Gathering and Displaying Statistics in WebSphere MQ V7

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Agenda

- Monitoring features in MQ
- Main references and tools
- Impact on performance
- Different types of monitoring and their attributes
- Statistics:

  ▸ How to start, stop

  ▸ How to solve common problems

  ▸ How to display records

Types of monitoring available in MQ

- WebSphere MQ V6.0 introduced new functionality to gather performance monitoring and accounting information.

  - ▸ Event monitoring

  - ▸ Trace-route Message monitoring

  - ▸ Real-time (online) monitoring

  - ▸ Accounting messages

  - ▸ **__Statistics messages__** => This document concentrates on Statistics.

Main references

- http://publib.boulder.ibm.com/infocenter/wmqv7/v7r0/index.jsp?topic=/com.ibm.mq.csqzax.doc/mo10120_.htm
- WebSphere MQ V7 Information Center
- >> Monitoring

- http://www-1.ibm.com/support/docview.wss?rs=171&uid=swg27012739
- WSTE: Getting started with Statistics and Accounting
  Statistics are described in Pages 13-29

MS0P Plugin for MQ Explorer

- http://www-01.ibm.com/support/docview.wss?rs=171&uid=swg24011617
- MS0P: WebSphere MQ Explorer - Configuration and Display Extension Plug-ins

- The main plugin provides a mechanism to format Event messages, to aggregate the Statistics and Accounting reports generated by WebSphere MQ, and to see current activity on queues and channels.

MQ sample: amqsmon

- http://publib.boulder.ibm.com/infocenter/wmqv7/v7r0/index.jsp?topic= %2Fcom.ibm.mq.csqzax.doc%2Fmo13460_.htm&resultof=%22%61%6d%71%73%6d %6f%6e%22%20
- amqsmon (Display formatted monitoring information)
- Displays in a readable format the information contained within accounting and statistics messages.

- It reads accounting messages from the **accounting** queue: SYSTEM.ADMIN.ACCOUNTING.QUEUE.
- and reads statistics messages from the **statistics** queue: SYSTEM.ADMIN.STATISTICS.QUEUE.

Functional difference amqsmon & Plugin

- amqsmon prints the records individually, one for each interval.

- Where as the MS0P plugin shows an aggregate of the individual records
- This means that there is just a single Statistics report for each queue accessed during the period for which the events are available.

- More details in pages 45-53.

IBM® Tivoli OMEGAMON XE

- http://www.ibm.com/software/tivoli/products/omega mon-xe-messaging-dist-sys/
- Tivoli OMEGAMON XE for Messaging for Distributed Systems

- It can identify problems and automate corrective actions with industry best practices and monitor key WebSphere MQ and Message Broker metrics for multiple platforms.

- This presentation does not cover this product.

Impact of performance

- ▪ The more monitoring features you enable and the more monitoring data you want to request, then the more impact of these monitoring activities on the overall performance of the queue manager: consuming more CPU and more memory.

- ▪ Thus, start with minimum monitoring and activate more features based on your observations and needs.

Event monitoring

- From Information Center:
- **Event monitoring** is the process of detecting occurrences of events in a queue manager network.
- Such an event causes the queue manager or channel instance to put a special message, called an event message, on an event queue.

- Event Messages delivered to queues: SYSTEM.ADMIN.*.EVENT

Notes: Event Monitoring - runmqsc

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- An instrumentation event is a logical combination of conditions that a queue manager or channel instance detects
- Performance events relate to conditions that can affect the performance of applications that use a specified queue.
- Configuration events are notifications that are generated when an object is created, changed, or deleted, and can also be generated by explicit requests.
- Command events are notifications that an MQSC, or PCF command has run successfully.
- Logger events are notifications that a queue manager has started writing to a new log extent or, on i5/OS®, a journal receiver.

- The attributes that control the Event Monitoring are shown below:
- DISPLAY QMGR EVENT
-   QMNAME(QM_PR1)   AUTHOREV(DISABLED)
-   CHLEV(DISABLED)   CMDEV(DISABLED)
-   CONFIGEV(DISABLED)   INHIBTEV(DISABLED)
-   LOCALEV(DISABLED)   LOGGEREV(DISABLED)
-   PERFMEV(DISABLED)   REMOTEEV(DISABLED)
-   SSLEV(DISABLED)   STRSTPEV(ENABLED)

Notes: Event Monitoring – sample EVMON

n o t e s

- http://publib.boulder.ibm.com/infocenter/wmqv7/v7r0/index.jsp?topic= %2Fcom.ibm.mq.csqzax.doc%2Fmo12390_.htm&resultof=%22%65%76%6d%6f%6e %22%20
- WebSphere MQ > Monitoring WebSphere MQ > Event monitoring
- Sample program to monitor instrumentation events
- EVMON
- .
- This sample program is not part of any WebSphere® MQ product and is therefore not supplied as an actual physical item. The example is incomplete in that it does not enumerate all the possible outcomes of specified actions. However, you can use this sample as a basis for your own programs that use events

Notes: Event Monitoring – Explorer config

notes

QM_PR1 - Properties

General
Extended
Exits
Cluster
Repository
Communication
Events
SSL
Statistics
Online monitoring
Statistics monitoring
Accounting monitoring
Log
XA resource managers
Installable services
Channels
TCP
LU6.2
NetBIOS
SPX
Publish/Subscribe

Events

Authority events:	Disabled
Inhibit events:	Disabled
Local events:	Disabled
Remote events:	Disabled
Start and stop events:	Enabled
Performance events:	Disabled
Command events:	Disabled
Channel events:	Disabled
Channel auto definition events:	Disabled
SSL events:	Disabled
Logger events:	Disabled
Configuration events:	Disabled

Notes: Event Monitoring – MS0P Plugin

Event: Queue Manager Active

notes

MQ Explorer - Content | Managed File Transfer - Current Transfer Progress | Events and Statistics ✕

Queue Manager: QM_ANGELITO

Last Operation: Reading Event Queues

⊟ 🏴 Events for Queue Manager QM ANGELITO
　 ⊟ 🔲 SYSTEM.ADMIN.QMGR.EVENT: 1 events
　 　 ⊟ 🏴 [2011/08/26 16:33:21] Queue Manager Active   [2222]
　 　 　 　 Event Type   : Queue Manager
　 　 　 　 Queue Manager Name   : QM_ANGELITO

Trace-route Message monitoring

- Trace-route Message monitoring is the process of identifying the route a message has taken through a queue manager network.
- Use one of the following techniques to determine a message route:
  - ▸ display route application (dspmqrte)
  - ▸ Activity recording
  - ▸ Trace-route messaging – messages delivered to queue: SYSTEM.ADMIN.TRACE.ROUTE.QUEUE

Notes:

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- Attributes that control trace-route recording:

- DISPLAY QMGR ROUTEREC
- QMNAME(QM_PR1) ROUTEREC(MSG)

QM_PR1 - Properties

General
Extended
Exits
Cluster
Repository
Communication
Events
SSL
Statistics
Online monitoring
Statistics monitoring
Accounting monitoring
Log
XA resource managers
Installable services
Channels
TCP
LU6.2
NetBIOS

Communication

Default transmission queue:	
Channel auto definition:	Disabled
Channel auto definition exit:	
IP address version:	IPV4
Activity recording:	Message
Trace-route recording:	Message

Real-time (online) monitoring

- **Real-time monitoring** (also called "online") is a technique that allows you to determine the current state of queues and channels within a queue manager.
- The information returned is accurate at the moment the command was issued.

- Information is kept within the monitored object (queue, channel)

Notes: attributes for real-time monitoring

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- To control individual queues or channels, set the queue attribute MONQ or the channel attribute MONCH.
- Similar controls exist for the queue manager.

- Possible values are:
- QMGR - inherited from the setting in the queue manager object. This is the default value.
- OFF - switched off.
- LOW - A low ratio of data collection with a minimal impact on performance. However, the monitoring results shown may not be totally up to date.
- MEDIUM - A moderate ratio of data collection with limited impact on the performance of the system.
- HIGH - A high ratio of data collection with the possibility of an impact on performance. However, the monitoring results shown will be most current.

IBM

Notes: real-time monitoring in MQ Explorer

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QM_PR1 - Properties

General
Extended
Exits
Cluster
Repository
Communication
Events
SSL
Statistics
Online monitoring
Statistics monitoring
Accounting monitoring

Online monitoring

Channel monitoring:	Off
Queue monitoring:	Off
Auto CLUSSDR monitoring:	Queue Manager

Notes: Displaying real-time monitoring data

- http://publib.boulder.ibm.com/infocenter/wmqv7/v7r0/index.jsp? topic=/com.ibm.mq.csqzax.doc/mo13730_.htm\
- Displaying queue and channel monitoring data

- Procedure
- To display real-time monitoring information for a queue, use either the WebSphere MQ Explorer or the MQSC command DISPLAY QSTATUS, specifying the optional parameter MONITOR.
- Example
- The queue, Q1, has the attribute MONQ set to the default value, QMGR, and the queue manager that owns the queue has the attribute MONQ set to MEDIUM. To display the monitoring fields collected for this queue, use the following command:
- **DISPLAY QSTATUS(Q1) MONITOR**
- The monitoring fields and monitoring level of queue, Q1 are displayed as follows:
- QSTATUS(Q1) TYPE(QUEUE) MONQ(MEDIUM)
  QTIME(11892157,24052785) MSGAGE(37)
   LPUTDATE(2005-03-02) LPUTTIME(09.52.13)
   LGETDATE(2005-03-02) LGETTIME(09.51.02)

notes

Accounting records

- Accounting events show the activity of each **application** that has been connected to the queue manager:
- showing how many put/get actions for messages, and
- which queues have been accessed.

- In contrast, statistics are for the "objects" (queues)

- Messages are delivered to the
- SYSTEM.ADMIN.ACCOUNTING.QUEUE

Notes: Accounting - configuration

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- The following attributes are related to the configuration of the Accounting records

- DISPLAY QMGR ACCTCONO ACCTINT ACCTMQI ACCTQ
  - QMNAME(QM_ANGELITO)   ACCTCONO(DISABLED)
  - ACCTINT(120)   ACCTMQI(OFF)
  - ACCTQ(OFF)

QM_PR1 - Properties

General
Extended
Exits
Cluster
Repository
Communication
Events
SSL
Statistics
Online monitoring
Statistics monitoring
Accounting monitoring
Log
XA resource managers

Accounting monitoring

MQI accounting: Off

Queue accounting: Off

Accounting interval: 1800

Accounting conn override: Disabled

Notes: Accounting - displaying

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- The following attributes are related to the configuration of the Accounting records

- DISPLAY QMGR ACCTCONO ACCTINT ACCTMQI ACCTQ
-    QMNAME(QM_ANGELITO) ACCTCONO(DISABLED)
-    ACCTINT(120) ACCTMQI(OFF)
-    ACCTQ(OFF)

Notes: Accounting - displaying

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MQ Explorer - Content | Managed File Transfer - Current Transfer Progress | Events and Statistics

Queue Manager: QM_ANGELITO

Last Operation: Reading from SYSTEM.ADMIN.ACCOUNTING.QUEUE

Application Accounting for Queue Manager QM_ANGELITO

   i Not showing TDQ details

Active Application Count : 4

     Application : amqrmppa.exe

     Application : amqsputc.exe

     Application : javaw.exe

     Application : runmqchi.exe

Notes: Accounting

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- Showing the accounting records for the application:
    amqsputc

  This is the "client" version of the sample to put a message into a queue.
  "amqsput" is the "server" version.

```
⊕  ☐ Application : amqimppa.exe
⊟  ☐ Application : amqsputc.exe
   ⊕  🕐 From 2011-08-30 13.15.32 to 2011-08-30 13.15.51
         Full Name          : ebSphere MQ\bin\amqsputc.exe
         Userid             : rivera
         Channel Name       : SYSTEM.DEF.SVRCONN
         Connection Name    : 127.0.0.1
         Instances          : 2
         First Connect      : 2011-08-30 13.15.32
         Last Disconnect    : 2011-08-30 13.15.51
         Last Disc Type     : Normal
   ⊕  🖂 Actions on Queues
   ⊕  ⚙ Other Actions
   ⊟  🖂 Messages
```

Message Type		Non-persistent	Persistent
Put	:	9	0
Put1	:	0	0
Get	:	0	0
Browse	:	0	0
Put Bytes	:	35	0
Get Bytes	:	0	0
Browse Bytes	:	0	0

Statistics records

- Statistics message types
- **MQI** - contain information relating to the number of MQI requests executed during a configured interval.
- **Queue** - contain information relating to the activity of a queue during a configured interval.
- **Channel** - contain information relating to the activity of a channel during a configured interval.
- Messages are delivered to the
- SYSTEM.ADMIN.STATISTICS.QUEUE (S.A.S.Q for short)

Notes: Statistics - runmqsc

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- Statistics attributes - valid only on i5/OS, UNIX systems, and Windows®.
- DISPLAY QMGR STATACLS STATCHL STATINT STATMQI STATQ

- STATACLS - Whether statistics data is to be collected for auto-defined cluster-sender channels, and, if so, the rate of data collection.
- STATCHL - Whether statistics data is to be collected for channels, and, if so, the rate of data collection.
- STATINT - The interval at which statistics monitoring data is written to the monitoring queue. Default is 1800 seconds (30 minutes).
- STATMQI - Whether statistics monitoring data is to be collected for the queue manager.
- STATQ - Whether statistics data is to be collected for queues.

Notes: Statistics – Explorer configuration

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Notes: Statistics – MS0P plugin

notes

MQ Explorer - Content | Managed File Transfer - Current Transfer Progress | Events and Statistics ✕

Queue Manager: QM_ANGELITO

Last Operation: Reading from SYSTEM.ADMIN.STATISTICS.QUEUE

```
Statistics for Queue Manager QM ANGELITO
  i  Not showing TDQ details
  🕘 From 2011-08-26 16.33.24 to 2011-08-26 17.06.55
  Connections          : 0
  Disconnects          : 0
  Other Actions
  Messages
  Used Queue Count: 30
     Queue Name : Q1
          Created              : 2011-01-31 13.16.10
          Queue Type           : Local
          Def Type             : Predefined
          Max Q Depth          : 3
          Min Q Depth          : 0


          Message Type    Non-persistent    Persistent
          Put           :   3                  0
          Put1          :   0                  0
          Get           :   0                  0
          Browse        :   0                  0
          Put Bytes     :   18                 0
```
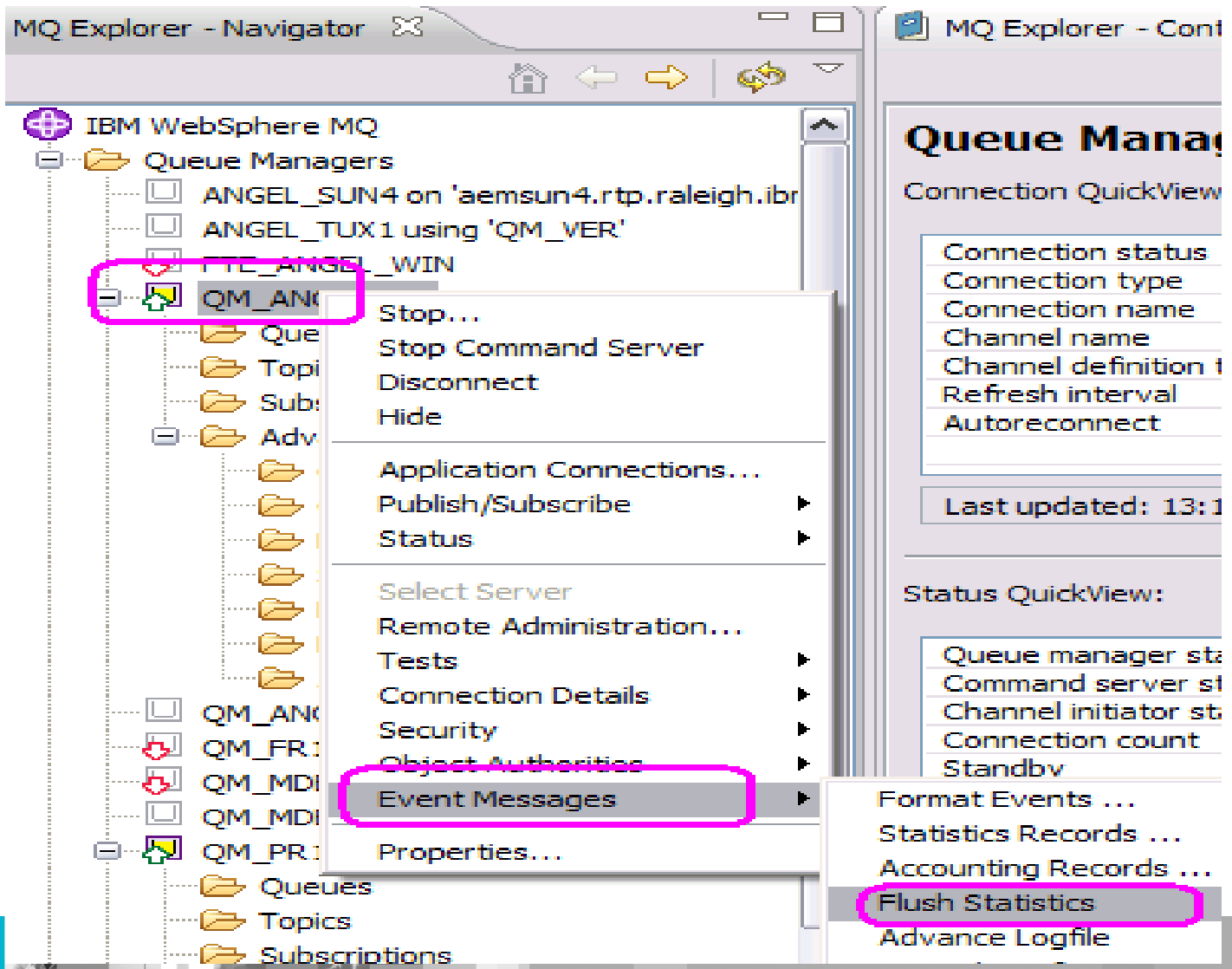
Statistics interval

- When gathering statistics, the queue manager updates registers regarding the statistics in memory and it writes the information into a "statistics message".

- This message is stored in the queue: SYSTEM.ADMIN.STATISTICS.QUEUE

- The message is written at the end of the 'statistics interval' or when using a runmqsc command to reset/flush.

- There is only one message per interval and it includes all the statistics for all objects.

Display statistics interval - flush/reset

- The default 'statistics interval' is 1,800 seconds or 30 minutes by default:
  DISPLAY QMGR STATINT
    QMNAME(X) STATINT(1800)

- You can force the queue manager to write a statistics message and to start the next interval:

- This runmqsc command is run:
  RESET QMGR TYPE(STATISTICS)
- Plugin: QueueManager > Event Messages > Flush Statistics
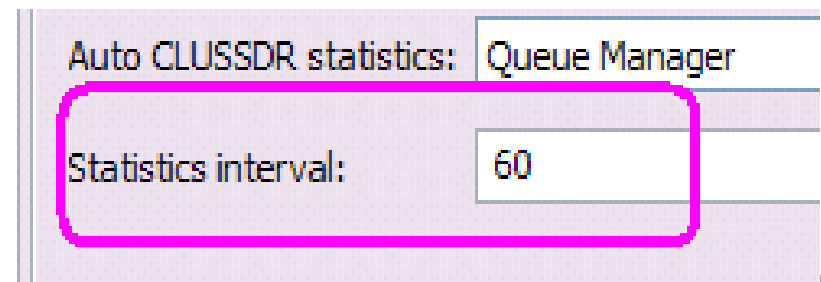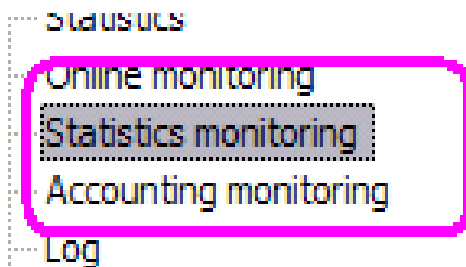
Notes: Plugin – Flush Statistics

n o t e s

For testing, set shorter interval

- While you are experimenting with this feature, it is suggested that you use a shorter interval, such as 60 seconds or 1 minute:

- Via runmqsc: ALTER QMGR STATINT(60)

- Via MQ Explorer: Queue Manager > Properties > Statistics Monitoring

Scenario 1: no statistics are being gathered

- **A customer thinks that the statistics are enabled but neither amqsmon nor the Plugin show any activity.**
- **Runmqsc does not show any statistics messages:**

  DISPLAY QL(SYSTEM.ADMIN.STATISTICS.QUEUE) CURDEPTH
- AMQ8409: Display Queue details.
-   QUEUE(SYSTEM.ADMIN.STATISTICS.QUEUE)
    TYPE(QLOCAL)
    CURDEPTH(0)   <=== No statistics records!
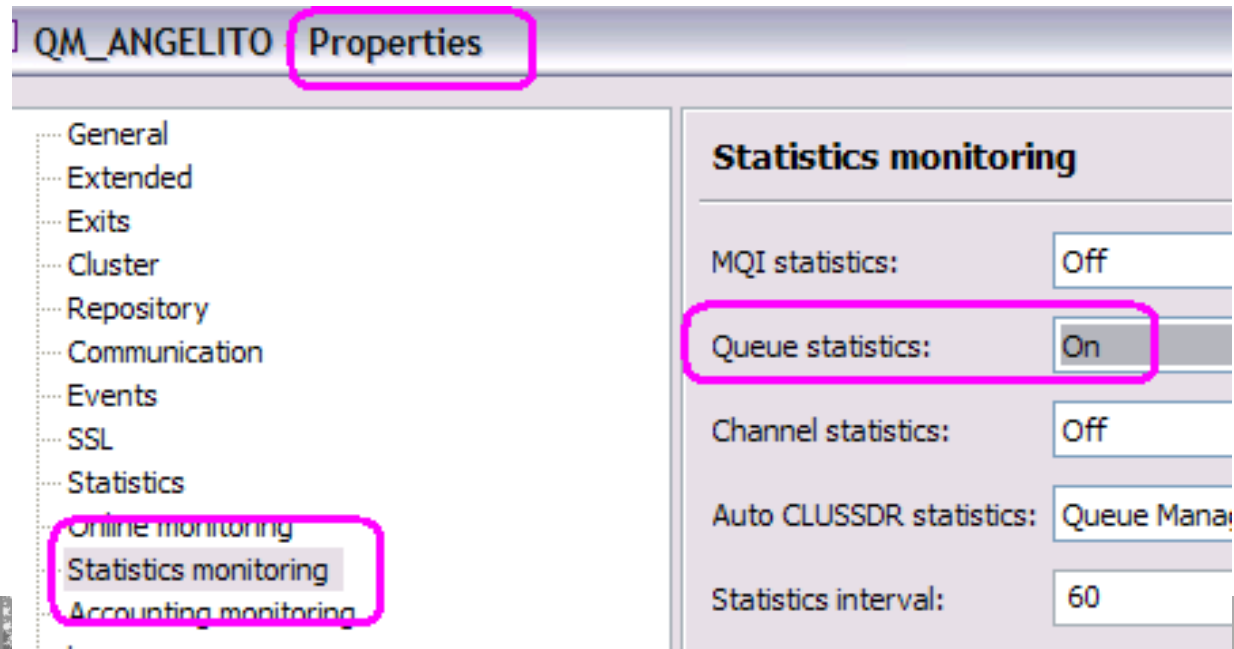
Scenario 1: Plugin shows warning

MQ Explorer - Content | Managed File Transfer - Current Transfer Progress | Events and Statistics ✕

Queue Manager: QM_ANGELITO

Last Operation: Reading from SYSTEM.ADMIN.STATISTICS.QUEUE

ℹ Information - Warnings - Errors

     ℹ No messages on SYSTEM.ADMIN.STATISTICS.QUEUE on QM_ANGELITO

Scenario 1: solution

- By default, the queue manager does NOT collect statistics.
- You need to enable the gathering of statistics at the queue manager level:
- Via runmqsc: ALTER QMGR STATQ(ON
- Via Explorer:
Queue Manager >
Properties >
Statistics monitoring

QM_ANGELITO **Properties**

- General
- Extended
- Exits
- Cluster
- Repository
- Communication
- Events
- SSL
- Statistics
- Online monitoring
- **Statistics monitoring**
- Accounting monitoring

Statistics monitoring

MQI statistics:	Off
Queue statistics:	On
Channel statistics:	Off
Auto CLUSSDR statistics:	Queue Mana
Statistics interval:	60

1 message is written at each interval

- Now that the queue manager is gathering statistics, then at the end of each statistics interval:
- 1 message is written into the queue and
- a new interval is started. The chart assumes that no records have been deleted from the S.A.S.Q. After 10 intervals (600 seconds) there are 10 messages

Interval	Seconds	Messages in SASQ
1	60	1
2	120	2
3	180	3
10	600	10

Scenario 2: Error AMQ7316, RC 2053 q full

You notice the following error in the log of the queue manager:

AMQ7316: Failed to put message to statistics queue. Reason(2053)
EXPLANATION:
The attempt to put a messsage containing statistics data to the queue
SYSTEM.ADMIN.STATISTICS.QUEUE failed with reason code 2053.
The message data has been discarded.
This error message will be written only once for attempts to put a
message to the queue as part of the same operation which fail for the
same reason.

Scenario 2: mqrc 2053 MQRC_Q_FULL

You can use the "mqrc" utility to find out the name of the Reason Code 2053:

% mqrc 2053

2053 0x00000805 MQRC_Q_FULL

This means that the queue was full.

Possible causes:

The amqsmon or the MSP0 plugin are not run regularly, or

If they are run, they are run in "browse" mode (not deleting the records).

Scenario 2: How to turn off the statistics - 1

- The statistics are being gathered because one of the STAT* attributes is enabled at the queue manager, or for an individual queue or channel.

- If the STATQ attribute of the queue manager is ON, you can deactivate it by issuing in runmqsc:
- ALTER QMGR STATQ(OFF)

- The value NONE could be used to completely disable queue statistics, regardless of the queue attribute STATQ.

Scenario 2: How to turn off the statistics - 2

- The default for STATQ for the queues is QMGR.
- If the qmgr is ON then the statistics are gathered for the queue, if OFF, then no statistics.

- You can use runmqsc to identify which queue has an attribute STATQ set to ON.

-    DISPLAY QL(*) WHERE(STATQ EQ ON)

- Then you an deactivate it by issuing:
-    ALTER QL(Q1) STATQ(QMGR)

Monitoring messages are non persistent

- The messages in SYSTEM.ADMIN.* are non persistent

- This means that they do not survive a restart of the queue manager.

- Thus, one way to cleanup the SYSTEM.ADMIN.* queues is to restart the queue manager

Cleaning statistics messages

- In general, we recommend to NOT touch the SYSTEM.* queues in a queue manager.
- But you can clear the SYSTEM.ADMIN.* queues

- http://www-01.ibm.com/support/docview.wss?uid=swg21377808
- Deleting messages from the SYSTEM.ADMIN.ACCOUNTING.QUEUE and SYSTEM.ADMIN.STATISTICS.QUEUE after getting error AMQ7315 and AMQ7316

Notes: technote 1377808 – clearing queues

notes

- Details from technote 1377808
- **Cause:** You notice the error:
- AMQ7315: Failed to put message to accounting queue. Reason(2053)
- The attempt to put a message containing accounting data to the queue SYSTEM.ADMIN.ACCOUNTING.QUEUE failed with reason code 2053.
- The most likely cause for this problem is that the queue is full of messages and cannot receive another message.
- **Answer:** In general, you should not delete messages from any of the WebSphere MQ SYSTEM.* queues.
- Recommended way: The sample monitoring utility "amqsmon" or MS0P can be used to get the messages from the queues and display the information contained in the messages. This would clear up the messages from those queues.
- Alternative way: You could use runmqsc to CLEAR the messages from these 2 queues and if you are very careful, you will not damage the configuration.
- CAVEAT: You need to be very careful because if you make a typo and delete accidentally the contents of other SYSTEM queues, you may corrupt the queue manager and you would need to delete it and recreate it.
- CLEAR QLOCAL(SYSTEM.ADMIN.ACCOUNTING.QUEUE)
- CLEAR QLOCAL(SYSTEM.ADMIN.STATISTICS.QUEUE)

Scenario 3: Displaying records, amqsmon 1

- Let's assume that in a period of several minutes 10 messages were handled in a queue (put, get):
  - ▸ Interval 1: put/get 3 messages
  - ▸ Interval 2: put/get 4 messages

- Now you want to want to display the records.

Scenario 3: Displaying records, amqsmon 2

- TESTING HINTS:

  ▶ You can specify the -b option (browse) to not remove the records from the queue

  ▶ You can capture output into a file

- amqsmon -m QMgr -t statistics -b > /tmp/output.txt

Notes: output from amqsmon - overall

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- The output of amqsmon looks like this.
- If there were 10 intervals captured, then there will be 10 records like this:

- MonitoringType: QueueStatistics
- QueueManager: 'QM_ANGELITO'
- IntervalStartDate: '2011-08-30'
- IntervalStartTime: '12.12.58'
- IntervalEndDate: '2011-08-30'
- IntervalEndTime: '12.13.58'
- CommandLevel: 700
- ObjectCount: 2
- ### For each of the objects in the ObjectCount, starting with index 0:
- **QueueStatistics:** 0
-   QueueName: 'SYSTEM.CHANNEL.SYNCQ'
-   … more data (see next page)
- **QueueStatistics:** 1
-   QueueName: 'Q1'
-   ---

Notes: output from amqsmon - object

notes

- ### The section for each queue looks like this.
- ### Highlighting Puts and Gets

- QueueStatistics: 0
-   QueueName: 'Q1'
-   CreateDate: '2011-01-31'
-   CreateTime: '13.16.10'
-   QueueType: Predefined
-   QueueDefinitionType: Local
-   QMinDepth: 0
-   QMaxDepth: 7
-   AverageQueueTime: [5169232, 0]
-   … continues next column ...

- **PutCount: [3, 0]**
- PutFailCount: 0
- Put1Count: [0, 0]
- Put1FailCount: 0
- **PutBytes: [5, 0]**
- **GetCount: [3, 0]**
- **GetBytes: [5, 0]**
- GetFailCount: 0
- BrowseCount: [0, 0]
- BrowseBytes: [0, 0]
- BrowseFailCount: 0
- NonQueuedMsgCount: 0
- ExpiredMsgCount: 0
- PurgeCount: 0

Notes: output from amqsmon - individual

n o t e s

- The output of amqsmon does NOT aggregate results across intervals:

- Interval 1:   Q1:
  PutCount: [3, 0]
- PutBytes: [4, 0]
- GetCount: [3, 0]
- GetBytes: [4, 0]

- Interval 2:   Q1:
- PutCount: [4, 0]
- PutBytes: [6, 0]
- GetCount: [4, 0]
- GetBytes: [6, 0]

- But the MS0P Plugin will aggregate the results:
- PutCount: [7, 0]
- PutBytes: [10, 0]
- GetCount: [7, 0]
- GetBytes: [10, 0]

Scenario 3: Displaying records – Plugin - 1

- Queue manager > Event Messages > Statistics Records ...

Scenario 3: Displaying records – Plugin - 2

- The default is to:
  Browse
  the records
  (non-destructive
  get)
- … and to
  Clear
  previous results

WebSphere MQ Events and Statistics

Queue Manager   QM_ANGELITO

Operation   Reading from SYSTEM.ADMIN.STATISTICS.QUEUE

Message Access
- (•) Browse
- ( ) Get

Application Identity
- ( ) Name
- ( ) Name,ConnID,Pid,Tid

Previous Results
- [✓] Clear

Time Filtering (yyyymmddhhMMss)

Include messages after

Include messages before

OK   Cancel

MQ Explorer - Content | Managed File Transfer - Current Transfer Progress | Events and Statistics ✕

Scenario 3:

- See tab:
  Events and
  Statistics

  Expand the
  desired queue

- Notice aggregate
  counters

Queue Manager: QM_ANGELITO

Last Operation: Reading from SYSTEM.ADMIN.STATISTICS.QUEUE
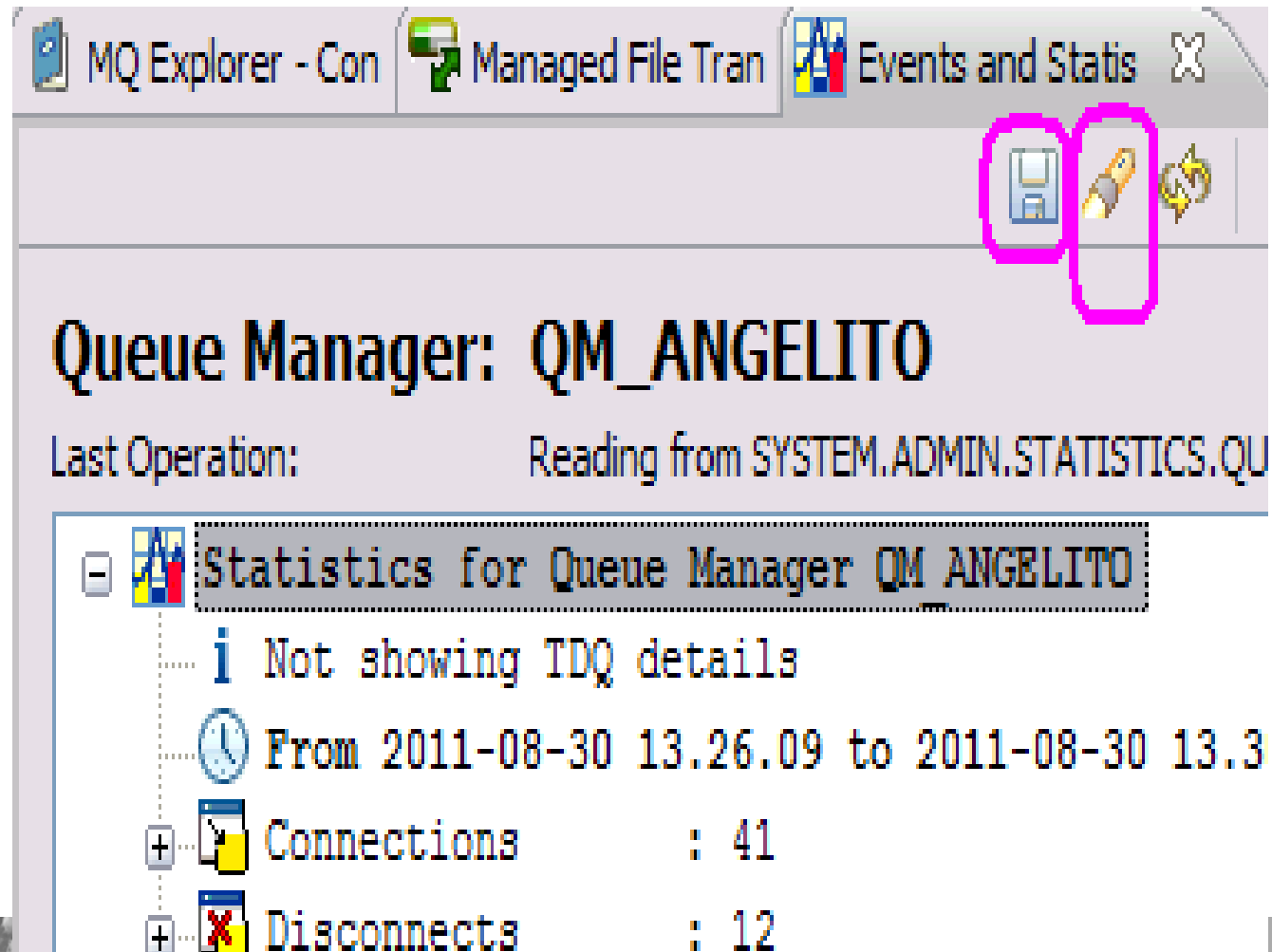
```
Statistics for Queue Manager QM_ANGELITO
    i  Not showing TDQ details
    🕐 From 2011-08-30 12.12.58 to 2011-08-30 12.38.15
  ⊞  Connections        : 0
  ⊞  Disconnects        : 0
  ⊞ ⚙ Other Actions
  ⊞ ✉ Messages
  ⊟ ✉ Used Queue Count: 24
      ⊟ ✉ Queue Name : Q1
              Created         : 2011-01-31 13.16.10
              Queue Type      : Local
              Def Type        : Predefined
              Max Q Depth     : 7
              Min Q Depth     : 0
```

Message Type	Non-persistent	Persistent
Put	: 7	0
Put1	: 0	0
Get	: 7	0
Browse	: 0	0
Put Bytes	: 10	0
Get Bytes	: 10	0
Browse Bytes	: 0	0

Scenario 4: Plugin, saving stats into a file

- See tab: Events and Statistics

- You can save the aggregate
- report into a file.

- You can search for a name.

In production, use destructive get

- During Testing, it is recommended to use the BROWSE options for amqsmon and the Plugin to familiarize yourself with these tools and the statistics.
- This Browse mode does NOT delete records.

- In Production, to avoid a queue full for the statistics queue, it is recommended that you do NOT use the Browse function, to allow for the consumption of the statistics messages.

Other references

- http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/TD104811
- Techdocs Library > Hints, tips & Technotes >
- Beginners Guide - WMQ Statistics for Distributed platforms

Additional WebSphere Product Resources

- Learn about upcoming WebSphere Support Technical Exchange webcasts, and access previously recorded presentations at:
http://www.ibm.com/software/websphere/support/supp_tech.html

- Discover the latest trends in WebSphere Technology and implementation, participate in technically-focused briefings, webcasts and podcasts at:
http://www.ibm.com/developerworks/websphere/community/

- Join the Global WebSphere Community:
http://www.websphereusergroup.org

- Access key product show-me demos and tutorials by visiting IBM Education Assistant:
http://www.ibm.com/software/info/education/assistant

- View a webcast replay with step-by-step instructions for using the Service Request (SR) tool for submitting problems electronically:
http://www.ibm.com/software/websphere/support/d2w.html

- Sign up to receive weekly technical My Notifications emails:
http://www.ibm.com/software/support/einfo.html

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