Nutanix Installation Guide

FortiSandbox 4.2.0

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About FortiSandbox VM on Nutanix

FortiSandbox VM is a 64-bit virtual appliance version of FortiSandbox that is deployed in a virtual machine environment. After you deploy and set up the virtual appliance, you can manage FortiSandbox VM via its GUI in a web browser on your management computer.

This guide provides information about deploying a FortiSandbox VM in a Nutanix environment.

This guide assumes that you have a thorough understanding of virtual servers. This guide does not cover configuration and operation of the virtual appliance after it is installed. For that information, see the *FortiSandbox Administration Guide* in the Fortinet Document Library.

Licensing

FortiSandbox VM licenses are stackable so that you can expand your VM solution as your needs grow. For information on purchasing FortiSandbox VM licenses, contact your Fortinet Authorized Reseller, or visit https://www.fortinet.com/how_to_buy/.

When configuring FortiSandbox VM hardware settings, use the following table as a guide with consideration for future expansion.

Technical Specification	Details
Hypervisor support	VMware ESXi version 5.1, 5.5, 6.0, or later Kernel Virtual Machine (KVM) Microsoft Hyper-V Nutanix Citrix XenServer [[[Undefined variable FortinetVariables.XenServer]]] or later
HA support	FortiSandbox 3.1.1 or later
Virtual CPUs (min / max)	4 / Unlimited Fortinet recommends four virtual CPUs plus the number of Windows VMs.
Virtual Network Interfaces	6
Virtual Memory (min / max)	8GB / Unlimited Fortinet recommends 8GB plus 3GB for every Windows VM clone.
Virtual Storage (min / max)	200GB / 16TB Fortinet recommends at least 1TB for a production environment.

For more information, see the FortiSandbox product data sheet at https://www.fortinet.com/content/dam/fortinet/assets/data-sheets/FortiSandbox.pdf.

After you order a FortiSandbox VM license, Fortinet sends a license registration code to the email address in the order. Use that license registration code to register the FortiSandbox VM with Customer Service & Support at https://support.fortinet.com.

After registration, you can download the license file. You need this file to activate your FortiSandbox VM. You can configure basic network settings using CLI commands to complete the deployment. When the license file is uploaded and validated, the CLI and GUI will be fully functional.

FSA-VM and FSA-VM00

The FSA-VM00 model replaces the older FSA-VM model.

For the FSA-VM00 model, the base license does not contain a Windows license key. You can purchase Windows license keys to activate Windows VMs. For example, if you only want to use Window 8 VMs, you can purchase only Windows 8 license keys. This model allows a maximum of eight Windows clones. The serial number for FSA-VM00 models starts with *FSAVM0*.

You cannot purchase licenses for the FSA-VM model anymore. However, you can still upgrade existing installations with new firmware releases. The base FSA-VM license contains four Windows license keys for four Windows VMs. You can purchase 50 more Windows license keys to run up to 54 Windows clones. FSA-VM model serial number starts with *FSA-VM*.

Deployment

Before deploying the FortiSandbox VM, install and configure the VM platform so that it is ready to create virtual machines.

You might also need to refer to the documentation provided with your VM server. The deployment information in this guide is provided as an example since there are different ways of creating a virtual machine, such as command line tools, APIs, alternative graphical user interface tools.

Before you start your FortiSandbox VM appliance for the first time, you might need to adjust virtual disk sizes, networking settings, and CPU configuration. The first time you start FortiSandbox VM, you have access only through the console window of your VM server environment. After you configure one network interface with an IP address and administrative access, you can access the FortiSandbox VM GUI. See Enabling GUI access on page 11.

Deploying FortiSandbox VM on Nutanix

After you have downloaded and uncompressed the deployment packages, you can deploy FortiSandbox VM in your Nutanix environment.

Download deployment packages

To download the firmware package:

1. Log into the Customer Service & Support site.
2. From the *Download* dropdown list, select *VM Images* to access the available VM deployment packages.
3. From the *Select Product* dropdown list, select *Other*.
4. Click *To download other firmware images, please click here*.
5. In the *Select Product* dropdown list, select *FortiSandbox*.
6. Click the *Release Notes* tab and download the release notes for your product.
7. Click the *Download* tab and find the deployment package zip file for your product.
8. If you want to download the MIB files, go to the *MIB* directory.
9. To download the firmware package, click the HTTPS link beside the zip file for your product.
   To upgrade an existing FortiSandbox VM installation, download the `.out` file.
10. Extract the package file to a new folder on your management computer.

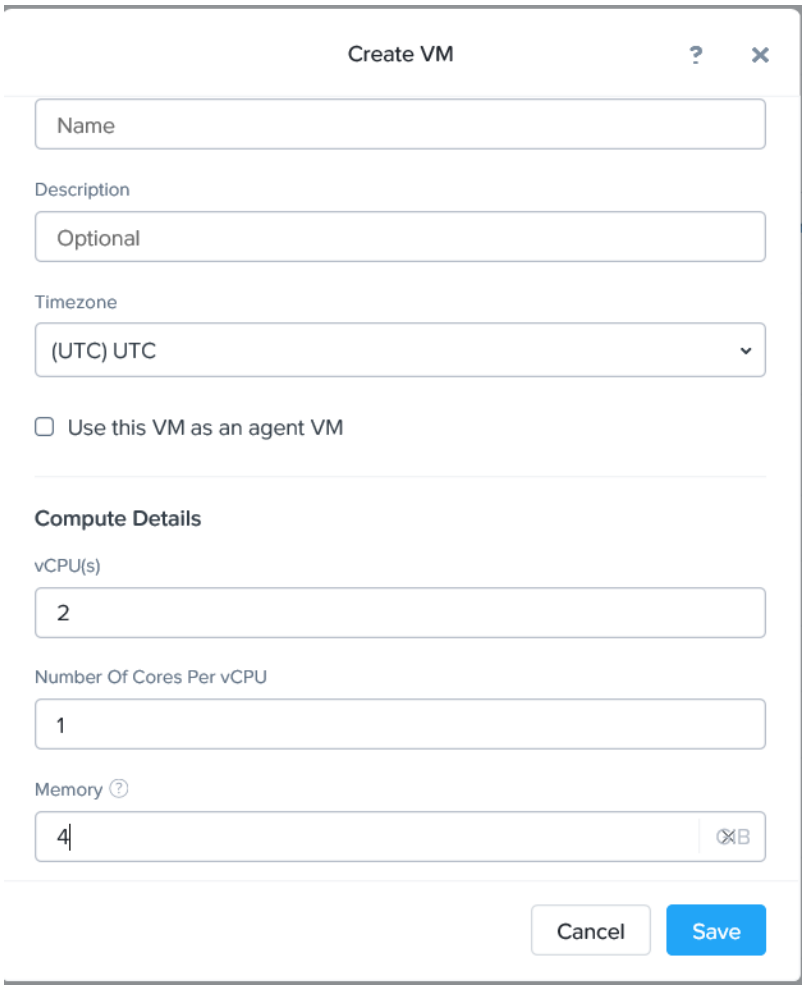
Uploading the FortiSandbox deployment image to Nutanix

1. Launch the Prism Element web console.
2. Go to *Settings* > *Image Configuration*.

3. Upload the FortiSandbox image by clicking *Upload Image*.
   - For *Name*, enter *FortiSandbox*.
   - For *Image Type*, select *Disk*.
4. In the *Image Source* window, click *Upload a file*.
5. Select the `image.out.qcow2` image file downloaded in Download deployment packages on page 6.
6. Click *Save*.
7. When you see the newly created VM image in the list, check to confirm that its state is active.

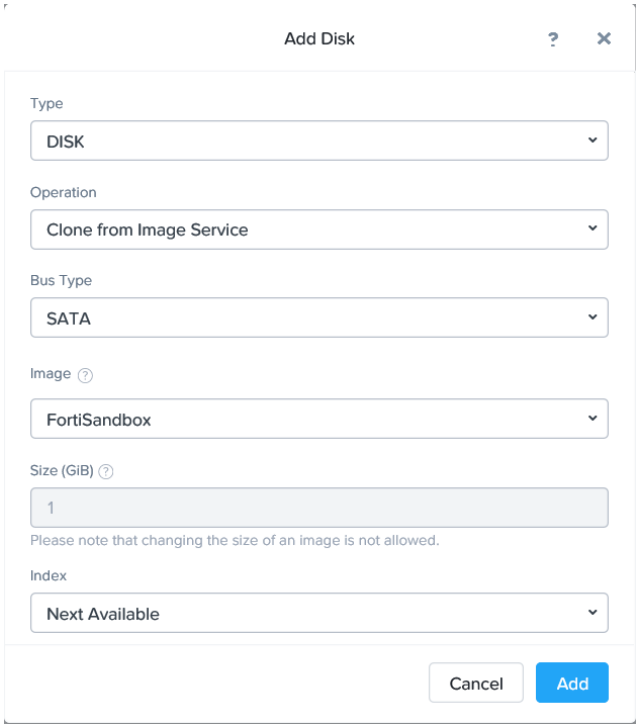
Creating the FortiSandbox deployment image

1. In the Prism Element web console, go to *VM* > *Create VM* and configure the following:
   - For *NAME*, enter a name for your VM, such as *FortiSandbox-VM*.
   - For *vCPU(s)*, enter *2*.
   - For *Memory*, enter *4*.

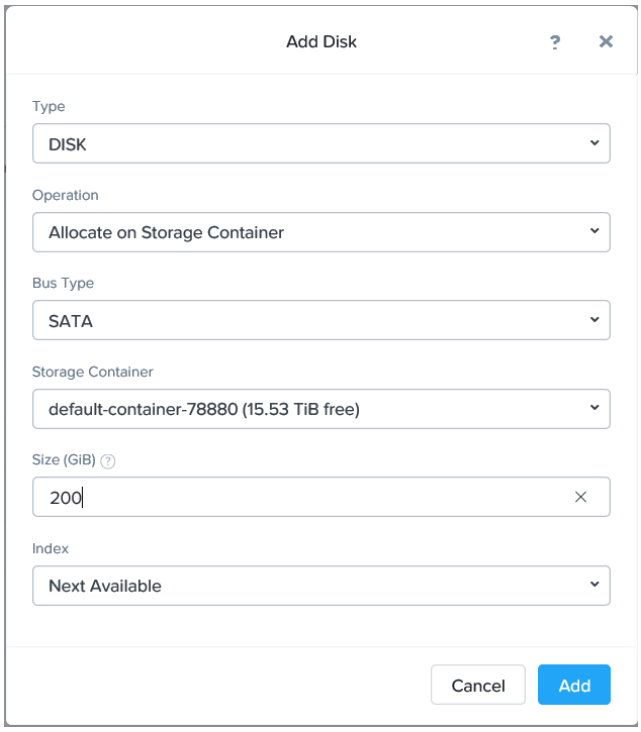


2. Delete the default CD-ROM listed under *Disks*.
3. You must create a boot disk and a data disk for the VM. First, let's create the boot disk.

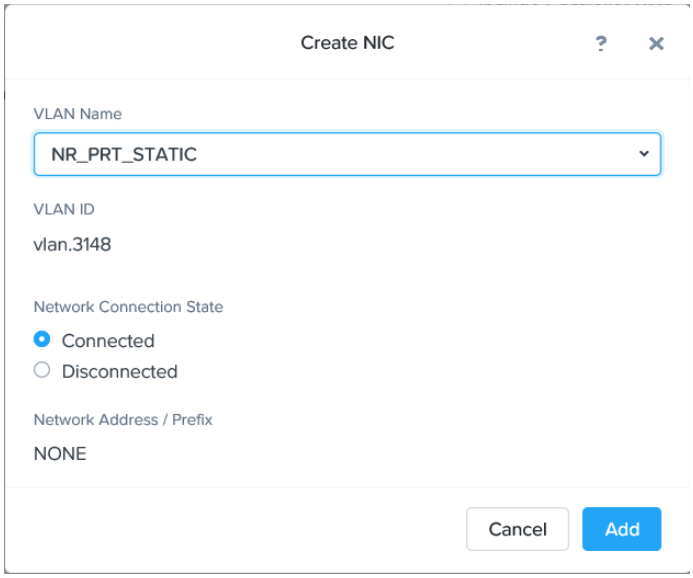
4. Create a boot disk by clicking *Add New Disk*.
   The boot disk will be cloned from the VM image that you uploaded.
   - For *Operation*, select *Clone from Image Service*.
   - For *Bus Type*, select *SATA*.
   - For *Image*, select the FortiSandbox disk image uploaded in Uploading the FortiSandbox deployment image to Nutanix on page 6.



5. Click *Add*.
6. Create a data disk by clicking *Add New Disk*.
   - For *Operation*, select *Allocate on Storage Container*.
   - For *Bus Type*, select *SATA*.
   - For *Size*, enter *200*.



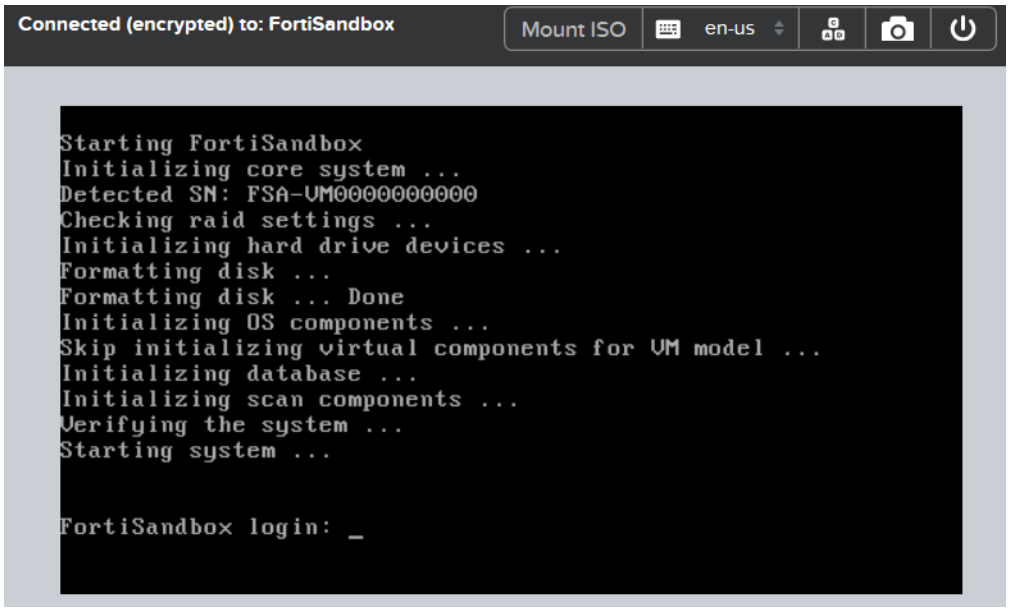
7. Click *Add*.
8. Under *Network Adapters (NIC)*, click *Add New NIC*.
   - For *VLAN Name*, select *NR_PRT_STATIC*.



9. Click *Add*.
10. Click *Save*.
    When the VM is created, the system displays *Successfully submitted Create operation*.

Connecting to the FortiSandbox VM

1. In the Prism Element web console, go to *VM*.
2. Click the FortiSandbox-VM you created in Creating the FortiSandbox deployment image on page 7.
3. Click *Power On* to power on the VM.
   By default, the FortiSandbox-VM is shut down after initial creation.
4. Click the *Launch Console* tab to check that the VM boots up successfully.
5. When the console prompts for login credentials, log into FortiSandbox using the username *admin* and no password.

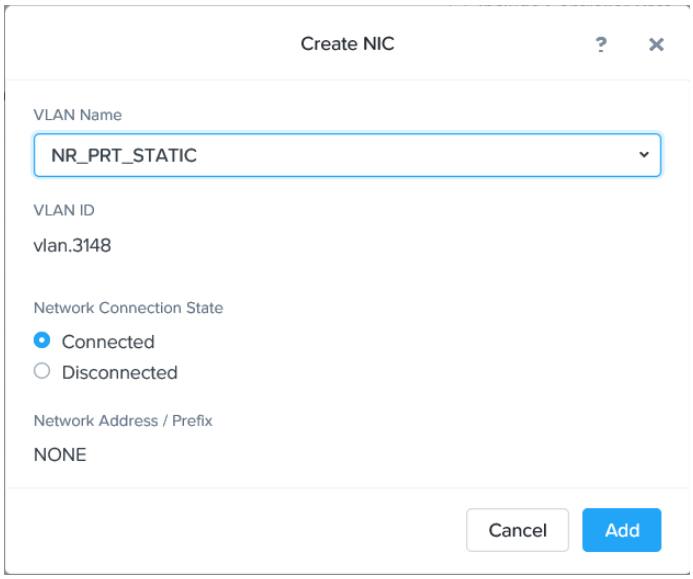


6. Configure the interface port1 IP address using the CLI command `set port1-ip` with the IP address when you registered. See Licensing on page 1.
   For example: `set port1-ip 1.1.1.2/24`
7. Access the FortiSandbox in your browser.
8. Log into FortiSandbox-VM with the username *admin* and no password.
9. Upload your license (.lic) file to activate the FortiSandbox-VM.
   The FortiSandbox-VM automatically restarts. After it restarts, wait about 30 minutes until the license is fully registered at Fortinet, then log in again.
10. After you log in and you see the FortiSandbox dashboard, go to *Network* > *Interfaces* to check the network interface setting.
    You can see and configure the assigned IP address.

Configuring the second NIC

1. In the Prism Element web console, go to *VM*.
2. Select the FortiSandbox-VM instance and click *Update*.
3. Under *Network Adapters (NIC)*, click *Add New NIC*.

4. For the *VLAN Name*, select *NR_PRT_STATIC* and click *Add*.



5. Click *Save*.
6. In your browser, log into the FortiSandbox-VM.
7. Go to *Network* > *Interfaces*.
   The second NIC is added with no need to reboot FortiSandbox.
8. Edit *port2* to set the IP address and netmask; and configure the other elements as needed. Then click *OK*.

Configuring initial settings

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

The following topics are included in this section:

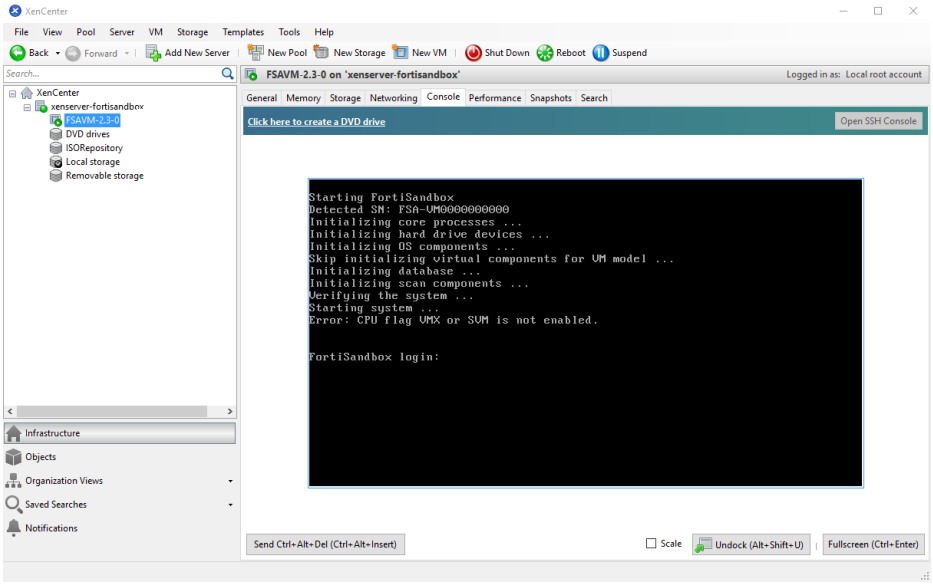
- Enabling GUI access
- Connecting to the GUI
- Uploading the license file
- Installing the Windows VM package

Enabling GUI access

To enable GUI access to the FortiSandbox VM, configure the port1 IP address and network mask of the FortiSandbox VM.

To configure the port1 IP address and netmask:

1. In your hypervisor manager, start the FortiSandbox VM and access the console window. You might need to press *Enter* to see the login prompt.



2. At the FortiSandbox VM login prompt, enter the username *admin*, then press *Enter*. By default, there is no password.
3. Using CLI commands, configure the port1 IP address and netmask with the following command:
   `set port1-ip <ip address>/<netmask>`
4. Configure the static route for the default gateway with the following command:
   `set default-gw <default gateway>`

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

Connecting to the 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. By default the GUI is accessible via HTTPS. At the login page, enter the user name `admin` and no password, then select *Login*.

Uploading the license file

Before using the FortiSandbox VM you must enter the license file that you downloaded from the Customer Service & Support portal upon registration.

To upload the license file:

1. Log in to the FortiSandbox VM GUI and find the *System Information* widget on the dashboard.
2. In the *VM License* field, select `Upload License`. The *VM License Upload* page opens.
3. Select *Browse*, locate the VM license file (`.lic`) on your computer, then select *OK* to upload the license file.
   A reboot message will be shown, then the FortiSandbox VM system will reboot and load the license file.
4. Refresh your browser and log back in to the FortiSandbox VM(username *admin*, no password).
   The VM registration status appears as valid in the *System Information* widget once the license has been validated.

As a part of the license validation process FortiSandbox VM compares its IP address with the IP information in the license file. If a new license has been imported or the FortiSandbox's IP address has been changed, the FortiSandbox VM must be rebooted in order for the system to validate the change and operate with a valid license.

If the IP address in the license file and the IP address configured in the FortiSandbox do not match, you will receive an error message when you log back into the VM.
If this occurs, you will need to change the IP address in the Customer Service & Support portal to match the management IP and re-download the license file. To change the management IP address, see Editing FortiSandbox IP addresses.

Installing the Windows VM package

Downloading and installing the Microsoft Windows VM package is optional for FortiSandbox VM. For example, you do not need to install the Windows VM package when you choose to:

- Deploy the unit as Primary or Secondary node of a cluster without doing any dynamic scans on it, or
- Use Windows Cloud VM to do dynamic scans instead of using local VMs.

If you choose to install local Windows VM, there are two types to choose from: *Default* and *Optional*.

Install the default Windows VM package

The default Windows VMs includes two versions:

- Windows 7, 32 bit with SP1 and Microsoft Office installed
- Windows 10, 64bit

To view the VMs after they are installed, go to *Scan Policy and Object* > *VM Settings* > *Default VMs*.

You can install the VMs directly with the CLI, or download it to local FTP or SCP server first and then install it with the CLI command. For either method, the system must be able to access *https://fsavm.fortinet.net*.

To download and install the default Windows VM package directly with the CLI:

```
fw-upgrade -v -sfsavm.fortinet.net -thttps -f/images/v4.00/VM00_base.pkg
```

To download the default Windows VM package to a local server and install it:

1. Go to https://fsavm.fortinet.net/images/v4.00/VM00_base.pkg to download the Windows VM package.
2. Save the package on a host that supports file copy with the SCP or FTP protocol. FortiSandbox must be able to access the SCP or FTP server.
3. In a CLI console window, use the following command to download and install the package:
   `fw-upgrade -v -t<ftp|scp> -s<SCP/FTP server IP address> -u<user name> -f<file path>`
   For example, `fw-upgrade -v -tscp -sx.x.x.x -utest -f/home/test/xxxx`

Install Optional Windows VM package

You can install an optional Windows VM to best mimic your environment. For example, if the majority of installations in your environment are Windows 10 with Office 2016, you can install WIN10O16V4 VM.

Available optional VMs are displayed in *Scan Policy and Object* > *VM Settings* > *Optional VMs*. You can download and install one from the list. The system must be able to access *https://fsavm.fortinet.net*. For more information, see the *Scan Policy and Object > VM Settings* chapter in the *FortiSandbox Administration Guide*.

Windows Sandbox VMs must be activated on the Microsoft activation server. This is done automatically when a system reboots after Windows activation keys are uploaded to the unit. For the activation to work, ensure port3 can access the Internet and the DNS server can resolve the Microsoft activation servers.

Install Windows license key file for newly installed Windows VM

An unused license key for the Windows OS version is required to activate a newly installed Windows VM. For example, a newly installed Windows 10 VM requires the unit to have one unused Windows 10 license key for activation. If the unit has no available key for the activation, you can purchase and install the license key file from Fortinet.

Windows license keys are stackable, which means new Windows keys are appended to existing ones and the new license file contains all ordered keys.

For a VM unit, the number of simultaneously scanned Microsoft Office files is limited by the number of installed Microsoft Office license keys. You can purchase extra Microsoft Office license keys to improve Office file scan capacity.

For FortiSandbox VM model, you can just purchase Windows license keys for enabled Windows VM only. For example, if you enable a Windows 7 VM which has Microsoft Office software installed, you only need to purchase one Windows 7 license key and one Microsoft Office key to activate them.

To install a Windows license key file on a Windows VM:

1. Download the license key file from the Fortinet Customer Service & Support portal.
2. Log into the FortiSandbox VM GUI and go to *Status* > *Licenses widget*.
3. Click the *Upload License* button beside *FortiSandbox-VM*.
4. Select the license file on the management computer and click *Submit*.

The unit will reboot. On reboot, the Windows VM or Microsoft Office is automatically activated on the Microsoft activation server.

A Microsoft Windows key or Office key can only activate one Windows VM. The key cannot be re-used.

Make sure to activate the correct Windows VM with the license key, as you will not be able to use the key again.

Configuring your FortiSandbox VM

When the FortiSandbox VM license is validated, you can configure your device. For more information on configuring your FortiSandbox VM, see the *FortiSandbox Administration Guide* in the Fortinet Document Library.

Change log

Date	Change Description
2022-05-16	Initial release.

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