How to make persistent the events for starting and stopping an MQ queue manager

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IBM MQ Support

+++ Objective

This techdoc provides all the necessary steps to help you monitor the queue SYSTEM.ADMIN.QMGR.EVENT to audit the start and the stop for an MQ queue manager.

First, a baseline scenario is described in which when using the defaults, there is only 1 record in the SYSTEM.ADMIN.QMGR.EVENT queue, regardless of how many times you restart the queue manager.

Second, a modification is done to the SYSTEM.ADMIN.QMGR.EVENT queue to indicate that the default persistence is enabled, and thus, subsequent events from the stop/start of the queue manager will be kept in the queue.
  alter ql(SYSTEM.ADMIN.QMGR.EVENT) defpsist(YES)

Caveat:
If you want to have persistent messages in the SYSTEM.ADMIN.QMGR.EVENT queue you will need to have the discipline and the procedure to get and remove the messages, otherwise, the queue will eventually fill up.

+ Baseline scenario – only 1 record is kept in SYSTEM.ADMIN.QMGR.EVENT queue

You notice that the SYSTEM.ADMIN.QMGR.EVENT queue only shows 1 record, which is the start time of the queue manager.
But you do not see older records to help you monitor the start/stop activity for the queue manager.

By default, the queue manager attribute STRSTPEV is ENABLED, which reports the start time for the queue manager.

display qmgr event
AMQ8408I: Display Queue Manager details.
   QMNAME(QM903)   AUTHOREV(DISABLED)
   CHLEV(DISABLED)   CMDEV(DISABLED)
   CONFIGEV(DISABLED)   INHIBTEV(DISABLED)
   LOCALEV(DISABLED)   LOGGEREV(DISABLED)
   PERFMEV(DISABLED)   REMOTEEV(DISABLED)
   SSLEV(DISABLED)   **STRSTPEV(ENABLED)**

Upon starting the queue manager will place one (1) record to the following system queue to record the start event (after doing a strmqm or using MQ Explorer to start the queue manager)

display ql(SYSTEM.ADMIN.QMGR.EVENT) curdepth defpsist
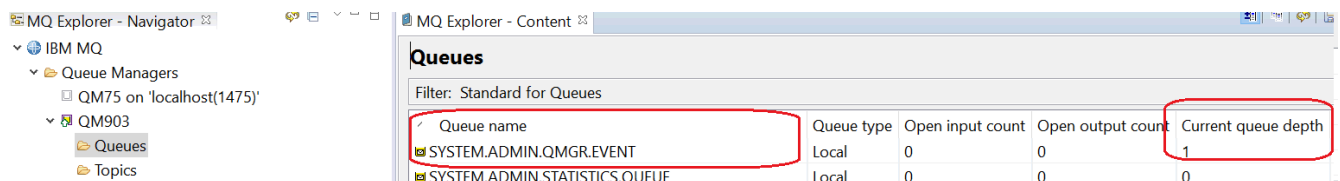AMQ8409I: Display Queue details.
   QUEUE(SYSTEM.ADMIN.QMGR.EVENT)   TYPE(QLOCAL)
   CURDEPTH(1)   DEFPSIST(NO)

By default, the SYSTEM.ADMIN.QMGR.EVENT queue indicates that the "default persistence" is NO.
This means that if an application inquires the queue for DEFPSIST and then puts a message according to the value, then the application will ask for the DEFPSIST to the queue, and if it is NO (as in this case), then the application will put a NON-PERSISTENT message in the queue.
By definition, a non-persistent message will NOT survive the restart of the queue manager. (Note, if DEFPSIST is YES, then the application will put a PERSISTENT message in the queue).

The view for this queue in MQ Explorer is shown below and it shows 1 message:

You browse the lonely message and you see that it is:
   Not persistent

You can use the following SupportPac to add special plug-ins to the MQ Explorer to format the events (plus statistics and accounting records, if enabled) and view the formatted events.

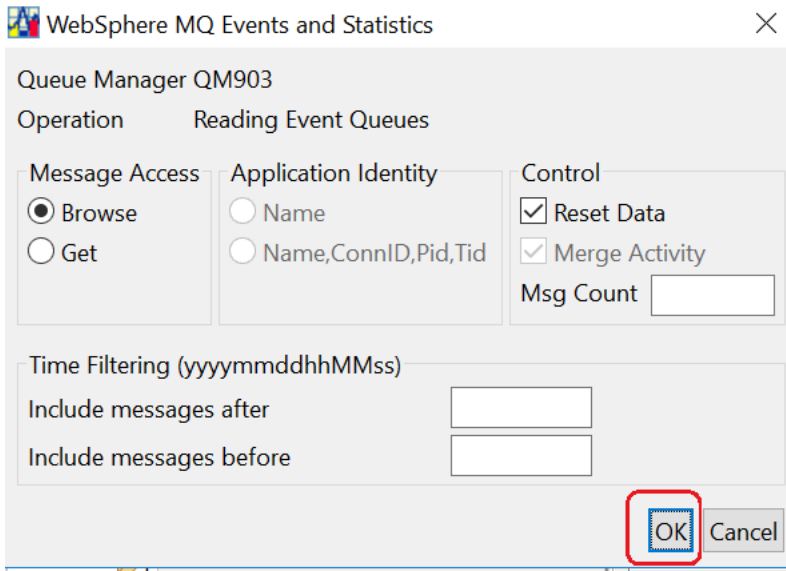http://www.ibm.com/support/docview.wss?uid=swg24011617
SupportPac MS0P: WebSphere MQ Explorer - Configuration and Display Extension Plug-ins

After you install this SupportPac you can right-click on the desired queue manager, then select "Event Messages" then "Format Events ..."

MQ Explorer - Navigator ⊠

IBM MQ
Queue Managers
QM75 on 'localhost(1475)'
QM

| Disconnect |
| Stop | > |
| Stop Command Server |
| Hide |
| Application Connections... |
| Publish/Subscribe | > |
| Status | > |
| Select Server |
| Remote Administration... |
| Save Configuration... |
| Create Queue Manager Links |
Tests	>
Connection Details	>
Security	>
Object Authorities	>
Event Messages	>
Properties...

Format Events ...
Statistics Records ...

MQ Explorer - Content ⊠

Queue Manager QM903

Connection QuickView:

Connection status
Connection type
Connection name
Channel name
Channel definition table
Refresh interval
Autoreconnect

Last updated: 14:58:37

Status QuickView:

Queue manager status
Command server status
Channel initiator status
Connection count
Standby
Start date

You will see a dialog and you can accept the defaults. Then click OK.

WebSphere MQ Events and Statistics   ✕

Queue Manager QM903

Operation   Reading Event Queues

Message Access   Application Identity   Control
- ● Browse   ○ Name   ☑ Reset Data
- ○ Get   ○ Name,ConnID,Pid,Tid   ☑ Merge Activity

      Msg Count [ ]

Time Filtering (yyyymmddhhMMss)

Include messages after [ ]

Include messages before [ ]

[OK] [Cancel]

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You will see another panel on the right side. This new panel is called: "Events and Statistics".
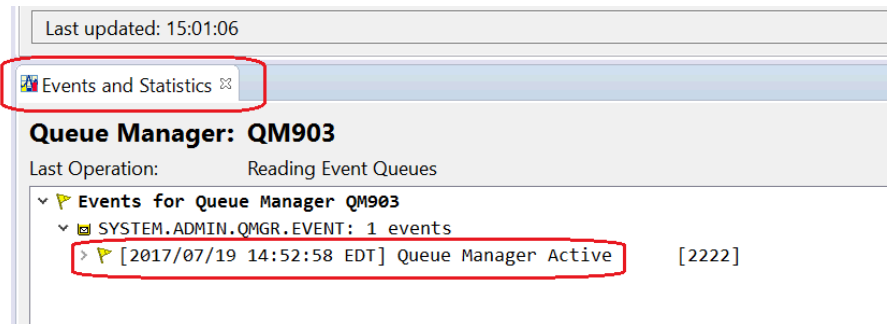You will see that there is 1 event for the queue:
  SYSTEM.ADMIN.QMGR.EVENT
The event is of the form:
  [timestamp] Queue Manager Active [2222]

📁 Service Definition Repositories
📄 Administered Servers

Last updated: 15:01:06

Events and Statistics ✕

Queue Manager: QM903

Last Operation: Reading Event Queues

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∨ ⚑ Events for Queue Manager QM903
    ∨ 📧 SYSTEM.ADMIN.QMGR.EVENT: 1 events
      > ⚑ [2017/07/19 14:52:58 EDT] Queue Manager Active      [2222]
```
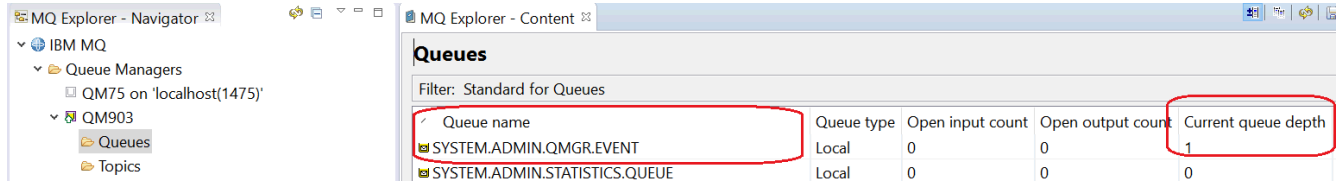
In this particular example, the queue manager was started at:
  2017/07/19 14:52:58 EDT

OK, so far, so good.

Now stop and restart the queue manager.

You noticed that the queue SYSTEM.ADMIN.QMGR.EVENT has again only 1 message.
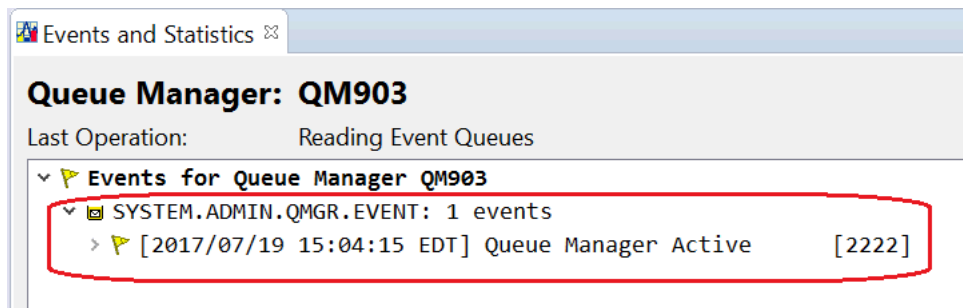

Repeat the process to format the events.
Notice that there is only 1 entry for the queue:
  SYSTEM.ADMIN.QMGR.EVENT
And the time stamp is different:
  2017/07/19 15:04:15 EDT

+ Modification to allow persistent messages in SYSTEM.ADMIN.QMGR.EVENT queue

You may ask yourself: why only 1 record is kept in this queue? I would like to see the historical records for when the queue manager has started and stopped.

The answer is this:
Many MQ administrators do not usually look at the historical records for these events, and if the events were not deleted, eventually the SYSTEM.ADMIN.QMGR.EVENT would get filled up.

However, if you want to keep the historical records for this queue, then you will be responsible for periodically trimming/deleting the messages in this queue in order to avoid the error situation in which the queue is filled up.
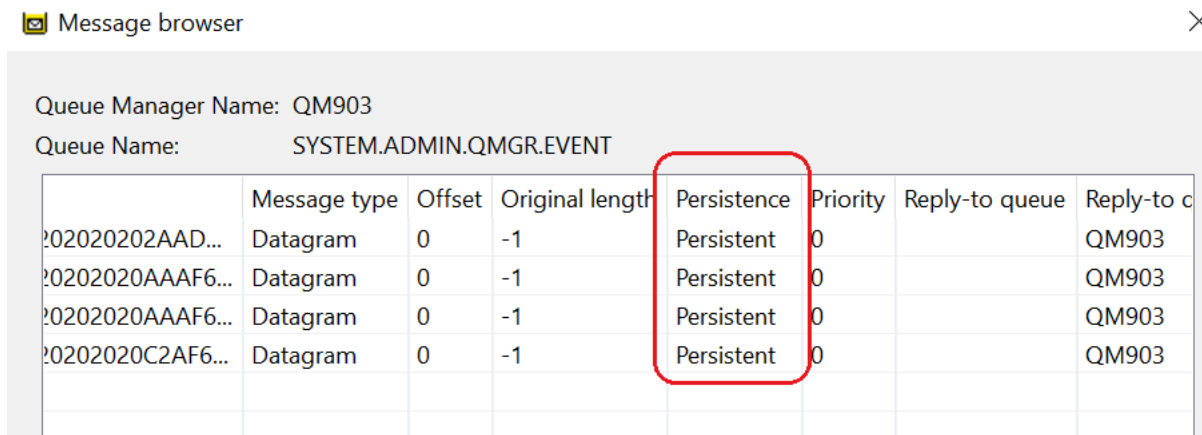
You can use runmqsc to change the following attribute for the queue, in order to the messages to be Persistent (instead of non-persistent):

alter ql(SYSTEM.ADMIN.QMGR.EVENT) defpsist(YES)

Then, you will need to stop and start the queue manager.

Repeat the stop and start of the queue manager, in order to confirm that you can have several historical records for the start/stop events.

Using the MQ Explorer to browse the messages in the queue, we see that there are 4 records, and that the messages are "Persistent", which means that they survive the restart of the queue manager.

Message browser   ✕

Queue Manager Name: QM903
Queue Name: SYSTEM.ADMIN.QMGR.EVENT

	Message type	Offset	Original length	Persistence	Priority	Reply-to queue	Reply-to c
202020202AAD...	Datagram	0	-1	Persistent	0		QM903
20202020AAAF6...	Datagram	0	-1	Persistent	0		QM903
20202020AAAF6...	Datagram	0	-1	Persistent	0		QM903
20202020C2AF6...	Datagram	0	-1	Persistent	0		QM903

Now, repeat the process to format the events.

Events and Statistics ⊠

Queue Manager: QM903

Last Operation: Reading Event Queues

⌄ ⚐ **Events for Queue Manager QM903**
  ⌄ ▣ SYSTEM.ADMIN.QMGR.EVENT: 4 events
    > ⚐ [2017/07/19 15:14:44 EDT] Queue Manager Not Active   [2223]
    > ⚐ [2017/07/19 15:14:55 EDT] Queue Manager Active   [2222]
    > ⚐ [2017/07/19 15:15:07 EDT] Queue Manager Not Active   [2223]
    > ⚐ [2017/07/19 15:15:19 EDT] Queue Manager Active   [2222]

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Notice the historical record for when the queue manager started and was stopped:

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[2017/07/19 15:14:44 EDT] Queue Manager Not Active [2223]
[2017/07/19 15:14:55 EDT] Queue Manager Active [2222]
[2017/07/19 15:15:07 EDT] Queue Manager Not Active [2223]
[2017/07/19 15:15:19 EDT] Queue Manager Active [2222]

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