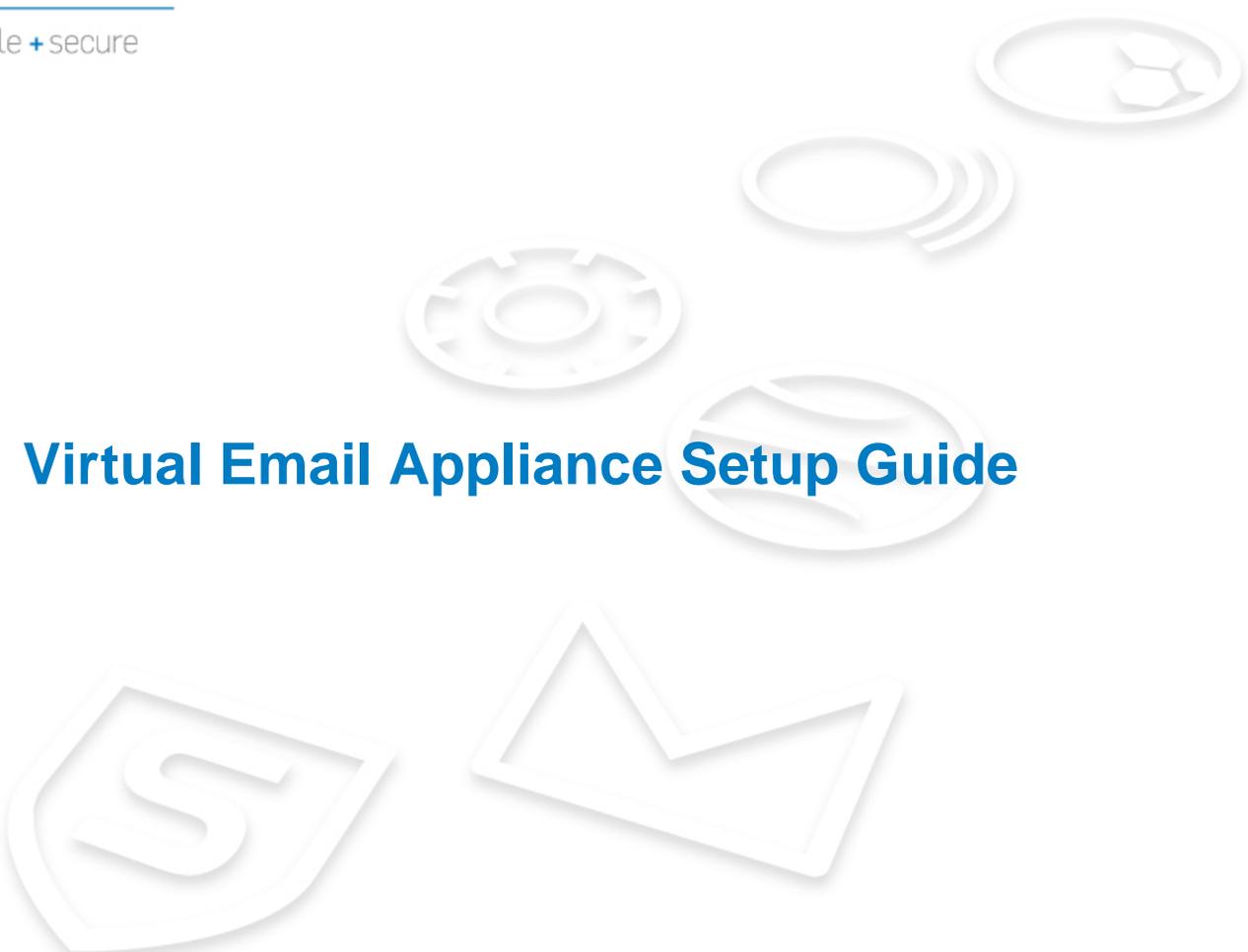


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# Virtual Email Appliance Setup Guide

## Installing a Virtual Appliance

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This guide describes the procedures for installing a Virtual Email Appliance. If you are installing a trial version of the appliance, be sure to read the next section, "30-Day Trial Installation," before proceeding through the remaining sections, as some exemptions apply to the trial.

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

### 30-Day Trial Installation

The trial option offers an opportunity to deploy the Email Appliance much the same as you would during a full evaluation or in full production mode. When the trial period is over, you can choose to begin using the appliance in your organization with the settings you have already established.

If you are installing a Virtual Email Appliance in trial mode, the following differences and restrictions apply:

- The trial is only available for the Sophos Virtual Email Appliance. Hardware-based appliances are not included, but are available for a free, full evaluation. Contact Sophos Sales for more information.
- Clustering (the ability to join two or more appliances in a group to share configuration data and other data) is unavailable.
- Sophos Support Contact functionality is unavailable. Although remote monitoring and support alerts are not part of a 30-day trial, you can gain access to these by contacting Sophos Sales to start a fully functional evaluation or to purchase a license.
- Re-registering and cloning virtual appliances are not supported.
- If you want to continue using the appliance beyond the 30-day trial period, you must contact Sophos Sales to purchase the product or start a fully functional evaluation.

### Installation Overview

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

 **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 Email 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 (not required for 30-day trial installation)
- IP address of default gateway (not required if using DHCP)
- IP addresses of DNS servers (not required if using DHCP)

- Hostnames and DNS types for internal mail delivery servers
- Domains for which the virtual appliance accepts mail
- IP addresses or hostnames of mail relays allowed relay outbound mail through the appliance
- [Optional] Active Directory or LDAP server information (server, port, etc)

## 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, ESXi 5.x, VMware Workstation 6.5, or VMware Workstation 7.1.
- A minimum of 20 GB free disk space. You may need to allocate more space, depending on the number of messages your system processes.
- 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

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To ensure the proper operation of your virtual Email Appliance, configure your network to allow access on the ports listed below. Some ports are required only for specific situations, such as when you enable directory services or when the appliance is part of a cluster.

### External Connections

These services are typically used for connections between your Email Appliance(s) and locations outside of your organization's network.

Port	Function	Service	Protocol	Connection
22	Remote assistance	SSH	TCP	[Required] Outbound from appliance to esa-ssh.sophos.com
25	Mail transfer	SMTP	TCP	[Required] Inbound/outbound between appliance and intranet/internet
80	Software downloads	HTTP	TCP	[Required] Outbound from appliance to internet
123	Network time synchronization	NTP*	UDP	[Required] Outbound from appliance to NTP server (e.g. pool.ntp.org)
443	Registration	HTTPS	TCP	[Required] Outbound from appliance to esa-reg.sophos.com
444	Feedback	HTTP	TCP	Outbound from appliance to sophos.com
10443/443	SPX Secure Email Portal	HTTPS	TCP	Inbound from internet to appliance (selectable)

\*NTP controls network time synchronization on the virtual Email Appliance, replacing "Host-Guest TimeSync," a VMware tool that can also this purpose. To configure an NTP server, use the **Time Zone** page in the Setup Wizard. See the [Sophos Email Appliance Configuration Guide](#) for more information.

### Internal Connections

These services are typically used for connections within your organization's network and your Email Appliance(s) or between appliances themselves, if you have multiple Email Appliances.

Port	Function	Service	Protocol	Connection
20, 21	FTP backup	FTP	TCP	Outbound from appliance to FTP server
24	Clustering	SSH	TCP/UDP	Inbound/outbound between clustered appliances
25	Mail transfer	SMTP	TCP	[Required] Inbound/outbound between appliance and intranet
53	DNS services	DNS	UDP	Outbound from appliance to DNS server
161	SNMP monitoring	SNMP	TCP/UDP	Inbound from SNMP monitoring server(s) to appliance
162	SNMP traps	SNMP	TCP/UDP	Outbound from appliance to SNMP monitoring server(s)
389, 3268, (636, 3269)	Directory services synchronization	LDAP(S)	TCP	Outbound from appliance to directory server
443/10443 (redirect from 80)	End User Web Quarantine	HTTPS	TCP	Inbound from intranet to appliance (selectable)
5432	Database functions	Encrypted SQL	TCP/UDP	Inbound/outbound between clustered appliances
18080	Administration UI and clustered UI functions	HTTPS	TCP	[Required] Inbound/outbound between appliance and intranet

## 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.

 **Note:** If you have opted for the 30-day trial installation, no activation code is required, and you will be guided to this downloads page via links on the Sophos website.

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, all files must be downloaded to the same directory for installation. File extensions must be preserved.

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 ESXi 5.x, 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.

## Determining Disk Space and Memory Requirements

The following table contains guidelines for recommended CPU, memory, and disk space allocations on your virtual appliance. The amount of disk space required varies between environments and is highly dependent upon spam and other quarantine policies as well as the amount of traffic you expect your virtual appliance to process.

By default, a virtual appliance uses 21 GB of disk space. If necessary, you can increase the amount of virtual disk space following installation; however, once set, the disk space size cannot be decreased. It can only be increased. 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.

A virtual appliance also 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 required changes.

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.

 **Note:** Although the 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.

Maximum Users (Approximate)	Maximum Mail Traffic *	Recommended Virtual Email Appliance Profile	Recommended CPU(s)	Recommended Minimum Memory (RAM)	Recommended Minimum Disk Space
Single user/testing	Up to 50 messages/hour	Single user (demo)	1	512 MB	21 GB
Up to 300 users	Up to 60,000 messages/hour	Small	1	1 GB	21 GB
Up to 1000 users	Up to 200,000 messages/hour	Small-medium	2	2 GB	30 GB
Up to 5,000 users	Up to 400,000 messages/hour	Medium	2	3 GB	40 GB
Up to 10,000 users	Up to 600,000 messages/hour	Large	4	4 GB	50 GB

\* Maximum mail traffic numbers are based on the assumption that 85% of incoming messages are blocked at the connection level by Sophos Sender Genotype reputation filtering. If your virtual appliance is only processing outbound messages or you are not performing any type of reputation filtering on inbound messages, you should instead assume that your mail traffic will be approximately 15-20% of the numbers shown in the table.

Optionally, you can customize any of the available profiles. For more information, see the VMware documentation.

## Adding a Virtual Appliance

You can use the import wizard in your supported version of VMware to add a virtual Email 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 on which 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 only] 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 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.

## Importing a Virtual Appliance with Workstation 6.5/7.1

Perform the following steps to add a virtual Email 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**.

 **Note:** In addition to the "Shut Down" and "Restart" options, other VMware tools are bundled with the virtual Email Appliance. For more information, see the [Sophos Knowledgebase](#).

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>:18080>). Refer to the "Initial Configuration" section of the [Configuration Guide](#) for further instructions. Ignore the initial steps (they only apply to hardware-based appliances) and begin at step 3.

# Cloning Considerations

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VMware allows you to clone a virtual machine. Cloning can be an efficient way to create additional message 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 Email Appliances for the following reasons:

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

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 Interface Settings” in the product documentation for more information.

### Important:

- If the appliance you plan to clone belongs to an existing cluster of appliances, you must remove it from the cluster before cloning. Once re-registration is completed according to the steps that follow, you can join one or both of the appliances to the cluster.
- 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.
- If you have configured certificates for the appliance on the **Configuration > System > Certificates** page, you must upload new certificates that bear the hostname of the cloned appliance. This is not necessary if you are using the default self-signed certificate.

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, type “1” to 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, type “3” to select **Re-register** from the Network Configuration 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 cluster using these virtual appliances or add both to an existing cluster. For more information, see “Clustering” in the product documentation.

# Troubleshooting VMware Performance

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If you suspect that your virtual appliance is not performing up to expectations, you can test the performance by selecting **3. Run system diagnostic benchmarks** from the Network Configuration menu. This tool tests the input/output, CPU, and system memory. For more information, see the [Sophos Knowledgebase](#).

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