



CHAPTER 6

Installing ACS in a VMware Virtual Machine

This chapter describes the system requirements and installation of ACS 5.2 in a VMware virtual machine.

This section contains:

- [Virtual Machine Requirements, page 6-1](#)
- [Evaluating ACS 5.2, page 6-2](#)
- [Configuring the ESX 3.5 or 4.0 Server, page 6-2](#)
- [Configuring the VM, page 6-5](#)
- [Preparing the VM for ACS Server Installation, page 6-8](#)
- [Installing the ACS Server, page 6-10](#)
- [VMware Hardening Requirements, page 6-11](#)

Virtual Machine Requirements

The minimum system requirements for the virtual machine must be similar to the CSACS-1120 Series appliance hardware configuration.

[Table 6-1](#) lists the minimum system requirements to install ACS 5.2 on a VMware virtual machine.

Table 6-1 Minimum System Requirements

Requirement Type	Minimum Requirements
CPU	Intel Core2; 2.13 GHz
Memory	4 GB RAM
Hard Disks	500 GB of disk storage Note ACS calculates the available disk space during the installation process and if the disk space is less than 500 GB, it will get installed with 60 GB space.
NIC	1 GB NIC interface
Hypervisor	VMware ESX 3.5 or 4.0

**Note**

You can use VMware Server 2.x only for an evaluation version of ACS 5.2. For an evaluation version, the disk space must be between 60 GB and 500 GB.

Evaluating ACS 5.2

For evaluation, ACS 5.2 can be installed in a VMware Server 2.x virtual machine or a VMware ESX virtual machine. When evaluating ACS 5.2, you can configure less disk space in the virtual machine, but a minimum disk space of 60 GB is required.

To download the ACS 5.2 software:

Step 1 Go to the following link:

<http://cisco.com/go/acs>

Step 2 Click **Download Software**.

You should have a valid Cisco.com login credentials to access this link.

To download a 90-day evaluation license:

Step 1 Go to the following link:

<https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet?DemoKeys=Y>

Step 2 Click the link available in the **Licenses Not Requiring a PAK** section.

You should have a valid Cisco.com login credentials to access this link.

VMware Server installations that use less than 500 GB of disk space are also not supported for production environment.

To migrate an ACS configuration from an evaluation system to a fully licensed production system, backup the configuration of the evaluation version and restore it to the production system. For more information on backup and restore, see [Chapter 7, “Upgrading the Cisco Secure Access Control System.”](#)

Configuring the ESX 3.5 or 4.0 Server

To install the ACS server, you require a minimum disk space of 500 GB on the VM. This section describes how to set the minimum required disk space on the VM.

To change the disk space size on the VM, log into the ESX Server. You can check the following after you are logged in:

To verify the disk space size:

Step 1 Choose **Configuration > Storage**, and click **Properties**.

If the hard disk storage is 256 GB, you must change it to 512 GB.

Step 2 Change the hard disk storage to 512 GB by choosing **Configuration > Storage**.

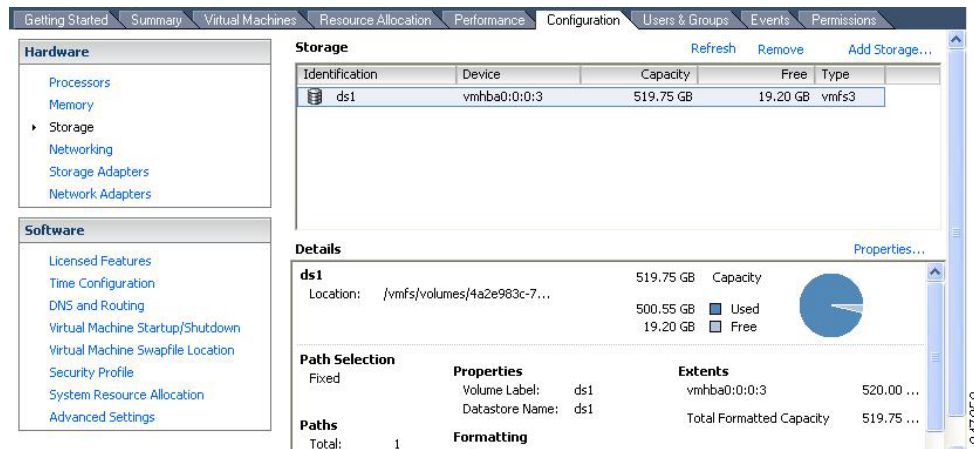
To remove the default configuration:

-
- Step 1** Click **Remove**.
A confirmation window appears.
- Step 2** Click **Yes**.
The default configuration is removed.
-

To create a new virtual file size

-
- Step 1** Choose **Configuration > Storage > Add Storage Wizard**.
You can find the Add Storage wizard at the upper-right corner of the configuration window.

Figure 6-1 Configuration Window

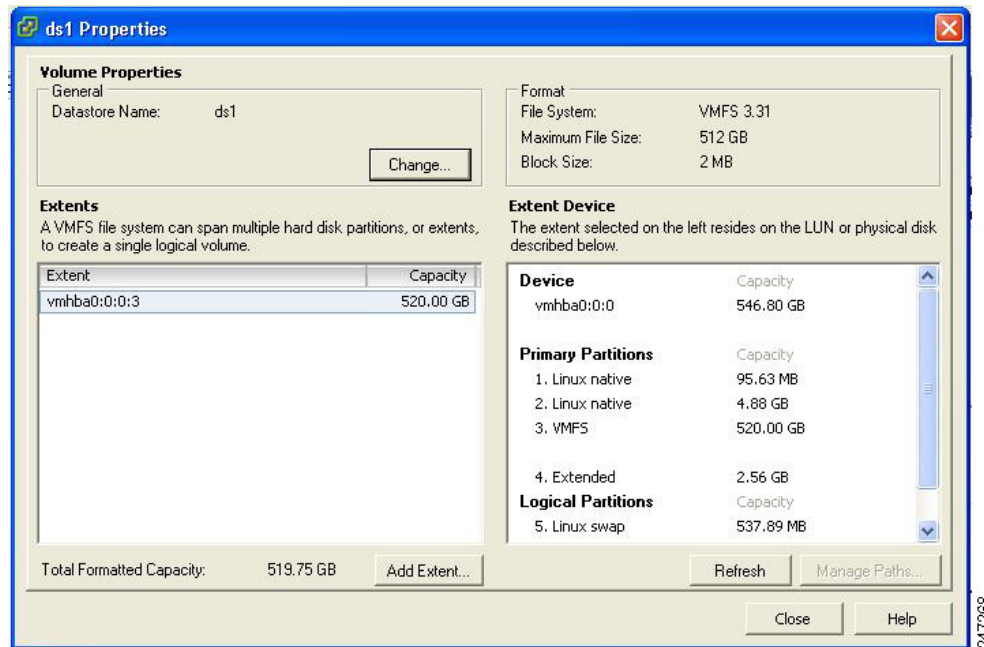


- Step 2** From the Storage Type drop-down list, choose **Disk/LUN** and click **Next**.
- Step 3** Choose **512 GB, 2 MB** block size and click **Next**.
512 GB is the minimum block size required for installing VMware with ACS. However, ACS will use only 500 GB, even if you assign extra space in your VM.
- Step 4** Click **Finish**.
The new VM with a 512 GB memory and a 2 MB block size is created successfully.
-

To check the new file size, choose **Configuration > Storage**, and click **Properties**.

Figure 6-2 displays the properties of a disk space created with the name ds1.

Figure 6-2 Disk Space Properties Window

**Note**

Dynamically allocating the hard drive space (thin provisioning) is not supported in VMware.

Configuring the VM

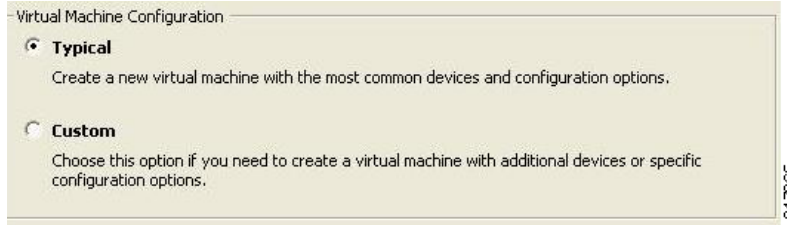
This section describes the VM configuration process using the VMware Infrastructure Client.

Before You Begin

Before installing the ACS server, verify that the VM has a minimum of 500 GB disk space. For more information, see [Configuring the ESX 3.5 or 4.0 Server, page 6-2](#).

To configure the VM:

- Step 1** Log into the ESX Server.
- Step 2** In the VMware Infrastructure Client, in the left pane, right-click your host container and choose **New Virtual Machine**.
The New Virtual Machine Wizard appears.
- Step 3** In the Configuration Type dialog box, choose **Typical** as the VM configuration as shown in [Figure 6-3](#), and click **Next**.

Figure 6-3 Virtual Machine Configuration Dialog Box

The Name and Location dialog box appears. (Figure 6-4)

Step 4 Enter a name you will use to reference the VM, and click **Next**.

Figure 6-4 Name and Location Dialog Box

Tip

Use the hostname you will use for your VM host.

The Datastore dialog box appears. (Figure 6-5)

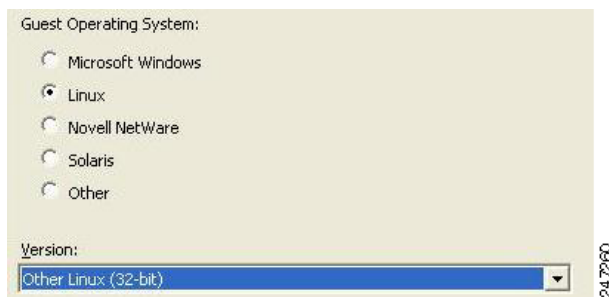
Step 5 Choose a datastore that has a minimum of 500 GB free space available, and click **Next**.

Figure 6-5 Datastore Dialog Box

Name	Capacity	Free	Type	Access
[ds1]	519.75 GB	519.20 GB	VMFS	Single host

The Guest Operating System dialog box appears. (Figure 6-6)

Step 6 Click the **Linux** radio button and from the Version drop-down list, choose **Other Linux (32-bit)**.

Figure 6-6 Guest Operating System Dialog Box

The Number of Virtual Processors dialog box appears. (Figure 6-7)

Step 7 From the Number of virtual processors drop-down list, choose **2** (if 2 is available); or you can choose and click **Next**.

Figure 6-7 *Number of Virtual Processors Dialog Box*



The Memory Configuration dialog box appears. (Figure 6-8)

Step 8 Enter **4096 MB**, and click **Next**.

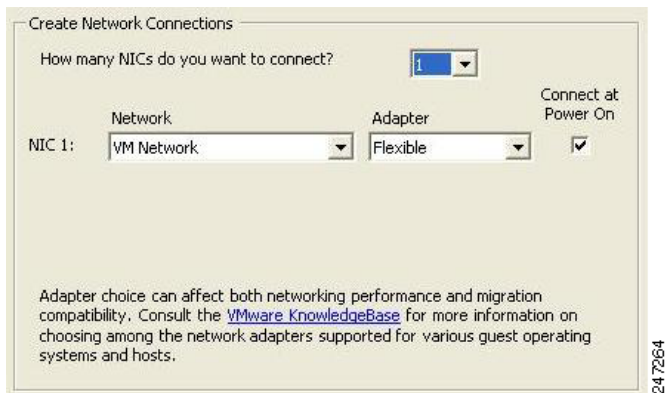
Figure 6-8 *Memory Configuration Dialog Box*



The NIC Configuration dialog box appears. (Figure 6-9)

Step 9 Choose **1 NIC**, and click **Next**.

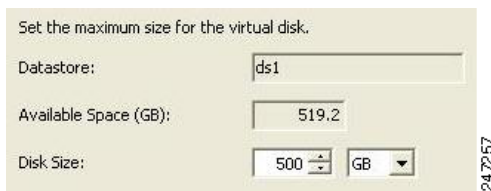
Figure 6-9 *NIC Configuration Dialog Box*



The Virtual Disk Capacity dialog box appears. (Figure 6-10)

Step 10 In the Disk Size field, enter **500 GB**, and click **Next**.

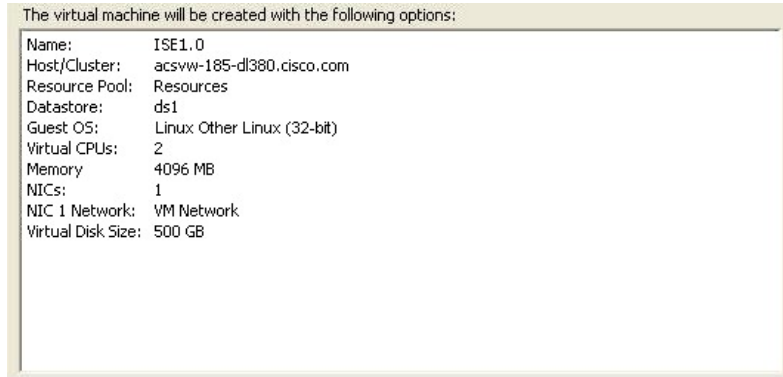
Figure 6-10 *Virtual Disk Capacity Dialog Box*



The Ready to Complete New Virtual Machine dialog box appears. (Figure 6-11)

- Step 11** Verify the configuration details, such as Name, Guest OS, Virtual CPU, Memory, and Virtual Disk Size, of the newly created VM.

Figure 6-11 Ready to Complete Dialog Box



- Step 12** Click **Finish**.

The VM is installed.

To activate the newly created VM, right-click the VM in the left pane and choose **Power On**.

Preparing the VM for ACS Server Installation

After configuring the VM, you are ready to install the ACS server. To install the ACS server from your ACS Install Disk, you need to configure the VM to boot from the ACS Install Disk.

The VM must be configured with a virtual DVD drive to boot off the ACS 5.2 DVD.

This can be performed using different methods depending on your environment.

See [Configuring the VM Using the DVD Drive, page 6-8](#) to configure the VM using the DVD drive of your VMware ESX server host.

Configuring the VM Using the DVD Drive

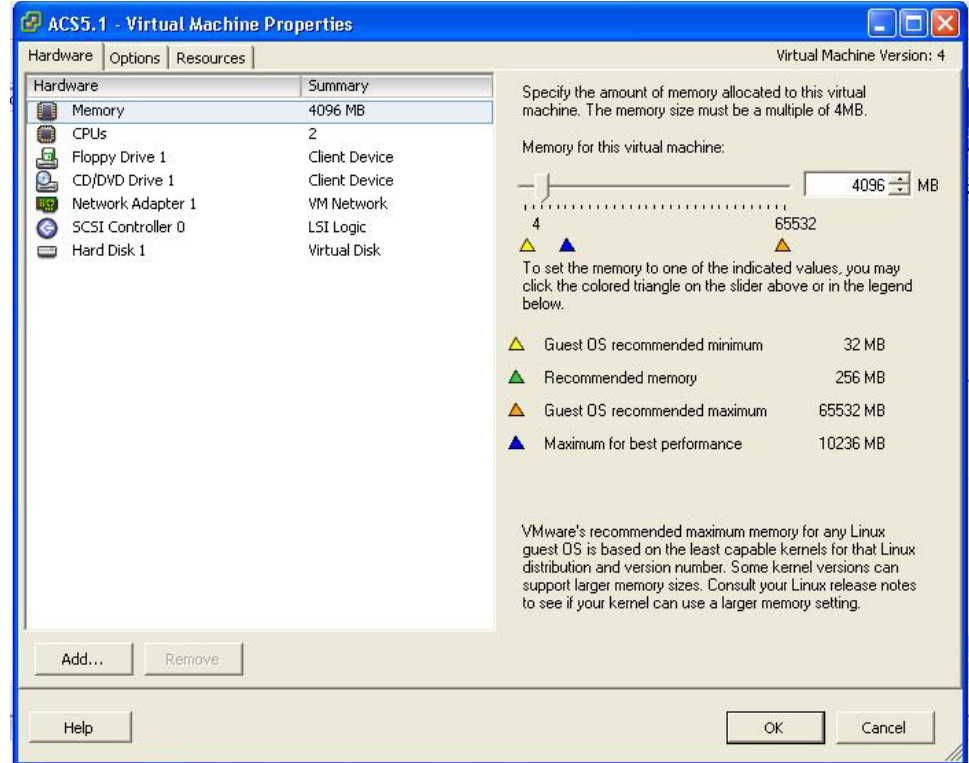
This section describes how to configure the VM to boot from the ACS Install Disk using the DVD drive of the VMware ESX server host.

To configure the VM using the DVD drive:

- Step 1** In the VMware Infrastructure Client, highlight the newly created VM, and choose **Edit Virtual Machine Settings**.

The Virtual Machine Properties window appears. [Figure 6-12](#) displays the properties of a VM created with the name ACS 5.2.

Figure 6-12 Virtual Machine Properties Dialog Box



- Step 2** In the Virtual Machine Properties dialog box, choose **CD/DVD Drive 1**.
The CD/DVD Drive1 properties dialog box appears.
- Step 3** Choose the **Host Device** option, and from the drop-down list, choose your DVD host device.
- Step 4** Choose the **Connect at Power On** option, and click **OK** to save your settings.
You can now use the DVD drive of the VMware ESX server to install the ACS server.

When you complete the configuration, click the **Console** tab, right-click the VM from the left pane, and choose **Send Ctrl+Alt+Del** to restart the VM.

Installing the ACS Server

This section describes the installation process for the ACS server on VMware ESX 3.5 or 4.0.

To install the ACS server:

-
- Step 1** Log into the VMware Infrastructure Client.
- Step 2** Insert the ACS 5.2 Install Disk into the VMware ESX host CD/DVD drive, and power on the VM.

You can also download the ACS 5.2 software from the Cisco Software Download Site at:

<http://www.cisco.com/public/sw-center/index.shtml>.

After installation if you do not install a permanent license, ACS will automatically install a 90 day evaluation license.

When the ACS 5.2 Install Disk boots, the console displays:

```
Welcome to Cisco Secure ACS 5.2 Recovery
To boot from the hard disk press <Enter>
Available boot options:
[1] Cisco Secure ACS 5.2 Installation (Monitor/Keyboard)
[2] Cisco Secure ACS 5.2 Installation (Serial Console)
[3] Reset Administrator Password (Keyboard/Monitor)
[4] Reset Administrator Password (Serial Console)
<Enter> Boot from hard disk
Please enter boot option and press <Enter>.
boot: 1
```

You can select either the monitor and keyboard port, or the console port to perform the initial setup.

- Step 3** At the system prompt, type **1** to select a monitor and keyboard port, or type **2** to select a console port, and press **Enter**.

This starts the installation of the ACS server on the VM.



Note

Allow 20 minutes for the installation process to complete.

When the installation process finishes, the VM reboots automatically.

When the VM reboots, the console displays:

```
Type 'setup' to configure your appliance
localhost:
```

- Step 4** At the system prompt, type **setup**, and press **Enter**.

The Setup Wizard appears and guides you through the initial configuration. For more information on the setup process, see [Running the Setup Program, page 5-2](#).

VMware Hardening Requirements

Both the VMware server and the operating system on which the vmware is running must be hardened according to the guidelines specified by the VMware and operating system vendors.

See the vmware support website for more details.

