Monitoring Microsoft Message Queuing (MSMQ) Server

eG Innovations Product Documentation

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Chapter 1: Introduction

Microsoft's MSMQ is a widely used messaging server in Windows environments. In order to ensure that inter-component communication is smooth and swift, the availability and the message processing ability of the MSMQ server should be periodically monitored.

The eG Enterprise suite provides a bouquet of solutions that specialize in monitoring of the MSMQ server. Unlike silo tools that only provide application-specific monitoring expertise, the eG Enterprise provides end-to-end monitoring of an IT infrastructure. This implies that besides messaging servers, eG Enterprise can monitor a wide variety of other applications and network devices that form part of an IT infrastructure. While monitoring a messaging infrastructure for instance, eG Enterprise analyzes the performance of the messaging server in the light of the relationship it shares with other components in the environment, and accordingly determines the state of the server. This approach to monitoring enables eG Enterprise to accurately pinpoint the root-cause of problems that might occur in a messaging infrastructure.

This document focuses on the monitoring capabilities of eG Enterprise with regard to MSMQ servers.

Chapter 2: How to Monitor Microsoft Message Queuing (MSMQ) Server Using eG Enterprise?

eG Enterprise is capable of monitoring the Microsoft Message Queuing (MSMQ) Server in both agent-based and agentless manners. In case of the agentless approach, the remote agent used to monitor the server should be deployed on a remote Windows host in the environment. Manage the MSMQ server using eG administrative interface to start monitoring the server. The procedure for achieving this is explained in the following section.

2.1 Managing the Microsoft MQ Server

The eG Enterprise cannot automatically discover the Microsoft Message Queuing (MSMQ) Server. This implies that you need to manually add the component for monitoring. Remember that the eG Enterprise automatically manages the components that are added manually. To manage a Microsoft MQ server component, do the following:

1. Log into the eG administrative interface.

2. Follow the Components -> Add/Modify menu sequence in the **Infrastructure** tile of the **Admin** menu.

3. In the **COMPONENT** page that appears next, select *Microsoft MQ* server as the **Component type**. Then, click the **Add New Component** button. This will invoke Figure 2.1.

Figure 2.1: Adding a Microsoft MQ Server

4. Specify the **Host IP** and the **Nick name** of the Microsoft MQ Server in Figure 2.1. Then click the **Add** button to register the changes.

5. The **Port number** will be set as 1801 by default. If the server is listening on a different port in your environment, then override this default setting.

6. Next, signout of the eG administrative interface.

Chapter 3: Monitoring Microsoft Message Queuing (MSMQ) Servers

The eG Enterprise suite offers an exclusive Microsoft MQ monitoring model (see Figure 3.1), which performs top-down monitoring of the MSMQ server, and proactively alerts administrators to performance issues with the server.
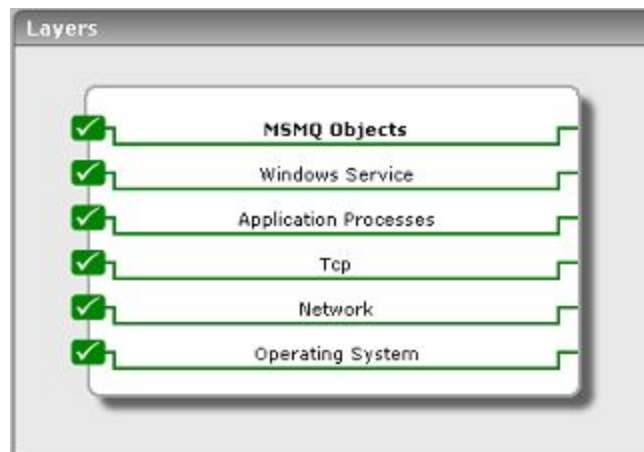
Figure 3.1: Layer model for an MSMQ server

Each layer of Figure 3.1 above is mapped to a set of tests, which when executed on the MSMQ server, extract a variety of performance statistics that reveal the health of the server and the underlying Windows operating system.

The sections to come discuss the **MSMQ Objects** layer alone, as all other layers have already been dealt with in the *Monitoring Unix and Windows Servers* document.

Note:

- An eG agent only monitors a maximum of 64 queues.

- An eG agent only displays MSMQ traffic coming from and going out to the network.

3.1 The MSMQ Objects Layer

This layer (see Figure 3.2) tracks the health of an MSMQ server.

Figure 3.2: Tests mapping to the MSMQ Objects layer

3.1.1 MSMQ Stats Test

This test reports various measures of a Microsoft Message Queuing (MSMQ) server.

Target of the test : A Microsoft Message Queuing (MSMQ) Server

Agent deploying the test : An internal agent

Outputs of the test : One set of results for every MSMQ server monitored.

Configurable parameters for the test

Parameters	Description
Test Period	How often should the test be executed.
Host	The IP address or host name of the machine where MSMQ has been installed.
Port	The MSMQ port number at which the specified host listens. The default port is *1801*.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Current sessions	The total number of open network sessions to MSMQ.	Number	Consistent high values indicate that either there is some persistent activity on the MSMQ server. On the other hand, a high value of current sessions could also mean that the MSMQ

Measurement	Description	Measurement Unit	Interpretation
			server is not able to satisfy user requests and release user sessions. Correlation of this metric with other MSMQ metrics is essential to identify the exact source of the problem.
Messages in	This measure indicates the rate of incoming messages handled by the MSMQ service.	Msgs/Sec	An increase or decrease in incoming message rate can represent a change in system load. Alternately, a sudden decrease in incoming message rate can indicate that due to some reason the MSMQ server may be unable to receive messages.
Messages out	Indicates the rate at which the outgoing messages were handled by the MSMQ service during last measurement period.	Msgs/Sec	An increase or decrease in outgoing message rate can represent a change in system load. Alternately, a sudden decrease in outgoing message rate can indicate that the MSMQ server is unable to send messages.
Error messages	The total number of accesses that resulted in an error reply. **Note:** The *Error messages* measure will be not available in the Windows 2000 version of the product.	Number	There could be several reasons for errors occurring during access to an MSMQ server. Possible reasons include: 1. Errors occurring while accessing the public queue 2. Non-existence of the queues being accessed 3. Permission problems for the type of access being requested.
Total messages	The total number of messages that are waiting to be received locally or to be sent to other destinations.	Number	If the cumulative size of all the messages exceeds 2GB then the newer messages may not be received/sent until some messages are cleared.
Growth rate	This measure indicates the growth of messages per	Msgs/Sec	An increase or decrease in growth rate can represent a change in traffic

Measurement	Description	Measurement Unit	Interpretation
	second in the message queue.		patterns handled by the MSMQ server.
IP sessions	Indicates the total number of IP sessions to the MSMQ.	Number	
Incoming multicast sessions	Indicates the number of incoming multicast sessions on the MSMQ.	Number	
Incoming message queuing messages	Indicates the total number of incoming Message Queuing messages placed in queues by the Message Queuing service.	Number	
Outgoing message queuing messages	Indicates the total number of outgoing Message Queuing messages placed in queues by the Message Queuing service.	Number	
Outgoing HTTP sessions	Indicates the total number of outgoing HTTP sessions.	Number	
Outgoing multicast sessions	Indicates the total number of outgoing multicast sessions.	Number	
Total data residing in active queues	Indicates the total number of data bytes in all Message Queuing messages residing in active queues.	KB	

3.1.2 MSMQ Queues Test

This test monitors the message queues on a Microsoft Message Queuing (MSMQ) server and reports key statistics pertaining to each of the queues.

Target of the test : A Microsoft Message Queuing (MSMQ) Server

Agent deploying the test : An internal agent

Outputs of the test : One set of results for every queue on the MSMQ server monitored.

Configurable parameters for the test

Parameters	Description
Test Period	How often should the test be executed.
Host	The IP address or host name of the machine where MSMQ has been installed.
Port	The MSMQ port number at which the specified host listens. The default port is *1801*.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Traffic in journal queue	Indicates the total number of bytes that reside in the journal queue.	KB	
Traffic in queue	Indicates the total number of bytes that reside in the MSMQ queue.	KB	
Messsages in journal queue	Indicates the number of messages inside a journal queue.	Number	Journal queues allow you to save copies of messages as they are processed. You can store copies of the messages you send from your computer in the local machine journal queue, or you can store copies of messages removed from a queue in that queue's journal on the server. Journal storage can be useful if you need to resend a message at a later point. Journal queues have a maximum size, called a quota. This size is limited by the disk capacity of the computer on which the queue resides. If the value of this measure reaches the quota set for the journal queue, then the messages that would have been sent

Measurement	Description	Measurement Unit	Interpretation
			to the journal queue are no longer saved in the system. No errors are raised when this occurs. It is important that you periodically purge your journal queues to prevent this from occurring.
Messages in queue	Indicates the number of messages inside a queue.	Number	A very high value indicates that the MSMQ server is unable to process the messages faster. A value zero indicates that no messages are in queue to process.

3.1.3 MSMQ Sessions Test

This test connects to the Microsoft Message Queuing (MSMQ) server, auto-discovers the sessions on the server, and reports the incoming and outgoing messages as well as data. Using this test, administrators can identify the session that is receiving/sending the maximum incoming and outgoing messages.

Target of the test : A Microsoft Message Queuing (MSMQ) Server

Agent deploying the test : An internal agent

Outputs of the test : One set of results for every session on the MSMQ server monitored.

Configurable parameters for the test

Parameters	Description
Test Period	How often should the test be executed.
Host	The IP address or host name of the machine where MSMQ has been installed.
Port	The MSMQ port number at which the specified host listens. The default port is *1801*.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Incoming data	Indicates the amount of data received during this	KB	Compare the value of this measure across sessions to identify the

Measurement	Description	Measurement Unit	Interpretation
	session.		session during which maximum amount of data was received.
Incoming data rate	Indicates the rate at which data was received during this session.	KB/sec	
Incoming messages	Indicates the number of messages received during this session.	Number	Compare the value of this measure across sessions to identify the session during which maximum number of incoming messages were received.
Incoming messages rate	Indicates the rate at which messages were received during this session.	Messages/sec	
Outgoing data	Indicates the amount of data sent during this session.	KB	Compare the value of this measure across sessions to identify the session during which maximum amount of data was sent.
Outgoing data rate	Indicates the rate at which data was sent during this session.	KB/sec	
Outgoing messages	Indicates the number of messages were sent during this session.	Number	Compare the value of this measure across the sessions to identify the session during which maximum number of messages were sent.
Outgoing messages rate	Indicates the rate at which messages were sent during this session.	Messages/sec	

3.1.4 MSMQ Incoming Http Traffic Test

For each HTTP session on the Microsoft Message Queuing (MSMQ) server, this test reports the amount of data received during the HTTP session and the count of messages received during the HTTP session. Using this test, administrators can figure out during which HTTP session maximum amount of data and maximum number of messages were received.

Target of the test : A Microsoft Message Queuing (MSMQ) Server

Agent deploying the test : An internal agent

Outputs of the test : One set of results for every session established through HTTP connection on the MSMQ server monitored.

Configurable parameters for the test

Parameters	Description
Test Period	How often should the test be executed.
Host	The IP address or host name of the machine where MSMQ has been installed.
Port	The MSMQ port number at which the specified host listens. The default port is *1801*.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Incoming http data	Indicates the amount of data bytes received during this HTTP session.	KB	Compare the value of this measure across sessions to identify the session during which maximum amount of data was received from multiple destination queues.
Incoming http data rate	Indicates the rate at which data bytes were received during this HTTP session.	KB/sec	
Incoming http messages	Indicates the number of messages received during this HTTP session.	Number	Compare the value of this measure across sessions to identify the session during which maximum number of messages were received from multiple destination queues.
Incoming http messages rate	Indicates the rate at which messages were received during this HTTP session.	Messages/sec	

3.1.5 MSMQ Outgoing Http Session Test

For each HTTP session on the Microsoft Message Queuing (MSMQ) server, this test reports the amount of data sent during the HTTP session and the count of messages sent during the

HTTP session. Using this test, administrators can figure out during which HTTP session maximum amount of data and maximum number of messages were sent.

Target of the test : A Microsoft Message Queuing (MSMQ) Server

Agent deploying the test : An internal agent

Outputs of the test : One set of results for every HTTP session on the MSMQ server monitored.

Configurable parameters for the test

Parameters	Description
Test Period	How often should the test be executed.
Host	The IP address or host name of the machine where MSMQ has been installed.
Port	The MSMQ port number at which the specified host listens. The default port is *1801*.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Outgoing http data	Indicates the amount of data bytes sent during this HTTP session.	KB	Compare the value of this measure across the HTTP sessions to identify the HTTP session during which maximum amount of data. was sent.
Outgoing http messages	Indicates the number of messages that were sent during this HTTP session.	Number	Compare the value of this measure across the HTTP sessions to identify the HTTP session during which maximum number of messages were sent.
Outgoing http data rate	Indicates the rate at which data bytes were sent during this HTTP session.	Kb/sec	
Outgoing http messages rate	Indicates the rate at which messages were sent during this HTTP session.	Messages/sec	

3.1.6 MSMQ Incoming Multicast Session Test

This test auto-discovers the sessions on the Microsoft Message Queuing (MSMQ) server and for each session, reports the amount of data and count of messages received from multiple destination queues. Using this test, administrators can figure out the session during which maximum number of messages were received and maximum amount of data was received.

Target of the test : A Microsoft Message Queuing (MSMQ) Server

Agent deploying the test : An internal agent

Outputs of the test : One set of results for every session on the MSMQ server monitored.

Configurable parameters for the test

Parameters	Description
Test Period	How often should the test be executed.
Host	The IP address or host name of the machine where MSMQ has been installed.
Port	The MSMQ port number at which the specified host listens. The default port is *1801*.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Incoming multicast data	Indicates the amount of data bytes received during this session from multiple destination queues.	KB	Compare the value of this measure across sessions to identify the session during which maximum amount of data was received from multiple destination queues.
Incoming multicast data rate	Indicates the rate at which data bytes were received during this session from multiple destination queues.	KB/sec	
Incoming multicast messages	Indicates the number of messages received during this session from multiple destination queues.	Number	Compare the value of this measure across sessions to identify the session during which maximum number of messages were received from multiple destination queues.

Measurement	Description	Measurement Unit	Interpretation
Incoming multicast messages rate	Indicates the rate at which messages were received during this session from multiple destination queues.	Messages/sec	

3.1.7 MSMQ Outgoing Multicast Session

This test auto-discovers the sessions on the Microsoft Message Queuing (MSMQ) server and for each session, reports the amount of data and count of messages sent to multiple destination queues. Using this test, administrators can figure out the session during which maximum number of messages were sent and maximum amount of data was sent.

Target of the test : A Microsoft Message Queuing (MSMQ) Server

Agent deploying the test : An internal agent

Outputs of the test : One set of results for every session on the MSMQ server monitored.

Configurable parameters for the test

Parameters	Description
Test Period	How often should the test be executed.
Host	The IP address or host name of the machine where MSMQ has been installed.
Port	The MSMQ port number at which the specified host listens. The default port is *1801*.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Outgoing multicast data	Indicates the amount of data bytes sent during this session to multiple destination queues.	KB	Compare the value of this measure across sessions to identify the session during which maximum amount of data was sent to multiple destination queues.
Outgoing multicast data rate	Indicates the rate at which data bytes were sent	KB/sec	

Measurement	Description	Measurement Unit	Interpretation
	during this session to multiple destination queues.		
Outgoing multicast messages	Indicates the number of messages sent during this session to multiple destination queues.	Number	Compare the value of this measure across sessions to identify the session during which maximum number of messages were sent to multiple destination queues.
Outgoing multicast messages rate	Indicates the rate at which messages were sent during this session to multiple destination queues.	Messages/sec	

About eG Innovations

eG Innovations provides intelligent performance management solutions that automate and dramatically accelerate the discovery, diagnosis, and resolution of IT performance issues in on-premises, cloud and hybrid environments. Where traditional monitoring tools often fail to provide insight into the performance drivers of business services and user experience, eG Innovations provides total performance visibility across every layer and every tier of the IT infrastructure that supports the business service chain. From desktops to applications, from servers to network and storage, from virtualization to cloud, eG Innovations helps companies proactively discover, instantly diagnose, and rapidly resolve even the most challenging performance and user experience issues.

eG Innovations is dedicated to helping businesses across the globe transform IT service delivery into a competitive advantage and a center for productivity, growth and profit. Many of the world's largest businesses use eG Enterprise to enhance IT service performance, increase operational efficiency, ensure IT effectiveness and deliver on the ROI promise of transformational IT investments across physical, virtual and cloud environments.

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