Deploying FortiTester-VM on ESXi

FORTINET DOCUMENT LIBRARY

https://docs.fortinet.com

FORTINET VIDEO GUIDE

https://video.fortinet.com

FORTINET BLOG

https://blog.fortinet.com

CUSTOMER SERVICE & SUPPORT

https://support.fortinet.com

FORTINET TRAINING & CERTIFICATION PROGRAM

https://www.fortinet.com/support-and-training/training.html

NSE INSTITUTE

https://training.fortinet.com

FORTIGUARD CENTER

https://fortiguard.com/

END USER LICENSE AGREEMENT

https://www.fortinet.com/doc/legal/EULA.pdf

FEEDBACK

Email: techdoc@fortinet.com

F⊡RTINET®

Deploying FortiTester-VM on ESXi

TABLE OF CONTENTS

About FortiTester-VM on VMware ESXi

Overview

FortiTester™ appliances offer enterprises and service providers a cost-effective solution for performance testing and validating their network security infrastructure and services, providing a comprehensive range of application test cases to evaluate equipment and right-size infrastructure. All test functionality is included in one simple device-based license.

FortiTester provides powerful yet easy-to-use test cases that simulate many applications and a case history browser for simple analysis. It enables you to establish performance standards and run audits to validate they continue to be met. The virtual appliance version provides an ideal tester for NFV and SDN environments.

About this document

This document provides the following information:

- How to deploy a FortiTester-VM in a VMware ESXi environment. To learn how to deploy FortiTester-VM on public cloud platforms, see https://docs2.fortinet.com/vm/product/fortitester.
- How to configure any required virtual hardware settings. For hypervisor deployments, it assumes you have already successfully installed a virtualization server on the physical machine or the required EC2 environment.

This document does **not** cover initial configuration of the virtual appliance, nor ongoing use and maintenance. After deploying the virtual appliance, for information on initial appliance configuration, see FortiTester Handbook.

This document is intended for administrators, not end users. If you have a user account on a computer that accesses websites through a FortiTester appliance, please contact your system administrator.

System requirements

FortiTester-VM supports the following hypervisor versions:

- VMware vSphere Hypervisor ESX/ESXi 6.0/6.5/6.7

For best performance in hypervisor deployments, install FortiTester-VM on a "bare metal" (type 1) hypervisor. Hypervisors that are installed as applications on top of a general purpose operating system (Windows, Mac OS X or Linux) host have fewer computing resources available due to the host OS's own overhead.

To ensure high performance, it's recommended to deploy FortiTester on the machine types with minimum 4 vCPUs, and memory size larger than 8 GB.

For hypervisor deployments, hardware-assisted virtualization (Intel VT or AMD-V) must be enabled in the BIOS. You must also have the VM environment client, such as VMware vSphere Client, installed on a management computer. (A management computer is a desktop or a laptop that you use to deploy and manage your virtual machines.)

Downloading the FortiTester-VM license & registering with Technical Support

For Hypervisor deployments, when you purchase FortiTester-VM from your reseller, you receive an email that contains a registration number. You use this number to download the software and your purchased license, and also to register your purchase for technical support.

Many Fortinet customer services such as firmware updates, technical support, and FortiGuard services require product registration.

For details, see the Fortinet Knowledge Base article Registration Frequently Asked Questions.

To register & download your FortiTester-VM license

1. On your management computer, start a web browser.
2. Log in to the Fortinet Technical Support website:
   https://support.fortinet.com/
3. In the **Asset Management** quadrant of the page, click **Register/Renew**.
4. Provide the registration number that was emailed to you when you purchased the software. Registration numbers are a hyphenated mixture of 25 numbers and characters in groups of 5. For example:
   `12C45-AB3DE-678G0-F9HIJ-123B5`

   A registration form is displayed.
5. Complete the form to register your ownership of FortiTester-VM with Technical Support.
   After you complete the form, a registration acknowledgment page is displayed.
6. Click the **License File Download** link.
   Your browser downloads the `.lic` file that was purchased for that registration number.
7. Download the FortiTester-VM software following Downloading the FortiTester-VM software on page 7.

Downloading the FortiTester-VM software

To download your FortiTester-VM software

1. On the main page of the Fortinet Technical Support website, under **Download**, click **Firmware Images**.
2. Click the FortiTester link and navigate to the version that you want to download.
3. Download the appropriate `.zip` file.
   You use this file for **new virtual appliance (VM)** installations. It contains a deployable virtual machine package. (`.out` image files are for upgrades of existing installations only, and cannot be used for a new installation.)

   > Files for FortiTester-VM have a `FTS_VM` file name prefix. Other prefixes indicate that the file is for hardware versions of FortiTester such as FortiTester 3000E. These hardware versions are not used with FTS-VM.

   > If you have a library of virtual machine images stored on a CIFS or NFS share, download and unzip the folder there instead of on your management computer. When deploying the VM, you can also use a CIFS or NFS network share as the storage repository instead of a vDisk stored locally, on the hypervisor's disk.

4. Extract the `.zip` compressed archive's contents to a folder.
5. Continue by deploying the virtual appliance package using the appropriate deployment instructions in this guide.
   For example, see Deploying FortiTester-VM on VMware vSphere on page 8.

Deploying FortiTester-VM on VMware vSphere

Deploying the OVF file

Before you can configure FortiTester-VM, you must first use VMware vSphere Web Client to deploy the FortiTester-VM OVF package.

To deploy the virtual appliance

1. On your browser, login to ESXi management system.

2. Go to **Virtual Machines > Create/Register VM**.

3. In the **New virtual machine** window, click **Deploy a virtual machine from OVF or OVA file**.

4. For **Select OVF and VMDK files**, click **Click to select files or drag/drop**.

5. Enter a name for the virtual machine, and select the FortiTester-VMX-4U.ovf and all the .vmdk files. Click **Next**.
   Note: FortiTester-VMX-4U.ovf is for VM04.

6. For **Select storage**, click **Next**.

7. For **License agreements**, click **I agree > Next.**

8. For **Deployment options**, change the VM Network according to your network environment, uncheck **Power on automatically**, and click **Next**.
   VM Network 1: It is used for management network.
   VM Network 2: It is used for traffic network.

9. For **Ready to complete**, click **Finish**.
   The wizard closes. The client connects to the VM environment and deploys the OVF to it. Time required depends on your computer's hardware speed and resource load, and also on the file size and speed of the network connection, but might take several minutes to complete.
   The vSphere Client window reappears. The navigation pane's list of virtual machines on the left now should include your new instance of FortiTester-VM.
   Continue with Configuring the virtual appliance's virtual hardware settings.

Do **not** power on the virtual appliance **until** you:

- Resize the virtual disk (VMDK) (see Resizing the virtual disk (vDisk))
- Set the number of vCPUs (see Configuring the number of virtual CPUs (vCPUs))
- Set the vRAM on the virtual appliance (Configuring the virtual RAM (vRAM) limit)

These settings cannot be configured inside FortiTester-VM, and must be configured in the VM environment. **Some settings cannot be easily reconfigured after you power on the virtual appliance.**

Configuring the virtual appliance's virtual hardware settings

After installing FortiTester-VM, log in to VMware vSphere on the server and configure the virtual appliance's hardware settings to suit the size of your deployment. For sizing guidelines, contact your reseller or Fortinet Technical Support.

For information on the limits of configurable values for FortiTester-VM, see FortiTester Handbook.

Resizing the virtual disk (vDisk)

If you configure the virtual appliance's storage repository to be internal (i.e. local, on its own vDisk), resize the vDisk before powering on.

The FortiTester-VM package that you downloaded includes presized VMDK (Virtual Machine Disk Format) files. However, they are only 32 GB, which is not large enough for most deployments. **Resize the vDisk before powering on the virtual machine.**

Before doing so, make sure that you understand the effects of your vDisk settings.

For example, if you have an 800 GB data store which has been formatted with 1 MB block size, you cannot size a single vDisk greater than 256 GB on your FortiTester-VM.

Consider also that, depending on the size of your organization's network, you might require more or less storage for your auto-learning data, anti-defacement backups, scan results, and reports.

For more information on vDisk sizing, see:

http://communities.vmware.com/docs/DOC-11920

To resize the vDisk

> ⚠️ If you are resizing the disk for an existing deployment of FortiTester-VM, back up the logs and other non-configuration data **before** beginning this procedure. **Formatting the disk will delete all data on that disk.** For backup instructions, see FortiTester Handbook.

> 🛠️ While resizing the vDisk, the FortiTester-VM must be powered off.

1. On your browser, log in to ESXi management system.
2. Click **Virtual Machines**, and select the FortiTester-VM for example.
3. For your FortiTester-VM portal, click **Edit**.
4. In the **Edit settings** window, change the **Hard disk 2 size**.

> 🛠️ Do not change the Hard disk 1 setting, that will damage the system.

5. Click **Save**.
6. If you do not need to change the other resources, continue with Powering on and powering off the virtual appliance.

Configuring the number of virtual CPUs (vCPUs)

By default, the virtual appliance is configured to use 4 vCPU. Depending on the FortiTester-VM license that you purchased, you can allocate up to 2, 4, 8, 16, or 32 vCPUs.

💡	If you need to increase or decrease the vCPUs after the initial boot, power off FortiTester-VM, adjust the number of vCPUs, then see Uploading the license on page 13.

For FortiTester-VM deployed on an ESXi hypervisor, when you set the number of vCPUs to 8, you also change the default CPU affinity settings (which restrict the virtual machines to a subset of the available processors). This additional configuration can help prevent performance problems.

For more information on vCPUs, see VMware vSphere documentation.

To change the number of vCPUs

💡	While resizing the vCPU, the FortiTester-VM must be powered off.

1. On your browser, log in to ESXi management system.
2. Click **Virtual Machines**, and select the FortiTester-VM for example.
3. For your FortiTester-VM portal, click **Edit**.
4. In the **Edit settings** window, change the **CPU number**.
5. Click **Save**.
6. If you do not need to change the other resources, continue with Powering on and powering off the virtual appliance.

Configuring the virtual RAM (vRAM) limit

FortiTester-VM comes pre-configured to use 8 GB of vRAM. You can change this value.

💡	It is possible to configure FortiTester-VM to use less vRAM, such as 4 GB. However, for performance reasons, it is not recommended.

To change the amount of vRAM

🛠	While resizing the vRAM, the FortiTester-VM must be powered off.

1. On your browser, log in to ESXi management system.
2. Click **Virtual Machines**, and select the FortiTester-VM for example.
3. For your FortiTester-VM portal, click **Edit**.
4. In the **Edit settings** window, change the **Memory** size.
5. Click **Save**.
6. If you do not need to change the other resources, continue with Deploying FortiTester-VM on VMware vSphere on page 8.

Powering on and powering off the virtual appliance

Once the virtual appliance's package has been deployed and its virtual hardware is configured, you can power on the virtual appliance.

Do **not** power on the virtual appliance **unless** you have already mapped the virtual network adapter(s) . You may also want to:

- Resize the virtual disk (VMDK) (see Resizing the virtual disk (vDisk))
- Set the number of vCPUs (see Configuring the number of virtual CPUs (vCPUs))
- Set the vRAM on the virtual appliance (Configuring the virtual RAM (vRAM) limit)

These settings cannot be configured inside FortiTester-VM, and must be configured in the virtual machine environment.

To power on FortiTester-VM

1. On your browser, log in to ESXi management system.
2. Click **Virtual Machines**, and select the FortiTester-VM for example.
3. Click **Power on**.
4. Continue with Configuring access to FortiTester's web UI & CLI.

To power off FortiTester-VM

1. On your browser, log in to ESXi management system.
2. Click **Virtual Machines**, and select the FortiTester-VM for example.
3. Click **Action > Power**.
4. Select to power off or reset the appliance.

Configuring access to FortiTester's web UI & CLI

For hypervisor deployments, after the virtual appliance is powered on, you log in to the FortiTester-VM command line interface (CLI) via the console and configure basic network settings so that you can connect to the appliance's web UI, CLI, or both through your management computer's network connection.

To configure basic network settings for FortiTester-VM deployed on a hypervisor

1. On your management computer, start VMware vSphere Client in which you have deployed FortiTester-VM.
2. On the browser, log in to the VM server.
3. Open the console of the FortiTester-VM virtual appliance.
4. At the login prompt for the local console, type:
   ```
   admin
   ```
5. Press **Enter** twice. (Initially, there is no password.)
6. Configure the IP address and netmask of the network interface named `mgmt`, or whichever network interface maps to the network physically connected to your management computer. Type:
   ```
   config system interface
     edit mgmt
        set ip <address_ip> <netmask_ip>
   end
   ```
   where:
   - `<address_ip>` is the IPv4 address assigned to the network interface, such as 192.168.1.99; the correct IP will vary by your configuration of the vNetwork.
   - `<netmask_ip>` is its netmask in dotted decimal format, such as `255.255.255.0`.
7. Configure a static route with the default gateway. Type:
   ```
   config system route
     set gateway <router_ip>
   end
   ```
   where `<router_ip>` is the IP address of the gateway router.

   You should now be able to connect via the network from your management computer to `mgmt` of FortiTester

   -VM using:
   - a web browser for the web UI (e.g. If `mgmt` has the IP address 192.168.1.1, go to https://192.168.1.1/)
   - an SSH client for the CLI (e.g. If `mgmt` has the IP address 192.168.1.1, connect to 192.168.1.1 on port 22.)
8. Continue by uploading the license file. (See).

Uploading the license

To upload the license via the web UI

1. On your management computer, start a web browser.
   For hypervisor installations, your computer must be connected to the same network as the hypervisor.

2. Do one of the following:
   - For hypervisor deployments, in your browser's URL or location field, enter the IP address of `mgmt` of the virtual appliance, such as:
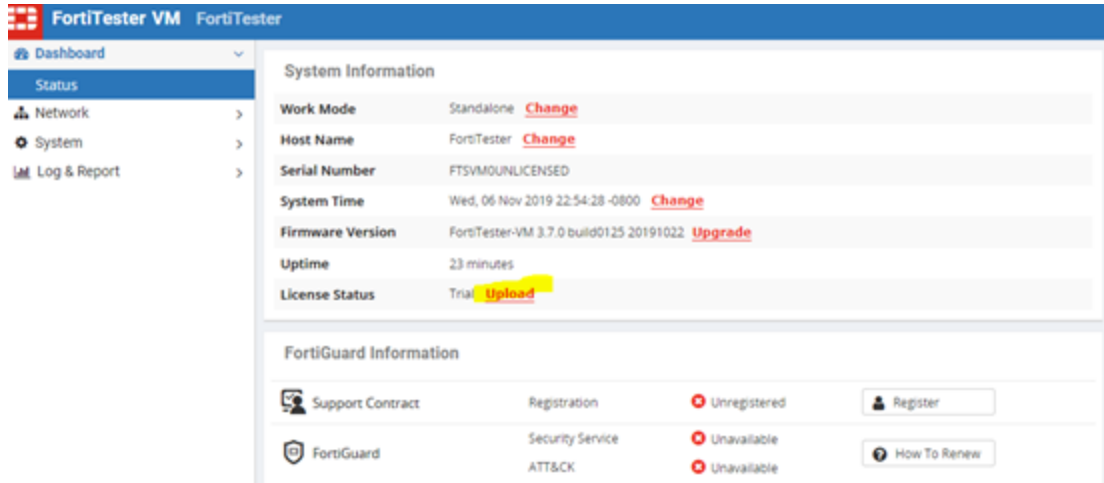
     `https://192.168.1.99/`

   - For FortiTester-VM deployed on AWS, access the web UI using the public DNS address displayed in the instance information for the appliance in your AWS console.

     For example, if the public DNS address is `ec2-54-234-142-136.compute-1.amazonaws.com`, you connect to the web UI using the following URL:

     `https://ec2-54-234-142-136.compute-1.amazonaws.com/`
   Your browser connects the appliance. The web UI's login page appears.

The web UI initially displays its dashboard, **System > Dashboard > Status**. The System Information widget displays the current license status and contains a link where you can upload a license file.

F₩RTINET