

# Opmantek Virtual Appliance: Installation and Getting Started

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## Introduction

So you've downloaded the [latest version](#) of the Opmantek Virtual Appliance from <https://opmantek.com/network-tools-download/> and now you want to set it up and take it for a test drive to see how NMIS and the Opmantek networking modules can help you administer your network. No problem. Easy.

1. Unzip the downloaded appliance file (only for releases before Jan 2018)
2. Import the OVA (Open Virtual Appliance Format) or OVF file into VMware, Virtualbox,...
3. Start up the new VM, optionally set a static IP address
4. Access NMIS and the other Opmantek applications in your browser

## Using the OVA/OFV file

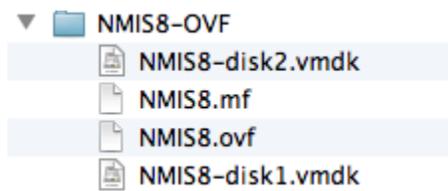
### OVA vs OVF files

All Opmantek Virtual Appliance releases since January 2018 are published as a single "ova" file (Open Virtual Appliance), which encapsulates all necessary data in a single archive.

The import instructions below can be used to deploy the Opmantek Virtual Appliance straight from that one downloaded file.

Releases before Jan 2018 consist of a ZIP archive that bundles an "ovf" (Open Virtualization Format) file and disk images. This ZIP archive needs to be unpacked before your virtualization platform will recognize the appliance.

After unzipping the file you should see a folder with a structure like this:



Because the OVF file type is in an open format it should be recognized by your virtualization software or by a conversion tool provided by your virtualization software.

## How to import the Virtual Appliance into your virtualization infrastructure

### VMware ESXi using the Opmantek OVA file

There are several options for VMware software. Options 2 & 3 require the VMware OVF Tool, find the tool by doing a search on google or by visiting [VMware's](#) site, the other requires VMware Fusion (for Mac). Options 2 & 3 assume you have it installed and know where it is.

## 1. Importing the OVA file to ESXi

You can import the OVA file directly into ESXi using ovftool, from the PC or server you run ovftool, run the command like this:

```
ovftool --name="NMIS" -dm="thin" -ds=datastore_name-number nmis-8.6.7G-VM-CentOS-6.10-64bit.ova vi://user:password@host_ip_address
```

Remember to set the Virtual Machine name you like, the datastore you want, and point it at the server you want to deploy to.

## 2. Upgrade the Virtual machine hardware version (optional)

The Opmantek Virtual Appliance ships with the virtual machine hardware version set very low for maximum compatibility, but you may want to upgrade the hardware version to a higher level (to leverage performance benefits, remove memory limitations, etc.) as described [on the VMware website](#).

## VMware ESXi using the older Opmantek ZIP file with OVF inside

### 1. Importing the OVF to ESXi

If you are using the older Opmantek ZIP VM you will have an OVF file.

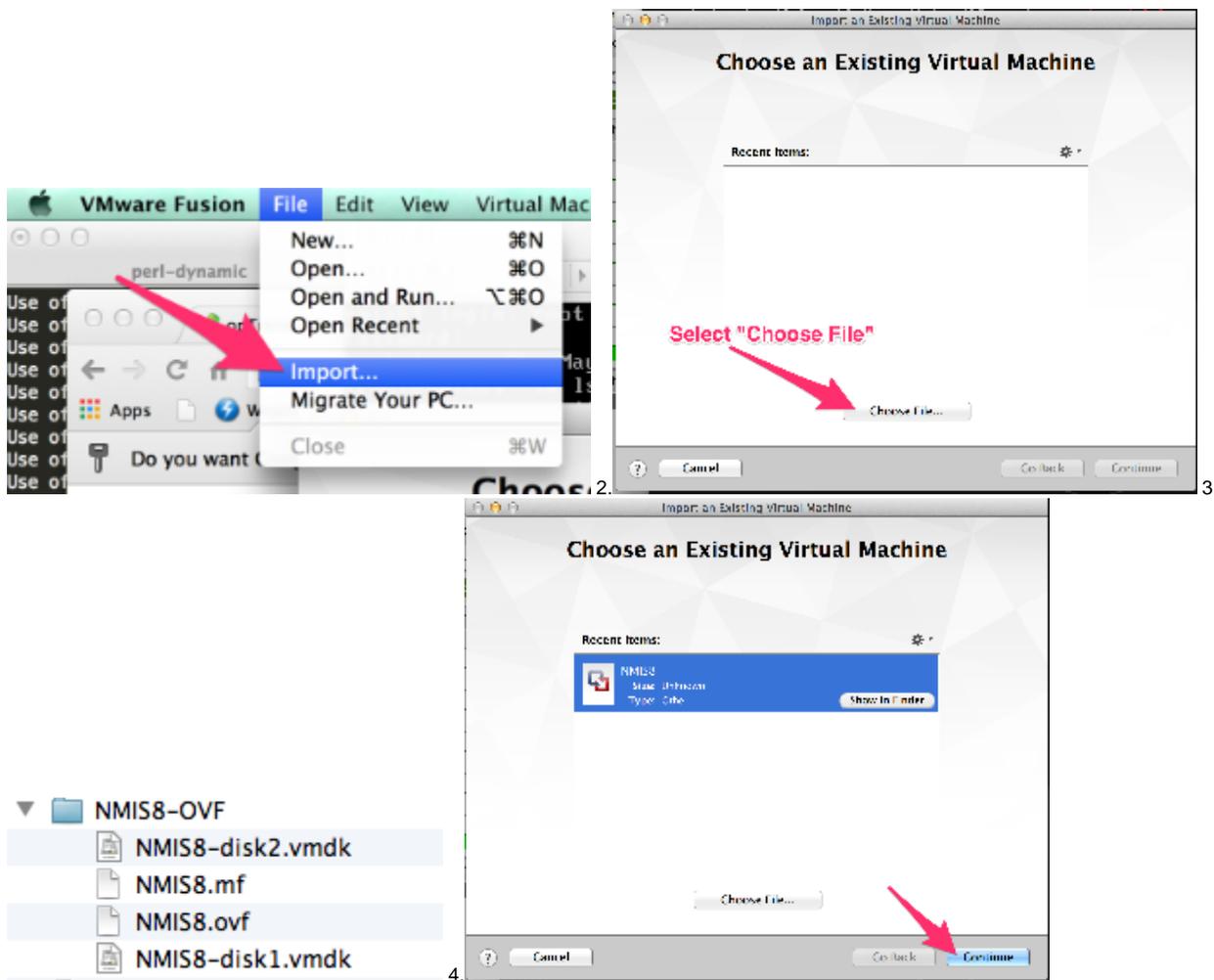
```
ovftool --name="NMIS" -dm="thin" -ds=datastore_name-number ./NMIS8-OVF/NMIS8.ovf vi://user:password@host_ip_address
```

Remember to set the Virtual Machine name you like, the datastore you want, and point it at the server you want to deploy to.

### 2. VMware Fusion

Recent versions of VMware Fusion allow importing .ovf files directly from the application. If this option does not exist or work you will need to use option # 3.

To import: Select File->Import, then "Choose File", find NMIS8-OVF/**NMIS8.ovf** as the file to import, then select continue. Fusion will import the file and then present you with the VM's default configuration.



### 3. Convert OVF to VMX

This option is for non-Fusion (or older) VMware products that do not support the OVF format directly; in this case you have to convert the appliance into VMware's native format VMX. As mentioned above this conversion requires the VMware ovftool.

```
mkdir NMIS8
ovftool NMIS8-OVF/NMIS8.ovf NMIS8/NMIS8.vmx
```

You should now be able to import/load the vmx file with your VMware software and skip to step 3.

### 4. Upgrade the Virtual machine hardware version (optional)

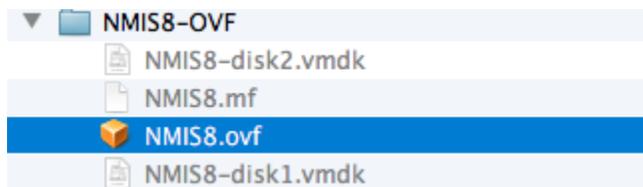
The Opmantek Virtual Appliance ships with the virtual machine hardware version set very low for maximum compatibility, but you may want to upgrade the hardware version to a higher level (to leverage performance benefits, remove memory limitations, etc.) as described [on the VMware website](#).

## VirtualBox

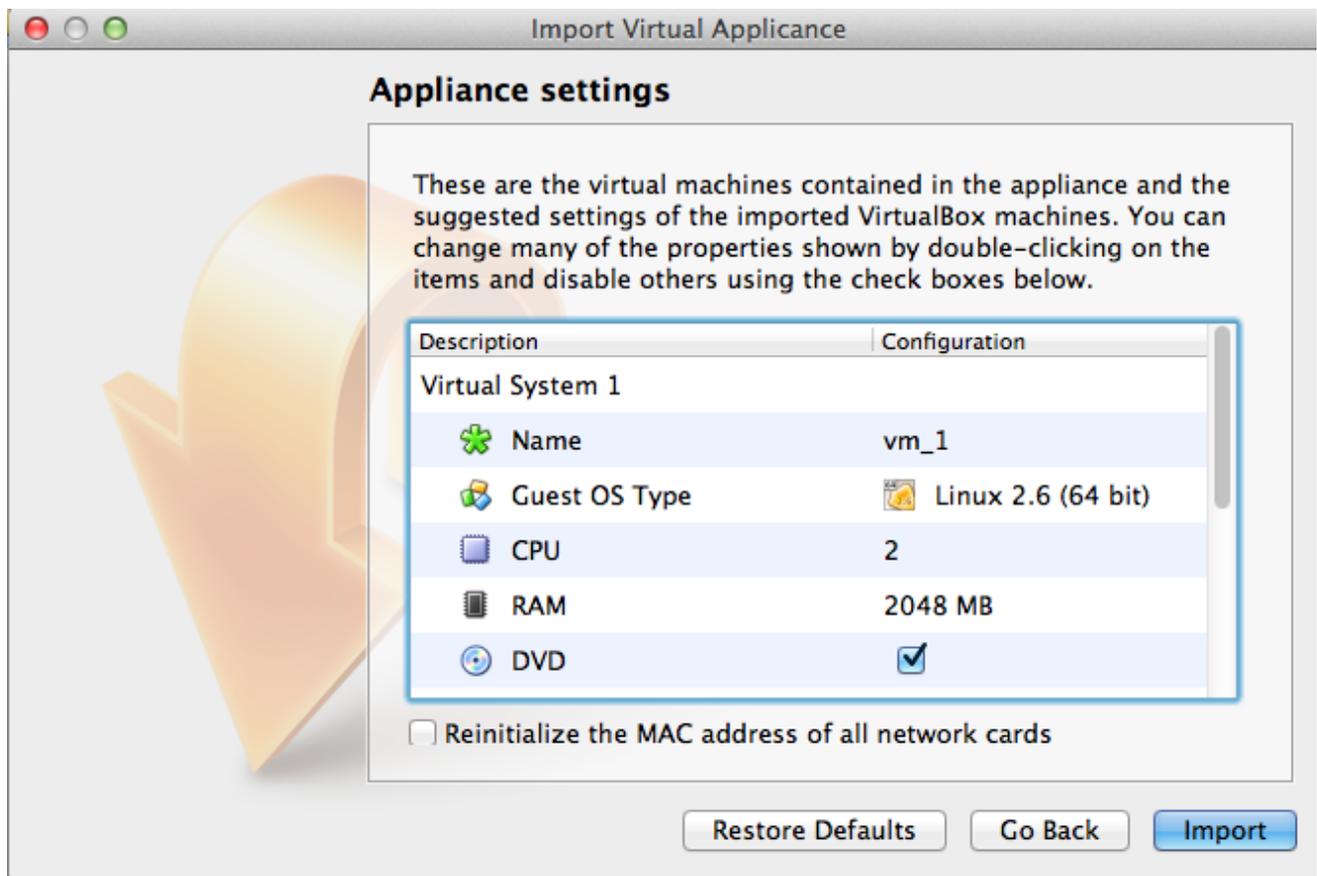
VirtualBox will import directly from an OVF/OVA file so you can just start up VirtualBox and select "Import Appliance..."



Browse to where you unzipped the file and select the ovf file



Select the file, you should see a screen something like this:



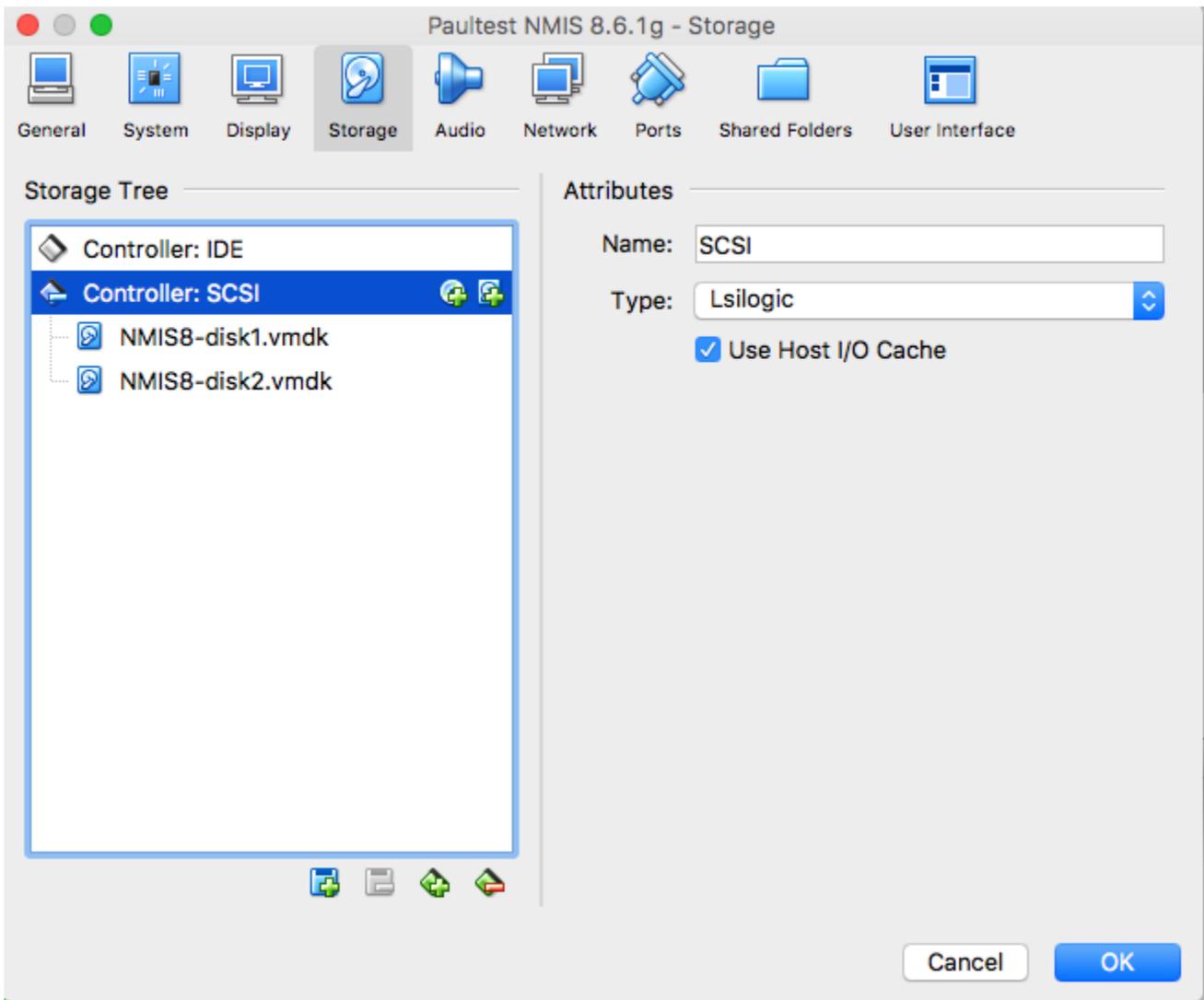
It should be safe to Import. The import process may take a couple of minutes to complete, just enough time to grab a cup of coffee I'd say.

If you have any trouble the VirtualBox documentation is here: <https://www.virtualbox.org/manual/ch01.html#ovf>

**Important Note regarding Ext4:**

If your Virtualbox host is Linux and your VMs are stored on XFS or Ext4 file systems, then it is **absolutely necessary** that you enable the "Host I/O Cache" for all virtual disk controllers after importing the OVF file, or you run the risk of file system corruption in your guest. On one of our test systems (Linux kernel 3.14.23, Virtualbox 4.3.14) the VM wouldn't even fully get through the first boot before the virtual disks got corrupted - but with Host I/O Cache on everything is fine.

Below is an example of how to enable Host I/O Cache using VirtualBox:



## CentOS 7 on VirtualBox

It's highly likely that VirtualBox users will find themselves at the dracut emergency shell prompt when first booting our vm that runs CentOS 7.

```
ng timeout scripts
[ 192.456264] dracut-initqueue[271]: Warning: dracut-initqueue timeout - starting timeout scripts
[ 192.963058] dracut-initqueue[271]: Warning: dracut-initqueue timeout - starting timeout scripts
[ 193.471901] dracut-initqueue[271]: Warning: dracut-initqueue timeout - starting timeout scripts
[ 193.979925] dracut-initqueue[271]: Warning: dracut-initqueue timeout - starting timeout scripts
[ 193.980150] dracut-initqueue[271]: Warning: Could not boot.
[ 194.215462] dracut-initqueue[271]: Warning: /dev/disk/by-uuid/be93ff13-625f-4f7c-847e-0b1bbffb5425 does not exist
Starting Dracut Emergency Shell...
Warning: /dev/disk/by-uuid/be93ff13-625f-4f7c-847e-0b1bbffb5425 does not exist
Generating "/run/initramfs/rdsosreport.txt"

Entering emergency mode. Exit the shell to continue.
Type "journalctl" to view system logs.
You might want to save "/run/initramfs/rdsosreport.txt" to a USB stick or /boot after mounting them and attach it to a bug report.

dracut:/#
```

When faced with this obstacle reboot the vm selecting the rescue kernel.

```
CentOS Linux (3.10.0-957.5.1.el7.x86_64) 7 (Core)
CentOS Linux (0-rescue-b577ecfd14a04b44984f6ea8200f8df1) 7 (Core)

Use the ↑ and ↓ keys to change the selection.
Press 'e' to edit the selected item, or 'c' for a command prompt.
```

After it boots login as normal and try the try the following dracut command.

```
dracut -f /boot/<kernel_image> <kernel_name>
```

```
CentOS Linux 7 (Core)
Kernel 3.10.0-862.el7.x86_64 on an x86_64

opmantek login: root
Password:
[root@opmantek ~]# dracut -f /boot/initramfs-
initramfs-0-rescue-b577ecfd14a04b44984f6ea8200f8df1.img
initramfs-3.10.0-862.el7.x86_64kdump.img
initramfs-3.10.0-957.5.1.el7.x86_64.img
initramfs-3.10.0-957.5.1.el7.x86_64kdump.img
[root@opmantek ~]# dracut -f /boot/initramfs-3.10.0-957.5.1.el7.x86_64.img 3.10.
0-957.5.1.el7.x86_64
```

If the command completes successfully reboot the vm normally. Be aware that future kernel updates may require this maneuver be done again.

## Other Hypervisors

To use OVF/OVA files with other virtualisation systems like KVM you may have to convert the OVF file to a native format; Two well-known tools for this purpose are virt-v2v (available in CentOS6/RHEL) and virt-convert (in Debian).

## Hyper-V

The Windows Hyper-V technology does not fully support the OVF industry standard. Microsoft documents a complex and somewhat limited procedure on [their page about converting OVF files to Hyper-V](#). There are third-party conversion tools available that simplify this deployment scenario, for example [StarWind's free V2V Converter](#) which worked well in our tests.

## Start up the VM and set a custom IP Address, DNS... (optional)

At this point the VM has DHCP enabled, and therefore it will receive a dynamic IP address suitable for your environment. The easiest way to access the VM at that point is from the virtualization software terminal. So go ahead and boot the VM. After the VM is finished booting you will be welcomed by a login prompt. First, log in using the [default credentials](#).

If it's desirable to customize the network settings we offer the following options:

- Option #1 - Manual configuration  
The VM appliance is a normal CentOS 7 system, hence all the mechanisms for network configuration in CentOS are available. Most specifically you'll be interested in the files `/etc/hosts`, `/etc/sysconfig/network`, `/etc/sysconfig/iptables` and `/etc/sysconfig/network-scripts/<interface_name>`.
- Option #2 - Use our example network configuration files

Root's home directory contains 2 example network configurations, one for static IP's and one for DHCP. Copy the one you require to `/etc/sysconfig/network-scripts/` and edit it to suit:

```
cp ifcfg-ens192.static /etc/sysconfig/network-scripts/<interface_name>
```

Be sure to verify the following settings:

- IPADDR
- NETMASK
- BROADCAST
- GATEWAY
- NAME; the interface name as found with the `ip address` command
- DEVICE; the interface name as found with the `ip address` command
- DNS;

Next restart the network service for the setting to take affect. In our testing the DHCP address was still present, and the static IP assigned as a secondary (this can be seen with the `'ip address'` command). The DHCP address can be removed by using the `'ip address command del'` command or by rebooting the system.

```
TYPE=Ethernet
IPADDR=192.168.10.201
NETMASK=255.255.255.0
BROADCAST=192.168.10.255
GATEWAY=192.168.10.51
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=static
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=stable-privacy
NAME=enp0s3
UUID=9099afe7-6dd6-4aec-bd93-8950b67ab8f5
DEVICE=enp0s3
ONBOOT=yes
DNS1=192.168.10.80
DNS2=8.8.8.8
```

## Set Up Firewall (optional)

Please note that by default the Opmantek VM Appliance does **NOT** have a firewall active. If you would like local firewalling on your VM, you can easily enable that:

The standard iptables tools are installed, and all you would have to do, is [enter your desired rules in /etc/sysconfig/iptables](#), followed by `service iptables restart` **AND** a final one-off run of `chkconfig iptables on`. The `service` call enables your firewall rules, while the `chkconfig` call enables activation of the firewall rules on boot. Until and unless the `chkconfig` step is taken, your firewall rules won't persist when the VM is rebooted. Besides this, somewhat low-level, method of configuring an iptables firewall there are also various user-friendly frontends available for installation with `yum`.

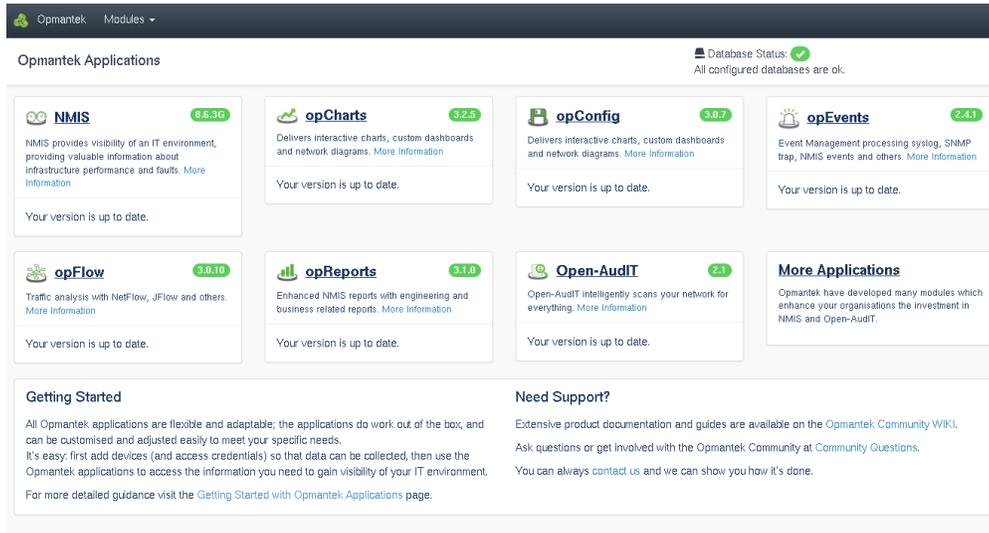
# Accessing the Application Modules on the VM

By default the VM boots with DHCP enabled, and once you determine the hostname or IP address of the VM you can access it a web browser using a URL like:

<http://nmis.domain.com/> or <http://192.168.1.42/>

**NOTE** - If you do not know the IP address of your install run the command `ifconfig` and use the IP address next to `inet addr`. Running the command `hostname` will give you the host name of the VM.

You will be presented with the following screen.



All the module names are clickable and link to the respective applications; but you can also navigate directly to NMIS, Open-Audit or any of the other Opmantek applications.

Simply open your favourite web browser and navigate to:

- <http://<vm ip address>/nmis8> for NMIS,
- <http://<vm ip address>/open-audit> for Open-Audit Community,
- or <http://<vm ip address>/omk> for the list of all Opmantek applications.

The default access credentials are username "nmis", password "nm1888" (more info regarding credentials can be found [on this page](#)).

Example NMIS log in page:

NMIS 8.6.1G Network Management Information System	
Authentication required: Please log in with your appropriate username and password in order to gain access to this system	
Username	<input type="text" value="nmis"/>
Password	<input type="password" value="....."/>
<input type="button" value="Login"/>	

Once you've got either the NMIS dashboard or one of the Opmantek application dashboards open, you can also navigate between modules using the "Modules" and "NMIS Modules" menus, respectively.

Once you have Access you will likely want to start configuring NMIS and the nodes you want to manage. Continue below to the NMIS Setup and Configuration quick start guide to learn how.

## NMIS Setup and Configuration

[NMIS8 - A Quick Getting Started Guide](#)

## Secure Access with https

The VM ships with support for secure https access enabled, and you can use https instead of http in any of the URLs mentioned above.

However, the included certificate-key pair is the same for all VM downloads, and it is a self-signed certificate (for "opmantek.local"): this will cause your browser to display security warnings.

If you want to use https access operationally it is **highly recommended** that you replace this shared default key-certificate pair with your own (or use an automated certification authority like <https://letsencrypt.org/> for example).

## Application Module Licensing

The first step to using a module is knowing how to open it, the next is to get a license for it. This process is simple and painless: all products on the appliance (except opFlow) now support **free licenses** (which are not time-limited but limited to 20 nodes). For these applications the initial dialog offers the generation of such a free license; for opFlow the licensing dialog offers guidance for obtaining a trial or a full license. Example screen shot of activating free Open-Audit trial below:

Features	Community	Enterprise 20 Nodes Free	Enterprise 100 Nodes	Enterprise 500 Nodes	Enterprise X Nodes
Device Audit	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
Software Audit	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
Configuration Changes	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
Multi-vendor Support	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
Audit Dashboard	No	20 Nodes	100 Nodes	500 Nodes	Unlimited
Geographical Maps	No	20 Nodes	100 Nodes	500 Nodes	Unlimited
Scheduled Discovery	No	20 Nodes	100 Nodes	500 Nodes	Unlimited
Enhanced Reports	No	20 Nodes	100 Nodes	500 Nodes	Unlimited
Baselines	No	20 Nodes	100 Nodes	500 Nodes	Unlimited
Product Support	Community Only	Community Only	Commercial Support	Commercial Support	Commercial Support
	Free	Free	\$249/year	\$799/year	Contact Us

Restore My Licenses    Activate    Buy    Buy    Contact Us

WARNING: Unlicensed    Powered by Opmantek

You can also use the "opLicensing" module (reachable at <http://<vm ip address>/omk/opLicense> or from the Modules menu) to manage your licenses comfortably (including the ability to download previously purchased licenses from the Opmantek website). More info about opLicensing [can be found here](#).

## Exploring and Configuring Application Modules

All modules on the Virtual Appliance come with their configuration set to very minimal but safe defaults; to explore the full functionality available you will very likely have to make config modifications to suit your environment. These configuration options are all documented on this site, the Opmantek Community Wiki, in the per-application section (or "Application Space"); certain common, shared aspects are discussed in the "[opCommon](#)" space.

For all recent Opmantek applications you'll find links to the respective sections of Wiki in the "Help" menu (usually under "Online Documentation"); there's also an online version check on the welcome/landing page, and on each application's "About" page which helps with keeping your modules up to date.

If the command completes successfully reboot the vm normally. Be aware that future kernel updates may require this manourvrer be done again.