# Nagios XI – Monitoring VMware With Nagios XI

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**The Industry Standard in IT Infrastructure Monitoring**

## Purpose

This document describes how to use Nagios XI to monitor VMware ESX, ESXi, vSphere, and vCenter Server with the VMware monitoring wizard. This document will show you how to set up your Nagios XI system to monitor virtual machines (VMs) deployed on these products.

## Target Audience

This document is intended for use by Nagios XI administrators who are familiar with VMware's virtualization products and know how to install and configure software on Linux servers.

## Installation Overview

In order to monitor VMware with Nagios XI, you will need to:

- Install the prerequisites for the VMware SDK
- Install the VMware Perl SDK on the Nagios XI server

## Install SDK Prerequisites

Newer versions of VMware Perl SDK require outside installation of perl modules and defining relevant environment variables. To get things started, you should install the Perl modules required from the terminal on your Nagios XI server as the root user:

**On RHEL/CentOS 6**

```
yum erase perl-XML-SAX-Base -y
yum install perl-XML-SAX --exclude=perl-XML-SAX-Base -y
yum install perl-Nagios-Plugin libuuid* perl-XML-LibXML
```

**On RHEL/CentOS 7**

```
cpan -f -i GAAS/libwww-perl-5.837.tar.gz
```

*You will need to press "Enter" a few times to accept the defaults.*

```
yum install perl-XML-SAX perl-Nagios-Plugin libuuid* perl-XML-LibXML -y
```

The last step is setting the environment variables the SDK requires (it applies to both, RHEL/CentOS 6/7). In the following example we are NOT using a proxy server. However, if you are using a proxy server you will need to enter its address after the equal ("=") sign:

```
export http_proxy=
export ftp_proxy=
```

## Installing the SDK

We are not able to pre-bundle the VMware Perl SDK with Nagios XI due to license terms, so you will need to download and install the SDK on the Nagios XI server yourself. You can download the VMware Perl SDK from VMware's website at the following address:

http://communities.vmware.com/community/developer/forums/vsphere_sdk_perl

Download the SDK file using a graphical web browser (which allows you to accept the terms), and transfer it to the Nagios XI server via SFTP. You can use Putty(sftp), Filezilla, or your desired transfer program.

Upload the SDK to the Nagios XI machine's /tmp directory and execute the following commands to install the SDK (the name of the SDK tarball may be different for you). Remember to download the proper SDK for your architecture. In this example we used a 64-bit SDK, but your architecture may be different.

```
cd /tmp
tar xzf VMware-vSphere-SDK-*.tar.gz
cd vmware-vsphere-cli-distrib/
./vmware-install.pl
```

Follow the on-screen instructions to complete the installation of the SDK.

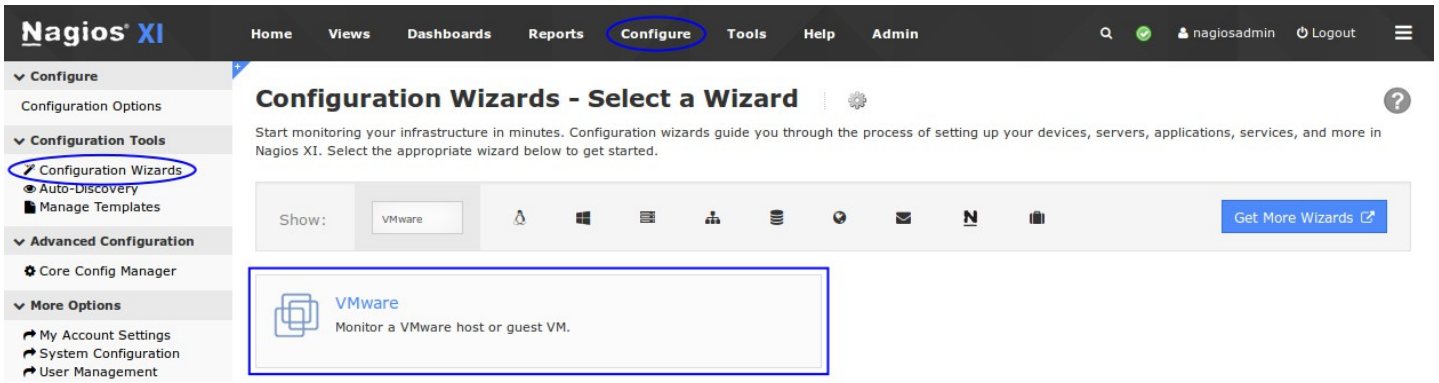
**Important**: **If you are using RHEL/CentOS 7, after installing the SDK you will need to run:**

```
sed -i 's/length(/scalar(/g' /usr/lib64/perl5/IO/Compress/Zlib/Extra.pm
```

Now that the VMware Perl SDK is installed you will be able to run the VMware wizard.

## Using the VMware Wizard

To begin using the VMware wizard navigate via the top menu bar to **Configure** > **Run a configuring wizard**, and select the **VMware** wizard. In the following screenshot you can see how the search field allows you to quickly find a wizard.




On Step 1 you will need to select the **Monitoring Mode**:

- **Monitor the VMware host**
  - This allows you to monitor the ESX / ESXi host.
  - The options on step 2 will allow you to monitor the CPU Usage, Datastore Usage, Input/Output, Memory, Networking, Services and VM Status.
  - On step 1 you will need to provide the address, username and password for the ESX / ESXi host.
- **Monitor a guest VM on the VMware host**
  - This if for monitoring the virtual machines (VM or also called guests).
  - The options on step 2 will allow you to select which VM's you want to monitor. You will have the choice of monitoring the the CPU Usage, Input/Output, Memory, Networking and VM Status for all the VM's you choose to monitor.
  - On Step 2 you will need to provide the address, username and password for the ESX / ESXi host **OR** the vCenter server (if you have one).
  - ESX(i) host vs vCenter Server:
    - When you have a vCenter server, it provides the ability to communicate to all the VM's in the environment
    - Providing credentials for a vCenter server on step 1 will allow you to monitor ALL of the VMs in the environment. This means that you don't need to provide credentials for each ESX(i) host (*you don't need to run the wizard for each ESX(i) host*). In addition to this, if a VM is migrated from one ESX(i) host to another there is no configuration steps required, vCenter knows which ESX(i) host the VM is running on.
    - Providing credentials for an ESX(i) host on step 1 will allow you to monitor ALL of the VMs on that specific ESX(i) host. This means that you will need to run the wizard for each ESX(i) host in your environment. In addition to this, if a VM is migrated from this ESX(i) host to another, you will need to go into Core Configuration Manager update the service definitions for that VM. If the ESX(i) host is a member of a vCenter DRS cluster, it is recommended to monitor the VM's using the vCenter address and credentials.

Seeing as the wizard has two different monitoring modes you will be shown the different options available when running the wizard.

**Monitor the VMware host**

Enter the **Address**, **Username** and **Password** of your ESX / ESXi host.

Select **Monitor the VMware Host**.

Click **Next** to go to Step 2.


On step 2 you will configure all of the options for monitoring.

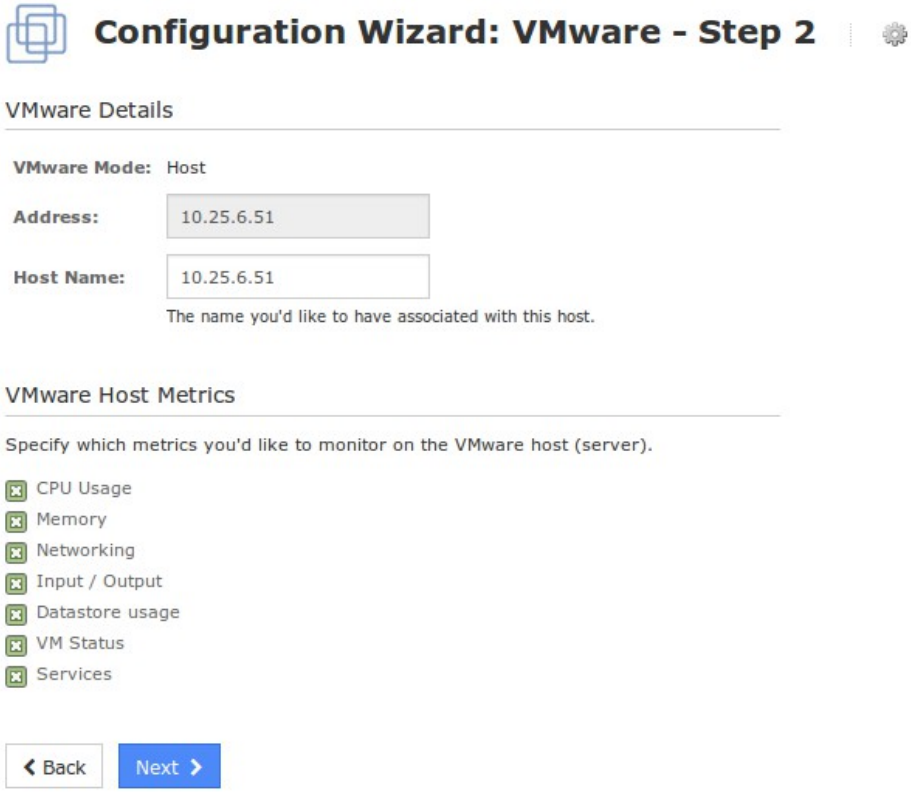
To start off with make sure a valid **Host Name** has been entered.

Then select the VMware Host Metrics from the available list.

Once you've finished selecting the metrics click Next and then complete the wizard by choosing the required options in Step 3 – Step 5.

To finish up, click on **Finish** in the final step of the wizard.

This will create the new hosts and services and begin monitoring.



Once the wizard applies the configuration, click the **View status details for xxxxx** link to see the new host and services that were created.

| Host | Service | Status | Duration | Attempt | Last Check | Status Information |
|---|---|---|---|---|---|---|
| 10.25.6.51 | CPU Usage for VMHost | Ok | 2h 31m 39s | 1/5 | 2016-12-06 16:55:09 | ESX3 OK - cpu usage=3019.00 MHz (14.41%) |
| | Datastore usage for VMHost | Ok | 2h 29m 39s | 1/5 | 2016-12-06 16:57:09 | ESX3 OK - storages : Q02SP02T01L01=190499.00 MB (20.27%), Q02SP01T01L01=502915.00 MB (60.06%), Q01SP04T01L01=2040170.00 MB (72.71%), Q01SP03T01L01=1053760.00 MB (37.56%), Q01SP02T01L01=1155703.00 MB (62.09%), Q01SP01T01L01=651663.00 MB (79.97%) |
| | Input / Output for VMHost | Ok | 2h 31m 4s | 1/5 | 2016-12-06 16:55:51 | ESX3 OK - io commands aborted=0, io bus resets=0, io read latency=0 ms, write latency=1 ms, kernel latency=0 ms, device latency=1 ms, queue latency=0 ms |
| | Memory for VMHost | Ok | 2h 30m 45s | 1/5 | 2016-12-06 16:56:12 | ESX3 OK - mem usage=81867.98 MB (62.52%), overhead=0.00 MB, swapped=0.00 MB |
| | Networking for VMHost | Ok | 2h 29m 27s | 1/5 | 2016-12-06 16:57:18 | ESX3 OK - net receive=5.00 KB/s, send=781.00 KB/s, 2/7 NICs are disconncted |
| | Services for VMHost | Ok | 2h 31m 26s | 1/5 | 2016-12-06 16:55:27 | ESX3 OK - services : DCUI (up), TSM (up), TSM-SSH (up), lbtd (up), lwsmd (down), ntpd (up), pcscd (down), sfcbd-watchdog (up), snmpd (down), vmsyslogd (up), vprobed (down), vpxa (up), xorg (down) |
| | VM Status for VMHost | Ok | 2h 29m 31s | 1/5 | 2016-12-06 16:57:15 | ESX3 OK - 26/180 VMs up, overall status=green, connection state=connected, maintenance=no, 105 health issue(s), 2 config issue(s) |

**Monitor a guest VM on the VMware host**

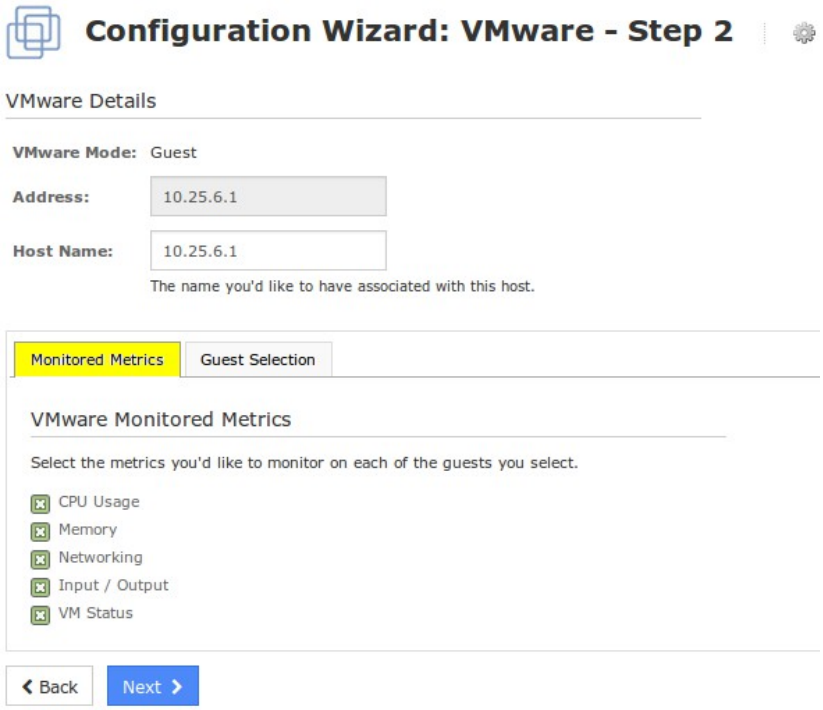
Enter the **Address**, **Username** and **Password** of your ESX / ESXi host **OR** vCenter Server. This example is using a vCenter Server.

Select **Monitor a guest VM on the VMware host**.

Click **Next** to go to Step 2.

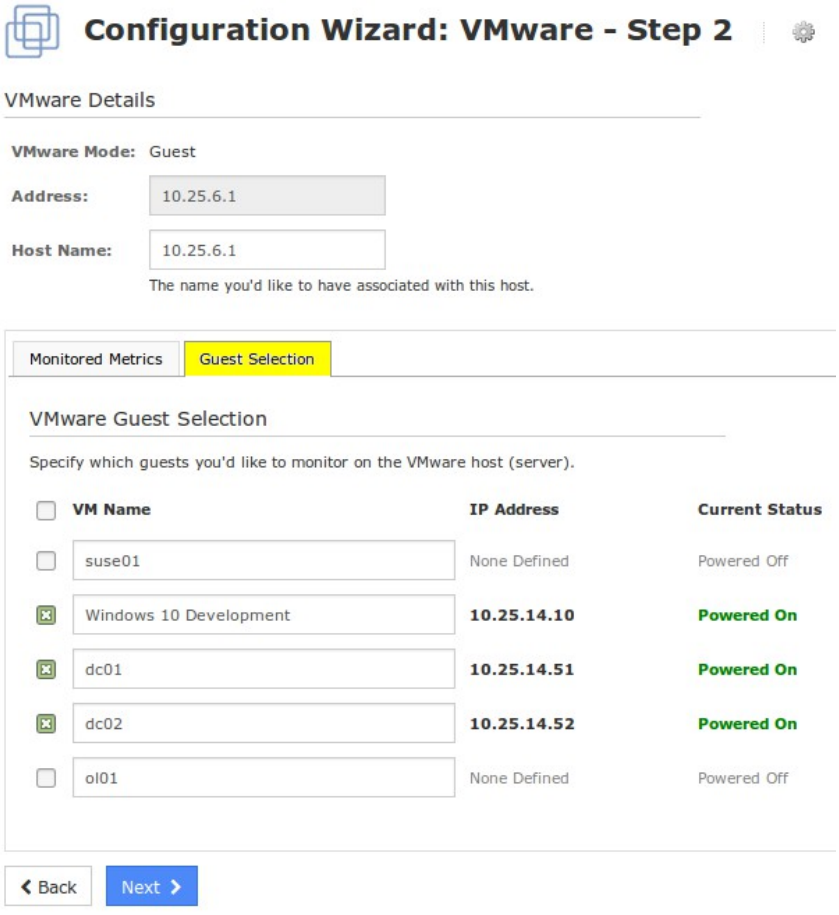
On step 2 make sure a valid **Host Name** has been entered.

There are two tabs you need to select options on.




The **Monitored Metrics** tab is selected by default. Select the VMware Guest Metrics from the available list. A service for each metric will be created for each guest selected on the Guest Selection tab.

After selecting the required metrics click the **Guest Selection** tab.




On the **Guest Selection** tab a list of all the available guests on the ESX(i) host or vCenter server will be displayed.

Select which guests you want to monitor by checking the left hand check box. The **powered on** guests will automatically have the checkbox selected.

Once you've finished selecting the metrics click Next and then complete the wizard by choosing the required options in Step 3 – Step 5.

To finish up, click on **Finish** in the final step of the wizard.

This will create the new host and services and begin monitoring.

Once the wizard applies the configuration, click the **View status details for xxxxx** link to see the new host and services that were created.

| Host | Service | Status | Duration | Attempt | Last Check | Status Information |
|---|---|---|---|---|---|---|
| 10.25.6.1 | dc01 CPU Usage | Ok | 2h 48m 56s | 1/5 | 2016-12-06 17:22:48 | ESX3 OK - "dc01" cpu usage=95.00 MHz(2.72%) wait=19354.00 ms |
| | dc01 Input / Output | Ok | 2h 47m 27s | 1/5 | 2016-12-06 17:22:50 | ESX3 OK - "dc01" io usage=0.04 MB, read=0.00 MB/s, write=0.04 MB/s |
| | dc01 Memory | Ok | 2h 47m 16s | 1/5 | 2016-12-06 17:22:54 | ESX3 OK - "dc01" mem usage=3030.00 MB(3.99%), overhead=36.14 MB, active=122.88 MB, swapped=0.00 MB, swapin=0.00 MB, swapout=0.00 MB |
| | dc01 Networking | Ok | 2h 48m 18s | 1/5 | 2016-12-06 17:22:57 | ESX3 OK - "dc01" net receive=0.00 KB/s, send=0.00 KB/s |
| | dc01 VM Status | Ok | 2h 47m 30s | 1/5 | 2016-12-06 17:23:00 | ESX3 OK - "dc01" status=green, run state=UP, guest state=Running, max cpu=3491 MHz, max mem=3072 MB, console connections=0, tools status=Old, has no config issues |
| | dc02 CPU Usage | Ok | 2h 49m 44s | 1/5 | 2016-12-06 17:23:03 | ESX3 OK - "dc02" cpu usage=92.00 MHz(2.63%) wait=19338.00 ms |
| | dc02 Input / Output | Ok | 2h 48m 46s | 1/5 | 2016-12-06 17:23:06 | ESX3 OK - "dc02" io usage=0.07 MB, read=0.00 MB/s, write=0.07 MB/s |
| | dc02 Memory | Ok | 2h 47m 19s | 1/5 | 2016-12-06 17:23:09 | ESX3 OK - "dc02" mem usage=3032.00 MB(6.99%), overhead=36.19 MB, active=215.04 MB, swapped=0.00 MB, swapin=0.00 MB, swapout=0.00 MB |
| | dc02 Networking | Ok | 2h 47m 16s | 1/5 | 2016-12-06 17:23:12 | ESX3 OK - "dc02" net receive=0.00 KB/s, send=0.00 KB/s |
| | dc02 VM Status | Ok | 2h 47m 16s | 1/5 | 2016-12-06 17:23:15 | ESX3 OK - "dc02" status=green, run state=UP, guest state=Running, max cpu=3491 MHz, max mem=3072 MB, console connections=0, tools status=Old, has no config issues |
| | Windows 10 Development CPU Usage | Ok | 2h 47m 36s | 1/5 | 2016-12-06 17:22:33 | ESX3 OK - "Windows 10 Development" cpu usage=515.00 MHz(7.38%) wait=18772.00 ms |
| | Windows 10 Development Input / Output | Ok | 2h 47m 16s | 1/5 | 2016-12-06 17:22:36 | ESX3 OK - "Windows 10 Development" io usage=0.00 MB, read=0.00 MB/s, write=0.00 MB/s |
| | Windows 10 Development Memory | Ok | 2h 49m 54s | 1/5 | 2016-12-06 17:22:39 | ESX3 OK - "Windows 10 Development" mem usage=6144.00 MB(12.99%), overhead=91.02 MB, active=798.72 MB, swapped=0.00 MB, swapin=0.00 MB, swapout=0.00 MB |
| | Windows 10 Development Networking | Ok | 2h 47m 16s | 1/5 | 2016-12-06 17:22:41 | ESX3 OK - "Windows 10 Development" net receive=0.00 KB/s, send=0.00 KB/s |
| | Windows 10 Development VM Status | Ok | 2h 48m 48s | 1/5 | 2016-12-06 17:22:45 | ESX3 OK - "Windows 10 Development" status=green, run state=UP, guest state=Running, max cpu=6982 MHz, max mem=6144 MB, console connections=1, tools status=OK, has no config issues |

## Common Problems

Below are some common problems encountered when using the VMware wizard.

**The wizard shows a big red box that says the VMware SDK isn't installed. I installed it, so what's causing this?**

Reinstall the VMware SDK. It's very easy to pass over an error in that install script. If you don't see "*Enjoy --the VMware team*" at the end of the install, then it did not install properly. The other thing that can cause this is that the check_esx3.pl does not exist in `/usr/local/nagios/libexec`. If this error persists past VMware SDK reinstall, then reinstall the wizard. If it persists past the wizard install, then manually place `check_esx3.pl` into `/usr/local/nagios/libexec` directory.

**When I try to monitor guests on an ESX host, it populates the check-boxes properly, but under the "Guest Selection" tab it simply says:**

"*It appears as though the VMware SDK has not yet been installed on your Nagios XI server. You must install the SDK before you are able to use this wizard.* "

As you can guess, this can happen when you haven't installed the SDK. However, if you've installed the SDK, make sure you've properly set the permissions for `/usr/local/nagiosxi/html/includes/configwizards/vmware/scripts/getguests.pl` as this has been an issue for some users (`nagios:root 755`).

**All of my service names are slightly different. The quotes are gone!**

Nagios service and host names cannot contain special characters and, as such, they were removed automatically to eliminate "Error In Configuration" messages and show-stoppers. If you wish to have absolute control over your service names, make sure they do not involve any shell characters or Nagios illegal characters.

## Finishing Up

That's it! If you followed all the steps in these instructions, you will now be monitoring your VMware Virtualization environment.

If you have additional questions or other support related questions, please visit us at our Nagios Support Forums:

https://support.nagios.com/forum