Date: 14-JAN-24
MuleSoft Workshop

Message Queues Using MuleSoft

Message Queues:
 Create a communication link between two applications for continuous data flow.

*) Send data from producer application to consumer application
  (period of time, continues data flow)

*) Consumer need not to make any request , just one time setup /Connect/subscribe

EX:

a. Swiggy Tracing Status   : P2P
b. Ola/Uber cabs Live Status: P2P
c. Train live status   : pub/sub
d. Cricket Scores   : pub/sub
e. Stock Market Details   : pub/sub
..etc

*) This is not web services concept , Consumer will never make any request,
  even will not send any data to producer.

*) Here , both producer and consumer applications communicates with each other using Mediator Software
   i.e MOM - Message Oriented Middleware.

*) This MOM s/w contains memory called as 'Destination' which holds all messages.

*) Producer gives message to MOM #Destination, Consumer reads messages from MOM# Destination
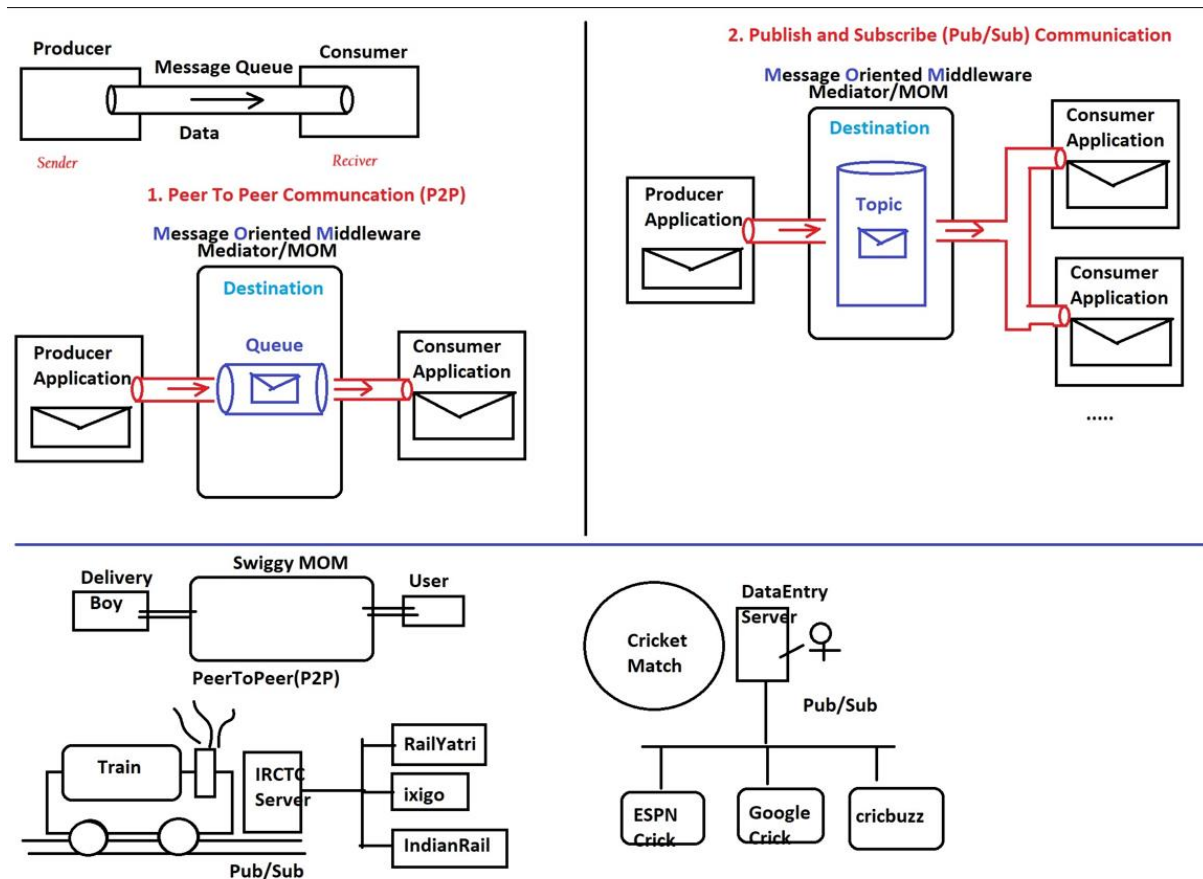
---Types of communications -----

1. Peer to peer Communication (P2P)

   If one message is given to one consumer then it is called as P2P
   Destination type is called as "Queue"

2. Publish and Subscribe communication (pub/sub)

   If same/One message is givne to multiple consumer then it is called as pub/sub.
   Destination type is called as "Topic"

==> There can be multiple queues/topics created in MOM server.
   Every topic/queue is identified using one name.
   EX: swiggy-ravi-ram-20240114-queue
     crick-data-ind-aus-5553332-topic

===============MQs Using ====================
1. JMS (Apache Active MQ)
2. Rabbit MQ
3. Apache Kafka [Real time]
4. Anypoint MQ
5. Oracle Weblogic server
6. TIBCO EMS
7. HornetQ   ..etc

JMS :

JMS : Java Message Service

=> This API is given by Sun/Oracle
=> It is part of J2EE
=> By using this API We can transfer data between two machines(app)
   using protocol 'TCP' = Transmission Control Protocol
=> It is used for continuous data flow between two systems using mediator.

=> 2 Applications we need to develop/Create
   A. Producer application
          produce /send the messages
      B. Consumer application
         read messages

       These two applications communicates with each other using TCP
Protocol

TCP -- MQs   (Apache Kafka)
FTP -- File Transfer (Apache Camel)
HTP -- Web Apps   (Web API + Server)

*) Active MQ:

=> It is a mediator server.
=> It will transfer data using TCP Protocol (port: 61616).
=> GUI (HTTP 8161) that provides the information
   of sent messages , Consumers , Queue/Topic Names...etc

=> both producer and consumer communicates with MOM s/w only.
=> Data is stored in a Destination (Queue/Topic)

=> Producer destination name and consuemer destination nust be the same.

=> On reciving message to destination, MOM s/w will send the mesage to consumer.

consumer App , Need not to make any request (It will always listening)

-----Step#1 --Active MQ Setup --------

Download : https://activemq.apache.org/components/classic/download/

> Click Os based link - Windows   apache-activemq-5.18.3-bin.zip
> Extract to a folder ex: apache-activemq-5.18.3
> Open folder location \apache-activemq-5.18.3\bin\win64
> Click on activemq.bat file
> Enter URL: http://127.0.0.1:8161/
  un : admin
  pwd: admin

 ** check \apache-activemq-5.18.3\conf\users.properties"
> Set the managementContext is "true" in configurations
   "apache-activemq-5.18.3\conf\activemq.xml"

 Press ctrl+ c to terminate the batch

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 important links

 WebConsole available at http://127.0.0.1:8161/
 Listening for connections at: tcp://DESKTOP-CG8IFVF:61616   (Broker URL)

Create Queue -   vitech-customer-snow-queue
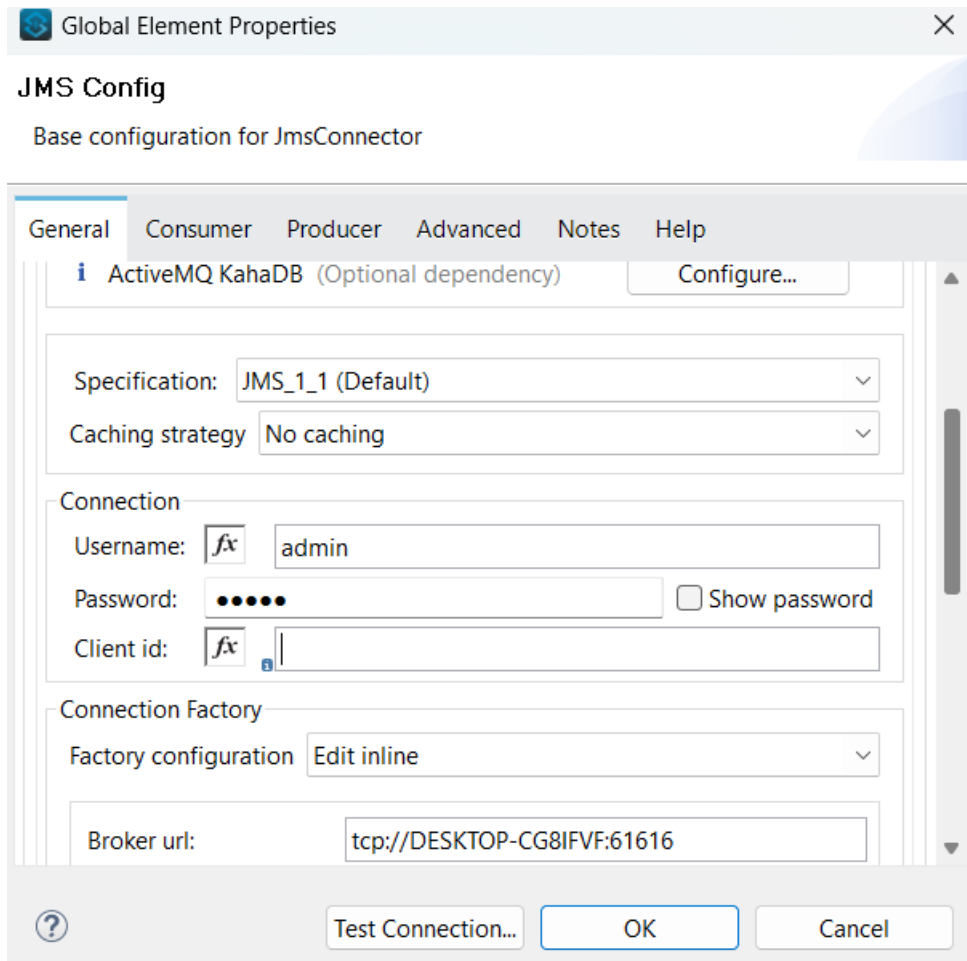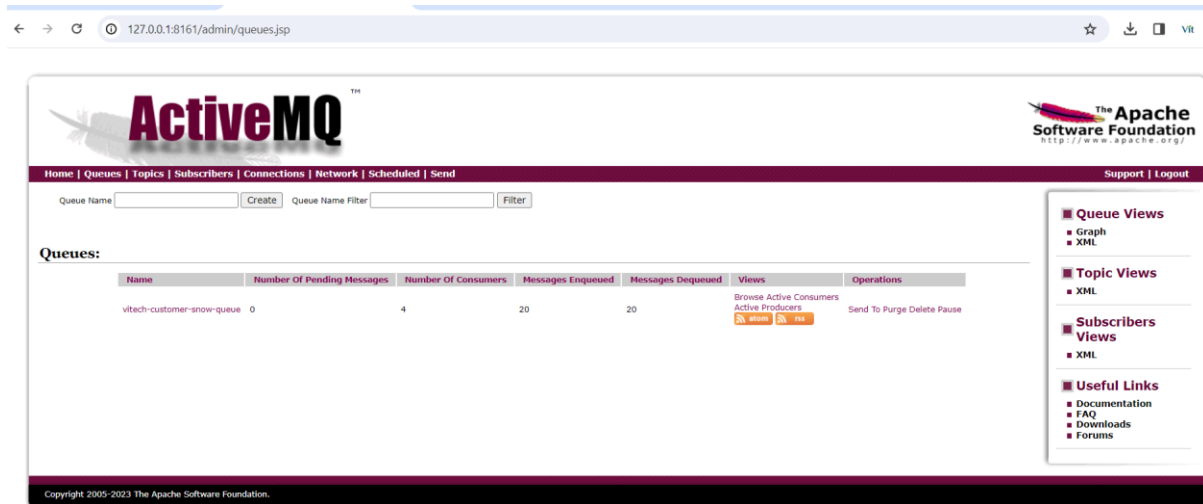
   1. Create producer application

Setup JMS config:

Create Consumer App:
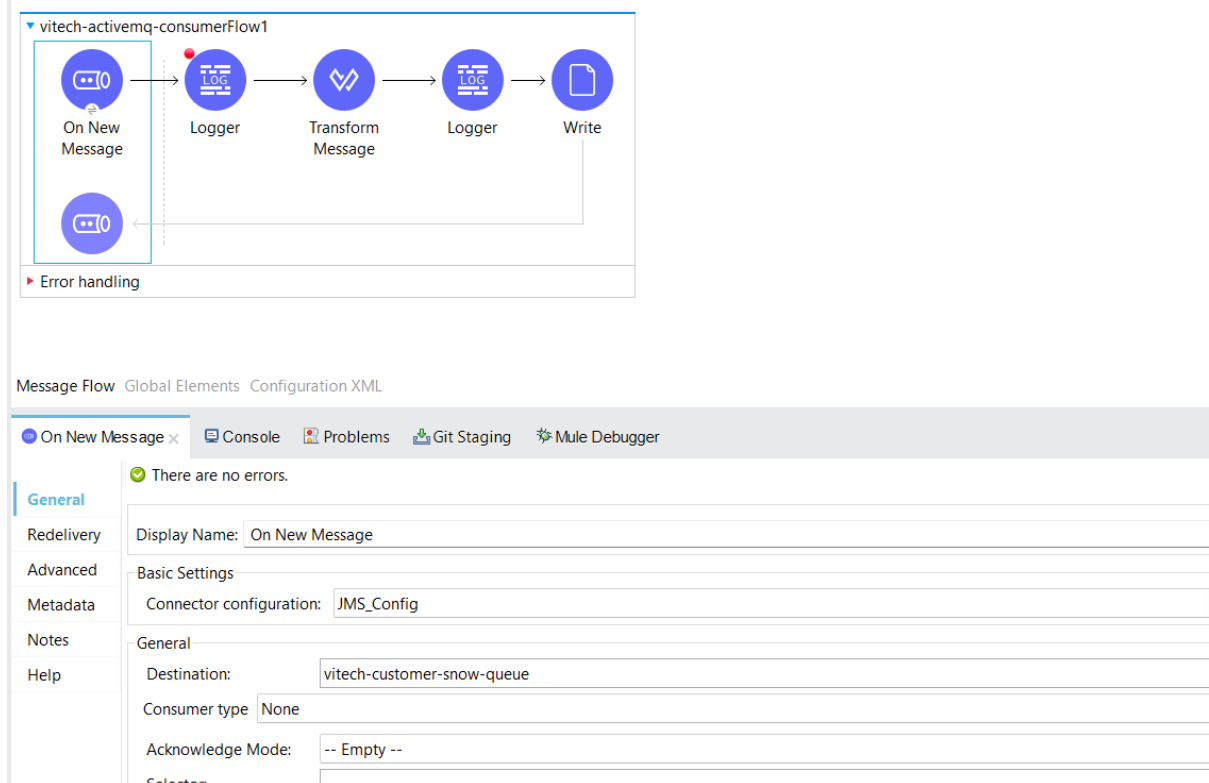
3 Verify in web console

Youtube link - https://www.youtube.com/@vitechtalks6017

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