

NiCE VMware Management Pack

Scripted Configuration 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 the Windows PowerShell for scripted configuration of the VMware Management Pack.

This is especially helpful for including the VMware Management Pack administration into scripted VMware administration.

Please be aware that not all functionality of the powerful NiCE VMware Administration UI can be executed with scripts.

This document complements the NiCE VMware Management Pack documentation. It does not replace the VMware Management Pack Quick Start Guide or Advanced Guide.

Introduction

Scripted Configuration of the VMware Management Pack ensures that Administration of the NiCE VMware Management Pack may be included in an automated or half-automated VMware administration with the help of approved and tested script functions.

Please note that this whitepaper does not replace any of the VMware Management Pack documentation but complements it.

Limitations

When a vSphere Server is added using either of the script functions:

- Add-vSphereServer
- Add-vSphereServerWithFlags

Then it takes few minutes to initialize the WMI-repository with the vSphere server data.

If the error message "invalid property" is returned when changing a new vSphere object, then the WMI repository is not yet initialized completely.

In such cases, wait a few more minutes. Afterwards it is possible to update the WMI-object using the script function:

- Update-vSphereServer

Prerequisites

The functionality is available on those servers on which the scripts package has been copied.

PowerShell 5.0 should be installed on the computer where VMware Management Pack Collector runs and where the scripts are to be executed.

For successful execution, .Net Framework version 4.7.2 is also required.

Import Functions into PowerShell

The functions are stored in a module file, which needs to be imported into PowerShell first:

- Open Windows PowerShell ISE or PowerShell CLI with "**Run as Administrator**".
- Import the module with command:
`Import-Module "<Path to the module>\VMwareMPScripts.psml"`

At this point, the function names are callable from the command-line and are accessible through IntelliSense in PowerShell ISE.

To access general information about the parameters available in the script function, synopsis, and descriptions, run the following command:

```
<function-name> -?
```

For a list of examples execute the following command:

```
Get-Help -Name <function-name> -Examples
```

Configure Remote Servers

Note that it is required to provide Distributed Component Object Model (DCOM) access if you want to configure remote SCOM servers or Agents with the PowerShell scripts.

The reason for this requirement is that the configuration data is kept in a WMI-repository which in turn is based on DCOM technology.

Adding or Removing a vSphere Server

Add-vSphereServer

To add a new vSphere server to VMware monitoring, execute the following command:

```
Add-vSphereServer    -mpServerName "<FQDN of SCOM server>"
                        -vSphereServerName "<FQDN of vSphere>"
                        [-url "<url to the vCenter endpoint>"]
                        -user "<vCenter user>" -password "<pwd>"
                        [-alternateName "<alternative FQDN>"]
                        [-suspendDataCollection ($true|$false)]
                        [-ignoreFailure ($true|$false)]
```

In case the parameter "url" is not defined it will be constructed from the parameter vSphereServerName:

```
$url = "https://" + $vSphereServerName + "/sdk"
```

If the parameter "alternateName" is not defined, the parameter "vSphereServerName" will be used instead.

The default value of parameters "suspendDataCollection" and "ignoreFailure" is "false".

Depending on the outcome, either "true|Success" or „false|<error message>" will be returned.

Example:

```
Add-vSphereServer -mpServerName "scm.testlab.com"
                    -vSphereServerName "vcdummy.testlab.com"
                    -url "https://vcdummy.testlab.com/sdk"
                    -user "abc@user.com" -password "123"
                    -alternateName "vcdummy.testlab.com"
                    -suspendDataCollection $false
                    -ignoreFailure $false
```

Add-vSphereServerWithFlags

This function adds a new vSphere server for management while configuring the collector with some options supplied through the "flags" parameter.

Add-vSphereServerWithFlags

```
-mpServerName "<FQDN of SCOM server>"
-vSphereServerName "<FQDN of vSphere>"
[-url "<url to the vCenter endpoint>"]
```

```
-user "<vCenter user>" -password "<pwd>"
[-alternateName "<alternative FQDN>"]
[-eventHistoryHours <integer>]
[-taskHistoryHours <integer>]
[-flags <sum of numbers>]
```

In case the parameter "url" is not defined, it will be constructed from parameter vSphereServerName:

```
$url = "https://" + $vSphereServerName + "/sdk"
```

If the parameter "alternateName" is not defined, the parameter "vSphereServerName" will be used instead.

The default value of parameters "eventHistoryHours", "taskHistoryHours" and "flags" is zero.

The corresponding option in the Administration UI for "eventHistoryHours" is Events > Retrieve Events History (in hours) and the default value is 1 hour.

The corresponding option in the Administration UI for "taskHistoryHours" is Tasks > Retrieve Tasks History (in hours) and the default value is 1 hour.

The following flags provide additional configuration options for the VMware Management Pack collector. Most of the options may also be configured in the Administration UI under "Administration > Edit Monitoring Settings".

The flag to configure the collector may switch on the following options:

| Administrator UI | Name | Number |
|--|-------------------------|--------|
| n/a | None | 0 |
| n/a | Suspend Data collection | 1 |
| n/a | Ignore failures | 2 |
| New Entities > Ignore Newly Added VMware Hosts | Ignore new hosts | 4 |
| New Entities > Ignore Newly Added VMware Clusters | Ignore new clusters | 8 |
| New Entities > Ignore Newly Added VMware Datacenters | Ignore new datacenters | 16 |
| Events > Allow Only this VMware Server Events | Check new event owner | 32 |
| Events > Limit Events by Known Type | Restrict events by type | 64 |
| Tasks > Allow Only this VMware Server Tasks | Check task owner | 128 |

Sum up the numbers of all options that should be switched on and enter it as the flag number.

Depending on the outcome, either "true|Success" or „false|<error message>" will be returned.

Example:

```
Add-vSphereServerWithFlags
    -mpServerName "scm.testlab.com"
    -vSphereServerName "vcdummy.testlab.com"
    -url "https://vcdummy.testlab.com/sdk"
    -user "abc@user.com" -password "123"
    -alternateName "vcdummy.testlab.com"
    -eventHistoryHours 1
    -taskHistoryHours 1
    -flags 66
```

This example limits the events to known types, leaves the Event History and Task History as the default 1 hour and disregards any failure.

Remove-vSphereServer

This function removes a vSphere server from management by the given SCOM server and ends its monitoring by the VMware Management Pack.

```
Remove-vSphereServer    -mpServerName "<FQDN of SCOM server>"
                          -vSphereServerName "<FQDN of vSphere>"
```

Depending on the outcome, either "true" or "false" will be returned.

Example:

```
Remove-vSphereServer    -mpServerName "scm.testlab.com"
                        -vSphereServerName "vcdummy.testlab.com"
```

Showing all vSphere Servers and Hosts

The two list functions may be used to analyze the current monitoring status of the vSphere Servers and Hosts.

Get-vSphereServers

This function lists all ESXi hosts and vCenters that are monitored by VMWare Management Pack collector.

Get-vSphereServers -mpServerName "<FQDN of SCOM server>"

It returns a list of vSphere ESXi host systems and vCenter systems.

Example

```
Get-vSphereServers -mpServerName "scom.testlab.com"
```

```
AlarmHistoryHours      : 1
AlternateName          : vc01.testlab.com
Connected              : True
ConnectionUrl          : https://vc01.testlab.com/sdk
ConnectionUsername     : testuser@vsphere.local
DisplayName            : vc01.testlab.com (vc01.testlab.com)
FilterIgnoreNewClusters : True
FilterIgnoreNewDatacenters : True
FilterIgnoreNewHosts   : True
IgnoreDatastores       : False
IgnoreHostHardware     : False
IgnoreNetworks         : False
IgnoreVirtualMachines  : False
ServerName             : vc01.testlab.com
ServiceApiVersion      : 6.7.1
ServiceFullName        : VMware vCenter Server 6.7.0 build-11727113
TaskHistoryHours       : 1
EventHistoryHours      : 1
```

```
AlarmHistoryHours      : 1
AlternateName          : vc02.testlab.com
Connected              : True
ConnectionUrl          : https://vc02.testlab.com/sdk
ConnectionUsername     : testuser@vsphere.local
DisplayName            : vc02.testlab.com (vc02.testlab.com)
FilterIgnoreNewClusters : True
FilterIgnoreNewDatacenters : True
FilterIgnoreNewHosts   : True
IgnoreDatastores       : False
IgnoreHostHardware     : False
IgnoreNetworks         : False
IgnoreVirtualMachines  : False
ServerName             : vc02.testlab.com
ServiceApiVersion      : 7.0.0.0
ServiceFullName        : VMware vCenter Server 7.0.0 build-15952599
TaskHistoryHours       : 1
EventHistoryHours      : 1
```

Get-vSphereHosts

This function lists out vSphere host systems managed by a server.

```
Get-vSphereHosts -mpServerName "<FQDN of SCOM server>"
```

It returns a list of vSphere ESXi host systems with Name, Instance ID, Server ID and whether they are currently ignored or not.

Example:

```
Get-vSphereHosts -mpServerName "scm.testlab.com"
```

Example output:

| InstanceId | IsIgnored | Name | ServerId |
|--------------------------|-----------|------------------|-----------------|
| ----- | ----- | ---- | ----- |
| Vc66.testlab.de_host-28 | True | esx66.testlab.de | vc66.testlab.de |
| Vc77.testlab.de_host-323 | True | esx77.testlab.de | vc77.testlab.de |
| Vc55.testlab.de_host-10 | True | esx55.testlab.de | vc55.testlab.de |
| vc88.testlab.de_host-308 | False | esx88.testlab.de | vc88.testlab.de |

Switch Monitoring On / Off for a vSphere Host

Disable-vSphereHost

This function disables a vSphere host system.

```
Disable-vSphereHost    -mpServerName "<FQDN of SCOM server>"
                       -vSphereHostName "<FQDN of vSphere>"
```

Example:

```
Disable-vSphereHost    -mpServerName "scm.testlab.com"
                       -vSphereHostName "vcdummy.testlab.com"
```

Enable-vSphereHost

This function enables a vSphere host system.

```
Enable-vSphereHost     -mpServerName "<FQDN of SCOM server>"
                       -vSphereHostName "<FQDN of vSphere>"
```

Example:

```
Enable-vSphereHost     -mpServerName "scm.testlab.com"
                       -vSphereHostName "vcdummy.testlab.com"
```

Example Output

Both functions Disable-vSphereHost and Enable-vSphereHost return the following data:

```
Id                    : host-323
IgnoreOwned          : True
InstanceId            : vc.testlab.de_host-323
IsIgnored             : True
Name                  : esx.testlab.de
ParentId              : domain
ServerId              : vc.testlab.de
TypeName              : HostSystem
```

Changing vSphere Objects

When a vSphere Server is added using either of the script functions:

- Add-vSphereServer
- Add-vSphereServerWithFlags

Then it takes few minutes to initialize the WMI-repository with the vSphere server data.

Afterwards it is possible to update the WMI-object using the script function:

- Update-vSphereServer

If the initialization is not complete yet, an error message "invalid property" will occur.

Update-vSphereServer

This function updates an existing vSphere server.

Most of the options may also be configured in the Administration UI under "Administration > Edit Monitoring Settings".

```
Update-vSphereServer    -mpServerName "<FQDN of SCOM server>"
                        -vSphereServerName "<FQDN of vSphere>"
                        -<option name> <value>
                        [...]
```

If no valid vSphere server is supplied, or initialization of its WMI object is not yet finished the function will throw ParameterArgumentValidationErrorNullNotAllowed or ParameterBindingValidationException exceptions.

If all options have been valid, the function will return all data that WMI has stored for this vCenter or standalone ESXi host after the updates have finished.

Options

Options may be one or more of the following:

| Option | Value | Administrator UI |
|-------------------|-------------------------|--|
| eventHistoryHours | Integer number of hours | Events > Retrieve Event History (in hours) |
| taskHistoryHours | Integer number of hours | Tasks > Retrieve Tasks History (in hours) |

| | | |
|------------------------|------------------|--|
| ignoreNewHosts | [\$true \$false] | New Entities > Ignore Newly Added VMware Hosts |
| ignoreNewClusters | [\$true \$false] | New Entities > Ignore Newly Added VMware Clusters |
| ignoreNewDatacenters | [\$true \$false] | New Entities > Ignore Newly Added VMware Datacenters |
| allowOnlyOwnEvents | [\$true \$false] | Events > Allow Only this VMware Server Events |
| restrictEventsByType | [\$true \$false] | Events > Limit Events by Known Type |
| allowOnlyOwnTasks | [\$true \$false] | Tasks > Allow Only this VMware Server Tasks |
| ignoreVirtualMachines | [\$true \$false] | Existing Entities By Type > Ignore Virtual Machines |
| ignoreDatastores | [\$true \$false] | Existing Entities By Type > Ignore Data Store |
| ignoreNetworks | [\$true \$false] | Existing Entities By Type > Ignore Networks |
| ignoreHostHardware | [\$true \$false] | Existing Entities By Type > Ignore Host Hardware |
| collectVCenterMetrics | [\$true \$false] | Metrics > Collect vCenter Metrics |
| collectRealTimeMetrics | [\$true \$false] | Metrics > Collect Real Time Metrics |

The options may also be changed in the Administrator UI under [Administration > Edit Monitoring Settings](#).

Examples

Set the event history hours to 2 hours:

```
Update-vSphereServer -mpServerName "scm.testlab.com"
                    -vSphereServerName "vcdummy.testlab.com"
                    -eventHistoryHours 2
```

Allow only tasks from the same SCOM server:

```
Update-vSphereServer -mpServerName "scm.testlab.com"
                    -vSphereServerName "vcdummy.testlab.com"
                    -allowOnlyOwnTasks $true
```

Allow tasks from other servers and ignore networks:

```
Update-vSphereServer -mpServerName "scm.testlab.com"
```

```
-vSphereServerName "vcdummy.testlab.com"  
-allowOnlyOwnTasks $false  
-ignoreNetworks $true
```

Example Output

```
AlarmHistoryHours      : 1  
AlternateName          : vcdummy.testlab.com  
Connected              : True  
ConnectionUrl          : https://vcdummy.testlab.com/sdk  
ConnectionUsername     : testuser@vsphere.local  
DisplayName            : vcdummy.testlab.com (vcdummy.testlab.com)  
FilterIgnoreNewClusters : True  
FilterIgnoreNewDatacenters : True  
FilterIgnoreNewHosts   : True  
IgnoreDatastores       : True  
IgnoreHostHardware     : True  
IgnoreNetworks         : True  
IgnoreVirtualMachines : True  
ServerName             : vcdummy.testlab.com  
ServiceApiVersion      : 7.0.0.0  
ServiceFullName        : VMware vCenter Server 7.0.0 build-15952599  
TaskHistoryHours       : 24  
EventHistoryHours      : 24  
CollectVCenterMetrics  : False  
CollectRealTimeMetrics : True
```

Set-DataCollectionInterval

This function sets the data collection interval.

The default collection interval is 300 seconds. Setting it higher will collect monitoring data less often and as such put less strain on both the SCOM and vSphere server.

```
Set-DataCollectionInterval -mpServerName "<FQDN of SCOM server>"  
                           -collectionIntervalSec <integer>
```

This function returns nothing.

Example:

```
Set-DataCollectionInterval -mpServerName "scm.testlab.com"  
                           -collectionIntervalSec 900
```

Command Line Tools Overview

The following scripts are available:

| | |
|----------------------------|--|
| Add-vSphereServer | Adds vCenter or ESXi hosts into VMwareMP collector. |
| Add-vSphereServerWithFlags | Adds vCenter or ESXi hosts into VMwareMP collector with flags. |
| Disable-vSphereHost | Disables ESXi hosts to be monitored. |
| Enable-vSphereHost | Enables ESXi hosts to be monitored. |
| Get-vSphereHosts | List all monitored ESXi hosts in VMwareMP collector. |
| Get-vSphereServers | Lists all monitored ESXi hosts and vCenters in VMwareMP collector. |
| Remove-vSphereServer | Removes ESXi host or vCenter from VMwareMP collector. |
| Update-vSphereServer | Updates ESXi host or vCenter in VMwareMP collector. |
| Set-DataCollectionInterval | Updates data collection interval for given managed server and given polling interval in seconds. |