

Queues Statistics for z/OS – Lab 2



Lab Objective

MQ V9.3 includes V1 of queue statistics as part of the MQ SMF data. Designed to be less complex than the queue information produced as part of task accounting, this first version sets up the framework and produces a subset of the information from a DISPLAY QSTATUS command. While initially not very useful, it is the start of what we all hope will be a way to get better information about queue activity without the overhead of the task records.

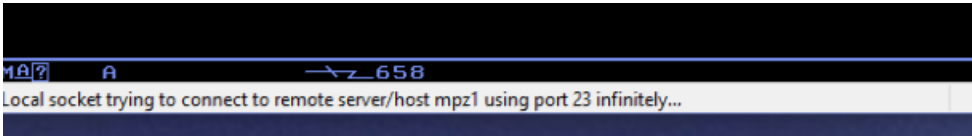
This lab introduces those records.

Lab Steps

- 1) If not already started, start the MPZ1 PCOMM session double clicking on the icon on the image.



- 2) If there are any issues connecting, you will likely see the error that is shown below. Please notify one of the IBM reps in the room for assistance.



- 3) Once connected, you should see the login screen which looks something like what is shown. It may show 'MPZ1' as the session header.

```
Session A - [24 x 80]
File Edit Settings View Communication Actions Window Help
Your IP:::FFFF:192.168.215.39 Terminal: MPZ10046
08/19/22 12:22:54
**** Advanced Technical Skills(ATS) Wildfire Environment ****

Enter TSO for TSO on MPZ1, or:
      CICS1 for CICS region MPZ1CIC1 on MPZ1

Enter Command ==> _
MA A 24/021
Connected to remote server/host mpz1 using lu/pool MPZ10046 and port 23
```

- 4) Log into TSO using the ID supplied (TEAM01-TEAM20), as shown:

```
Session A - [24 x 80]
File Edit Settings View Communication Actions Window Help
Your IP:::FFFF:192.168.215.39 Terminal: MPZ10046
08/19/22 12:22:54
**** Advanced Technical Skills(ATS) Wildfire Environment ****

Enter TSO for TSO on MPZ1, or:
      CICS1 for CICS region MPZ1CIC1 on MPZ1

Enter Command ==> tso teamxx_
MA A 24/031
Connected to remote server/host mpz1 using lu/pool MPZ10046 and port 23
```

- 5) Enter the password (Share22) and you may have to enter the command ispf as shown.

```

Session A - [24 x 80]
File Edit Settings View Communication Actions Window Help
----- TSO/E LOGON -----
Enter LOGON parameters below:                                RACF LOGON parameters:
Userid    ==> TEAM20
Password  ==>
Procedure ==> IKJACCNT
Acct Nmbr ==> D999
Size      ==> 1000000
Perform   ==>
Command   ==> ispf_
Enter an 'S' before each option desired below:
-Nomail      -Nonotice    -Reconnect    -OIDcard
PF1/PF13 ==> Help    PF3/PF15 ==> Logoff    PA1 ==> Attention    PA2 ==> Reshow
You may request specific help information by entering a '?' in any entry field
MA  A 18/024
Connected to remote server/host mpz1 using lu/pool MPZ10047 and port 23

```

- 6) Enter '=3.4' on the Option line to navigate to the dataset list

```

Session A - [24 x 80]
File Edit Settings View Communication Actions Window Help
Menu Utilities Compilers Options Status Help
ISPF Primary Option Menu
Option ==> =3.4_
0 Settings      Terminal and user parameters
1 View          Display source data or listings
2 Edit          Create or change source data
3 Utilities      Perform utility functions
4 Background     Interactive language processing

```

- 7) Enter TEAMXX.*, replacing the TEAMXX with your ID as shown

```

Session A - [24 x 80]
File Edit Settings View Communication Actions Window Help
Menu RefList RefMode Utilities Help
Data Set List Utility
Option ==> blank
blank Display data set list P Print data set list More: +
V Display VTOC information PV Print VTOC information
Enter one or both of the parameters below:
Dsname Level . . . TEAMXX.*_
Volume serial . . .
Data set list options
Initial View
1 1. Volume
2 2. Space
3 3. Attrib
4 4. Total
Enter "/" to select option
/ Confirm Data Set Delete
/ Confirm Member Delete
/ Include Additional Qualifiers
/ Display Catalog Name
/ Display Total Tracks
Prefix Dsname Level
When the data set list is displayed, enter either:
F1=Help F3=Exit F4=Return F10=Actions F12=CRetrieval
*DSLST
MA  A 10/032
Connected to remote server/host mpz1 using lu/pool MPZ10047 and port 23

```

- 8) Enter an 'E' for edit next to your teams hlq.MQ.JCL data set:

```

Menu Options View Utilities Compilers Help
-----
DSLIST - Data Sets Matching TEAMXX.*          3 Membr
Command ==>
If you are unable to connect, please notify one of the IBMers that you need assistance. The
gateway may need to be reconnected.
Command - Enter / to select action           Message
-----
e TEAMXX.MQ.JCL                               Edited
  
```

- 9) Select the CSQ4SMFJ member as shown:

```

Menu Functions Confirm Utilities Help
-----
EDIT TEAMXX.MQ.JCL Row 0000001 of 0000003
Command ==> Scroll ==> PAGE
Name Prompt Size Created Changed ID
s_ CSQ4SMFJ 53 2022/08/19 2022/08/19 12:39:18 ELKINSC
MQSMF93 89 2022/08/19 2022/08/19 12:40:31 ELKINSC
SMFDUMP 19 2022/08/19 2022/08/19 12:41:37 ELKINSC
**End**
  
```

- 10) To run this job you will need to change the ++TEAMXX++ to your ID.

This JCL runs the CSQ4SMFD job – dumping the MQ SMF records. The format is not lovely, but it can be useful to verify what is displayed by MQ SMF interpreters.

TechTip: With MQ V9.3 base, the QQST DD statement needs to be added to the output files.

```

File Edit Edit_Settings Menu Utilities Compilers Test Help

EDIT      TEAMXX.MQ.JCL (CSQ4SMFJ) - 01.01          Columns 00001 00072
Command ==>                                     Scroll ==> CSR
***** ***** Top of Data *****
==MSG> -Warning- The UNDO command is not available until you change
==MSG>          your edit profile using the command RECOVERY ON.
000001 //++TEAMXX++SFD JOB (????,????), 'RUN SMFD ',MSGCLASS=0,CLASS=A,
000002 //          NOTIFY=????????,REGION=0M TYPRUN=SCAN
000003 //*****
000004 //*                                           *
000005 //* Change ++TEAMXX++ to YOUR TEAM NUMBER!!!! *
000006 //*****
000007 //*                                           *
```

- 11) Change the ++TEAMXX++ to your ID.

```

File Edit Edit_Settings Menu Utilities Compilers Test Help

EDIT      TEAMXX.MQ.JCL (CSQ4SMFJ) - 01.02          Columns 00001 00072
Command ==> c '++TEAMXX++' 'TEAMXX' all          Scroll ==> CSR
***** ***** Top of Data *****
==MSG> -Warning- The UNDO command is not available until you change
==MSG>          your edit profile using the command RECOVERY ON.
000001 //++TEAMXX++SFD JOB (????,????), 'RUN SMFD ',MSGCLASS=0,CLASS=A,
000002 //          NOTIFY=????????,REGION=0M TYPRUN=SCAN
000003 //*****
000004 //*                                           *
000005 //* Change ++TEAMXX++ to YOUR TEAM NUMBER!!!! *
000006 //*****
000007 //*                                           *
```

- 12) Save and submit this job. The semicolon allows you to stack the commands in this environment.

```

File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT      TEAMXX.MQ.JCL (CSQ4SMFJ) - 01.02      Columns 00001 00072
Command ==> save;sub_                          Scroll ==> CSR
***** ***** Top of Data *****
==MSG> -Warning- The UNDO command is not available until you change
==MSG>          your edit profile using the command RECOVERY ON.
==CHG> //TEAMXXFD JOB (????,????), 'RUN SMFD ',MSGCLASS=0,CLASS=A,
000002 //          NOTIFY=????????,REGION=0M TYPRUN=SCAN

```

- 13) When the job has completed, and it is usually quite fast, you should see this message:

```

13.21.51 JOB15782 $HASP165 TEAMXXFD ENDED AT WSC10 MAXCC=0000 CN(INTERNAL)
***

```

- 14) To review the output, on the command line enter 'start;sdsf.st' as shown. This will start a second ISPF session and open the SDSF panel to show the status of jobs. You may have to change the prefix for jobs to your ID. The command to do that is shown here:

```

Display Filter View Print Options Search Help
-----
SDSF STATUS DISPLAY ALL CLASSES                LINE 1-3 (3)
COMMAND INPUT ==> PREFIX TEAMXX*              SCROLL ==> CSR

```

Tech Tip: Using the 'SWAPBAR' command after starting the second session will allow you to toggle between the session by simply putting the cursor on the session you want to go to and pressing the enter key.

- 15) Use a "?" in the 'NP' column by the expand the output.

```

Display Filter View Print Options Search Help
-----
SDSF STATUS DISPLAY ALL CLASSES                LINE 1-3 (3)
COMMAND INPUT ==>                               SCROLL ==> CSR
NP  JOBNAME  JobID   Owner   Prty Queue   C   Pos SAff ASys Status
    TEAM20   TSU15781 TEAM20   15 EXECUTION      MPZ1 MPZ1
    TEAM14E  JOB15697  TEAM14    1 PRINT          A  1217
    ? TEAMXXFD JOB15782 ELKINSC  1 PRINT          A  1261

```


- 16) The output files from the SMF Dump program are listed (as shown). Page forward (PF8) to get to the QQST file and select it.

Display Filter View Print Options Search Help									
SDSF JOB DATA SET DISPLAY - JOB TEAMXXFD (JOB15782)					DATA SET DISPLAYED				
COMMAND INPUT ==>					SCROLL ==> CSR				
NP	DDNAME	StepName	ProcStep	DSID	Owner	C	Dest	Rec-Cnt	Page
	QSST	SAMPSTEP		115	ELKINSC	0	LOCAL	271	
	QTST	SAMPSTEP		116	ELKINSC	0	LOCAL	301	
	QCCT	SAMPSTEP		117	ELKINSC	0	LOCAL	181	
	QCTDSP	SAMPSTEP		118	ELKINSC	0	LOCAL	601	
	QCTADP	SAMPSTEP		119	ELKINSC	0	LOCAL	801	
	QCTSSL	SAMPSTEP		120	ELKINSC	0	LOCAL	1	
	QCTDNS	SAMPSTEP		121	ELKINSC	0	LOCAL	131	
	QCST	SAMPSTEP		122	ELKINSC	0	LOCAL	4,625	
	QSGM	SAMPSTEP		123	ELKINSC	0	LOCAL	172	
	QSPH	SAMPSTEP		124	ELKINSC	0	LOCAL	221	
	QSRs	SAMPSTEP		125	ELKINSC	0	LOCAL	660	
S	QQST	SAMPSTEP		126	ELKINSC	0	LOCAL	837	

- 17) Do a find for the last occurrence of 'TEAMXX'

```
SDSF OUTPUT DISPLAY TEAMXXFD JOB15782 DSID 126 LINE 762
COMMAND INPUT ==> f 'TEAMXX' LAST
--Q-Q-S-T---H-E-X---P-R-I-N-T----
```

- 18) After adjusting the display lines a bit, you should be able to see the QQST formatted fields from this data:

```
00000050 : 000003ED      <...>
--Q-Q-S-T---F-O-R-M-A-T-T-E-D----
qqstid   = D80F
qqstll   = 0084
qqsteyec = QQST
qqstqnam = TEAMXX.STREAM.BASE
qqstpsid = 0004
qqstbpid = 0003
qqstqsgn =
qqstcfst =
qqstdpth = 00001005
Queue is a private queue
```

- 19) The most useful piece of information given on these records currently is the current queue depth, or the value of the qqstdpth. In this example it is 1,005 messages.

TechTip: This is not the maximum queue depth for the interval, but the queue depth at the time the record is cut.

- 20) Congratulations – you have now seen the ‘ugly data’ format! Now we will use SupportPac MP1B to create a more attractive formatting.

- 21) Switch back to the JCL PDS member list and select MQSMF93 as shown below.

```
EDIT                                TEAMXX.MQ.JCL
Command ==>

      Name      Prompt      Size  Created
-----
CSQ4SMFJ *Edited      53  2022/08/
_s_      MQSMF93      89  2022/08/
SMFDUMP      19  2022/08/

**End**
```

- 22) Once again change the '++TEAMXX++' to your assigned user id.

```

EDIT          TEAMXX.MQ.JCL (MQSMF93) - 01.01          Columns 00001 0007
Command ==> c '++TEAMXX++' 'TEAMXX' all             Scroll ==> CSR
***** Top of Data *****
==MSG> -Warning- The UNDO command is not available until you change
==MSG>          your edit profile using the command RECOVERY ON.
000001 //++TEAMXX++SF JOB (????,????), 'RUN SMFD ',MSGCLASS=0,CLASS=A,
000002 //          NOTIFY=????????,REGION=0M TYPRUN=SCAN
000003 //*****
000004 //*****

```

- 23) Page forward after making that change. Note that in this environment we have multiple versions of the MP1B SupportPac. The July 22 version supports the 9.3 version of MQ and has added the output files for the QQST records. If you download a new version of MP1B, please check the sample JCL for the new files.

```

EDIT          TEAMXX.MQ.JCL (MQSMF93) - 01.02          Columns 00001 00072
Command ==>                                           Scroll ==> CSR
000016 //S1 EXEC PGM=MQSMF,REGION=0M
000017 //*STEPLIB DD DISP=SHR,DSN=MP1B.DEC2021.LOAD
000018 //STEPLIB DD DISP=SHR,DSN=MP1B.JULY2022.LOAD
000019 //*SMFIN DD DISP=SHR,DSN=TEAMXX.MQ930.SMFDATA2
000020 //*SMFIN DD DISP=SHR,DSN=TEAMXX.MQ930.SMFDATA.NOSTREAM
000021 //SMFIN DD DISP=SHR,DSN=TEAMXX.MQ930.SMFDATA.NOSTREAM
000022 //SYSIN DD *
000023 DETAIL 20
000024 /*
000025 //SYSPRINT DD SYSOUT=*,DCB=(LRECL=200)
000026 //SYSOUT DD SYSOUT=*,DCB=(RECFM=VB,LRECL=200,BLKSIZE=27998)
000027 //SYSERR DD SYSOUT=*
000028 //ADAP DD SYSOUT=*
000029 //ADAPCSV DD SYSOUT=*
000030 //BUFF DD SYSOUT=*,DCB=(LRECL=200)
000031 //BUFFIO DD SYSOUT=*,DCB=(LRECL=200)
000032 //BUFFCSV DD SYSOUT=*,DCB=(LRECL=200)
000033 //CF DD SYSOUT=*

```

- 24) Submit the JCL and return to the SDSF ST panel to review the output.

25) Select the output using the '?' as before:

```
SDSF STATUS DISPLAY ALL CLASSES LINE 1-
COMMAND INPUT ==>
NP  JOBNAME  JobID   Owner    Prty Queue      C   Pos  SAff
    TEAM20   TSU15781 TEAM20    15 EXECUTION      MPZ1
    TEAM14E  JOB15697  TEAM14     1 PRINT          A   1217
    TEAMXXFD JOB15782  ELKINSC    1 PRINT          A   1261
?_  TEAMXXSF JOB15783  ELKINSC    1 PRINT          A   1262
```

26) Do a find for 'QSTAT' to navigate to the formatted QSTATS record.

```
SDSF JOB DATA SET DISPLAY - JOB TEAMXXSF (JOB15783) LINE 1-16 (57)
COMMAND INPUT ==> f QSTAT_ SCROLL ==> CSR
NP  DDNAME  StepName ProcStep DSID Owner    C Dest          Rec-Cnt Page
    JESMSG LG JES2          2 ELKINSC 0 LOCAL          18
    JESJCL   JES2          3 ELKINSC 0 LOCAL          88
    JESYSMSG JES2          4 ELKINSC 0 LOCAL         185
    SYSPRINT S1          103 ELKINSC 0 LOCAL          87
    ADAP     S1          106 ELKINSC 0 LOCAL         140
    ADAPCSV  S1          107 ELKINSC 0 LOCAL          11
```

27) Select that output file.

```
SDSF JOB DATA SET DIS
COMMAND INPUT ==>
NP  DDNAME  StepName
s_  QSTAT    S1
    QSTATCSV S1
    QSUM     S1
```

28) The output is formatted like this:

```
SDSF OUTPUT DISPLAY TEAMXXSF JOB15783 DSID 147 LINE 0 COLUMNS 02- 81
COMMAND INPUT ==> _ SCROLL ==> CSR
***** TOP OF DATA *****
Queue statistics

MPZ1,ZSHR,2022/08/18,16:53:44,VRM:930,
  From 2022/08/18,16:48:44 to 2022/08/18,16:53:44, duration 300 seconds.

MPZ1,ZSHR,2022/08/18,16:53:44,VRM:930,
Queue Name.....SYSTEM.PROTECTION.POLICY.QUEUE
Disposition.....Private
Pageset ID.....Unallocated
Bufferpool ID.....Unallocated
THIS IS A FULL RECORD
Current Depth.....0
```

29) Do a find for the last occurrence of 'TEAMXX' (the same command as step 17).

```
SDSF OUTPUT DISPLAY TEAMXXSF JOB15783 DSID 147 LINE 328 CUL
COMMAND INPUT ==> _ SCRO

MPZ1,ZSHR,2022/08/18,16:58:44,VRM:930,
Queue Name.....TEAMXX.STREAM.BASE
Disposition.....Private
Pageset ID.....4
Bufferpool ID.....3
THIS IS A FULL RECORD
Current Depth.....1005
```

30) This shows the same information as the 'dumped' data, but in a friendlier format.

31) Return to the list of output files and select the QSTATCSV file, the CSV version of the data.

```
SDSF JOB DATA SET DISPLAY - JOB TEAMXXSF (JOB1
COMMAND INPUT ==>
NP DDNAME StepName ProcStep DSID Owner
  QSTAT S1 147 ELKINSC
s QSTATCSV S1 148 ELKINSC
_ QSUML S1 149 ELKINSC
```

32) This shows the CSV formatted records:

```
***** TOP OF DATA *****
z/OS,QM,Date,Time,Queue,Disp,PSID,BPID,QSG,CF,Dpth,RecType
MPZ1,ZSHR,2022/08/18,16:53:44,SYSTEM.PROTECTION.POLICY.QUEUE,P
MPZ1,ZSHR,2022/08/18,16:53:44,TEAMXX.SMF.QUEUE2,P
MPZ1,ZSHR,2022/08/18,16:53:44,SYSTEM.JMS.ADMIN.QUEUE,P
MPZ1,ZSHR,2022/08/18,16:53:44,SYSTEM.JMS.ND.SUBSCRIBER.QUEUE,P
MPZ1,ZSHR,2022/08/18,16:53:44,TEAMXX.STREAM.COPY,P
MPZ1,ZSHR,2022/08/18,16:53:44,SYSTEM.JMS.ND.CC.SUBSCRIBER.QUEUE,P
```

33) Congratulations! You have now formatted these records.

34) While this is not particularly useful information yet, look for dramatic improvements soon!