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# Virtual Management Appliance Setup Guide

## Installing a Virtual Appliance

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As an alternative to the hardware-based version of the Sophos Web Appliance, you can deploy appliances as virtual machines using VMware.

For all installations, it is important that you read the [configuration guide](#) before completing the steps in the setup wizard in order to make appropriate decisions about deployment.

 **Note:** Virtual appliances do not support Bridged Deployment, which requires a bridge card.

Prior to installation, you should also read the section of this guide on "Determining Disk Space and Memory Requirements."

 **Note:** If you are *not* deploying a virtual appliance, refer to the version of the setup guide that was shipped with the hardware-based model of your Appliance.

These appliances can be grouped with other virtual appliances or with hardware-based appliances.

Setting up a virtual appliance involves these basic steps:

1. Enabling Port Access
2. Downloading Virtual Appliance Files
3. Determining Disk Space, Memory and CPUs
4. Adding the Virtual Appliance to a virtualization infrastructure
5. Starting the Virtual Appliance
6. Configuring Network Settings

Once installation is complete, you can then proceed through the setup wizard as you would with a hardware-based appliance. See the [Sophos Management Appliance Configuration Guide](#) for more information.

### Configuration Checklist

Before beginning installation and configuration, read the checklist below. Then make sure you meet the prerequisites and that your network allows the necessary port access. You will need the following:

- Activation code (received in an email from Sophos)
- IP address of default gateway (not required if using DHCP)
- IP addresses of DNS servers (not required if using DHCP)

## Prerequisites

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To install and run a virtual appliance, you must have the following:

- VMware ESX or ESXi 3.5, VMware ESX or ESXi 4.x, VMware ESXi 5.x, VMware Workstation 6.5, or VMware Workstation 7.1.
- A minimum of 41 GB free disk space for a Virtual Web Appliance and 61G for a Virtual Management Appliance.
- RAM for the virtual appliance should be set to 1, 2, 3, or 4 GB. See the table in "Determining Disk Space and Memory Requirements" for this and other recommendations.

## Enabling Port Access

The appliance uses specific ports for external and internal connections. On your organization's firewall, configure the port access for the Sophos Appliance.

**Table 1: External Connections**

Port	Service	Connection	Purpose
22	ssh	Appliance to sophos.com	Remote assistance
22	ssh	Web Appliance to Management Appliance	Central configuration, status and reporting if not collocated
25	smtp	Appliance to sophos.com	Remote assistance notification
80	http	Appliance to sophos.com	Software downloads
80	http	Appliance to internet	Outbound network web traffic
123	ntp	Appliance to pool.ntp.org	[UDP] clock synchronization
443	https	Appliance to internet	Outbound network web traffic

**Table 2: Internal Connections**

Port	Service	Connection	Purpose
21	ftp	Appliance to FTP server	Backups if collocated
22	ssh	Web Appliance to Management Appliance	Central configuration, status and reporting if collocated
53	dns	Appliance to LAN	[UDP] DNS queries
80	http	LAN to Appliance	Administration interface
88	kerberos	Appliance to AD server	KERBEROS authentication
139	netbios-ssn	Appliance to AD server	MS netbios session
389	ldap	Appliance to AD server	LDAP synchronization
445	smb	Appliance to AD server	MS server message block
3268	msgc	Appliance to AD server	MS AD Global Catalog synchronization
8080	http	LAN to Appliance	Proxy

## Downloading Virtual Appliance Files

Before you can install and configure a virtual appliance, you must obtain the necessary files from the Sophos website. There are two ways of obtaining the installation files:

- Install directly from the internet using a URL.
  - Download the necessary files and install them manually.
1. Locate the email message sent by your Sophos representative that contains your product activation code. This message will also contain a link to the downloads section of the Sophos website. Click the link.

2. In the section of the table that matches your supported VMware platform, you will see two installation methods: “Install via the internet ” and “Download files and install manually”.
3. If you choose to “Install via the internet”, leave your web browser open to this page on the Sophos website, or copy and paste the URL to a convenient location and proceed to the “Adding a Virtual Appliance” section of this setup guide.

Or, if you choose “Download and install manually”, click each of the four links to retrieve an .ovf file, two .vmdk files, and an .mf file. Then proceed to “Adding a Virtual Appliance.”

 **Important:** For the manual method, you must download all files to the same directory for installation. You must preserve the file extensions.

If your VMware platform is (ESX or ESXi) 3.5 or VMware Workstation 6.5 or 7.1, you will download a version 0.9 .ovf file; if your platform is VMware (ESX or ESXi) 4.x or higher, you will download a version 1.0 .ovf file.

The .mf file contains SHA1 checksums used to verify the download contents.

-  **Note:** If you are an existing customer with a MySophos account, you can log in and retrieve the files from the **Downloads and updates** section.

## Estimating Disk Space and Memory Requirements

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-  **Important:** Recommendations for CPU, memory, and disk space allocations on your Sophos Virtual Management Appliance are guidelines only. The amount of disk space required varies between environments and is highly dependent upon policies and the amount of traffic you expect your virtual appliances to process.

If you are running ESX 4.x or ESXi 4.x/5.x, you can use the virtual appliance’s installation wizard to select a profile that corresponds with the table below. Otherwise, you can change the settings through VMware once you have imported the virtual appliance.

A virtual appliance uses 1GB of memory and 1 CPU by default. These two settings can be adjusted after installation, but it is recommended that you consider them beforehand and make any necessary changes.

### Estimating Disk Space

Although the installation wizard allows you to select the CPU and RAM, the disk space must be adjusted directly in VMware. See the “Adding a Virtual Appliance” section and the VMware documentation for instructions.

When estimating disk space on a Management Appliance, the main consideration is the amount of report data that it can store. Logs are collected from the joined Web Appliances and stored on the Management Appliance. For this reason, you must allocate more disk space for the Management Appliance.

Still, the amount needed will vary, depending on the amount of report data your users generate and how much data you want to retain. In a group of appliances, each of the Web Appliances accumulates data, which is then transferred to the Management Appliance. Since the joined Web Appliances only hold report data temporarily, each one requires considerably less disk space than the Management Appliance.

-  **Note:** If necessary, you can increase the amount of virtual disk space after the installation; however, once set, the disk space size cannot be decreased. It can only be increased.

By default, a virtual Management Appliance uses 61 GB of disk space. Once joined to Web Appliances, however, it will require more. Use the estimates given in the table below to help determine the disk space, according to the number of users served by your group of appliances. See the table in the [Virtual Web Appliance Setup Guide](#) for recommended disk space allocations on joined Web Appliances.

You are advised to monitor the data storage on the Management Appliance over a 30-day period and to increase the disk space allocation if necessary.

Maximum Users Per Appliance Group (Approximate)	Recommended Virtual Appliance Profile	CPUs	Recommended Minimum Memory (RAM)	Recommended Minimum Disk Space (Management Appliance)
Single user/testing	Single user (demo)	1	1 GB	61 GB
Up to 300 users per virtual appliance group.	Small	2	2 GB	120 GB
Up to 1000 users per virtual appliance group	Medium	2	4 GB	160 GB
More than 1000 users per virtual appliance group	Large	4	8 GB	300 GB

 **Note:** If your group of appliances will serve more than 1000 users, you must increase the amount of disk space on the Management Appliance by approximately 50 GB per additional 1000 users.

When you view the properties of your virtual appliance in VMware, the larger of the two disks represents the virtual disk size of the appliance. **Hard Disk 2** contains temporary installation files and can be safely deleted once configuration is complete.

## Adding a Virtual Appliance

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You can use the import wizard in your supported version of VMware to add a virtual Appliance to your VMware-based infrastructure. The steps vary slightly, according to your version of VMware. Use the procedure that matches that version.

These steps assume you have already completed the task described in the “Downloading Virtual Appliance Files” section.

### Importing a Virtual Appliance with ESX/ESXi

Perform the following steps to add a virtual Appliance to your VMware-based infrastructure using the wizard included with VMware ESX/ESXi

1. Log in to the VMware vSphere 4.x or VMware vCenter Server where you will install the virtual appliance.
2. In VMware, launch the import wizard (the menu commands vary depending on your version of VMware).
3. Depending on the installation method you selected in the “Downloading Virtual Appliance Files” procedure, either browse to the directory where you downloaded the `.ovf` and `.vmdk` files, or select the “URL” option and enter the online location of the `.ovf` file. Click **Next**.  
Details of the virtual appliance you are about to import are displayed. Click **Next**.
4. In the **Name** text box, enter the name of the virtual appliance that will be displayed in the Inventory Tree. Click **Next**.
5. [Optional] If you are prompted to select a resource pool in which to run the virtual machine, select a pool and click **Next**.
6. [Version 4.x and higher] On the **Deployment Configuration** page, select a user profile for the virtual appliance. Refer to “Determining Disk Space and Memory Requirements” section for recommendations about which profile best suits your organization.
7. To accept the settings, click **Finish**.  
A message box is displayed, indicating the progress of the import.
8. When the import is complete, click **Close**.

The virtual appliance is displayed in the Inventory Tree.

 **Important:** Do not power on the virtual appliance yet.

9. Edit the VMware power controls so that your virtual machine's “power off” option is configured to **Shut Down Guest**, and the “reset” option is configured to **Restart Guest**.

10. View the properties for your new virtual appliance to confirm that the disk space, memory, and CPU settings are as desired. Or, if you are using a supported VMware version lower than 4.x, manually adjust these settings as necessary. For guidelines, see “Determining Disk Space and Memory Requirements.”

 **Note:** If applicable, when prompted, ensure that sufficient space is allocated for hard disk growth.

## Importing a Virtual Appliance with Workstation 6.5/7.1

Perform the following steps to add a virtual Appliance to your VMware Workstation using the wizard included with VMware Workstation 6.5 or 7.1.

 **Note:** VMware Workstation is supported for testing and is not intended for a live production environment. For full deployment, use ESX/ESXi 3.5, ESX/ESXi 4.x, or ESXi 5.x.

1. In VMware Workstation, select **File ► Import or Export**. The Conversion Wizard launches. Click **Next**.
2. A list of conversion sources that includes **A virtual appliance (industry-standard OVF)** is displayed. Click **Next**.
3. On the **Source Type** page, from the drop-down list, select **Virtual Appliance**. Click **Next**. The **Location** page is displayed.
4. Depending on the installation method you selected in the “Downloading Virtual Appliance Files” procedure, either browse to the directory where you downloaded the `.ovf` and `.vmdk` files, or select the “URL” option and enter the online location of the `.ovf` file. Click **Next**. Details of the virtual appliance you are about to import are displayed. Click **Next**.
5. Now you are ready to choose a destination for the new virtual machine. Click **Next**.
6. On the **Destination Type** page, from the drop-down list, select **Other Virtual Machine**. Click **Next**.
7. On the **Name and Location** page, enter a name for the virtual appliance, and browse to the desired location for the installation. Click **Next**.
8. [Optional] If prompted to set VM Options, select from the settings available. Click **Next**.
9. The **Networks** page shows the network mapping. Click **Next**.

The **Customization** page is displayed, but the options are grayed out. Click **Next**. The installation begins, with the progress displayed in the wizard.

 **Important:** Do not power on the virtual appliance yet.

10. Edit the VMware power controls so that your virtual machine's “power off” option is configured to **Shut Down Guest**, and the “reset” option is configured to **Restart Guest**.
11. View the properties for your new virtual appliance to confirm that the disk space, memory, and CPU settings are as desired. Or, if you are using a supported VMware version other than 4.x, manually adjust these settings as necessary. For guidelines, see “Determining Disk Space and Memory Requirements.”

 **Note:** If applicable, when prompted, ensure that sufficient space is allocated for hard disk growth.

## Starting a Virtual Appliance

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With installation complete, you are ready to start the appliance. When you power on the appliance for the first time, it will initialize and then reboot to apply the settings that you configured using VMware. You must power on the appliance using your VMware client software.

1. In the VMware Inventory Tree, select the virtual appliance.

2. Power on the appliance and view the VMware console.

A message is displayed in the VMware console, advising that the appliance is initializing. When initialization is successful, a second message is displayed, informing you that the appliance is rebooting. There will be a slight delay while the system completes these tasks.

 **Note:** If you have difficulty viewing the text in the Sophos splash screen, launch a separate virtual machine console.

After initialization and rebooting are complete, a command-line interface is displayed in the console. You can now configure network settings using the wizard provided in the console. See the “Configuring Network Settings” section for more information.

## Configuring Network Settings

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Perform the following steps to configure network settings for a virtual appliance. This procedure assumes that you have powered on your appliance as described in the “Starting the Virtual Appliance” section.

1. In the Inventory Tree, select the virtual appliance, and click the **Console** tab.

 **Note:** If you plan to create additional virtual appliances in the future, take a moment now to clone this virtual appliance before proceeding with configuration.

2. Type a fully qualified domain name, and press **Enter** .
3. When prompted to use DHCP, type “no”, and press **Enter** . Alternatively, type “yes”, and press **Enter** ; when prompted to use DHCP for subsequent settings, press **Enter** . If you choose "yes" for DHCP, skip ahead to step 10.
4. Type an IP address, and press **Enter** .
5. Type the netmask, and press **Enter** .
6. Type the IP address of the default gateway, and press **Enter** .
7. Type the IP address of the primary DNS server, and press **Enter** .
8. Type the IP address of the secondary DNS server, and press **Enter** .
9. If applicable, type the IP address of the tertiary DNS server, and press **Enter** , or if you are not assigning a tertiary server, just press **Enter** to complete the network configuration.
10. When prompted to apply the settings, press **Enter** .
11. In a web browser, enter the URL for your virtual appliance that is displayed in the console (<https://<IPaddress>>). The appliance's setup wizard is displayed. Refer to the "Initial Configuration" section of the [Sophos Web Appliance](#) and [Sophos Management Appliance](#) Configuration Guides for further instructions. Ignore the initial steps (they only apply to hardware-based appliances), and begin at step 4.

## Cloning Considerations

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VMware allows you to clone a virtual machine. Cloning can be an efficient way to create additional capacity or add redundancy. Be aware, however, that cloning can have unwanted consequences, and it is not recommended that you clone virtual machines unless you are an experienced VMware administrator.

Sophos only supports cloning virtual Appliances for the following reasons:

- Cloning an appliance prior to joining a group, so that you have an unused appliance already configured should you need to add capacity on short notice.
- Removing an appliance from a group, cloning it, and re-adding it to the group.

For more about cloning, see the VMware website.

## Re-Registering a Virtual Appliance

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If you clone a virtual appliance, each cloned instance *must* be re-registered before you can use it in live production mode.

Re-registration is necessary to take advantage of reporting and clustering features. If you do not re-register a cloned appliance, it cannot be distinguished from the parent appliance (the virtual machine it was cloned from) if both are used on the same network; properties such as the hostname and static IP address are identical to that of the parent virtual machine.

You can re-register a virtual appliance in the command-line interface of the virtual appliance by following the steps below.

You can also use the **Re-register** button on the **Network Interface** page of the appliance's administrative interface. See “Configuring the Network Interface” in the product documentation for more information.

### **Important:**

- If the appliance you plan to clone belongs to an existing group of appliances, you must remove it from the group before cloning. Once re-registration is completed according to the steps that follow, you can join one or both of the appliances to the group.
- Before re-registering, ensure that you have configured unique network and hostname settings for the cloned virtual appliance. See the Virtual Appliance Setup Guide for more information.

To re-register a virtual appliance:

1. Power off the virtual appliance that you want to clone.
2. Clone the virtual appliance (See the VMware documentation for specific instructions).

 **Note:** If you are creating a clone as backup and have no immediate plans to use it as a live production appliance, you do not need to re-register until you are ready to use it.

3. Power on the newly cloned appliance.
4. In the VMware Inventory Tree, select the cloned virtual appliance, and click the **Console** tab.
5. In the console, select **Configure Network Settings** from the Network Configuration menu. Follow the steps in the “Configuring Network Settings” section to assign unique network identifiers to the cloned appliance.
6. In the console, select **Re-register** from the Configuration Options menu.
7. You are prompted to erase duplicate data that has been copied to the cloned virtual appliance from the original image. Doing so removes duplicate logs, reports, and message store data. If you want to retain the data, press **Enter** . Or, if you want to erase duplicate data, type *yes*, and press **Enter** .
8. You are prompted to re-register the virtual appliance. To re-register, type *yes*, and press **Enter** . If you do not want to re-register, type *no*, and press **Enter** .

The cloned appliance is re-registered and given a unique identity within your network. The new network settings are displayed in the console, and on the **Configuration > Network > Network Interface** page of the administrative interface.

9. You are instructed to open a browser to the displayed IP address to complete configuration of the cloned virtual appliance.
10. Power on the virtual appliance that was used to create the clone.
11. [Optional] Create a group using these virtual appliances, or add both to an existing group. For more information, see [“Grouping Web Appliances”](#) in the product documentation.

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