

NiCE VMware Management Pack

Monitoring vCenter HA Whitepaper

NiCE VMware Management Pack

Version 5.6 and later

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For use with Microsoft System Center Operations Manager



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Purpose of this Document

This document describes how to use NiCE VMware MP to monitor a vCenter HA environment.

This document complements the NiCE VMware MP documentation. It does not replace the VMware MP Quick Start Guide or Advanced Guide. If you need more details about any tool or script mentioned, please refer to the VMware MP Guides mentioned above.

Introduction

A vCenter HA cluster consists of three vCenter Server Appliance instances. The first instance, initially used as the Active node, is cloned twice to a Passive node and to a Witness node. Together, the three nodes provide an active-passive failover solution for vCenter administration.

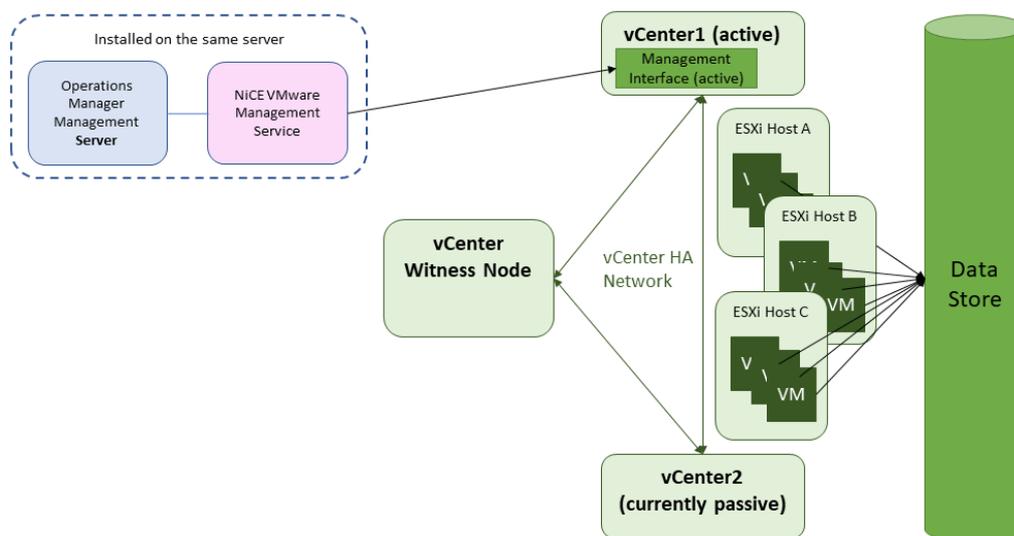
When vCenter HA configuration is complete, only the Active node has an active management interface (public IP). The three nodes communicate over a private network called vCenter HA network that is set up as part of configuration. The Active node is continuously replicating data to the Passive node.

vCenter High Availability (vCenter HA) protects against vCenter Server application failures. Using automated failover from active to passive, vCenter HA supports high availability with minimal downtime.

General Idea

NiCE VMware Management Pack can monitor a vCenter HA environment using the management interface (public IP).

The passive vCenter node automatically takes over the management interface in case the active vCenter node fails. It then has the public IP for the management interface and NiCE VMware MP continues to monitor all configured objects.



Prerequisites

The general prerequisites for NiCE VMware MP concerning VMware versions and operating systems apply.

There is no additional software required.

Configuring VMware MP for vCenter HA

1. Planning the Deployment

The number of VMs supported by the NiCE VMware Service is limited due to SCOM infrastructure constraints. The NiCE VMware Service installed on a single SCOM server supports up to 1024 VMs.

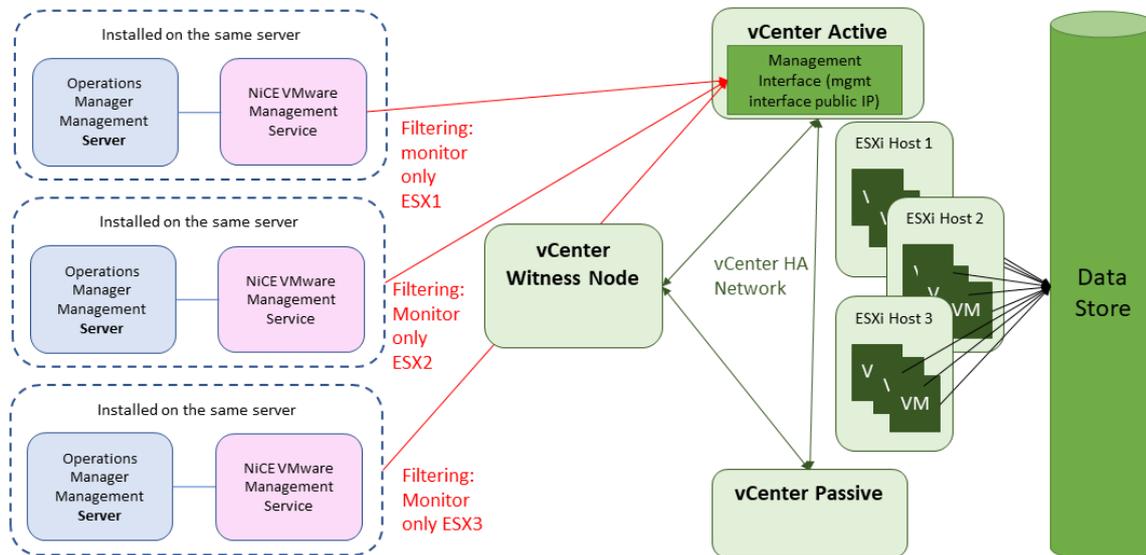
Exceeding the maximum number of supported VMs will result in poor performance of the management pack.

However, the total number of monitored VMs may be increased with the help of **several instances of the NiCE VMware Management Service on several SCOM servers**. This is described in the chapter "Large Environments".

Large Environments

If your environment includes several ESXi Hosts with a total of VMs more than 1024, it is recommended to use several SCOM servers to ensure better performance of the NiCE VMware MP.

In the following example, the environment has 3 ESXi hosts with less than 1024 VMs each.



The recommended way of setting up VMware MP:

- Use 3 SCOM servers and install the NiCE VMware Management Service on each of them.
- Configure Filtering in the NiCE VMware Management Service to have:
 - SCOM server 1 monitors only ESXi Host 1
 - SCOM server 2 monitors only ESXi Host 2

- SCOM server3 monitors only ESXi Host 3

Follow the instruction in the coming sections on each of the three SCOM servers.

Make sure to configure the same options on each of them, except for section [Filtering in Large Environments](#), where each NiCE VMware Administrator is assigned a different ESXi host.

2. Installing the Software

Install the NiCE VMware MP **on all SCOM servers** that will be used to gather data from the VMware environment, as identified in the deployment plan.

All components will be installed with the common installer:

```
nice-vmwaremp-5-6-<build_number>-0.exe
```

This will install the following components:

- NiCE VMware Management Service (also called "NiCE VMware Collector")
- NiCE VMware Management Administrator GUI
- NiCE VMware Management Packs (SCOM MPs)

Verify Installation

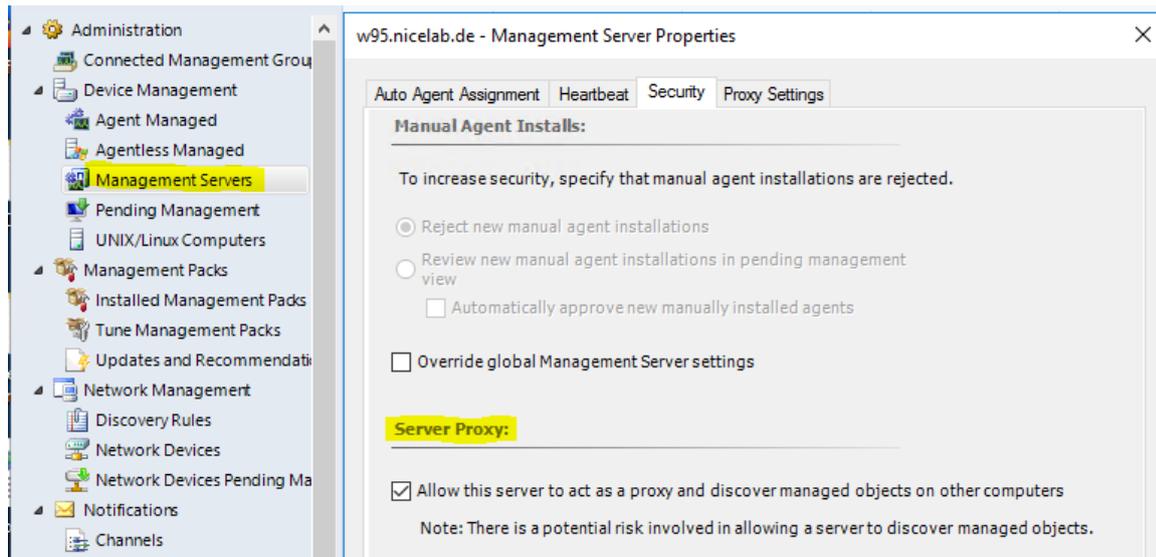
Check the folder containing the NiCEVMwareService.exe (usually \Program Files\NiCE\VMwareMP) that nearly all files show the same modified date.

3. Configure Data Forwarding in Operations Manager

Configure Operations Manager to forward discovery data for VMware objects to the Operations Manager Console **on each system on which NiCE VMware Management Service is present.**

1. Log on to the Operations Console with an account that is a member of the Operations Manager Administrators role.
2. Click [Administration](#).
3. In the Administration workspace, expand Administration
expand [Device Management](#)
then click [Management Servers](#).
4. Select the server from the list of management servers.

5. Right-click on the server and select Properties to display the `Management Server Properties` dialog.
6. Click on the Security tab.
7. Click the checkbox **"Allow this system to act as a proxy and discover managed objects on other computers"**.



4. Licensing the NiCE VMware MP

The NiCE VMware MP is licensed by adding a license key **on every system on which NiCE VMware Management Service is installed**.

The license keys need to be requested on NiCE Customer Portal at portal.nice.de.

The permanent license is locked to the FQDN of the computer (fully qualified domain name) where the NiCE VMwareMP Management Service is running.

Installing the License Key

The NiCE Customer Portal provides the license keys for **all your SCOM servers** in a file called `VMwareMP_license.dat` as a download.

There are two options to install the license:

- Use the NiCE VMware Management Administrator GUI.
- Copy the license file with the correct name at a special location.

Details on how this should be done, may be found in the NiCE VMware QuickStart Guide.

Check License Details

Use the SCOM task “VMware Management Service License Details Check” from “Management Service” state view to verify that the number of licenses is sufficient for your environment.

```
Service Host           = myserver.mylab.de
Number of Licenses    = 10000
Number of CPU Packages = 2
Are Licenses Sufficient = true
Version               = 5.6.286.0
Status Code:         0
Status Message:      OK
Error None
Exit Code:           0
```

5. Configure the NiCE VMware Management Service

Use the **NiCE VMware Management Administrator GUI** to define the configuration options for the **NiCE VMware Management Service**.

The tool is available on all servers on which the NiCE VMware Management Service was installed.

You use the NiCE VMware Management Administrator to perform the following tasks:

1. Add a VMware Server (mandatory).
2. Filtering in Large Environments (optional).
3. Edit Monitoring Settings for newly discovered objects (optional).

Add a VMware Server (mandatory)

This task is mandatory. Without any configured VMware servers, the NiCE VMware Management Service will not collect any monitoring data.

1. Log on to the server using an account that provides administrator privileges.
2. Launch the **NiCE VMware Management Administrator GUI**.

This administration tool can be found in the NiCE folder under the Start menu.

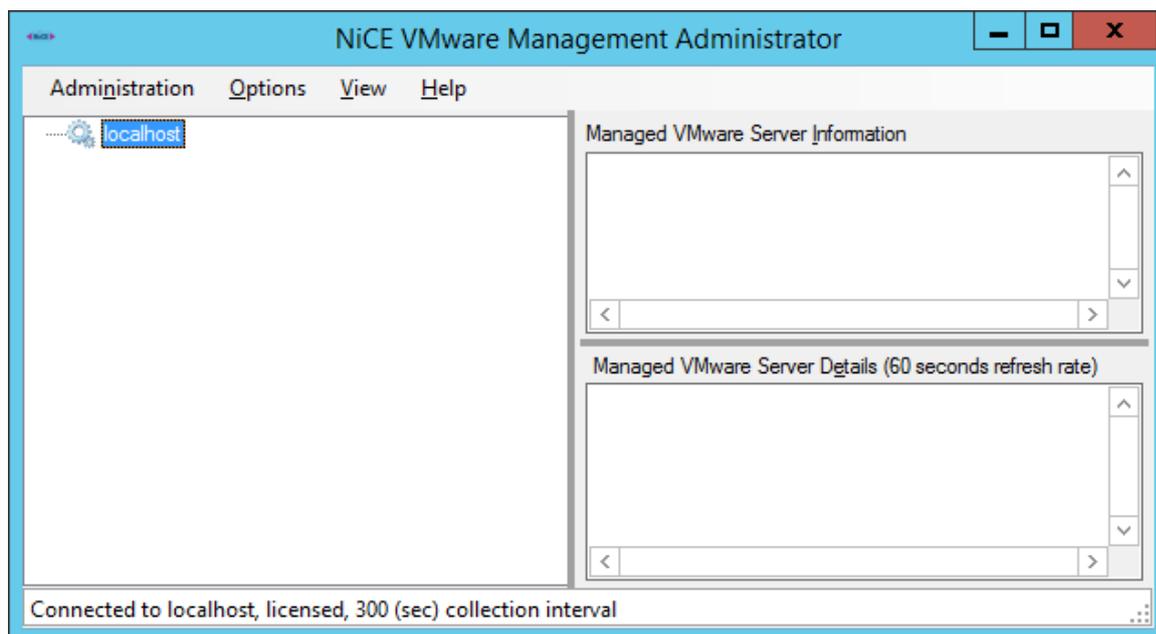


Figure 7: Start screen of NiCE VMware Management Administrator

- To add a VMware server to the list of managed VMware servers, choose **Administration > Add Managed VMware Server**.

Use the dialog to specify the attributes for the VMware server, as follows:

VMware Server	Mandatory	Specify the management interface public IP address of the vCenter HA that you want to manage.
Alternate Name	Optional	Specify the alias, or "friendly" name for the vCenter that you want to manage. This value identifies the server in Operations Manager.
URL	Automatic – do not edit!	This field holds the URL for the VMware server. The URL field is filled automatically. Do not edit it!
Username	Mandatory	Specify the username for the account used to access the VMware server. Ensure that the user account you specify has the privileges required for the correct operation of the management pack, as described in “Privileges required to monitor a VMware server” in the NiCE VMware QuickStart Guide.
Password	Mandatory	Specify the password for the account used to access the VMware server.

4. Click the [Add](#) button to add the server to the list of managed servers.
5. Select Administration > Exit to close the tool.

Filtering in Large Environments (optional)

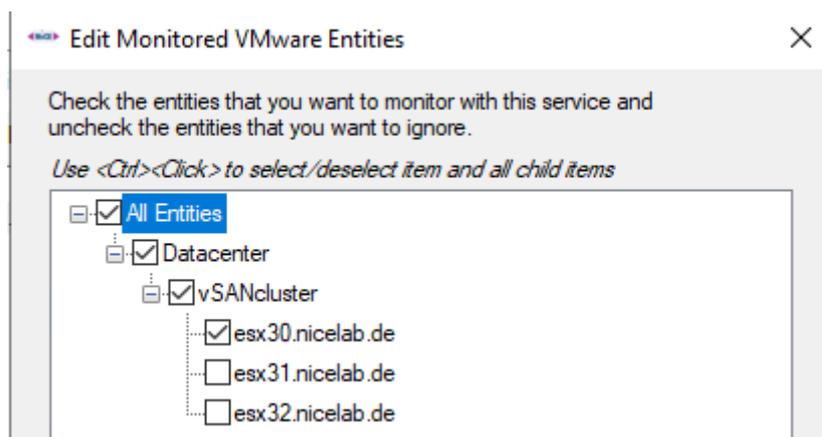
For large vCenter environments, it is recommended to use several SCOM servers to distribute the monitoring load.

In the example from [Planning the Deployment](#) chapter, the environment is comprised of a vCenter HA server that holds three ESXi hosts.

It is recommended to use three SCOM servers for monitoring with NiCE VMware MP:

Repeat the steps in sections 2 through 5 on each of the three SCOM servers.

- Log on to the server using an account that provides administrator privileges.
- Launch the NiCE VMware Management Administrator GUI.
- To add a VMware server to the list of managed VMware servers, choose **Administration > Add Managed VMware Server**.
- Add the vCenter Active node with the **management interface public IP** as the name in the NiCE VMware Management Administrator GUI on each of the three SCOM servers.
- Select **Administration > Edit Managed VMware Entities (Filtering)**



- Deselect two of the three check marks on the ESXi host level.

Make sure that each ESXi host is monitored by only one of the NiCE VMware Management Services.

Edit Monitoring Settings for newly discovered objects (optional)

Configure how the NiCE VMware Management Service should handle entities that will be added to the VMware vCenter server **after** you have configured the service.

1. Log on to the server using an account that provides administrator privileges.
2. Launch the NiCE VMware Management Administrator GUI.
3. Select `Administration > Edit Monitoring Settings`

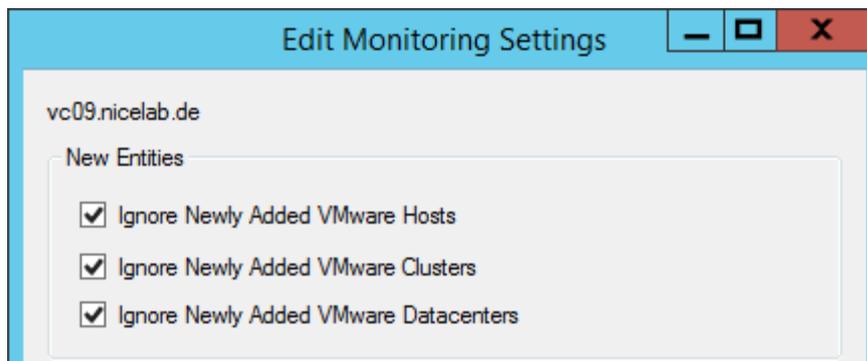


Figure 8: Edit Monitoring Settings

4. Depending on the type of discovered entities, you can decide whether to ignore newly added objects or not.

Clear or check the checkboxes as required ignoring or automatically gathering data for newly added hosts, clusters, or datacenters.

Note that new objects will be added in the Filtering menu and monitoring them may be enabled there.

5. It is possible to reduce the monitoring impact by ignoring Virtual Machines and concentrating on high-level elements instead.

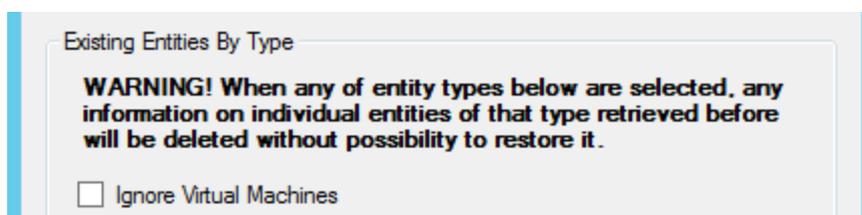


Figure 9: Reduce Monitoring Impact

Note:

Choosing to Ignore Virtual Machines will greatly reduce the amount of data sent to and managed by Operations Manager. This will allow administrators to monitor many VMware ESXi hosts and vCenters.

6. Click **Apply** to apply the changes. Click **OK** to close the dialog.
7. Press **OK** to save your settings and close the window or press **Cancel** to leave without changing anything.
8. Select **Administration > Exit** to close the tool.

6. Importing the Management Packs

You perform this installation step on the OM Administration Console.

Log on to the Administration Console and import the following management-pack files:

- `NiCE.Generic.Logging.W.mpb`
- `NiCE.VMware.Images.mpb`
- `NiCE.VMware.Library.mpb`
- `NiCE.VMware.SecureReferences.mpb`
- `NiCE.VMware.vSphere.mpb`

The following management packs are optional and may be imported later:

- `NiCE.VMware.vSphere.Reports.mpb`
- `NiCE.VMware.vHost.Reports.mpb`
- `NiCE.Report.Library.mpb`
- `NiCE.VMware.Planning.Reports.mpb`

By default, the management-pack files are in the folder `%ProgramFiles%\NiCE\VMwareMP\MPs` on the system where the setup package was installed.

Note:

It is recommended to leave VMware MPs from previous versions on the SCOM management server. Do NOT delete them before importing the new ones.

Otherwise, the SCOM database may become inconsistent for some hours, and this will prevent you from continuing your work.

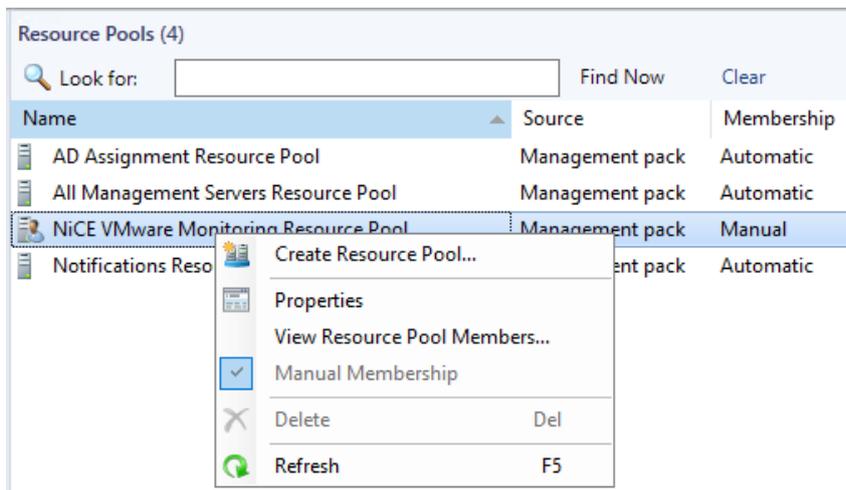
7. Assign the VMware MP Systems to the Resource Pool (optional)

This restricts the workflows to run only on those SCOM server where the VMware MP Management Service is installed.

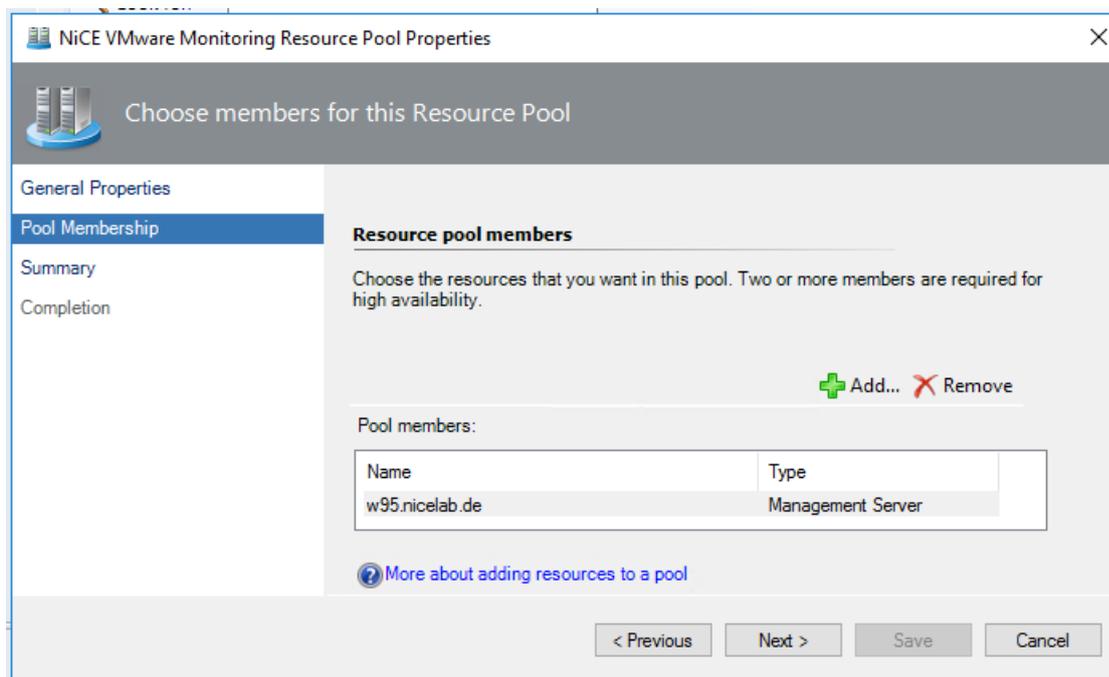
It is optional for cases when you wish to use a number of monitors such as the “Cluster Noisy Neighbour Monitor” and the “NiCE VMware Management Pack In Sync Monitor”.

Make sure that all VMware MP Collector Servers are part of the “NiCE VMware Monitoring Resource Pool” and **remove all other** servers where the NiCE VMware Management Service is **not** installed.

1. In the **Administration** pane, open the **Resource Pools** pane.
2. Select **NiCE VMware Monitoring Resource Pool** and set **Membership** to **Manual** as illustrated in the following screenshot.



3. Remove all servers that do NOT have a NiCE VMware Management Service installed.



4. Make sure that all VMware MP Collector Server are included in the resource pool. The VMware MP Collector Server is the server where the Collector was configured in the step "Installing the NiCE VMware MP".
5. Save the settings.

8. Configure Topology Discovery

The "VMware Topology Discovery" is a single discovery that is designed to discover all objects into the VMware environment. It is the default discovery workflow that uses a single job to retrieve all objects in the SCOM environment since VMware MP version 5.5.

If you are using VMware MP 5.4, you need to disable all other discoveries and enable the VMware Topology Discovery.

Although Topology Discovery is designed to discover all objects, there are specific levels to stage the discovery effort. Out of the box, the VMware Topology discovery will discover the following objects on level 2:

- NiCE VMware Management Service
- VMware vSphere
- VMware Datacenter
- VMware vCenter
- VMware vCenter Collection
- VMware vCenter Storage
- VMware Cluster

- VMware vSAN Cluster
- VMware Datastore
- VMware Network
- VMware Host
- VMware Virtual Machine
- VMware Pool
- Distributed Virtual Device Collection
- VMware Network Distributed Virtual Port Group
- VMware Network Distributed Virtual Switch

Discover More Objects

Retrieving objects on proxy agents requires enabling of the “Discover Proxy Agents” option.

How much the discovery finds can be controlled with the override parameter “Depth”. It may be set to a number between 1 and 6, where a larger number means that more object types are discovered.

Out of the box, the depth is set to 2.

Depth 3 discovers Cluster Host Collection, Cluster Pools Collection, VMware Host License Group, VMware Host License, VMware Host Network Adapter, VMware Host Storage, VMware Host CPU, VMware Host Local Partition, VMware Host Log File, VMware Host Sensor, VMware Hardware Health Status, VMware Network Switch, VMware vSAN Skyline Health, VMware vSAN Physical Disk and VMware vSAN Host Summary, VMware Virtual Machine Storage, VMware Virtual Machine Guest Disk, VMware Virtual Machine Network Adapter and VMware Virtual Machine CPU objects.

Depth 4 discovers VMware Virtual Machine Snapshot, VMware Network Port Group, VMware Switch Adapter and VMware Virtual Disk objects.

Depth 5 discovers VMware Host Datastore, VMware Host Datastore Reference and VMware Host Network Reference objects.

Depth 6 discovers VMware Host Virtual Machines Collection, Resource Pool Virtual Machine, VMware Host-Datastores and VMware Host-Networks.

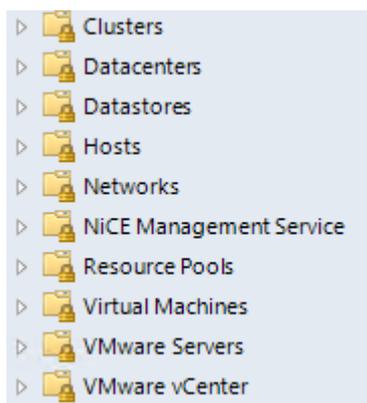
Please be aware that discovering a great number of instances will put a lot of strain on the SCOM management server.

Please assess your environment and find a compromise between discovering and monitoring all possible objects and limiting the load it will produce.

Refer to the section “Capacity” in Chapter “About the NiCE VMware MP” for details about the maximum number supported objects per Operations Manager servers and Agents.

9. Check License

1. Log on to the Operations Console with an account that is a member of the Operations Manager Administrators role.
2. Switch to the `Monitoring` console.
3. In the Monitoring console, expand the `NiCE VMware` folder. It holds folders for all different types of objects in the VMware environment:



4. Use the SCOM task "VMware Management Service License Details Check" from "NiCE Management Service" state view to verify that the number of licenses is sufficient for your environment.

```
Service Host           = myserver.mylab.de
Number of Licenses     = 10000
Number of CPU Packages = 2
Are Licenses Sufficient = true
Version               = 5.6.286.0
Status Code:          0
Status Message:      OK
Error None
Exit Code:           0
```

10. Verifying MP Operation

After you have completed installing and configuring the NiCE VMware MP, it is recommended that you verify that the management pack is operational and functioning correctly.

To verify the installation:

1. Log on to the Operations Console with an account that is a member of the Operations Manager Administrators role.

2. Switch to the `Monitoring` console.
3. In the Monitoring console, expand the `NiCE VMware` folder. It holds folders for all different types of objects in the VMware environment:

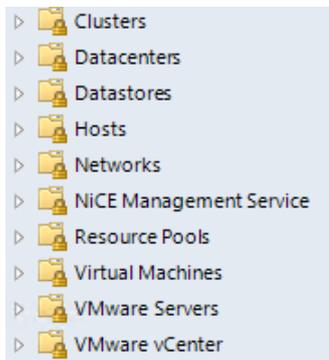


Figure 11: VMware target object folders in the SCOM Monitoring Console

4. Expand each folder and select the state view.
5. Click on each of the items in the state view in turn to display state information.

That the state information is present verifies that the management pack is operational.

If the management pack is not operational, or is not functioning correctly, refer to the section "[Troubleshooting the Installation](#)" in the NiCE VMware Advanced Guide.