Large Message support for 64-bit IBM MQ queues APAR PJ48036 (Dec 2024)

Communication Subcommittee

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Pain Point

- Application messages are using new technologies, such as XML, JSON, and so on, and are growing in size.
- IBM MQ messages on z/TPF from a local or remote queue manager are limited to a maximum message size of 4MB, but the IBM MQ architecture supports messages as large as 100 MB in size.

Introducing IBM MQ Large Message Support

- The z/TPF IBM MQ queue manager now supports messages as large as the IBM MQ architected maximum size of 100 MB.
- This is supported with 64-bit IBM MQ queues.

Definitions to enable Large IBM MQ Messages

- MAXMSGL of 100 MB is supported on:
  - Queue manager
  - Queues (64-bit IBM MQ queues, local, transmission)
  - Channels (sender and receiver channels)

Note: Existing 31-bit queues still only support a maximum message size of 4 MB. Newly defined 31-bit queues will default to a maximum message size of 4 MB if the QMGR maximum message size is greater than 4 MB

Large Message Support - Migration

1. Load APAR PJ48036 to all processors in your loosely coupled complex before you start to use IBM MQ messages that are larger than 4 MB in size.
2. Modify the z/TPF queue manager maximum message length (MAXMSGL) setting to the largest value needed in your environment.
3. Modify the 64-bit queues maximum message length (MAXMSGL) setting to the largest value needed in your environment.
4. Modify channels with transmission queues where the maximum message length (MAXMSGL) was increased. The channel will need be modified on each CPU to the value needed in your environment. The channel will need to be restarted in order to use the new value.

Resource Tuning Considerations for Large IBM MQ Messages

- If you plan to use large IBM MQ messages, you might need to increase the maximum amount of 31-bit and 64-bit ECB heap an ECB can obtain.
- Enabling IBM MQ compression is recommended for larger messages.
  - With compression, messages larger than 4 MB will use 64-bit ECB heap. The compress buffer might be larger than the message size. For example, a 50 MB msg requires a 56 MB buffer to compress and decompress the message.
- If an MQGET API is issued without providing a buffer, 64-bit ECB heap is allocated for any message larger than 4 MB.

Resource Tuning Considerations for Large IBM MQ Messages

- If you plan to use a high volume of large IBM MQ messages, you might need to increase:
  - The amount of MQM memory defined
  - The number of 4 KB pool records defined to the z/TPF system. IBM MQ checkpoint and sweeper use pools to file MQ messages
  - Size of the system recovery log

MQ Dead Letter Queue (DLQ) Considerations

- If z/TPF is unable to deliver an IBM MQ message to the specified destination, the message is put on a DLQ
- Queue manger has two parameters for DEAD.LETTER.QUEUE
  - DEADQ – the DLQ used by messages from 31-bit IBM MQ queues
  - DLQ64 – the DLQ used by messages from 64-bit IBM MQ queues

MQ Dead Letter Queue (DLQ) Considerations

- If you are not using IBM MQ messages larger than 4 MB In size, then DEADQ and DLQ64 can point to the same dead letter queue and that dead letter queue can be a 31-bit queue.
- If you plan to use IBM MQ messages larger than 4 MB in size, then DLQ64 must point to a 64-bit queue whose maximum message size is capable of handling the largest IBM MQ message you will have.
- If DLQ64 is pointing to a dead letter queue that is a 64-bit queue, you can also have DEADQ pointing to that same dead letter queue as long as you do not have code that monitors the DLQ using APIs not supported for 64-bit queues, such as browsing the queue.

Queue Statistics Reset

Queue Statistics Reset

- New option added to ZMQSC DISPLAY QL, STATRESET.
- Resets performance statistics for the specified local queue ZMQSC DISP QL with STAT
- Can be used with 31-bit and 64-bit IBM MQ queues

```
zmqsc disp ql-xq1 statreset
CSMP0097I 11.07.48 CPU-B SS-BSS  SSU-HPN  IS-01
MQSC0289I 11.07.48 THE LOCAL QUEUE STATISTICS WERE RESET.+
```

Queue Statistics Reset – Display After

```
zmqsc disp ql-q1 statreset
CSMP0097I 13.09.03 CPU-B SS-BSS  SSU-HPN  IS-01 _
MQSC0285I 13.09.03 LOCAL QUEUE STATISTICS DISPLAY: - Q1
  Current Depth       - 1
  Persistent Msgs     - 0 (0 bytes)
  NonPersist Msgs     - 0 (0 bytes)
  Avg Orig Size       - 0 (0) bytes
  Avg Orig Size Comp  - 0 (0) bytes
  Compression Ratio   - 0 (0) _
  Compression Time    - 0 (0)
  Compressed Msgs     - 0
  Decompressed Msgs   - 0
  Compress per sec    - 0
  Decompress per sec  - 0
  Num of MQOPEN       - 0
  Num of MQCLOSE      - 0
…
END OF DISPLAY+
```

Summary

- PJ48036 was delivered in December 2024.
- Provides support for messages as large as 100 MB for 64-bit IBM MQ queues.
- Provides the ability to clear the IBM MQ statistical counters

Disclaimer

Any reference to future plans are for planning purposes only. IBM reserves the right to change those plans at its discretion. Any reliance on such a disclosure is solely at your own risk. IBM makes no commitment to provide additional information in the future.

What’s next

- PJ48137 – Limited Browse for 64-bit Queues
  - Support to browse messages that are in memory for 64-bit queues
- Planned delivery 2Q 2025.

Thank you