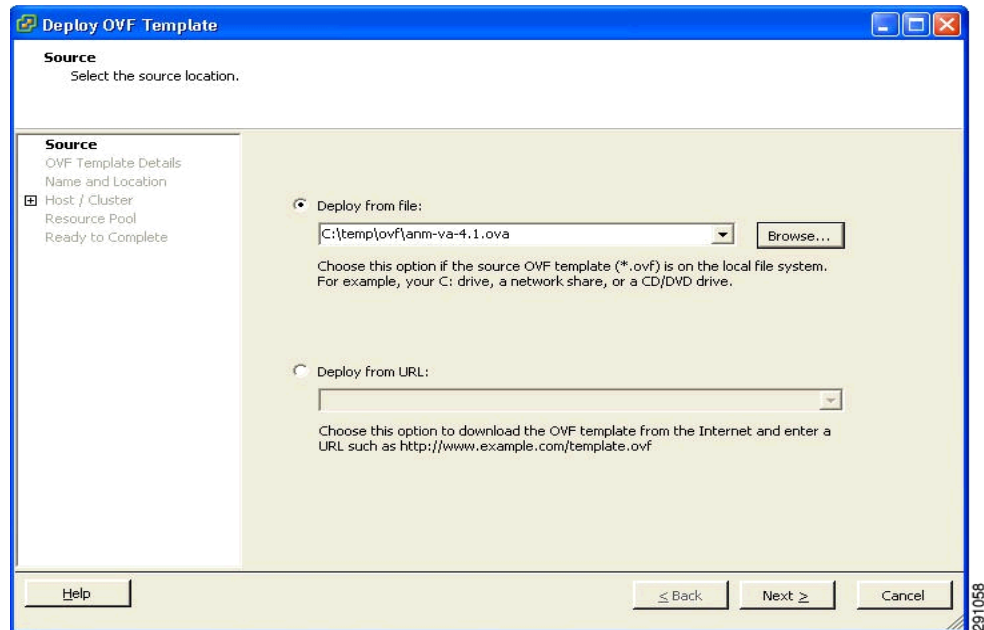


Note Deploying virtual appliance takes at least 500 GB of available disk space on the ESXi host database. We recommend that the datastore on the host have a block size of at least 4 MB or more for ESXi 4.1 or earlier, else the deployment may fail. No such restriction is placed on the datastores on ESXi 5.0 and later.

To deploy the MSE virtual appliance, follow these steps:

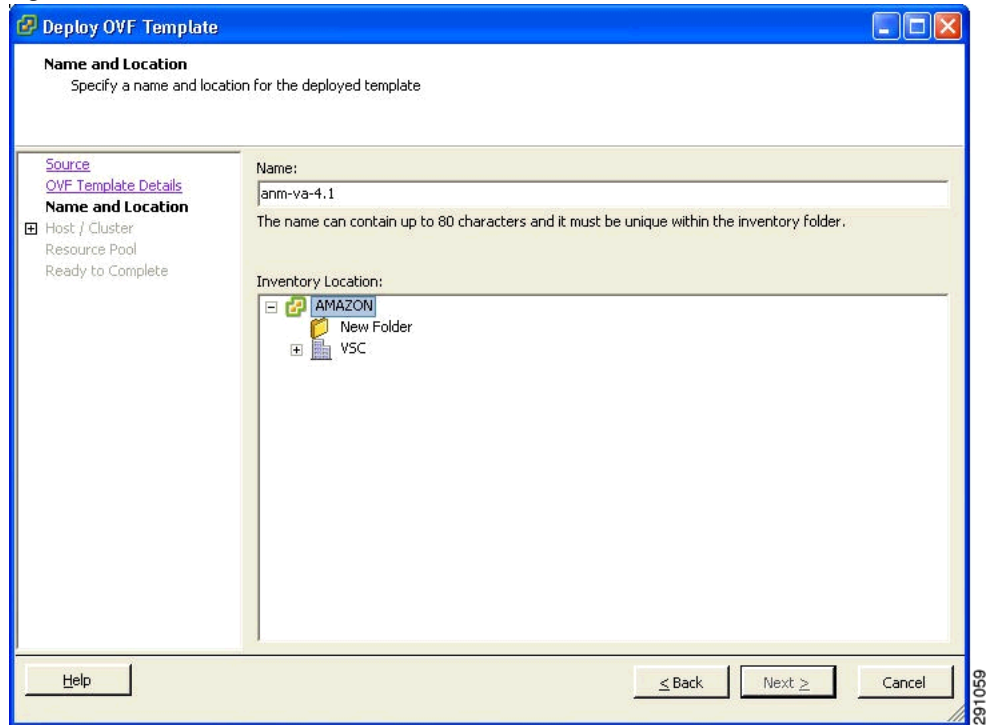
- Step 1** From the VMware vSphere Client main menu, choose **File > Deploy OVF Template**. The OVF Template Source window appears (see [Figure 5-1](#)).

Figure 5-1 Deploy OVF Template Window



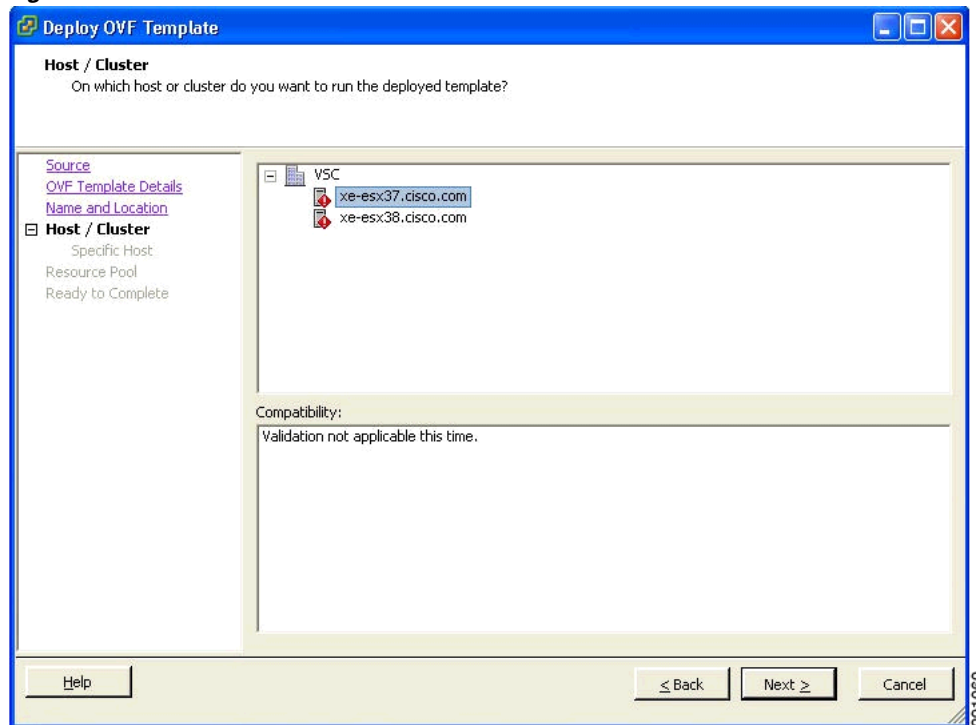
- Step 2** Select the **Deploy From File** radio button and choose the OVA file that contains the MSE virtual appliance distribution from the drop-down list.
- Step 3** Click **Next**. The OVF Template Details window appears. VMware ESX/ESXi reads the OVA attributes. The details include the product you are installing, the size of the OVA file (download size), and the amount of disk space that must be available for the virtual machine.
- Step 4** Verify the OVF Template details and click **Next**. The Name and Location window appears (see [Figure 5-2](#)).

Figure 5-2 Name and Location Window



- Step 5** Either keep the default name for the VM to be deployed in the Name text box or provide a new one, and click **Next**. This name value is used to identify the new virtual machine in the VMware infrastructure, you should use any name that distinguishes this particular VM in your environment. The Host / Cluster window appears (see [Figure 5-3](#)).

Figure 5-3 Host/Cluster Window



- Step 6** Choose the destination host or HA cluster on which you want to deploy the MSE VM, and click **Next**. The Resource Pool window appears.
- Step 7** If you have more than one resource pool in your target host environment, choose the resource pool to use for the deployment, and click **Next**. The Ready to Complete window appears.
- Step 8** Review the settings shown for your deployment and, if needed, click **Back** to modify any of the settings shown.
- Step 9** Click **Finish** to complete the deployment. A message notifies you when the installation completes and you can see the MSE virtual appliance in your inventory.
- Step 10** Click **Close** to close the Deployment Completed Successfully dialog box.

Configuring the Basic Settings to Start the MSE Virtual Appliance VM

You have completed deploying (installing) the MSE virtual appliance on a new virtual machine. A node for the virtual machine now appears in the resource tree in the VMware vSphere Client window. Deploying the OVF template creates a new virtual machine in vCenter with the MSE virtual appliance application and related resources already installed on it. After deployment, you need to configure basic settings for the MSE virtual appliance.

To start the MSE setup, follow these steps:

- Step 1** In the vSphere Client, click the **MSE virtual appliance** node in the resource tree. The virtual machine node should appear in the Hosts and Clusters tree below the host, cluster, or resource pool to which you deployed the MSE virtual appliance.

- Step 2** On the Getting Started tab, click the **Power** on the virtual machine link in Basic Tasks. The Recent Tasks window at the bottom of the vSphere Client pane indicates the status of the task associated with powering on the virtual machine. After the virtual machine successfully starts, the status column for the task shows Completed.
- Step 3** Click the **Console** tab, within the console pane to make the console prompt active for keyboard input.
- Step 4** Use the MSE setup wizard to complete the setup.
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Deploying the MSE Virtual Appliance Using the Command-Line Client

This section describes how to deploy the MSE virtual appliance from the command line. As an alternative to using the vSphere Client to deploy the MSE OVA distribution, you can use the VMware OVF tool, which is a command-line client.

To deploy an OVA with the VMware OVF tool, use the ovftool command, which takes the name of the OVA file to be deployed and the target location as arguments, as in the following example:

```
ovftool MSE-VA-X.X.X-large.ova vi://my.vmware-host.example.com
```

In this case, the OVA file to be deployed is MSE-VA-X.X.X-large.ova and the target ESX host is my.vmware-host.example.com. For complete documentation on the VMware OVF Tool, see the VMware vSphere 4.0 documentation.

Adding a Virtual Appliance License to the NCS

You can add a virtual appliance license to the NCS using the following two options:

- Using the Add Mobility Service Engine page when you are installing MSE for the first time. See [“Adding a Mobility Services Engine to the NCS” section on page 2-4](#) for more information.
- Using the License Center page. See [“Adding a License File to the MSE Using the License Center” section on page 5-8](#) for more information.

Adding a License File to the MSE Using the License Center

To add a license, follow these steps:

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- Step 1** Install the MSE virtual appliance.
- Step 2** Add the MSE to the NCS.
- Step 3** Choose **Administration > License Center** in the NCS UI to access the License Center page.
- Step 4** Choose **Files > MSE Files** from the left sidebar menu.
- Step 5** Click **Add** to add a license.
- The Add A License File menu appears.
- Step 6** Select the MSE and browse to the activation license file.
- Step 7** Click **Submit**.

Once you submit, the license is activated and license information appears in the License Center page.

Viewing the MSE License Information Using the License Center

The license center allows you to manage the NCS, Wireless LAN Controllers, and MSE licenses. To view the license information, follow these steps:

- Step 1** Choose **Administration > License Center** to access the License Center page.
- Step 2** Choose **Summary > MSE** from the left sidebar menu to view the MSE summary page.

Table 5-2 lists the MSE Summary page fields.

Table 5-2 MSE Summary Page

Field	Description
MSE Name	Provides a link to the MSE license file list page.
Service	Service type can be CAS or wIPS.
Platform Limit	Platform limit.
Type	Specifies the type of MSE.
Installed Limit	Shows the total number of client elements licensed across MSEs.
License Type	The three different types of licenses: permanent, evaluation, and extension.
Count	The number of CAS or wIPS elements currently licensed across MSEs.
Unlicensed Count	Shows the number of client elements that are not licensed.
%Used	The percentage of CAS or wIPS elements licensed across MSEs.

Removing a License File Using the License Center

To remove a license, follow these steps:

- Step 1** Install the MSE virtual appliance.
- Step 2** Add the MSE to the NCS using the wizard.
- Step 3** Choose **Administration > License Center** to access the License Center page.
- Step 4** Choose **Files > MSE Files** from the left sidebar menu.
- Step 5** Choose an MSE license file that you want to remove by selecting the **MSE License File** radio button, and click **Remove**.
- Step 6** Click **OK** to confirm the deletion.

