Can a Non-Persistent message be put into an IBM MQ Queue that has attribute DEFPSIST equals to YES?

https://www.ibm.com/support/pages/node/6576289

Date last updated: 28-Apr-2022

Angel Rivera
IBM MQ Support
https://www.ibm.com/products/mq/support
Find all the support you need for IBM MQ

+++ Question

Can a Non-Persistent message be put into an IBM MQ Queue that has attribute DEFPSIST equals to YES?

+++ Answer

Yes.

+++ Details

a) There is no such thing as a persistent or non-persistent queue.
.
Each queue has an attribute that determines the "default persistence" (DEFPSIST) for new messages that will be stored in the queue.
The attribute is defined at the queue level and **it is ONLY A SUGGESTION** for the MQ client application that has opened the queue.
The persistence of a message is set by the MQ client application.
.
The program doing the MQPUT sets the message descriptor field "Persistence" to:
  persistent
  non-persistent
  use the default persistence setting of the queue
  null
.
If the option is not specified (null), then the default persistence setting for the queue (queue attribute DEFPSIST) is used.
.

b) There are NO attributes at the Queue Manager level or at the Queue level that FORCES messages to be all persistent or non-persistent.
.
For example, if an MQ client application really wants to put a Non-Persistent message into a queue that has Default Persistence of YES, then the MQ Client application will be the winner, and the non-persistent message will be stored in the queue.

The queue will not force the message to be Persistent, nor the queue will reject the attempt from the MQ client to store a non-persistent message.
.
c) The MQ Client application that does the PUT is the one that determines if the message is persistent or non-persistent.
.
d) The attribute DEFPSIST for a queue is exploited when the MQ Client Application uses the option: MQPER_PERSISTENCE_AS_Q_DEF
.
e) It is possible for the same queue to have a mix of persistent and non-persistent messages.
For example, persistent messages are put by Application-1 and non-persistent messages are put by Application-2.
.
f) The MQ internal processes from the queue manager are "very polite" and when they need to put a message into a internal queue (SYSTEM.*) or a dynamice queue, these processes ask the destination Queue what is the preference (attribute DEFPSIST) and depending on that preference the MQ Client applications will use the setting from the Queue to put persistent or non-persistent messages..
.
The sample MQ Client applications also follow this pattern of politeness: amqsput, amqsputc, amqspub, amqspubc, etc.
.
g) There are some MQ Client applications that could be "a bit rude" and totally ignore the preference of the Queue and put a persistent message into a queue that has declared a preference for non-persistent (or vice versa).
There is nothing that will prevent the putting application for doing a successful put (well, except for "queue full", "put inhibited", but these conditions have nothing to do with persistence).
.
h) The queue attribute DEFPSIST is described in the following page:
.
https://www.ibm.com/docs/en/ibm-mq/9.1?topic=commands-alter-queues
DEFPSIST
   Specifies the message persistence to be used when applications specify the MQPER_PERSISTENCE_AS_Q_DEF option.

   NO   Messages on this queue are lost across a restart of the queue manager.
   YES   Messages on this queue survive a restart of the queue manager.

i) How to find out if a message is persistent or not persistent:
.
Use MQ Explorer - "Browse the messages" for the queue. Look at the value in the Column "Persistence".
The values are:
  "Persistent" and
  "Non persistent"
.
Use sample "amqsbcg" to browse the messages:
The values are:
  Persistence : 0 => Non-Persistent
  Persistence : 1 => Persistent
.
i) Caveat/Warning:
.
If you enable all Pub/Sub related queues to be Default Persistent, then you will need to watch out for subscribers that will NOT consume the published messages.
We have seen customers who have thousands and thousands of messages in those queues and for which there are no active applications consuming them.
Then, when restarting a queue manager, those persistent messages will be part of the checkpoints during the startup, and will considerably increase the startup time.

+++ Related articles

https://www.ibm.com/support/pages/node/6437003
MQ sample "blast", enhancement for amqsblst which includes persistent messages

http://www-01.ibm.com/support/docview.wss?uid=swg27050154
How to make persistent the events for starting and stopping an MQ queue manager

+++ end