Adding a queue manager to a queue-sharing group
Audience level: knowledge of MQ or z/OS
Skillset: z/OS Systems Programming, MQ Administration
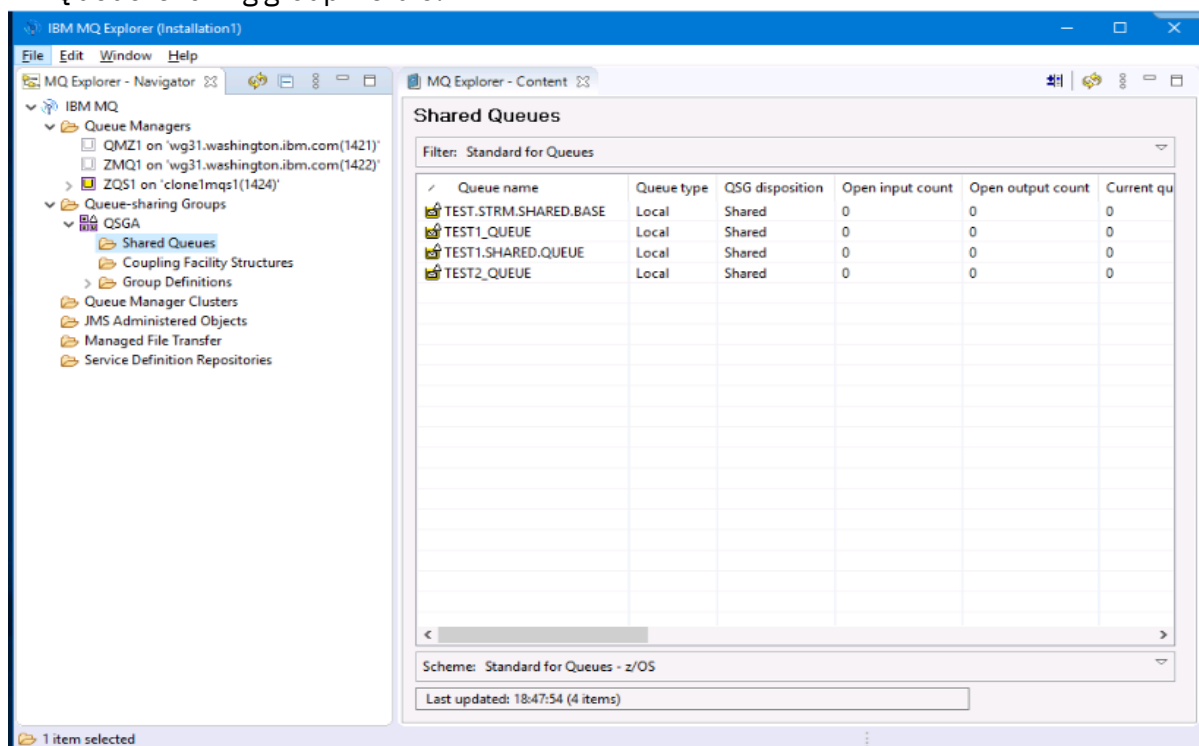
Background:

In this lab, you will go through the process of adding a standalone queue manager on z/OS to a queue sharing group. This exercise assumes that the z/OS environment has a QSG called QSGA set up with two active queue managers, ZQS1 and ZQS2. We will add standalone queue manager ZQS3 to the queue sharing group.

Overview of exercise:

1. Modify and run CSQ45AQM
2. Modify ZQS3MSTR to include USERAUTH
3. Modify ZQS3ZPRM to include USERAUTH

Steps of exercise:

1. Before getting started, verify that the above MQ configuration is in place by viewing MQ Explore. You should see connections to ZQS1, ZQS2, and you should see a QSGA Queue-sharing group visible.

2. First, make sure your queue manager that you are trying to add to the queue -sharing group is not online, you can turn your queue manager off via SDSF. Navigate to SDSF

```
 Menu   Utilities  Compilers   Options   Status   Help
--------------------------------------------------------------------------------
                         ISPF Primary Option Menu
 0   Settings       Terminal and user parameters        User ID . : DQUINCY
 1   View           Display source data or listings     Time. . . : 09:09
 2   Edit           Create or change source data        Terminal. : 3278
 3   Utilities      Perform utility functions           Screen. . : 1
 4   Foreground     Interactive language processing     Language. : ENGLISH
 5   Batch          Submit job for language processing  Appl ID . : ISR
 6   Command        Enter TSO commands                  TSO logon : IKJACCT
 7   Dialog Test    Perform dialog testing              TSO prefix: DQUINCY
 9   IBM Products   IBM program development products     System ID : MQS1
10   SCLM           SW Configuration Library Manager    MVS acct. : ACCNT#
11   Workplace      ISPF Object/Action Workplace        Release . : ISPF 8.1
12   z/OS System    z/OS system programmer applications
13   z/OS User      z/OS user applications

        Enter X to Terminate using log/list defaults


Option ===> SDSF_
 F1=Help       F2=Split      F3=Exit      F7=Backward  F8=Forward   F9=Swap
 F10=Actions   F12=Cancel
```

3. Enter a '/'

```
  Display  Filter  View  Print  Options  Search  Help
 -------------------------------------------------------------------------------
 SDSF MENU 3.1    MQPLEX1    MQS1                          LINE 1-19 (94)
 NP    NAME      Description                 Group      Status
       DA        Active users                Jobs
       I         Input queue                 Jobs
       O         Output queue                Output
       H         Held output queue           Output
       ST        Status of jobs              Jobs
       JG        Job groups                  JES
       SYM       System symbols              System
       LOG       System log                  Log
       SR        System requests             Log
       MAS       Members in the MAS          JES
       JC        Job classes                 JES
       SE        Scheduling environments     WLM
       RES       WLM resources               WLM
       ENC       Enclaves                    WLM
       PS        Processes                   OMVS
       SYS       System information          System
       ENQ       Enqueues                    System
 COMMAND INPUT  ===>  /_                                   SCROLL ===> CSR
  F1=HELP       F2=SPLIT      F3=END       F4=RETURN   F5=RFIND      F6=RCHANGE
  F7=UP         F8=DOWN       F9=SWAP      F10=LEFT    F11=RIGHT     F12=RETRIEVE
```

4. From the command line, you will use the lines:

- ZQS3 STOP CHINIT
- ZQS3 STOP QMGR

```
 --  |   Edit   Options   Help
 SD  |  _____
 NP  |                 System Command Extension
     |
     | ===> ZQS3 STOP CHINIT
     | ===>
     |                                                         STORELIMIT
     | Comment  _____
     |
     | Group    _____     Show *_____  (F4 for list)
     |                                                        More:       +
     | =>   display prog.apf
     | =>   display smf
     | =>   zqs3 start listener TRPTYPE(TCP) Port(2425)
     | =>   zqs3 start listener TRPTYPE(TCP) Port(1425)
     | =>   ZQS3 START CHINIT
     | =>   ZQS3 START QMGR
     | =>   zqs3 stop qmgr
     | =>   ZQS3 STOP CHINIT
     |
 CO  |   F1=Help        F3=Cancel      F4=Prompt      F5=FullScr     F6=Details
 F   |   F7=Up          F8=Down        F10=Save       F11=Clear      F12=Cancel
 F
```

5. Now from TSO, navigate to the ZQS3.SCSQPROC library using the 3.4 menu option.

```
   Menu   RefList   RefMode   Utilities   Help
  _____
                         Data Set List Utility
                                                            More:      +
      blank Display data set list              P Print data set list
         V Display VTOC information           PV Print VTOC information

  Enter one or both of the parameters below:
     Dsname Level . . .  ZQS3.SCSQPROC_____
     Volume serial   . .  _____

  Data set list options
     Initial View                     Enter "/" to select option
     1   1. Volume                      /   Confirm Data Set Delete
         2. Space                       /   Confirm Member Delete
         3. Attrib                      /   Include Additional Qualifiers
         4. Total                       /   Display Catalog Name
                                        _   Display Total Tracks
                                        _   Prefix Dsname Level

  Option ===>  _____
   F1=Help        F2=Split      F3=Exit        F7=Backward  F8=Forward   F9=Swap
  F10=Actions    F12=Cancel
     *DSLIST
```

6. From here, we will want to edit the CSQ45AQM member of the ZQS3.SCSQPROC data

```
    Menu   Options   View   Utilities   Compilers   Help
  _____
  DSLIST - Data Sets Matching ZQS3.SCSQPROC                  0 Members proc

  Command - Enter "/" to select action                 Message          V
  ------------------------------------------------------------------------
  E_         ZQS3.SCSQPROC                                  Edited          M
  *************************** End of Data Set list *********************




  Command ===>  _____  Scroll ===>
   F1=Help       F2=Split     F3=Exit     F5=Rfind    F7=Up        F8=Down     F9=Swap
  F10=Left     F11=Right    F12=Cancel
     *DSLIST
```

set.

```
 Menu  Functions  Confirm  Utilities  Help
─────────────────────────────────────────────────────────────────────────
EDIT              ZQS3.SCSQPROC                      Row 0000098 of 0000115
           Name        Prompt        Size    Created       Changed        ID
_____   CSQ45AQM
_____   CSQ45AQS
_____   CSQ45BPK
_____   CSQ45BPL
_____   CSQ45DTB
_____   CSQ45GEX
_____   CSQ45MQS
_____   CSQ45RQM
_____   CSQ45RQS
_____   CSQ45STB
_____   CSQ45VER
_____   CSQ7IPCS
_____   IMQSGETR
_____   IMQSPUTR
_____   IMQWRLDR
_____   IMQ4B100
Command ===> l csq45aqm_                          Scroll ===> PAGE
 F1=Help     F2=Split    F3=Exit    F5=Rfind    F7=Up     F8=Down    F9=Swap
F10=Left    F11=Right   F12=Cancel
   *DSLIST
```

7. Use the command 'l csq45apm' to quickly locate the correct member

```
 Menu  Functions  Confirm  Utilities  Help
─────────────────────────────────────────────────────────────────────────
EDIT              ZQS3.SCSQPROC                      Row 0000098 of 0000115
           Name        Prompt        Size    Created       Changed        ID
___e____   CSQ45AQM
_____   CSQ45AQS
_____   CSQ45BPK
_____   CSQ45BPL
_____   CSQ45DTB
_____   CSQ45GEX
_____   CSQ45MQS
_____   CSQ45RQM
_____   CSQ45RQS
_____   CSQ45STB
_____   CSQ45VER
_____   CSQ7IPCS
_____   IMQSGETR
_____   IMQSPUTR
_____   IMQWRLDR
_____   IMQ4B100
Command ===> l csq45aqm                            Scroll ===> PAGE
 F1=Help     F2=Split    F3=Exit    F5=Rfind    F7=Up     F8=Down    F9=Swap
F10=Left    F11=Right   F12=Cancel
   *DSLIST
```

8. Specify that you want to edit the member with the 'e' option and hit enter.
9. Scroll down using your F8 key to look at what the JCL does here, adding our queue manager to the QSG configuration.
10. Change the variables to reflect the changes here

```
000074 //*
000075 //ADDQMGR   EXEC PGM=CSQ5PQSG,REGION=4M,
000076 // PARM='ADD QMGR,++QMGRNAME++,++QSGNAME++,++DSGNAME++,++DB2SSID++'
000077 //SYSPRINT DD SYSOUT=*
000078 //STEPLIB   DD DSN=++THLQUAL++.SCSQANL++LANGLETTER++,DISP=SHR
000079 //          DD DSN=++THLQUAL++.SCSQAUTH,DISP=SHR
000080 //          DD DSN=++DB2QUAL++.SDSNLOAD,DISP=SHR
```

```
000074 //*
000075 //ADDQMGR  EXEC PGM=CSQ5PQSG,REGION=4M,
000076 // PARM='ADD QMGR,ZQS2,QSGA,DB3AG,D3A2'
000077 //SYSPRINT DD SYSOUT=*
000078 //STEPLIB  DD DSN=MQ933CD.SCSQANLE,DISP=SHR
000079 //         DD DSN=MQ933CD.SCSQAUTH,DISP=SHR
000080 //         DD DSN=DB2V13.SDSNLOAD,DISP=SHR
000081 //
```

11. Excellent! Now that you've made the necessary changes, submit the job.

```
Command ===> SUBMIT
```

12. Now, we have to modify CSQ4ZPRM, also in SCSQPROC. Here, we are changing line QSGDATA here to associate the queue manager back to the appropriate queue-sharing group.

```
EDIT       ZQS3.SCSQPROC(CSQ4ZPRM) - 01.02           Columns 00001 00072
000131            CMDUSER=CSQOPR,       DEFAULT USERID FOR COMMANDS
000132            EXCLMSG=(),           NO MESSAGES EXCLUDED
000133            EXITLIM=30,           EXIT TIMEOUT (SEC)
000134            EXITTCB=8,            NUMBER OF EXIT SERVER TCBS
000135            LOGLOAD=500000,       LOG RECORD CHECKPOINT NUMBER
000136            OTMACON=(,,DFSYDRU0,2147483647,CSQ),  OTMA PARAMETERS
000137            QINDXBLD=WAIT,        QUEUE INDEX BUILDING
000138            QMCCSID=0,            QMGR CCSID
000139            QSGDATA=(QSGA,DB3AG,D3AG,4,4),
000140            RESAUDIT=YES,         RESLEVEL AUDITING
000141            ROUTCDE=1,            DEFAULT WTO ROUTE CODE
000142            SMFACCT=NO,           GATHER SMF ACCOUNTING
000143            SMFSTAT=NO,           GATHER SMF STATS
000144            SPLCAP=NO,            MESSAGE ENCRYPTION NOT REQUIRED
000145            STATIME=30,           STATISTICS RECORD INTERVAL
000146            ACCTIME=-1,           ACCOUNTING RECORD INTERVAL
000147            TRACSTR=YES,          TRACING AUTO START
000148            TRACTBL=99,           GLOBAL TRACE TABLE SIZE X4K
```

13. Now we will make one more change here, we have an USERAUTH library that has been established for use by the other queue managers in the queue-sharing group. It is called ZQS1.USERAUTH. Our USERAUTH contains the zPRM that tells the queue manager it is part of a QSG.

We already have run our CSQ4ZPRM though, so why do we need the zPRM contained in a USERAUTH data set? 2 reasons.

    1) If we did not use a separate USER library for the zPRM that includes the QSG changes any update to the base libraries will wipe out those changes

2) We do not want a new queue manager to be an immediate part of the QSG before we have made the necessary changes to Db2 - it would attempt to bring up the new queue manager as part of the QSG and fail

Make the change below, if it has not yet been done.

```
EDIT        ZQS3.SCSQPROC(CSQ4ZPRM) - 01.01                 Columns 00001 00072
000040 //*
000041 //*     Replace    ++HLQ.USERAUTH++
000042 //*                        with the data set name of the authorized
000043 //*                        load library in which to store your
000044 //*                        system parameter module.
000045 //*
000046 //*     Replace    QMGR
000047 //*                        with the name of your system parameter
000048 //*                        module.
000049 //*                        Note - do NOT use the default version
000050 //*                        name of CSQZPARM if you are using the
000051 //*                        IBM library SCSQAUTH to store your
000052 //*                        system parameter module.
000053 //*
000054 //************************************************************************
000055 //*
000056 //*              Assemble step for CSQ6LOGP
000057 //*  _
Command ===> c '++HLQ.USERAUTH++' 'ZQS1.USERAUTH' ALL          Scroll ===> PAGE
```

14. Submit this job.
15. Lastly, we will change the ZQS3MSTR in SYS1.PROCLIB to make sure it reflects the correct USERAUTH library as well.

```
EDIT        SYS1.PROCLIB(ZQS3MSTR) - 01.05                  Columns 00001 00072
000079 //*
000080 //************************************************************************
000081 //* STEPLIB                                                          *
000082 //* Libraries that are in the LPA or link list can be omitted.       *
000083 //************************************************************************
000084 //STEPLIB    DD DSN=MQ933CD.SCSQANLE,DISP=SHR
000085 //           DD DSN=ZQS1.USERAUTH,DISP=SHR
000086 //           DD DSN=MQ933CD.SCSQAUTH,DISP=SHR
000087 //           DD DSN=CEE.SCEERUN,DISP=SHR
000088 //           DD DSN=DB2V13.SDSNLOAD,DISP=SHR
000089 //*
```

16. Now, you should be all set to restart your queue manager!

17. Return to the SDSF command window and input the commands into the MVS command line:
    a. Start up our queue manager ZQS3 with the command ZQS3 START QMGR
    b. Start up the channel initiator with the command ZQS3 START CHINIT
    c. Start up the listener with the command ZQS3 start listener TRPTYPE(TCP) Port(1425)