Quick Start Guide

NiCE PowerHA Management Pack

Version 01.40
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For use with System Center Operations Manager

NiCE
IT Management Solutions

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Revisions

The version number on the title page of this document indicates the software version. The print date on the title page changes each time this document is updated. You will receive updated or new editions if you subscribe to the appropriate product support service.

Contents

Glossary

Abbreviation	Meaning
MP	Operations Manager Management Pack
OMI	Open Management Infrastructure
OpsMgr	System Center Operations Manager
UR	Operations Manager update rollup
xPlat	Cross Platform

Before you Start

This guide explains how to setup and configure the NiCE PowerHA MP for systems running on an AIX operating system.

The NiCE PowerHA MP is contained in the NiCE Cluster MP package, which delivers other cluster monitoring solutions as well. At this point in time the NiCE Cluster MP also supports Veritas Cluster.

All scripts, tasks and other artifacts that contain "PowerHA" in the label or name are specific to PowerHA. Labels containing "Cluster" are generic to other Cluster solutions.

Before you start the installation and configuration process, have a look at the information in this section, which covers the following areas:

- Supported Environments

- Limitations

- Prerequisites

Supported Environments

NiCE PowerHA MP supports the following platforms and applications:

- System Center Operations Manager (OpsMgr) 2012 R2 through 2019 have been verified.

- OpsMgr xPlat Agent

  This version of the NiCE PowerHA MP supports OMI (OpsMgr 2012 R2 and later) Agents only. For support for OpsMgr 2012 SP1 and earlier agents, please contact the NiCE support team and open a ticket via the portal help desk.

- IBM PowerHA SystemMirror 7.1.x and 7.2.x. If other versions (like 6.1) or platforms are required, please contact the NiCE support team and open a ticket via the portal help desk.

For details and updates concerning the supported platforms of OpsMgr and IBM PowerHA, consult the support matrix on portal.nice.de.

Limitations

This section lists the limitations of the PowerHA MP including information about the following areas:

- No support for concurrent Resource Groups

Prerequisites

If you want to install and run the NiCE PowerHA MP, bear in mind the specified prerequisites for the following components:

- Microsoft System Center Operations Manager Version 2012R2 (or higher)

- User Accounts

- IBM PowerHA Server

System Center Operations Manager

For more information about the versions of System Center Operations Manager that the NiCE PowerHA MP supports, see "Supported Environments".

It is recommended but not mandatory to use the latest Operations Manager update rollup (UR).

For OpsMgr use the latest System Center 2012 UNIX and Linux Management Pack:

http://www.microsoft.com/en-us/download/details.aspx?id=29696

User Accounts

User Accounts for the PowerHA MP Configuration

The installation and configuration of the PowerHA MP requires elevation.

To configure and setup the PowerHA MP, there are two options:

1. Using an OpsMgr Console Task for configuration deployment

   For this, the UNIX/Linux "run as" account must have full sudo privileges as described here: http://technet.microsoft.com/en-us/library/hh230690.aspx

   OR

   The "`root`" account is used AND can login to the system to run scripts.

   OR

   See section "Prepare the PowerHA System" on page 11 for details for restrictive setups.

2. Manual instrumentation deployment

   Login to the systems and switch to `root` and follow the instruction given in section "Manual Instrumentation Options" on page 24.

User Accounts for the PowerHA MP Operation

The PowerHA MP uses a number of scripts which are executed on the PowerHA systems for monitoring. All scripts are executed by the agent as the account referenced in the "`UNIX/Linux Default Action Account`" Run-as profile. Please ensure the sudoers entries given in the "Prepare the PowerHA System" section on page 11 are present.

PowerHA Server

For the required PowerHA versions, see section "Supported Environments" on page 6.

In addition, the following prerequisites apply:

- A System Center Agent needs to be installed on the PowerHA Server.

The PowerHA MP has a number of prerequisites for elevated execution. For details, please see "Prepare the PowerHA System" on page 11.

Functionality Scope

The NiCE PowerHA MP provides the agent-based capabilities you need to monitor and manage the PowerHA cluster with minimal overheads or monitoring costs.

It includes features and functionality that enable the comprehensive monitoring and management of the PowerHA cluster environment.

For a detailed list of included OpsMgr Monitors and Rules, see the "NiCE PowerHA MP Reference Guide".

Architecture

NiCE PowerHA MP Architecture (Linux/UNIX)
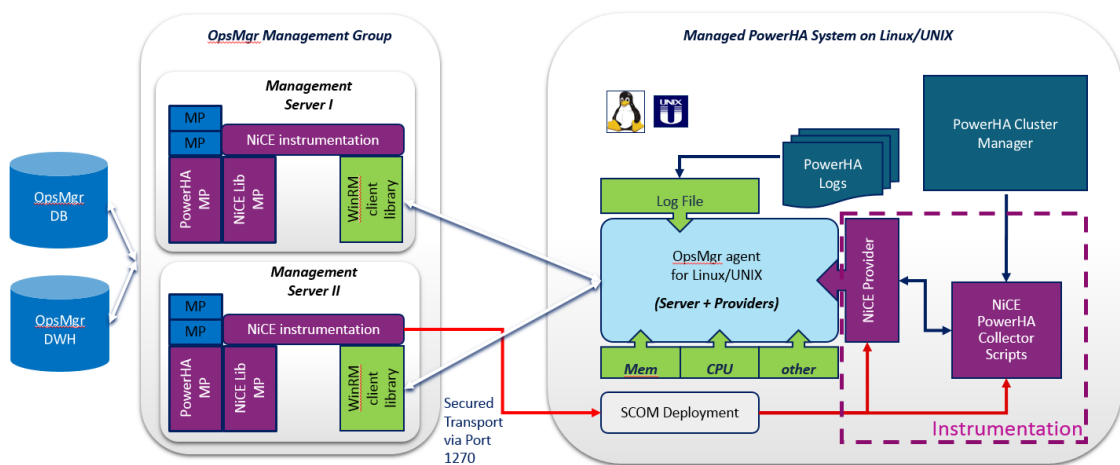
PowerHA MP Architecture

Managed PowerHA Systems

The PowerHA MP requires "instrumentation" to work. Instrumentation is a set of scripts, binaries and tools that run on the PowerHA system. The instrumentation is generic to all NiCE Cluster MPs.

The instrumentation contains the NiCE Cluster Providers (for OMI) and the NiCE PowerHA collector and discovery scripts. It also includes scripts for log file processing, license checks, and other utilities. All processes are sub-processes of the OpsMgr Agent.

Management Server

It is not mandatory to install anything on the OpsMgr management server. However, there is an OpsMgr console task (illustrated by the red lines in the architecture diagram), which can be used to deploy the instrumentation to the managed Power HA systems.

To use the OpsMgr console task, you need to install an MSI package on the system where you open the OpsMgr console. If you install the MSI package on the OpsMgr management server, you can use the Console on the management server for configuration purposes.

Installation Instructions

To complete the installation process for the NiCE PowerHA MP, you must perform the steps listed in the following table.

Action	Location/Tool
Prepare the PowerHA System	PowerHA server
Install the Cluster MP Setup Package	OpsMgr or Console System
Import Cluster and PowerHA Management Packs	Administrator Console
Deploy the Cluster MP Instrumentation	Monitoring Console
Enable Basic Discovery	Authoring Console
Cluster Computer Discovery	Monitoring Console
Enable Detailed Resource Monitoring (Optional)	Monitoring Console
Check the Licenses	Monitoring Console
Verify the Discovery and Data Collection Process	Monitoring Console
Add Permanent Licenses	Administration Console

As indicated in the steps table above, some of the installation steps must be executed on the Operations Management server or console system while other steps should be executed on the PowerHA system.

Make sure you are logged on to the appropriate server when you perform the installation steps.

Prepare the PowerHA System

In order to install the PowerHA MP from the OpsMgr Console, certain "`sudo`" privileges must be granted to the privileged user account used by OpsMgr. As an alternative the installation can be done manually on the system using the `root` account.

> **Note:**
>
> **This step is not required if the systems "root" user is used for both Privileged and Action accounts.**

All discovery and monitoring (rules, monitors) workflows use the "UNIX/Linux Action Account" RunAs Profile.

The following commands must be added to the `/etc/sudoers` file if the "UNIX/Linux Action Account" Run-as profile is not configured with a `root` for this system.

Minimum permissions required for monitoring:

```
Defaults:<user> !requiretty
<user> ALL=(root) NOPASSWD: /opt/microsoft/scx/bin/scxlogfilereader
## PowerHA discovery
<user> ALL=(root) NOPASSWD: /usr/es/sbin/cluster/utilities/clmgr -v -c
-S -a * query file_system
<user> ALL=(root) NOPASSWD: /usr/es/sbin/cluster/sbin/cl_lsfs -c
<user> ALL=(root) NOPASSWD: /usr/es/sbin/cluster/sbin/cl_showfs2 -h
<user> ALL=(root) NOPASSWD: /usr/es/sbin/cluster/utilities/cllog -g
cluster.log
<user> ALL=(root) NOPASSWD: /usr/es/sbin/cluster/utilities/cllog -g
hacmp.out
<user> ALL=(root) NOPASSWD: /usr/es/sbin/cluster/utilities/clodmget -q
name=cluster.log -f value HACMPlogs
<user> ALL=(root) NOPASSWD: /usr/es/sbin/cluster/utilities/clodmget -q
name=hacmp.out -f value HACMPlogs
```

Additional, optional privileges for Tasks:

```
<user> ALL=(root) NOPASSWD: /opt/NiCE/clmp/clmp_start
```

Additional, optional privileges for Instrumentation Deployment:

```
<user> ALL=(root) NOPASSWD: /bin/sh -c mkdir -p /tmp/clmp
<user> ALL=(root) NOPASSWD: /bin/sh -c chmod -R 777 /tmp/clmp
<user> ALL=(root) NOPASSWD: /bin/sh -c chmod +x
/tmp/clmp/clmp_mp_install.sh
<user> ALL=(root) NOPASSWD: /bin/sh -c cd /tmp/clmp;
/tmp/clmp/clmp_mp_install.sh; cd /tmp; rm -rf /tmp/clmp
<user> ALL=(root) NOPASSWD: /bin/sh -c /opt/NiCE/clmp/clmp_start
clmp_uninstall.pl
<user> ALL=(root) NOPASSWD: /usr/bin/sh -c /opt/NiCE/clmp/clmp_start
clmp_uninstall.pl
```

Example for the user "**opsuser**":

```
## OpsMgr privileged user
```

```
## Power HA Cluster MP
Defaults:opsuser !requiretty
opsuser ALL=(root) NOPASSWD: /opt/microsoft/scx/bin/scxlogfilereader
## PowerHA Cluster MP discovery
opsuser ALL=(root) NOPASSWD: /usr/es/sbin/cluster/utilities/clmgr -v -c -S -a *
query file_system
opsuser ALL=(root) NOPASSWD: /usr/es/sbin/cluster/sbin/cl_lsfs -c
opsuser ALL=(root) NOPASSWD: /usr/es/sbin/cluster/sbin/cl_showfs2 -h
opsuser ALL=(root) NOPASSWD: /usr/es/sbin/cluster/utilities/cllog -g
cluster.log
opsuser ALL=(root) NOPASSWD: /usr/es/sbin/cluster/utilities/cllog -g hacmp.out
opsuser ALL=(root) NOPASSWD: /usr/es/sbin/cluster/utilities/clodmget -q
name=cluster.log -f value HACMPlogs
opsuser ALL=(root) NOPASSWD: /usr/es/sbin/cluster/utilities/clodmget -q
name=hacmp.out -f value HACMPlogs
## Power HA MP Tasks
opsuser ALL=(root) NOPASSWD: /opt/NiCE/clmp/clmp_start
## PowerHA Cluster MP Instrumentation Deployment
opsuser ALL=(root) NOPASSWD: /bin/sh -c mkdir -p /tmp/clmp
opsuser ALL=(root) NOPASSWD: /bin/sh -c chmod -R 777 /tmp/clmp
opsuser ALL=(root) NOPASSWD: /bin/sh -c chmod +x /tmp/clmp/clmp_mp_install.sh
opsuser ALL=(root) NOPASSWD: /bin/sh -c cd /tmp/clmp;
/tmp/clmp/clmp_mp_install.sh; cd /tmp; rm -rf /tmp/clmp
opsuser ALL=(root) NOPASSWD: /bin/sh -c /opt/NiCE/clmp/clmp_start
clmp_uninstall.pl
opsuser ALL=(root) NOPASSWD: /usr/bin/sh -c /opt/NiCE/clmp/clmp_start
clmp_uninstall.pl
```

Install the Cluster MP Setup Package

You perform this operation on either the OpsMgr system or the OpsMgr Console system.

The Microsoft installer (MSI) package `NiCE_ClusterMP_0140.msi` contains all the management packs and instrumentation you need to monitor your PowerHA systems with the NiCE PowerHA MP.

Where you install this MSI is up to you. For example, you can install it on the OpsMgr system or on the system running the OpsMgr Console.

However, it is recommended to execute the setup of the `NiCE Cluster MP MSI file` on an OpsMgr Management Server.

1. Copy the Microsoft installation package for the Cluster MP (`NiCE_ClusterMP_0140.msi`) to a temporary location on the OpsMgr Server.

2. Double-click the file `NiCE_ClusterMP_0140.msi` to start the installation process.

3. Follow the instructions displayed in the setup screens and dialogs.

During installation it is recommended, but not required, to use the default installation directory to install the Cluster MP.
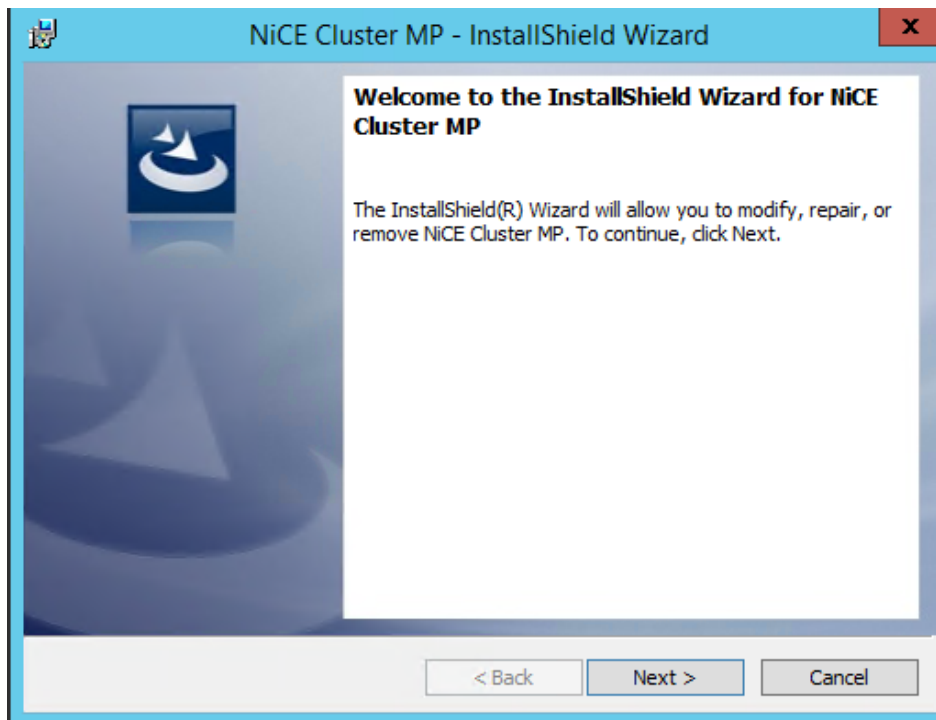
NiCE Cluster MP – Installation Wizard Dialog

Import Cluster and PowerHA Management Packs

You perform this operation on the Administration Console.

1. Log on to the OpsMgr Administration Console.

2. Import the following management pack files:

- `NiCE.Cluster.Library.mpb`

- `NiCE.Cluster.X.AIX.mpb`

- `NiCE.Library.X.mpb`

- `NiCE.PowerHA.Cluster.mpb`

Depending on the platform of your cluster nodes:
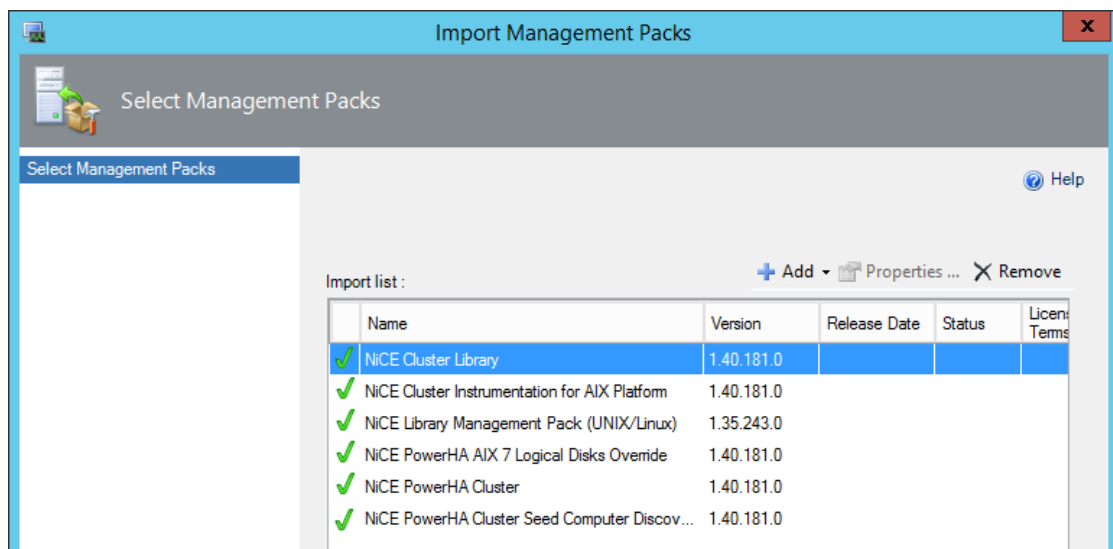
- `NiCE.PowerHA.AIX.6.1.mpb`

- `NiCE.PowerHA.AIX.7.mpb`

Optional:

- `NiCE.PowerHA.Cluster.X.Seed`

By default, the files are located in the following directory on the system where the setup MSI package has been installed during the "Install the Cluster MP Setup Package" step:

`%ProgramFiles(x86)%\NiCE\ClusterMP\MPs\`

Operations Manager Console: Import Management Pack Dialog

3. Add licenses by importing the following management pack file:

   `NiCE.PowerHA.Cluster.License.xml`

For evaluation purposes, the license file is provided by the NiCE Sales Team. Please contact sales@nice.de if you need an evaluation license.

For permanent licenses you will receive a different License management pack which contains the permanent licenses.

For troubleshooting, please follow the steps described in "License Troubleshooting " on page 30.

Deploy the Cluster MP Instrumentation

There are two options to deploy the Cluster MP instrumentation

- Remote Instrumentation Deployment

- Manual Instrumentation Deployment

Remote Instrumentation Deployment

You perform this operation on the Monitoring Console.

To deploy the Cluster MP instrumentation, perform the following tasks:

1. Open the Monitoring Console

2. Check user permissions:

   - Ensure "User Accounts for the PowerHA MP Configuration" on page 7 has been completed.

   OR

   - The `root` account is configured in the run-as profiles and can login to the cluster system.

3. Deploy the Cluster MP instrumentation.

   a. Select one or many server objects in the "UNIX/Linux Computer" state view. Please note that selecting several objects is supported only for objects that have the same platform.

   b. In the "Task" window run the task "Deploy Cluster MP instrumentation".

The override task "Temp Folder for Deployment" allows you to select a temporary folder on the PowerHA System where the package is deployed to and extracted. Note that if a folder other than `/tmp` is used, the sudoers adjustment also needs to be changed.
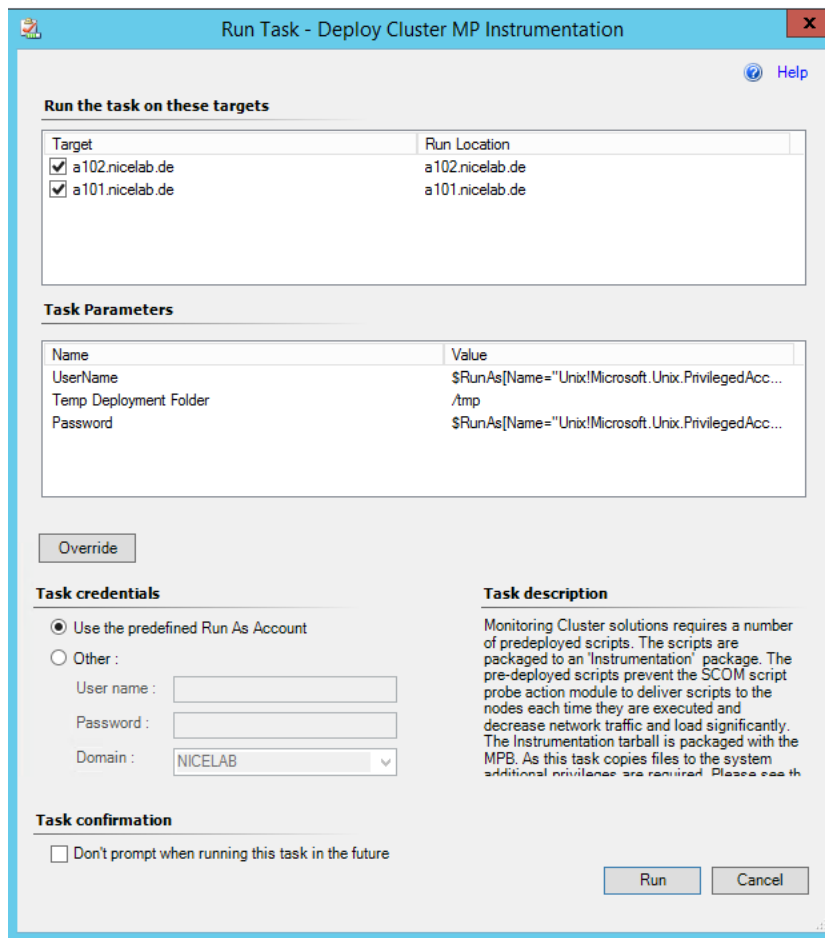
Dialog: Task "Deploy Cluster MP Instrumentation"
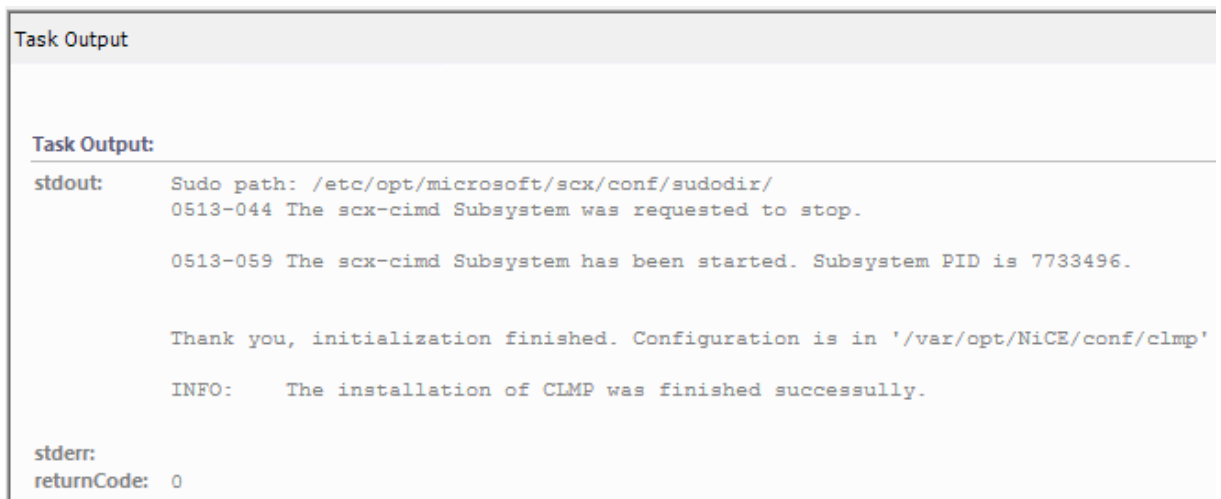
Dialog: Result of the task "Deploy Cluster MP Instrumentation"

Manual Instrumentation Deployment

If the prerequisites for user permissions are not satisfied or the instrumentation deployment and configuration fails, see "Manual Instrumentation Options" on page 24 for information about alternative deployment methods.

Enable Basic Discovery

Per default no discovery workflows start. There are two options to enable the base discoveries for the Cluster MP objects:

- Enable Object Discovery for all UNIX/Linux Servers

- Enable Object Discovery only for selected Servers

Enable Object Discovery for all UNIX/Linux Servers

If you are either working in a test environment or have less than 50 servers, you can import the following Management Pack to enable the object Discovery:

`NiCE.Library.X.Enable.Discoveries.xml`

After several minutes the PowerHA Servers will appear in the `Cluster Configuration` view that can be found in the `NiCE IT Management Solutions (UNIX/Linux)` folder. Please continue to section "Deploy the Cluster MP Instrumentation" on page 15.

Enable Object Discovery only for selected Servers

In large environment or production environment, it is recommended to enable PowerHA MP Object Discovery of the PowerHA servers only.

Please login to the Authoring Console and enable the following Object Discovery for the servers which should be discovered using an override:

`NiCE Library Computer Discovery (UNIX/Linux).`

NiCE Library Computer Discovery (UNIX/Linux) Discovery Override Properties

After several minutes the PowerHA Servers where the NiCE Instrumentation has been installed will appear in the `Configuration` view which can be found in the `NiCE IT Management Solutions (UNIX/Linux)` folder.

You can also trigger the discovery by executing the task "Discover NiCE Library Computer":

1. Select one or many server objects in the "UNIX/Linux Computer" state view.

2. In the "Task" window run the task "Discover NiCE Library Computer".

Cluster Computer Discovery

Once the NiCE Library Computer discovery succeeded, the Cluster Computer Discovery starts to populate the "Cluster Computers" view in the "NiCE IT Management Solutions (UNIX/Linux)" folder. The default time interval of the discovery is four hours. If desired, the "Cluster Computers" discovery can be triggered manually.

To check the licenses for the NiCE PowerHA MP, follow these steps:

1. In the Monitoring Console, select the "Configuration" view in the "NiCE IT Management Solutions (UNIX/Linux)" folder.

2. In the "Task" window run the task "Trigger Cluster Computer Discovery".

3. After 1 - 5 minutes, the "Cluster Computers" view in the "NiCE IT Management Solutions (UNIX/Linux)" folder will be populated.

Disable Detailed Resource Monitoring (Optional)

In the default configuration, the discoveries for cluster resources, cluster volumes groups and cluster file systems are enabled.

To reduce the footprint of Cluster MP, it is possible to switch to **Resource Summary Monitoring** where the following views will not contain any objects:

- Resources

- Cluster File Systems

- Files Systems (Local)

- Resources (Local)

The discovery may be disabled to prevent SCOM from an unexpected high instance count. If you have more than 1000 files systems in your environment, you should disable the discovery.

To disable the discovery of the above-mentioned objects, please follow the steps in the paragraph "Enable Resource Summary Monitoring".

Enable Resource Summary Monitoring

You perform this task from the Monitoring Console.

Please select the all or some servers in the "Cluster Computer" state view. Run the "Set Configuration Parameter" task with the following overrides:

Parameter Value: `ON`

Parameter Name: `RESOURCE_SUMMARY_MONITORING`
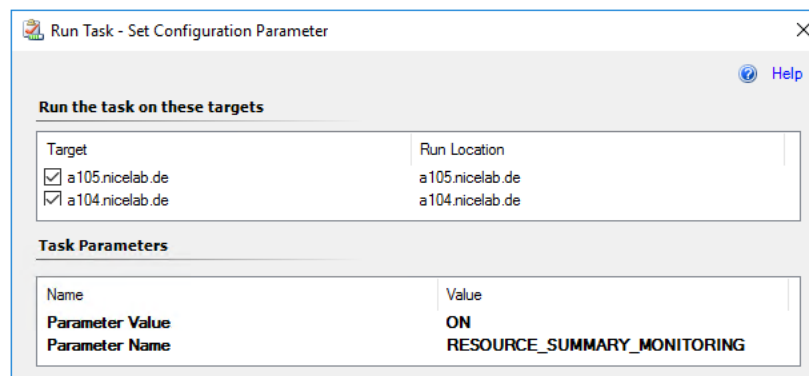
Set Configuration Parameter Task Details

After the completion, verify the detailed output:
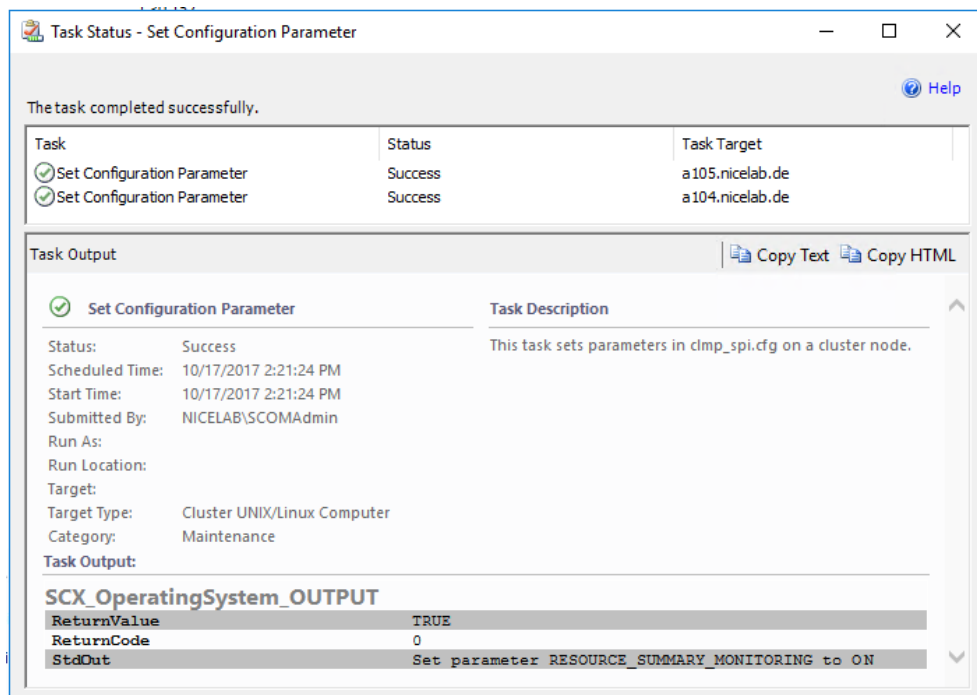
Success completion of Task

In case the Task is not successful or you prefer to configure this in a batch mode, please change the `clmp_spi.cfg` file on the server or in the deployment package manually.

Also for scripting this change, the clmp_spicfg.pl script is available.

Verify the Discovery and Data Collection Process

You perform this operation on the Monitoring Console.

To test the discovery operation and data collection process, perform the following steps:

1. Start the OpsMgr Monitoring Console.

2. In the Monitoring Console, select the "Cluster Computers" view in the "NiCE IT Management Solutions (UNIX/Linux)" folder.

3. In the "Task" window run the task "Test PowerHA Cluster Discovery". This task is specific to PowerHA.

4. In the "Task" window run the task "Test Data Collection". This task "enumerates" the generic Cluster MP provider.

For both tasks the output should be a set of data, and the task should terminate without error and without an "UNDEF" or Error Message in the "Task Output" dialog.

Add Permanent Licenses

You perform this operation on the Administration Console.

To add a permanent license for the NiCE PowerHA MP, you use the same process required to add an evaluation license.

Add licenses by importing the following management pack file:

```
NiCE.PowerHA.Cluster.License.xml
```

Your vendor or reseller will provide you with a License MP file, which contains the required permanent license key.

After the import, the license will be deployed to the cluster nodes with the rule "Install License (Cluster MP)" automatically once a day. Then you can check the license as explained in the next section.

If the license import fails, see section "License Troubleshooting" on page 30 for more information.

Check the Licenses

You perform this operation on the Monitoring Console.

To check the licenses for the NiCE PowerHA MP, follow these steps:

1. In the Monitoring Console, select the "Cluster Computers" view in the "NiCE IT Management Solutions (UNIX/Linux)" folder.

2. Run the task "Check License".

The output should display a valid license and no errors.
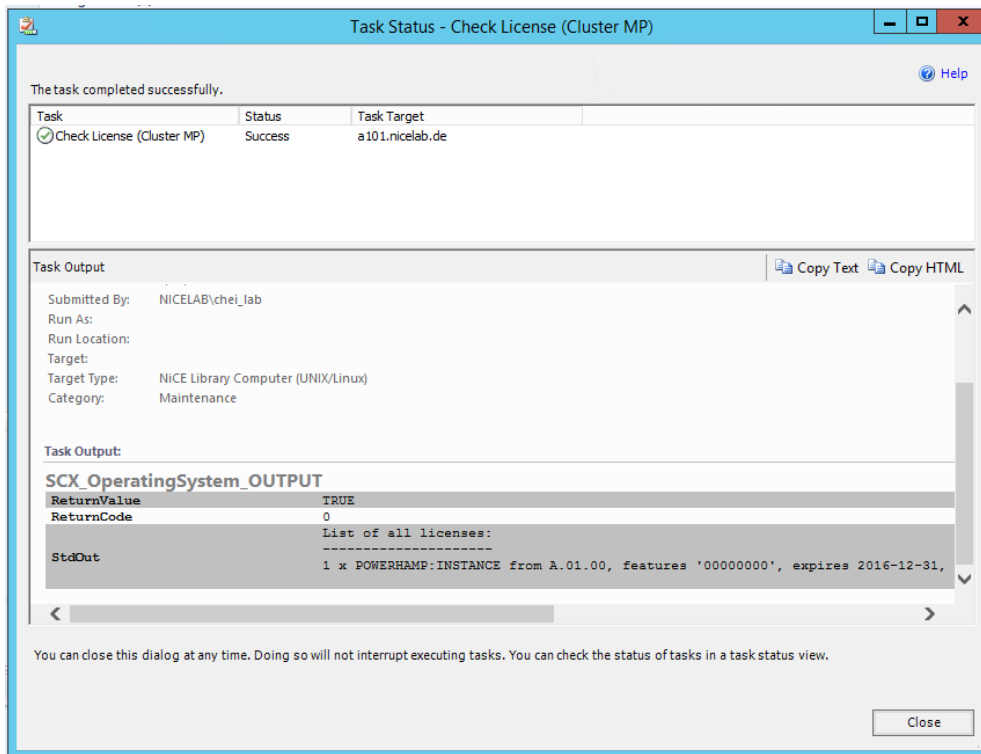
Dialog: Result of the task "Check License (Cluster MP)"

The output shows all licenses for Cluster MPs. PowerHA MP licenses are identified by the word "POWERHAMP" in the first part of the license string.

For more information about troubleshooting licensing issues, see "License Troubleshooting" on page 30.

Advanced Configuration

This chapter contains information that helps you configure the Cluster MP to meet the requirements of your monitoring landscape. The information covers the following topics:

- Manual Instrumentation

- Manual Instrumentation Configuration.

Manual Instrumentation Options

In some cases, it is necessary to deploy the Cluster MP instrumentation manually to the servers that you want to monitor, for example:

- Automatic deployment and configuration fails

- Policies require the system administrator to perform all system changes locally on the server (Example: Update of cluster paths)

The manual installation is split into two phases:

1. Manual Instrumentation Deployment

2. Manual Instrumentation Configuration

Manual Instrumentation Deployment

1. Log into each PowerHA server that you want to monitor.

2. Copy the Cluster MP instrumentation installer from the system where the Cluster MP installer package (`NiCE_ClusterMP_0140.msi`) was installed to the cluster server you want to monitor.

   By default, the instrumentation installer files are located in the following folder:

   `%ProgramFiles(x86)%\NiCE\ClusterMP\Instrumentation\UX\`

   The installer file is platform specific; please select it according to this table:

Platform	Instrumentation Required	Additional Files Required
AIX	`clmp_aix_pkg.tar`	`clmp_mp_install.sh` `clmp_response.cfg`

3. Copy the required files into a temporary directory on the cluster server, for example with `secure ftp` (`sftp`).

Manual Instrumentation Configuration

To configure the Cluster MP instrumentation manually, you must perform the following steps:

1. Prepare the Response File

2. Install the Cluster MP Instrumentation.

Prepare the Response File

The response file (`clmp_response.cfg`) contains all the required settings for the primary configuration phase. In most cases, you do not need to make any changes to the response file.

The following example shows a standard configuration in the response file `clmp_response.cfg`:

```
##################################################################
# File:        clmp_response.cfg
# Description:  The response file for management pack installation
#
# CSL-VERSION:  1.xx
##################################################################

#------------------------------------------------------------------
# NICE_BIN_DIR
#   Directory where all executables for Management Pack (MP)
#   are found. Each MP has its own sub-directory.
#------------------------------------------------------------------
NICE_BIN_DIR=/opt/NiCE
#------------------------------------------------------------------
# NICE_DATA_DIR
#   Directory where all data for Management Pack (MP) is stored.
#------------------------------------------------------------------
NICE_DATA_DIR=/var/opt/NiCE
#------------------------------------------------------------------
# NICE_PERL
#   Full path to the Perl executable. Read documentation to find out
#   which Perl version is required by Management Pack.
#------------------------------------------------------------------
NICE_PERL=/usr/bin/perl
#------------------------------------------------------------------
```

```
# MICROSOFT_SCX_DIR
#   Microsoft agent directory.
#-----------------------------------------------------------------
MICROSOFT_SCX_DIR=/opt/microsoft/scx
#-----------------------------------------------------------------
# START_SETUP
#   Flag (Y|N) to start setup perl script for MP.
#-----------------------------------------------------------------
START_SETUP=Y
```

The following table describes some of the parameters used in the `clmp_response.cfg` response file:

Parameter	Remarks
START_SETUP	If the collector configuration should not be started, please set to "N". Otherwise, the next step is triggered and executed in silent mode.
MICROSOFT_SCX_DIR	In case your Microsoft xPlat Agent is not installed in a default location, please review and adapt.

Install the Cluster MP Instrumentation

To install the Cluster MP Instrumentation, perform the following steps:

Run the following command as user root from the directory the `clmp_mp_install.sh` has been copied to.

`sh ./clmp_mp_install.sh`

By default, this creates the folders `/opt/NiCE/clmp` and `/var/opt/NiCE/` folders as well as some subfolders. Files will be copied to those folders and the Microsoft xPlat Agent library directory.

Cluster MP Configuration Parameters

The Cluster MP may be configured to special environments with the help of configuration parameters on each cluster server. In most cases, the default values work well, but in some cases a little tweaking is required.

All configuration parameters may be conveniently set in the Monitoring Console with the task "Set Configuration Parameter". Alternatively, you may edit the file `clmp_spi.cfg` on each cluster node in the following default location `/var/opt/NiCE/conf/clmp/clmp_spi.cfg`.

Please select the all or some servers in the "Cluster Computer" state view and run the task with the following overrides:

- Parameter Name

- Parameter Value

Parameter Name	Parameter Default Values	Description
POWERHA_CLUSTER_DIRECTORY	/usr/es/sbin/cluster	Specifies the full path of the location where cluster is installed.
POWERHA_GET_DIR_CLUSTER_LOG	cllog [cllog|clodmget]	Specifies the utility to determine the cluster log paths. Please change to clodmget for PowerHA 7.2.
RESOURCE_SUMMARY_MONITORING	OFF [ON|OFF]	OFF - Resources and File Systems are discovered. Drill-down metrics are enabled. **Summary** metrics are **disabled**. ON - Resources and File Systems are not discovered. Drill-down metrics are disabled. **Summary** metrics are **enabled**.
CMDSLIB_TIMEOUT	60	Specifies the timeout in seconds for all cluster commands executed by Cluster MP, except clmgr. See next parameter
STABLE_STATE_WAITING_TIME	1200	Specifies how long in seconds the cluster must be stable before we execute clmgr command.
SPI_SYNCPROVIDER1_THRESHOLD	60	Sets a threshold (in seconds) for max duration of execution for a provider. Providers marked in grey are reserved for future use.
SPI_SYNCPROVIDER2_THRESHOLD	300	
SPI_SYNCPROVIDER3_THRESHOLD	900	
SPI_ASYNCPROVIDER1_THRESHOLD	300	
SPI_ASYNCPROVIDER2_THRESHOLD	600	
SPI_ASYNCPROVIDER3_THRESHOLD	900	

SCOM Overridable Parameters

For most SCOM objects there are overridable parameters that might be changed.

> **Note**
>
> **Please note that changing some of the parameters yields unexpected side effects or may even inhibit the functionality at all!**

Therefor we recommend to change only the following parameters in Cluster MP unless it is explicitly documented or you are asked to do so by the NiCE support team.

Monitors

Parameter Name	Default	Possible Values	Description
Enabled	True	[True | False]	Enables or disables the monitor. Use to lessen the footprint of Cluster MP is necessary.
MatchCount	1	1-99	Wait for the configured number of alerts before sending it to active alerts view and changing the state. Value 1 means each alert is send directly to the alert view. Value 2 means the first alter will start the count and a matching second alert will then be send to the alert view.
Threshold (Critical) Threshold (Warning)	Depends on the monitor	Number	Threshold parameters contain numbers that depend of the monitors. See the Cluster MP Reference Guide for details on each monitor.

Rules

Name	Default	Possible Values	Description
Enabled	True	[True | False]	Enables or disables the monitor. Use to lessen the footprint of Cluster MP is necessary.

Object Discoveries

Name	Default	Possible Values	Description
Enabled	True	[True | False]	Enables or disables the monitor. Use to lessen the footprint of Cluster MP is necessary.
Interval Seconds	Depends on the discovery	Integer	The discoveries run in regular intervals. Depending on the object, the interval is usually between every 4 hours (14400s) and daily (86400s).

Troubleshooting

This chapter contains information that helps you investigate problems that occur during normal use of the Cluster MP. The information included in this chapter covers the following areas:

- License Troubleshooting

- Discovery Troubleshooting

- Cluster MP Logging

- Cluster MP Tracing

License Troubleshooting

NiCE employs the following types of licenses for management packs:

- Unlocked time-restricted licenses for evaluation purposes

- Locked permanent licenses.

Permanent license is locked to the Cluster hostname, and the major product version (A.01.00) and the Cluster solutions, like in this case PowerHA. Further licenses are specific to the Cluster solution as illustrated in the following table.

Product Name	Supporter Platform	Product License String	Product License Component
NiCE PowerHA MP	AIX	POWERHAMP	HOSTNAME

License keys are provided by means of the NiCE Customer Portal (portal.nice.de). Each license key consists of an encrypted numeric string, as shown in the following one-line example:

```
3FA290F911AADEF1CA7ECAA3DF24E3B8FEED517213745D3A3A89AB1BB9CE699A36896BCA2C4925
4B682E2CE8350A61F059F3827589BFDD4878C917
```

This key can be an unlocked evaluation key or a locked permanent key. To view the license, please see "License Verification" on page 32.

License keys are maintained globally in a License Management Pack. The license management pack is imported using the Administration console and stored in the Operations Manager database.

The license management pack sets an override on the "Install License (Cluster MP)" rule which overrides the "License Key" parameter. The rule triggers a workflow that writes a license file to the monitored system.

For enforcement purposes, the license file must exist on the monitored system for the metric collector to work. The default file location and name are as follows:

```
/var/opt/NiCE/conf/clmp/clmp_license.dat
```

General Troubleshooting

Often it helps to override the "IntervalSeconds" parameter of the following rule: "Install License (PowerHA MP)". Change the parameter to 600 seconds.

Details are logged in the Operations Manager Event Log. ID: 13714

Manual License Key Installation

In some cases, the license key deployment from the license management pack to the license file on the cluster system fails, for example, due to insufficient permissions or some other reason. In this case, it is recommended to perform a manual license key installation, as follows:

1. Create the following plain text file on the cluster system in the existing configuration folder:

   ```
   /var/opt/NiCE/conf/clmp/clmp_license.dat
   ```

2. Paste the license keys from the license management pack into the clmp_license.dat file. The license key can be found in the `<VALUE>` tag. Example:

   ```
   AC31030DE5DE8FA01BD0640D718A4D16504383A0C1264C2B11A2803092E556A5BC07EDCB482D
   4116357371B568573C2DC776A77DB0BFDD4878C984
   ```

   If there is more than one license, each license keys are separated by the following string: "~~~". When creating the `clmp_license.dat` manually, each string separated by "~~~" must represent a single line.

3. Save the file.

4. Verify the licenses as described in section "License Verification" on page 32. Licenses are enforced in the NiCE Cluster Provider binary.

License Verification

To verify licenses, use the task "Check License (Cluster MP)" or run the following command from the command line on the cluster server:

```
/opt/NiCE/clmp/clmp_start clmp_license.pl
```

Discovery Troubleshooting

There is one initial discovery workflow in the "NiCE Library Management Pack" that populates the "Configuration" state view.

If these views stay empty, use the information in the following sections to help you troubleshoot the problem:

- "Configuration" State View is empty.

Further troubleshooting:

- PowerHA Discovery Troubleshooting.

Configuration State View is Empty

The discovery "NiCE Library Computer Discovery (UNIX/Linux)" targets objects of the class "UNIX/Linux Computer" (from `Microsoft.Unix.Library`). This discovery workflow checks all UNIX and Linux computers for the existence of the following file:

```
/var/opt/NiCE/conf/nice_base.env
```

If this file exists, the following event is written to the event log on one of the management servers.

```
The NiCE Library Computer Discovery was triggered on Computer
'$Config/TargetSystem$'
```

In addition, an object is created for the class "NiCE Library Computer (UNIX/Linux)". The view "Configuration" represents all objects of this class.

By default, the discovery is disabled. You can enable it manually for specific UNIX/Linux computers or for all UNIX/Linux Computers via overrides. To enable the rule for all UNIX/Linux systems, you can also import the MP `NiCE.Library.X.Enable.Discoveries.xml`.

PowerHA Discovery Troubleshooting

Discovery for PowerHA is contained in the PowerHA MP as it is not generic for other Cluster MP. All information provided to the OpsMgr service model is available via the command line on the cluster server.

If discovery fails or incorrect data is present, it is recommended to run the task "Test PowerHA MP Discovery", which runs the following command on the cluster server:

```
/opt/NiCE/clmp/clmp_start clmp_powerha_discover.pl
```

The command should return an output similar to the one below:

```
<C2P>
    <SYNTAX>1</SYNTAX>
    <CLASS>
        <TYPE>Node</TYPE>
        <RECORD>
            <OBJECT>hacmp100</OBJECT>
            <OPTION>hacmp100</OPTION>
            <OPTION>7.1.3 SP3</OPTION>
            <OPTION>a102</OPTION>
            <OPTION>/var/hacmp/adm/cluster.log</OPTION>
            <OPTION>/var/hacmp/log/hacmp.out</OPTION>
        </RECORD>
    </CLASS>
    <CLASS>
        <TYPE>ResourceGroup</TYPE>
        <RECORD>
            <OBJECT>app1RG</OBJECT>
            <OPTION>app1RG</OPTION>
            <OPTION>hacmp100</OPTION>
            <OPTION>a102 a101</OPTION>
            <OPTION>-</OPTION>
            <OPTION>Online On Home Node Only</OPTION>
            <OPTION>Fallover To Next Priority Node In The List
            </OPTION>
            <OPTION>Fallback To Higher Priority Node In The List
            </OPTION>
            <OPTION>ha100app1</OPTION>
        </RECORD>
          …
           …
              …
    </CLASS>
    <CLASS>
        <TYPE>VolumeGroup</TYPE>
        <RECORD>
                <OBJECT>app1vg</OBJECT>
                <OPTION>app1vg</OPTION>
                <OPTION>hacmp100</OPTION>
                <OPTION>app1RG</OPTION>
                <OPTION>Volume Group</OPTION>
        </RECORD>
           …
    </CLASS>
    <CLASS>
```

```
                    <TYPE>FileSystem</TYPE>
                    <RECORD>
                            <OBJECT>/tst1fs01</OBJECT>
                            <OPTION>/tst1fs01</OPTION>
                            <OPTION>hacmp100</OPTION>
                            <OPTION>app1RG</OPTION>
                            <OPTION>tst1vg</OPTION>
                            <OPTION>-</OPTION>
                            <OPTION>a101,a102</OPTION>
                            <OPTION>-</OPTION>
                    </RECORD>
                    …
            </CLASS>
                    …
        </C2P>
```

If the command fails or returns unexpected data, please review the log files.

For further troubleshooting, please contact the NiCE support team and open a ticket via the portal help desk to provide log and trace files.

Cluster MP Logging

Cluster MP Collector and Provider Log

Important internal states and messages from the collector are written to the following log files on the Cluster server (default locations):

- `/var/opt/NiCE/log/clmp/clmp_spi.log`

- `/var/opt/NiCE/log/clmp/clmp_cim.log`

Self-monitoring rules and monitors are monitoring both the content and the size of the log files. For details about cluster events and the complete history, you should check these log files directly.

Cluster MP Tracing

The PowerHA MP provides the following types of tracing facilities which are generic to all NiCE Cluster MPs:

- Tracing the Cluster MP Provider

- Tracing the Cluster MP Collector

The information written to the trace files is designed to help the NiCE support team to pinpoint and solve problems as quickly and efficiently as possible.

> **Note:**
>
> **Tracing can produce large amounts of data in the trace file, and there is no file-size limitation for this feature. With this in mind, use tracing only if the support team requests you to do so. If you enable tracing, remember to disable it again after the events you traced have been triggered and finished.**

Tracing the Cluster MP Provider

Enable Tracing

To enable tracing of the Cluster MP Provider, perform the following steps:

1. Log on to the Cluster Server.

2. Create the following file, e. g. using the command line tool `vi` (or similar):

   `/var/opt/NiCE/conf/clmp/clmp_cim.cfg`

3. Enter the following text:

   `DEBUGLEVEL=3`

4. Restart the Cluster MP provider:

   `/opt/microsoft/scx/bin/tools/scxadmin -restart all`

Disable Tracing

To disable tracing of the Cluster MP Provider, perform the following steps:

1. Remove the file `/var/opt/NiCE/conf/clmp/clmp_cim.cfg`:

   `rm /var/opt/NiCE/conf/clmp/clmp_cim.cfg`

2. Restart the Cluster MP provider:

   `/opt/microsoft/scx/bin/tools/scxadmin -restart all`

Tracing Output

The trace data is written to the following file:

`/var/opt/NiCE/log/clmp/clmp_cim.trc`

> **Note:**
>
> **There are no file-size limitations for the clmp_cim.trc file while tracing is enabled. It is good practice to check the temporary directory for large files after such trace operations.**

Tracing the Cluster MP Collector

There are two options to enable and disable tracing: Remotely or locally.

Enable Tracing

- Enable tracing remotely:

  Use the "Enable Tracing (Cluster MP)" task in the configuration view to enable collector tracing.

- Enable tracing locally:

  Run the script `clmp_spicfg.pl` on the cluster system to enable tracing for the Cluster MP collector using the following command:

  `/opt/NiCE/clmp/clmp_start clmp_spicfg.pl –set SPI_TRACE_STATUS ON`

Disable Tracing

- Disabling tracing remotely:

  Use the "Disable Tracing (Cluster MP)" task in the "Cluster Computer" view to disable collector tracing.

- Disabling tracing locally:

  Run the script `clmp_spicfg.pl` on the cluster system to disabling tracing for the Cluster MP collector using the following command:

  `/opt/NiCE/clmp/clmp_start clmp_spicfg.pl –set SPI_TRACE_STATUS OFF`

Tracing Output

The trace data is written to the following file:

`/var/opt/NiCE/log/clmp/clmp_trace.log`

> **Note:**
>
> **There are no file-size limitations for the clmp_trace.log file while tracing is enabled. It is good practice to check the temporary directory for large files after such trace operations.**

Removing the PowerHA MP

To remove the NiCE PowerHA MP, perform the following steps in the order specified:

- Remove the Cluster MP Instrumentation

- Delete the Management Packs

- Remove the Cluster MP Installation Package

Some of the installation steps must be executed on the Operations Management server or console system while other steps should be executed on the cluster system. Make sure you are logged on to the appropriate server when you perform the installation steps.

Remove the Cluster MP Instrumentation

This operation must be performed on the OpsMgr Monitoring Console.

Delete Provider integration:

Run the task "Uninstall Cluster MP instrumentation" from the "Cluster Computers" state view.

Manual removal (on the cluster server)

1. Stop the OMI server:

   `/opt/microsoft/scx/bin/tools/scxadmin –stop`

2. Remove the following files:

   - OpsMgr 2012 R2 Agent (Version 1.5.1.x):

     `rm /opt/omi/lib/libNiCE_CLMP_OMIProvider.so`

```
rm /etc/opt/omi/conf/omiregister/root-scx/NiCE_CLMP_OMIProvider.reg
```

- OpsMgr 2016 Agent (Version 1.6.1.x):

```
rm /opt/microsoft/scx/lib/libNiCE_CLMP_OMIProvider.so

rm /etc/opt/microsoft/scx/conf/omiregister/root-scx/
NiCE_CLMP_OMIProvider.reg
```

3. Start the OMI server:

```
/opt/microsoft/scx/bin/tools/scxadmin -start
```

4. Remove the following directories:

```
rm -rf /opt/NiCE/clmp

rm -rf /var/opt/NiCE/clmp

rm -rf /var/opt/NiCE/log/clmp

rm -rf /var/opt/NiCE/tmp/clmp

rm -rf /var/opt/NiCE/conf/clmp
```

Delete the Management Packs

This operation must be performed on the OpsMgr Administration Console.

1. Log on to the OpsMgr Server.

2. Delete the following Management packs from the OpsMgr Server in the Administration Console:

- `NiCE.Cluster.Library.mpb`

- `NiCE.Library.X.mpb (if not used otherwise)`

- `NiCE.Cluster.X.AIX.mpb`

- `NiCE.PowerHA.Cluster.mpb`

- `NiCE.PowerHA.Cluster.License.xml`

Depending on the platform of the cluster nodes:

- `NiCE.PowerHA.AIX.6.1.mpb (if installed)`

- `NiCE.PowerHA.AIX.7.mpb (if installed)`

Optional:

- `NiCE.PowerHA.Cluster.X.Seed (if installed)`

Remove the Cluster MP Installation Package

This operation must be performed on the OpsMgr server.

1. On the OpsMgr Server, de-install the package `NiCE_ClusterMP_0140.msi` by double-clicking the package.

2. Follow the on-screen instructions.

3. Alternatively, uninstall the "NiCE Cluster MP" from `Programs -> Programs and Features` in the Windows Control Panel.