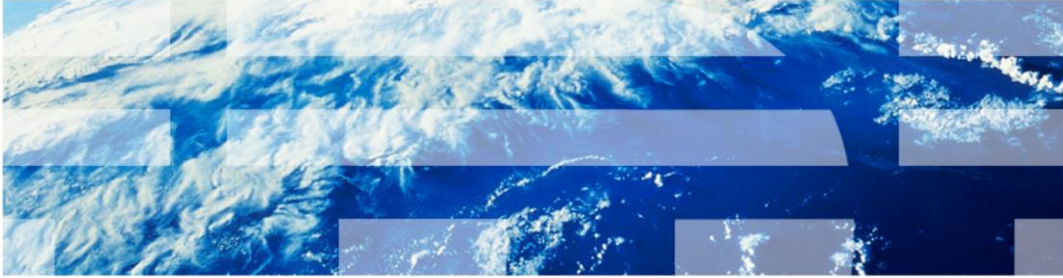


IBM Tivoli Composite Application Manager for Applications V6.2.4

Tivoli Composite Application Manager agent for
WebSphere MQ: Configuration for data collection



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This presentation provides an overview of what the IBM Tivoli® Composite Application agent for WebSphere® MQ is and how to configure it to collect statistics from WebSphere MQ objects.

Assumptions

Assumptions include that you have the following skills and knowledge:

- Basic knowledge of WebSphere MQ
- WebSphere MQ is installed and configured in your environment
- Understanding of the agent configuration file and its settings

For this module, assumptions include that you have basic knowledge of WebSphere MQ, and have WebSphere MQ installed and configured in your environment.

Objectives

When you complete this module, you can perform these tasks:

- Describe the OMEGAMON® XE for Messaging MQ monitoring agent functionality
- Describe the use of the WebSphere MQ monitoring agent
- Describe the configuration settings and monitoring options

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- Describe the OMEGAMON XE for Messaging MQ monitoring agent functionality
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Outline

- New names
- Agent information
- Interactions
- Agents
- Basic commands
- Display queue manager results
- Configuration
- Miscellaneous

This module outlines the new product names, agent information, interactions, agents, basic commands, display queue manager output, configuration, and other information.

New names

- WebSphere Message Broker Monitoring agent, WebSphere MQ Monitoring agent, and WebSphere MQ Configuration agent were formerly components of IBM Tivoli OMEGAMON XE for Messaging
- Since version 7.0.1, they are agents delivered as a part of IBM Tivoli Composite Application Manager (ITCAM) for Applications, and are renamed as follows:

Previous name	Current name
WebSphere Message Broker Monitoring agent	IBM Tivoli Composite Application Manager agent for WebSphere Message Broker
WebSphere MQ Monitoring agent	IBM Tivoli Composite Application Manager agent for WebSphere MQ
WebSphere MQ Configuration agent	IBM Tivoli Composite Application Manager configuration agent for WebSphere MQ

IBM Tivoli Composite Application agent for WebSphere MQ is the new name for the MQ agent that was contained in the OMEGAMON XE for Messaging bundle.

Now, the agent is part of the IBM Tivoli Composite Application for Applications suite, and its latest version is 7.0.1.

Agent information

IBM Tivoli Composite Application agent for WebSphere MQ

- Product Code: KMQ (FMID: HKMQXXX)
- The MQ agent uses MQ APIs to run PCF commands to gather data from WebSphere MQ
- On the MQ side, the process that is directly associated with the command processing is **amqpcsea** (which can be considered as the backend of the command server)

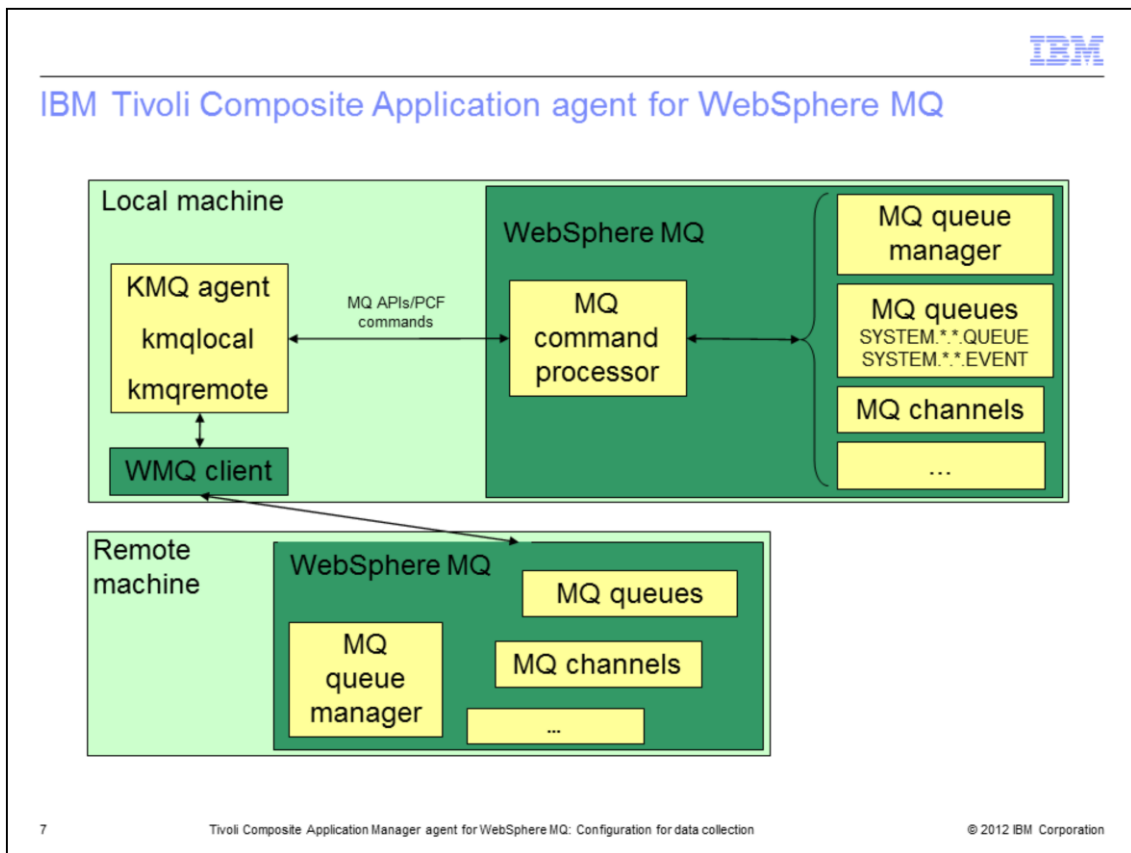
The product code of the MQ agent is KMQ and its FMID in the z/OS® world is HKMQxxx, where xxx is the actual version of the agent, and can be 701, 700, or the old 601.

The MQ agent uses MQ APIs to run PCF commands to gather data and statistics from WebSphere MQ. These commands are processed by the command server and run against the WebSphere MQ itself.

If this process is running, the MQ agent can receive information through the command server, otherwise no information is available.

Notice, however, that the agent does not try to monitor the internal processes of MQ at all.

IBM Tivoli Composite Application agent for WebSphere MQ



The image shows the interactions between the MQ agent and WebSphere MQ.

The only interface between the monitoring agent and MQ is the API for delivering commands to the MQ command servers.

Even for the **amqpcsea** process, which can be considered as the backend of the command server, the MQ agent does not communicate with it or monitor it directly.

The whole communication is through the MQ API.

If the **amqpcsea** process is running well, then these API return data and statistics, otherwise they return with a failing code.

Neither direct status inquiry on process nor inter-process communication are included. This non-inclusion reduces the coupling between the MQ products and OMXE MQ itself.

The status changes on the MQ internal processes affect the results returned from the command server. For example, if you can see a channel is running on the Tivoli Enterprise Portal side, a **runmqchl** process must be associated with this channel inside WebSphere MQ. However, the agent receives the information that this channel is running only by communication with the command server with the MQ PCF command API, rather than detecting or direct communication with the **runmqchl** process.

MQ API used by the MQ agent to gather data from WebSphere MQ

- The MQ agent uses MQ APIs to run PCF commands to gather data from WebSphere MQ
 - Connecting and disconnecting from the queue manager (MQCONN or MQCONNX, MQDISC)
 - Opening and closing a queue (MQOPEN, MQCLOSE)
 - Reading a message from a queue (MQGET)
 - Writing a message to a queue (MQPUT)
 - Writing a single message to a queue with an implicit open and close of the queue (MQPUT1)
 - Requesting or setting attributes of a queue manager object such as a queue (MQINQ, MQSET)
 - Beginning a unit of work (MQBEGIN)
 - Committing or backing out changes (MQCMIT, MQBACK)
- The APIs can be seen from the RAS1 log file when **KMQ ALL** is set

This slide summarizes what happens when the MQ API used by the MQ agent gathers data from WebSphere MQ. The MQ API called for a specific operation from the MQ agent side can be seen from the MQ agent RAS1 log file after having set the **KMQ ALL** trace level.

Basic commands (1 of 2)

- WebSphere MQ basics (1)
 - Control commands

[http://publib.boulder.ibm.com/infocenter/wmqv7/v7r0/index.jsp?topic=%2Fcom.ibm.mq.amqzag.doc%2Ffa15550 .htm](http://publib.boulder.ibm.com/infocenter/wmqv7/v7r0/index.jsp?topic=%2Fcom.ibm.mq.amqzag.doc%2Ffa15550.htm)

- **crtmqm**: Creates a queue manager on WMQ
- **strmqm**: Starts a queue manager
- **endmqm**: Stops a queue manager
- **dspmq**: Shows the status of the defined queue managers
- **dspmqver**: Displays WebSphere MQ version and build information
- **runmqsc**: Runs WebSphere MQ commands on a queue manager

Here are some basic commands for WebSphere MQ itself; they are helpful when working with the MQ agent. Useful control commands are listed, which can be used to create, start and stop queue managers that are then monitored by the MQ agent. An important control command is **runmqsc**, which executes commands against a queue manager.

Basic commands (2 of 2)

WebSphere MQ basics (2)

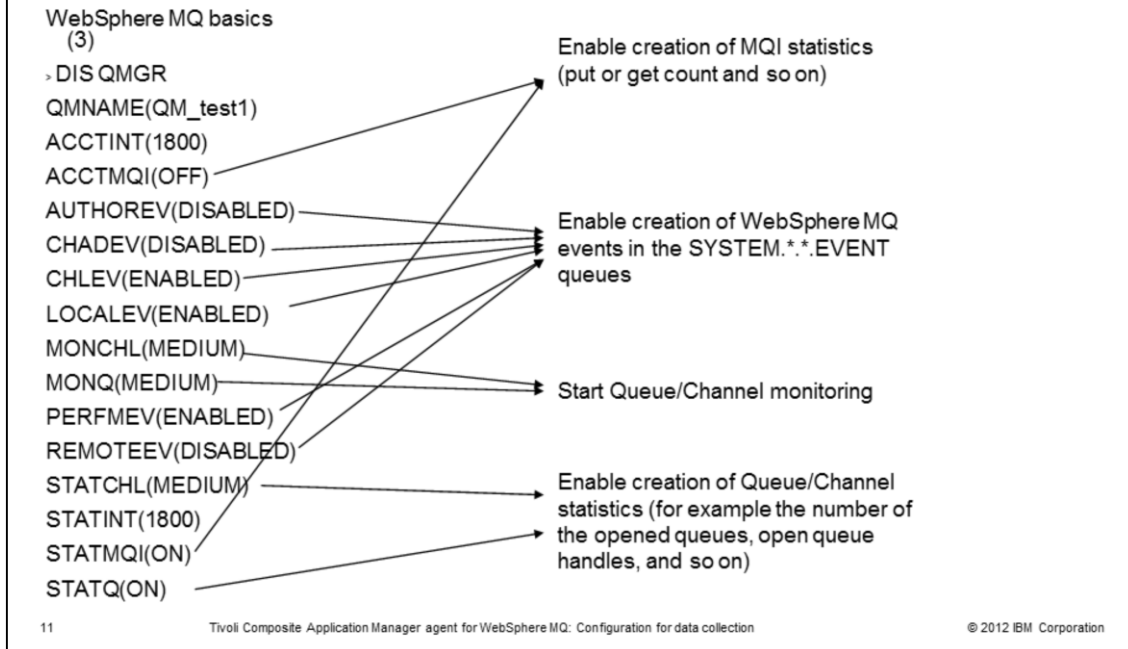
RUNMQSC Commands:

- `dis qmgr`: Displays properties of a specified queue manager
- `dis ql`: Displays properties of a specified local queue
- `alter qmgr/ql/channel`: Changes a specified property

The MQ agent uses APIs to gather data from a queue manager. The same information can be collected by using the **runmqsc** control commands.

There are many **runmqsc** commands, but the most important are listed here. Using them, you can display queue manager properties and the properties of a queue (in this case of a Local Queue identified by QL). You can also alter the required properties of queue managers, channels, queues, and so on.

Display queue manager results



This slide shows the display queue manager results, showing the properties of that queue manager. You can see the meaning of some important parameters.

The STATMQI parameter turns on or off the generation of MQI statistics.

The STATQ or STATCHL parameters enable the generation of queue or channel statistics.

The MONQ or MONCHL parameters start the queue and channel monitoring.

Configuration 1 WebSphere MQ agent side

<ITMHome>/config/mq.cfg (default instance)

- <ITMHome>/config/<hostname>_mq_<instname>.cfg
- RKANCMD(KMQUSER) - RKANCMD(KMQSTART)

Agent reads messages from event queues and remove them. **Browse** is another option.

SET GROUP NAME (GROUP1) -

DEFAULT(YES) -

RETAINHIST(120) -

COMMAND (YES) -

MSGACCESS(DESC)-

EVENTS(REMOVE)-

ACCOUNTINGINFO(REMOVE) -

STATISTICSINFO(REMOVE)

QMGR to be monitored. Without it, the agent monitors the QMGR that is defined as the default in WebSphere MQ. If there is no default QMGR, the agent cannot start.

Many workspaces are empty if STATISTICS is not set to YES. Default is NO. Also, some settings on WebSphere MQ side are needed.

SET MANAGER **NAME(qmgr_name)**

SET QUEUE NAME(*) MGRNAME(qmgr_name) QDEFTYPE(PREDEFINED) **STATISTICS(YES)**

SET CHANNEL NAME(*) MGRNAME(qmgr_name)

PERFORM STARTMON **SAMPINT(30) HISTORY(YES)**

Used to enable historical data collection. Tivoli Enterprise Portal settings are not enough for WebSphere MQ agent.

Agent receives WebSphere MQ data every SAMPINT and places the data into an internal memory buffer.

This slide shows the content of a configuration file for the MQ agent with some important parameters explained.

The SET MANAGER NAME(qmgr_name) specifies the queue manager being monitored. Without it, the agent monitors the queue manager defined as **Default** in WebSphere MQ. If there is no default queue manager, the MQ agent cannot start.

The STATISTICS(YES) parameter is important as many workspaces are empty if STATISTICS is not set to YES.

The SAMPINT is the parameter used to indicate to the agent how often it receives WebSphere MQ data and then it places it into the internal memory buffer.

You can see the *MQ agent User's Guide* for a complete description of all the possible parameters.

Configuration 2 WebSphere MQ side

- Use **RUNMQSC** commands to set specific parameters to a valid value
- For the WebSphere MQ agent, depending on what data you are interested in, you might have to enable the collections on WebSphere MQ, because by default they are not enabled
- Example:
ALTER QMGR MONQ(MEDIUM) MONCHL(MEDIUM) STATMQI(ON) STATQ(ON)
STATCHL(HIGH)

To receive specific information on the Tivoli Enterprise Portal and fill in all of the MQ agent workspaces, some activity is required on the WebSphere MQ side, and some configuration is required.

To set the needed parameters, use **RUNMQSC** commands.

Depending on what data are you interested in, you must enable the collections on WebSphere MQ. By default, they are not enabled.

With the command described in the slide, you can enable all of the required statistics on the WebSphere MQ side so that the MQ agent can then gather them using the MQ APIs and report the data on the Tivoli Enterprise Portal.

Miscellaneous

For memory-related issues, check these configuration values and consider lowering them:

- AGGRHIST (default 15)
- RETAINHIST (default 120)
- RECENTACCOUNTINGSAMPLES (default 5)
- RECENTSTATISTICSSAMPLES (default 5)

You can use this reference information in case you have problems with high MQ agent memory consumption.

Summary

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