VM Installation Guide

FortiMail 7.6.3

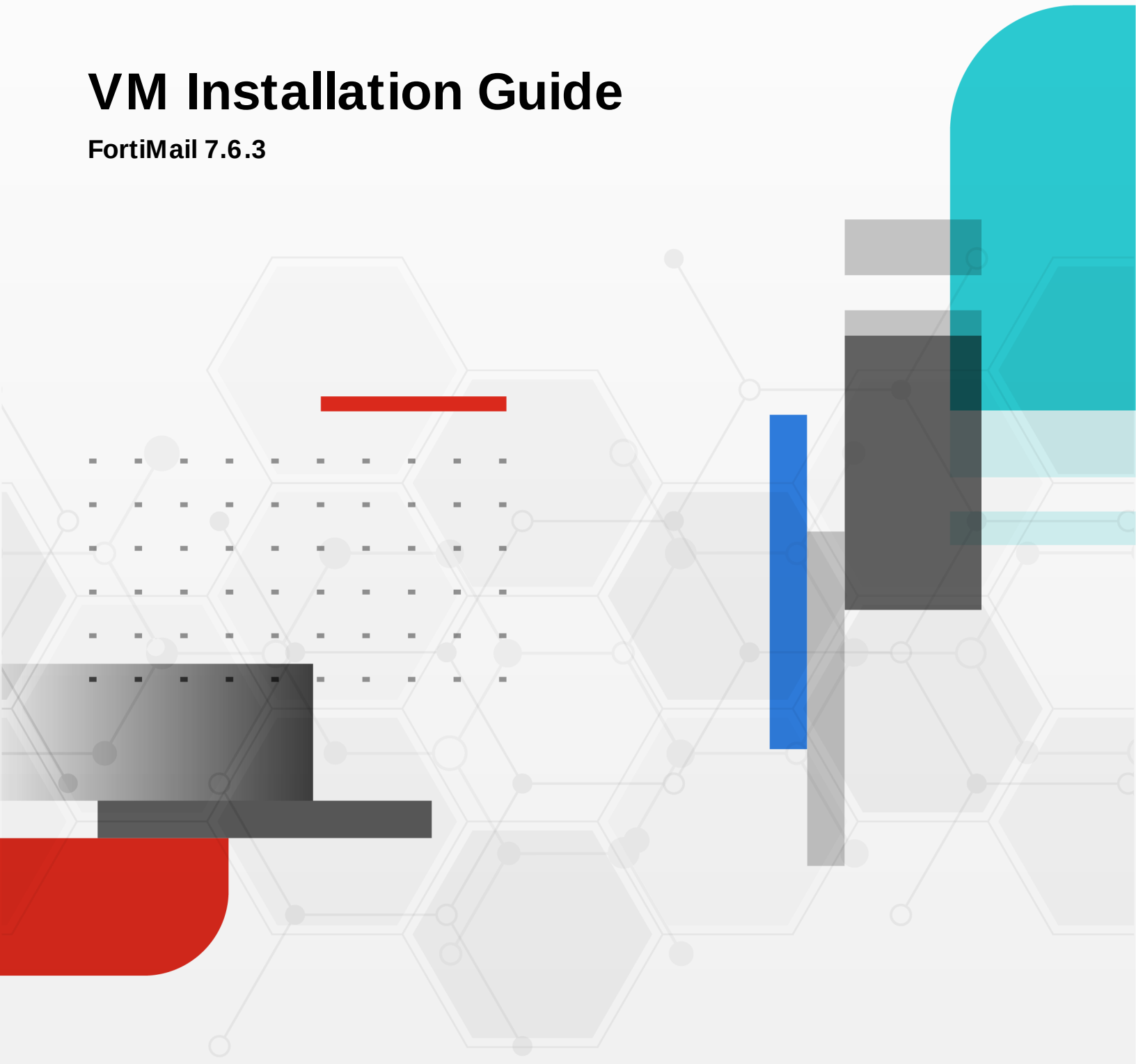

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TABLE OF CONTENTS

Change log **5**
FortiMail VM Overview **6**
Licensing 6
Resources 6
Registering your Fortinet product 7
Downloading the FortiMail VM deployment package 7
Deployment package contents 8
Deploying the FortiMail appliance 9
Deployment example: VMWare **10**
Deploying the FortiMail VM software 10
Configuring virtual network settings 14
Preparing for transparent mode 14
Configuring the number of CPUs 17
Configuring a smaller disk 17
Starting FortiMail VM 18
Installing the license 20
Deployment example: Hyper-V **22**
Creating the FortiMail VM virtual machine 22
Configuring FortiMail VM hardware settings 23
FortiMail VM virtual processors 24
FortiMail VM network adapters 25
FortiMail VM virtual hard disk 25
Starting FortiMail VM 26
Deployment example: KVM **27**
Creating the FortiMail virtual machine 27
Configuring FortiMail hardware settings 28
Starting FortiMail VM 28
Deployment example: Citrix XenServer **29**
Creating the FortiMail VM virtual machine (XenCenter) 29
Configuring virtual hardware 34
Configuring number of CPUs and memory size 34
Deployment example: OpenStack **37**
Overview 37
Bootup the instance 38
Deploying FortiMail VM in OpenStack 39
Creating the flavor 39
Creating the image 40
Launching the instance 42
Accessing instance console 43
Initial configuration 46
FortiMail VM console access 46
Connecting to the FortiMail VM GUI 47

Installing the FortiMail VM license 47
Configuring your FortiMail VM 48
FortiMail VM backup 48

Change log

Date	Change Description
2025-06-12	Initial release of the FortiMail 7.6.3 VM Installation Guide.

FortiMail VM Overview

Welcome and thank you for selecting Fortinet products to protect your network.

The FortiMail VM Secure Messaging Platform (FortiMail VM) is part of an integrated hardware and software solution that provides powerful and flexible antispam, antivirus, email archiving, logging, and reporting capabilities to incoming and outgoing email traffic. FortiMail has reliable and high performance features for detecting and blocking spam messages and malicious attachments. Built on Fortinet's FortiOS™, FortiMail antivirus technology extends full content inspection capabilities to detect the most advanced email threats.

This guide assumes that the reader has an understanding of virtualization servers.

Licensing

When you buy FortiMail VM, Fortinet sends a registration number to the email address supplied on the order form. Use that number to register with Fortinet Support (support.fortinet.com) and to obtain a license file (`.lic` file extension). You need the license file to activate FortiMail VM and unlock the full range of features, such as the maximum virtual memory and number of CPUs.

FortiMail VM includes a 15-day trial (VM00). The trial version provides all FortiMail VM functions except antispam and antivirus signature updates and the FortiGuard Antispam query, which requires a valid service contract. Because the trial version only provides low encryption, you may not be able to access the FortiMail VM GUI through HTTPS, unless you have enabled weak ciphers in your browser. The trial period begins the first time you start FortiMail VM. If you do not install a valid license before the trial period or your license expires, you will not be able to make configuration changes to FortiMail VM.

To validate the license, FortiMail VM must be able to connect to Fortinet servers on the Internet. See also the FortiMail required open port numbers.

Fortinet provides several licenses for FortiMail VM: a 1-CPU license (VM01), a 2-CPU license (VM02), a 4-CPU license (VM04), an 8-CPU license (VM08), a 16-CPU license (VM16), and a 32-CPU license (VM32). You can install your full license from Fortinet Support at any time during or after the trial period. For details about how to install or update a license, see Installing the FortiMail VM license on page 47.

Resources

The following table shows the resources available with each FortiMail VM license.

	VM00	VM01	VM02	VM04	VM08	VM16	VM32
Maximum Virtual CPUs Supported	1	1	2	4	8	16	32

	VM00	VM01	VM02	VM04	VM08	VM16	VM32
Virtual NICs (Minimum/Maximum)	1/4	1/4	1/4	1/6	1/6	1/6	1/6
Virtual Machine Storage (Minimum/Maximum)	50 GB/1 TB	50 GB/1 TB	50 GB/2 TB	50GB/4 TB	50GB/8 TB	50GB/12 TB	50GB/24 TB
Virtual Machine Memory (Minimum/Maximum)	1GB/2 GB	1GB/6 GB	1GB/8 GB	1GB/16 GB	1GB/64 GB	1GB/128 GB	1GB/128 GB

Most resources are available after successful deployment of the OVF file and validation of the license file. See Deploying the FortiMail VM software on page 10 and Starting FortiMail VM on page 18.

To use more than one CPU, you must configure it when you deploy FortiMail VM. See Configuring the number of CPUs on page 17.

You can reduce the size to as small as 5 GB. See Configuring a smaller disk on page 17.

Registering your Fortinet product

To obtain the FortiMail VM license file you must first register your FortiMail VM with Fortinet Customer Service & Support.

To register your FortiMail VM:

1. Log in to the Fortinet Customer Service & Support portal using an existing support account or select *Create an Account* to create a new account.
2. In the toolbar select *Asset* > *Register/Renew*.
3. The *Registration Wizard* opens.
4. Enter the license registration code from the FortiMail VM License Certificate that was emailed to you and select *Next*. The *Registration Info* page is displayed.
5. Follow the instructions to finish the registration.
6. In the *Registration Completed* page you can download the FortiMail VM license file. Select the *License File Download* link. You will be prompted to save the license file (`.lic`) to your management computer. See Installing the FortiMail VM license on page 47 for instructions on uploading the license file to your FortiMail VM via the GUI.

Downloading the FortiMail VM deployment package

To download the FortiMail VM deployment package:

1. On the Fortinet Support site, go to *Downloads* > *Firmware Images*.
2. Select FortiMail
3. Click the *Download* tab.

4. Click the version number to open the folder.
5. Click *HTTPS* in the row to download the appropriate `.zip` file for your platform.
   For supported platform versions, see the FortiMail Release Notes.

VM Platform	FortiMail VM Deployment File
Citrix XenServer	FML_VMXE-64-vXXX-buildnnnn-FORTINET.out.xenserver.zip
OpenXen	FML_VMOC-64-vXXX-buildnnnn-FORTINET.out.openxen.zip
Microsoft Hyper-V Server	FML_VMHV-64-vXXX-buildnnnn-FORTINET.out.hyperv.zip
KVM (qemu)	FML_VMKV-64-vXXX-buildnnnn-FORTINET.out.kvm.zip
VMware ESXi	FML_VM-64-vXXX-buildnnnn-FORTINET.out.ovf.zip
OpenStack	FML_VMKV-64-vXXX-buildnnnn-FORTINET.out.kvm.zip

Deployment package contents

Deployment package contents varies by the supported platform.

Platform	FortiMail VM Package Contents
Citrix XenServer	• **`fortimail-vm-xen.vhd` and `nnn.vhd` files:** FortiMail system hard disk in VHD format, where `nnn` is the size of the disk in gigabytes (GB), such as `250.vhd` for a 250 GB disk. • **`fortimail-vm-xen-xxxgb.ovf`:** Open Virtualization Format (OVF) template file, containing virtual hardware settings.
Microsoft Hyper-V	• `fortimail-hv.vhd` and `nnngb.vhd`: FortiMail system hard disk in VHD format, where `nnn` is the size of the disk in gigabytes (GB), such as `250gb.vhd`.
KVM and OpenStack	• **`fortimail-kvm.qcow2`: and `nnngb.qcow2` files:** FortiMail system hard disk in QCOW2 format, where `nnn` is the size of the disk in gigabytes (GB), such as `250gb.qcow2` for a 250 GB disk.
VMware ESXi	• **`fortimail-vm-64bit-hw14.ovf`:** Open Virtualization Format (OVF) template file, containing virtual hardware settings. `hw14` indicates ESXi 6.7 • **`fortimail-vm-disk1.vmdk` and `fortimail-vm-disk2-nnngb.vmdk`:** FortiMail system hard disk in VMDK format, where `nnn` is the size of the disk in gigabytes (GB), such as `fortimail-vm-disk2-250gb.vmdk` for a 250 GB disk. See also the list of VMware products and their corresponding virtual machine hardware versions.

Deploying the FortiMail appliance

Prior to deploying the FortiMail appliance, the VM platform must be installed and configured so that it is ready to create virtual machines. For details, see your VM platform's documentation. The deployment chapters in this document are examples because for each hypervisor, there are multiple ways to create a virtual machine: command line tools, APIs, GUI tools, etc.

Before you start your FortiMail appliance for the first time, you might need to adjust virtual disk sizes and networking settings.

The first time you start FortiMail, you will have local console CLI access only through the console window of your VM server environment. After you configure one FortiMail network interface with an IP address and administrative access, you can access the FortiMail GUI.

Deployment example: VMWare

Once you have downloaded the install file and extracted the package contents to a folder on your local computer, you can use the vSphere client to create the virtual machine from the deployment package OVF template.

This section contains the following topics:

- Deploying the FortiMail VM software on page 10
- Configuring virtual network settings on page 14
- Starting FortiMail VM on page 18

Deploying the FortiMail VM software

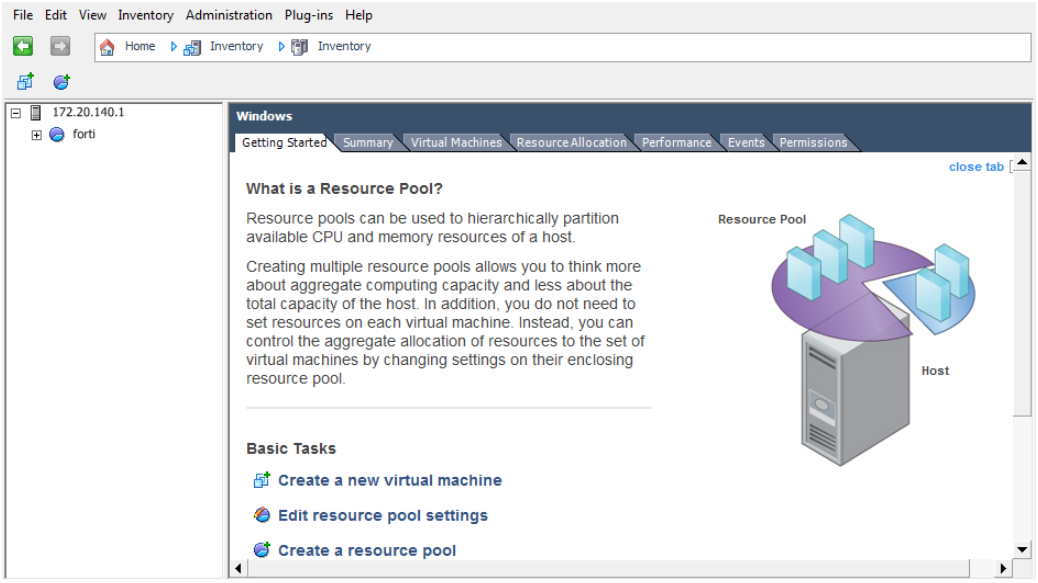
To install FortiMail VM, you must successfully deploy the OVF file using the VMware vSphere Client™.

To deploy the software

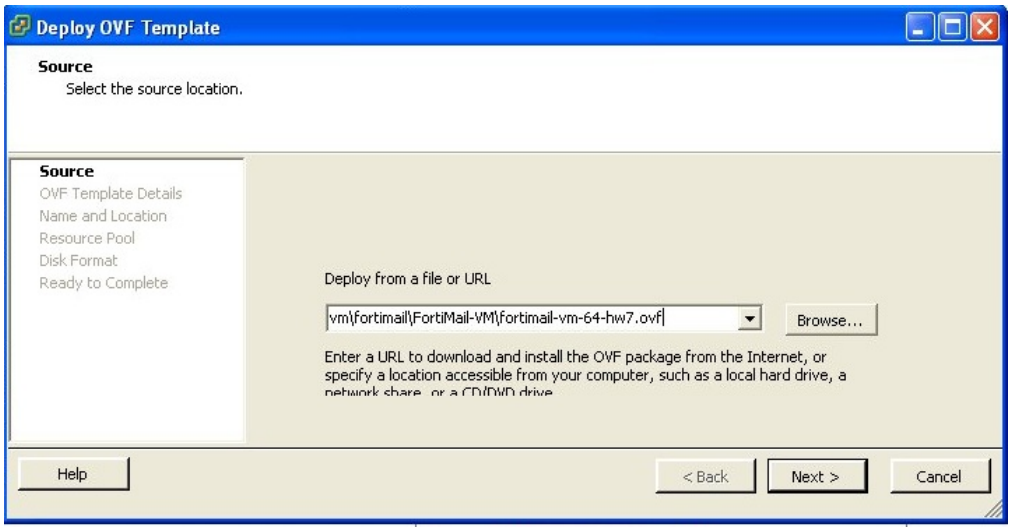
1. Start the VMware vSphere Client.
   The client's login dialog appears.

2. Enter:
   - the IP address of the ESXi server hosting VMware vSphere Hypervisor
   - an account user name on the ESXi server
   - the account password

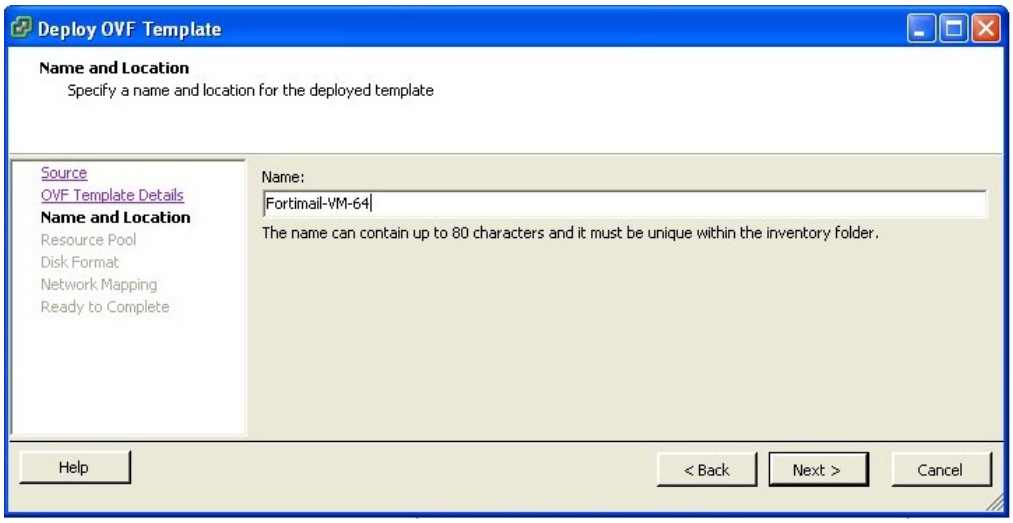
   When you successfully log in, the vSphere Client window appears.



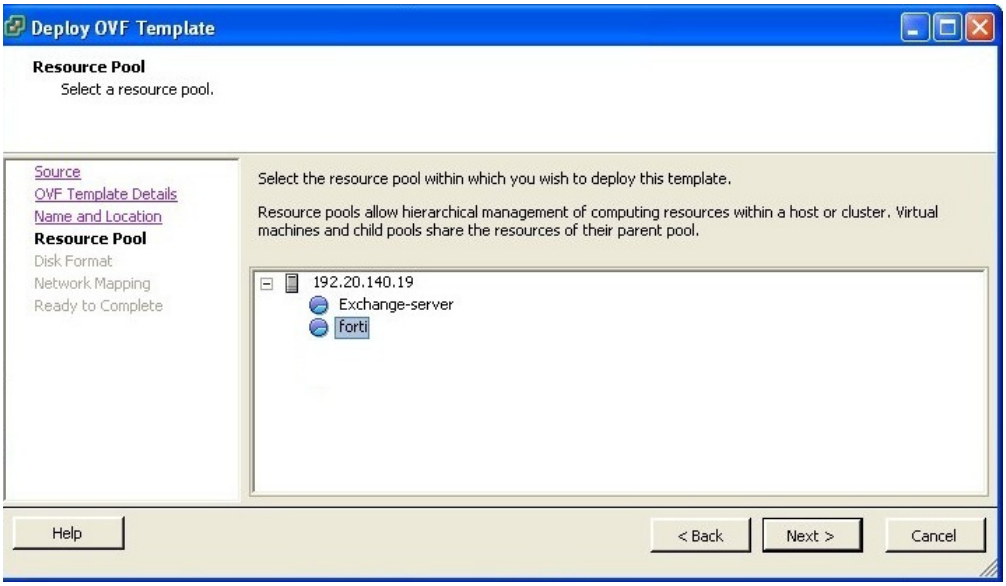
3. On the vSphere Client window, select *File* > *Deploy OVF Template*.
   The first dialog of the OVF deployment wizard appears.



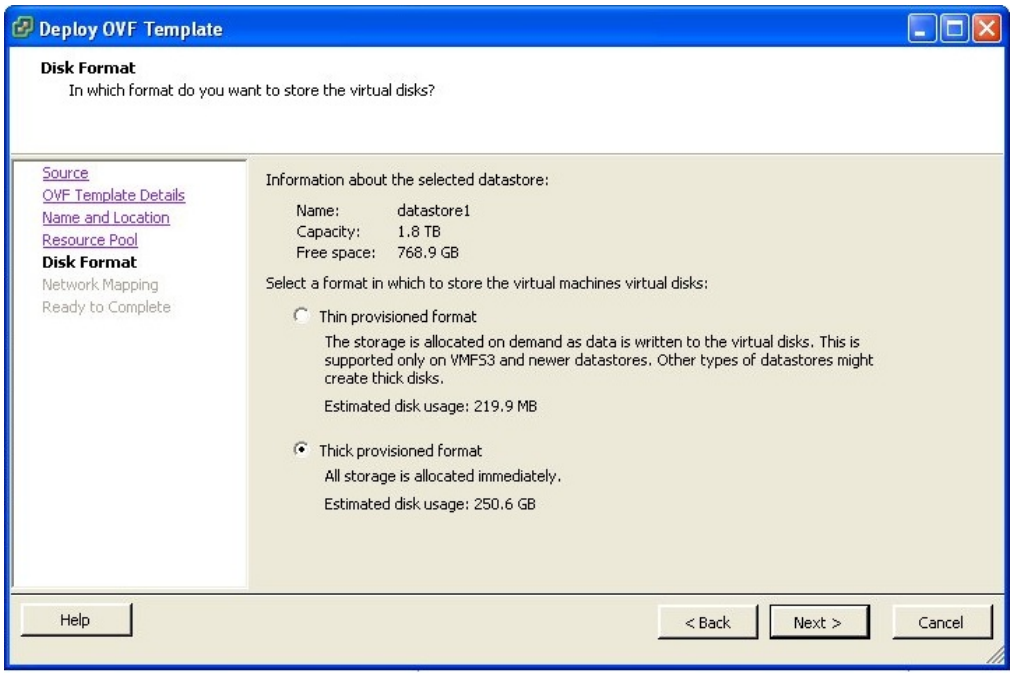
4. Select *Browse* and locate the applicable OVF template file you extracted earlier (for example, FortiMail VM-64-hw7.ovf), and click *Next*.
5. The second dialog displays the details of the deployed file. Click *Next*.
   A window appears and prompts for the name of your OVF template.



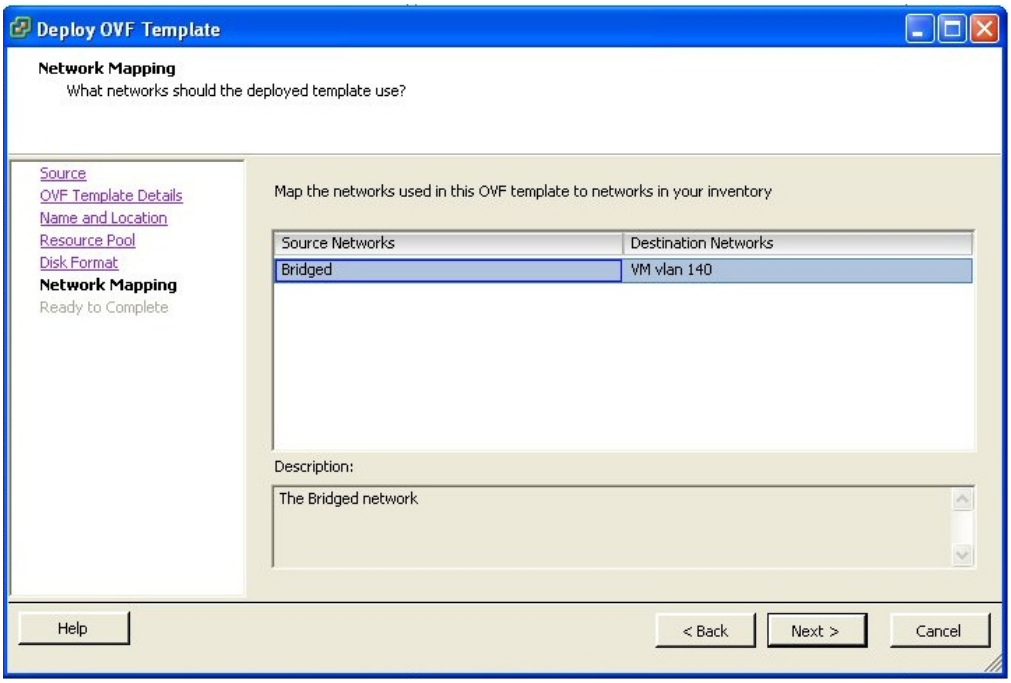
6. Enter a unique name and click *Next*. This becomes the name of your virtual machine.
   A window appears asking where to deploy the OVF template.



7. Select a resource pool and click *Next*.
   A windows appears asking for the disk storage format.

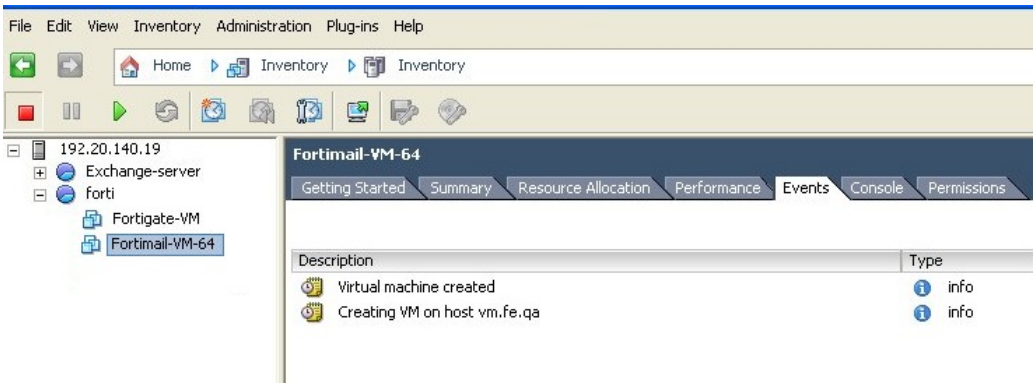


8. Select a format option and click *Next*.
   A window appears asking which network to deploy on.



9. Select a virtual network if there is more than one and click *Next*.
10. A window appears listing all your settings. Click *Finish*.
    The wizard closes.

The vSphere Client window reappears and displays your new virtual machine.



Do **not** power on FortiMail VM yet if you need to configure the virtual network first.

Configuring virtual network settings

Before you power on FortiMail VM, you may need to set the number of virtual CPUs or configure the virtual network to support your implementation of transparent mode for FortiMailVM.

This section includes:

- Preparing for transparent mode on page 14
- Configuring the number of CPUs on page 17
- Configuring a smaller disk on page 17

When you deploy the FortiMail VM OVF file, one virtual network interface card (vNIC) is automatically mapped to a port on the ESXi server. You can change the mapping, or map other vNICs if required. Each vNIC has its own MAC address and one or more IP addresses.

For more information, see the VMware vSphere documentation.

Preparing for transparent mode

If you plan to use transparent mode with your FortiMail VM installation, you need to:

- Set promiscuous mode. See To set promiscuous mode on page 15.
- Modify the network adapter configuration. See To modify a network adapter on page 16.

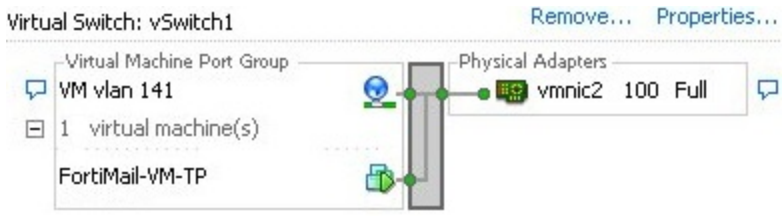
An ESXi server always has at least one vSwitch. For transparent mode, you need at two vSwitches, one to connect FortiMail VM to the network and one to connect it to the mail server.

Add an additional vSwitch if necessary.

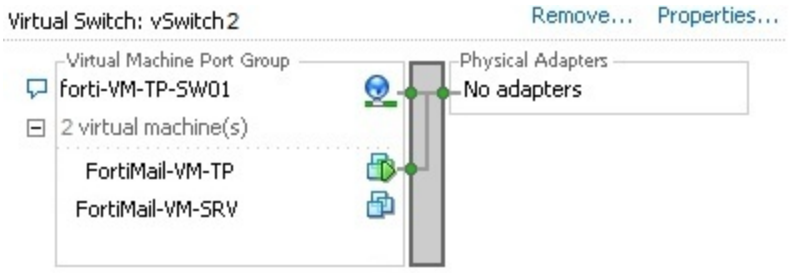
The following example of vSwitch creation shows connection to a virtual mail server hosted on the same ESXi server. For a physical mail server, you need to connect to a physical NIC.

To add a virtual switch

1. Log in to the vSphere Client.
   Do not power on FortiMail VM yet.
2. Select the host IP at the top of the left navigation pane.
3. On the *Configuration* tab, select *Networking*.
   A window with information similar to the image below appears.

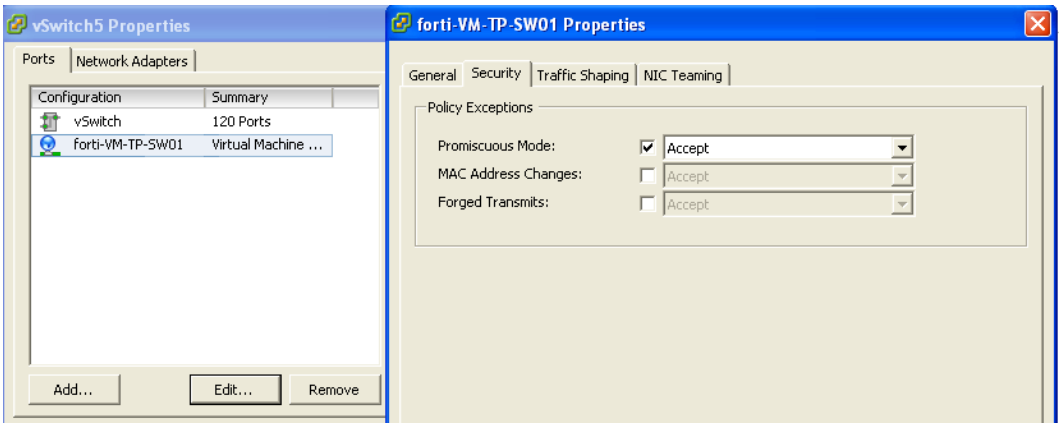


4. Select the *Virtual Switch* view and click *Add Networking*.
5. Accept the default connection type, *Virtual Machines*, and click *Next*.
6. Select *Create a virtual switch* and click *Next*.
7. Under *Port Group Properties*, enter a network label that identifies the port group to create.
8. Click *Finish*.



To set promiscuous mode

1. On the *Configuration* tab, select *Networking*.
2. For each virtual switch, select *Properties*.



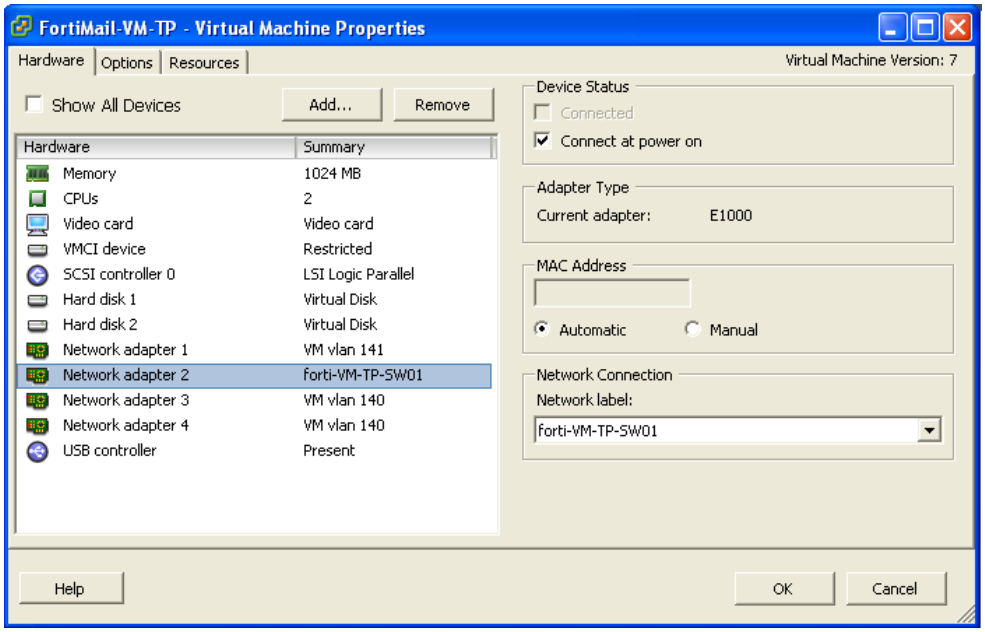
3. On the *Ports* tab, click *Edit*.
4. Select the *Security* tab.
5. Select *Accept* from the drop-down list for *Promiscuous Mode*.

The setting on the port group overrides the virtual switch setting.

Next, you need to link a FortiMail VM network adapter to each new vSwitch.

To modify a network adapter

1. Select your FortiMail VM machine in the left navigation pane.
2. On the *Getting Started* tab, select *Edit Virtual Machine Settings.*
3. On the *Hardware* tab, select a network adapter from the hardware list.



4. Select the new vSwitch from the *Network label* drop-down list.
5. Click *OK*.

Later, configure the applicable FortiMail VM port or ports using the GUI. See FortiMail Administration Guide.

Configuring the number of CPUs

You may have more than one CPU depending on the type of license you purchased. By default, FortiMail VM is set to one CPU. You can change the number of CPUs that the virtual machine uses by changing the number of virtual processors (you cannot change the CPU setting while FortiMail VM is running).

To change the number of CPUs

1. Make sure FortiMail VM is not running.
2. Go to the *Hardware* tab.
3. Select *CPUs* in the hardware list.
4. In the CPUs drop-down list, select the number of virtual processors for the virtual machine.
5. Click *OK*.

Maintaining license limits

If you set the number of CPUs or memory beyond your license limit, your FortiMail VM license becomes invalid. To determine if you have exceeded license limits, use the following CLI command:

```
get system status
```

If so, use the vSphere Client to restore valid settings.

Configuring a smaller disk

FortiMail VM comes prepackaged with a 1TB disk. An alternate configuration with a 250 GB disk is provided for installing in a VMware datastore that does not support a 1TB disk.

If neither of these sizes suits your resources, you can configure FortiMail VM to support a disk size as small as 50 GB. You can even configure the virtual disk to as small as 5 GB. The FortiMail VM system will still be able to start up with warnings. However, the system will not start up if the virtual disk is smaller than the 5 GB minimum size.

To reduce the disk size

1. Stop FortiMail VM if it is running.
2. Log in to the vSphere Client.
3. On the *Hardware* tab, select either the 250 GB or 1TB disk (Hard Disk 2) in the hardware list.
4. Click *Remove*.
5. Click *OK*.
6. Click *Add* and select *Hard Disk*.
7. Configure the new disk.
   The *Virtual Device Node* setting must be SCSI (0:1).
8. Complete the disk configuration and click *OK*.

9. Start the FortiMail VM.
   If FortiMail VM was previously run, you need to manually initialize this new disk.
10. Log in as the administrator and run the CLI command:
    `execute partitionlogdisk 10`

Starting FortiMail VM

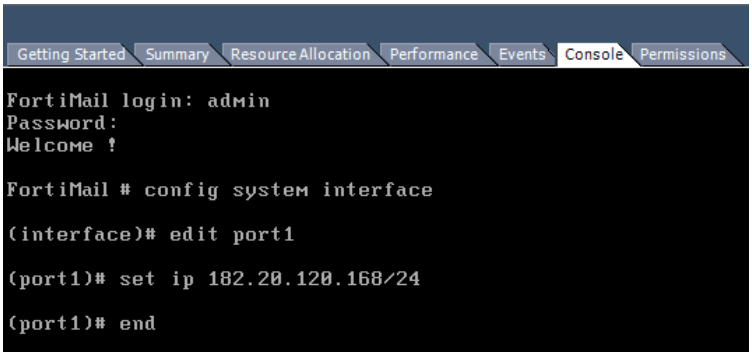
Once you successful deploy the OVF file and set up the network (if required), you need to power on your FortiMail VM virtual appliance and enter initial setup commands.

To power on FortiMail VM

1. Log in to the vSphere Client.
2. Select your newly deployed FortiMail VM virtual machine in the left navigation pane of vSphere Client and power it on.
   There are several ways to power on a virtual machine. The easiest is to click the green triangle icon on the icon bar.
3. Select the *Console* tab in the vSphere Client window.
   When you power on the virtual appliance, the console displays a sequence of messages ending in a login prompt.

   At this point, you have accessed the FortiMail VM command line interface (CLI) but you do not have access to all CLI commands until you confirm the license in a later step.

4. Press the Enter key once to get a new prompt, and log in using the default FortiMail VM administrator name, `admin`.
   There is no password yet for this administrator. Press *Enter* when prompted.
   You will see a welcome message.
5. Use CLI commands to configure the IP address of a virtual interface (usually port1) on the virtual appliance to use for administrative access.
   You will later access the FortiMail VM GUI through a browser at this IP.



   Enter the following CLI commands in the vSphere Client console:
   `config system interface`

```
   edit <port_name>
      set ip <address_ipv4mask>
end
```

Where:

- `port_name` is the name of the FortiMail VM virtual port (usually port1)
- `ipv4-mask` is the IP (with a netmask) of your virtual machine on the ESXi server

Take note of the IP you enter. Later, you will use that IP, minus the netmask, to configure and manage FortiMail VM through the CLI or GUI.

6. Use CLI commands to configure a static route to act as a default gateway. This is needed for license updates. Enter the following CLI commands in the vSphere Client console:

```
config system route
   edit <route_index>
      set gateway <gateway_ipv4>
end
```

Where:

- `<index_int>` is the index number, such as 1, of the route in the list of static routes
- `<gateway_ipv4>` is the IP address of the gateway router

To log on to the FortiMail VM GUI

When you successfully configure administrative access, the GUI login dialog may appear automatically if you have a browser open.

If not, open a web browser and enter a URL that includes the IP address of the virtual interface your set in step 5. For example:

`https://192.168.1.99/admin`

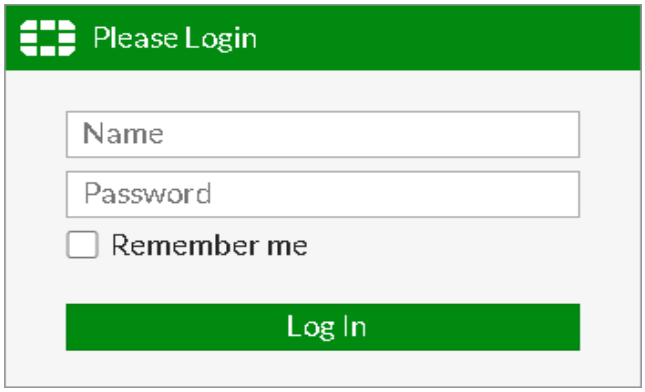
FortiMail VM start-up settings:

Web-based administrator URL	https://<virtual-ipaddress>/admin
Administrator account	admin
Administrator password	none
Management access	HTTPS, SSH, ping
Operation mode	gateway mode
Webmail URL	https://<virtual-ipaddress>

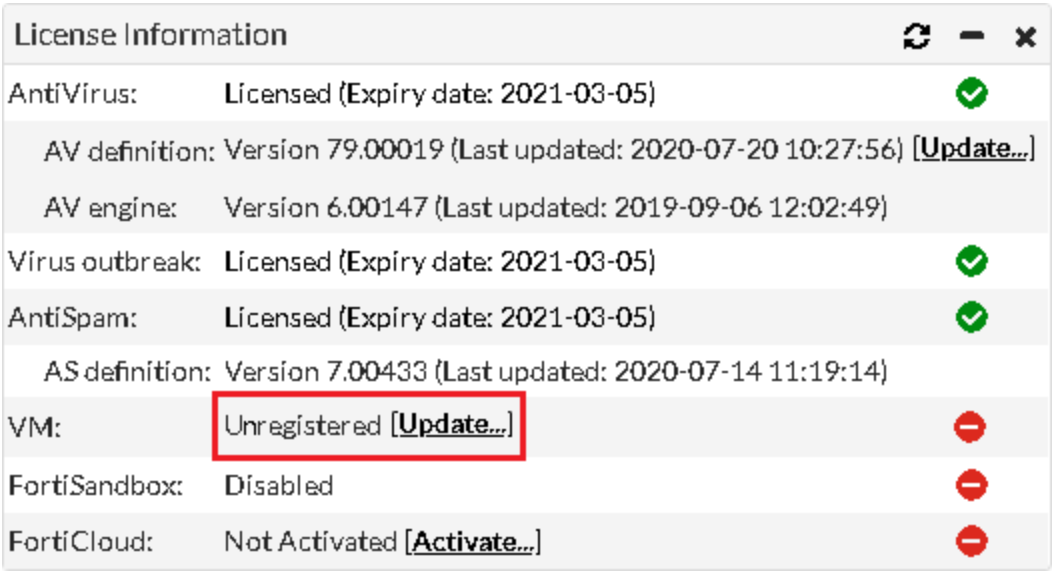
If you are connecting to FortiMail VM with a trial license or a LENC version of FortiMail, you may not be able to see the logon page due to an SSL cipher error during the connection. In this case, you must configure the FortiMail interface to allow HTTP connections and access it with HTTP only.

```
config system interface
   edit port1
      set allowaccess http
end
```

1. On the logon page, in *Name*, enter `admin`.
2. Skip the *Password* field (until you assign the `admin` a password later).
3. Click *Logon*.



The FortiMail GUI opens at the dashboard. Notice the VM status in the *License Information* widget.



Installing the license

If you have a FortiMail VM license (for details, see Licensing on page 6), you can install it now after you start up FortiMail VM.

To install the license

1. In the *License Information* widget on the FortiMail VM GUI, click the *Update* link to the right of *VM*.
2. Locate and select the license file (`.lic` file extension) that you downloaded earlier from Fortinet.
3. Click *Open*.
   A message box appears stating your license is being authenticated. This may take a few minutes.
   If you uploaded a valid license, a second message box will appear informing you that your license authenticated successfully.

4. Click *OK* on the message box.
   The system will reload and log out.
5. Log in again if prompted using `admin`, as the user name.

Congratulations! You have successfully installed FortiMail VM and can now configure your virtual appliance.

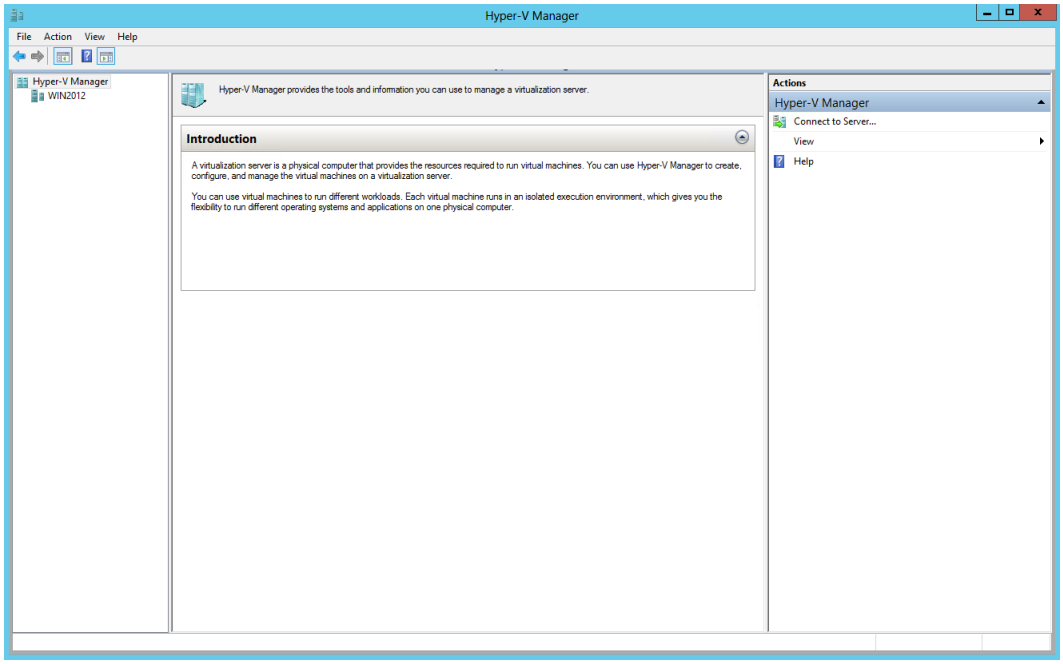
Deployment example: Hyper-V

Once you have downloaded the `.hyperv.zip` file and extracted the package contents to a folder on your Microsoft server, you can deploy the VHD package to your Microsoft Hyper-V environment.

Creating the FortiMail VM virtual machine

To create the FortiMail VM virtual machine:

1. Launch the Hyper-V Manager in your Microsoft server.
   The *Hyper-V Manager* home page opens.



2. Select the server in the right-tree menu. The server details page is displayed.
3. Right-click the server and select *New* and select *Virtual Machine* from the menu. Optionally, in the *Actions* menu, select *New* and select *Virtual Machine* from the menu.
   The *New Virtual Machine Wizard* opens.
4. Select *Next* to create a virtual machine with a custom configuration.
   The *Specify Name and Location* page is displayed.
5. Enter a name for this virtual machine. For example, FortiMail-VM. The name is displayed in the Hyper-V Manager.
6. Select *Next* to continue. The *Assign Memory* page is displayed.
7. Specify the amount of memory to allocate to this virtual machine. The default memory for FortiMail VM is 2GB (2048MB).

8. Select *Next* to continue. The *Configure Networking* page is displayed.
   Each new virtual machine includes a network adapter. You can configure the network adapter to use a virtual switch, or it can remain disconnected. FortiMail VM requires four network adapters. You must configure network adapters in the *Settings* page.
9. Select *Next* to continue. The *Connect Virtual Hard Disk* page is displayed.
10. Select to use an existing virtual hard disk and browse for the `fortimail-hv.vhd` file that you downloaded from the Fortinet Customer Service & Support portal.
11. Select *Next* to continue. The *Summary* page is displayed.
12. To create the virtual machine and close the wizard, select *Finish*.

Configuring FortiMail VM hardware settings

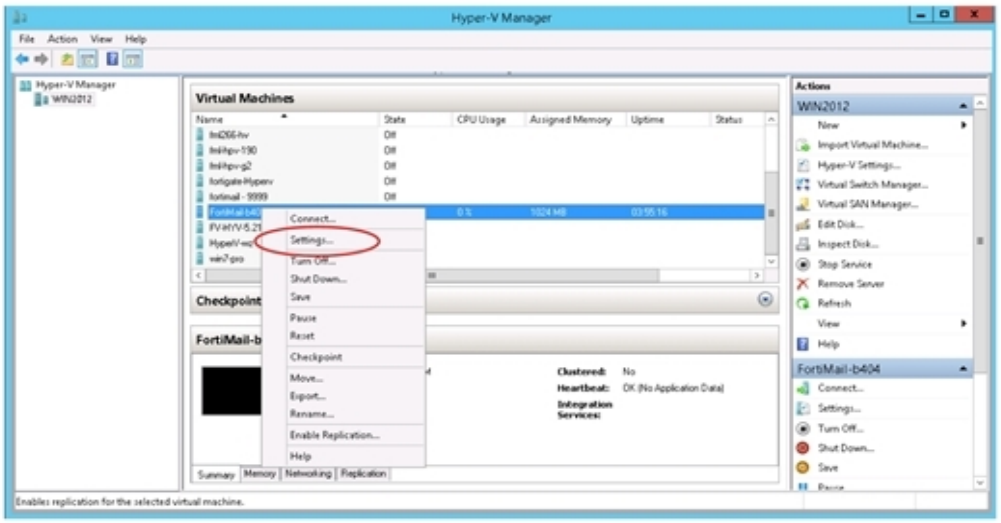
Before powering on your FortiMail VM you must configure the virtual CPU, and create network adapters and virtual disk configuration to match your FortiMail VM license. See Licensing on page 6 for FortiMail VM license information.

FortiMail VM does not currently support UEFI boot (in other words, it is not a 2nd generation virtual machine).

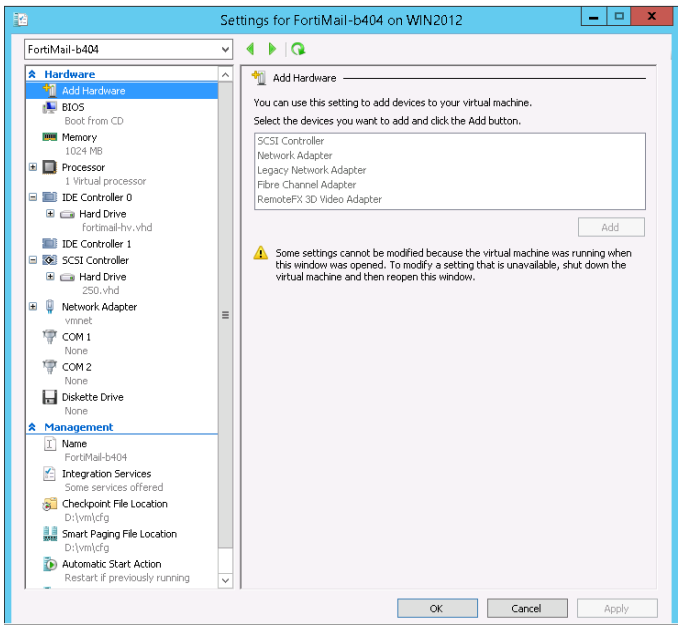
Configure the FortiMail VM hardware settings prior to powering on the FortiMail VM.

To configure settings for FortiMail VM on the server:

1. In the Hyper-V Manager, locate the name of the virtual machine, right-click the entry, and select *Settings* from the menu. Optionally, you can select the virtual machine and select *Settings* in the *Actions* menu.



The *Settings* page is displayed.



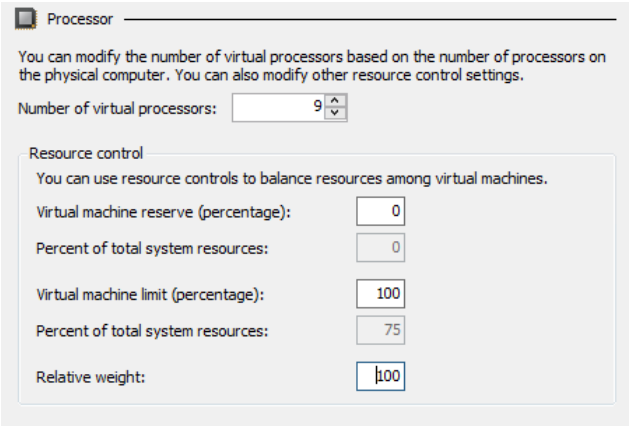
2. Configure virtual processors, network adapters, and virtual hard drive settings.
3. Select *Apply* to save the settings and then select *OK* to close the settings page.

FortiMail VM virtual processors

You must configure FortiMail VM virtual processors in the server settings page. The number of processors is dependent on your server environment.

Configure FortiMail VM virtual processors:

1. In the *Settings* page, select *Processor* from the *Hardware* menu.
   The *Processor* page is displayed.



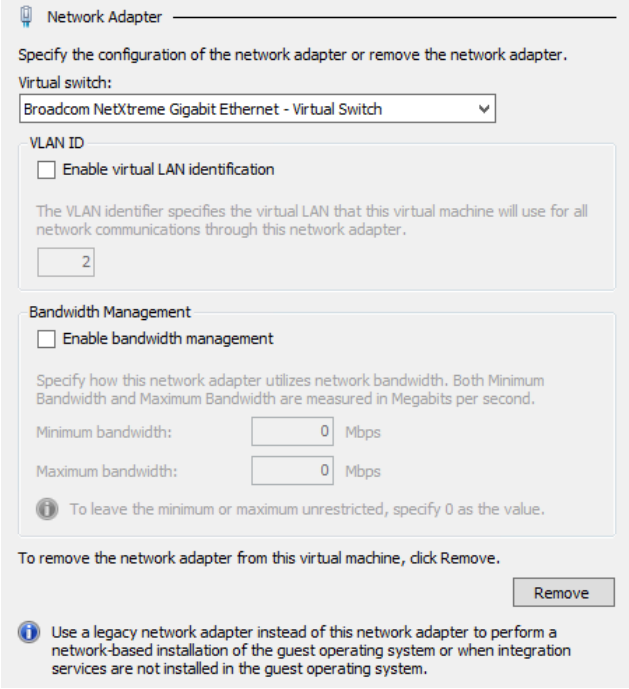
2. Configure the number of virtual processors for the FortiMail VM virtual machine. Optionally, you can use resource controls to balance resources among virtual machines.
3. Select *Apply* to save the settings.

FortiMail VM network adapters

You must configure FortiMail VM network adapters in the server settings page. FortiMail VM supports four network adapters.

Configure FortiMail VM network adapters:

1. In the *Settings* page, select *Add Hardware* from the *Hardware* menu, select *Network Adapter* in the device list, and select the *Add* button.
   The *Network Adapter* page is displayed.



2. You must manually configure four network adapters for FortiMail VM in the settings page. For each network adapter, select the virtual switch from the drop-down list.
3. Select *Apply* to save the settings.

FortiMail VM virtual hard disk

You must configure the FortiMail VM virtual hard disk in the server settings.

FortiMail VM requires at least two virtual hard disks. Before powering on the FortiMail VM, add at least one more virtual hard disk. The default hard drive, `fortimail-hv.vhd`, contains the operating system. The second hard drive will be used for logs and mail data.

If your environment will expand in the future, add hard disks larger than the 250 GB FortiMail VM base license requirement. This will allow your environment to expand yet not take more space in the SAN than is needed.

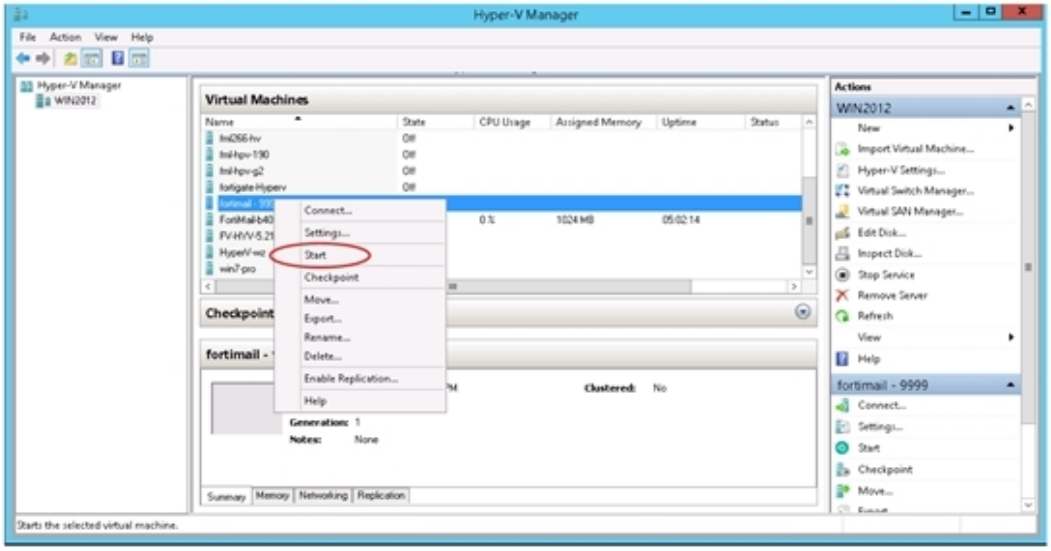
FortiMail VM allows for up to 12 virtual log disks to be added to a deployed instance. To use the logical volume manager (LVM) to extend the disks, see the FortiMail CLI Reference.

Create a FortiMail VM virtual hard drive:

1. In the *Settings* page, select *IDE Controller 1* from the *Hardware* menu.
2. Select *Virtual Hard Disk*.
3. Select *Browse* and select the .vhd file that matches your license.
4. Select *OK*.

Starting FortiMail VM

You can now proceed to power on your FortiMail VM. Select the name of the FortiMail VM in the list of virtual machines, right-click, and select *Start* in the menu. Optionally, you can select the name of the FortiMail VM in the list of virtual machines and select *Start* in the *Actions* menu.



Deployment example: KVM

Once you have downloaded the install file and extracted the package contents to a folder on your local computer, you can create the virtual machine in your KVM environment.

This section contains the following topics:

- Creating the FortiMail virtual machine on page 27
- Configuring FortiMail hardware settings on page 28
- Starting FortiMail VM on page 28

Creating the FortiMail virtual machine

To create the FortiMail virtual machine:

1. Launch Virtual Machine Manager (virt-manager) on your KVM host server.
   The *Virtual Machine Manager* home page opens.
2. In the toolbar, select *Create a new virtual machine*.
3. Enter a *Name* for the VM, FortiMail-VM for example.
4. Ensure that *Connection* is localhost (this is the default.)
5. Select *Import existing disk image*.
6. Select *Forward*.
7. In *OS Type* select *Linux*.
8. In *Version*, select *Generic 2.6 and later kernel*.
9. Select *Browse*.
10. If you copied the fortimail-kvm.qcow2 file to `/var/lib/libvirt/images`, it will be visible on the right. If you saved it somewhere else on your server, select *Browse Local* and find it.
11. Select *Choose Volume*.
12. Select *Forward*.
13. Specify the amount of memory and number of CPUs to allocate to this virtual machine. The amounts must not exceed your license limits. See "Resources" on page 4.
14. Select *Forward*.
15. Expand *Advanced options*. A new virtual machine includes one network adapter by default. Select a network adapter on the host computer. Optionally, set a specific MAC address for the virtual network interface. Set *Virt Type* to *virtio* and *Architecture* to *qcow2*.
16. Select *Finish*.

Configuring FortiMail hardware settings

Before powering on your FortiMail you must add the storage disk and configure the virtual hardware of your FortiMail.

To configure settings for FortiMail on the server:

1. In the Virtual Machine Manager, locate the name of the virtual machine and then select *Open* from the toolbar.
2. Select *Add Hardware*. In the *Add Hardware* window select *Storage*.
3. Browse to the storage disk file that matches your licence, for example, 250.qcow2 (250 GB storage space) and click OK.
4. Select *Network* to add more network interfaces. The *Device type* must be *Virtio*.
   A new virtual machine includes one network adapter by default. You can add more through the Add Hardware window. FortiMail requires four or six network adapters (see Resources on page 6). You can configure network adapters to connect to a virtual switch or to network adapters on the host computer.
5. Select *Finish*.

Starting FortiMail VM

You can now proceed to power on your FortiMail. Select the name of the FortiMail in the list of virtual machines. In the toolbar, select *Console* and then select *Start*.

Deployment example: Citrix XenServer

Once you have downloaded the install file and extracted the package contents to a folder on your local computer, you can create the virtual machine in your Citrix XenServer environment.

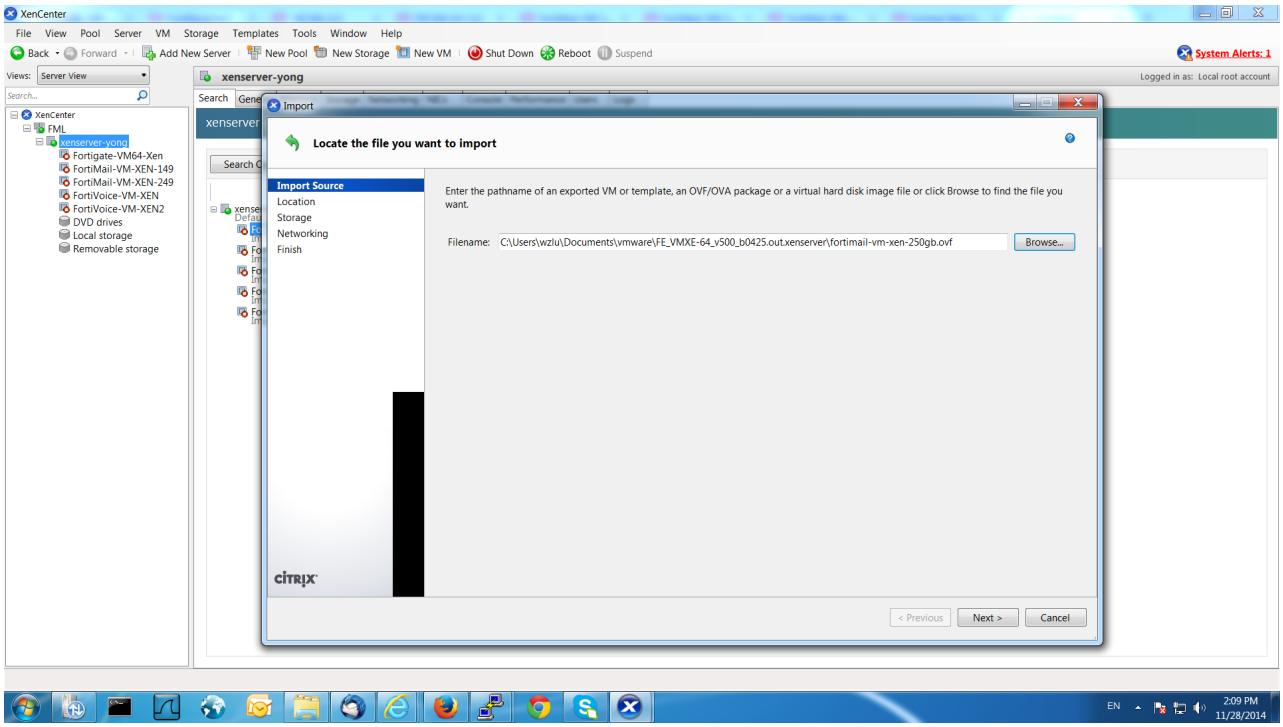
This section contains the following topics:

- Creating the FortiMail VM virtual machine (XenCenter) on page 29
- Configuring virtual hardware on page 34

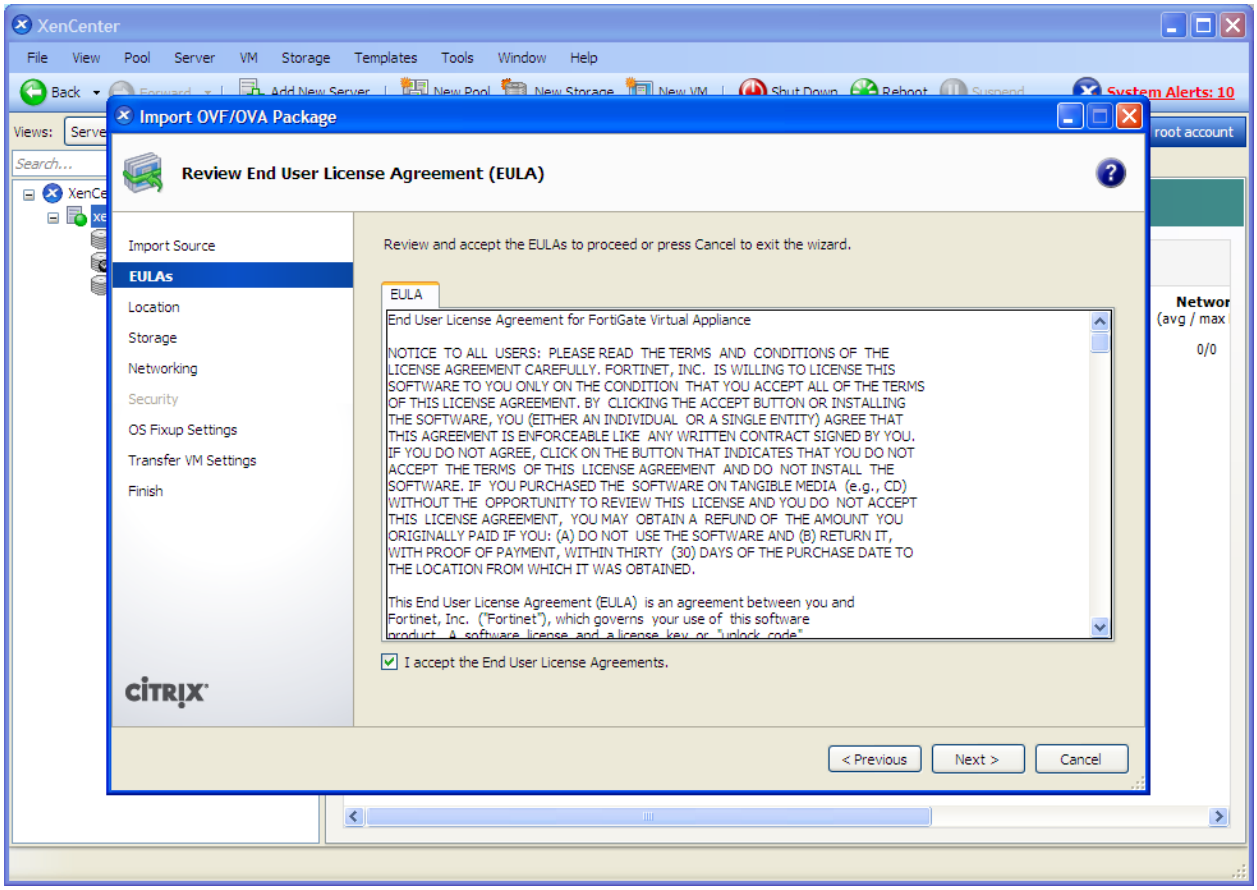
Creating the FortiMail VM virtual machine (XenCenter)

To create the FortiMail virtual machine from the OVF file

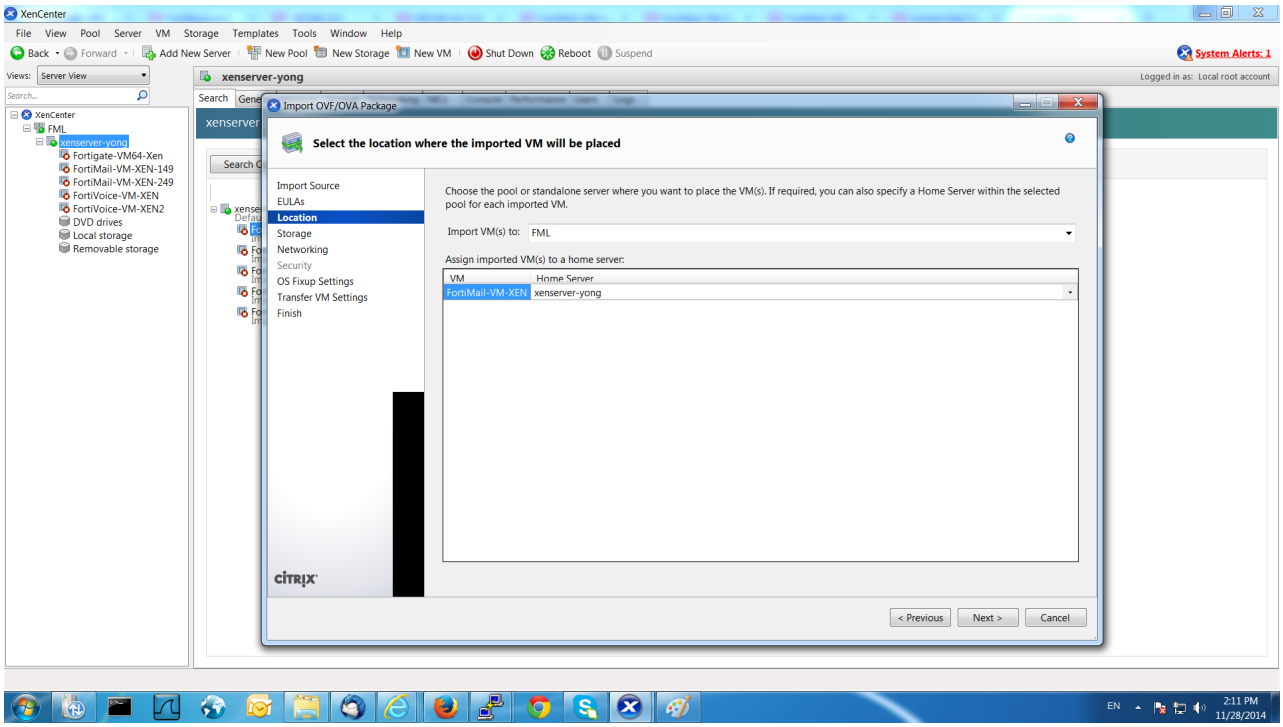
1. Launch XenCenter on your management computer.
   The management computer can be any computer that can run Citrix XenCenter, a Windows application.
2. If you have not already done so, select *ADD a server*. Enter your Citrix XenServer IP address and the root logon credentials required to manage that server.
   Your Citrix XenServer is added to the list in the left pane.
   The *Virtual Machine Manager* home page opens.
3. Go to *File* > *Import*. An import dialog will appear.
4. Click the *Browse* button, find the FortiMail .ovf template file, then click *Open*.



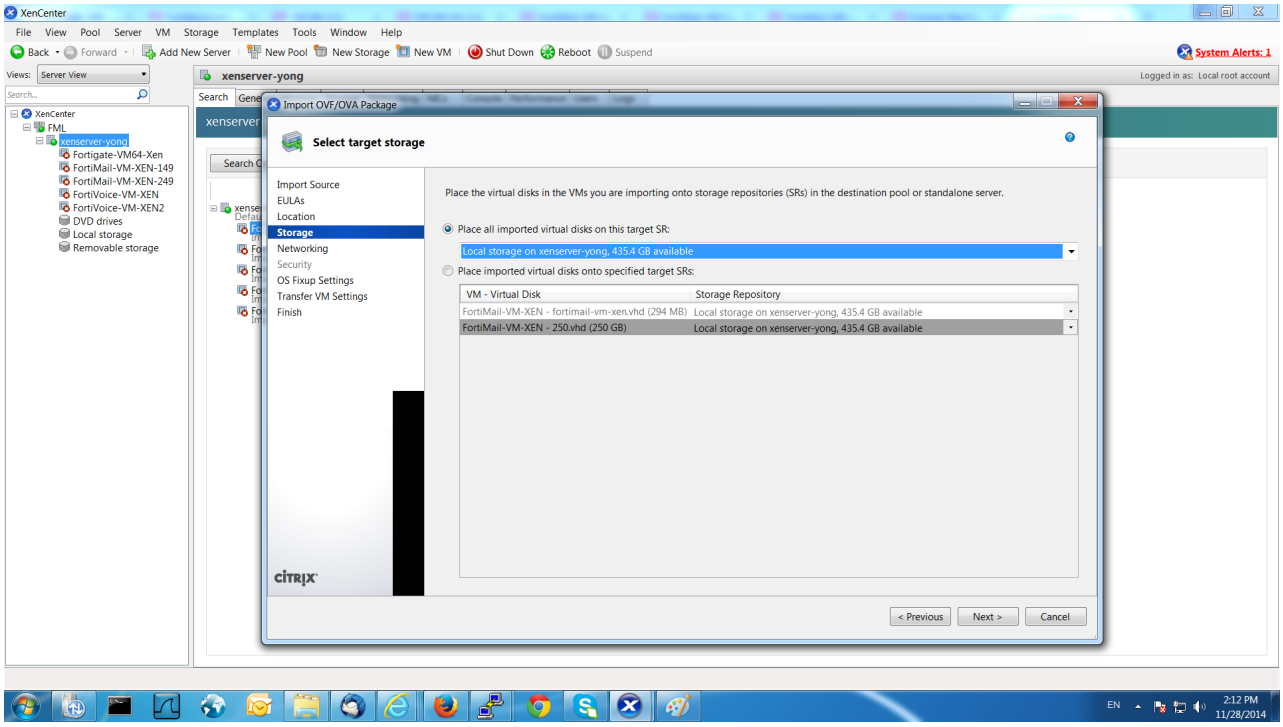
5. Select *Next*.
6. Accept the FortiMail Virtual Appliance EULA, then select *Next*.



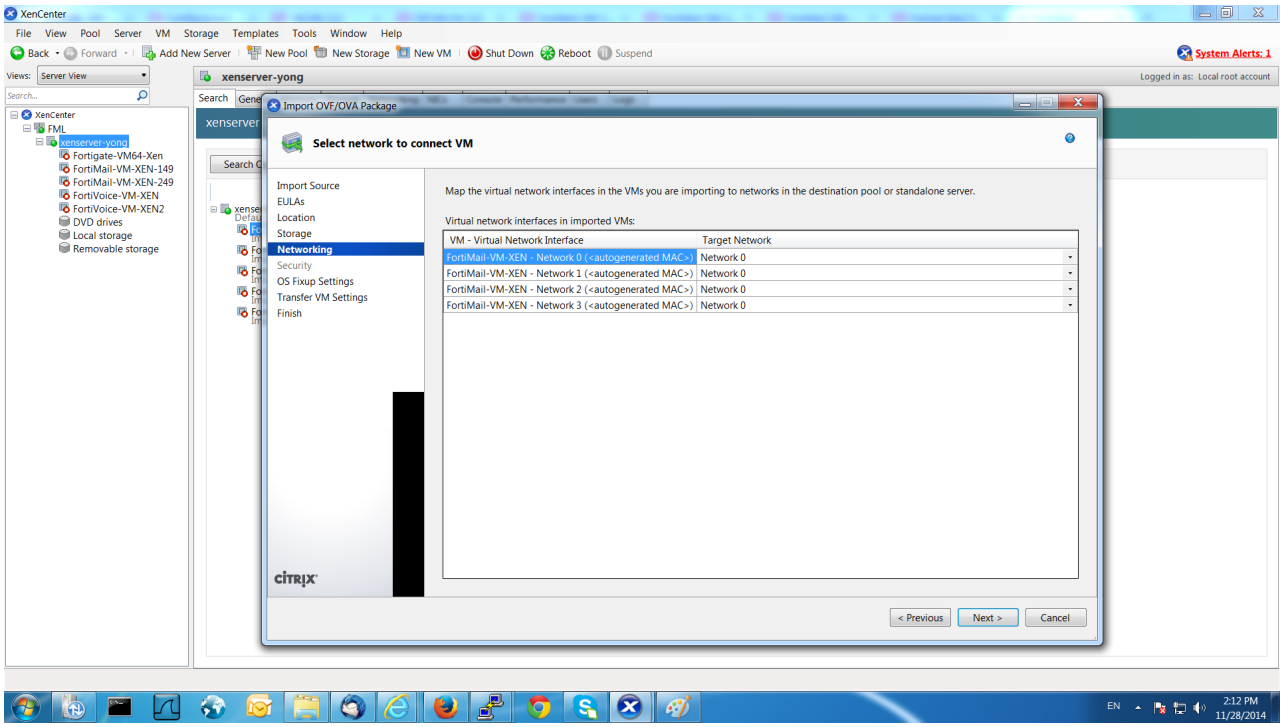
7. Choose the pool or standalone server that will host the VM, then select *Next*.



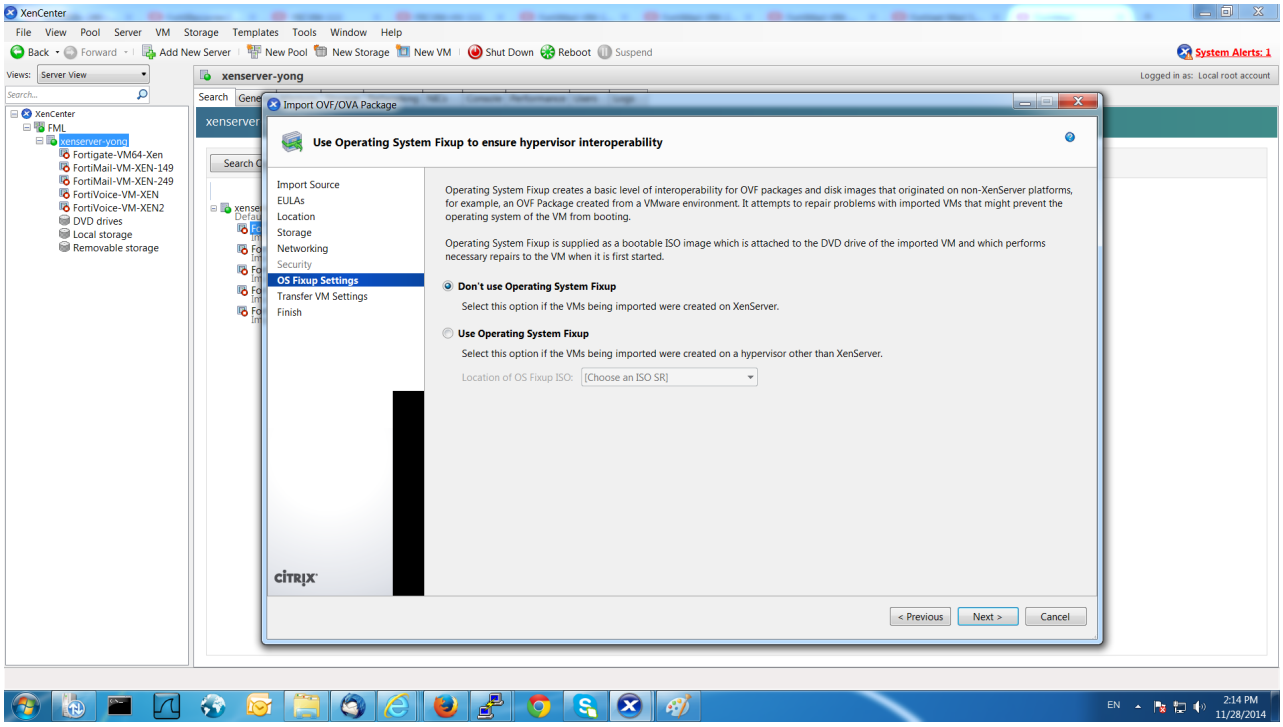
8. Select the storage location for FortiMail disk drives or accept the default. Select *Next*.



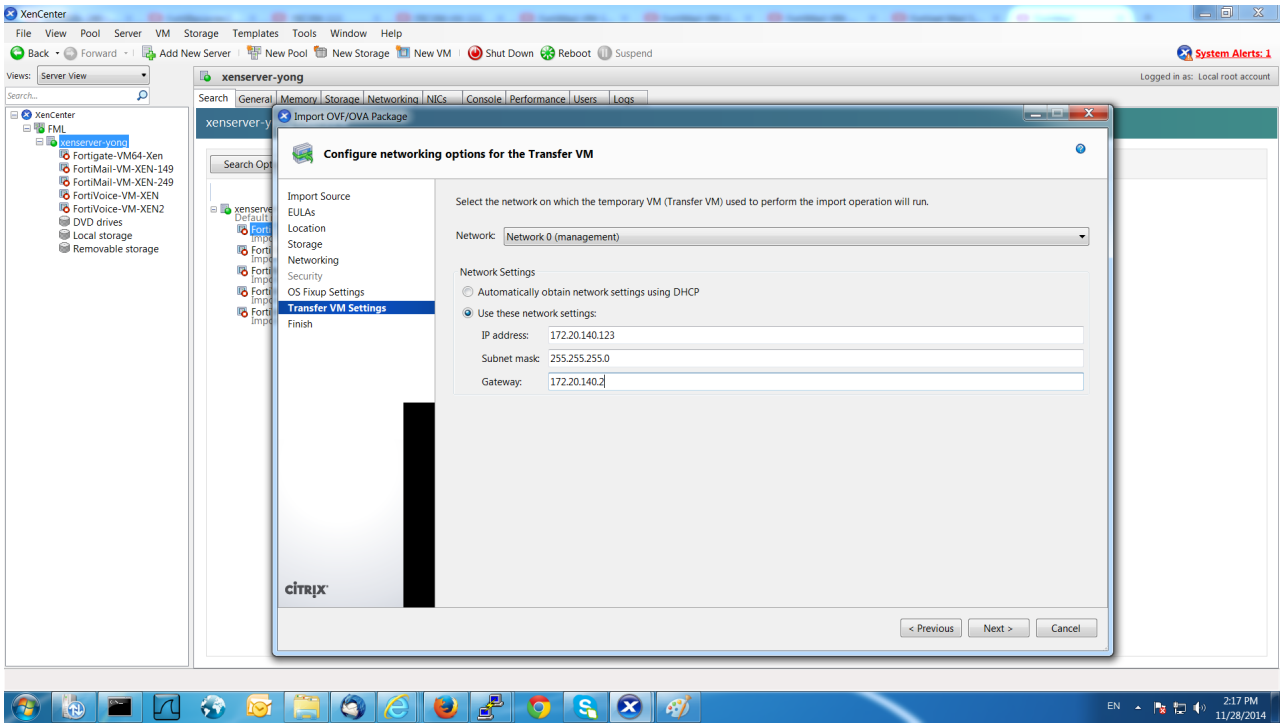
9. Configure how each vNIC (virtual network adapter) in FortiMail will be mapped to each vNetwork on the Citrix XenServer, then click *Next*.



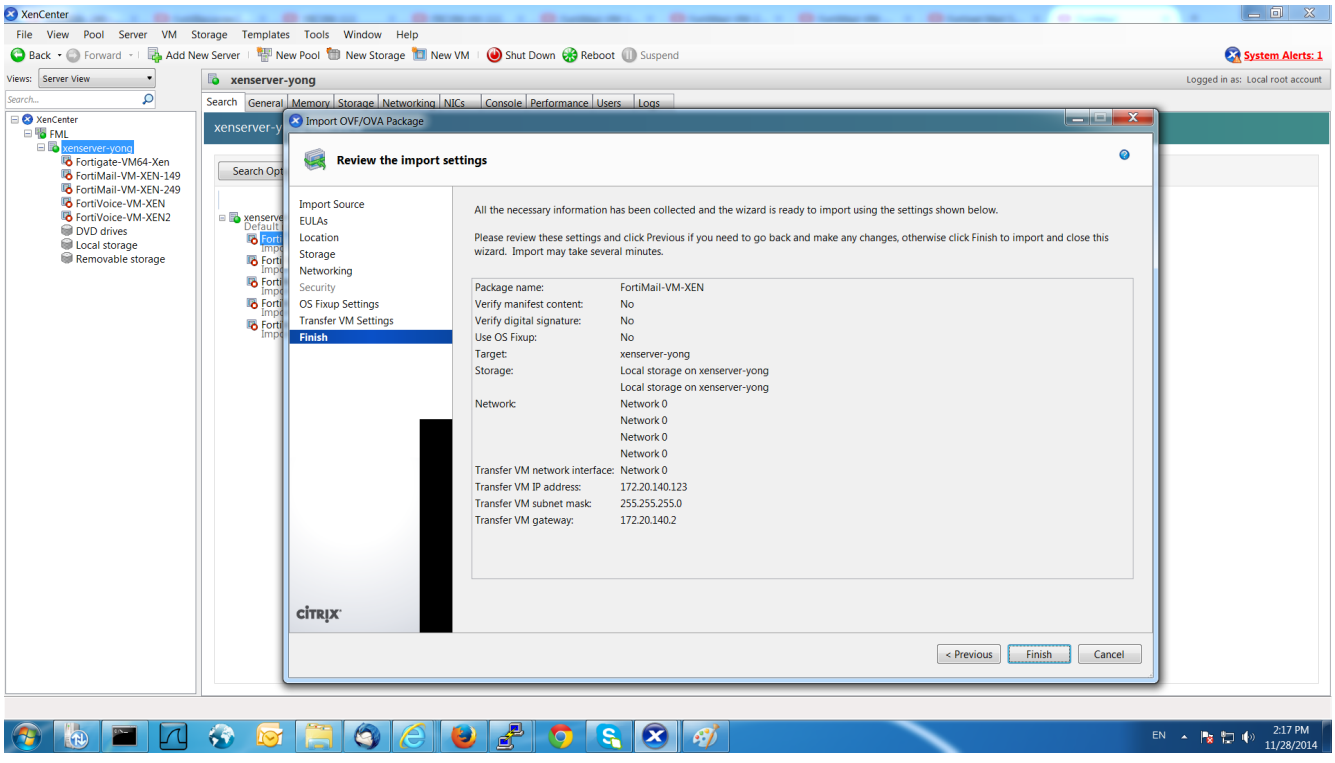
10. Click *Next* to skip OS fixup.



11. Select *Next* to use the default network settings for transferring the VM to the host.



12. Select *Finish*.



The Citrix XenServer imports the FortiMail files and configures the VM as specified in the OVF template. Depending on your computer's hardware speed and resource load, and also on the file size and speed of the network connection, this might take several minutes to complete.

When VM import is complete, the XenCenter left pane includes the FortiMail in the list of deployed VMs for your Citrix XenServer.

Configuring virtual hardware

Before you start your FortiMail VM for the first time, you can optionally adjust your virtual machine's virtual hardware settings to meet your network requirements.

Configuring number of CPUs and memory size

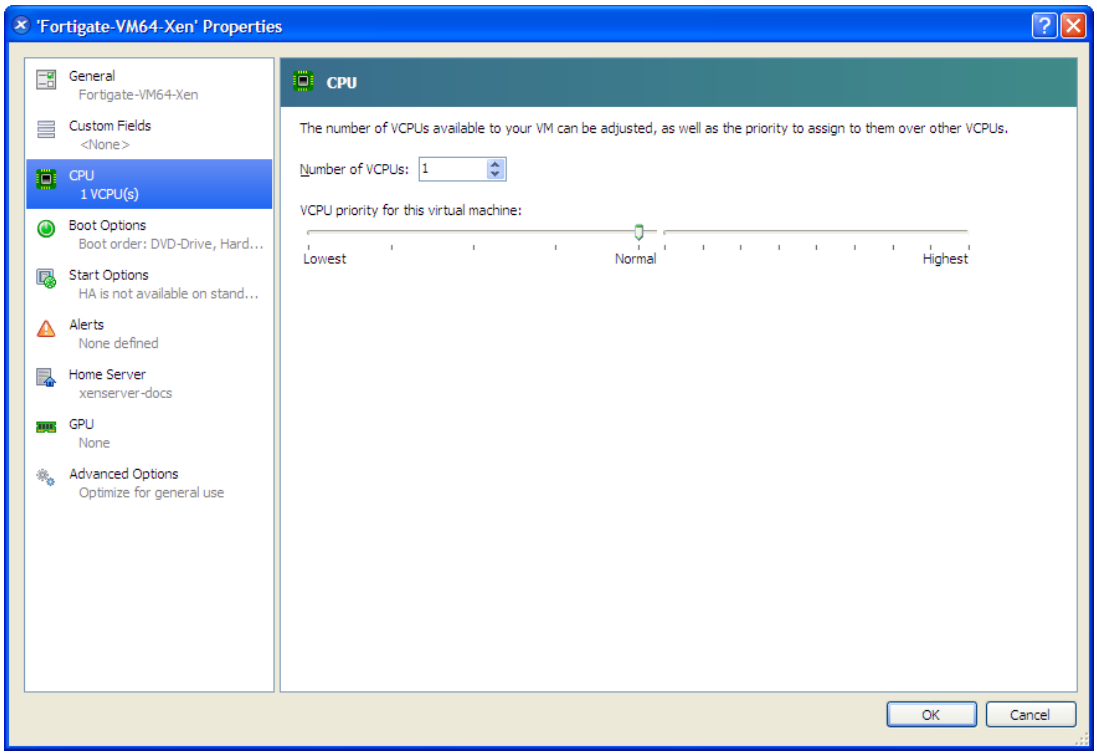
Your FortiMail VM license limits the number CPUs and amount of memory that you can use. The amounts you allocate must not exceed your license limits. See Licensing on page 6.

To access virtual machine settings

1. Open XenCenter.
2. Select your FortiMail VM in the left pane.
   The tabs in the right pane provide access to the virtual hardware configuration. The Console tab provides access to the FortiMail console.

To set the number of CPUs

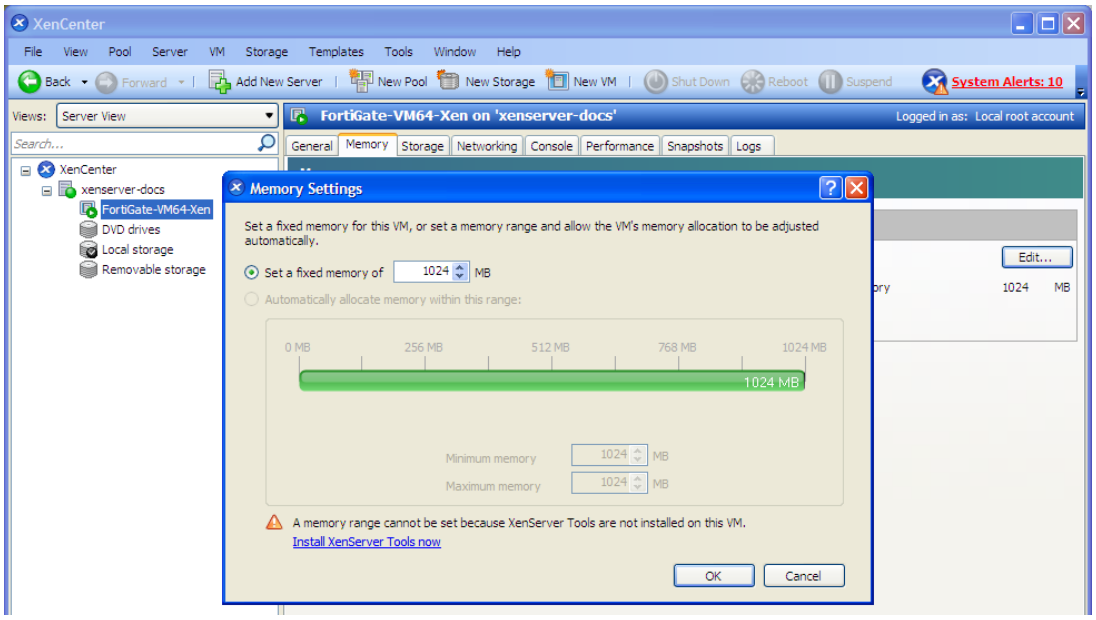
1. In the XenCenter left pane, right-click the FortiMail VM and select Properties.
   The Properties window opens.
2. In the left pane, select CPU.



3. Adjust *Number of CPUs* and then select *OK*.
   XenCenter will warn if you select more CPUs than the Xen host computer contains. Such a configuration might reduce performance.

To set memory size

1. In the XenCenter left pane, select the FortiMail VM.
2. In the right pane, select the *Memory* tab.
3. Select *Edit*, modify the value in the *Set a fixed memory of* field and select *OK*.


XenCenter
File View Pool Server VM Storage Templates Tools Window Help
Back Forward Add New Server New Pool New Storage New VM Shut Down Reboot Suspend System Alerts: 10
Views: Server View
Search...
XenCenter
xenserver-docs
FortiGate-VM64-Xen
DVD drives
Local storage
Removable storage
FortiGate-VM64-Xen on 'xenserver-docs'
Logged in as: Local root account
General Memory Storage Networking Console Performance Snapshots Logs
Edit...
1024 MB
Memory Settings
Set a fixed memory for this VM, or set a memory range and allow the VM's memory allocation to be adjusted automatically.
Set a fixed memory of 1024 MB
Automatically allocate memory within this range:
0 MB 256 MB 512 MB 768 MB 1024 MB
1024 MB
Minimum memory 1024 MB
Maximum memory 1024 MB
A memory range cannot be set because XenServer Tools are not installed on this VM.
Install XenServer Tools now
OK
Cancel

Deployment example: OpenStack

FortMail VM supports cloud-init integration, allowing cross-platform cloud instance initialization. Cloud-init for FortiMail places all of its config data in OpenStack, or a content directory.

OpenStack-based clouds provide the environment needed for elastic, on-demand multitenant applications. Networks are transitioning to new models more suited to the cloud with SDN, NFV, and Virtual Network Infrastructure, and their relationships between networking, security orchestration, and policy enforcement.

You can install FML-VMKV (KVM) firmware into an OpenStack environment.

This section contains the following topics:

- Overview on page 1
- Deploying FortiMail VM in OpenStack on page 39

Overview

FortiMail VM looks for three configuration files to apply:

- **mode**: CLI command that has the system mode configured (i.e. Gateway, Server, or Transparent).
  It is recommended to set the mode before any configuration, as setting the mode effectively factory resets the system.
  Note that some configuration options are only available in certain modes.
- **config**: Any other CLI configuration that apply to the system after the mode is set.
- **license**: The VM license file.

Any combination of these configuration files (or none) may be provided.

The license file is a typical VM license (.lic) file. Below are some samples of what might be in the mode and config files:

The mode text file:

```
config system global
   set operation-mode server
end
```

The config text file:

```
config system interface
   edit port1
      set ip 172.20.140.250/24
      set allowaccess https ping ssh telnet
   next
end

config system dns
   set primary 8.8.8.8
```

```
   set secondary 4.4.4.4
end

config system route
   edit 1
      set gateway 172.20.140.2
   next
end

config system admin
   edit fmltest
      set access-profile super_admin_prof
      set password 123456
   next
end
```

Bootup the instance

To bootup a FortiMail VM instance, OpenStack can use something similar to the following command (in this example, using nova boot):

```
nova boot --flavor FML_small --image fml_image --file license=FEVM010000041191.lic --file
      config=fmlinit.txt --file mode=fmlmode.txt fml_instance
```

In this example the system will reboot twice: after loading mode and then after loading a new license.

Without OpenStack

Without OpenStack you would need to place all necessary configuration files in the Windows content directory. For example:

1. Place the configuration files in:
   `openstack/content/0000` (for example the "mode" file)
   `openstack/content/0001` (for example the "config" file)
   `openstack/content/0002` (for example the 'license' file)

   Any combination of these may be present.

2. Create or update the openstack/latest/meta_data.json file to point to these files:

```
{"files": [
{"path": "mode", "content_path": "/content/0000"},
{"path": "config", "content_path": "/content/0001"},
{"path": "license", "content_path": "/content/0002"}
]}
```

Deploying FortiMail VM in OpenStack

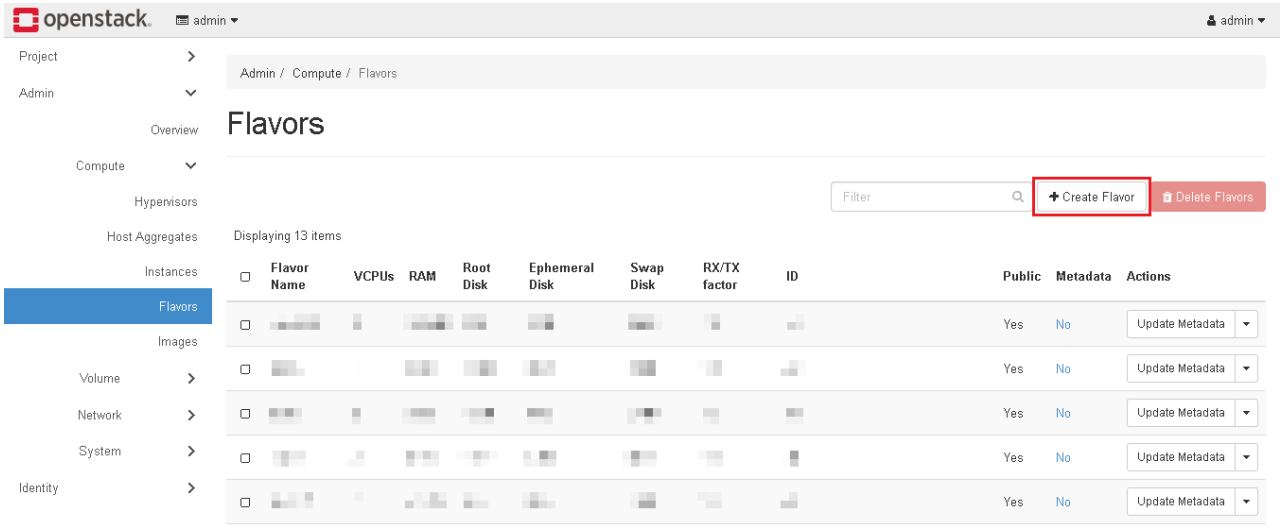
The VMware management software, in this case OpenStack Horizon, is installed on a computer with network access to the OpenStack server.

Once you have access to the OpenStack dashboard, configure the following steps to launch a FortiMail VM instance.

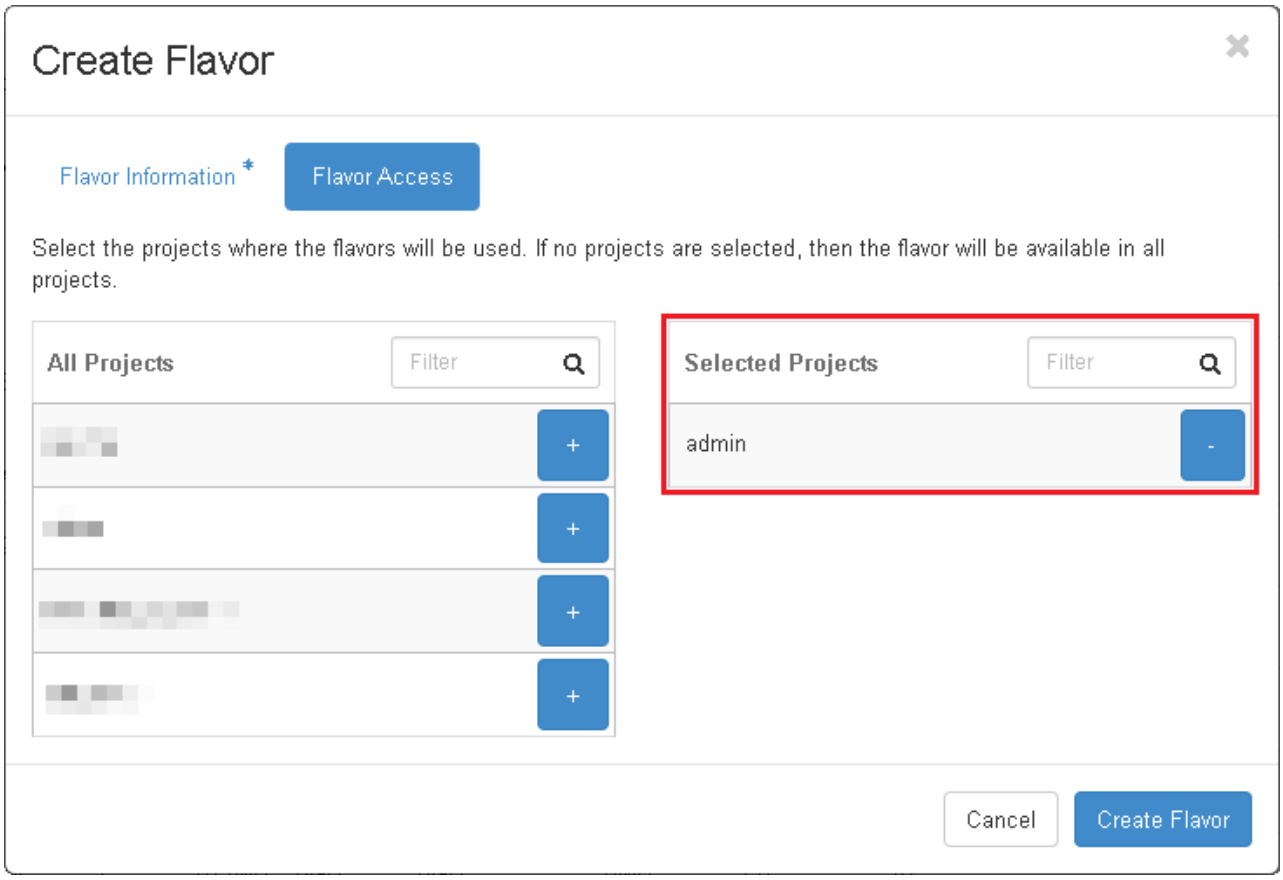
An Internet connection is required for the FortiMail VM to contact FortiGuard to validate its license. If the FortiMail VM is in a closed environment, it must be able to connect to a FortiManager to validate the FortiMail VM license.

Creating the flavor

1. In the OpenStack dashboard, go to *Admin* > *Compute* > *Flavors* and click *Create Flavor*.



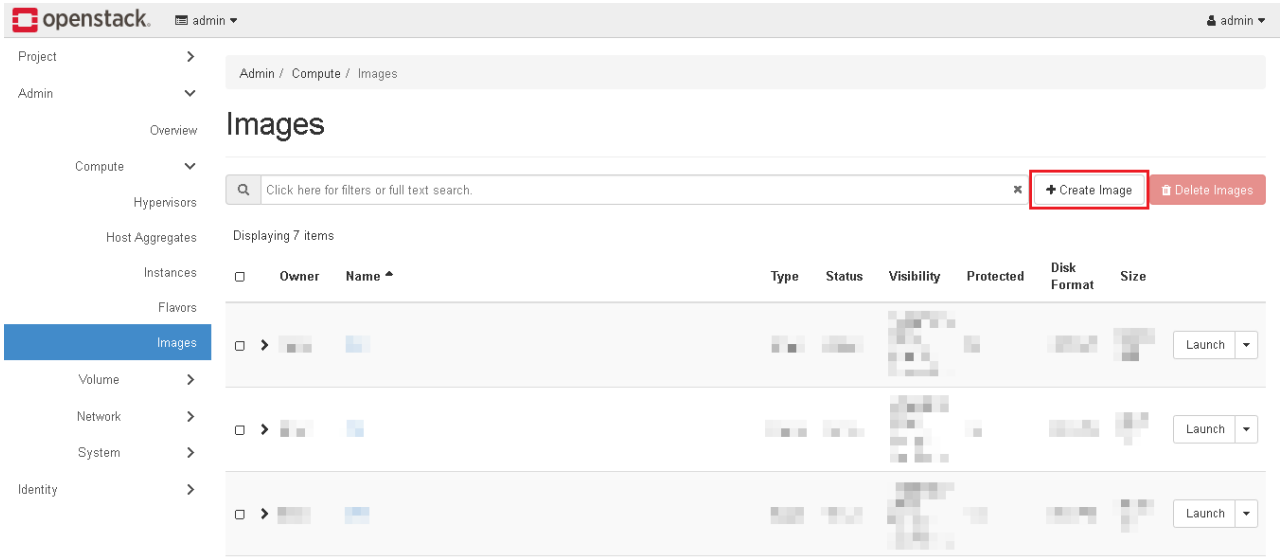
2. Under *Flavor Information*, define the parameters for FortiMail VM instance deployments. Make sure to set the following *minimum* requirements:
   - **VCPUs**: 1
   - **RAM**: 1024MB
   - **Root Disk**: 2GB
   - **Ephemeral Disk**: 55GB
3. Click *Flavor Access*, and add the projects you wish to have access to this flavor. In this case, the current project is selected (admin).



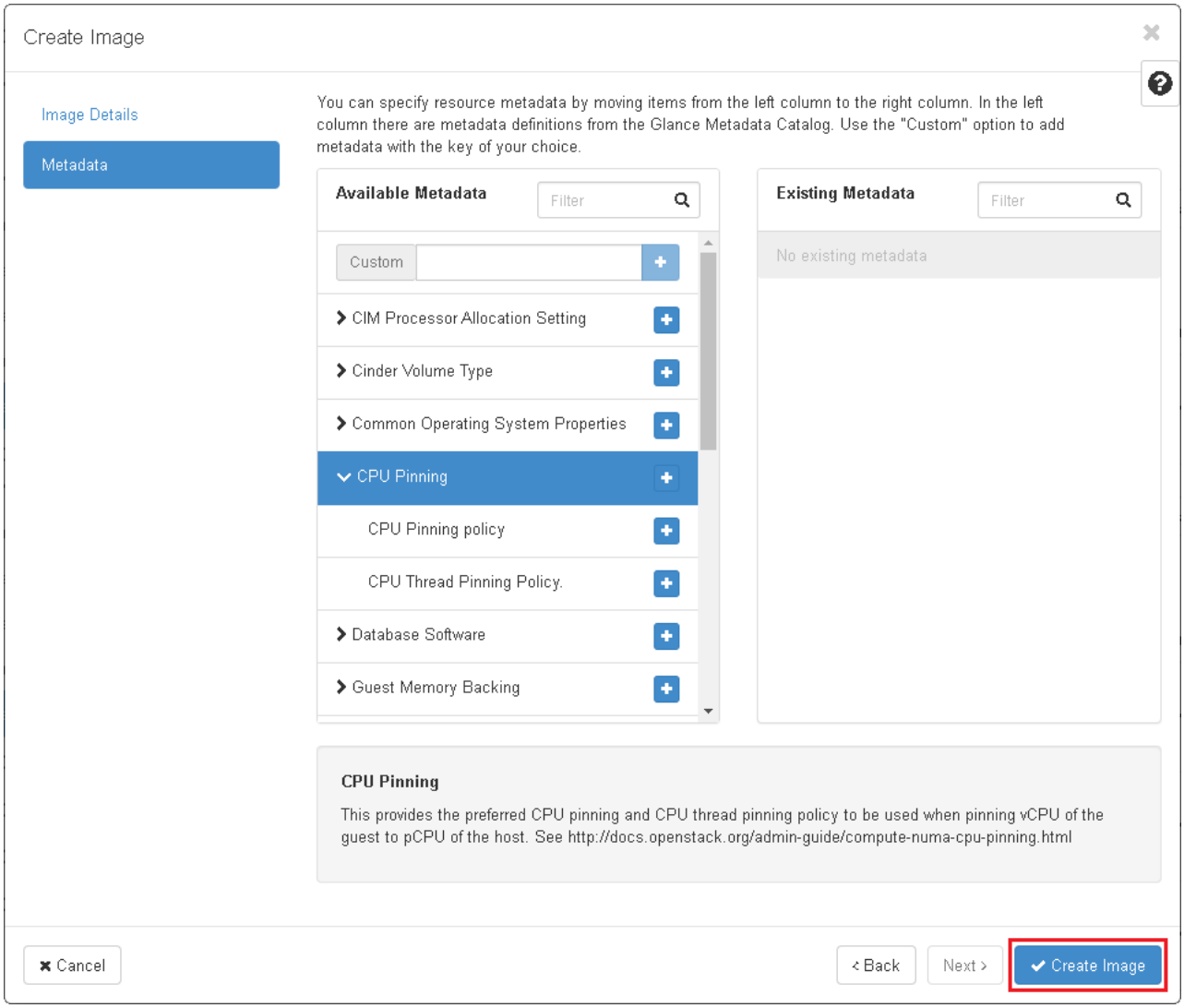
4. Click *Create Flavor*.

Creating the image

1. Go to *Admin* > *Compute* > *Images* and click *Create Image*.

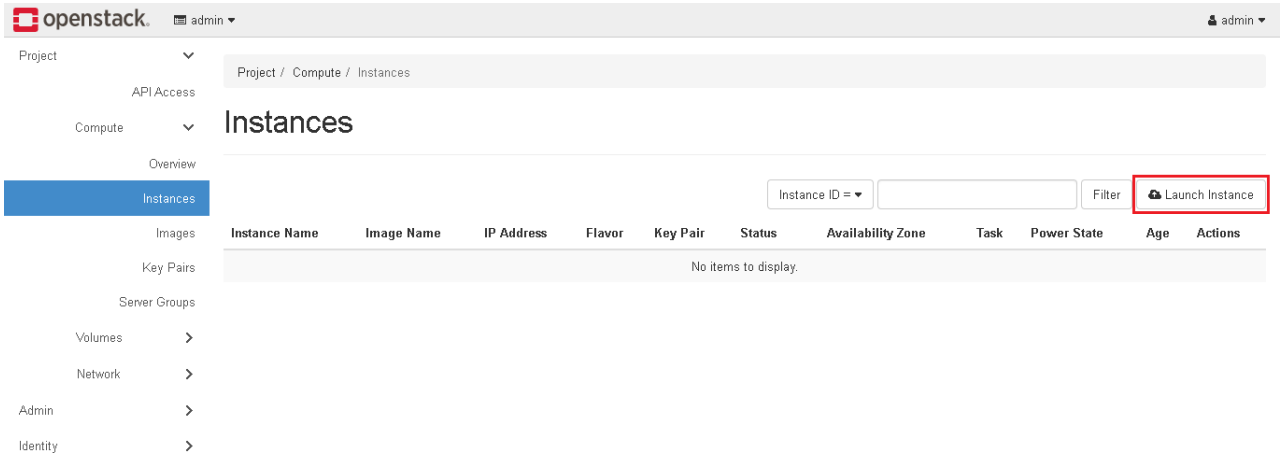


2. From the *Image Details* tab, under *Image Source* > *File*, click *Browse*.
3. Select the image file downloaded from the Fortinet Customer Service & Support portal.
   The image file name is:
   fortimail-kvm.qcow2
4. Set *Format* to *QCOW2 - QEMU Emulator*.
5. Optionally, click the *Metadata* tab and assign any necessary metadata definitions.
   Selecting each option opens a dropdown menu showing what is included for each metadata resource and their descriptions below.
6. When finished, click *Create Image*.

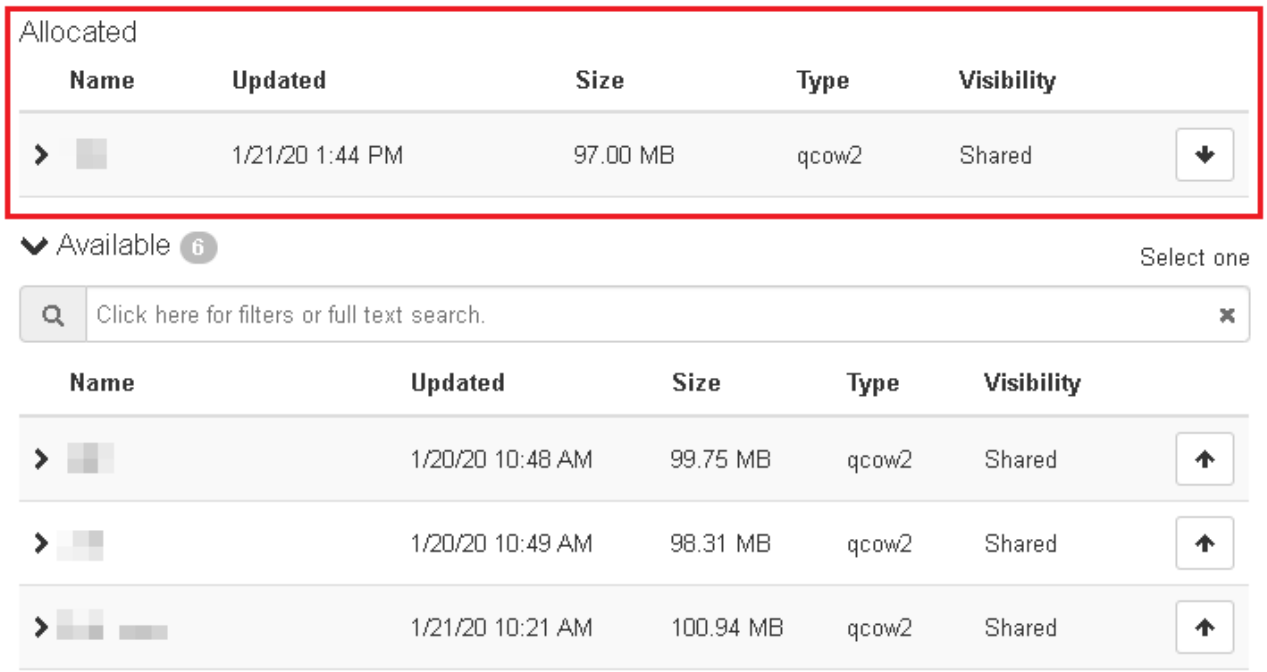


Launching the instance

1. Go to *Project* > *Compute* > *Instances* and click *Launch Instance*.



2. Under the *Details* tab, enter an *Instance Name* and an optional *Description*, define the *Availability Zone* where the instance will be deployed, and the instance *Count*, in cases where you require multiple instances with the same settings.
3. Click *Next*.
4. Under the *Source* tab, set *Select Boot Source* to *Image*. By default, *Create New Volume* is set to *Yes*. Increase the *Volume Size* as required.
5. Upload the image created earlier from under the *Available* list by clicking the icon.
The image is moved to the *Allocated* list as shown in the following example:



6. Click *Next*.

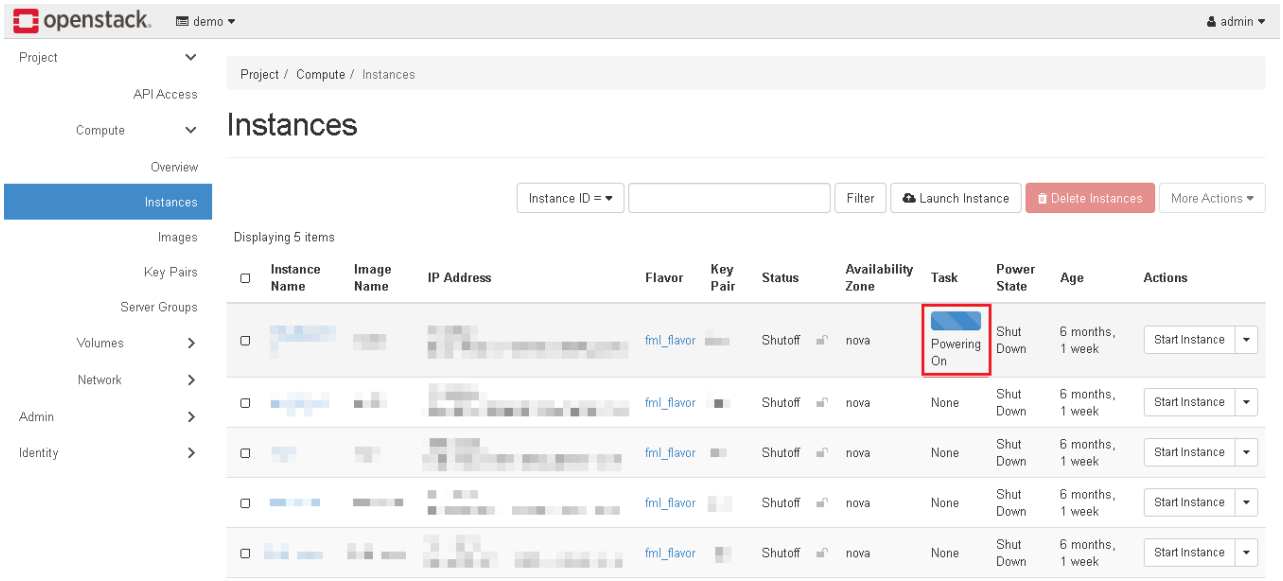
7. Under the *Flavor* tab, select the *Flavor* created earlier by moving it from the *Available* list to the *Allocated* list.
8. Click *Next*.
9. Under the Networks tab, define whether the instance should be located on a public, private, or shared network.
10. Optionally, continue configuring the remaining tabs. When finished, click *Launch Instance*.

The newly created FortiMail VM instance is launched.

Accessing instance console

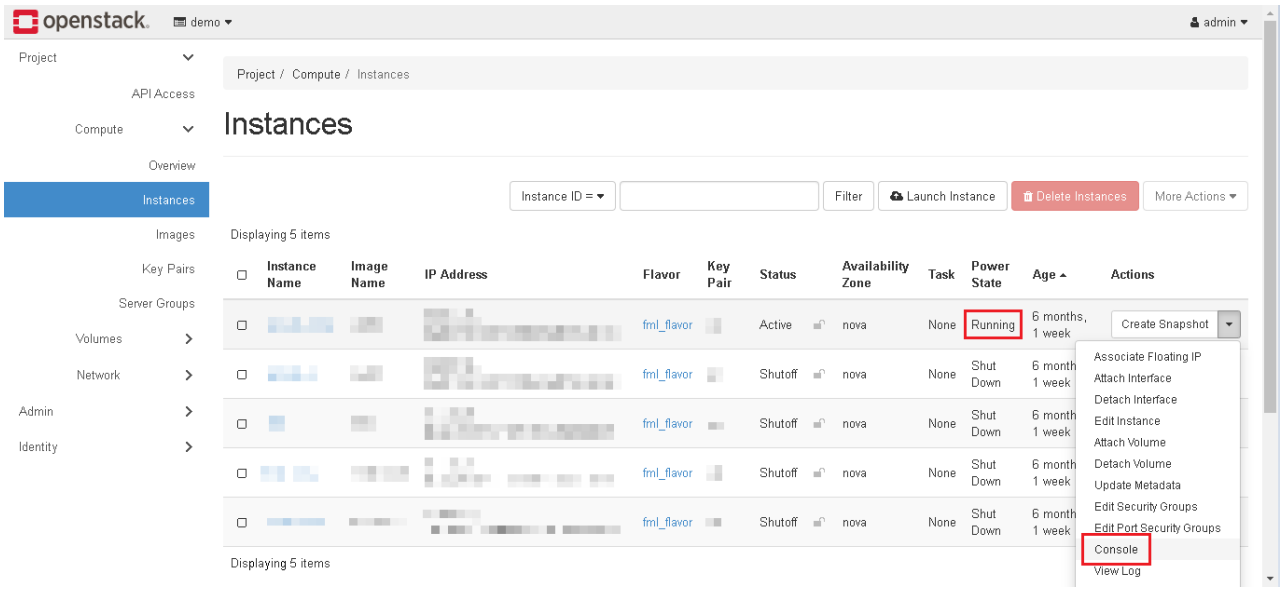
You can access your list of instances from under *Project* > *Compute* > *Instances*.

1. If you haven't already, launch an instance by selecting *Start Instance* from the *Actions* column.
The *Power State* column will show that the instance is powering on.

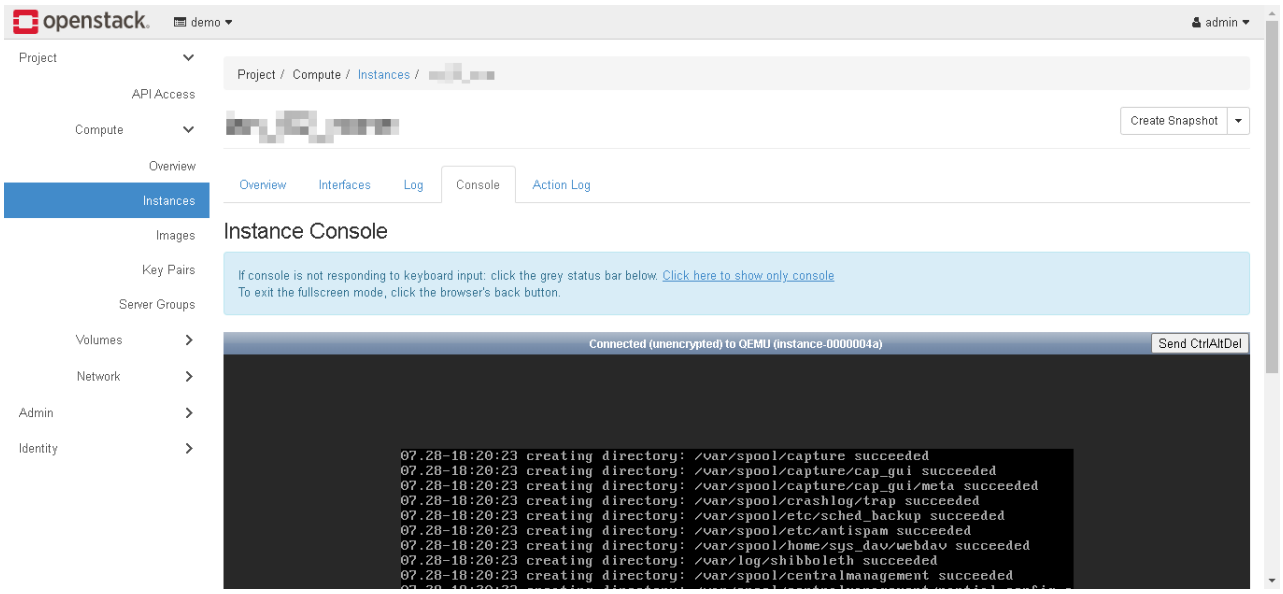


After a few seconds, the instance will show a *Power State* of *Running*.

2. To access the instance's console, click the *Actions* drop-down menu and select *Console*.

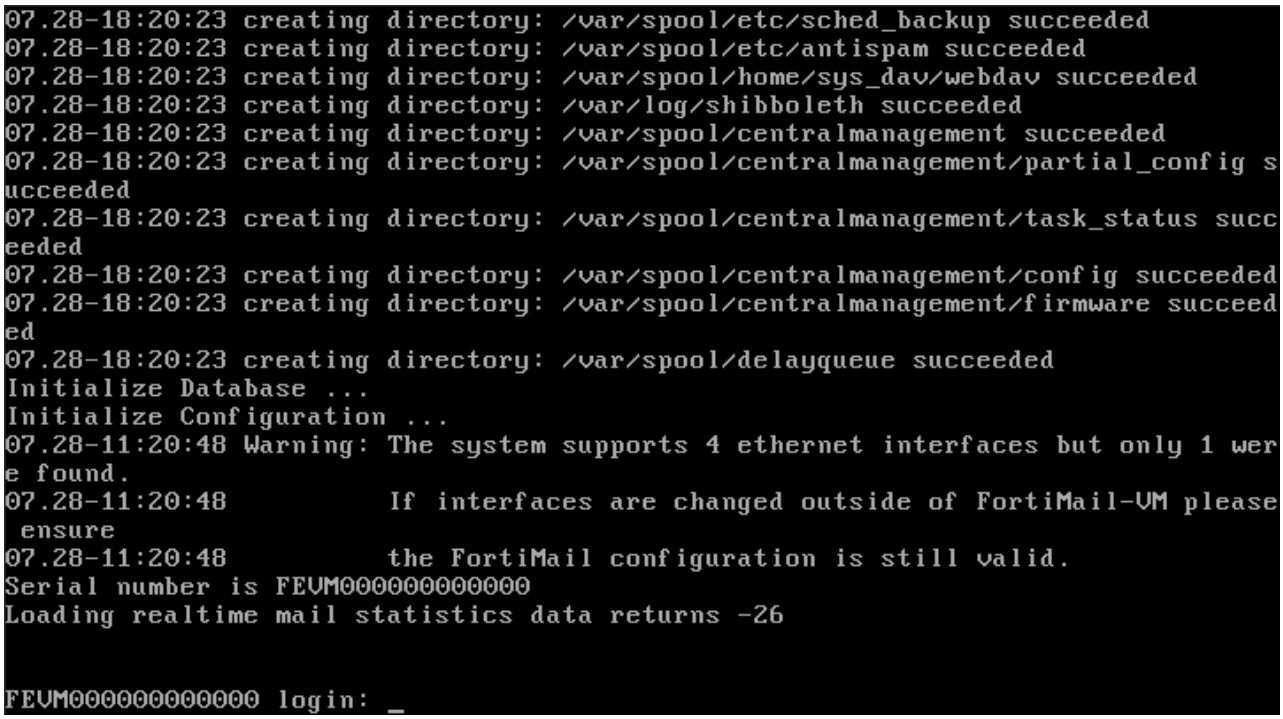


You are redirected to the *Instance Console*.



If you just started the instance, you may need to wait a few minutes for the instance initialization to complete.

3. Once it is complete, you can login to the FortiMail VM.


07.28-18:20:23 creating directory: /var/spool/etc/sched_backup succeeded
07.28-18:20:23 creating directory: /var/spool/etc/antispam succeeded
07.28-18:20:23 creating directory: /var/spool/home/sys_dav/webdav succeeded
07.28-18:20:23 creating directory: /var/log/shibboleth succeeded
07.28-18:20:23 creating directory: /var/spool/centralmanagement succeeded
07.28-18:20:23 creating directory: /var/spool/centralmanagement/partial_config s
ucceeded
07.28-18:20:23 creating directory: /var/spool/centralmanagement/task_status succ
eeded
07.28-18:20:23 creating directory: /var/spool/centralmanagement/config succeeded
07.28-18:20:23 creating directory: /var/spool/centralmanagement/firmware succeed
ed
07.28-18:20:23 creating directory: /var/spool/delayqueue succeeded
Initialize Database ...
Initialize Configuration ...
07.28-11:20:48 Warning: The system supports 4 ethernet interfaces but only 1 wer
e found.
07.28-11:20:48 If interfaces are changed outside of FortiMail-VM please
ensure
07.28-11:20:48 the FortiMail configuration is still valid.
Serial number is FEVM000000000000
Loading realtime mail statistics data returns -26
FEVM000000000000 login:

Initial configuration

Before you can connect to the FortiMail VM GUI you must configure the FortiMail VM basic configuration via the CLI console. Once configured, you can connect to the FortiMail VM GUI and upload the FortiMail VM license file that you downloaded from the Customer Service & Support portal.

This section contains the following topics:

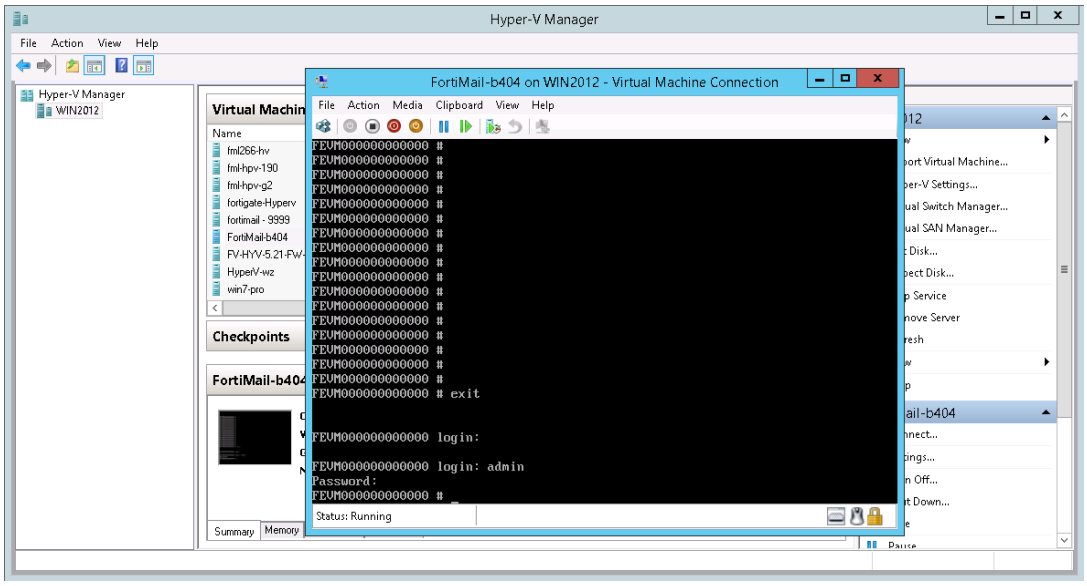
- FortiMail VM console access on page 46
- Connecting to the FortiMail VM GUI on page 47
- Installing the FortiMail VM license on page 47
- Configuring your FortiMail VM on page 48
- FortiMail VM backup on page 48

FortiMail VM console access

To enable GUI access to the FortiMail VM you must configure the port1 IP address and network mask of the FortiMail VM.

To configure the port1 IP address and netmask:

1. In the list of virtual machines, select the FortiMail VM that you deployed, right-click, and select *Connect* from the menu.
   The *Console* window appears



2. At the FortiMail VM login prompt enter the user name `admin` and password. The default password is no password.
3. To configure the port1 IP address and netmask, enter the following CLI commands:

```
config system interface
   edit port1
      set ip <ip-address-netmask>
end
```

The port management interface should match the first network adapter and virtual switch that you have configured in the Microsoft Hyper-V Server virtual machine settings.

The Customer Service & Support portal currently does not support IPv6 for FortiMail VM license validation. You must specify an IPv4 address in both the support portal and the port management interface.

Connecting to the FortiMail VM GUI

Once you have configured the port1 IP address and network mask, launch a web browser and enter the IP address you configured for the port management interface. At the login page, enter the user name `admin` and password and select *Login*. The default password is no password. The GUI will appear with an *Evaluation License* dialog box.

By default, the GUI is accessible via HTTPS.

Installing the FortiMail VM license

Every Fortinet VM includes a 15-day trial license. During this time the FortiMail VM operates in evaluation mode.

Before using the FortiMail VM you must activate it by installing a valid license.

Depending how your FortiMail VM is licensed, there two ways to you can install the license and activate the VM:

- If you get the license file from Fortinet Customer Service & Support portal upon registration, you can install it as described below.
- Starting from v7.6.2, FortiMail supports FortiFex tokens. FortiFlex (formerly Flex-VM) is a subscription service to configure and manage VM usage entitlements. Subscribers can create multiple sets of a single VM entitlement that corresponds to a licensed virtual machine. Each entitlement contains a base VM and one service bundle. Usage entitlements require a unique token to be installed on every VM. Once the VM configurations are defined and VM entitlements are created in the FortiFlex portal, a token is also generated. For details, see the FortiFlex documentation. Then you can enter the token as described below.

To install the license file or FortiFlex token

1. In the *License Information* widget on the FortiMail VM GUI, click the *Update* link to the right of *VM*.
2. For *Activation type*, select *License File* to install a license file, or select *FortiFlex Token* to install a token.
3. To install a license file, select *[Choose File...*, locate and select the license file (.lic) you downloaded earlier from Fortinet, and select*Open*.
   A message box appears stating your license is being authenticated. This may take a few minutes.
   If you uploaded a valid license, a second message box will appear informing you that your license authenticated successfully.
4. To install a FortiFlex token, enter the token you copied from the FortiFlex portal
5. Click *OK*.
   The system will reload and log out.
6. Log in again if prompted using `admin`, as the user name. The VM registration status appears as valid in the *License Information* widget once the license has been validated.

After an invalid license file or FortiFlex token is loaded to FortiMail VM, the GUI will be locked until a valid license or token is uploaded.

Configuring your FortiMail VM

Once the FortiMail VM license has been validated you can begin to configure your device. For more information on configuring your FortiMail VM, see the *FortiMail Administration Guide*.

FortiMail VM backup

In VM environments, we recommend that you use the Snapshot utility to back up the VM instance. In the event of an issue with upgrading or configuring firmware, you can use snapshots to revert the VM instance to a previous snapshot.

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