



FortiManager-VM v4.0 MR3 patch 1
System Guide



22 July 2011

02-42001-129770-20101011

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1. Overview of FortiManager-VM

FortiManager-VM is an integrated management platform encapsulated as a virtual appliance to enable organizations of any size to easily manage Fortinet products. The FortiManager-VM minimizes the administrative effort required to deploy, configure, and maintain the full range of network protection services to FortiGate units and FortiClient installations throughout your organization. The FortiManager-VM form factor eases deployment and provides increased security and reliability. FortiManager-VM also integrates seamlessly with FortiAnalyzer virtual and hardware-based appliances to complete the Fortinet central management solution; providing centralized logging and reporting services for Fortinet security networks. Using the FortiManager-VM, you can:

- configure multiple FortiGate and FortiMail units and FortiClient PCs
- configure and manage the FortiGate VPN policies
- monitor the status of multiple FortiGate units
- view and analyze the FortiGate logs
- update the virus and attack signatures
- provide web filtering and antispam service to the licensed FortiGate units as a local Fortinet Distribution Network (FDN) server.
- update the firmware images of the managed FortiGate units
- provide web portals for remote administrators and clients

This guide assumes that you are familiar with the FortiManager as well as the VMware products. It further assumes that VMware products are installed and ready to be used on the server and the client machine.

This chapter provides an overview of the FortiManager-VM and the prerequisites to installing the FortiManager-VM.

Prerequisites This guide assumes the reader has a thorough understanding of VMware concepts, terminology and procedures. VMware vSphere Hypervisor (ESX/ESXi) software must be installed prior to deploying FortiManager-VM virtual appliance. Refer to Table 1 for all prerequisites.

Ensure that the following requirements are met before you install the FortiManager-VM software.

Table 1. Prerequisites

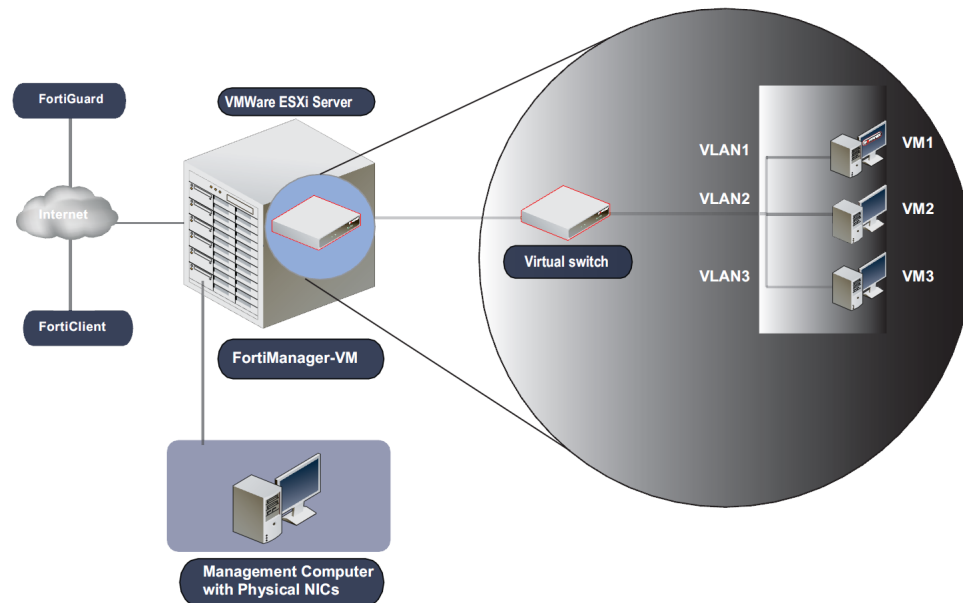
Requirement	Value
Hypervisor	VMware ESX/ESXi 3.5/4.0/4.1
Memory	512 MB (minimum)- 4GB (maximum)
CPU	1 virtual CPU - minimum
NIC	1 virtual NIC - minimum
Storage	60 GB - minimum

- Ensure that the VMware ESX/ESXi software is installed on a server **BEFORE** installing the FortiManager-VM software. For installation instructions, refer to the following web site:
<http://www.vmware.com/products/esxi>
- Ensure the VMware vSphere Client is installed on the client computer. This could be a desktop or a laptop that will be used to manage the devices.

Architecture of the FortiManager-VM

Following illustration shows the architecture of the FortiManager-VM.

Figure 1: Architecture of the FortiManager-VM



Licensing

When you place an order for FortiManager-VM, a registration number is sent to the email address used on the order form. You will need this registration number along with the IP address to be used for the FortiManager-VM installation to register with Forti-Care (<https://support.fortinet.com>). Once this is complete, you download the license file, which is used to activate the FortiManager-VM.

For new installations, the CLI and Web Config are locked until you enter a license. Once a valid license is entered, the CLI and Web Config are unlocked and fully functional.

Registering your Fortinet product

Before you begin to configure and customizing features, take a moment to register your Fortinet product at the Fortinet Technical Support web site at <https://support.fortinet.com>. After you register the product you can access many Fortinet customer services, such as firmware updates, technical support, and FortiGuard AntiVirus and other FortiGuard services.

Customer service & technical support

Fortinet Technical Support provides services designed to make sure that you can install your Fortinet products quickly, configure them easily, and operate them reliably in your network.

To learn about the technical support services provided by Fortinet, visit the Fortinet Technical Support web site at <https://support.fortinet.com>.

Training

Fortinet Training Services provide classes that quickly instruct you about your Fortinet product, and certify you to verify your knowledge level. Fortinet provides a number of courses and programs to serve the needs of customers and partners world-wide.

To learn more about the training services that Fortinet provides, visit the Fortinet Training Services web site at <http://campus.training.fortinet.com>, or send an email to training@fortinet.com.

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The Fortinet Technical Documentation web site, <http://docs.fortinet.com> provides the most current versions of Fortinet publications, as well as additional technical documentation such as technical notes.

Fortinet Knowledge Base

Additional Fortinet technical documentation is available from the Fortinet Knowledge Base. The knowledge base provides troubleshooting procedures, how-to articles, FAQs, technical notes, and more. Visit the Fortinet Knowledge Base at <http://kb.fortinet.com>.

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2. Installing FortiManager-VM



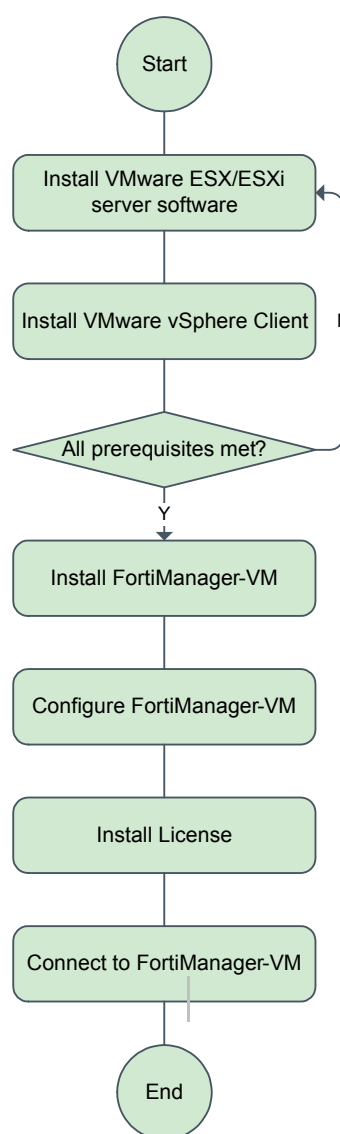
FortiManager-VM software must be installed on the VMware ESX/ESXi server which will be used to host the FortiManager-VM device. This chapter provides the details to install the FortiManager-VM.

VMware applications **MUST** be installed before you install FortiManager-VM. For more details, refer to <http://www.vmware.com/products/esxi>.

Overview of the Installation

Install the FortiManager-VM after installing the VMware ESX/ESXi server. The following flowchart outlines the basic steps of installing the FortiManager-VM.

Figure 2: Overview of Installing FortiManager-VM



Installing FortiManager-VM

Ensure the following prerequisites are met before installing the FortiManager-VM:

- You are familiar with the VMware products and can install the applications used. If you need more information, go to <http://www.vmware.com/products/vsphere-hypervisor/index.html> for detailed procedures.
- VMware vSphere Hypervisor software is installed on a server.
- VMware vSphere Client software is installed on the management computer; this can be a desktop or a laptop computer that will be used to manage the devices.

Getting the FortiManager-VM software

FortiManager-VM software is provided by Fortinet. Download and extract the FortiManager-VM.ovf file to the management computer.

- 1 From the link provided by Fortinet, download the virtual appliance to your computer.
- 2 Extract the files in the folder. The following table describes the files in the folder:

Table 2: Virtual appliance folder files

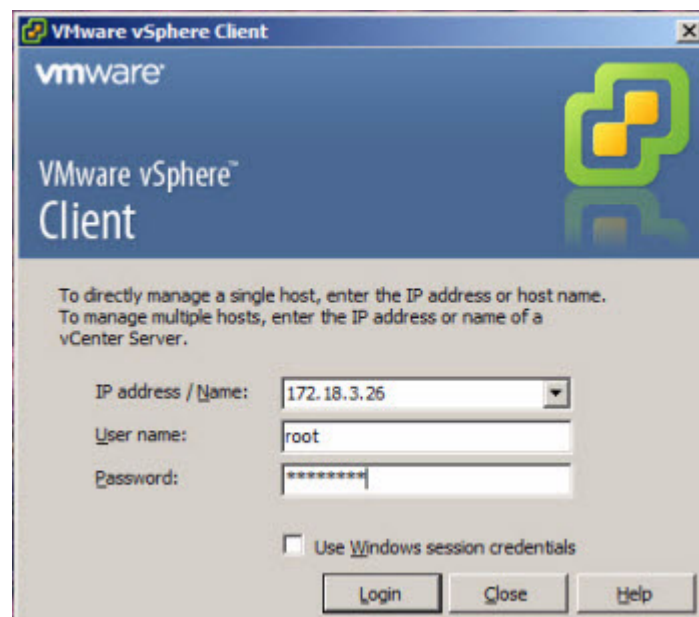
Filename	Description
datadrive.vmdk	Virtual disk.
FortiManager-VM.ovf	OVF file formatted to VMware VM version 4 (ESX/ESXi 3.5/4.0/4.1)
fmg.vmdk	Virtual disk.

Deploying the FortiManager-VM software

Using the VMware vSphere Client on the management computer, deploy the *FortiManager-VM.ovf* template:

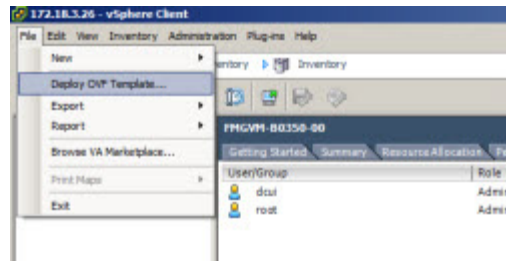
- 1 Launch the VMware vSphere Client on the management computer.
- 2 Enter the IP address, user name, and password of the ESX/ESXi server.

Figure 3: Entering login information.



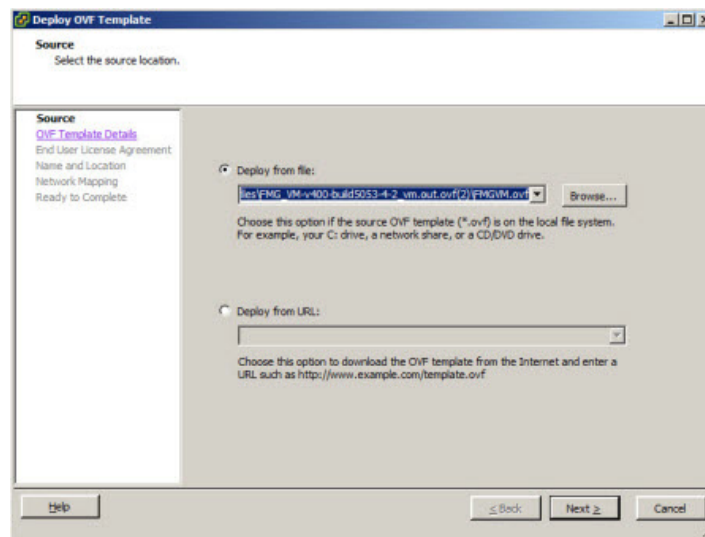
- 3 Deploy the *.OVF Template.
- 4 Go to *File > Deploy OVF Template*.

Figure 4: Deploying *.OVF file



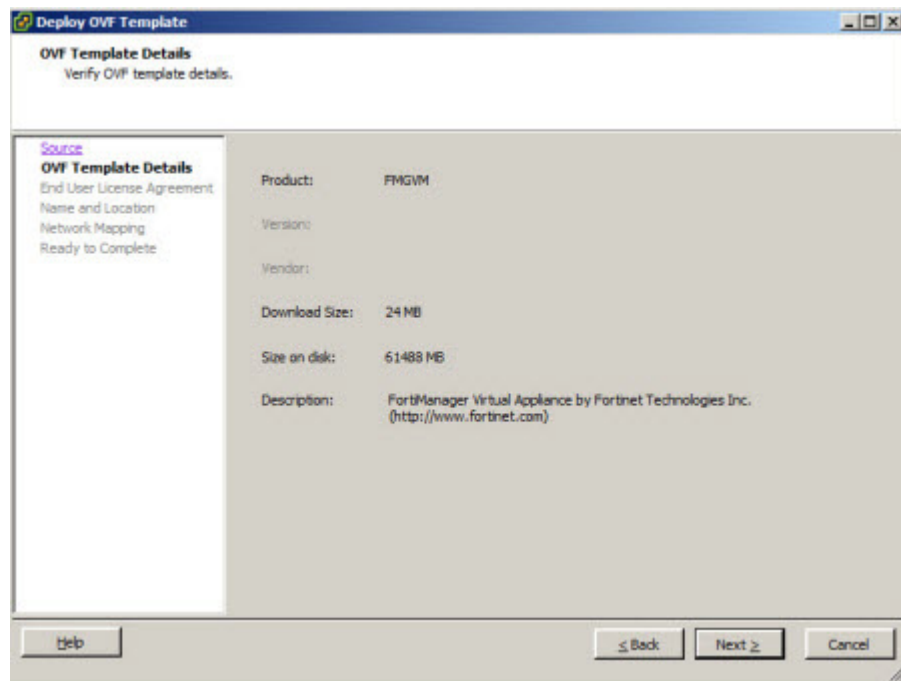
- 5 Browse to the *FortiManager-VM.ovf* file, and click *Next*.

Figure 5: Browsing to FortiManager-VM.OVF file



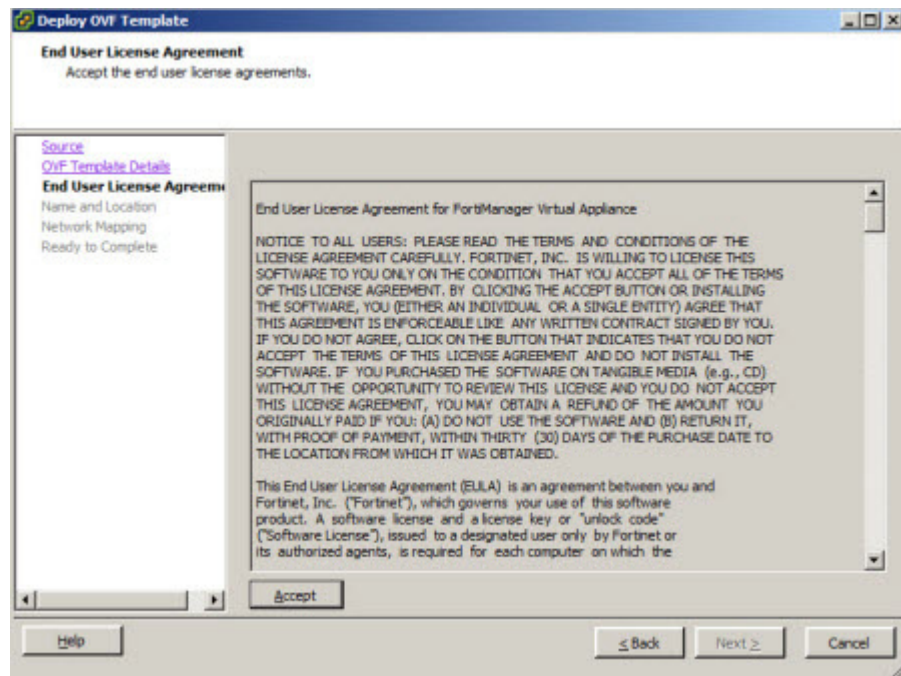
- 6 Install the FortiManager-VM software using the installation wizard.
- 7 Verify the OVF template details, and click *Next*.

Figure 6: Entering the OVF template details

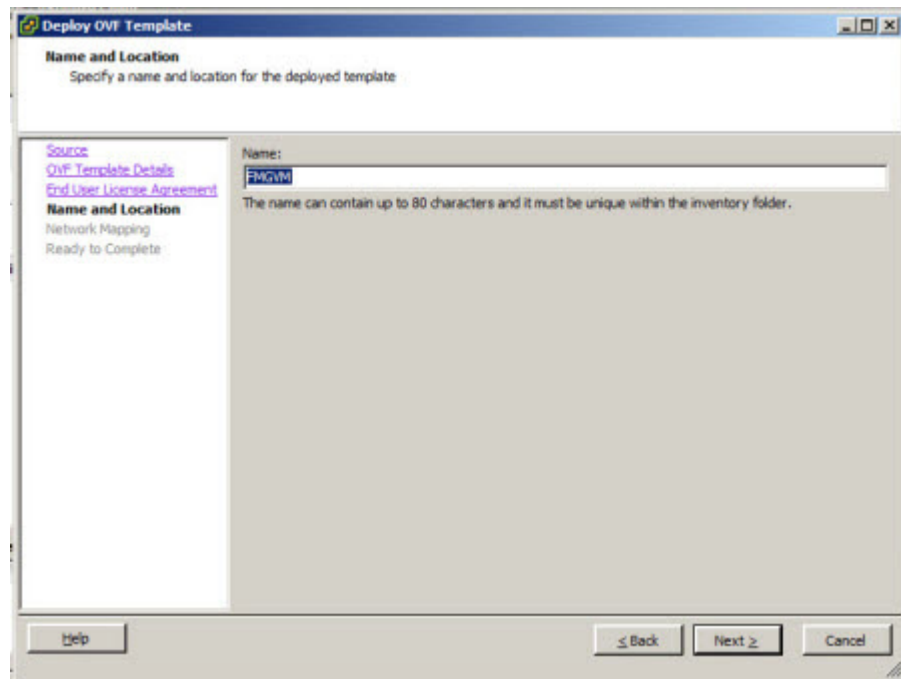


- 8 Read the *End User License Agreement* and click *Accept* at the bottom. Then click *Next*

Figure 7: Accepting the End User Agreement.



- 9 Enter a *name* for the deployed template. Click *Next*.

Figure 8: Entering the name of the file**10** Map the networks. Click *Next*.

By default, one source network is automatically mapped to the destination source network. For each source network, select a destination network from the drop-down list.

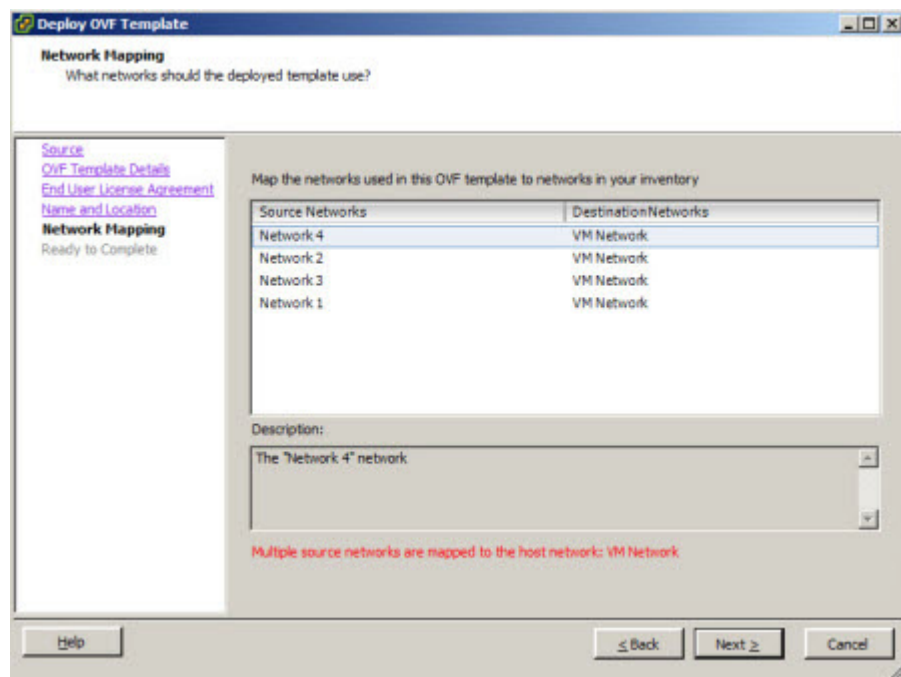
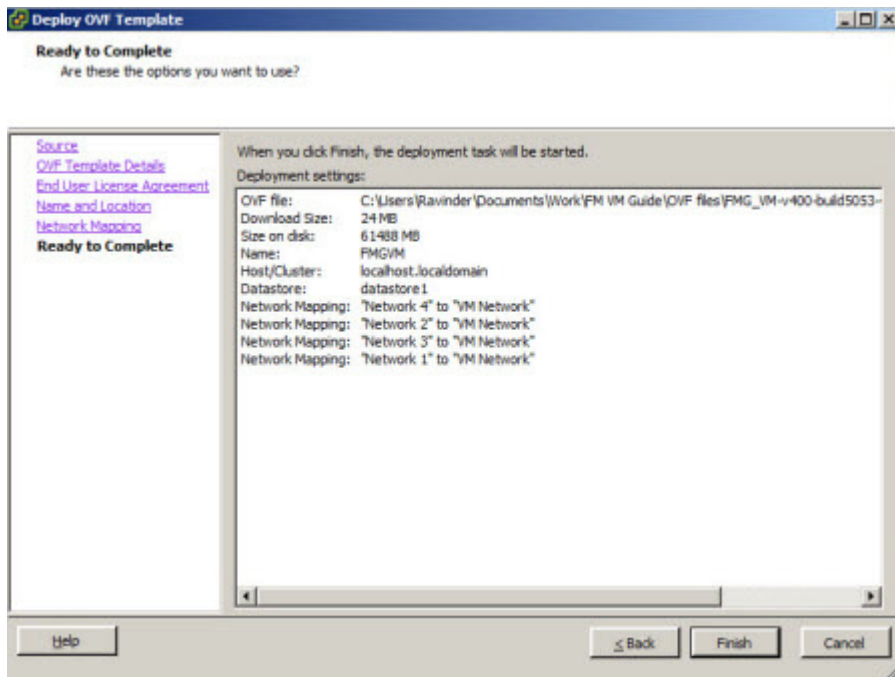
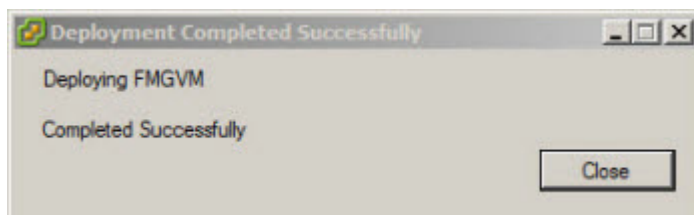
Figure 9: Mapping networks**11** After verifying the settings, click *Finish*. If you want to change the settings, click the *Back* button to change them.

Figure 10: Verifying the details



12 Click *Close* after you get the *Successfully Completed* message.

Figure 11: Completing the deployment



Logging in

After installing the FortiManager-VM, log in to the VMware vSphere Hypervisor (ESX/ESXi) and configure the FortiManager-VM settings

To log in to the VMware ESX/ESXi host:

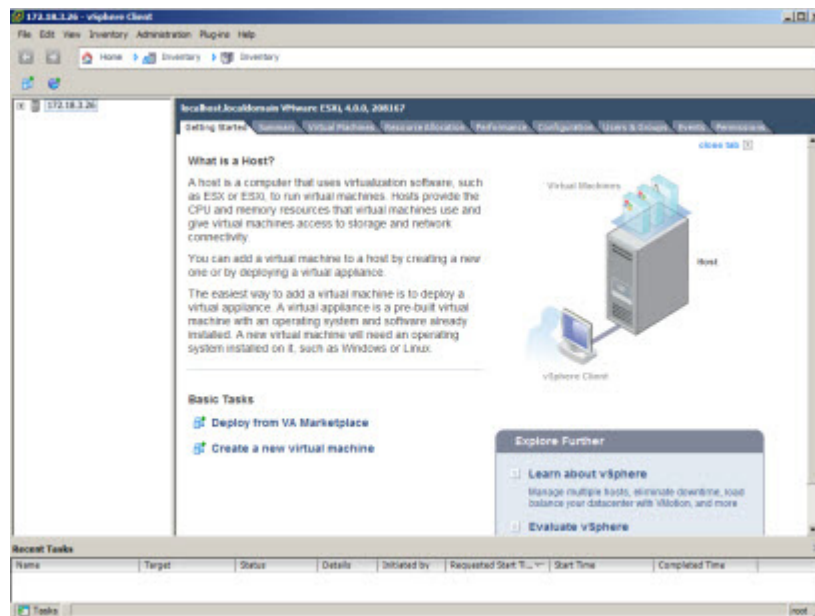
- 1 Open the VMware vSphere Client.
- 2 Enter the IP address, user name, and password and click *Login*.

Figure 12: Entering login information



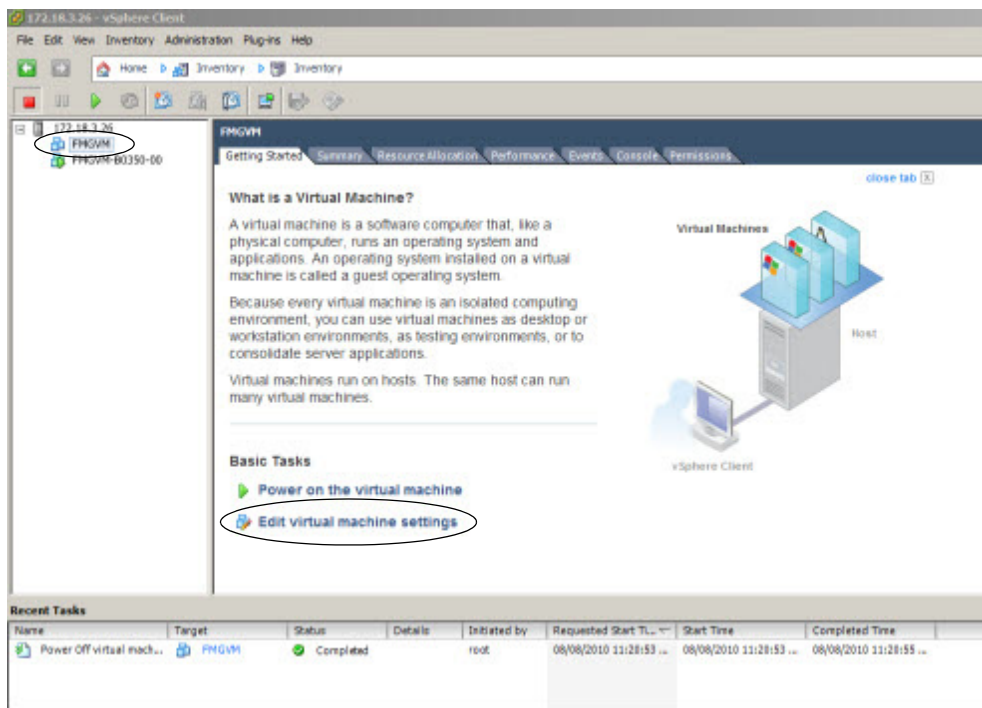
- 3 When you login, the first screen shows the *Getting Started* tab. From here you can do the following:

Figure 13: Using the Getting Started Tab



- In the left pane, *click* the + (plus) sign and you will see the FortiManager-VM you added during deployment.

Figure 14: Editing the Virtual Machine Settings



- Click *Edit virtual machine settings* to edit details of the CPUs, interfaces, video cards and other hardware information.
- Do not power on the FortiManager-VM if you want/need to change its default configuration.

Before powering on FortiManager-VM Virtual Appliance

Prior to powering on the FortiManager-VM virtual appliance, complete the following steps.

- If necessary, resize the disk (VMDK); see “[Resize disk \(VMDK\)](#)” on page 16
- Configure the number of virtual CPUs; see “[Configure the number of vCPUs](#)” on page 17.
- Set the RAM on virtual appliance; see “[Setting the virtual RAM](#)” on page 17.
- Configure the virtual network adaptor(s).

Resize disk (VMDK)

For your convenience, the FortiManager-VM deploys with pre-sized VMDK’s (Virtual Machine Disk Format). After you deploy the FortiManager-VM (see “[Deploying the FortiManager-VM software](#)” on page 10), you can change the size of the files before the initial startup and configuration. This may be necessary if you are planning to do a large amount of local logging. Before doing so, you need to understand the size limitations of your VMFS VM datastore (not relevant to NFS datastores). During the creation of a VM datastore, you have the following formatting options:

- 1 MB block size – 256 GB maximum file size
- 2 MB block size – 512 GB maximum file size
- 4 MB block size – 1024 GB maximum file size

- 8 MB block size – 2048 GB maximum file size

For example, if you select an 800 GB datastore which has been formatted with 1 MB block size, you won't be able to size a single virtual disk (VMDK) greater than 256 GB on your FortiManager-VM.

For more information of VMFS block sizing and recommendations, please see <http://communities.vmware.com/docs/DOC-11920>.

To resize the disk

- 1 Log in to the ESX/ESXi host
- 2 Open the VMware vSphere Client and enter the IP address, user name and password.
- 3 Click *Login*.
- 4 Highlight the FortiManager-VM in the left pane and click *Edit Settings*.
- 5 Click on *Hard disk 2* and edit the *Provisioned Size* as necessary up to current 2 TB VMware limit.
- 6 Click *Ok*.

Configure the number of vCPUs

After import, FortiManager-VM, by default, will be configured with 1 vCPU. You may re-configure this to be any value from 1 vCPU to 8 vCPUs dependent on your VMware license level.

For more information, see the VMware vSphere documentation at <http://www.vmware.com/products/vsphere-hypervisor/index.html>.

To change the number of vCPUs

- 1 Log in to the ESX/ESXi host
- 2 Open the VMware vSphere Client and enter the IP address, user name and password.
- 3 Click *Login*.
- 4 Highlight the FortiManager-VM in the left pane and click *Edit Settings*.
- 5 Click on *CPUs* and edit the number of virtual processors.
- 6 Click *Ok*.

Setting the virtual RAM

The FortiManager-VM comes pre-configured with 512 MB of RAM. You may change this value to be anywhere from 512 MB to the current limit of 4 GB.

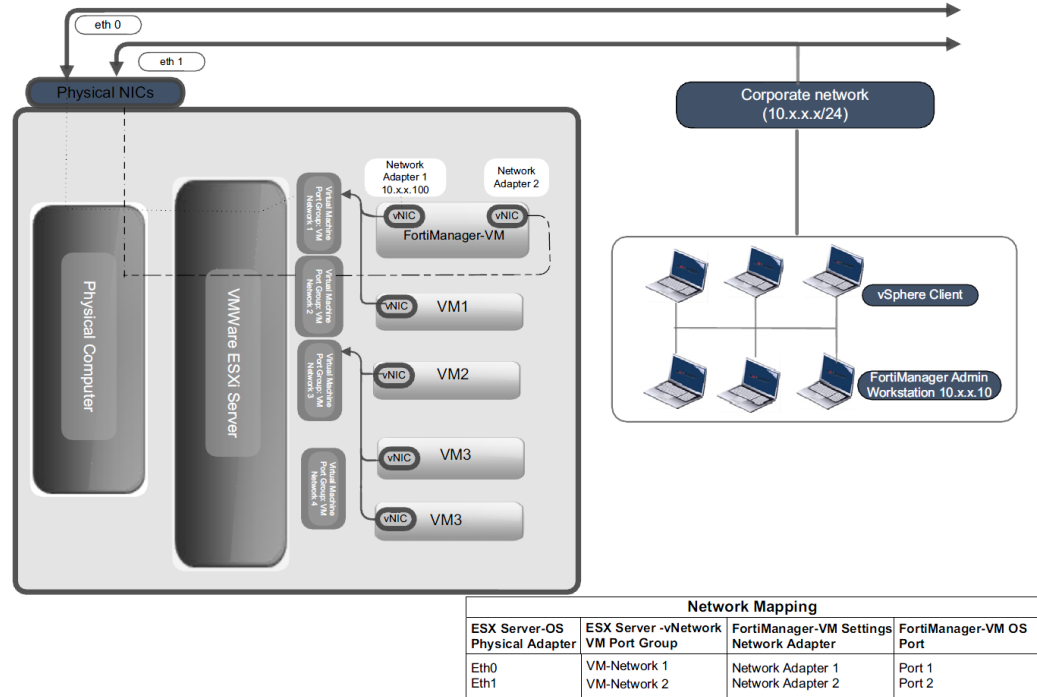
To change the amount of vRAM

- 1 Log in to the ESX/ESXi host
- 2 Open the VMware vSphere Client and enter the IP address, user name and password.
- 3 Click *Login*.
- 4 Highlight the FortiManager-VM in the left pane and click *Edit Settings*.
- 5 Click on *Memory* and edit the Memory Size.
- 6 Click *Ok*.

Configuring Virtual Networks

Mapping FortiManager-VM ports to physical ports depends on your existing virtual environment. When you deploy the FortiManager-VM OVF file, one Virtual Network Interface Card (vNIC) is automatically mapped to a port group on a virtual switch within the ESX/ESXi server. You can change the mapping, or map the other vNICs as required. The following diagram provides an example of how vNICs may be mapped to the ports on the VMware ESX/ESXi server.

Figure 15: Overview of Virtual Mapping



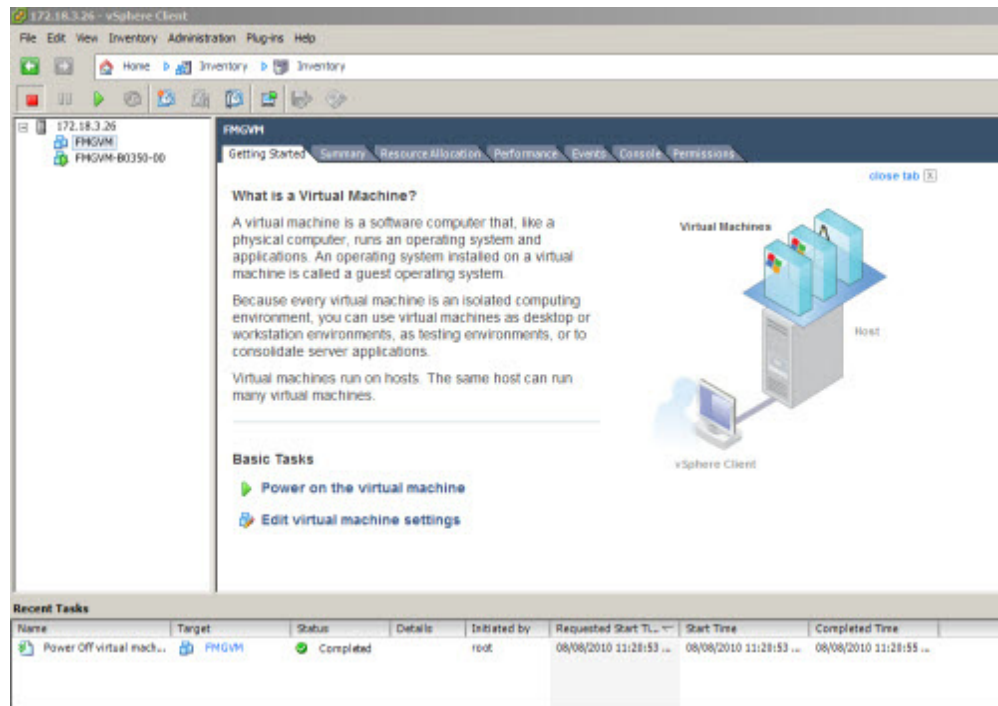
Configuring virtual network adapters

Virtual Machine ports can be mapped to port groups on virtual switches and subsequently mapped to ports on the ESX/ESXi server. To map virtual ports or change the existing virtual port configurations, edit the FortiManager-VM settings.

To map the network adaptors

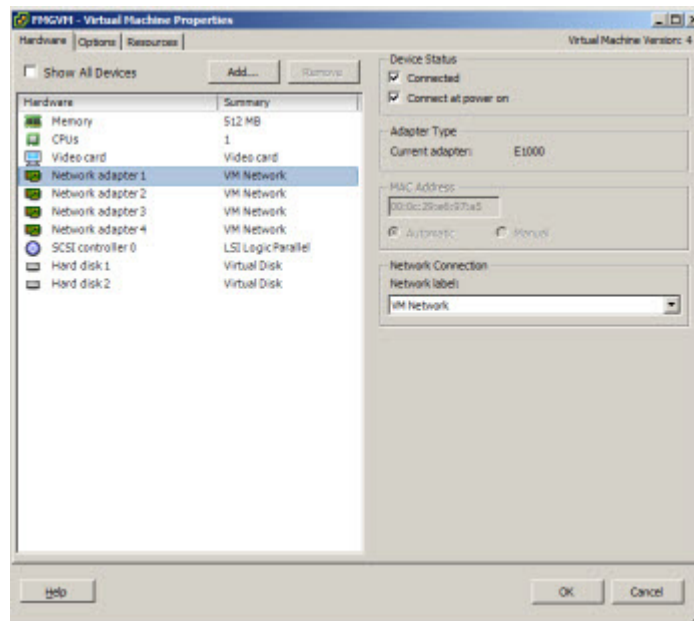
- 1 Log in to the ESX/ESXi host
- 2 Open the VMware vSphere Client and enter the IP address, user name and password.
- 3 Click *Login*.
- 4 Click *Edit Virtual Machine Settings* link.

Figure 16: Editing virtual machine settings



- 5 Network Adapters are mapped to a virtual port on virtual networks (VM Network).

Figure 17: Mapping the Network Adapters



- 6 Highlight a specific Network adapter to see its current settings.
- 7 Select the Network adapter and map it to an appropriate VM Network. This will depend on your configuration. For example, in the illustration above, *Network adapter 1* is mapped to "VM Network".
- 8 Click *Ok* when done.

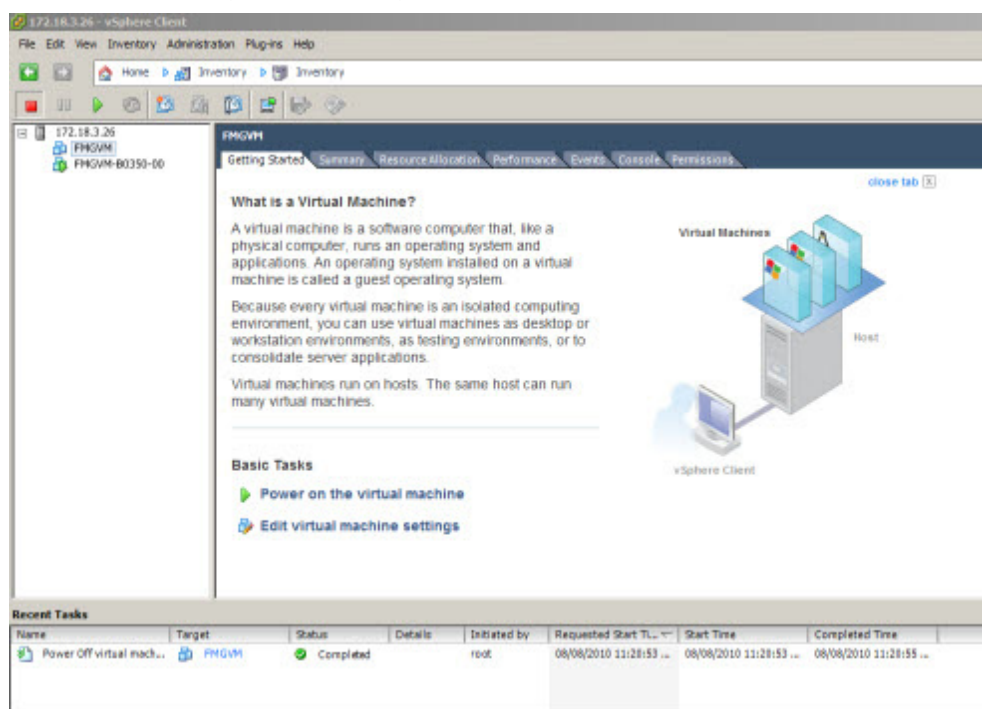
Powering on FortiManager-VM

Once deployed, power on the FortiManager-VM virtual machine and log in using the Console. In the Console, you have limited CLI commands available for the initial configuration until a valid license is entered through the Web-based manager. You can configure the internal interfaces, system DNS and the static router. After the initial configuration and successful validation of the license, you will be able to manage the device. This process is only done once, subsequent times you will be able to access the FortiManager-VM without needing to upload the license file again.

To power on FortiManager-VM:

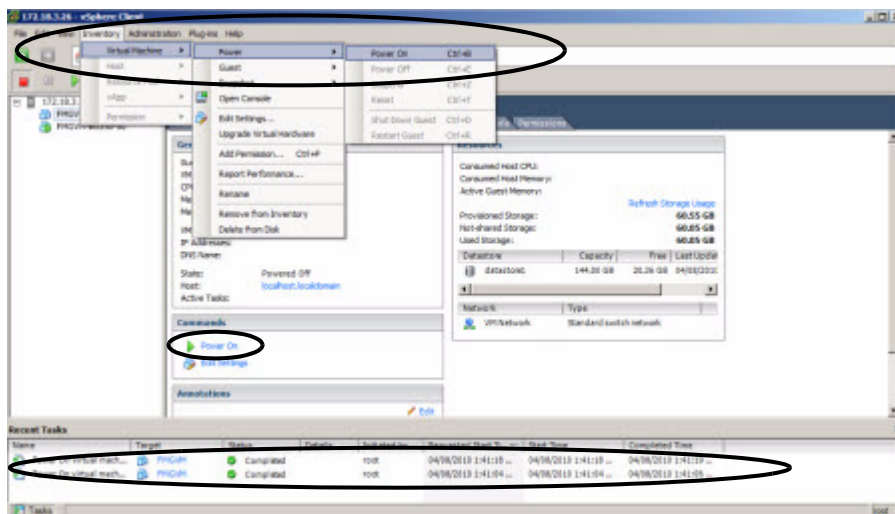
- 1 Open the VMware vSphere Client and enter the IP address, user name and password.
- 2 Click *Login*.
- 3 When you login, the first screen shows the *Getting Started* tab.
 - In the left pane, Click the + (plus) sign and you will see the FortiManager-VM you added during deployment.

Figure 18: Accessing the FortiManager-VM



- 4 To power on the Fortimanager-VM, you can do one of the following:
 - In the *Basic Tasks* section at the bottom of the pane, click *Power on the virtual machine* link.
 - Or in the menu, click *Inventory > Virtual Machine > Power > Power On*.
 - Or select the FortiManager in the left pane, and click *ctrl+B*.

Figure 19: Ways of powering on the FortiManager-VM



- The *Recent Tasks* section at the bottom of the screen shows the status of all recent tasks.

Configuring Port and Gateway IP address

- 1 Open the VMware vSphere Client and enter the IP address, user name and password.
- 2 Click *Login*.
- 3 Highlight the FortiManager-VM in the left pane.
- 4 Click *Power On*.
- 5 Select the *Console* tab.
It may take a few minutes for the FortiManager-VM to format.
- 6 At the FortiManager-VM login prompt, type `admin`. There is no password
- 7 Configure the FortiManager-VM internal interface. Type:


```
config fmsystem interface
  edit port1
    set ip <int_ip>/<netmask_ip>
  end
```
- 8 Configure the default gateway of the FortiManager-VM. Type:


```
config fmsystem route
  edit 1
    set device port1
    set gateway <gateway_ip>
  end
```
- 9 If necessary, configure the primary and secondary DNS server IP addresses. Type:


```
config fmsystem dns
  set primary <dns-server_ip>
  set secondary <dns-server_ip>
end
```

Uploading the License

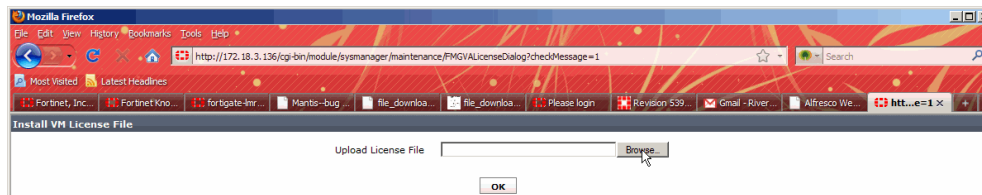
After the system interface has been configured in the Console, you can upload the license through the web browser in Web Config. A license cannot be entered in the CLI.

Before you can do that, you must get the licence file from Fortinet. You cannot perform any actions in the Web Config until you upload a license. After a valid license has been uploaded, the Web Config and the CLI are unlocked and fully functional.

To upload the licence

- 1 Open a web browser and enter the IP address of the FortiManager-VM. For example, `https://192.168.1.99`.
- 2 Type `admin` in the Name field and click *Login*. The screen opens showing the Install FortiManager-VM File.

Figure 20: Browsing to the license file



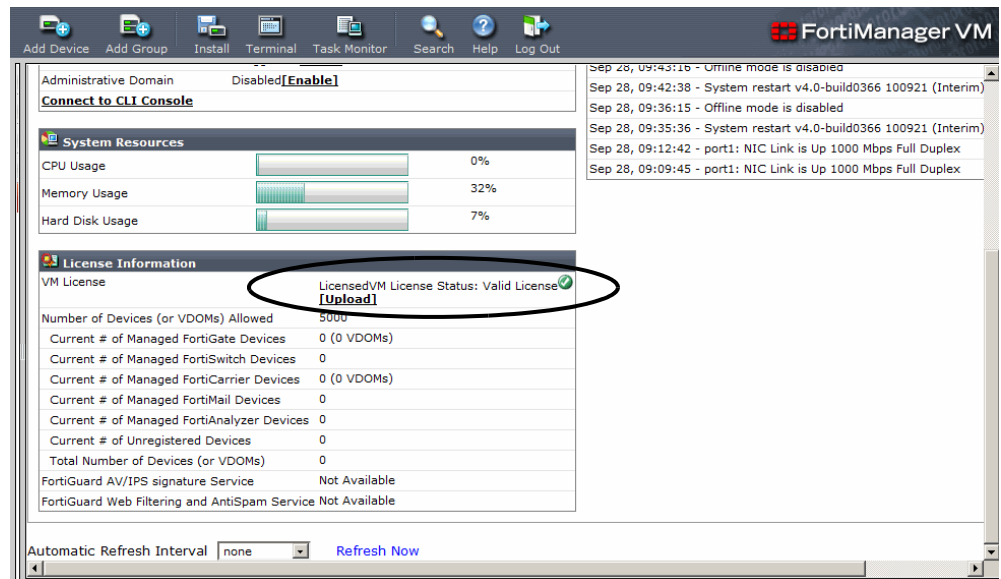
- 3 Browse to the location of the licence file, and click *OK*. The system will restart. This may take a few minutes.

Accessing Device Manager

Access the Device Manager from the browser.

- 1 Enter the IP address of the FortiManager-VM in the browser.
- 2 Enter the user name and password, and click *OK*.
- 3 In *System Settings* tab, click *General* and then *Dashboard*.
- 4 The valid VM License status is displayed on the *Dashboard* in *System Settings > General* tab

Figure 21: License validated



Chapter 2

FortiManager-VM is now setup and ready to use. For more information on how to use FortiManager, refer to the FortiManager Administration Guide or visit <http://docs.fortinet.com/fgt.html> for all FortiOS documentation.

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