



IBM Software Group

# WebSphere® Message Broker V6

## *z/OS® Customization Example*



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This presentation reviews the steps involved in customizing a broker.

## Agenda

- Customization example
- Runtime output
- Summary and references



This presentation shows screen captures of the various jobs used to create a broker on z/OS and the relevant output.

## Section

# *Customization example*



This section explains the steps to take in customizing a broker. A similar process would be done for a configuration manager and a user name server.

## Copy SBIPPROC

```

BROWSE                               MQSERIES.WBI.V6R0M0.SBIPPROC
Command ==> _____

```

Name	Prompt	Size	Created
_____	BIPALDB		
_____	BIPALMQ		
_____	BIPBRKP		
_____	BIPBRWS		
_____	BIPBUCM		
_____	BIPCHBK		
_____	BIPCHCM		
_____	BIPCHMS		
_____	BIPCHPR		
_____	BIPCHUE		
_____	BIPCHUN		
_____	BIPCLMP		

Key jobs in broker creation:  
 BIPEDIT - update your other JCL  
 BIPGEN - build environment file  
 BIPCRDB - create the databases  
 BIPCRBK - create the broker  
 BIPBRKP - procedure to run broker

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Copy all broker JCL from <hlq>.SBIPPROC (the installed library) to your broker's component directory.

Only a few of these members are actually used in a broker creation. The specific jobs used in a broker creation are listed here.

BIPEDIT is the REXX exec that will update your other JCL with system specific configuration parameters.

BIPGEN is the job which builds the environment file in your component file system.

BIPCRDB creates the databases and tables used by the broker.

BIPCRBK creates the broker and its WebSphere MQ queues.

BIPBRKP is the started task procedure needed to run the broker. This must subsequently be copied to your system proclib.

However, it might be well to copy all of them so that the BIPEDIT REXX exec will run against all of them and update your system specific configuration parameters. Some of the other jobs provided are used to create a configuration manager and a user name server. Some are to delete and alter components of the broker and others simply provide JCL to run various mqsi commands.

## Copy SBIPSAMP

```

BROWSE                               MQSERIES.WBI.V6R0M0.SBIPSAMP
Command ==>

```

Name	Prompt	Size	Created
BIPBPROF			
BIPBUDB			
BIPCPROF			
BIPDSNAO			
BIPQSDB			
BIPRPDB			
BIPRSDB			
BIPRUNST			
BIPUPROF			
**End**			

Creates environment for broker

Provides DB2® information to broker

Copy all broker JCL from <hlq>.SBIPSAMP (the installed library) to your broker's component directory. The two that you need are:

BIPBPROF which is used by BIPGEN to create an environment file for your broker  
and

BIPDSNAO which provides DB2 specific information to your broker (such as subsystem name)

## Rename BIPEDIT

```
Menu  Functions  Confirm  Utilities  Help

      Member Rename

Enter a new member name:          eated          Char

Old Name . . . : BIPEDIT

New Name . . . : CSQ6EDBK _

Press ENTER to rename member.
Press CANCEL to cancel rename.

F1=Help          F2=Split
F3=Exit          F7=Backward

_____
_____
_____
BIPRPPR
BIPRPUE
BIPRSCM
```

z/OS Customization Example

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BIPEDIT is an REXX Exec that allows easier customization of the JCL in your component dataset. BIPEDIT should be renamed to avoid any confusion between different BIPEDIT files in different component datasets.

We recommend that you use the following method to rename BIPEDIT to CSQ6EDBK:

CSQ6 is the queue manager name

ED is for Edit

BK is for Broker.

(Change BK to CM for a Configuration Manager and to UN for a User Name Server)

## Customize CSQ6EDBK (BIPEDIT)

```
000053 "change ++INSTALL++ /usr/lpp/mqsi/V6R0M0 all"
000054 "change ++COMPONENTDIRECTORY++ /var/mqsi/CSQ6BRK all"
000055 "change ++COMPONENTNAME++ CSQ6BRK all"
000056 "change ++HOME++ /u/CSQ6BRK all"
000057 "change ++OPTIONS++ options_value all"
000058 "change ++LOCALE++ C all"
000059 "change ++TIMEZONE++ GMT6CST all"
000060 "change ++JAVA++ /usr/lpp/java/J1.4 all"
000061 "change ++WMQHLQ++ MQSERIES.V6R0M0 all"
000062 "change ++QUEUEMANAGER++ CSQ6 all"
000063 "change ++COMPONENTDATASET++ WMBV6.CSQ6BRK.CNTL all"
000064 "change ++STARTEDTASKNAME++ CSQ6BRK all"
000065 "change ++COMPONENTPROFILE++ BIPBPROF all"
000066 "change ++XMLTOOLKIT++ /usr/lpp/ixm/IBM/xml4c-5_5 all"
000067 "change ++DB2CONVERSION++ SINGLE all"
000068 "change ++DB2SUBSYSTEM++ DSN8 all"
000069 "change ++DB2LOCATION++ MVS227D1 all"
000070 "change ++DB2INSTANCE++ CSQ6BRK all"
```

Go through CSQ6EDBK and change all ++<JCL variables>+ to the value you have determined for your installation. The WebSphere Message Broker V6 Configuration and Customization document has instructions on how to determine your environment information needed.

Do not worry about ++OPTIONS++ for now. This can be changed later.

## Activate the dataset that contains CSQ6EDBK

```
ISPF Command Shell
Enter TSO or Workstation commands below:

===> ALTLIB ACTIVATE APPLICATION(EXEC) DA('WMBV6.CSQ6BRK.CNTL')
```

Activate the dataset that contains CSQ6EDBK. This allows you to run CSQ6EDBK REXX Exec to customize all the other component JCL. You may also enter the 'TSO ALTLIB ACTIVATE APPLICATION(EXEC)' from the command line in your ISPF session; you will be prompted for the dataset name.

This activation only applies to the current ISPF session. You will need to reactivate the dataset if you exit and restart the ISPF session.

Note: you can also manually edit each member as you use it.



## Customize the component JCL

```

EDIT          WMBV6.CSQ6BRK.CNTL(BIPCRDB) - 01.00      C
Command ==> CSQ6EDBK_
***** ***** Top of Data *****
000001 //BIPCRDB JOB
000002 //*****
000003 //*
000004 //* @START_COPYRIGHT@
000005 //*
000006 //* Licensed Materials - Property of IBM;
000007 //* 5655-G97 (c) Copyright IBM Corp. 2004;

```

- Running CSQ6EDBK will automatically changed all ++<JCL Variables> in the file.

Edit each JCL file in your component dataset (excluding CSQ6EDBK!) by typing CSQ6EDBK on the command line. This will apply the environment specific changes necessary to that file.

You will also need to supply a job card that meets your system standards; the exceptions are BIPDSNAO and BIPBPROF (which are input to other jobs) and BIPBRKP which you will rename and use as you started task.

Note that some JCL may need further editing of either ++OPTIONS++ or mandatory parameters unique to that command.

Your modified BIPEDIT command (CSQ6EDBK in this case) can only be run ONCE on each JCL file since it replaces the parameters; a second run would find nothing to replace.

## Broker profile (BIPBPROF)

```
EDIT      WMBV6.CSQ6BRK.CNTL.OLD(BIPBPROF) - 01.00      Columns 00001
Command ==> _____ Scroll ==>
000133 export NLSPATH=$MQSI_FILEPATH/messages/%L/%N
000134 export NLSPATH=$NLSPATH:$MQSI_FILEPATH/nnsy/MIF/messages/%N
000135 export MQSI_CONSOLE_NLSPATH=$MQSI_FILEPATH/messages/En_US
000136 #
000137 export MQSI_REGISTRY=/argonist/S000_L50908.3_P/brokers/MQ05
000138 export MQSI_COMPONENT_NAME=MQ05BRK
000139 export MQSI_FILEPATH=/ARGONIST/S000_L50908.3_P/usr/lpp/mqsi
000140 export MQSI_LILPATH=$MQSI_FILEPATH/lil
000141 #
000142
```

BIPBPROF is the broker profile. You can add any other environmental changes needed for your environment here. This profile creates the environment for both the commands and the component runtime.

As illustrated here, you can concatenate environment variables in this profile, unlike an ENVFILE.

## Broker dsnaoini (BIPDSNAO)

```
EDIT      WMBV6.CSQ6BRK.CNTL(BIPDSNAO) - 01.00      Columns 8
Command ==> _____ Scroll
000050 YCOMMON"
000051 APPLTRACE=0
000052 APPLTRACEfilename=/var/mqsi/CSQ6BRK/output/traceodbc
000053 CONNECTTYPE=2
000054 DIAGTRACE=0
000055 DIAGTRACE_NO_WRAP=0
000056 MAXCONN=0
```

BIPDSNAO is the broker dsnaoini. You can add any other ODBC changes here (such as activating ODBC trace).

## Submit BIPGEN to create ENVFILE

```
EDIT      WMBV6.CSQ6BRK.CNTL(BIPGEN) - 01.01          Columns
Command ==> sub_                                     Scrol
***** ***** Top of Data *****
000001 //BIPGEN JOB ,WANDAR,MSGLEVEL=(1,1),NOTIFY=&SYSUID,
000002 //          MSGCLASS=H,USER=WANDAR,TIME=1440,REGION=0M
000003 //*****
000004 //*****
000005 //*
```

BIPGEN takes the component profile (BIPBPROF for a broker) and converts it to an ENVFILE in your component HFS file system. It is this ENVFILE that actually creates the environment for commands run by JCL and the component runtime.

NOTE: Changes made to the component profile will NOT take effect until BIPGEN is run!

## Check BIPGEN results

```
SDSF JOB DATA SET DISPLAY - JOB BIPGE
COMMAND INPUT ==>
PREFIX=*  DEST=(ALL)  OWNER=WANDAR  S
NP  DDNAME      StepName  ProcStep  DSID
      JESMSG LG  JES2      2
      JESJCL   JES2      3
      JESYSMSG JES2      4
      BIPPROF  COPYENV   102
      SYSTSPRT  CREATENV  103
      ENVFILE   COPYENV   104
```

- It is important to check that all steps in BIPGEN ran successfully.
- If there are any errors then check the rest of the JOBLOG for specifics..

Ensure that all steps in the BIPGEN job ran successfully. If there are errors, check the JOBLOG and SYSTEM LOG for specifics.

## Check BIPGEN results (cont.)

```
SDSF OUTPUT DISPLAY BIPGEN   JOB03487  DSID   104 LINE 3          COLUMNS 02-
COMMAND INPUT ===>          SCROLL ===>
PATH=/usr/lpp/mqsi/V6R0M0/bin:/usr/lpp/mqsi/V6R0M0/nnsy/bin:/bin:/usr/lpp/
NNSY_CATALOGUES=/usr/lpp/mqsi/V6R0M0/nnsy/NNSYCatalogues/en_US
MQSI_ARM_ELEMENTTYPE=
SHELL=/bin/sh
ICU_DATA=/usr/lpp/mqsi/V6R0M0/nnsy/lib
MQSI_DB2_ALWAYS_PREPARE=NO
MQSI_COMMAND_ZOS_MQ_ECHO=1
NNSY_ROOT=/usr/lpp/mqsi/V6R0M0/nnsy
PS1=$LOGNAME:RALNS1:$PWD#>
_=/bin/printenv
MQSI_FILEPATH=/usr/lpp/mqsi/V6R0M0
CLASSPATH=/usr/lpp/mqsi/V6R0M0/classes:/usr/lpp/mqsi/V6R0M0/classes/config.
NN_CONFIG_FILE_PATH=
JAVAHOME=/usr/lpp/java/J1.4
```

Check the ENVFILE output stream to ensure that it contains the correct values.

A quick scan through the ENVFILE should be enough to ensure it contains the right information.

## Prime DB2

```
EDIT      WMBV6.CSQ6BRK.CNTL(BIPCRDB) - 01.01      Columns 000
Command ==> sub                                     Scroll =
***** ***** Top of Data *****
000001 //BIPCRDB JOB ,WANDAR,MSGLEVEL=(1,1),NOTIFY=&SYSUID,
000002 //          MSGCLASS=H,USER=WANDAR,TIME=1440,REGION=0M
000003 //*****
000004 //*****
000005 //*
000006 //  *START COND=ICLTA
```

BIPCRDB creates the DB2 storage group and database. Note that the proper database authorities are required to run this job.

Having run CSQ6EDBK, BIPCRDB should be ready to submit.

## Check BIPCRDB results

```
$HASP373 BIPCRDB  STARTED - INIT 1    - CLASS A - SYS CAP1
IEF403I BIPCRDB - STARTED - TIME=16.14.48
      BIPCRDB   STORGRP   IKJEFT01   0000
      BIPCRDB   DATABASE  IKJEFT01   0000
      BIPCRDB   TABLESPC IKJEFT01   0000
IEF404I BIPCRDB - ENDED - TIME=16.14.54
$HASP395 BIPCRDB  ENDED
```

It is important to check that all steps in BIPCRDB ran successfully.

If there are any errors then check the output of the JOBLOG and the SYSTEM LOG for specifics.



## Check BIPCRDB results (cont.)

```

DSLIST - Data Sets Matching WMBV6                               Row 6 of 143
Command ==> _____ Scroll ==> CSR
Command - Enter "/" to select action                          Message          Volume
-----
WMBV6.DSNDBC.CSQ6BRK.BACLELOB.I0001.A001                    *VSAM*
WMBV6.DSNDBC.CSQ6BRK.BACLENTR.I0001.A001                    *VSAM*
WMBV6.DSNDBC.CSQ6BRK.BACL1ISF.I0001.A001                    *VSAM*
WMBV6.DSNDBC.CSQ6BRK.BACL1SDF.I0001.A001                    *VSAM*
WMBV6.DSNDBC.CSQ6BRK.BAGGREGA.I0001.A001                    *VSAM*
WMBV6.DSNDBC.CSQ6BRK.BAGGRL0B.I0001.A001                    *VSAM*
WMBV6.DSNDBC.CSQ6BRK.BAGG1DXC.I0001.A001                    *VSAM*
WMBV6.DSNDBC.CSQ6BRK.BAGG1USD.I0001.A001                    *VSAM*
WMBV6.DSNDBC.CSQ6BRK.BAGG111D.I0001.A001                    *VSAM*
WMBV6.DSNDBC.CSQ6BRK.BCLIELOB.I0001.A001                    *VSAM*
WMBV6.DSNDBC.CSQ6BRK.BCLIENTU.I0001.A001                    *VSAM*

```

The database components will appear on the volume you selected.

## Edit BIPCRBK (mqsicreatebroker)

```

EDIT          WMBV6.CSQ6BRK.CNTL(BIPCRBK) - 01.01          Columns 000
Command ==> _____ Scroll =
000109 //STDOUT  DD SYSOUT=*
000110 //STDERR  DD SYSOUT=*
000111 //SYSTSPRT DD SYSOUT=*
000112 //SYSTSIN  DD *
000113 BPXBATSL PGM -
000114  /usr/lpp/mqsi/V6R0M0/bin/-
000115 mqsicreatebroker -
000116  CSQ6BRK -
000117  -q CSQ6 -
000118  -u CSQ6BRK -
000119  -n MVS227D1
000120 /*
000121 //

```

Edit BIPCRBK which runs the mqsicreatebroker command. Verify that the WebSphere MQ queue manager name (-q) and the data source userid (-u parameter; CSQ6BRK in this case) and data source name (-n parameter; MVS227D1 in the example here) are correct. If no other options are entered, as in the example shown, all three passes of mqsicreatebroker command will be executed.

Additional options (-1, -2, and -3) give you the capability to create the broker in separate passes: registry, WebSphere MQ, and database. This allows different users to run specific portions of the mqsicreatebroker command.

Here are the available options and the authorities required to run them.

Option -1 creates the files and directories which are placed in the default storage group. NOTE: This job must run first, and to do this you need authority to access the broker root directory.

Option -2. creates the WebSphere MQ queues. If you do not have the requisite authority, ask your WebSphere MQ system administrator to run the job.

Option -3. creates the DB2 tables. If you do not have the requisite authority, ask your DB2 system administrator to run the job.

## Submit BIPCRBK

```
EDIT      WMBV6.CSQ6BRK.CNTL(BIPCRBK) - 01.01      Columns 000
Command ==> SUB                                     Scroll =
***** ***** Top of Data *****
000001 //BIPCRBK JOB ,WANDAR,MSGLEVEL=(1,1),NOTIFY=&SYSUID,
000002 //      MSGCLASS=H,USER=WANDAR,TIME=1440,REGION=0M
000003 //*****
000004 //*****
000005 //*
000006 //* @START_COPYRIGHT@
000007 //
```

Submit BIPCRBK to create the broker component.

BIPCRBK runs mqsicreatebroker which will create the following :

- Component directory (Including registry)

- MQ queues

- DB2 Tables and Indexes

## Check BIPCRBK results

```
SDSF JOB DATA SET DISPLAY - JOB BIPCRBK (JOB03502) LINE 1-6 (
COMMAND INPUT ==> SCR
PREFIX=* DEST=(ALL) OWNER=WANDAR SYSNAME=
NP DDNAME StepName ProcStep DSID Owner C Dest
   JESMSGLG JES2          2 WANDAR H LOCAL
   JESJCL   JES2          3 WANDAR H LOCAL
   JESYSMSG JES2          4 WANDAR H LOCAL
   ENVFILE COPYENV       102 WANDAR H LOCAL
   STDOUT  BIPCRBK       103 WANDAR H LOCAL
   SYSTSPRT BIPCRBK       105 WANDAR H LOCAL
```

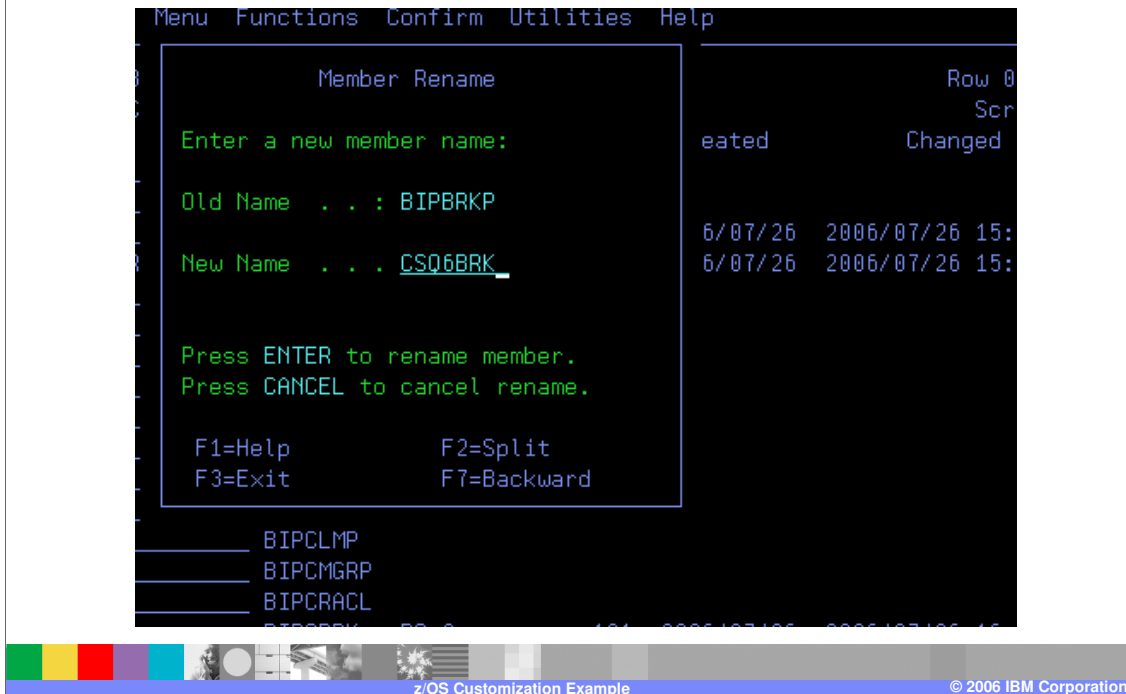
It is important to check that all steps in BIPCRBK ran successfully.

Check the STDOUT stream in the BIPCRBK joblog for specifics. All output from running the mqsicreatebroker command is written here.

Also check SYSTEM LOG for any possible messages. If there are errors, correct and resubmit BIPCRBK.

You should see "BIP8071I: Successful command completion." at the bottom of the STDOUT stream in the BIPCRBK joblog.

## Rename BIPBRKP (started task)



BIPBRKP contains the broker started task JCL. It should have already been customized when you ran your BIPEDIT (CSQ6EDBK in this sample) . Rename the file to the same as ++STARTEDTASKJCL++ that you defined in CSQ6EDBK (BIPEDIT).

Copy this started task procedure to the procedures library defined for your installation.

## Start the broker

```
SDSF SYSLOG 3455.101 CAP1 CAP1 07/26/2006 0W 3544 COLU  
COMMAND INPUT ==> /S CSQ6BRK _ SC  
0090 WANDAR IN 0  
0290 -DSN8 DIS DDF  
0090 DSN1 080T -DSN8 DSN1 TDF DISPLAY DDF REPORT FOLLOWS 761
```

You are now ready to start your broker! However, be sure that you have started DB2 and WMQ before starting the broker.

This command may be entered from the system console or from SDSF, as shown.

## Section

# *Runtime output*



This section reviews information provided when running a broker.

## Check verification output

```
SDSF JOB DATA SET DISPLAY - JOB CSQ6BRK (STC03656)
COMMAND INPUT ==>
PREFIX=* DEST=(ALL) OWNER=* SYSNAME=
NP  DDNAME  StepName ProcStep DSID Owner   C Dest
   JESMSGLG JES2           2 CSQ6BRK A
   JESJCL   JES2           3 CSQ6BRK A
   JESYSMSG JES2           4 CSQ6BRK A
   ENVFILE  CSQ6BRK        101 CSQ6BRK A
   DSNADINI CSQ6BRK        102 CSQ6BRK A
   _        STDOUT  CSQ6BRK        104 CSQ6BRK A
```

When a broker is started, one of the initial steps to run is VFYDB2MQ. This makes certain verification checks regarding the broker's environment, DB2 database and MQ queues. The output from the verification step can be seen in the STDOUT stream.



## Verification output samples

```

***** TOP OF DATA *****
WebSphere Event/Message Broker for z/OS Customization Verification Suite started
Check DB2/ODBC broker Connection
Connecting to datasource MWS227D1
Connect to datasource MWS227D1 successful
Check access to necessary SYSIBM tables:
SELECT * FROM SYSIBM.SYSTABLES successful
SELECT * FROM SYSIBM.SYSSYNONYMS successful
SELECT * FROM SYSIBM.SYSDATABASE successful
Check all necessary broker tables:
SELECT * FROM CSQ6BRK.BACLENTRIES successful

```

```

Verification for APF authorization of /usr/lpp/mqs1/V6R0M0/bin/bipimain succe
Check broker permissions to directories:
Check for broker started task user ID write access to the component directory
Broker's home directory is /u/CSQ6BRK
Check for broker started task user ID write access to its home directory /u/CS
Verification of broker permissions to directories successful

Check for required Java level:
java full version "J2RE 1.4.2 IBM z/OS Persistent Reusable VM build cm142-200
Verification of required Java level successful

Verify MQSeries Connection
Connection to the Queue Manager CSQ6 successful
Check MQSeries Definitions for a broker
**** Put Messages into Queues ****

```

The STDOUT from the Broker job shows the verification steps some examples are seen here. The verification step checks database connections, database table authorizations, APF authorization of bipimain, Java™ level, directory permissions, and MQ connections and queues. If verification fails then the broker will not be started.

## System log messages at broker startup

```
0281 $HASP373 CSQ6BRK  STARTED
0090 IEF403I CSQ6BRK  -  STARTED  -  TIME=12.38.12
0090      CSQ6BRK      COPYENV      IKJEFT01      0000
0290 IEF170I 1 CSQ6BRK      CSQ6BRK      COPYENV      IKJEFT01      0000
0090      CSQ6BRK      COPYDSN      IKJEFT01      0000
0290 IEF170I 1 CSQ6BRK      CSQ6BRK      COPYDSN      IKJEFT01      0000
0090      CSQ6BRK      CHECKDFE      IKJEFT01      0000
0290 IEF170I 1 CSQ6BRK      CSQ6BRK      CHECKDFE      IKJEFT01      0000
0090      CSQ6BRK      VFYDB2MQ      BPXBATSL      0000
0290 IEF170I 1 CSQ6BRK      CSQ6BRK      VFYDB2MQ      BPXBATSL      0000
0090      CSQ6BRK      BROKER        BPXBATCH      0000
0290 IEF170I 1 CSQ6BRK      CSQ6BRK      BROKER        BPXBATCH      0000
0090 +BIP9141I CSQ6BRK 0 THE COMPONENT WAS STARTED. : ImbControlService(744)
0090 +BIP9108I CSQ6BRK 0 BROKER SERVICE VALUE IS IMBSERV.V6R0M00.FP1..... :
    ImbControlService(749)
0090 +BIP2001I CSQ6BRK 0 THE WEBSHERE MESSAGE BROKERS SERVICE HAS STARTED AT
    VERSION 6001; PROCESS ID 81. : ImbControlService(773)
```

When the broker is started, the system log will show messages as shown here.

## OMVS display of running broker

```
0290 D OMVS,U=CSQ6BRK
0090 BPXD0040I 12.38.55 DISPLAY OMVS 845
0090 OMVS 000E ACTIVE OMVS=(SL)
0090 USER JOBNAME ASID PID PPID STATE START CT_SECS
0090 CSQ6BRK CSQ6BRK 0037 50331727 1 1W---- 12.38.18 1.591
0090 LATCHWAITPID= 0 CMD=/usr/lpp/mqsi/V6R0M0/bin/bipimain
0090 CSQ6BRK CSQ6BRK 0037 16777296 50331727 HR---- 12.38.18 1.591
0090 LATCHWAITPID= 0 CMD=bipservice CSQ6BRK AUTO
0090 CSQ6BRK CSQ6BRK 0037 81 16777296 HR---- 12.38.20 1.591
0090 LATCHWAITPID= 0 CMD=bipbroker CSQ6BRK
0090 CSQ6BRK CSQ6BRK 0037 33554514 81 HR---- 12.38.22 1.591
0090 LATCHWAITPID= 0 CMD=biphttplistener CSQ6BRK
```

An OMVS display of a running broker shows the processes. As message flows are deployed and execution groups are started, this display will show the additional processes running.

## Debugging – relevant documentation

- **JOBLOG**
  - ▶ JESMSGLOG for any BIP runtime messages
  - ▶ STDOUT for any command messages or output
  - ▶ STDERR for any error text
  - ▶ JESYSMSG for any JCL customization errors
  - ▶ ENVFILE – Created by BIPGEN
- **SYSLOG**
  - ▶ Some errors (such as from BPXBATCH) are only written to the SYSLOG
- **++HOME++ directory**
  - ▶ Files are written here when submitting BIPGEN

If you have problems in the broker, there are various places to look for indications of the error: the JOBLOG of the broker job, the JES message logs, command message output, error text and the environment file. The system log also contains messages that could be helpful in determining the cause of errors. The home directory (for example, /u/CSQ6BRK) may also have files with relevant information.

## Section

# ***Summary and references***



This section summarizes the z/OS customization steps.

## Summary

- Customize jobs to create broker database, registry and WMQ queues
- Run jobs and verify output
- Set up started task procedure
- Start broker
- Check verification step
- Confirm that the broker is running

Screen captures of the steps required to create a broker, with relevant output, were provided. Similar steps should be followed to create Configuration Manager or User Name Server. There is a PDF document provided which lists details of authorities needed and specifics on customizing the jobs for both creating a broker and a configuration manager. It also includes information on how to set up the configuration manager in the toolkit and how to deploy a message flow to a z/OS configuration manager.

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