WebSphere MQ V7

Connectivity with MQ Explorer

Lab material developed by
IBM EMEA PanIMT zWebSphere team,
based upon IBM ATS materials

Lab Objectives

This lab has two main objectives:

1) To introduce the attendees to the workshop environment and the environment.
2) To verify connectivity to the tools and systems needed.

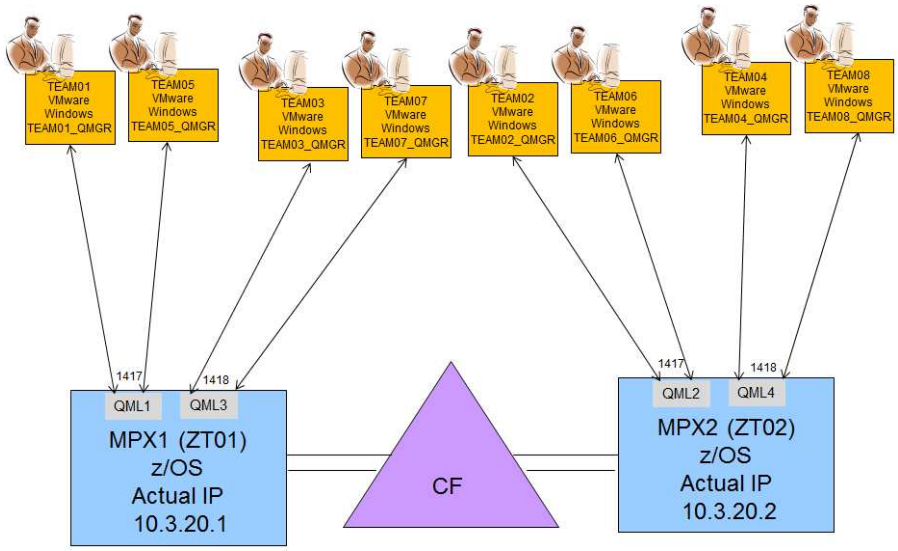
You will be connecting to one of the four available queue managers. Your instructor will assign you a TEAMXX user id which will determine the queue manager which you'll be using as seen in the list and image below. For your information, QML1 and QML3 running on an LPAR that we are calling "MPX1", and to QML2 and QML4 which run on LPAR we call "MPX2" (these may not be the real LPAR names… but we have assigned alias names of the LPARs for consistency in these exercises).

General Lab Information and Guidelines

1) Any time the labels TEAM00 or TEAMXX are used in the exercises that follow, please replace the '00' or 'XX' with your team ID (TEAM01 – TEAM08).
2) There are four queue managers for use in this workshop by all students. In this exercise, you should define a connection to your queue managers from your MQExplorer.

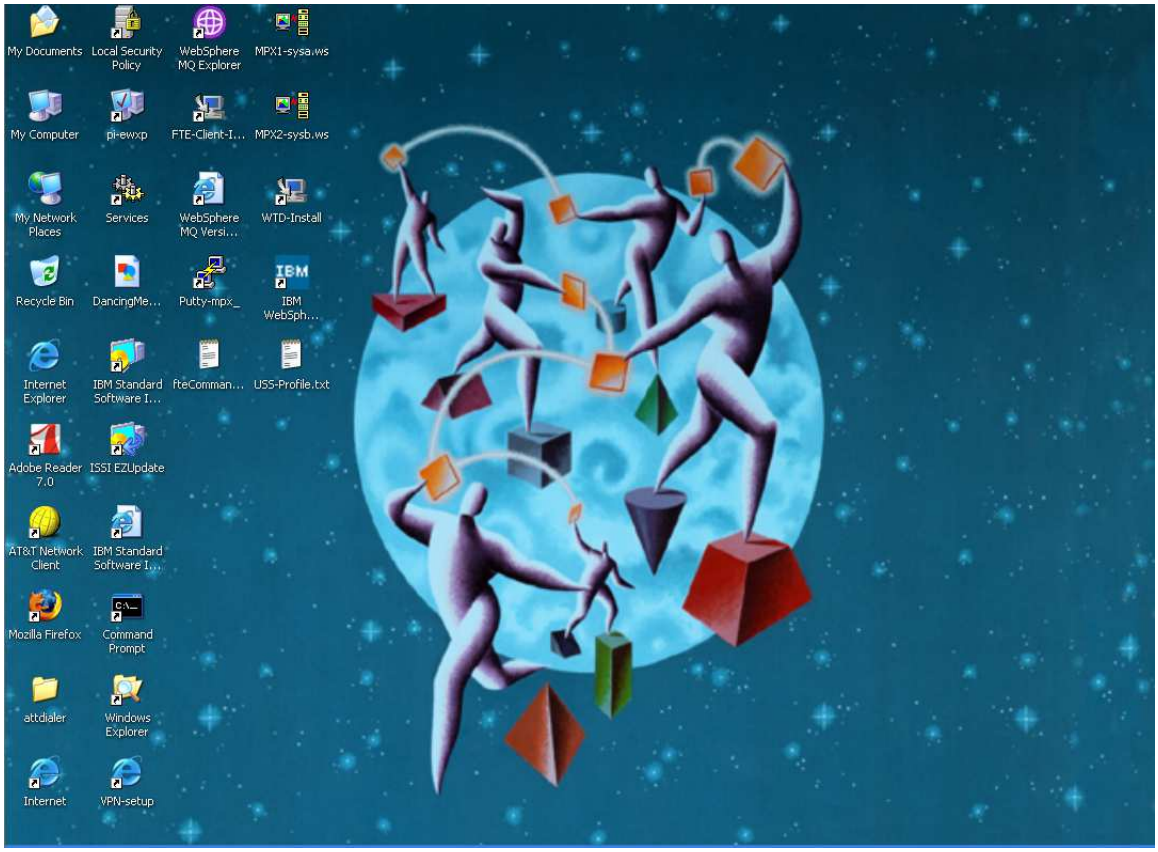
Each team is assigned a queue manager as follows:

- QML1 - TEAM01, TEAM05
- QML2 - TEAM02, TEAM06
- QML3 - TEAM03, TEAM07
- QML4 – TEAM04, TEAM08



3) The passwords for this lab will be provided by the workshop leaders.
4) Any difficulty with connectivity should be reported, but please remember that the connections may be slow.

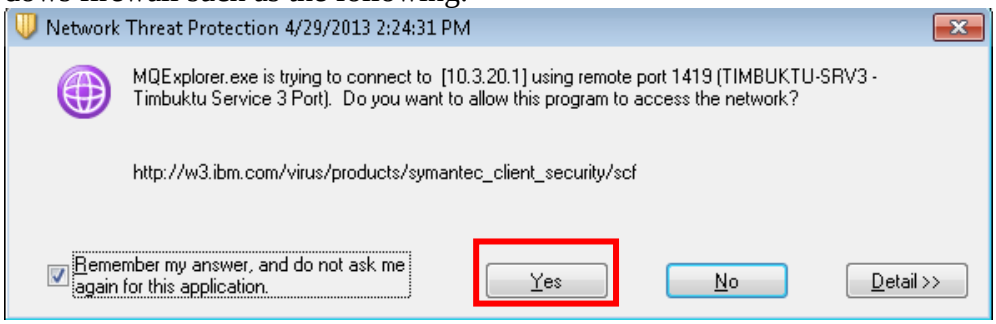
Step I - MQExplorer Connectivity



5) From the Windows desktop shown above, double click on the WebSphere MQ Explorer icon.

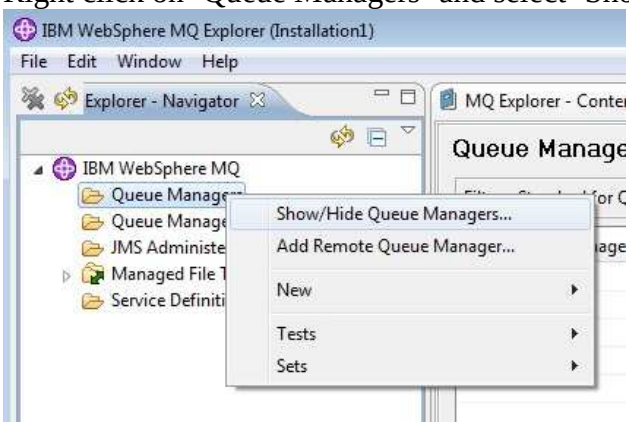
It may take several seconds to come up, so please be patient

6) You very possibly will receive at this time a “pop-up” message from the Windows firewall such as the following:



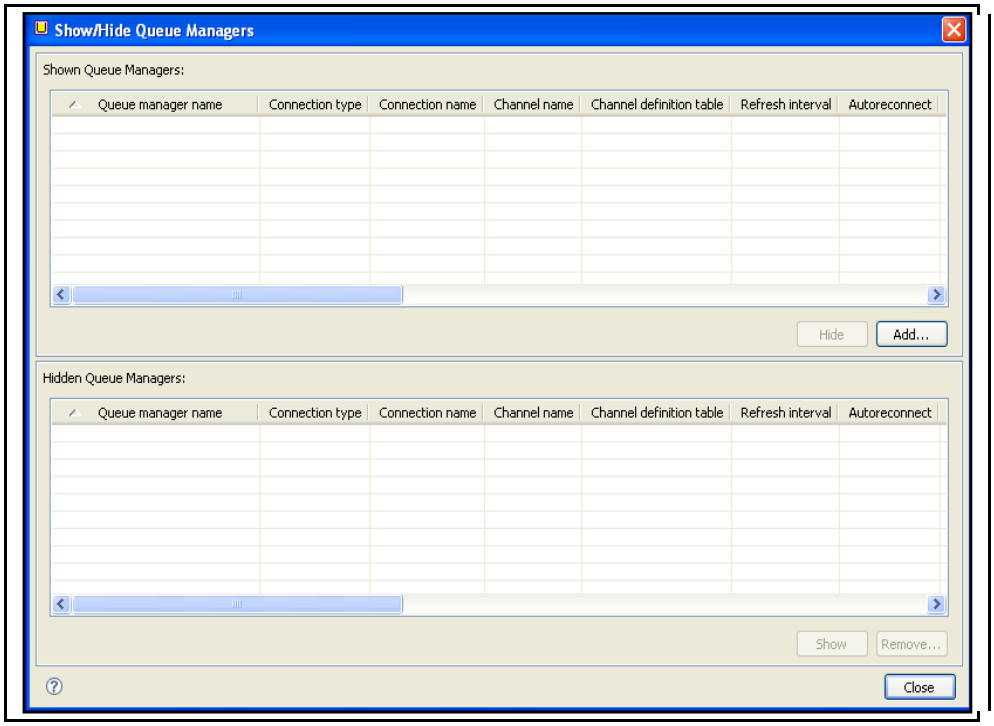
Be sure to allow this connection! You should click on Yes.

7) Right click on ‘Queue Managers’ and select ‘Show/Hide queue managers’

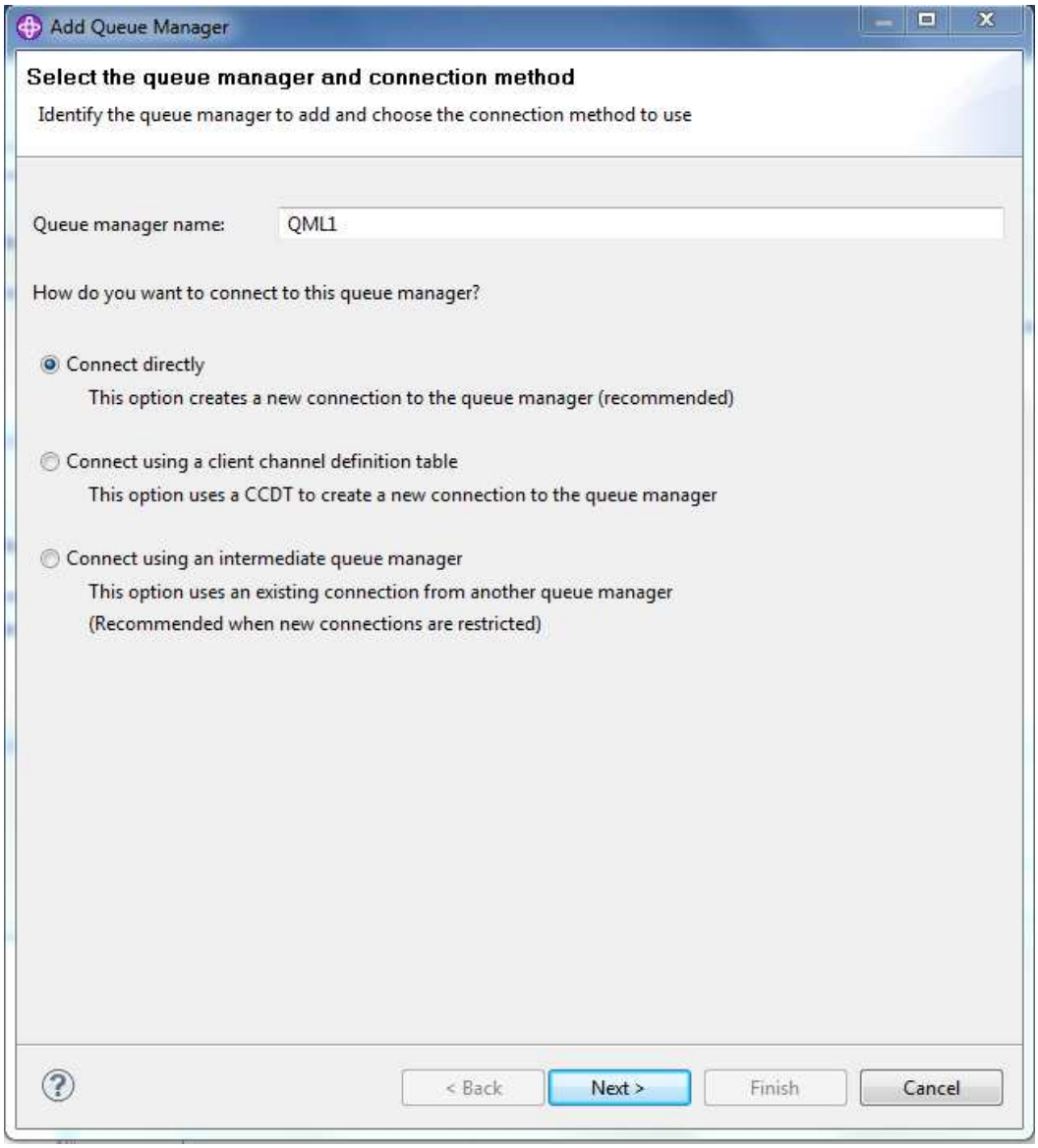


Note: All the queue managers in this workshop have the MQ Client Attach Feature implemented (CAF), so you will be able to connect to each of them directly.

8) You should see the ‘Show/Hide Queue Managers’ panel. Click on the ‘Add’ button.

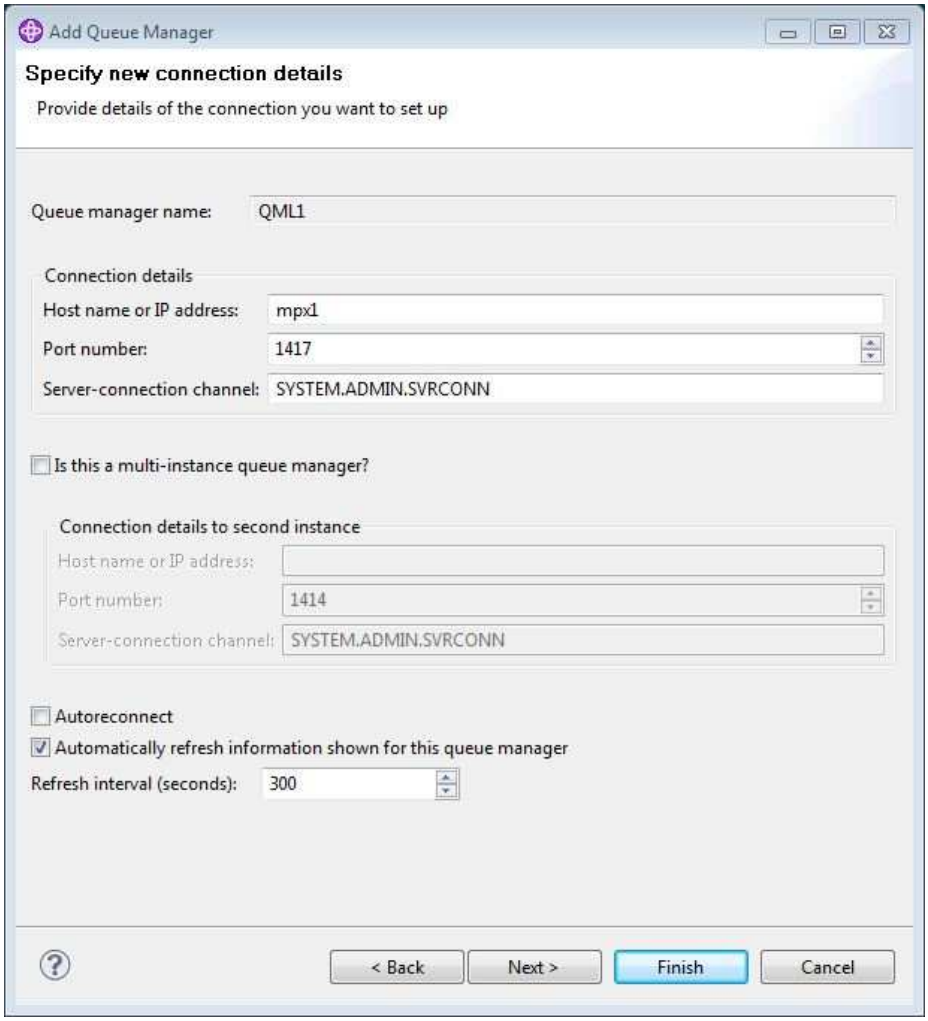


9) Enter QMLx in the queue manager name, where "x" corresponds to the queue manager that your user id is associated with as seen on page 3, or in the table below. Click on the 'Next' button.

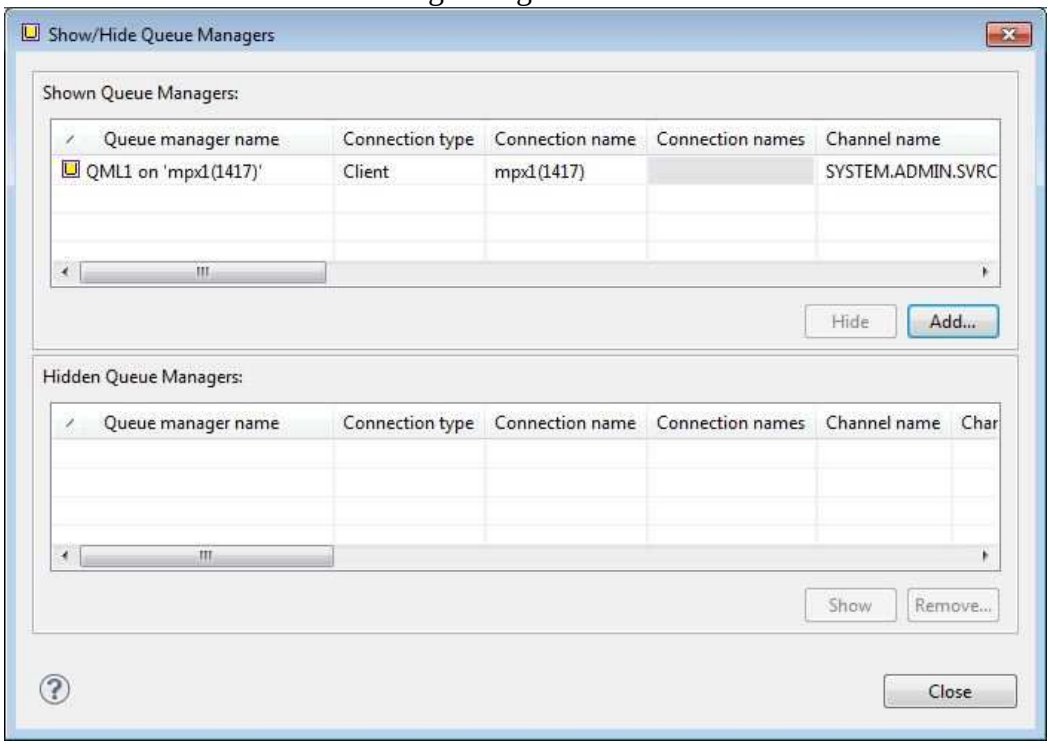


User ids	Queue Manager	IP Address (LPAR)	Port
TEAM01, 05	QML1	mpx1	1417
TEAM02, 06	QML2	mpx2	1417
TEAM03, 07	QML3	mpx1	1418
TEAM04, 08	QML4	mpx2	1418

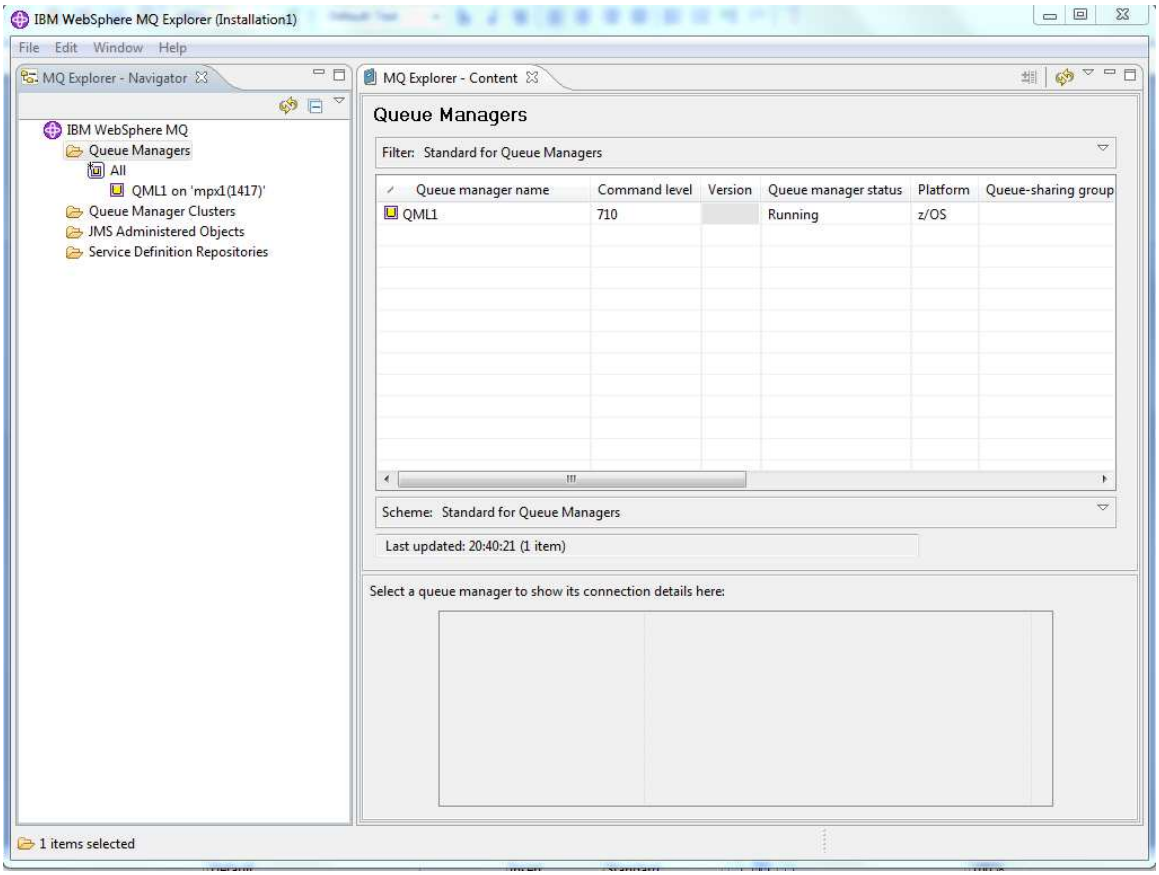
10) For the Host name, enter the DNS host name "mpx1" or "mpx2" and the associated port number (1417 or 1418) again depending upon your assigned user id and the LPAR and ports shown in the table above. Then click on the 'Finish' button.



You should then see the following dialog:



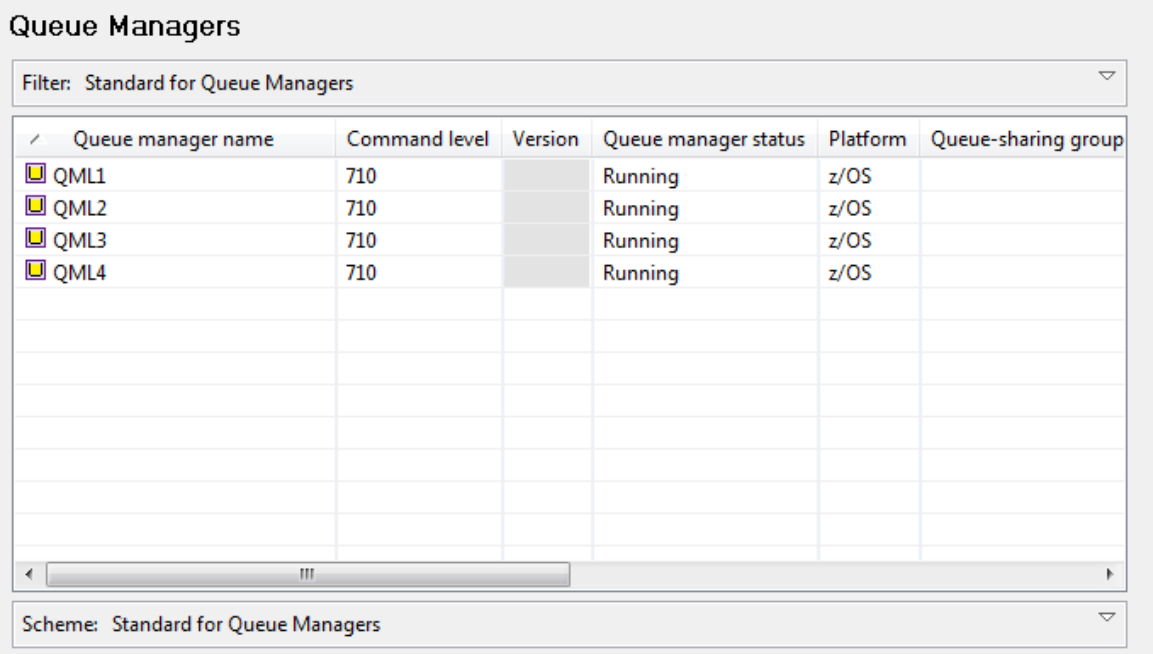
11) Press the ‘Close’ button to return to the main MQ Explorer window. You should see the queue manager appear in the Queue Managers list as shown below:



.

12) If still in the ‘Shown and Hide Queue managers” pane, please close it.

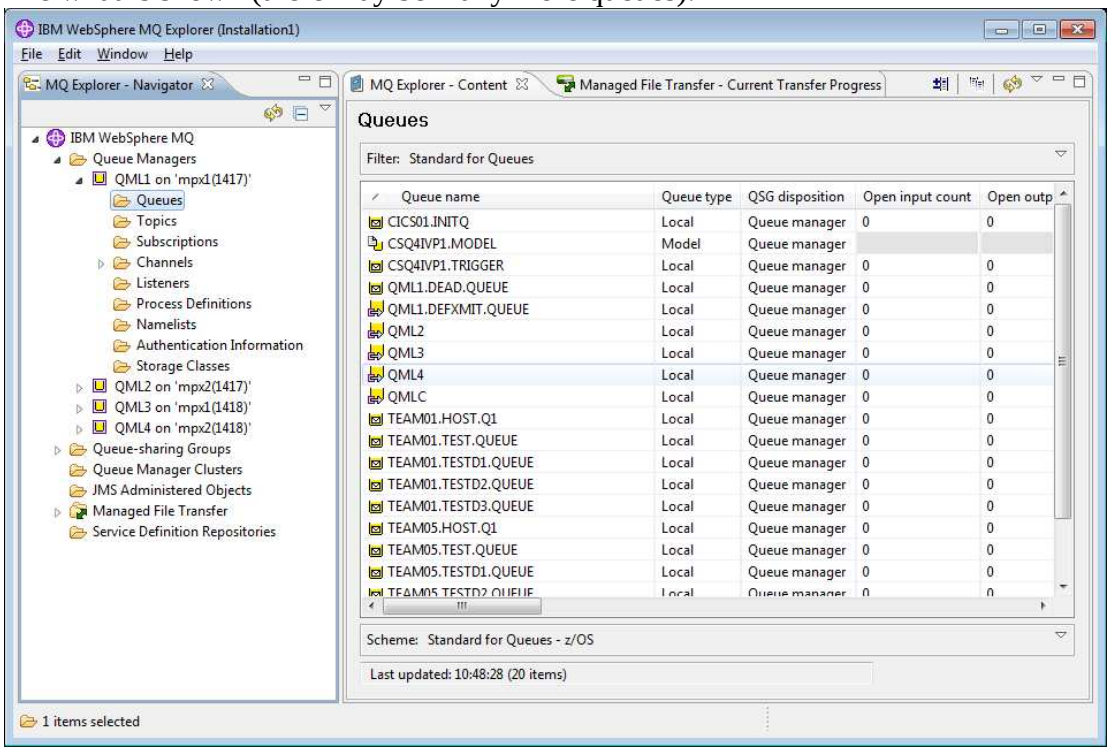
12) Your final list of queue managers should look as shown:



Step II – Setting up Filters

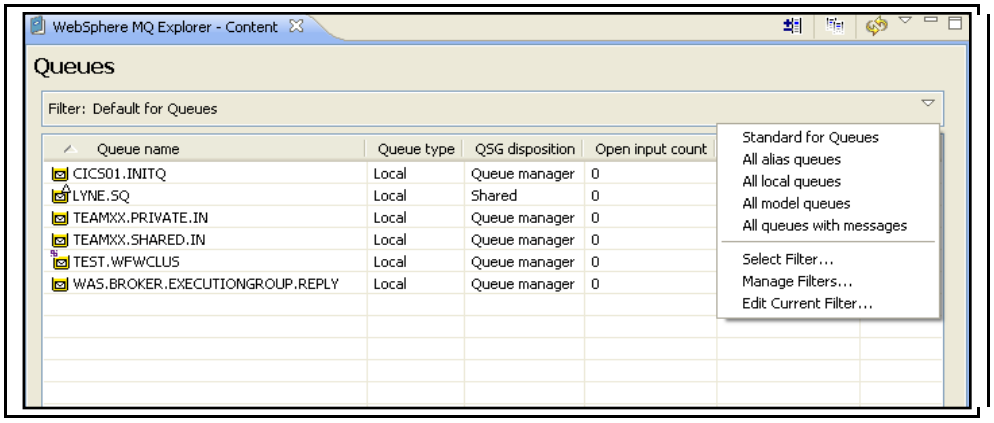
As you probably noticed, each queue manager has exercise queues for (at least) two student user ids. In this section you will set a filter to limit the queues displayed to those you are directly using.

12) Listing all the queues defined to your queue manager is done by clicking on the 'Queues' folder. Note that depending on the number of queues and the connection speed, this list can take a long time to build. The display will look something like what is shown (there may be many more queues).

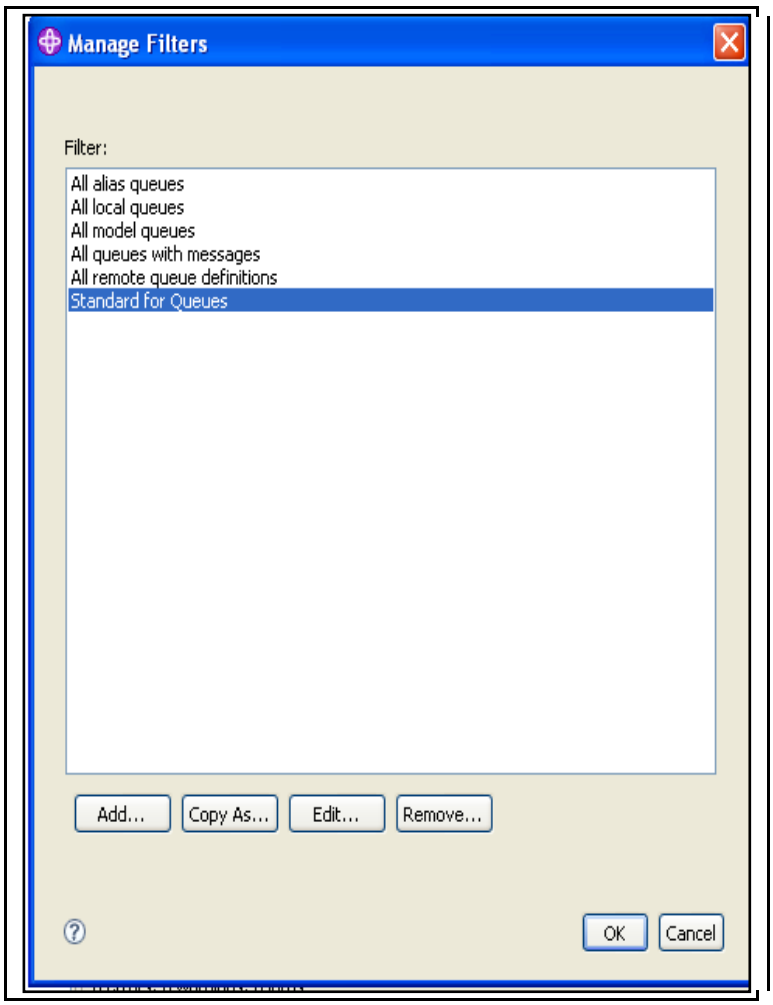


Note: if you click on the "Queues" folder in the left window, and don't see any queues in the window on the right window, make sure that you have selected the tab "MQ Explorer – Content" for the right window.

13) To create a filter, on the 'Filter' line select the down arrow (highlighted above) to select the filter. From the drop down list, select 'Manage Filters…'.

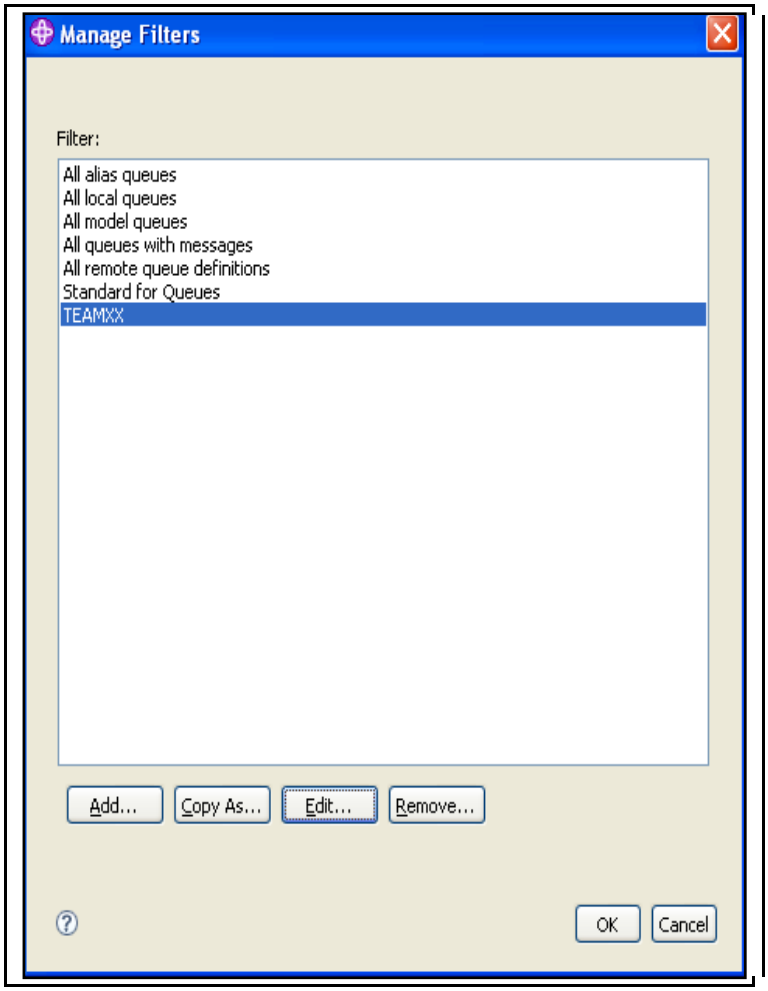


14) On the ‘Manage Filters’ pane, select ‘Standard for Queues’ and click on the ‘Copy As…’ button.

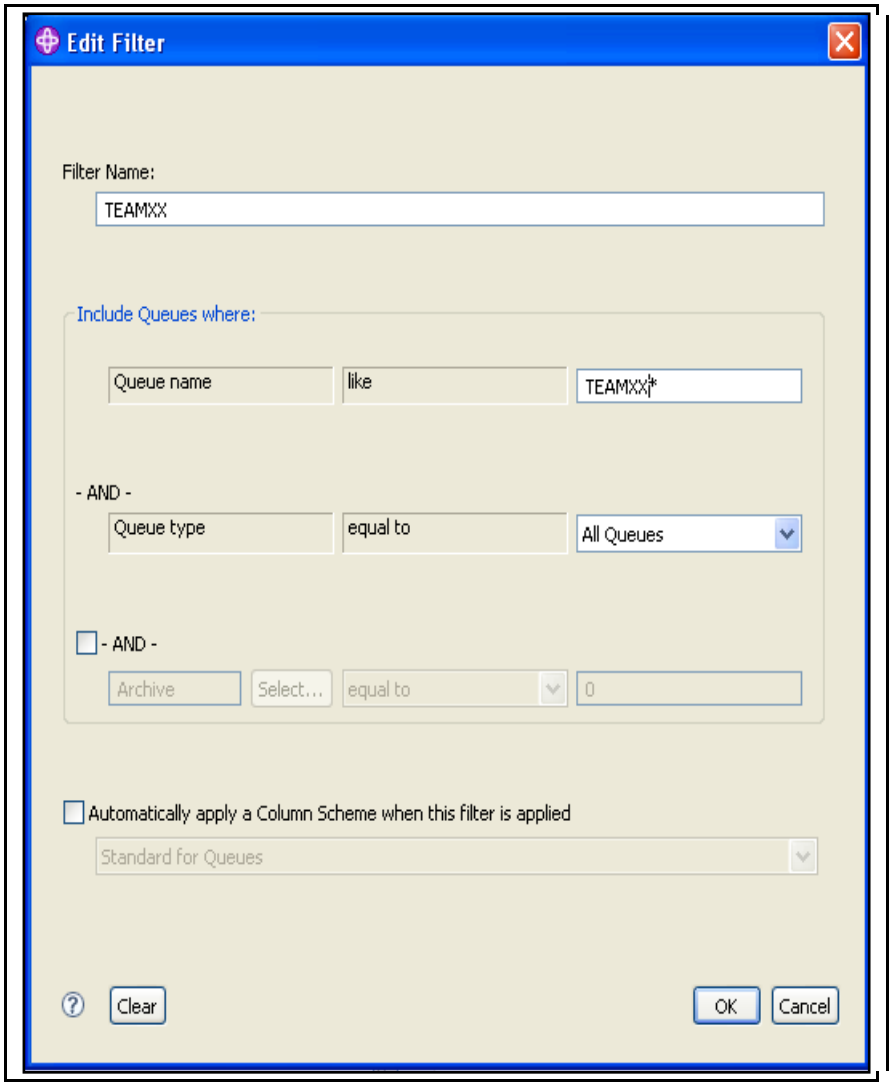


15) On the ‘Copy Filter’ pane, enter your team ID as the ‘New Filter name’ and click on ‘OK’. The example shows TEAMXX, replace the ‘XX’ with your team number please.

16) The new Filter will appear in the filters list. Highlight your filter and click on the ‘Edit…’ button.

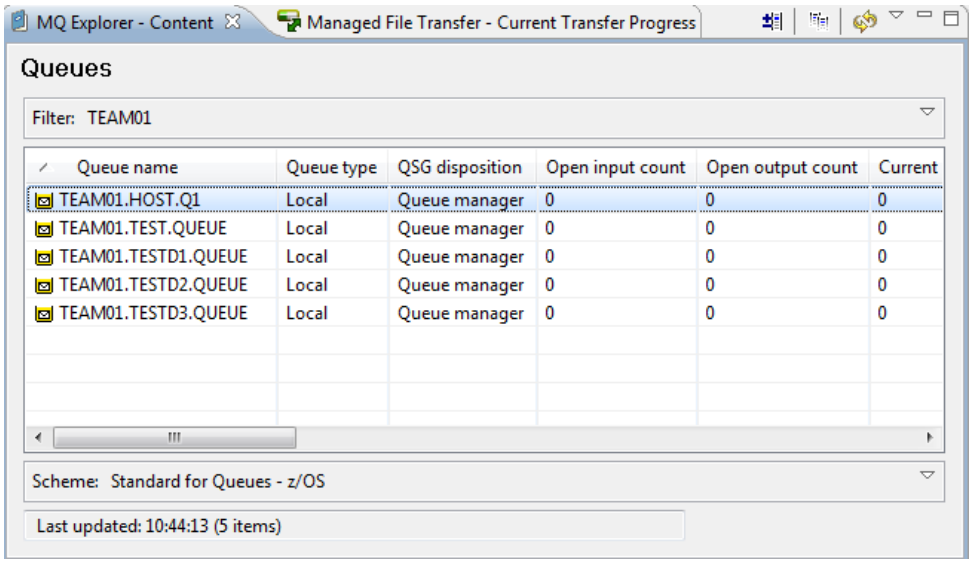


17) On the ‘Edit Filters’ panel, set the ‘Queue Name like’ to TEAMXX*, where the XX is your team number, and click on the ‘OK’ button.



18) This will return you to the ‘Manage Filters’ panel. With your new filter still highlighted, click on ‘OK’ again. Your new list of queues, based on the filter you entered will be displayed. It may take a few seconds to refresh, you should see the moving green bar in the lower right of the queue list pane while the image it being refreshed.

    While there may be no queues defined for your team ID at this point, when there are queues defined your list will look something like what is shown below:



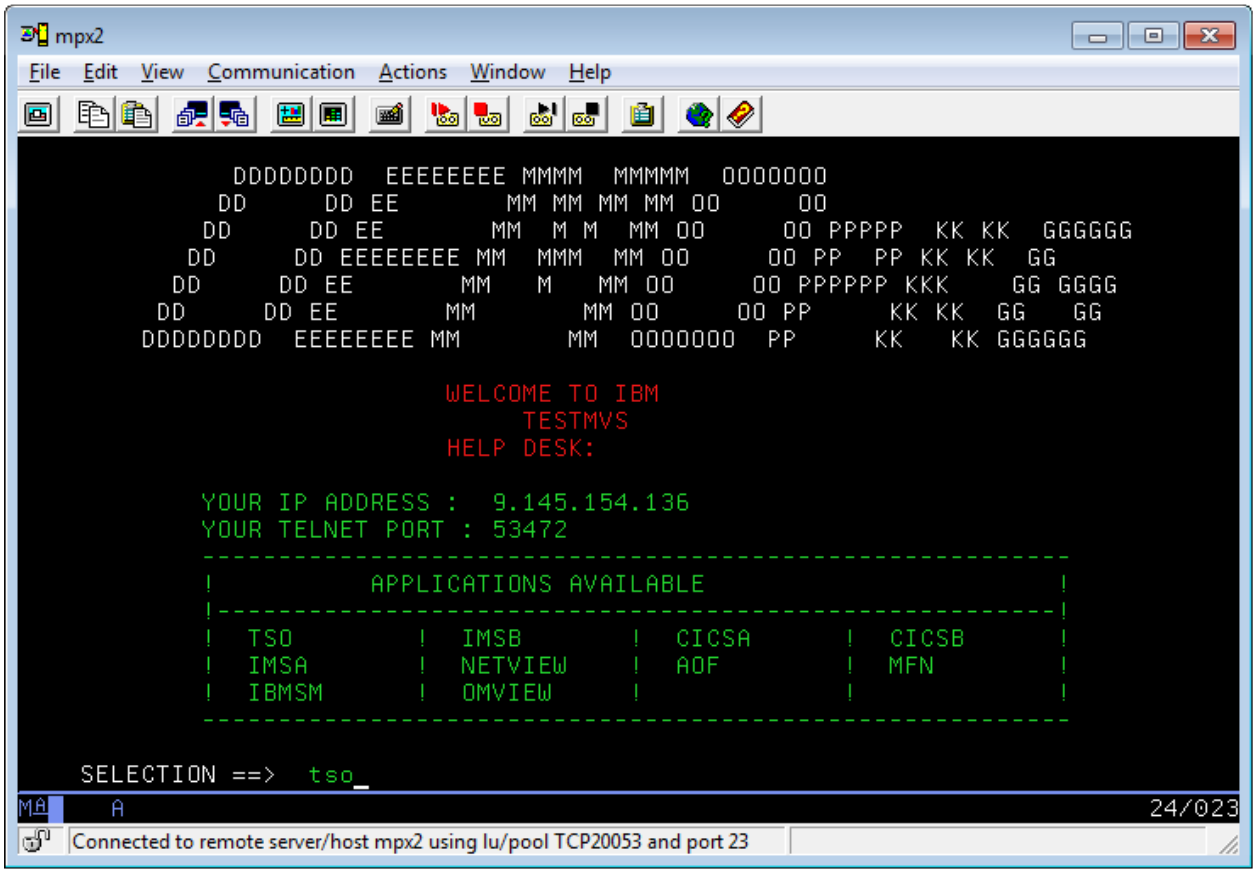
Please note, for your team number you may not have any queues defined at this time.

Step III – PCOMM Connectivity

In the workshop PCOMM is used to communication with the z/OS LPARs. In the VMWARE image there are icons for both the LPARs.

19) To test the connectivity to your LPAR, minimize the MQ Explorer (please do not shut it down) and double click on the icon labeled “mpx1” (or the icon labeled “mpx2” if your instructor assigns you to this LPAR):

It may take a little while to respond from the VMware image. Once it has connected, you will see:

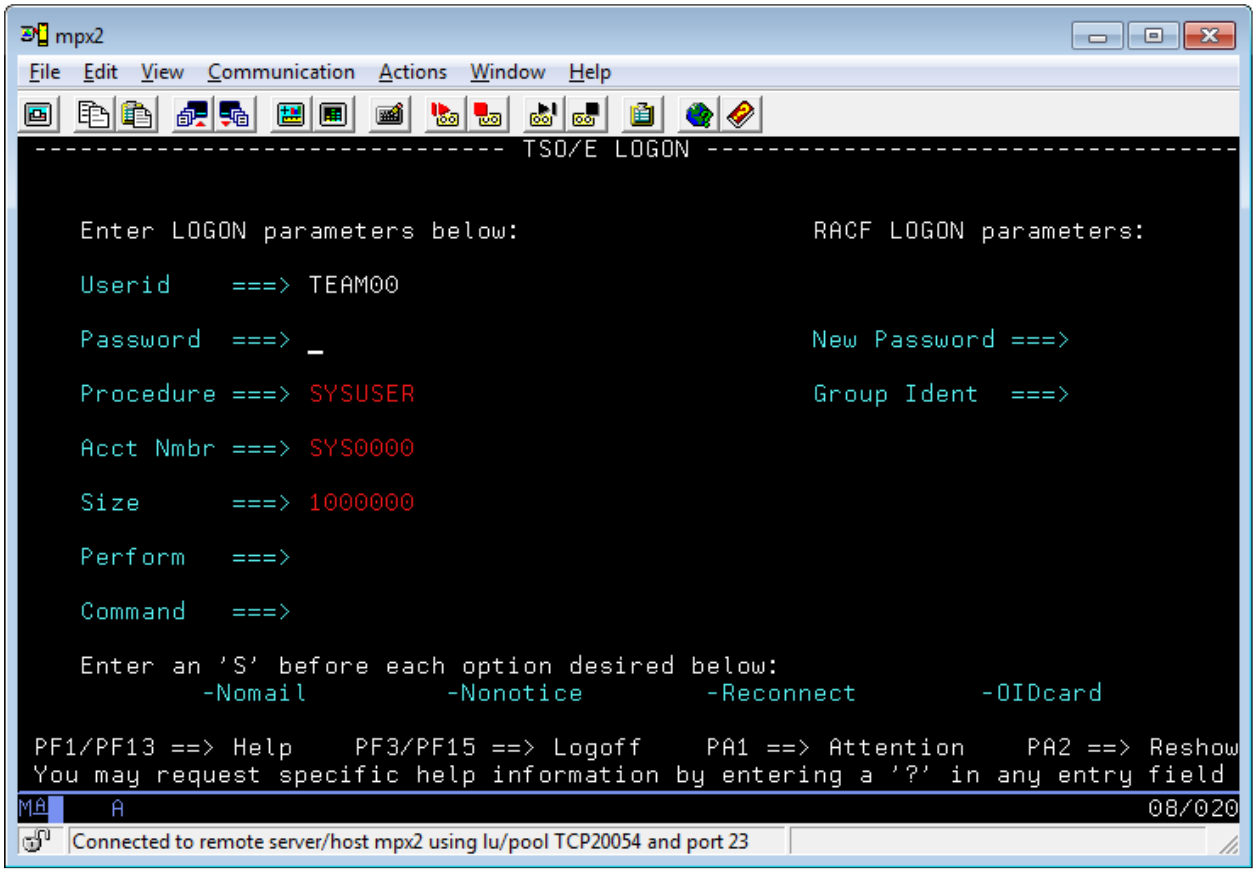


20) As seen above, type ‘TSO’ and then press Enter.

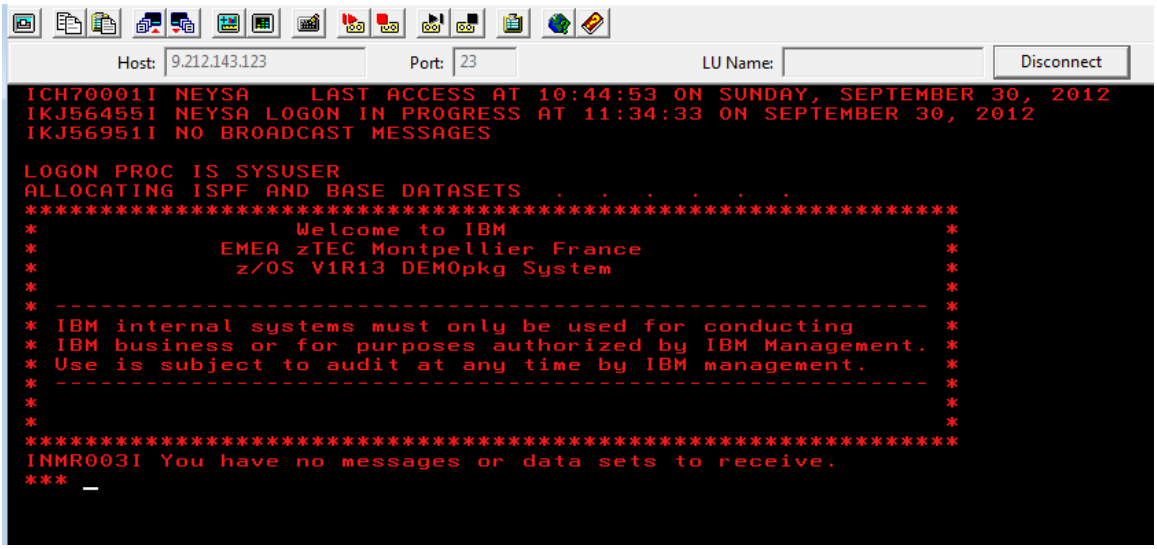
Note: when the exercises say “Enter” for the 3270 emulator, this is referring to the “Ctrl” key on your PC; this PCOM 3270 emulator is configured such that either the PC “Ctrl” key corresponds to the 3270 Enter key. This can, of course, be re-configured. If you would like to reconfigure the emulator, you can ask your instructor for help.

You should see a prompt to enter your userid as shown below. Enter your team name TEAMXX, where the XX is your team identifier on the command line.

21) You should arrive at the TSO/E LOGON screen shown below. The parameters should be identical to what you see below. Otherwise, please ask your instructor for help. Enter the password your instructor has provided and press Enter.

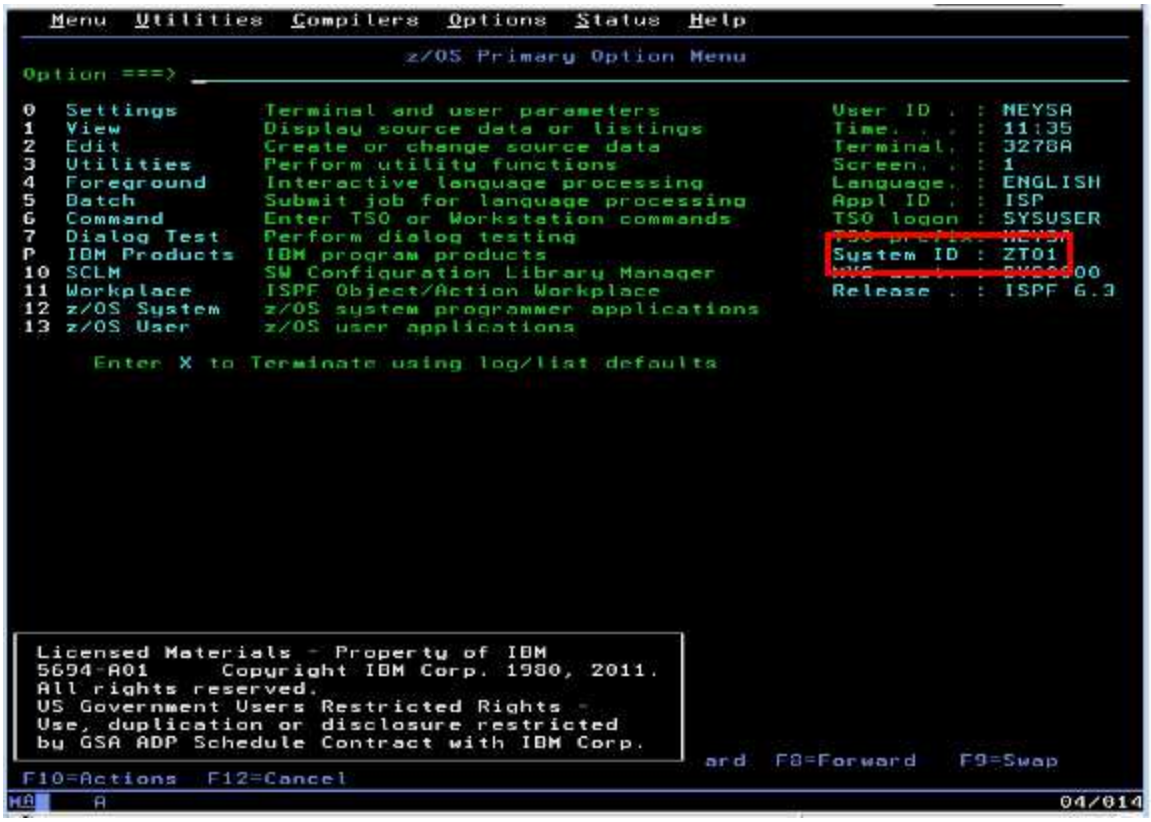


22) When your password has been accepted, you will see the ISPF signon information similar to what's shown below:



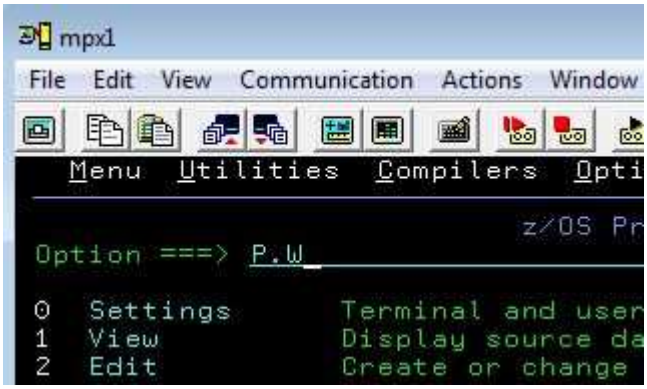
At the end of the text, you'll see "***"; you should press Enter again to clear the 3270 screen and pass to the next screen.

23) You should arrive now at the ISPF Primary Option Menu as seen below.
Note that you should see the real name of your LPAR in the line labeled "System ID" as shown below:

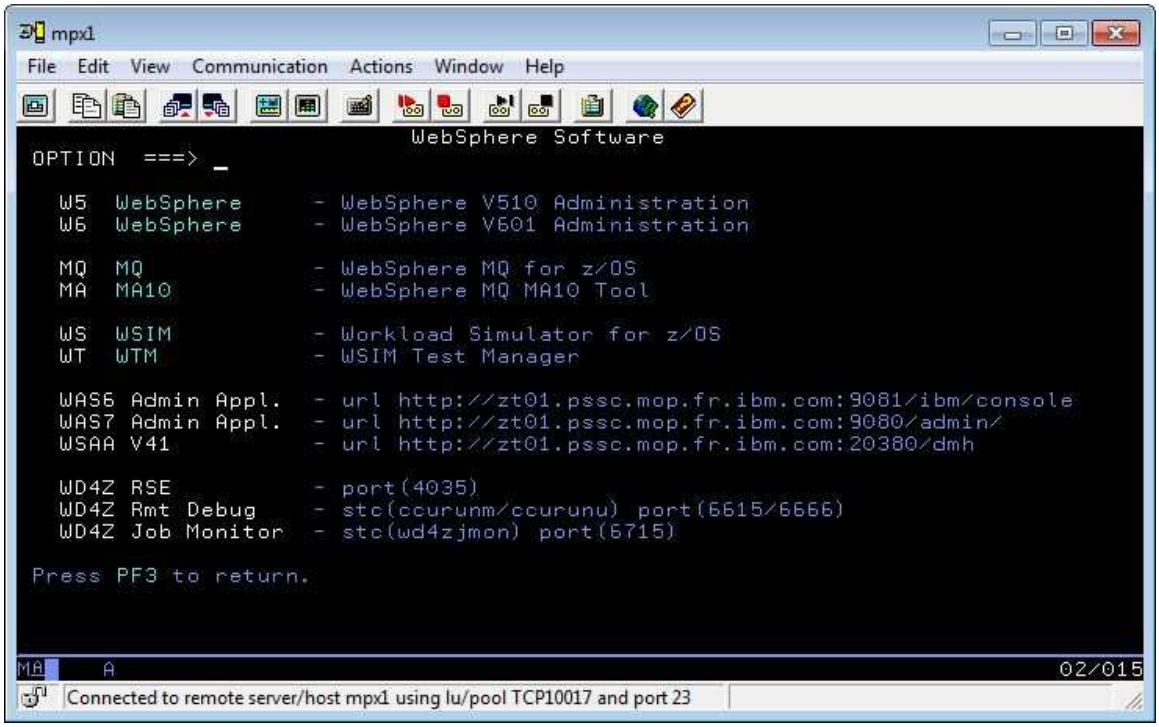


We would advise you at this time to show your instructor at this time the System ID that you are signed on to just to ensure that you are indeed on the correct LPAR.

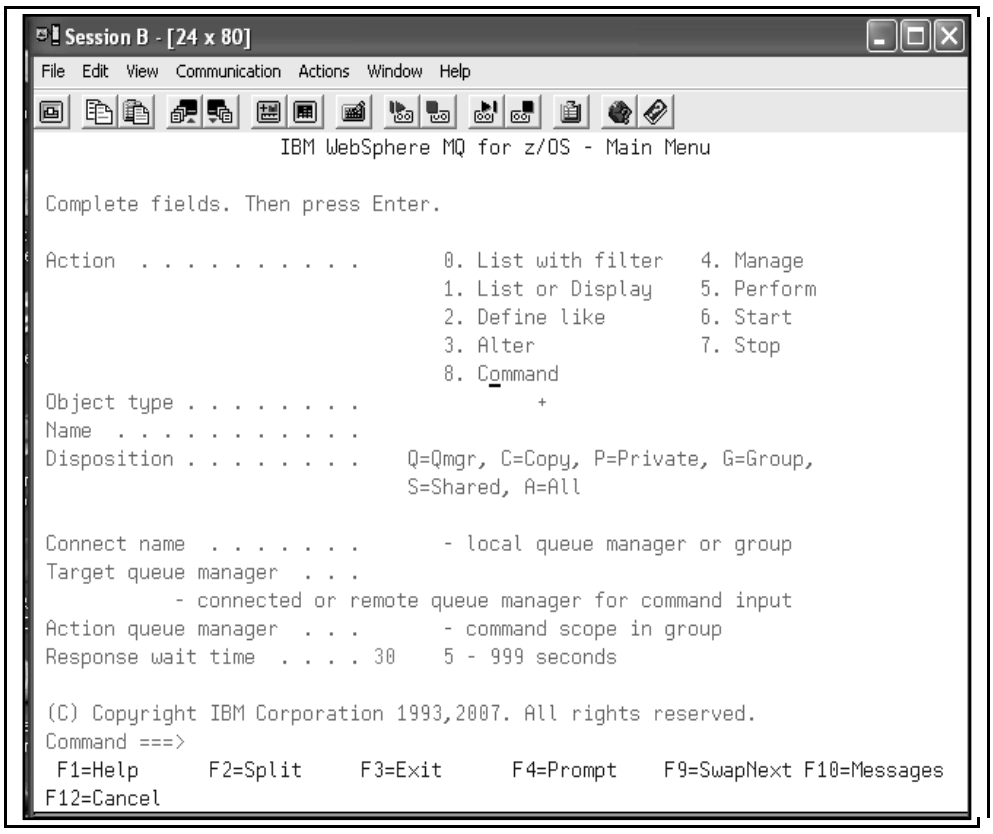
24) As seen below, in the Option prompt at the top of the Primary menu, type “P.W” and press Enter:



This is the shortcut to go to the **P**roduct then the **W**ebSphere submenu:

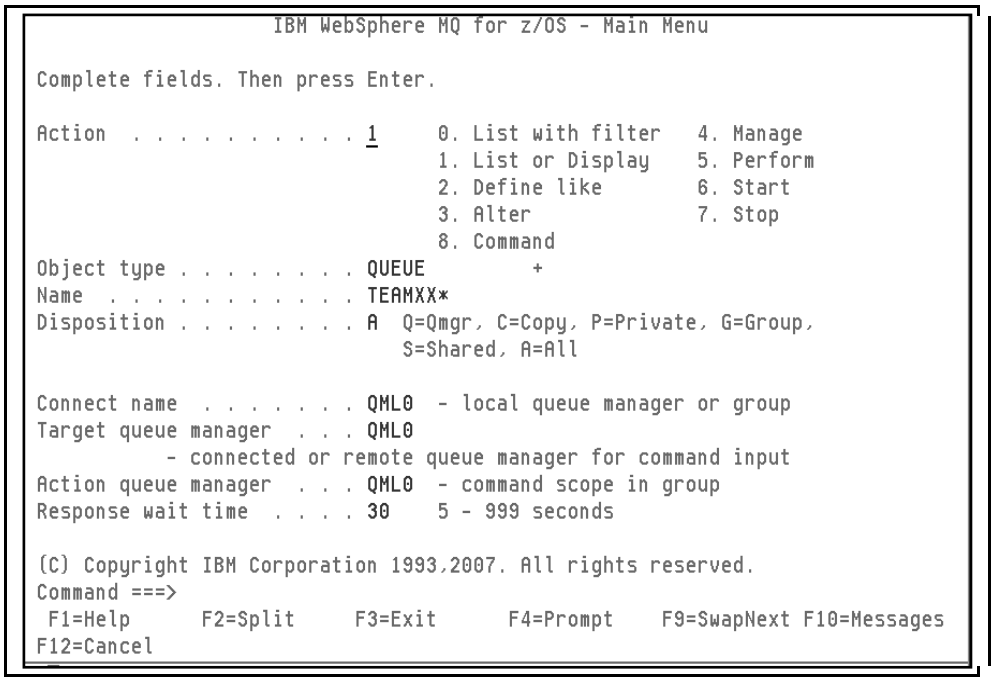


25) Now type “MQ” and press Enter. The WMQ V7 main menu should be displayed:


Session B - [24 x 80]
File Edit View Communication Actions Window Help
IBM WebSphere MQ for z/OS - Main Menu
Complete fields. Then press Enter.
Action . . . . . 0. List with filter 4. Manage
1. List or Display 5. Perform
2. Define like 6. Start
3. Alter 7. Stop
8. Command
Object type . . . . . +
Name . . . . . .
Disposition . . . . . Q=Qmgr, C=Copy, P=Private, G=Group,
S=Shared, A=All
Connect name . . . . . - local queue manager or group
Target queue manager . . .
- connected or remote queue manager for command input
Action queue manager . . . - command scope in group
Response wait time . . . . 30 5 - 999 seconds
(C) Copyright IBM Corporation 1993,2007. All rights reserved.
Command ===>
F1=Help F2=Split F3=Exit F4=Prompt F9=SwapNext F10=Messages
F12=Cancel

26) Enter the following fields as shown:

Panel Field	Value
Action	1
Object Type	QUEUE
Name	TEAMXX*, where the XX is your team number
Disposition	A (for All)
Connect name	The name of your queue manager as assigned by your instructor, for example QML1
Target queue manager	Your queue manager name
Action queue manager	Your queue manager name



You may want to change the ‘Response Time Wait’ to 5 seconds for local queue.

27) Your display should show all the queues defined for your team ID, which may be a very short list:

You have now been successful in connecting to the environment!

WebSphere MQ V7
Testing Pub/Sub

Lab material developed by
IBM EMEA PanIMT zWebSphere team,
based upon IBM ATS materials

Table of Contents

Lab Objectives

This lab has the following objectives:

- To introduce the attendees to the pub/sub hierarchy
- To create and test defined topic objects
- To create and test subscriptions
- Familiarize you with the MQ Explorer pub/sub test windows
- Take a quick look at Pub/Sub from a z/OS SDSF session

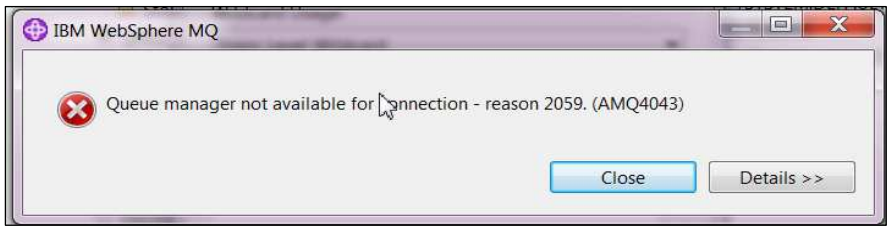
General Lab Information and Guidelines

1) Any time the labels TEAM00 or TEAMXX are used, please replace the '00' or 'XX' with your team ID (TEAM01 – TEAM08).
2) There are four queue managers for use in this workshop. Each team is assigned a primary queue manager as follows:

   - QML1 - TEAM01, TEAM05
   - QML2 - TEAM02, TEAM06
   - QML3 - TEAM03, TEAM07
   - QML4 – TEAM04, TEAM08

3) The passwords for this lab will be given by the workshop leaders.
4) Any difficulty with connectivity should be reported, but please remember that the connections may be slow.

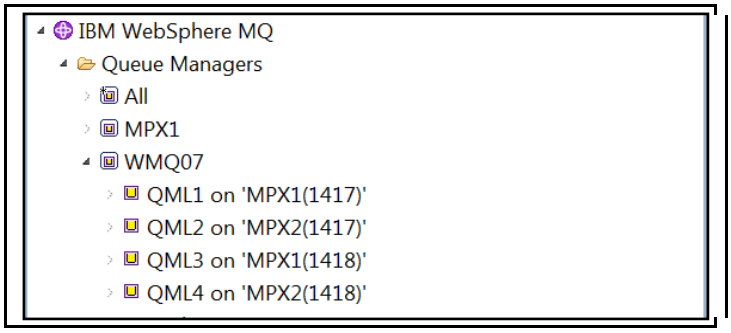
Please note we have seen a number of instances of disconnects during the 'unsubscribe' tests. The error looks like this:



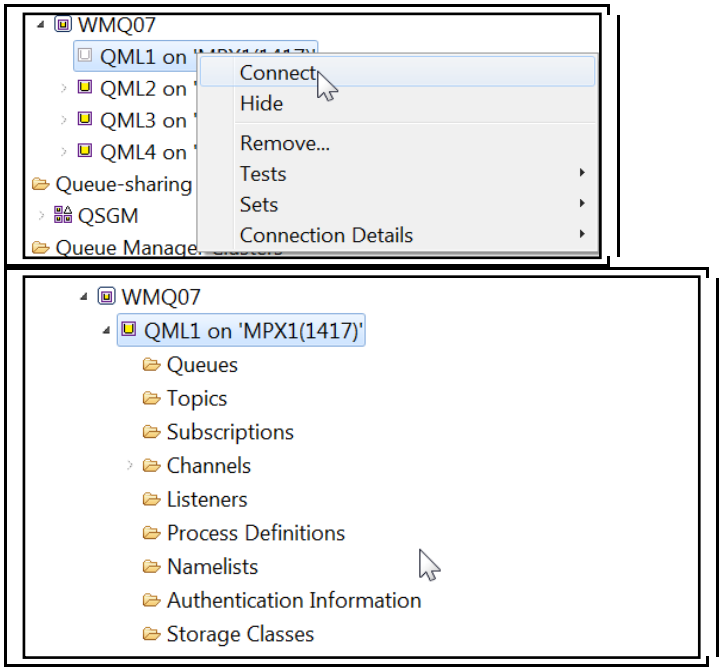
If you repeat the request this typically resolves the problem. It seems that the multiple hops we are doing in the network is probably causing an occasional timeout.

Step I – Create Topic Object

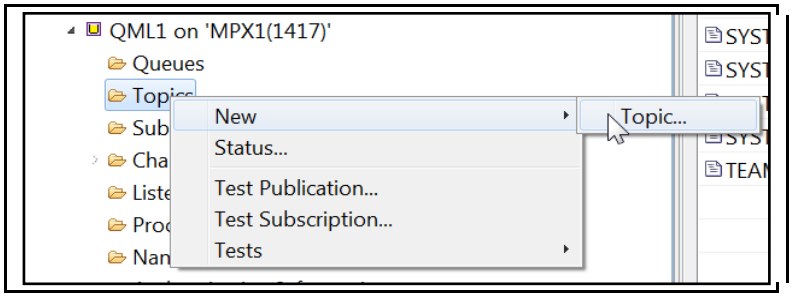
1) If you are no longer connected to your primary queue manager, your MQ Explorer will not show any objects :



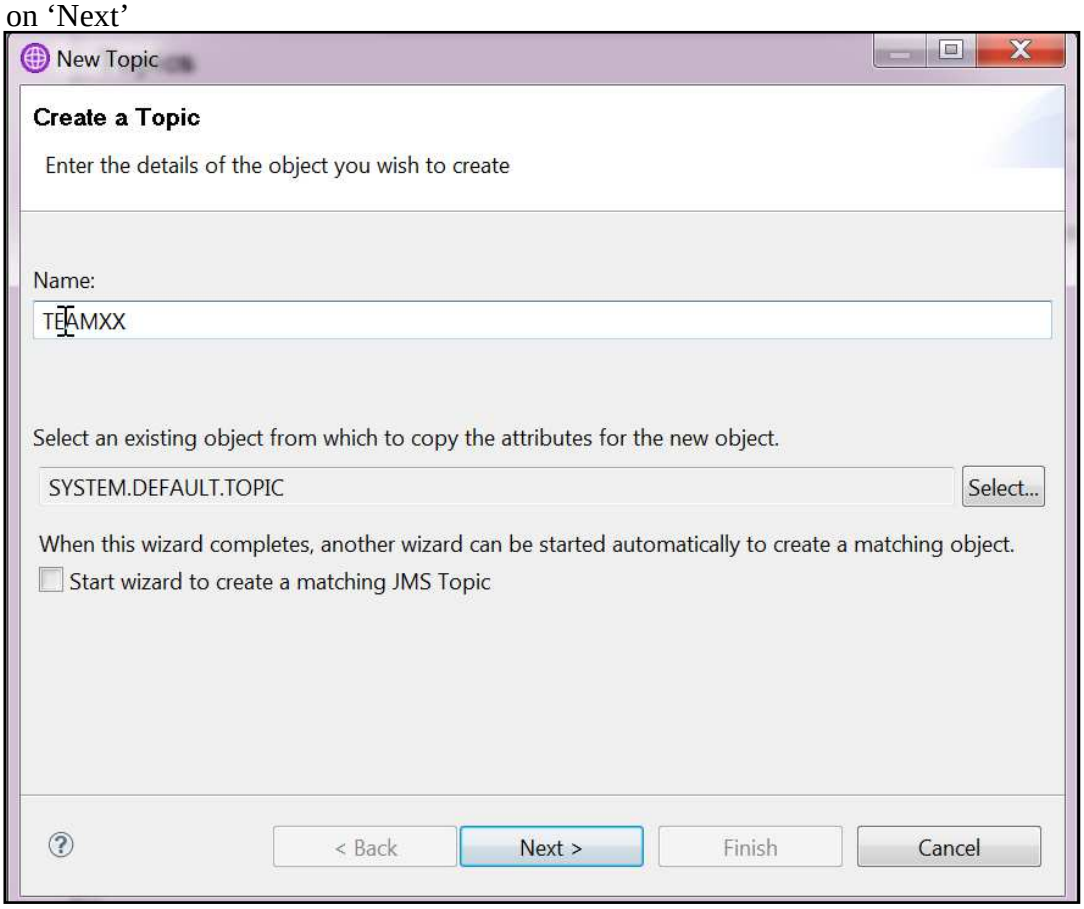
2) Connect to your queue manager by right clicking on the name and selecting ‘Connect’. After the ‘Connect’ you should see the folders, like what is shown below:



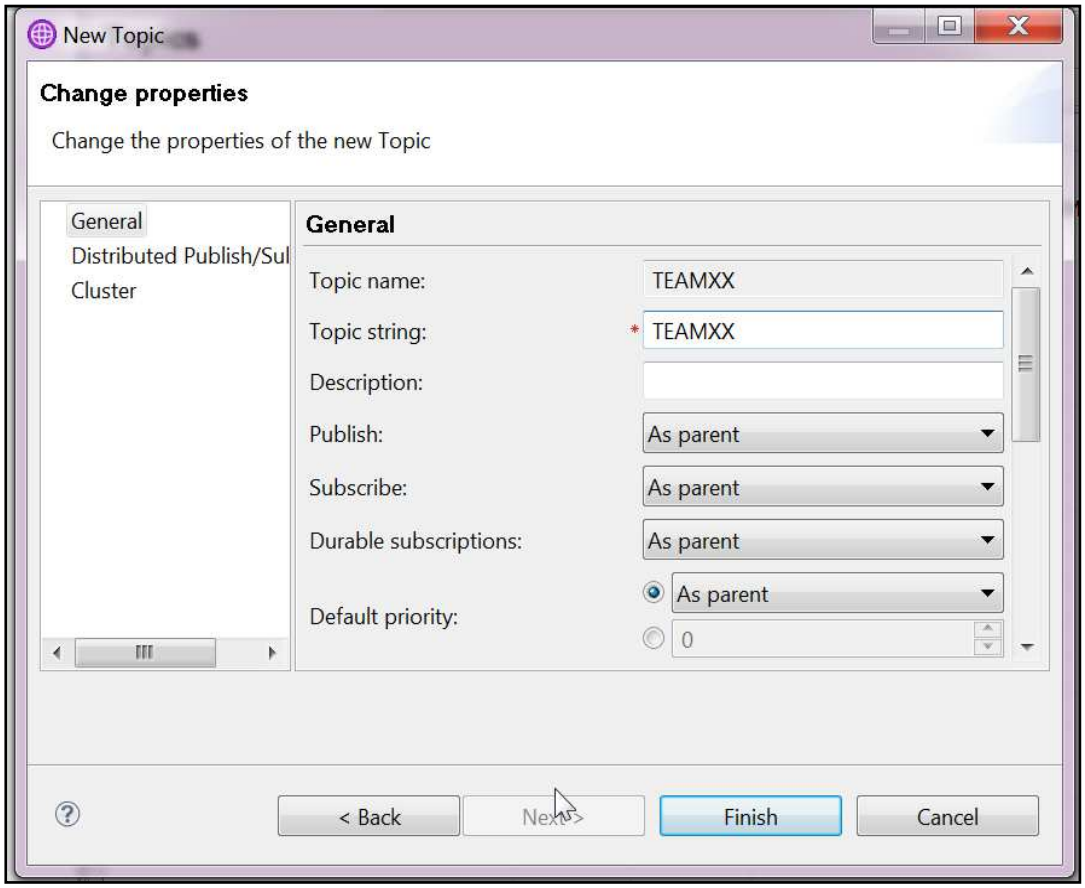
3) On your primary queue manager, right click on the ‘Topics’ folder and select ‘New’ and ‘Topic…” as shown below:



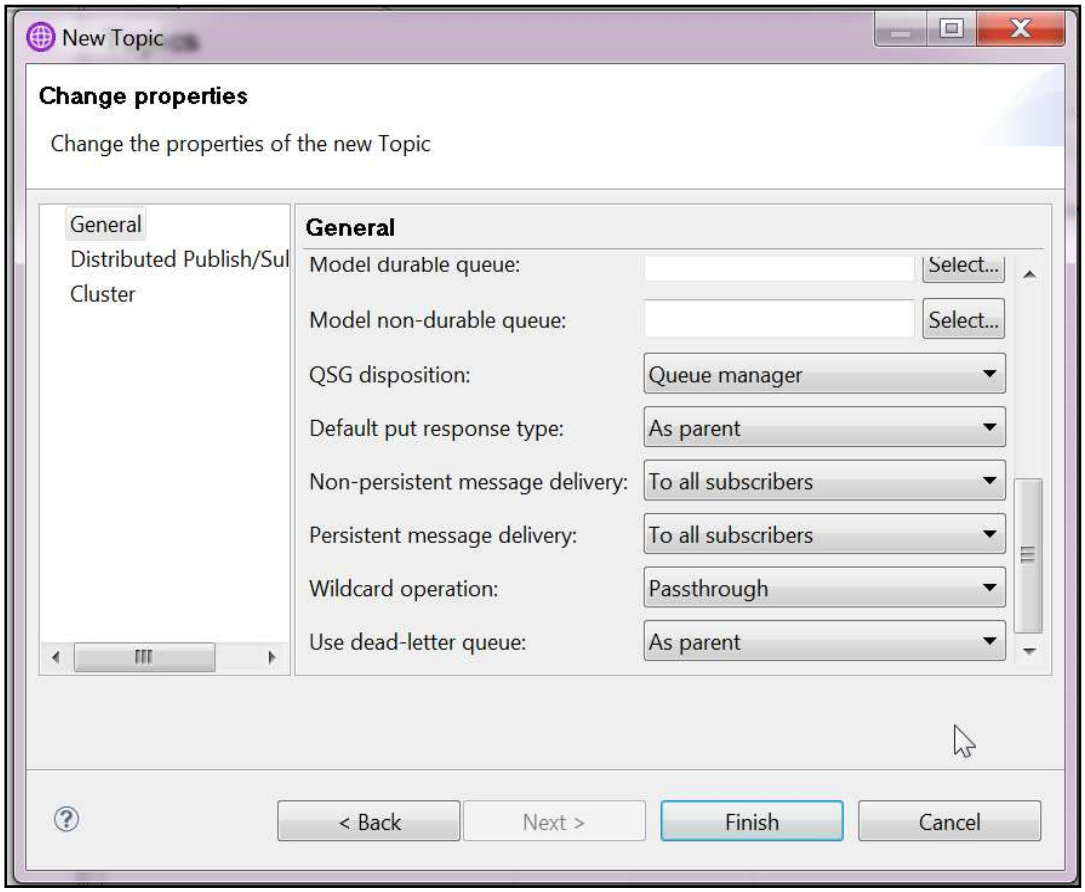
4) On the first ‘New Topic’ panel enter your team ID as shown, then click on ‘Next’



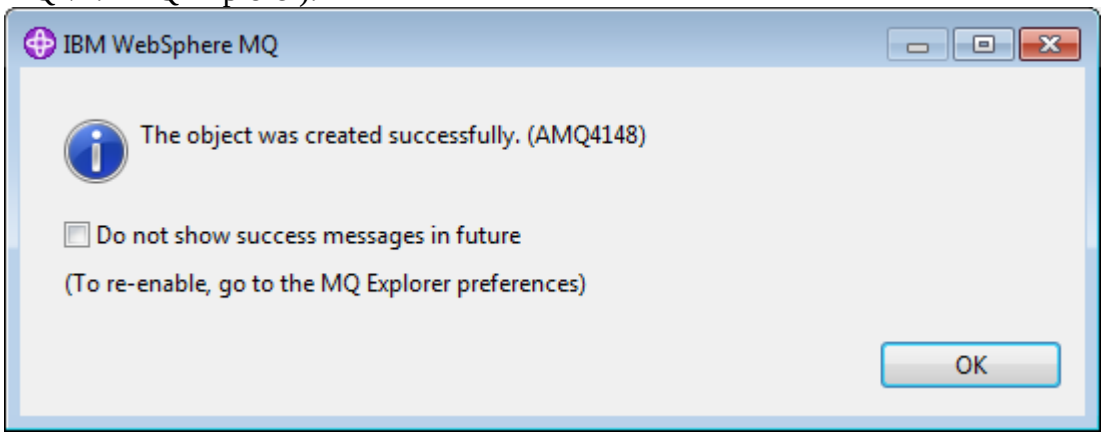
5) Enter your team name TEAMXX (replacing 'XX' with your team number) as the topic string and set the Publish, Subscribe and Durable Subscriptions as shown. Then scroll down.



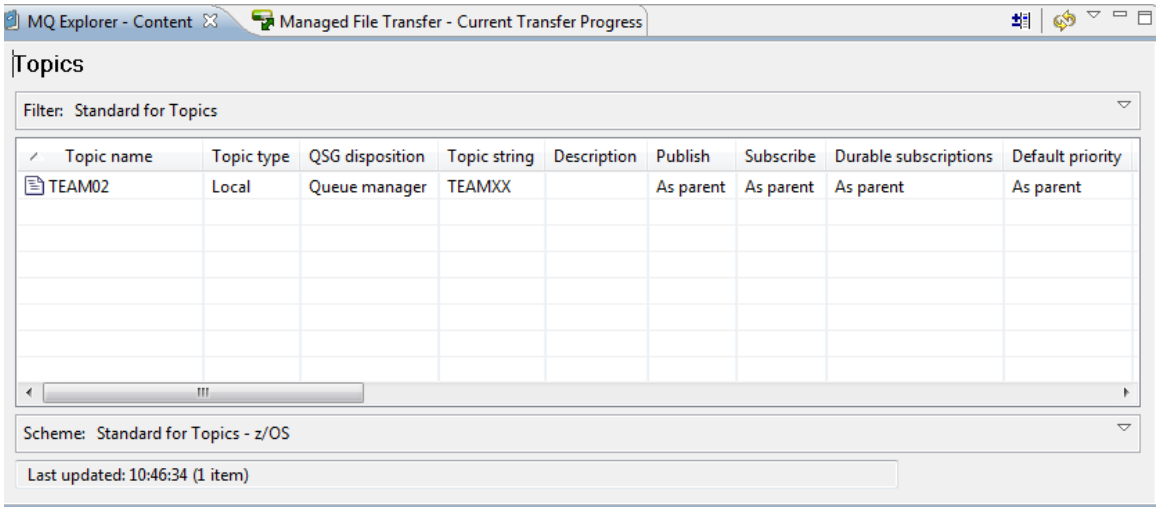
6) Set the QSG disposition to 'Queue Manager', and both persistent and non-persistent message subscription to 'To all subscribers'. Then hit the 'Finish' button.



You may receive the following message if you haven't suppressed this message by clicking the "Do not show success messages in future" box (a new option with the MQ v7.1 MQ Explorer).

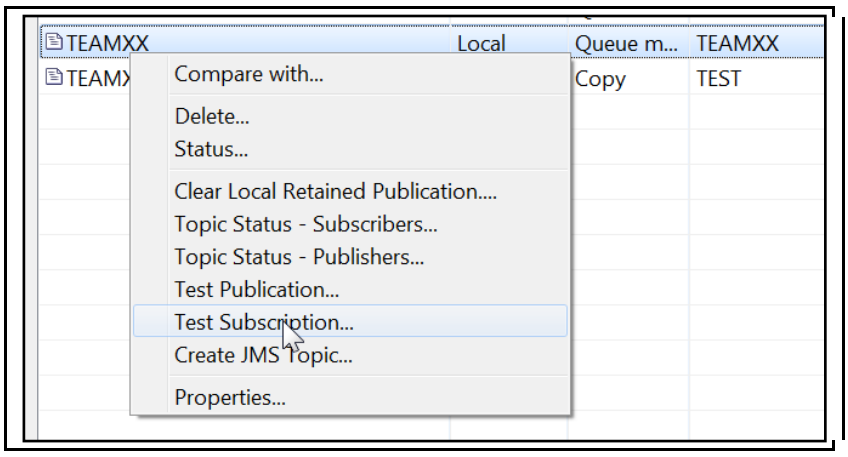


7) You should see the new object in the Topics list as shown.

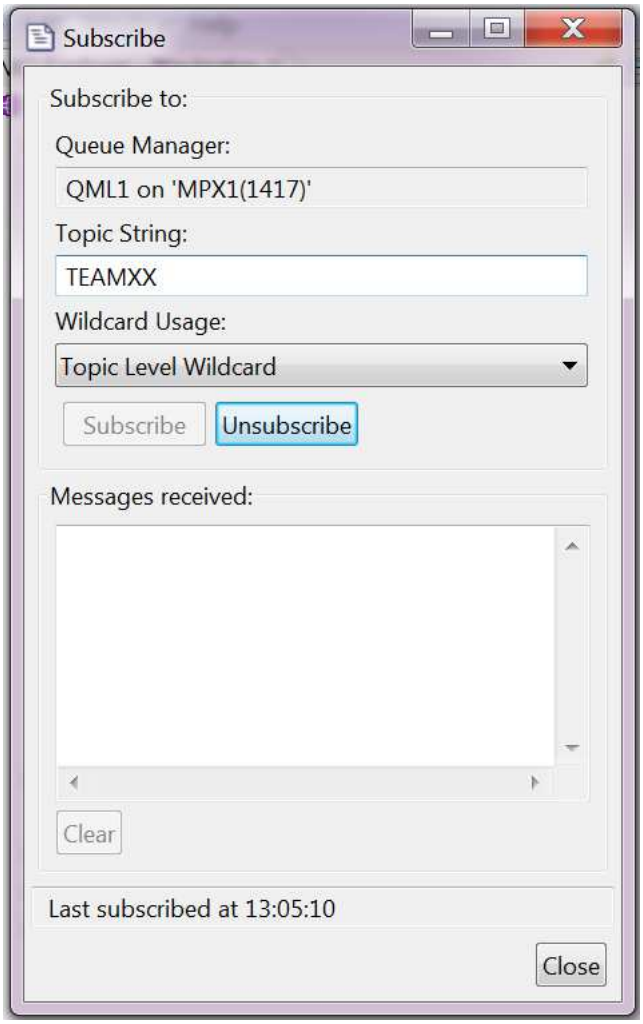

MQ Explorer - Content
Managed File Transfer - Current Transfer Progress
Topics
Filter: Standard for Topics
Topic name
Topic type
QSG disposition
Topic string
Description
Publish
Subscribe
Durable subscriptions
Default priority
TEAM02
Local
Queue manager
TEAMXX
As parent
As parent
As parent
As parent
Scheme: Standard for Topics - z/OS
Last updated: 10:46:34 (1 item)

Step II - Test Publication and Subscription

1) Right click on the topic created and select ‘Test Subscription…’.

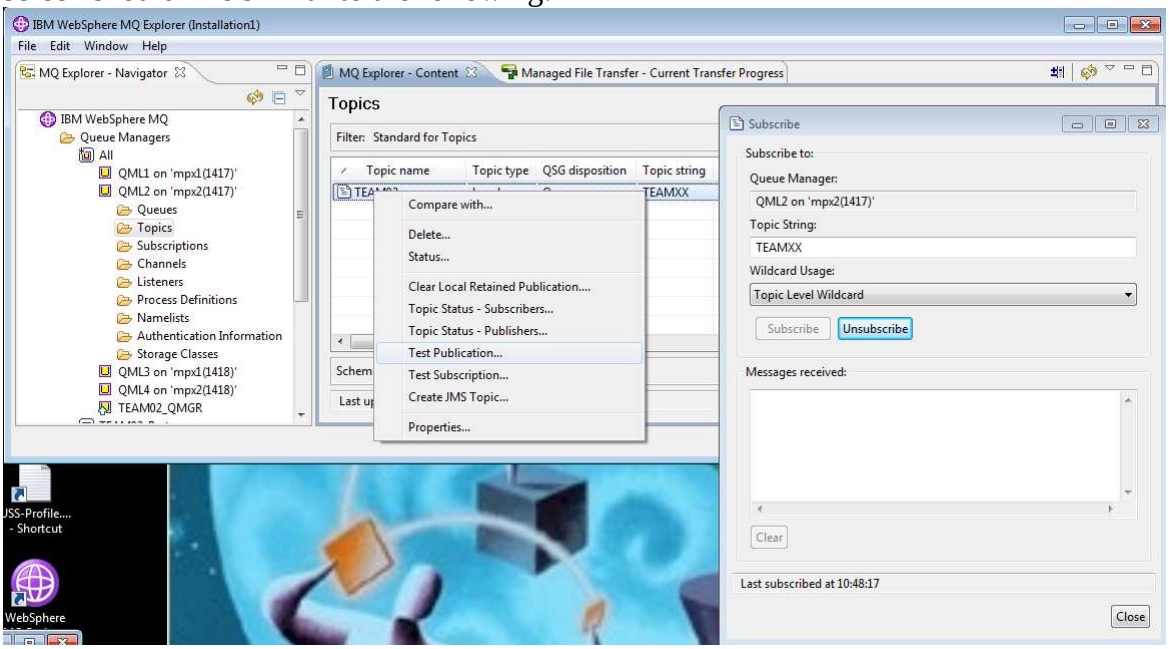


2) This will bring up the pane shown below. **DO NOT CLOSE THIS PANE!** Just move this panel over to one side of your screen.

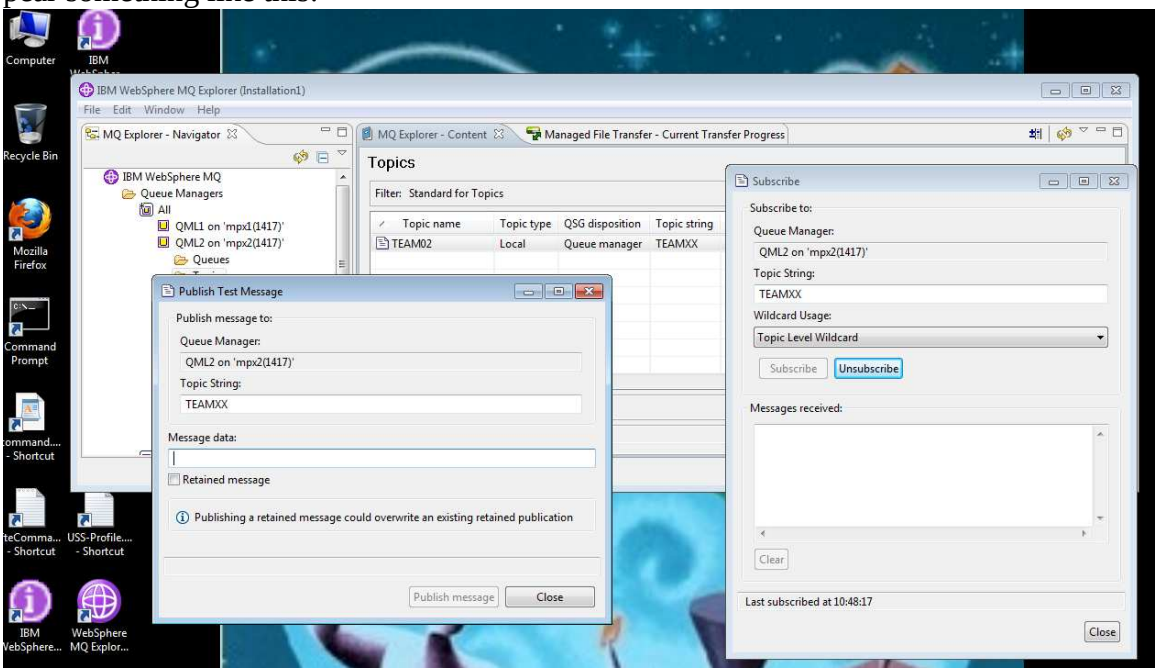


This panel subscribes you to the topic string 'TEAMXX'.

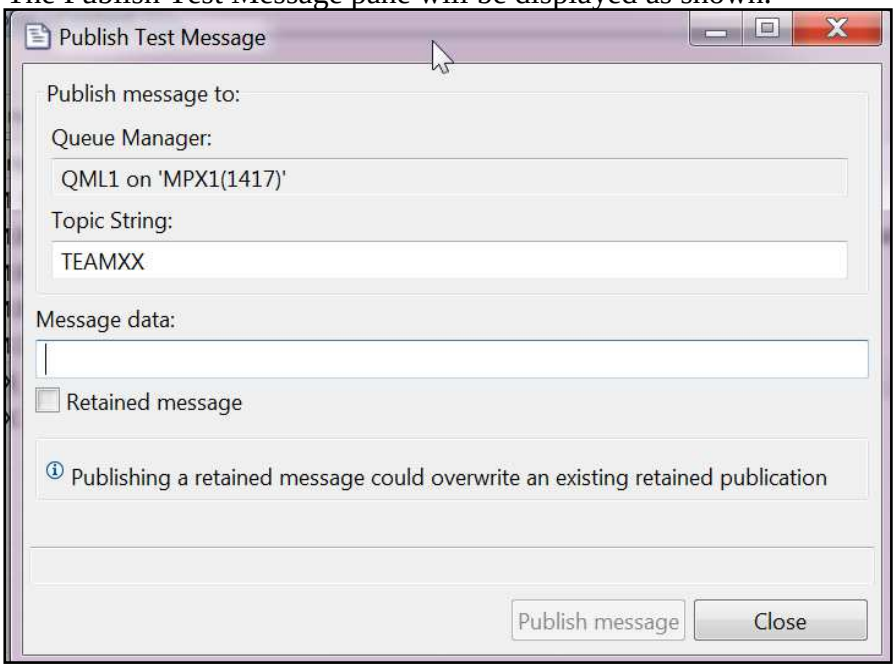
3) Right click on the topic name again and select ‘Test Publication…’. Your full screen should like similar to the following:



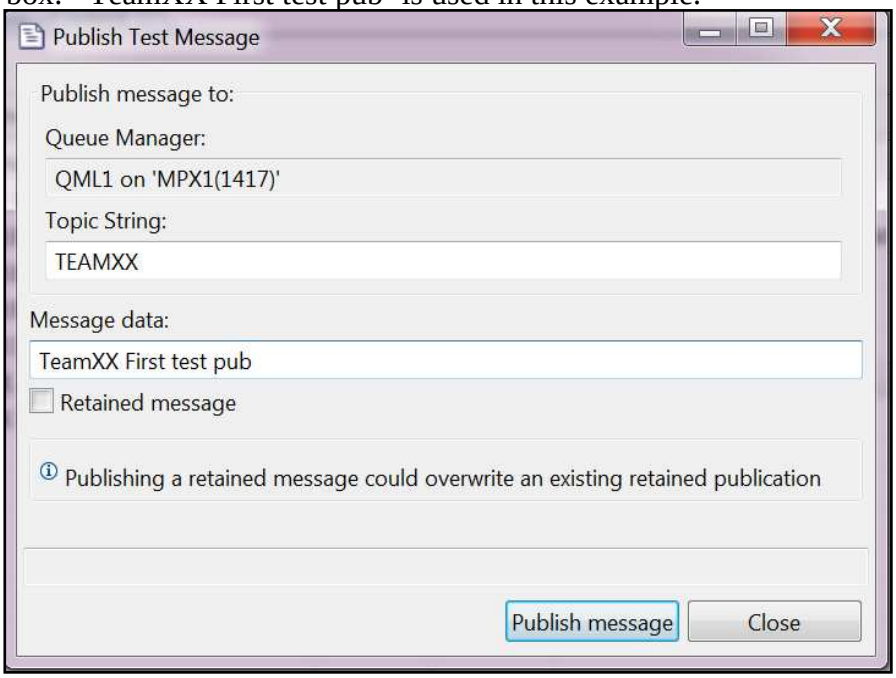
After selecting the ‘Test Publication…’ item, your full screen should now appear something like this:



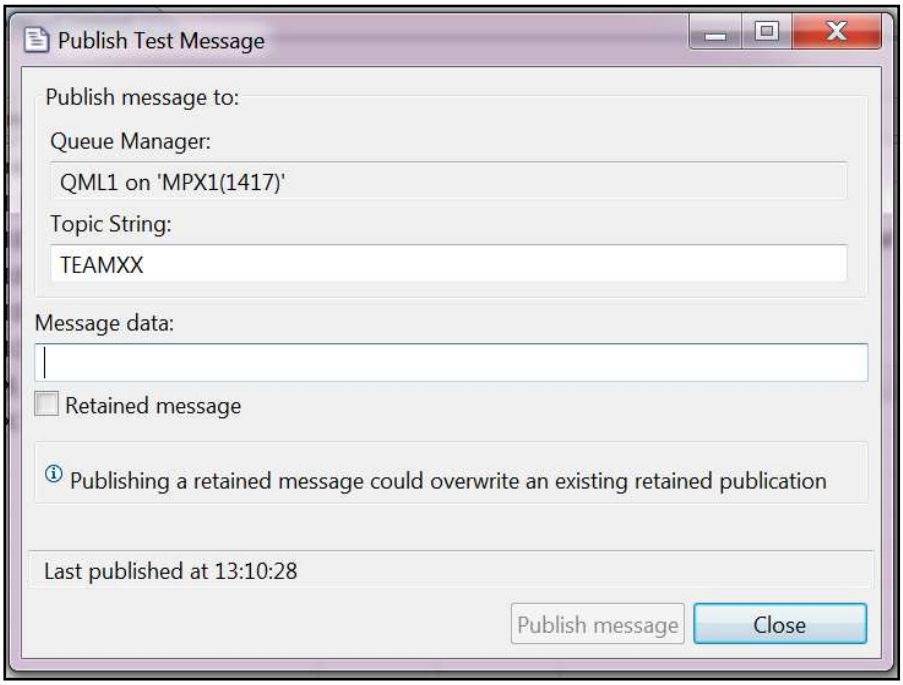
4) The Publish Test Message pane will be displayed as shown.



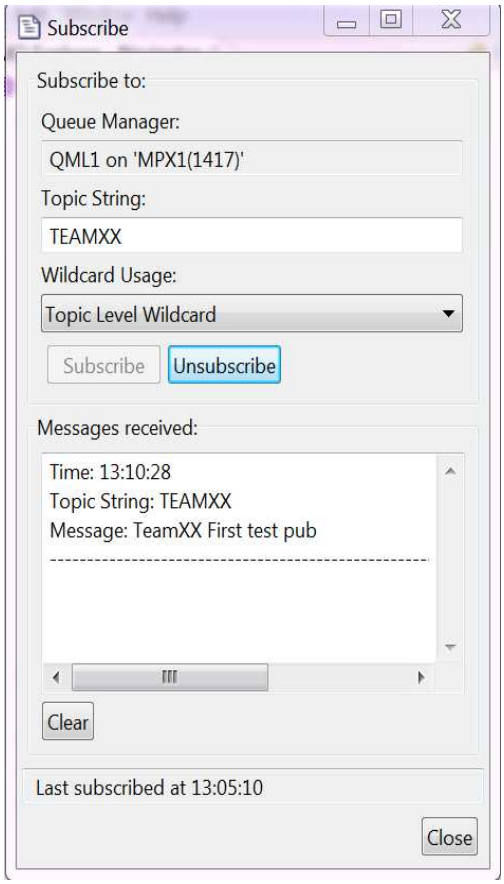
5) Enter a message that you can easily identify as your own in the ‘message data’ box. ‘TeamXX First test pub’ is used in this example.



6) Click on ‘Publish Message’ button. Successful publication is indicated by the ‘Last published’ message, similar to what is shown below.



7) In the subscribe panel, your newly published message should appear.



8) You can now close both the Subscribe and Publish test windows.

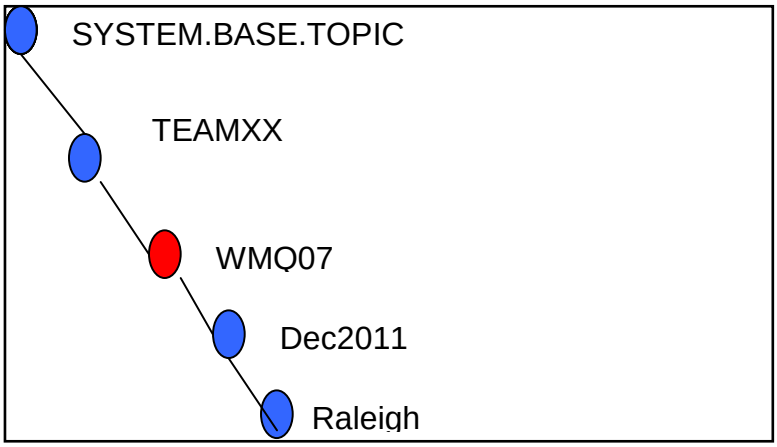
Step III – Create Topic Object Tree

1) Using the steps described above, define the additional two topic objects for your team. Please change the 'XX' to your team name.

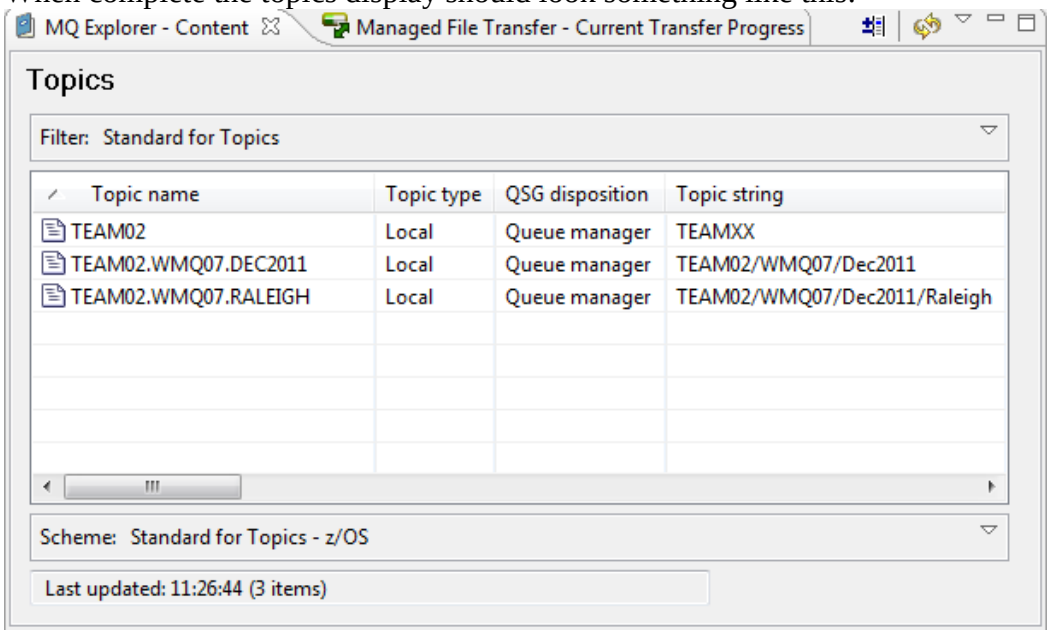
Topic Object Name	Topic Strings
TEAMXX.WMQ07.DEC2011	TEAMXX/WMQ07/Dec2011
TEAMXX.WMQ07.RALEIGH	TEAMXX/WMQ07/Dec2011/Raleigh

Be careful with the UPPER and lower case characters. Set the same properties as you did above.

This creates a topic tree with five nodes: the root, TEAMXX, WMQ07, Dec2011 and Raleigh.

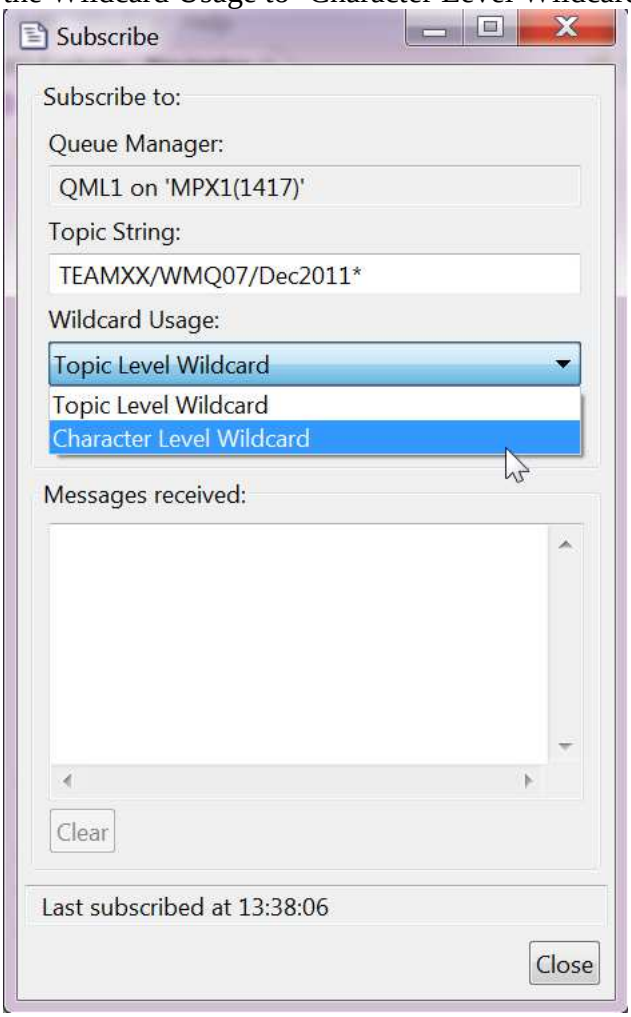


When complete the topics display should look something like this:



2) Right click on the TEAMXX.WMQ07.RALEIGH topic object and select 'Test Subscription'.

3) Set the Topic String with only 3 “nodes”, and the last node to an asterisk. Set the Wildcard Usage to ‘Character Level Wildcard’, as shown below.



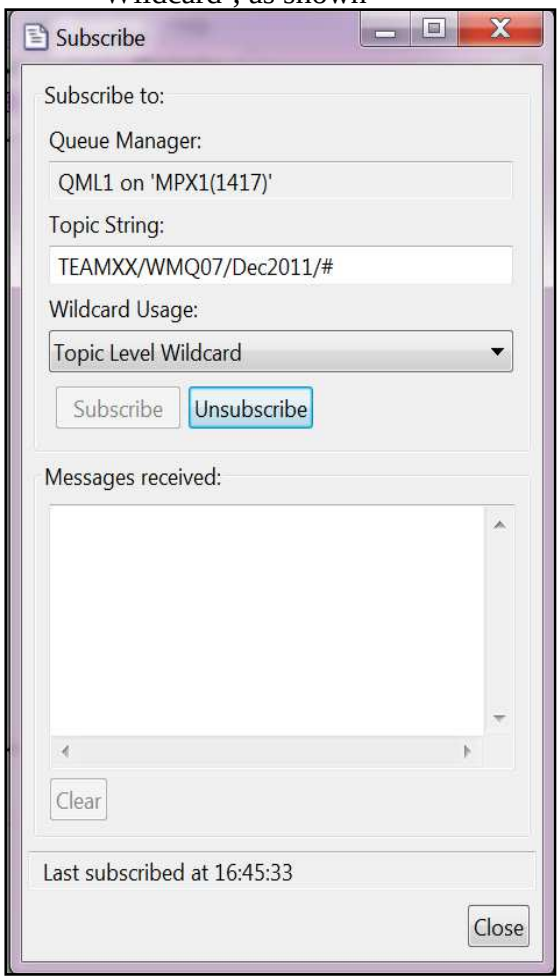
4) Click on ‘Unsubscribe’ button and then click on the ‘Subscribe’ button.

TechTip: When the test panel is started the subscription is made, you have to unsubscribe and re-subscribe to pick up your changes.

Move this Subscribe window over to the side of your screen so that you can access the MQ Explorer window again.

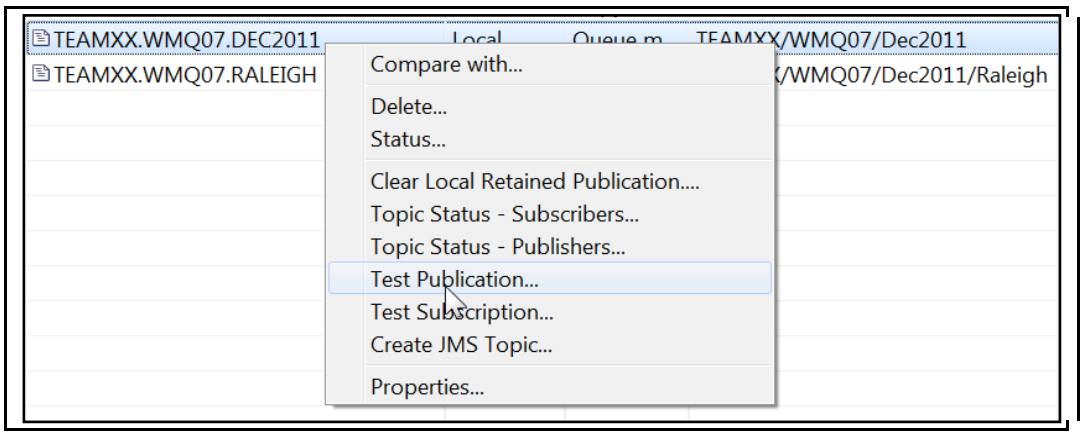
5) On the MQExplorer Topic display, right click again on the TEAMXX.WMQ07.RALEIGH topic object and select ‘Test Subscription…’.

6) Set the last node to a pound sign and the Wildcard Usage to ‘Topic Level Wildcard’, as shown

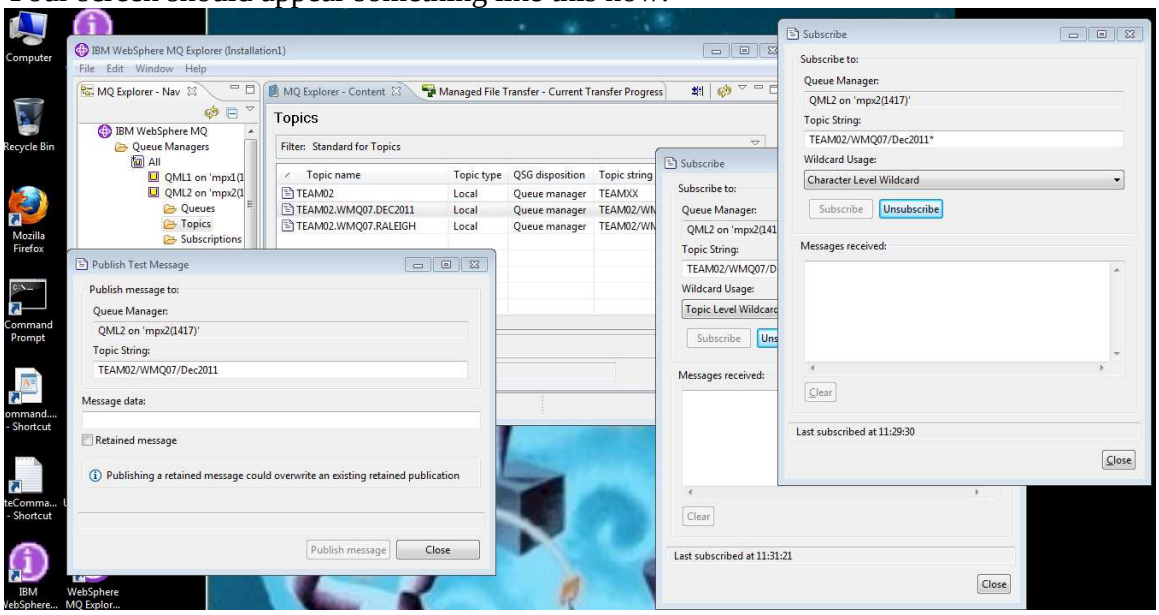


7) Click on ‘Unsubscribe’ button, and then click on the ‘Subscribe’ button. Once again, move this window to one side.

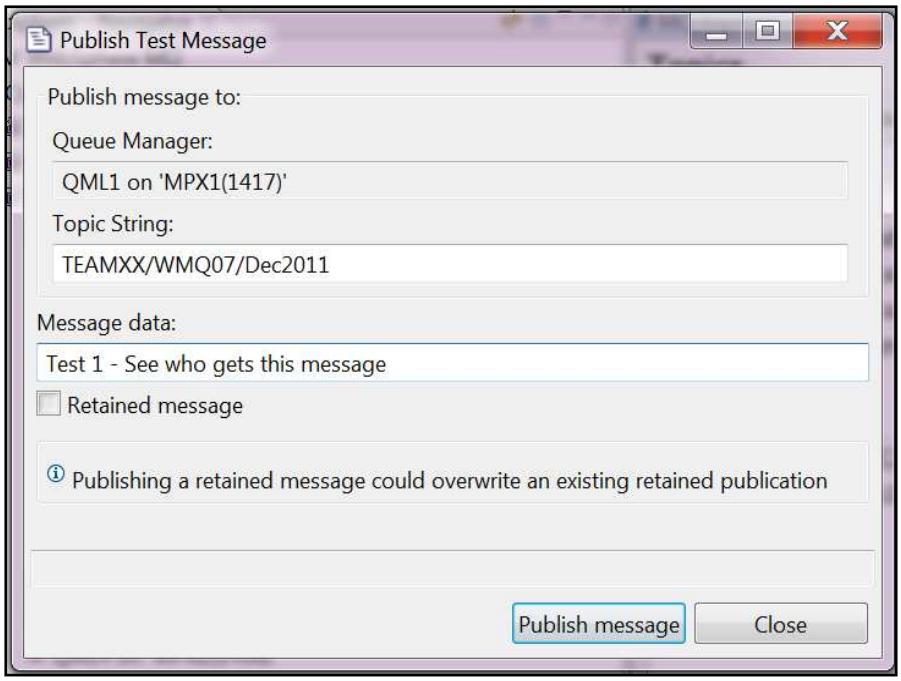
8) Now return again to the Topic display in the MQ Explorer, and right click on the topic TEAMXX.WMQ07.DEC2011, and select ‘Test Publication…’ as shown.



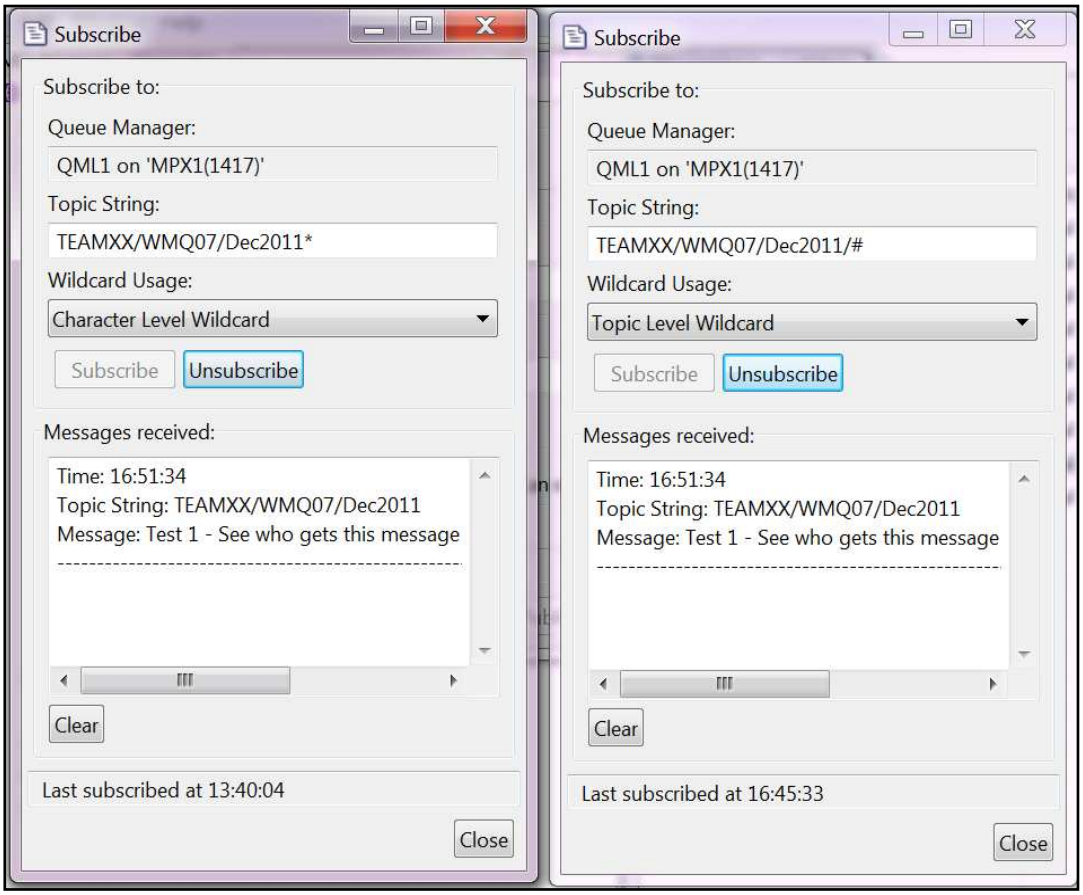
Your screen should appear something like this now:



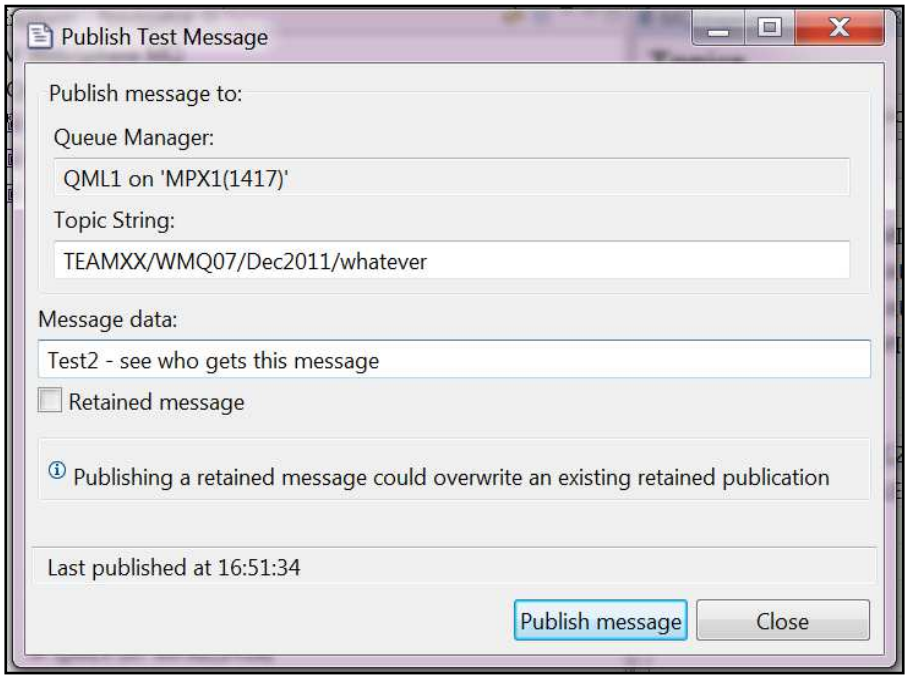
9) In the Publish Test Message window, enter a publication message similar to what is shown below, and the press the ‘Publish message’ button.



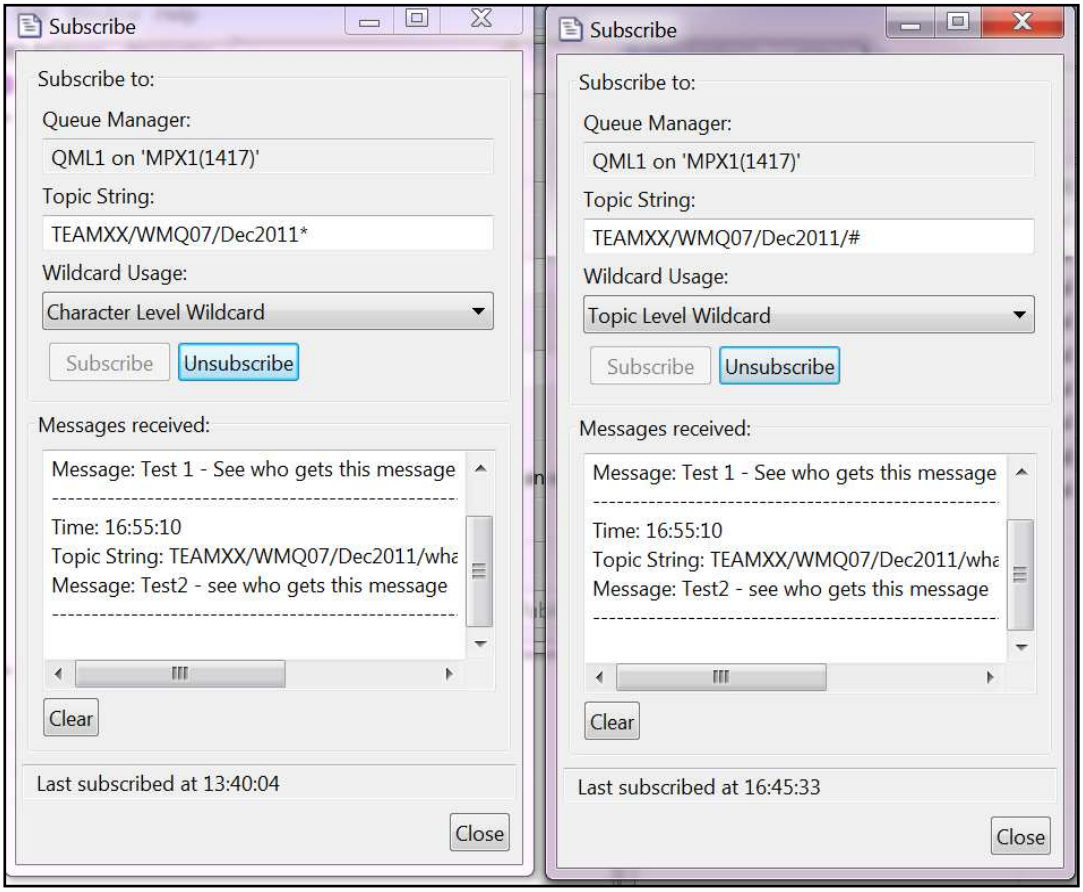
10) Both subscriptions should have received this message, as shown.



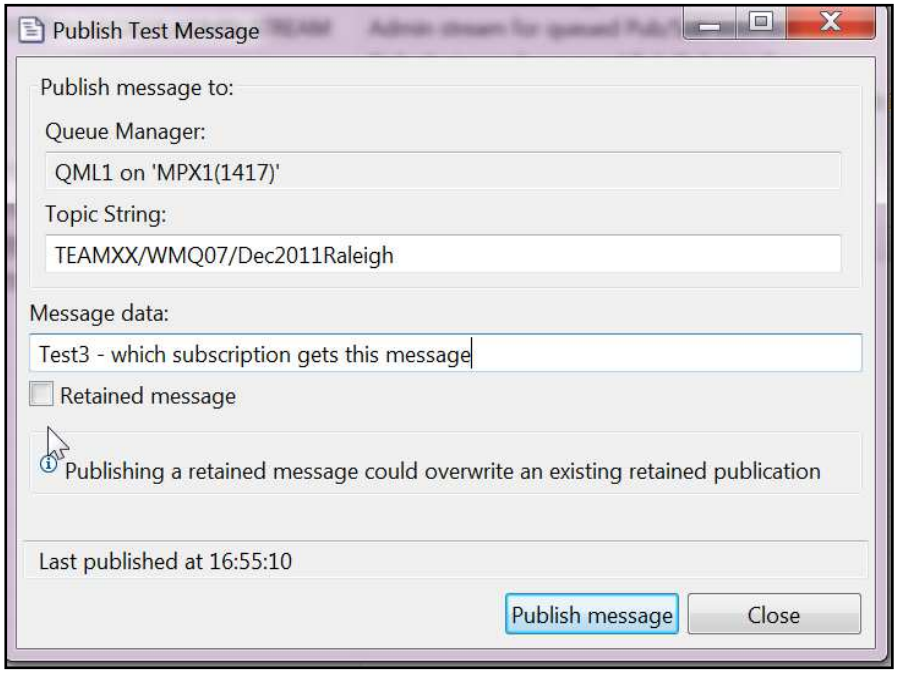
11) Still in the Publish Test Message window, you can extend the by adding an additional node to the tree in the publication pane as shown. Press ‘Publish message’.



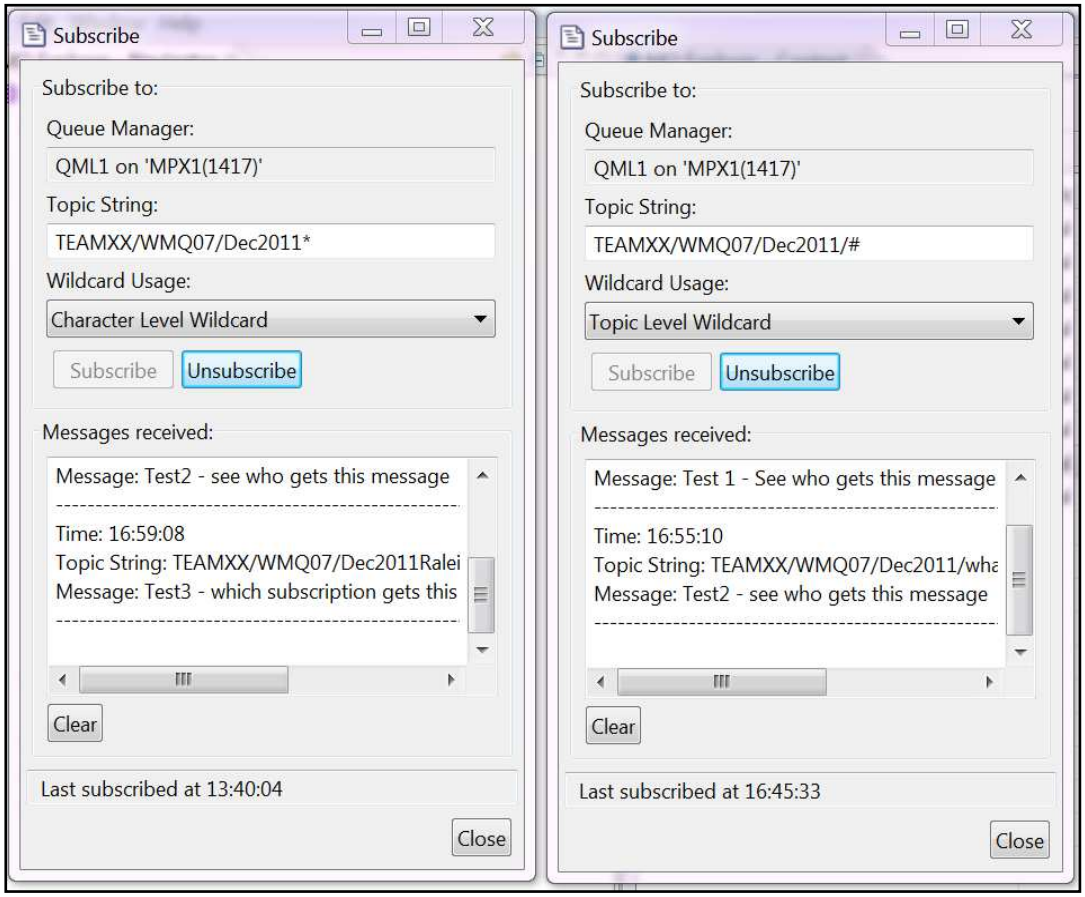
12) In this case, both subscriptions should once again get a copy of the publication as shown:



13) Enter a third publication as shown below, with the 3rd level containing "Dec2011Raleigh" (no slash). Press 'Publish message'.



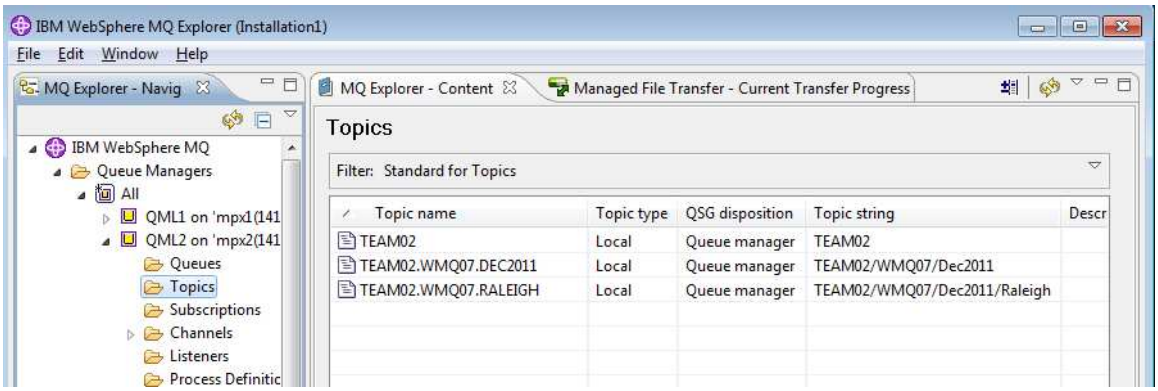
14) Only the Character level wildcard subscription should have received the publication as shown.



You have finished defining and testing a Topic Objects tree. You can Close the Publish and the Subscribe windows.

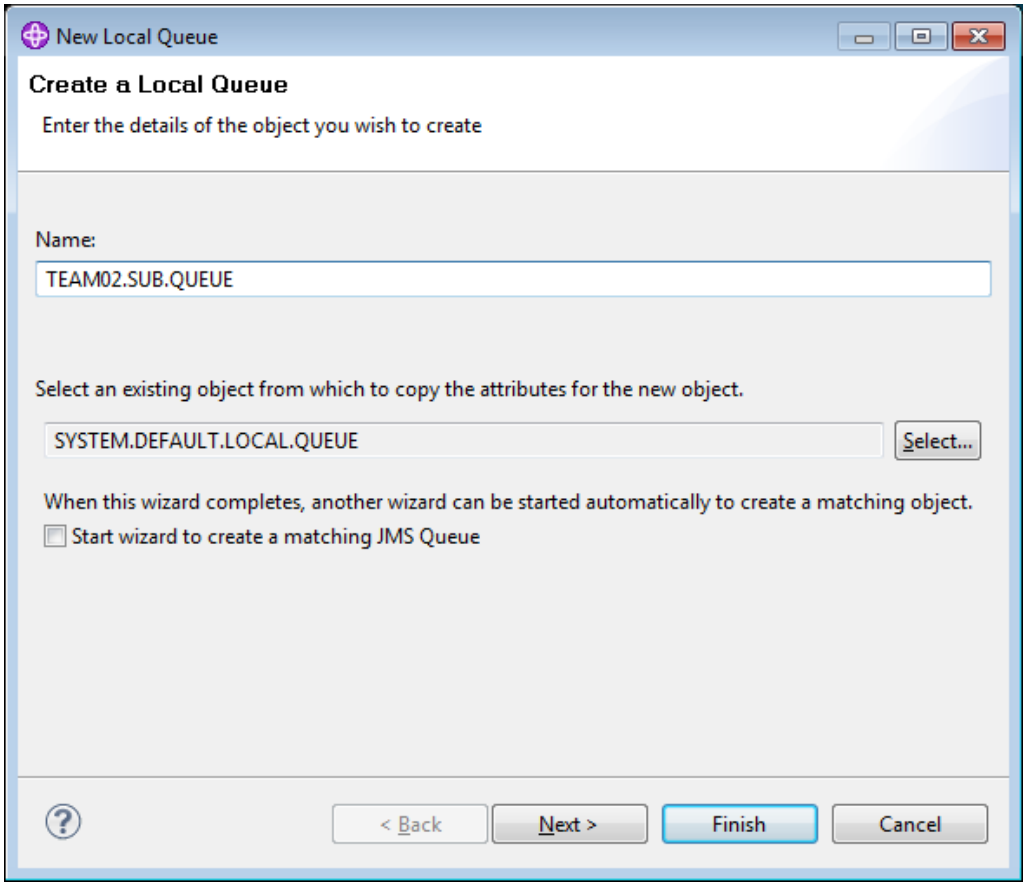
Step IV – Reviewing your Topics

1) In a previous lab you should have defined a number of topics that are available thru the hierarchy. Yours should like something like those shown, using your team ID, and the nodes you selected.

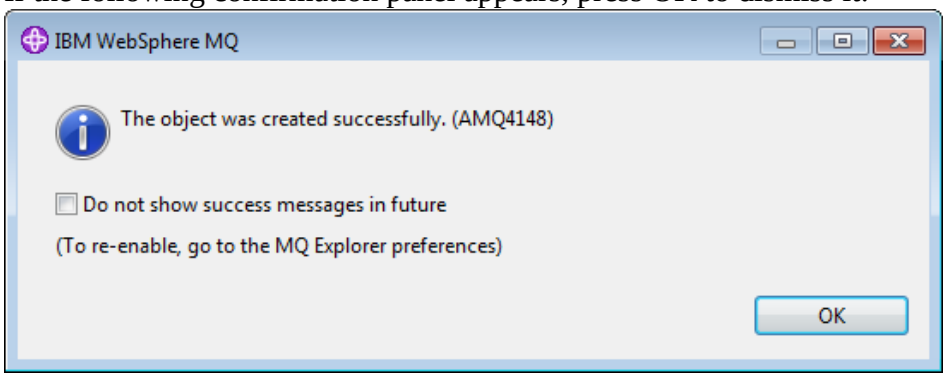


Note that the images seen in this lab were taken with TEAM02. During your lab, however, you should see your team number.

2) Use the MQ Explorer to define a local queue, TEAMXX.SUB.QUEUE, where the XX is your team ID. Please make sure the queue is private. To do this, right click on the 'Queues' folder and select 'New' then "Local Queue'. When the 'Create a local queue' panel appears enter the queue name as shown, using your team ID for the first node in the queue name, then click on 'Finish'.



If the following confirmation panel appears, press OK to dismiss it:

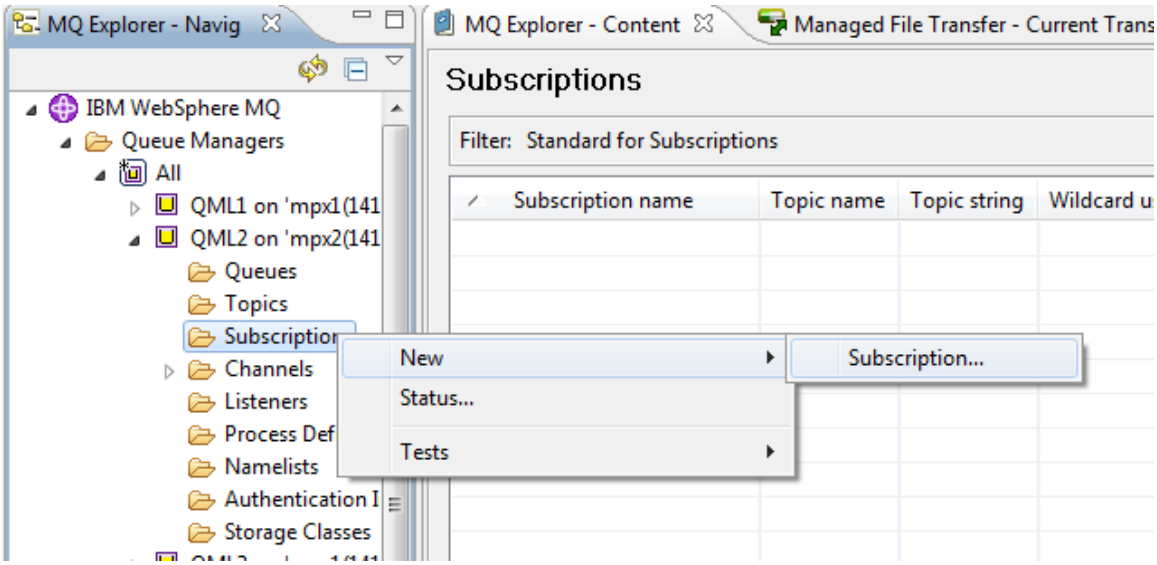


Note that you can check the "Do not show…" option to avoid this confirmation message for the future with the MQ Explorer in v7.1.

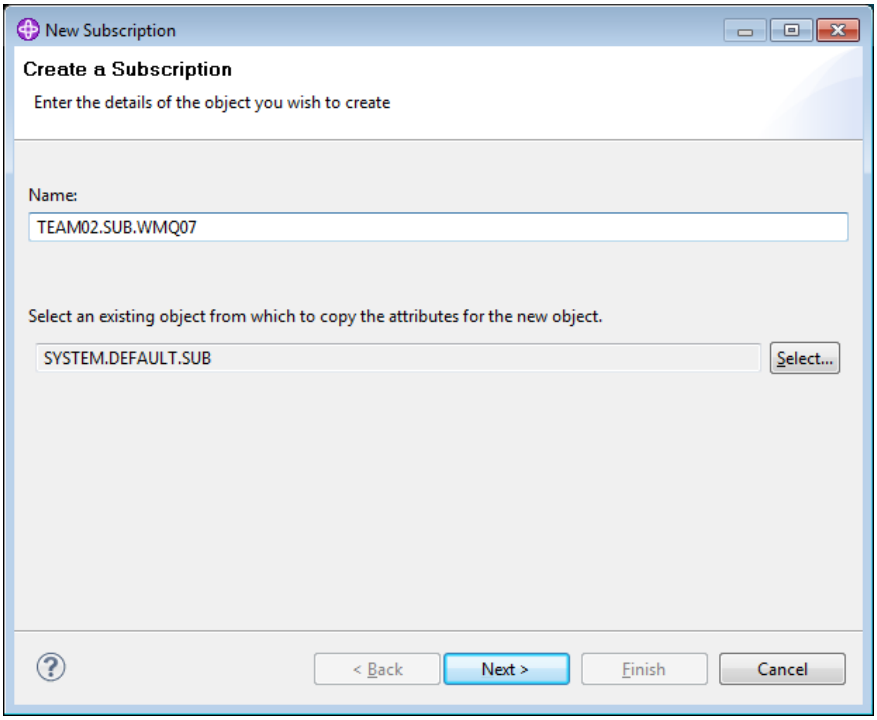
Step V – Creating Subscriptions

In the earlier exercise, you worked with *temporary* subscriptions. You'll create a *permanent* subscription now.

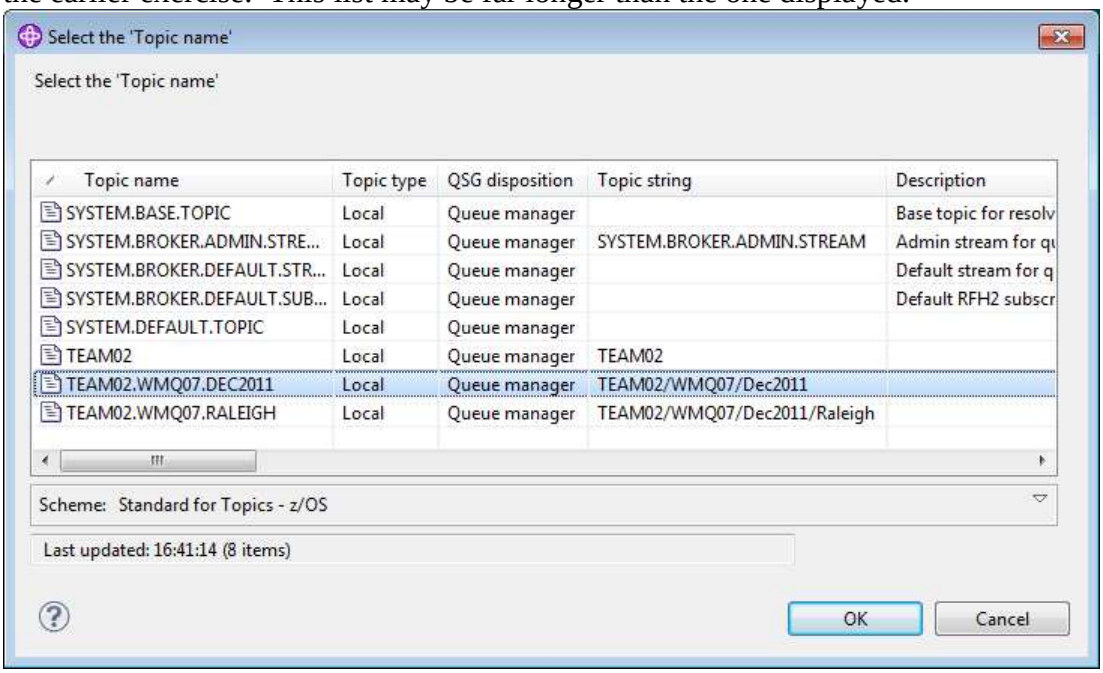
1) To create an administered new subscription, right click on the 'Subscriptions' folder and then select 'New…' and 'Subscription…' as seen below:



2) Enter the name of your subscription; please use your team ID as the high level node. You can call the subscription anything you like, but please use your team ID as the first node in the name. In the sample it shows TEAMXX.SUB.WMQ07. After entering the name, click on the 'Next' button.



3) On the 'Change Properties' panel of the New Subscription wizard, the next action is to identify the topic. Click on the 'Select' button after the 'Topic name' box to get the list of available topics. You'll recognize the Topics created in the earlier exercise. This list may be far longer than the one displayed.

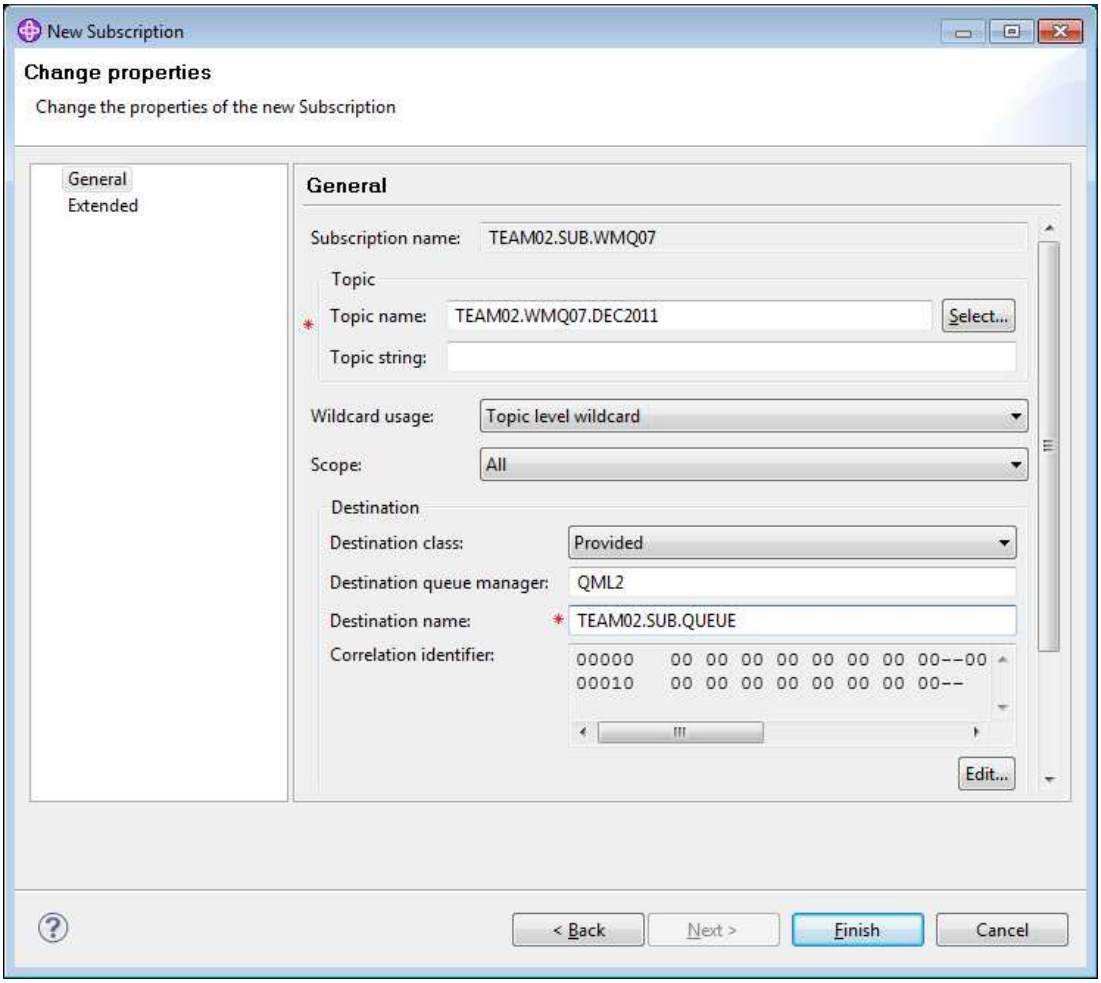


4) From the list, highlight the TEAMXX.WMQ07.DEC2011 topic and click on the 'OK' button.

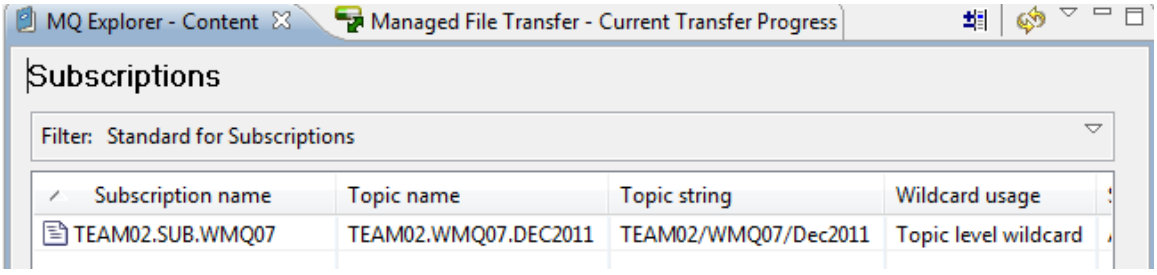
   If you wanted to further qualify the subscription, you could enter additional topic hierarchy information in the Topic string field. For this lab, however,

please leave that blank.

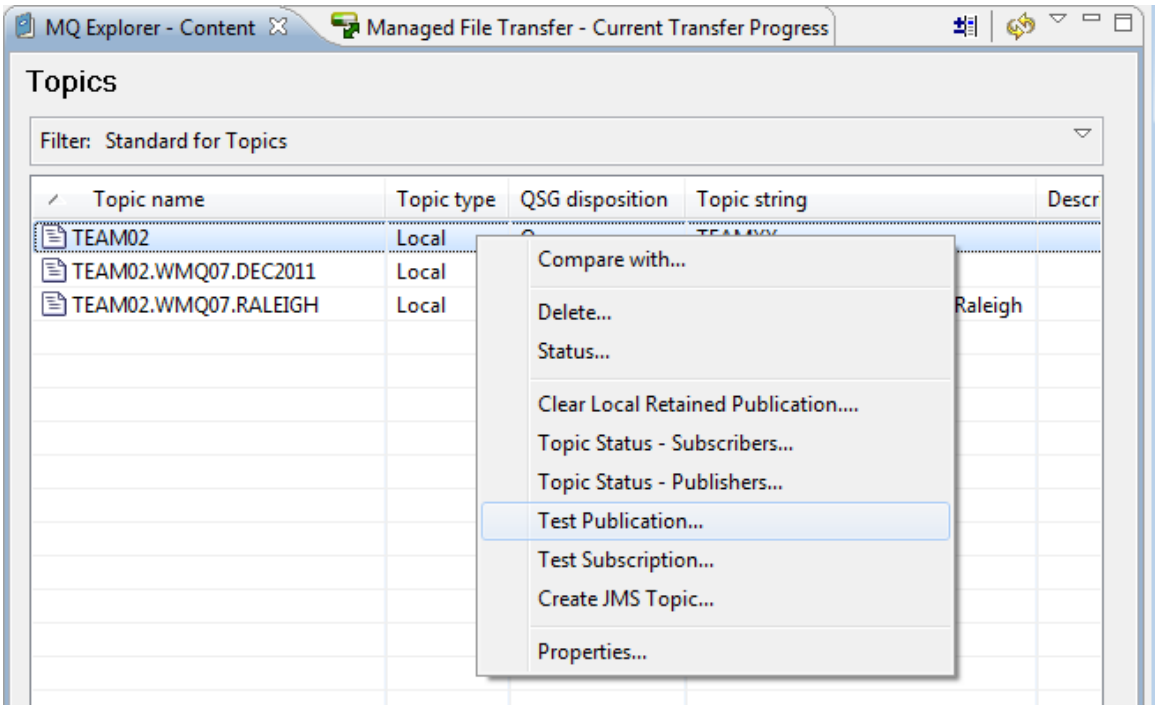
5) Enter your primary queue manager in the destination queue manager field and fill in the queue name with TEAMXX.SUB.QUEUE, where the XX is your team ID. Note that you may have to scroll down to locate that field.



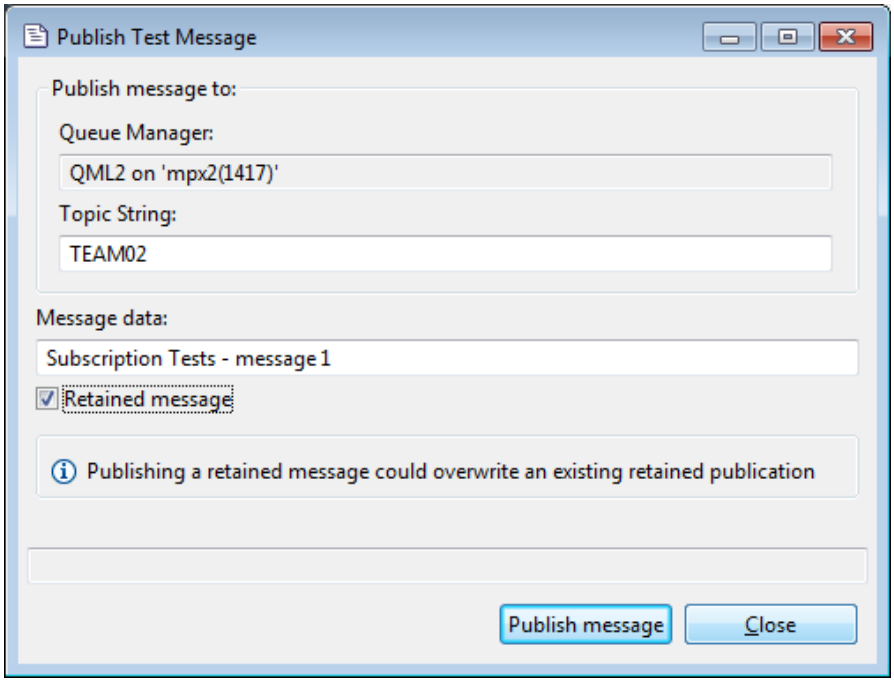
6) Press 'Finish' to complete the definition of this Subscription. The list of subscriptions should now include your subscription as seen below:



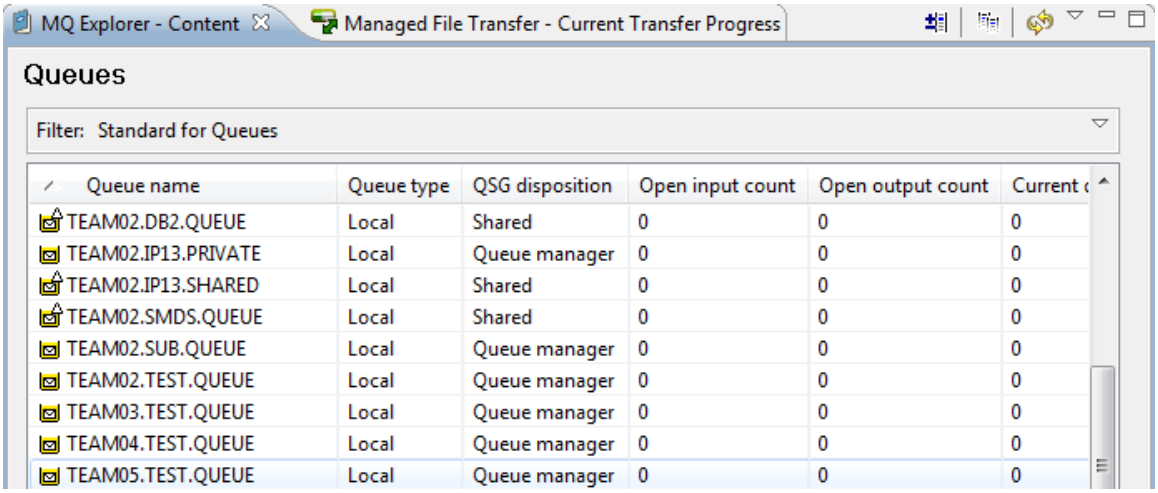
7) To test your new subscriptions, select the ‘Topics’ folder. In the list of topics, right click on the topic that just contains your team name, in this example the ‘TEAMXX’ topic name, and select ‘Test Publication…’.



8) Enter a message and click the ‘Retained publication’ message as shown. Click on ‘Publish message’ and then click on ‘Close’.

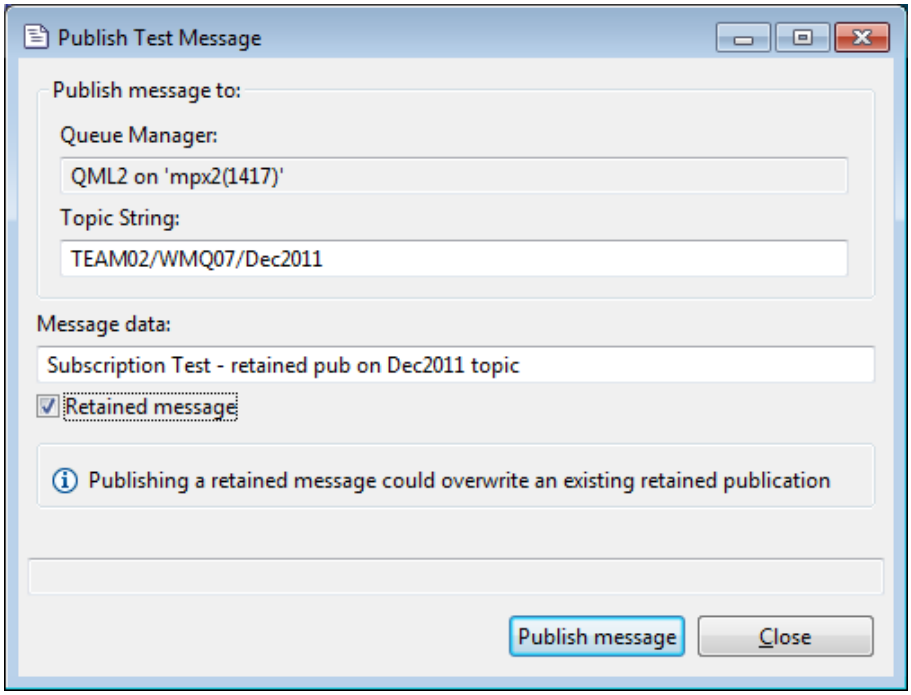


9) Did the message appear in your subscription queue?

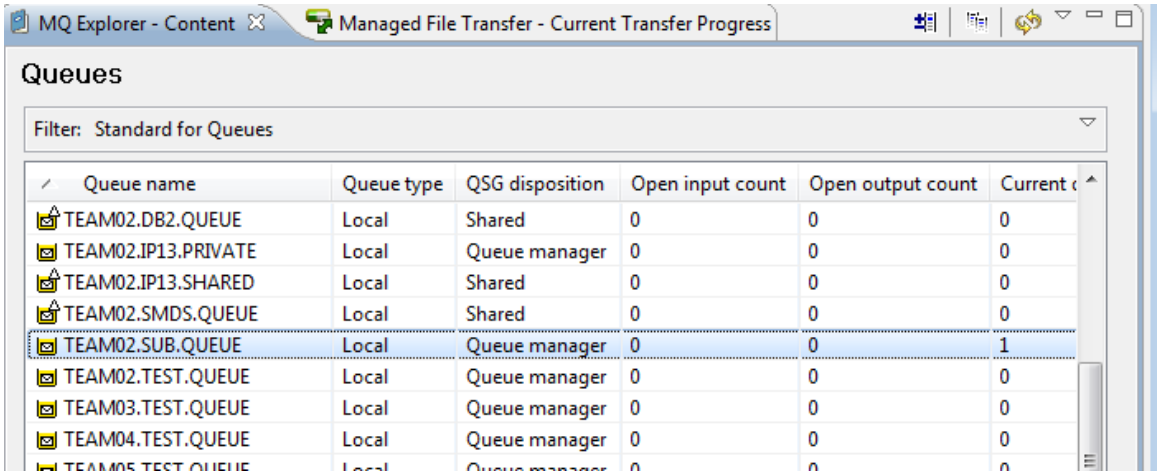


10) Again, select the 'Topics' folder. In the list of topics, right click on the 'TEAMXX.WMQ07.DEC2011' topic where the XX is your team number and select 'Test Publication'.

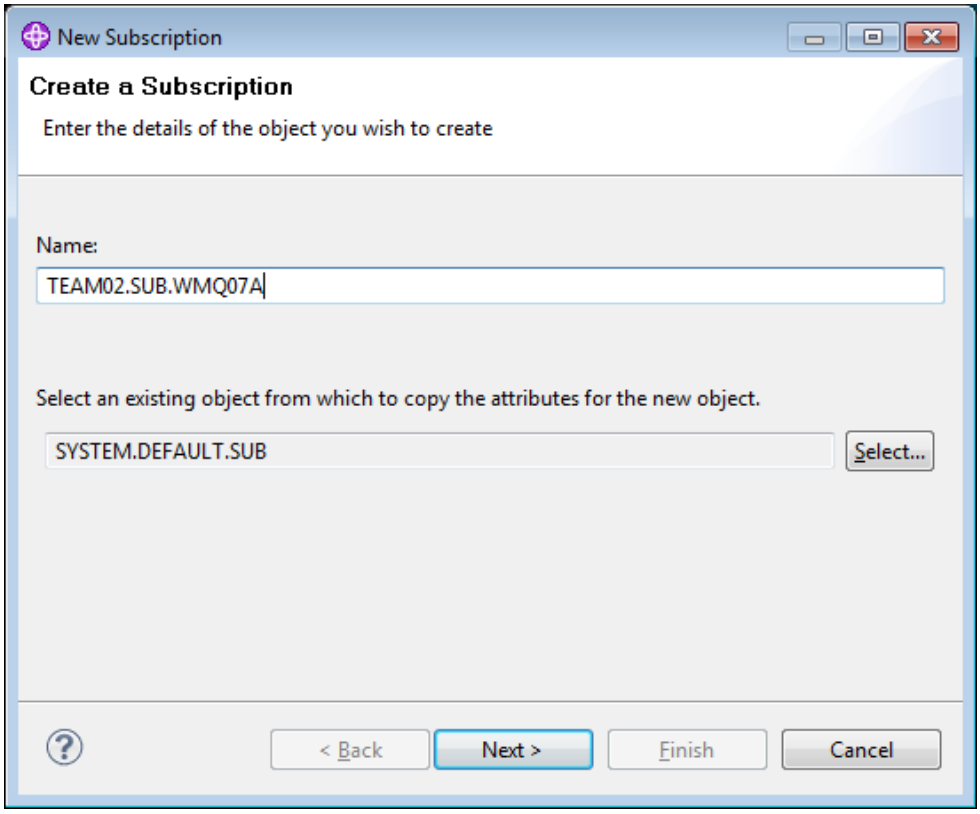
11) Enter a message and click the 'Retained publication' message as shown. Click on 'Publish message'. *Do not close the Publish Test Message window!*



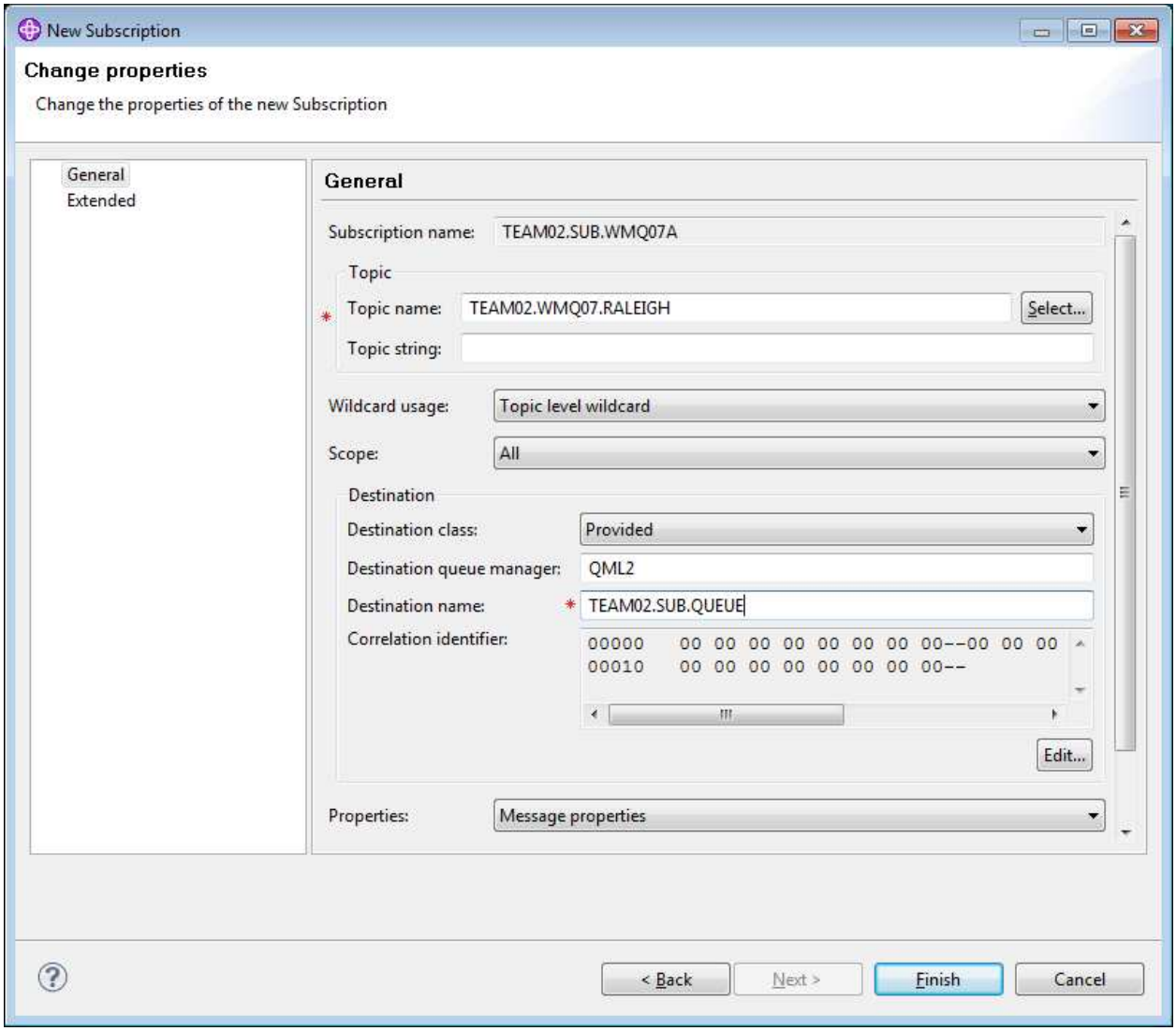
12) Leaving the Publish Test Message window open, move to the main MQ Explorer window and examine your subscription queue; you should have the test message in the queue. *Be sure that you **do not close** the Publish Test Message window!* Leave it open… you'll use it again in a few minutes.


MQ Explorer - Content
Managed File Transfer - Current Transfer Progress
Queues
Filter: Standard for Queues
Queue name
Queue type
QSG disposition
Open input count
Open output count
Current
TEAM02.DB2.QUEUE Local Shared 0 0 0
TEAM02.IP13.PRIVATE Local Queue manager 0 0 0
TEAM02.IP13.SHARED Local Shared 0 0 0
TEAM02.SMDS.QUEUE Local Shared 0 0 0
TEAM02.SUB.QUEUE Local Queue manager 0 0 1
TEAM02.TEST.QUEUE Local Queue manager 0 0 0
TEAM03.TEST.QUEUE Local Queue manager 0 0 0
TEAM04.TEST.QUEUE Local Queue manager 0 0 0

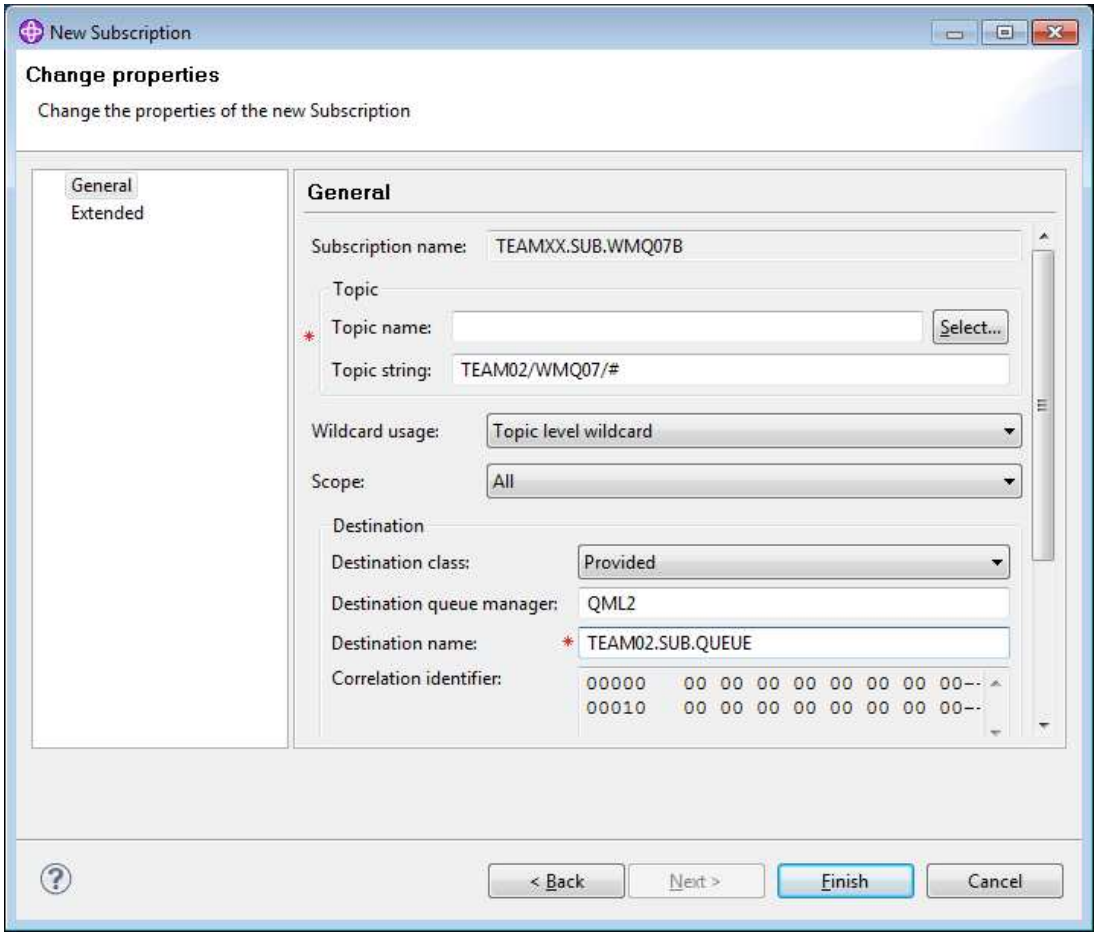
13) Using the same procedure as above, add a new subscription, this time using TEAMXX.SUB.WMQ07A as the name where the 'XX' is your team ID. Click on the 'Next' button.



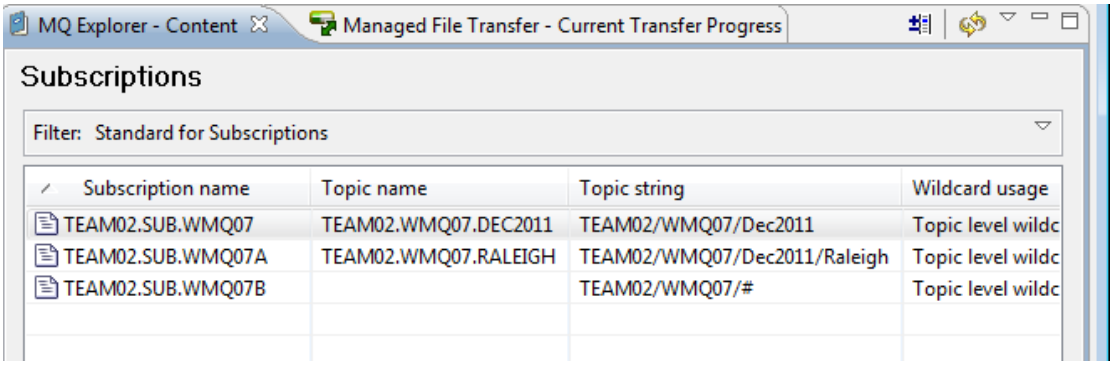
14) Use the Select button from the next panel, and select TEAMXX.WMQ07.RALEIGH, where XX is your team ID, as the topic name. Set the queue manager name and destination name exactly as you did for the prior subscription. Then click on the 'Finish' button:


New Subscription
Change properties
Change the properties of the new Subscription
General
Extended
General
Subscription name:
TEAM02.SUB.WMQ07A
Topic
Topic name:
TEAM02.WMQ07.RALEIGH
Select...
Topic string:
Wildcard usage:
Topic level wildcard
Scope:
All
Destination
Destination class:
Provided
Destination queue manager:
QML2
Destination name:
TEAM02.SUB.QUEUE
Correlation identifier:
00000 00 00 00 00 00 00 00 00--00 00 00
00010 00 00 00 00 00 00 00 00--
Edit...
Properties:
Message properties
< Back
Next >
Finish
Cancel

15) Now create an additional (3rd) subscription called TEAMXX.SUB.WMQ07B, where the 'XX' is your team ID. This time, however, do not Select a Topic name; manually enter the topic string as TEAMXX/WMQ07/#. Use the same destination queue manager and queue that has been used previously. Then click on 'Finish'.



16) You should see a list similar to the one that is illustrated below:



17) Switch back to the queues folder. How many messages are in the subscription queue now? Please note that you may need to refresh the display to see any changes.

18) Why did the number of messages increase?

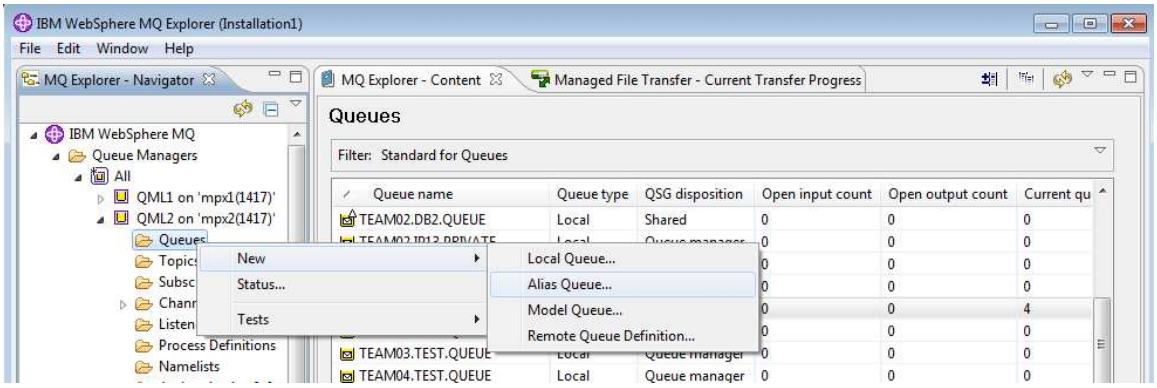
19) Now close your Publish Test Message window, and click again on the Topics folder and right click on TEAMXX.WMQ07.RALEIGH to open a new Publish Test Message. What happens to your queue depth when you submit a test publication to the TEAMXX.WMQ07.RALEIGH topic?

    You may now press ‘Close” on the Publish Test Message window.

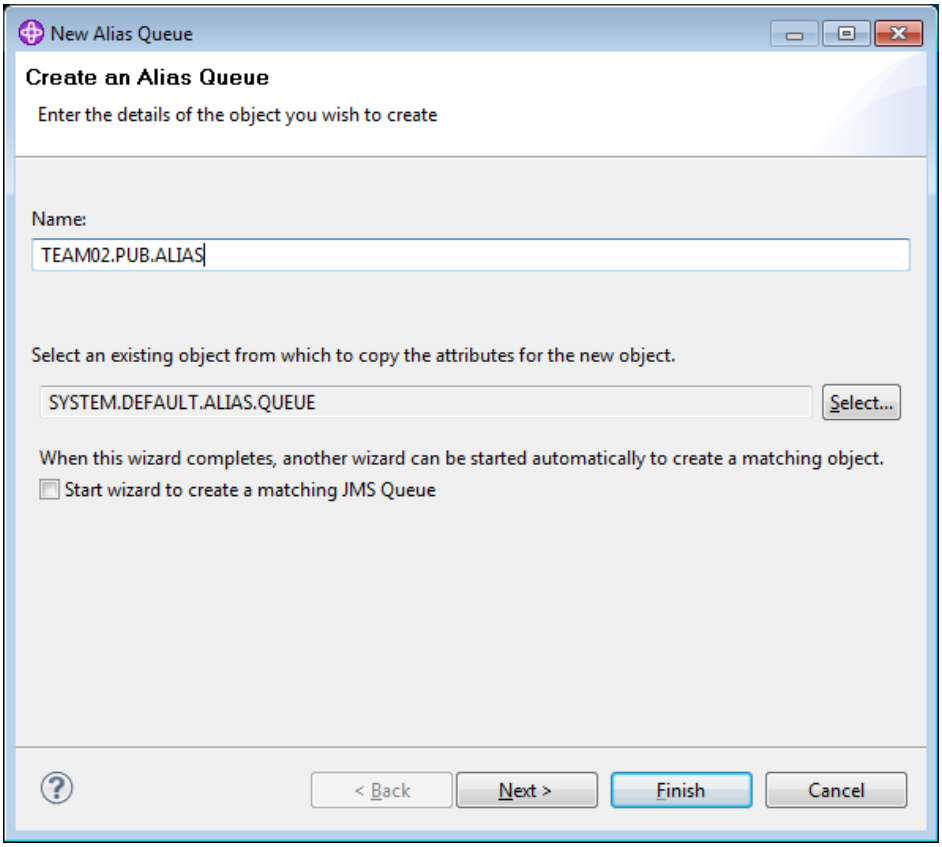
Step VI – Using a Queue Alias

In this session we will create a queue alias to use as a publication point.

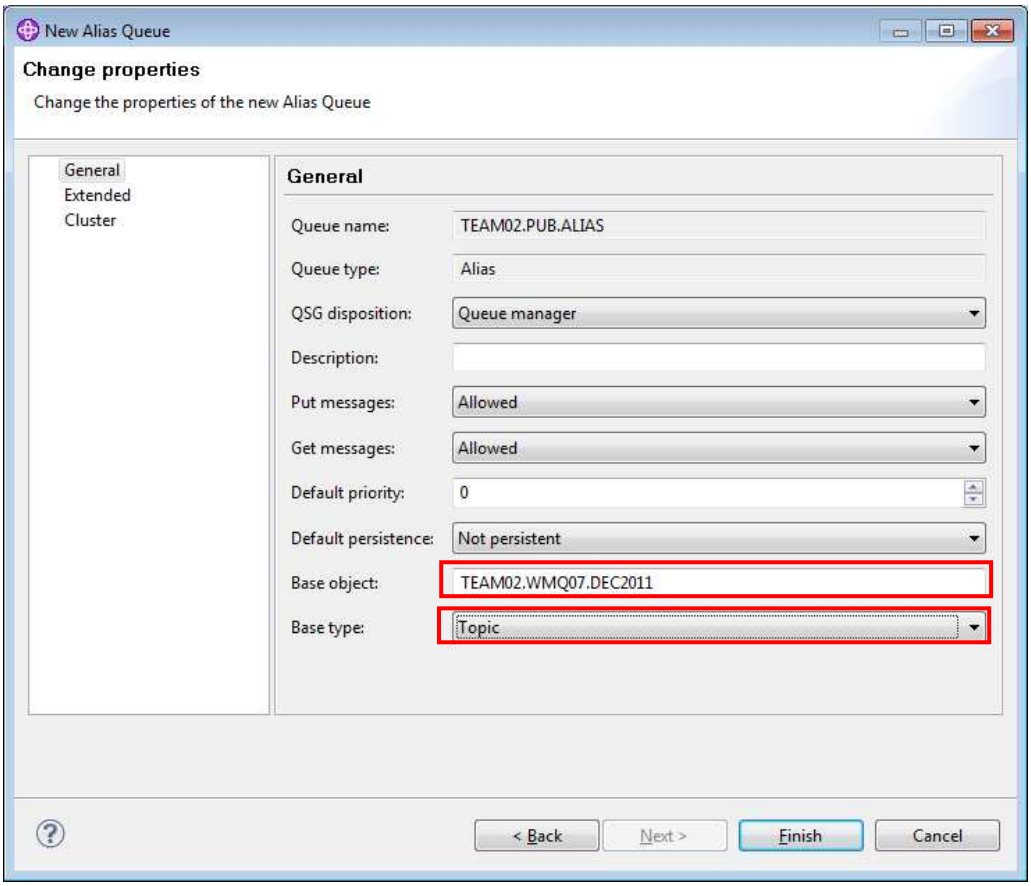
6) To create the alias, on the MQExplorer queue folder for your primary queue manager, right click on the Queue folder, select ‘New’ and ‘Alias Queue…’.



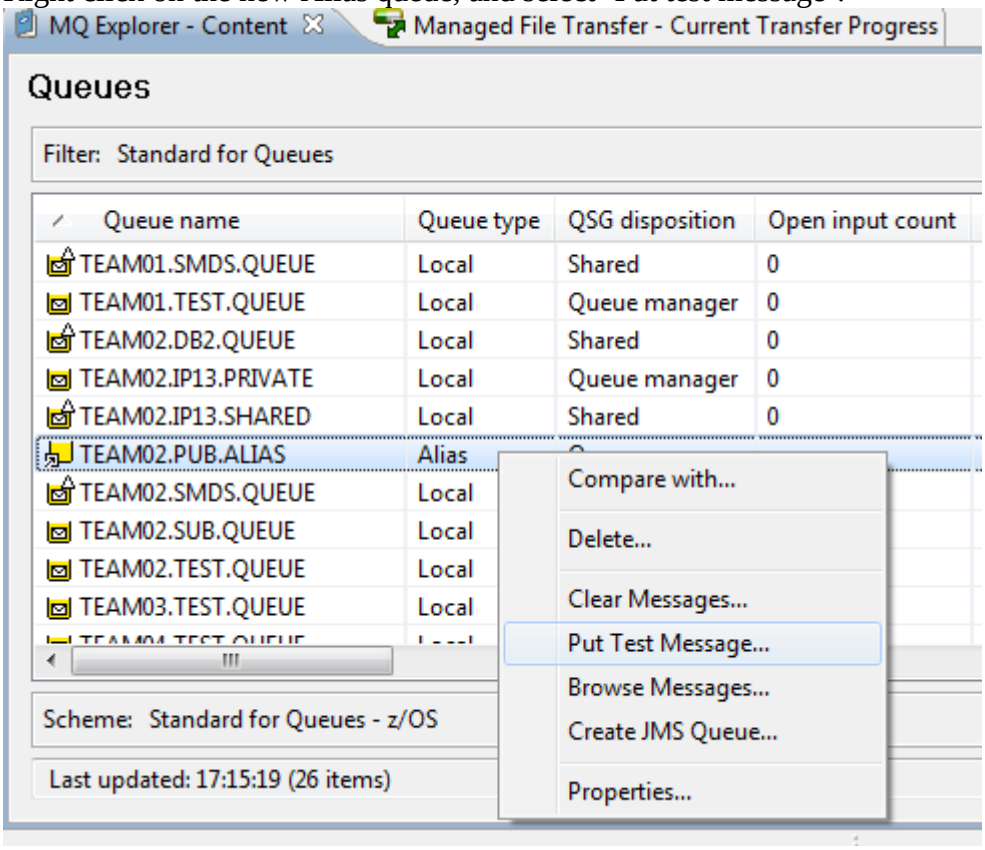
7) Enter the alias name as TEAMXX.PUB.ALIAS, where XX is your team number, and click on ‘Next’.



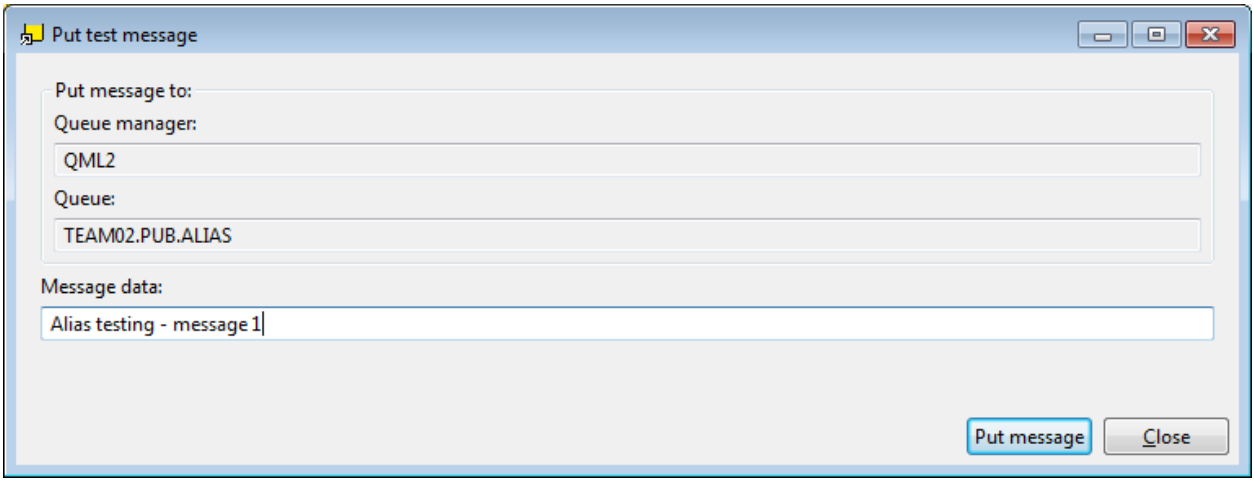
8) On the ‘Change properties’ panel enter ‘TEAMXX.WMQ07.DEC2011 for the Base object, where the XX is your team number, and select ‘Topic’ for the Base type. Click on ‘Finish’.



9) Right click on the new Alias queue, and select ‘Put test message’:



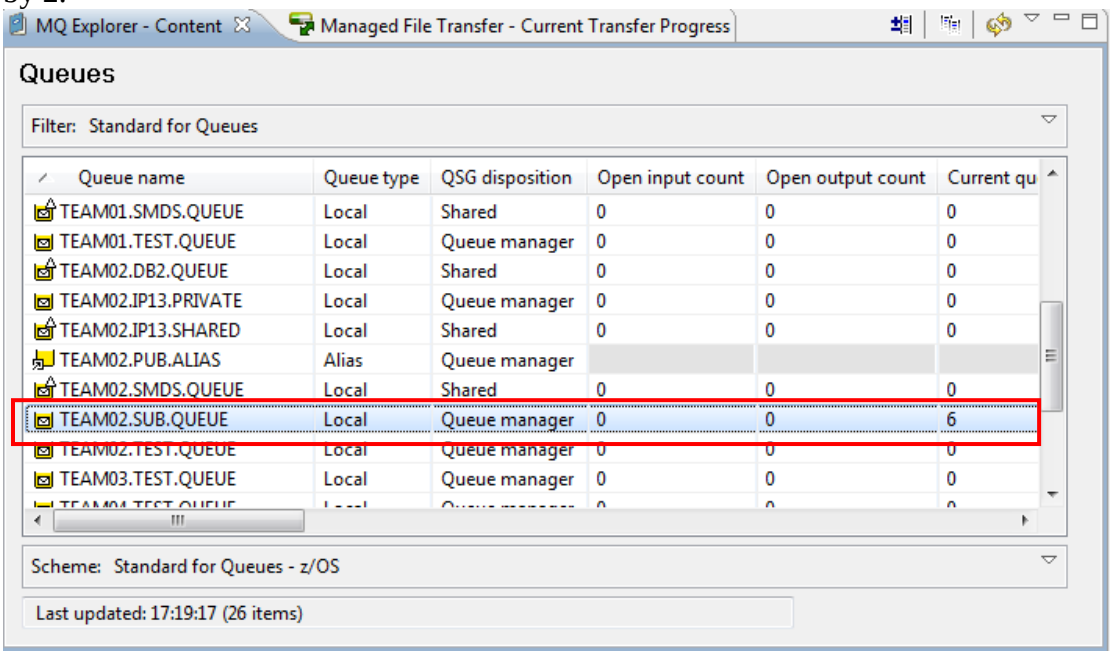
10) Enter a message you can easily identify, and click on ‘Put Message’. Click on ‘Close’ afterwards to dismiss the Put test message dialog.



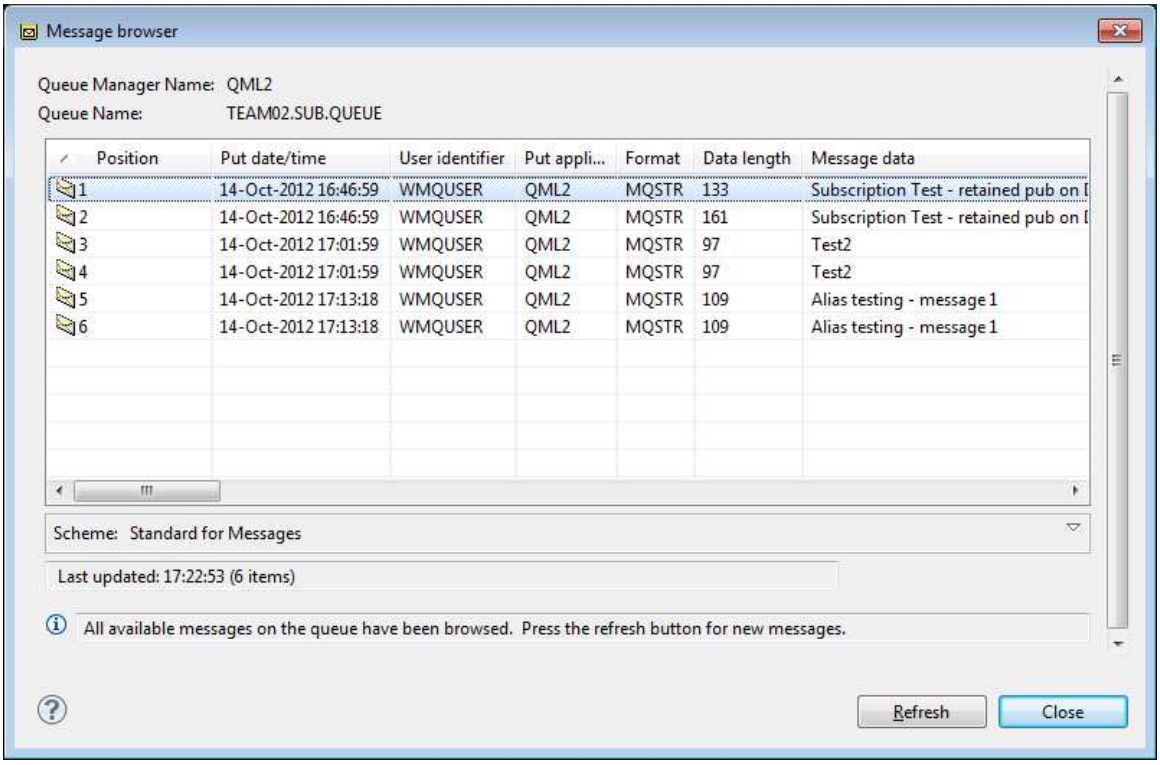
.

11) Refresh the panel by clicking on the refresh icon in the upper right of the panel.

12) Your queue depth on the TEAMXX.SUB.QUEUE should have been increased by 2.

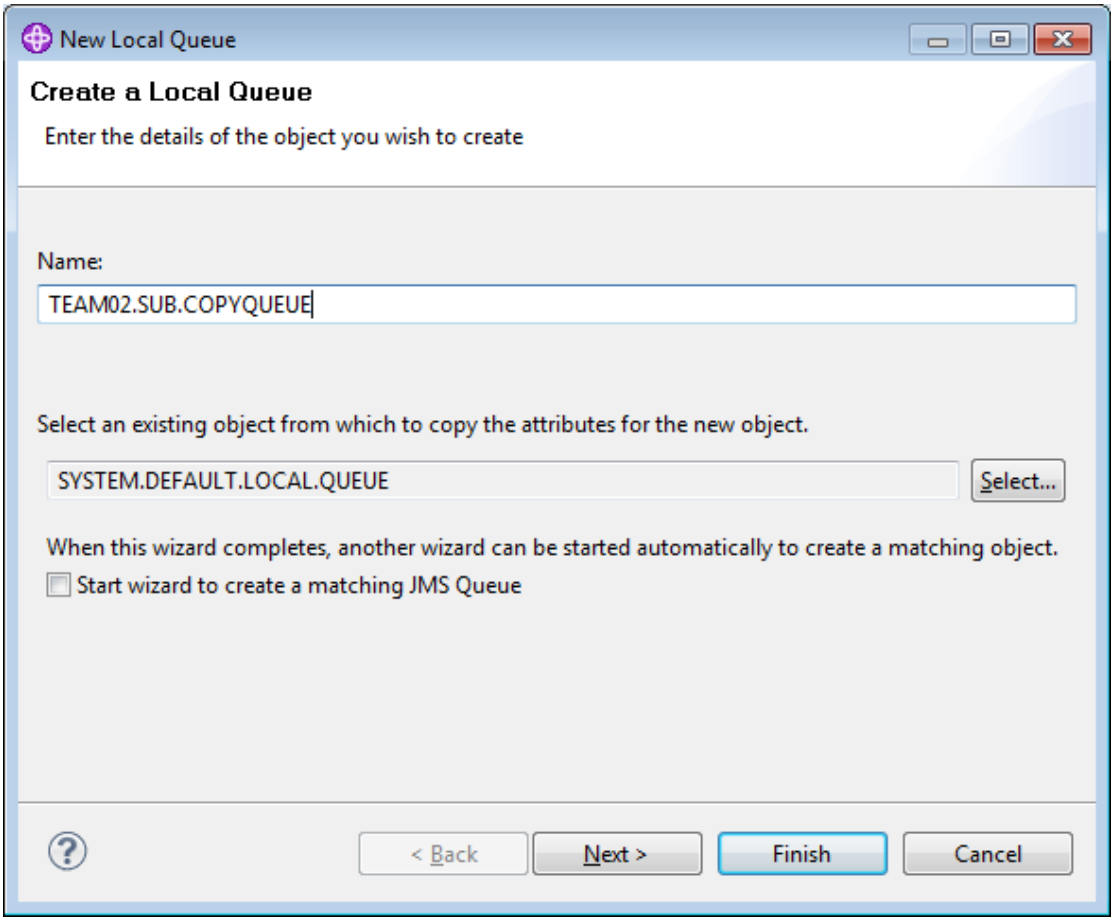


Try Browsing the queue by clicking right on TEAMXX.SUB.QUEUE and select 'Browse messages…'. You should see something similar to the following:



13) Do you see why a single MQPUT of a message caused TWO messages to be created? Click on 'Close' to end the browse.

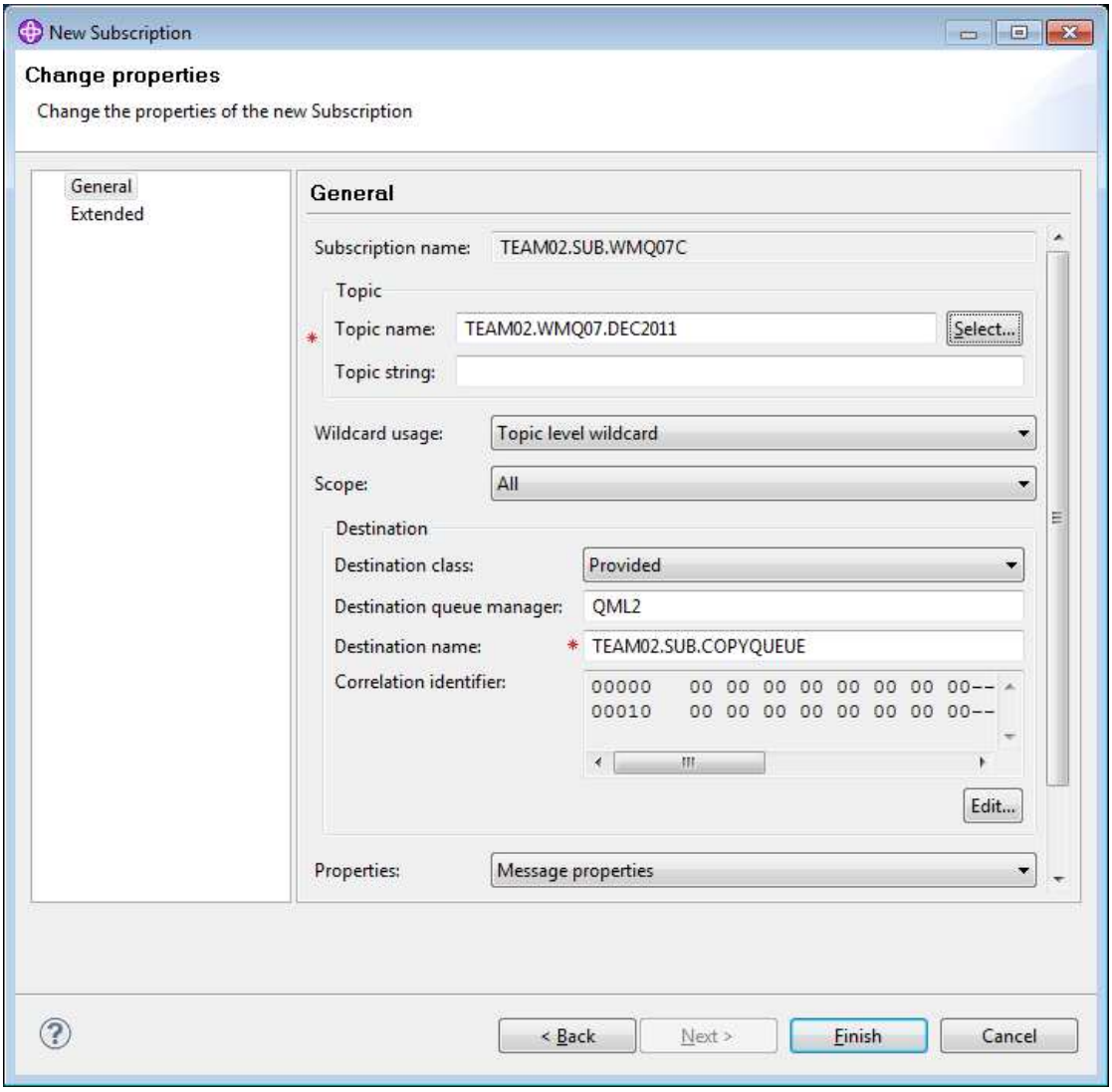
14) Now create a new queue. Right click on the 'Queues' folder and select 'New' then "Local Queue'. When the 'Create a local queue' panel appears enter the queue name TEAMXX.SUB.COPYQUEUE, where 'XX' is your team number, as shown, then click on 'Finish'.



15) Now create a new subscription by right clicking on the 'Subscriptions' folder, and then select 'New…" and 'Subscription…' and fill in the name TEAMXX.SUB.WMQ07C (where "XX" is your team number) for the subscription name and press the 'Next' button.

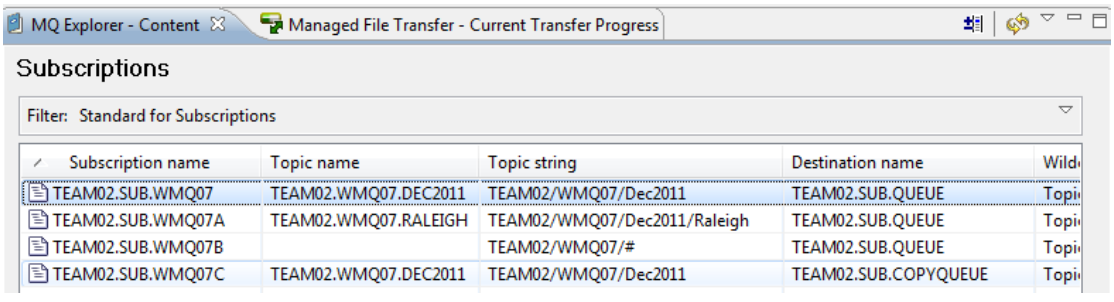
16) On the New Subscription panel, click on 'Select…' and choose the 'TEAMXX.WMQ07.DEC2011' line and press 'OK' to return to the New Subscription panel.

17) Now fill in the Destination queue manager name with your primary queue manager as before, and type the name of the local queue TEAMXX.SUB.COPYQUEUE that you just created above. Your panel should look similar to the one below:



Press ‘Finish’ when you’ve filled it in.

18) Your Subscription list should like similar to the following list now:

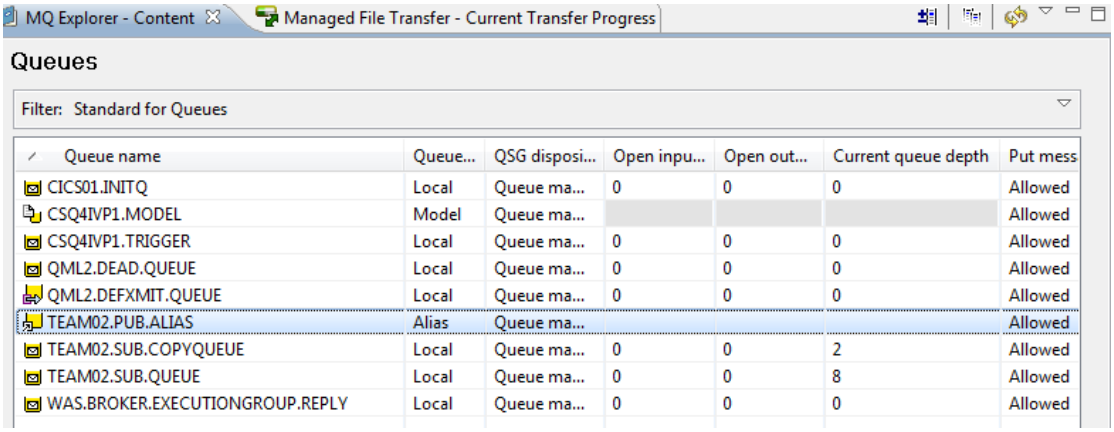


Note that you’ll probably have to scroll to the right to see the “Destination name” column as seen above. In the above example, we’ve edited the Current MQ Explorer scheme for displaying Subscriptions (you probably learned how to do this in an earlier exercise).

19) Now click on the Queues folder and note the number of messages in the TEAMXX.SUB.COPYQUEUE and the TEAMXX.SUB.QUEUE. Be sure to refresh your list by pushing the MQ Explorer "refresh" button!

20) Now click right on the TEAM02.PUB.ALIAS, and select 'Put Test Message' to the TEAM02.PUB.ALIAS as you did earlier. Type any message text, press 'Put message' and then click 'Close'.

21) When you've returned to the Queue folder display, wait a few seconds (or click the "Refresh" button). How many messages do you see now? You'll probably see something like:



Queue name	Queue...	QSG disposi...	Open inpu...	Open out...	Current queue depth	Put mess
CICS01.INITQ	Local	Queue ma...	0	0	0	Allowed
CSQ4IVP1.MODEL	Model	Queue ma...				Allowed
CSQ4IVP1.TRIGGER	Local	Queue ma...	0	0	0	Allowed
QML2.DEAD.QUEUE	Local	Queue ma...	0	0	0	Allowed
QML2.DEFXMIT.QUEUE	Local	Queue ma...	0	0	0	Allowed
TEAM02.PUB.ALIAS	Alias	Queue ma...				Allowed
TEAM02.SUB.COPYQUEUE	Local	Queue ma...	0	0	2	Allowed
TEAM02.SUB.QUEUE	Local	Queue ma...	0	0	8	Allowed
WAS.BROKER.EXECUTIONGROUP.REPLY	Local	Queue ma...	0	0	0	Allowed

You just learned how you can easily create multiple copies of a single PUT message into one or more queues, all this auto-magically by administration, with no changes to your application! Neat, eh?

Step VII – A glimpse of Pub/Sub from z/OS

Now that you've seen the basic function and tested using the MQ Explorer, you might want to see how this works if you don't have a MQ Explorer handy. All of this information is, of course, available from line-mode commands, although you should be aware there is only very limited support for Pub/Sub from the 3270 CSQOREXX menus. Therefore, administering Pub/Sub from z/OS is, frankly, much less "user friendly". You're strongly advised to install a MQ Explorer and connect it to your z/OS queue managers, in particular for Pub/Sub administration. But we'll take a quick look anyway, just so you appreciate the MQ Explorer!

1) If you're not already logged onto your TSO session, do so now. You should have already seen how to logon to this z/OS system in an earlier lab.

   Navigate to the System Display and Search Facility (SDSF) LOG menus by typing "=13.14;LOG".

2) On the "COMMAND INPUT ==> " line, type the following command:

   ```
   /QML? DIS SUB(TEAM??*) DEST TOPICSTR
   ```

   replacing the '?' with your primary queue manager number and '??' with your team number. You should see a screen similar to the following:

```
   Display  Filter  View  Print  Options  Search  Help
 ------------------------------------------------------------------------------------------------------------------------------
 SDSF SYSLOG   1310.101 ZT02 ZT02 11/20/2012 4W         195,814 COLUMNS 02- 133
 COMMAND INPUT ===>                                        SCROLL ===> CSR
NC0000000 ZT02     12325 18:25:49.40 FARKAS   00000290  QML2 DIS SUB (TEAM02*) DEST TOPICSTR
NR0000000 ZT02     12325 18:25:49.42 STC06336 00000090  CSQM293I QML2 CSQMDRTC 4 SUB FOUND MATCHING REQUEST CRITERIA
MR0000000 ZT02     12325 18:25:49.42 STC06336 00000090  CSQM201I QML2 CSQMDRTC  DIS SUB DETAILS 606
DR                                     606 00000090  SUB(TEAM02.SUB.WMQ07)
DR                                     606 00000090  SUBID(C3E2D8D4D8D4D3F24040404040404040CA7FE29FF4B96C2E)
DR                                     606 00000090  TOPICSTR(TEAM02/WMQ07/Dec2011)
DR                                     606 00000090  DEST(TEAM02.SUB.QUEUE)
ER                                     606 00000090   END SUB DETAILS
MR0000000 ZT02     12325 18:25:49.42 STC06336 00000090  CSQM201I QML2 CSQMDRTC  DIS SUB DETAILS 607
DR                                     607 00000090  SUB(TEAM02.SUB.WMQ07A)
DR                                     607 00000090  SUBID(C3E2D8D4D8D4D3F24040404040404040CA7FFF499051C72C)
DR                                     607 00000090  TOPICSTR(TEAM02/WMQ07/Dec2011/Raleigh)
DR                                     607 00000090  DEST(TEAM02.SUB.QUEUE)
ER                                     607 00000090   END SUB DETAILS
MR0000000 ZT02     12325 18:25:49.42 STC06336 00000090  CSQM201I QML2 CSQMDRTC  DIS SUB DETAILS 608
DR                                     608 00000090  SUB(TEAM02.SUB.WMQ07B)
DR                                     608 00000090  SUBID(C3E2D8D4D8D4D3F24040404040404040CA7FE826AD52852D)
DR                                     608 00000090  TOPICSTR(TEAM02/WMQ07/£)
DR                                     608 00000090  DEST(TEAM02.SUB.QUEUE)
ER                                     608 00000090   END SUB DETAILS
MR0000000 ZT02     12325 18:25:49.42 STC06336 00000090  CSQM201I QML2 CSQMDRTC  DIS SUB DETAILS 609
DR                                     609 00000090  SUB(TEAM02.SUB.WMQ07C)
DR                                     609 00000090  SUBID(C3E2D8D4D8D4D3F24040404040404040CA7FEF211A86462D)
DR                                     609 00000090  TOPICSTR(TEAM02/WMQ07/Dec2011)
DR                                     609 00000090  DEST(TEAM02.SUB.COPYQUEUE)
ER                                     609 00000090   END SUB DETAILS
NR0000000 ZT02     12325 18:25:49.42 STC06336 00000090  CSQ9022I QML2 CSQMDRTC ' DIS SUB' NORMAL COMPLETION

  F1=HELP   F2=SPLIT   F3=END   F4=RETURN   F5=IFIND   F6=BOOK   F7=UP   F8=DOWN   F9=SWAP  F10=LEFT  F11=RIGHT  F12=RETRIEVE
xx
```

   You should see all of your team's subscriptions. Note: you may have to scroll down to the bottom of the display using the F8 key several times to see this data (or alternatively type 'M' in the COMMAND INPUT prompt, followed

by F8 to scroll directly to the bottom).

3) Now type on the “COMMAND INPUT ==> “ line the following command:

```
/QML? DIS TOPIC(TEAM??*)
```

again replacing the ‘?’ with your primary queue manager number and ‘??’ with your team number. You should see a screen similar to the following:

```
   Display  Filter  View  Print  Options  Search  Help
 ------------------------------------------------------------------------------------------------------------------------------
 SDSF SYSLOG   1310.101 ZT02 ZT02 11/20/2012 4W         195,814 COLUMNS 02- 133
 COMMAND INPUT ===>                                       SCROLL ===> CSR
NC0000000 ZT02     12325 19:03:32.68 FARKAS   00000290  QML2 DIS TOPIC(TEAM02*)

NR0000000 ZT02     12325 19:03:32.69 STC06336 00000090  CSQM293I QML2 CSQMDRTC 3 TOPIC FOUND MATCHING REQUEST CRITERIA
MR0000000 ZT02     12325 19:03:32.69 STC06336 00000090  CSQM201I QML2 CSQMDRTC  DIS TOPIC DETAILS 668
DR                                     668 00000090  TOPIC(TEAM02)
DR                                     668 00000090  TYPE(LOCAL)
DR                                     668 00000090  QSGDISP(QMGR)
ER                                     668 00000090   END TOPIC DETAILS
MR0000000 ZT02     12325 19:03:32.69 STC06336 00000090  CSQM201I QML2 CSQMDRTC  DIS TOPIC DETAILS 669
DR                                     669 00000090  TOPIC(TEAM02.WMQ07.DEC2011)
DR                                     669 00000090  TYPE(LOCAL)
DR                                     669 00000090  QSGDISP(QMGR)
ER                                     669 00000090   END TOPIC DETAILS
MR0000000 ZT02     12325 19:03:32.69 STC06336 00000090  CSQM201I QML2 CSQMDRTC  DIS TOPIC DETAILS 670
DR                                     670 00000090  TOPIC(TEAM02.WMQ07.RALEIGH)
DR                                     670 00000090  TYPE(LOCAL)
DR                                     670 00000090  QSGDISP(QMGR)
ER                                     670 00000090   END TOPIC DETAILS

F1=HELP   F2=SPLIT   F3=END   F4=RETURN   F5=IFIND   F6=BOOK   F7=UP   F8=DOWN   F9=SWAP  F10=LEFT  F11=RIGHT  F12=RETRIEVE     xx
```

Once again, you may need to scroll down several times with F8 to see the output of this command.

4) How many TOPIC lines were returned? How many Topics did you see in the MQ Explorer?

5) Now type on the “COMMAND INPUT ==> “ line the following command:

```
/QML? DIS TPSTATUS('TEAM??/#')
```

again replacing the ‘?’ with your primary queue manager number and ‘??’ with your team number. Note: you may need to type the “£” sign instead of the “#” sign, depending upon your 3270 emulator and keyboard configuration.

You should see a screen similar to the following:

```
   Display  Filter  View  Print  Options  Search  Help
 ------------------------------------------------------------------------------------------------------------------------------
 SDSF SYSLOG   1310.101 ZT02 ZT02 11/20/2012 4W         195,814 COLUMNS 02- 133
 COMMAND INPUT ===>                                       SCROLL ===> CSR
NC0000000 ZT02     12325 18:53:21.25 FARKAS   00000290  QML2 DIS TPSTATUS('TEAM02/#')

NR0000000 ZT02     12325 18:53:21.26 STC06336 00000090  CSQM293I QML2 CSQMDRTC 6 TPSTATUS FOUND MATCHING REQUEST CRITERIA
MR0000000 ZT02     12325 18:53:21.26 STC06336 00000090  CSQM201I QML2 CSQMDRTC  DIS TPSTATUS DETAILS 652
DR                                     652 00000090  TPSTATUS(TEAM02/WMQ07)
DR                                     652 00000090  TYPE(TOPIC)
DR                                     652 00000090  DEFPRESP(SYNC)
DR                                     652 00000090  DEFPSIST(NO)
DR                                     652 00000090  DEFPRTY(0)
DR                                     652 00000090  DURSUB(YES)
DR                                     652 00000090  PUB(ENABLED)
DR                                     652 00000090  SUB(ENABLED)
DR                                     652 00000090  ADMIN( )
DR                                     652 00000090  MDURMDL(SYSTEM.DURABLE.MODEL.QUEUE)
DR                                     652 00000090  MNDURMDL(SYSTEM.NDURABLE.MODEL.QUEUE)
DR                                     652 00000090  NPMSGDLV(ALL)
DR                                     652 00000090  PMSGDLV(ALL)
DR                                     652 00000090  RETAINED(NO)
DR                                     652 00000090  PUBCOUNT(0)
DR                                     652 00000090  SUBCOUNT(1)
DR                                     652 00000090  PUBSCOPE(ALL)
DR                                     652 00000090  SUBSCOPE(ALL)
DR                                     652 00000090  CLUSTER( )
DR                                     652 00000090  USEDLQ(YES)
ER                                     652 00000090   END TPSTATUS DETAILS
MR0000000 ZT02     12325 18:53:21.26 STC06336 00000090  CSQM201I QML2 CSQMDRTC  DIS TPSTATUS DETAILS 653
DR                                     653 00000090  TPSTATUS(TEAM02/WMQ07/Dec2011)
DR                                     653 00000090  TYPE(TOPIC)
DR                                     653 00000090  DEFPRESP(SYNC)
DR                                     653 00000090  DEFPSIST(NO)
DR                                     653 00000090  DEFPRTY(0)
DR                                     653 00000090  DURSUB(YES)
DR                                     653 00000090  PUB(ENABLED)
DR                                     653 00000090  SUB(ENABLED)
DR                                     653 00000090  ADMIN(TEAM02.WMQ07.DEC2011)
DR                                     653 00000090  MDURMDL(SYSTEM.DURABLE.MODEL.QUEUE)
DR                                     653 00000090  MNDURMDL(SYSTEM.NDURABLE.MODEL.QUEUE)
DR                                     653 00000090  NPMSGDLV(ALL)
DR                                     653 00000090  PMSGDLV(ALL)
DR                                     653 00000090  RETAINED(YES)
DR                                     653 00000090  PUBCOUNT(0)
DR                                     653 00000090  SUBCOUNT(3)
DR                                     653 00000090  PUBSCOPE(ALL)
DR                                     653 00000090  SUBSCOPE(ALL)
F1=HELP   F2=SPLIT   F3=END   F4=RETURN   F5=IFIND   F6=BOOK   F7=UP   F8=DOWN   F9=SWAP  F10=LEFT  F11=RIGHT  F12=RETRIEVE     xx
```

You'll probably need to scroll down several times with F8 to see the full output of this command.

6) How many TPSTATUS topic lines were returned? How many Topics did you see in the MQ Explorer?

Congratulations! You've now completed this lab.

You've had the opportunity to experiment with the MQ v7 Pub/Sub.

- You have created Topics and Subscriptions
- You've used the MQ Explorer Pub/Sub test features
- You've used SDSF to see a bit of Pub/Sub (and realized how nice MQ Explorer is!)