Damati System Center

Self Developed Management Packs for SCOM 2007 R2 and SCOM 2012

IBM WebSphere MQ Management Pack Guide for Operations Manager 2007

Mohammad F. Damati
Published: July 2013

Send suggestions and comments about this document to DamatiMan@Hotmail.com or DamatiMan@Gmail.com

• Revision History

Release Date	Changes
July 2013	Original release of this guide

Contents

Introduction to the IBM Websphere MQ Management Pack for Operations Manager

IBM® WebSphere® MQ can transport any type of data as messages, enabling businesses to build flexible, reusable architectures such as service-oriented architecture (SOA) environments. It works with a broad range of computing platforms, applications, web services and communications protocols for security-rich message delivery. WebSphere MQ provides a communications layer for visibility and control of the flow of messages and data inside and outside your organization.

Reference: http://www-03.ibm.com/software/products/us/en/wmq/

• Getting the Latest Management Pack and Documentation

You can find the latest version of Management Pack in the Damati System Center Blog Website (www.DamatiSystemCenter.com)

• Supported Configurations

The IBM MQ Management Pack for System Center Operations Manager is designed to monitor IBM MQ Components. The management pack was tested successfully on following environments:

System Center Operations Manager 2007 R2 (CU6)
System Center 2012 Operations Manager SP1
System Center 2012 Operations Manager SP1 (CU2)

IBM Websphere MQ Version 6
IBM Websphere MQ Version 7

Windows Server 2008 R2
Windows Server 2012

This Management Pack also supports monitoring clustered IBM MQ components.

- # Changes in Versioning

The August 2013 update to this management pack includes the following change:

Version	Description of changes
1.0.0.0	Initial Release with MQ Server Discovery
3.0.0.0	Initial Release with Discovery of all roles.
3.0.4.0	Add Monitors and Performance Collection Rules
3.1.4.0	Add folders and views
3.1.4.1	Fix monitors script. Remove replace “)” function and insert result into Split array function.
3.1.4.2	Fix Collection Rules script. Remove replace “)” function and insert result into Split array function.

Getting Started

This section describes the actions you should take before and after you import the management pack, as well as information about customizations.

Run As Accounts
SCOM Action Account should be local administrator on IBM MQ Servers in order to work properly with no issues.

• Files to Use

Filename	Description
IBM.MQ.mp	IBM MQ Base Management Pack
IBM.MQ.Overrides.xml	Overrides Management pack that contains: **Groups:** - IBM MQ Servers Group - IBM MQ – Queues – Monitoring Group - IBM MQ – Listeners – Monitoring Group - IBM MQ – Channels – Monitoring Group

• How to Import the IBM MQ Management Pack

For instructions about importing a management pack, see How to Import a Management Pack in Operations Manager 2007 (http://go.microsoft.com/fwlink/?LinkID=98348).

Understanding Management Pack Operations

In the below section, we will provide information about the types of objects the IBM MQManagement Pack for Operations Manager discovers information about classes, how health rolls up, and monitoring scenarios.

• Objects the IBM MQ Management Pack Discovers

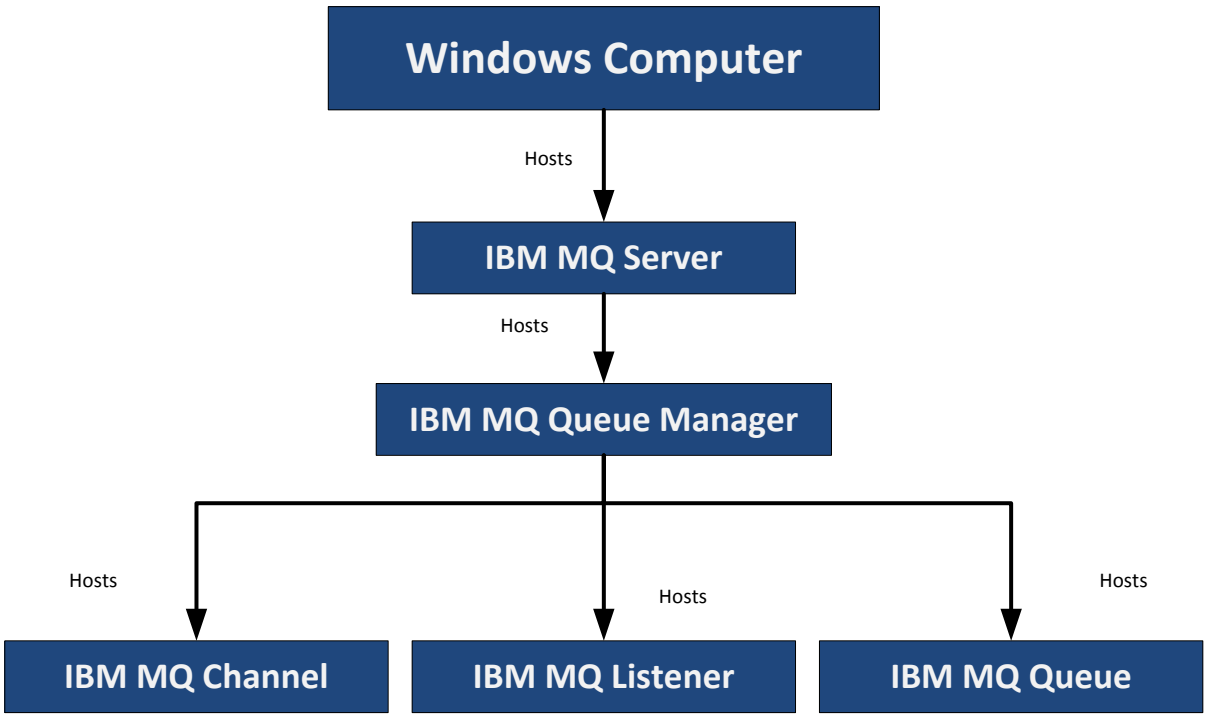
The IBM MQ Management Pack discovers the object types described in the following table. Not all of the objects are automatically discovered. Refer to below table for more information about discovery.

Class Discovery Summary

Discovery Name	Class Discovered	Target	Frequency	Enabled?
IBM MQ Server Discovery	IBM.MQ.Server	Windows Computer	7 Days	Enabled for IBM MQ – Servers Group. (IBM.MQ.Overrides Management Pack)
IBM MQ Queue Manager Discovery	IBM MQ Queue Manager	IBM MQ Server	7 Days	Enabled By Default
IBM MQ Channel Discovery	IBM MQ Channel	IBM MQ Queue Manager	7 Days	Enabled By Default
IBM MQ Listener Discovery	IBM MQ Listener	IBM MQ Queue Manager	7 Days	Enabled By Default
IBM MQ Queue Discovery	IBM MQ Queue	IBM MQ Queue Manager	7 Days	Enabled By Default
IBM MQ Queue Properties Discovery	IBM MQ Queue	IBM MQ Queue	7 Days	False

- # Classes

The following diagram shows the classes defined in this management pack.



• Key Monitoring Scenarios

The following table provides a summary of the monitors to be created for IBM MQ Management Pack.

A summary of monitors and the details for each monitor are provided in the following tables:

- IBM MQ Server Monitors
- IBM MQ Queue Manager Monitors
- IBM MQ Channel Monitors
- IBM MQ Listener Monitors
- IBM MQ Queue Monitors

Monitor Summary

Target	Type	Aggregate	Name	Enabled?
IBM MQ Server	Unit	Availability	MQ_Installation1 Service Monitor	Yes
IBM MQ Queue Manager	Unit	Availability	Queue Manager Status Monitor	Yes
	Dependency Monitor	Availability	Queue Manager Channels Monitor	Yes
	Dependency Monitor	Availability	Queue Manager Listeners Monitor	Yes
	Dependency Monitor	Availability	Queue Manager Queues Monitor	Yes
IBM MQ Channel	Unit	Availability	Channel Status Monitor	Enabled on (IBM MQ - Channel Monitoring – Enabled) Group
IBM MQ Listener	Unit	Availability	Listener Status Monitor	Enabled on (IBM MQ - Listener Monitoring – Enabled) Group
IBM MQ Queue	Aggregate Monitor	Availability	Queue Depth and IPPROCS Monitor	Yes
	Unit	Queue Depth and IPPROCS Monitor	Queue IPPROCS Monitor	Enabled on (IBM MQ – Queue Monitoring – Enabled) Group
	Unit	Queue Depth and IPPROCS Monitor	Queue Current Depth Monitor	Enabled on (IBM MQ - Queue Monitoring – Enabled) Group

• Placing Monitored Objects in Maintenance Mode

When a monitored object, such as a computer or distributed application, goes offline for maintenance, Operations Manager detects that no agent heartbeat is being received and, as a result, might generate numerous alerts and notifications. To prevent alerts and notifications, place the monitored object into maintenance mode. In maintenance mode, alerts, notifications, rules, monitors, automatic responses, state changes, and new alerts are suppressed at the agent.

Appendix: Monitors and Overrides for Management Packs

This section provides detailed procedures and scripts that you can use to display rules and other information about the management packs you import.

• How to View Management Pack Details

For more information about a monitor and the associated override values, see the knowledge for the monitor.

To view knowledge for a monitor

1. In the Operations Console, click the **Authoring** button.
2. Expand **Management Pack Objects**, and then click **Monitors**.
3. In the Monitors pane, expand the targets until you reach the monitor level. You can also use the **Search** box to find a particular monitor.
4. Click the monitor, and in the Monitors pane, click **View knowledge**.
5. Click the **Product Knowledge** tab.

• How to Display Monitors for a Management Pack

To use the Command Shell to display a list of outputs for a management pack's monitors and overrides, use the following procedure.

To display monitors for a management pack

1. In the Command Shell, type the following command:

```
get-monitor -managementPack name.mp | export-csv filename
```

2. A .csv file is created. You can open the .csv in Microsoft Excel.

Note

In Excel, you may be required to specify that the .csv file is a text file.

For example, the command below retrieves data for the monitors associated with one of the core management packs:

```
get-monitor -managementPack System.Health.Library.mp | export-csv "C:\monitors.csv"
```

• How to Display Overrides for a Management Pack

To display overrides for a management pack use the following procedure.

To display overrides for a management pack

1. In the Command Shell, type the following command:
   get-override -managementPack name.mp | export-csv filename
2. A .csv file is created. You can open the .csv file in Excel.

Note

In Excel, you may be required to specify that the .csv file is a text file.

For example, this command displays the overrides for one of the core management packs:

```
get-override -managementPack Microsoft.SystemCenter.OperationsManager.Internal.mp | export-csv
"c:\overrides.csv"
```

• How to Display All Management Pack Rules

Use the following procedure to display a list of rules for the management packs that you imported. You can view the list of rules in Excel.

To display management pack rules

1. In your management server, click **Programs**, and then click **System Center.**
2. Click **Command Shell**.
3. In the Command Shell window, type the following command:

```
get-rule | select-object @{Name="MP";Expression={ foreach-object
{$_.GetManagementPack().DisplayName }}},DisplayName | sort-object -property MP |
export-csv "c:\rules.csv"
```

4. A .csv file is created. You can open the .csv file in Excel.

Note

In Excel, you may be required to specify that the .csv file is a text file.

• How to Display Monitor Thresholds

To display monitor thresholds, use the script described in this section. This script works for the majority of monitors. It creates a .csv file that contains the columns shown in the following table, and can be viewed by using Excel.

Column	Description
Type	The type of objects the monitor is targeted to
DisplayName	The display name of the monitor
Threshold	The threshold used by the monitor
AlertOnState	Determines whether the monitor generates an alert when the state changes
AutoResolveAlert	Determines whether the generated alert will be automatically resolved when the monitor state returns to green
AlertSeverity	The severity of the generated alert

Run the following script to create the .csv file that displays the monitor thresholds:

```
function GetThreshold ([String] $configuration)
{
$config = [xml] ("<config>" + $configuration + "</config>")
```

```
$threshold = $config.Config.Threshold
if($threshold -eq $null)
{
$threshold = $config.Config.MemoryThreshold
}
if($threshold -eq $null)
{
$threshold = $config.Config.CPUPercentageThreshold
}
if($threshold -eq $null)
{
if($config.Config.Threshold1 -ne $null -and $config.Config.Threshold2 -ne $null)
{
$threshold = "first threshold is: " + $config.Config.Threshold1 + " second threshold is: " +
$config.Config.Threshold2
}
}
if($threshold -eq $null)
{
if($config.Config.ThresholdWarnSec -ne $null -and $config.Config.ThresholdErrorSec -ne $null)
{
 $threshold = "warning threshold is: " + $config.Config.ThresholdWarnSec + " error threshold is: " +
$config.Config.ThresholdErrorSec
}
}
if($threshold -eq $null)
{
if($config.Config.LearningAndBaseliningSettings -ne $null)
{
$threshold = "no threshold (baseline monitor)"
}
}
return $threshold
}
$perfMonitors = get-monitor -Criteria:"IsUnitMonitor=1 and Category='PerformanceHealth'"
$perfMonitors | select-object @{name="Target";expression={foreach-object {(Get-MonitoringClass -
Id:$_.Target.Id).DisplayName}}},DisplayName, @{name="Threshold";expression={foreach-object {GetThreshold
$_.Configuration}}}, @{name="AlertOnState";expression={foreach-object {$_.AlertSettings.AlertOnState}}},
@{name="AutoResolveAlert";expression={foreach-object {$_.AlertSettings.AutoResolve}}},
@{name="AlertSeverity";expression={foreach-object {$_.AlertSettings.AlertSeverity}}} | sort Target,
DisplayName | export-csv "c:\monitor_thresholds.csv"
```

- # How to Display Performance Collection Rules

To display performance collection rules, use the script in this section. This script works for the majority of monitors. It creates a .csv file that with the following columns, and you can view it by using Excel.

Column	Description
WriteAction	Contains information about where the performance counter is written
WriteToDB or CollectionPerformanceData	Writes to the Operations Manager database
WriteToDW or CollectPerfDataWarehouse	Writes to the data warehouse
WC	Stores baseline data for a performance counter into the Operations Manager database

To display the performance collection rules present in the management group, run the following script:

```
function GetPerfCounterName ([String] $configuration)
{
$config = [xml] ("<config>" + $configuration + "</config>")
return ($config.Config.ObjectName + "\" + $config.Config.CounterName)
}
function GetFrequency ([String] $configuration)
{
$config = [xml] ("<config>" + $configuration + "</config>")
$frequency = $config.Config.Frequency;
if($frequency -eq $null)
{
$frequency = $config.Config.IntervalSeconds;
}
return ($frequency)
}
function GetDisplayName($performanceRule)
{
 if($performanceRule.DisplayName -eq $null)
 {
  return ($performanceRule.Name);
 }
 else
 {
  return ($performanceRule.DisplayName);
 }
}
function GetWriteActionNames($performanceRule)
{
 $writeActions = "";
 foreach($writeAction in $performanceRule.WriteActionCollection)
 {
```

```
  $writeActions += " " + $writeAction.Name;
 }
 return ($writeActions);
}
$perf_collection_rules = get-rule -criteria:"Category='PerformanceCollection'"
$perf_collection_rules | select-object @{name="Type";expression={foreach-object {(Get-MonitoringClass -
id:$_.Target.Id).DisplayName}}},@{name="RuleDisplayName";expression={foreach-object {GetDisplayName
$_}}} ,@{name="CounterName";expression={foreach-object {GetPerfCounterName
$_.DataSourceCollection[0].Configuration}}},@{name="Frequency";expression={foreach-object {GetFrequency
$_.DataSourceCollection[0].Configuration}}},@{name="WriteActions";expression={foreach-object
{GetWriteActionNames $_}}}  | sort Type,RuleDisplayName,CounterName | export-csv
"c:\perf_collection_rules.csv"
```

Appendix: Reports

Currently no out of box reports available for this management pack.

Appendix: Views

The following table lists the views that should be created for the management pack.

Views

Name/Folder	Type	Details
Server State	State	Health State of IBM MQ Servers Discovered
Queue Managers	State	Health Stats of IBM MQ Queue Managers
Channels State	State	Health Stats of IBM MQ Channels
Channels Performance	Performance	Performance View for channels
Listeners State	State	Health Stats of IBM MQ Listeners
Listeners Performance	Performance	Performance View for Listeners
Queues State	State	Health Stats of IVM MQ Queues
Queues Performance	Performance	Performance View for Queues

Appendix: Rules

Data collection rules

Name	Type	Details	Interval	Enabled
Sessions	Performance Collection	Collect number of session on Listener	5 Minutes	Enabled on (IBM MQ - Listener Monitoring – Enabled) Group
IPPROCS	Performance Collection	Number of Applications reading from this queue	5 Minutes	Enabled on (IBM MQ - Queue Monitoring – Enabled) Group
OPPROCS	Performance Collection	Number of Applications writing on this queue	5 Minutes	Enabled on (IBM MQ - Queue Monitoring – Enabled) Group
CURDEPTH	Performance Collection	Collect Current Queue Depth	5 Minutes	Enabled on (IBM MQ - Queue Monitoring – Enabled) Group

Appendix: Monitors

Name	Type	Details	Interval	Enabled?
MQ_Installation1 Service Monitor	Unit	Monitor IBM MQ Installation1 Windows Service status	Live Monitor	Yes
Queue Manager Status Monitor	Unit	Queue Manager Status	2 Minutes	Yes
Queue Manager Channels Monitor	Dependency Monitor	Monitor overall health of Channels	Live Monitor	Yes
Queue Manager Listeners Monitor	Dependency Monitor	Monitor overall health of Listeners	Live Monitor	Yes
Queue Manager Queues Monitor	Dependency Monitor	Monitor overall health of Queues	Live Monitor	Yes
Channel Status Monitor	Unit	Monitor Channel Status	2 Minutes	Enabled on (IBM MQ - Channel Monitoring – Enabled) Group
Listener Status Monitor	Unit	Monitor Listener Status	2 Minutes	Enabled on (IBM MQ - Listener Monitoring – Enabled) Group
Queue Depth and IPPROCS Monitor	Unit	Number of Applications reading from this queue	2 Minutes	Enabled on (IBM MQ – Queue Monitoring – Enabled) Group
Queue OPPROCS Monitor	Unit	Number of Applications writing on this queue	2 Minutes	Enabled on (IBM MQ – Queue Monitoring – Enabled) Group
Queue Current Depth Monitor	Unit	Queue Depth and IPPROCS Monitor	2 Minutes	Enabled on (IBM MQ - Queue Monitoring – Enabled) Group