

MQ V8

Channel Initiator Statistics Lab



MQV8 – Channel initiator statistics lab

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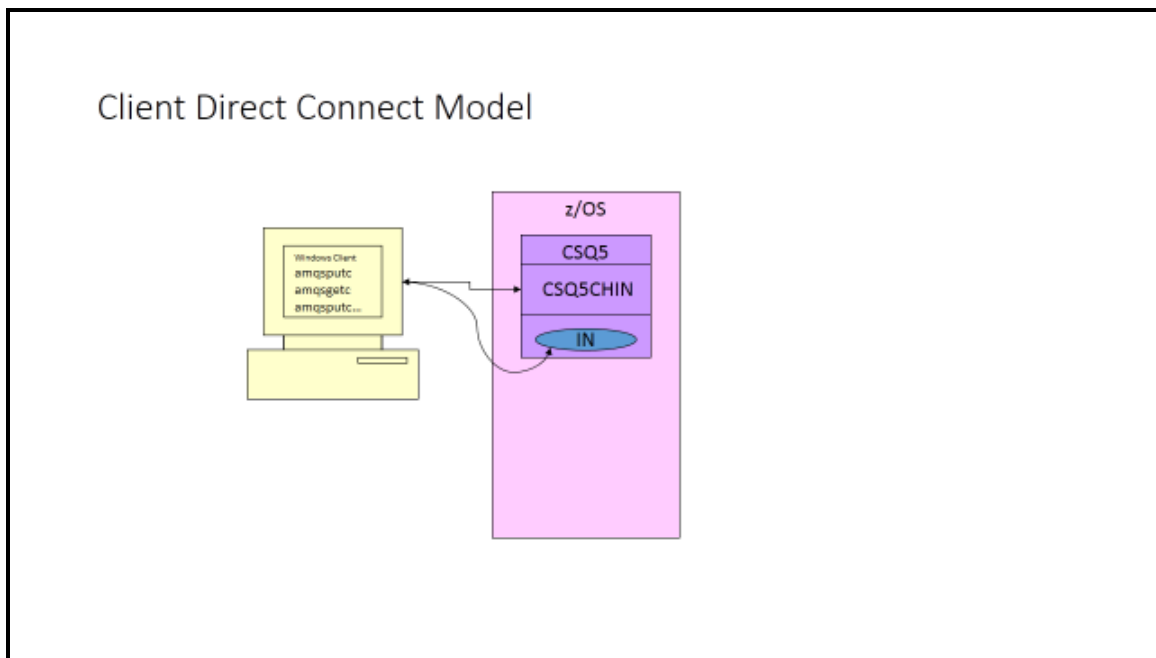
Lab Objectives

This lab is to introduce the new channel initiator statistics System Management Facility (SMF) data. This data is captured in the SMF 115 subtype 231 records.

Prior to MQ V8 the tuning the number of internal channel initiator tasks was done by ‘best guesstimate.’ Adding the SMF data allows MQ administrators and capacity planners to see what resources are being used, when more might be required and when an individual channel initiator may be running out of reserve capacity.

This lab does not include gathering the data. The data has been gathered in another environment.

The tests were using direct client connections to queue manager. Each test included multiple executions of amqsputc and amqsgetc to queues defined in below and above the bar buffer pools.



An example of the test bat files look as follows:

```
set MQSERVER=SHARE.SVRCON01/TCP/wtsc61.itso.ibm.com(1521)
amqsputc SHARE.TEST.PS02 CSQ5 <c:\TEST_MSg_IN.txt
amqsgetc SHARE.TEST.PS02 CSQ5 >c:\SHARE_TEST_PS02_MSg_OUT.txt
amqsputc SHARE.TEST.PS02 CSQ5 <c:\TEST_MSg_IN.txt
amqsgetc SHARE.TEST.PS02 CSQ5
amqsputc SHARE.TEST.PS02 CSQ5 <c:\TEST_MSg_IN.txt
```


The MQ Trace Settings

To gather the channel initiator statistical data the trace has to be started. This is done via the START TRACE command as shown:

```
+cpf START TRACE(STAT) CLASS(04)
```

Note that we expect the base statistic trace to always be on.

Once started the output of the display trace looks as follows:

```
CSQW127I -CSQ5 CURRENT TRACE ACTIVITY IS - 513
TNO TYPE CLASS DEST USERID RMID
01 GLOBAL 01 RES * *
02 STAT 01,02 SMF * *
03 STAT 04 SMF * *
00 CHINIT * RES * *
END OF TRACE REPORT
CSQ9022I -CSQ5 CSQWVCM1 ' DISPLAY TRACE ' NORMAL COMPLETION
```

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 – TEAM20).
- 2) The passwords for the user IDs are provided by the lab leaders.
- 3) Any difficulty with connectivity should be reported, but please remember that the connections may be slow.

SMF115 data – printing the raw data

- 1) Start the PCOMM session for MPX1
- 2) Sign on, if not already signed on, using the team ID and password you have been assigned.
- 3) The SMF115 class 4 data has already been gathered and is in file SHARE.MQV8.SMFDATA.
- 4) JCL is provided in the TEAMXX.SHARE.JCL library, where the XX is replaced with your team number. There are three members that will be used for this lab.

EDIT		TEAMXX.SHARE.JCL				Row 00001 of 00003	
Command ==>		Scroll ==> CSR					
Name	Prompt	Size	Created	Changed		ID	
_S_____	CSQ4SMFJ	26	2014/08/04	2014/08/04 11:43:59		ELKINSC	
_____	MQSMFV8 *Edited	60	2014/08/04	2014/08/04 11:36:45		ELKINSC	
_____	SMFDUMP	16	2014/08/04	2014/08/04 11:46:22		ELKINSC	
	End						

- 5) Select the CSQ4SMFJ as shown and hit the enter key. Note that on some keyboards the enter key is the key labeled enter and on some it is the right 'Ctrl' key.

```

EDIT      TEAMXX.SHARE.JCL (CSQ4SMFJ) - 01.01      Columns 00001 00080
Command ==> _
***** ***** Top of Data *****
000001 //TEAMXXJ JOB NOTIFY=&SYSUID
000002 //SAMPSTEP EXEC PGM=CSQ4SMFD,REGION=0M
000003 //STEPLIB DD DSN=MQ800.SCSQLOAD,DISP=SHR
000004 //SYSPRINT DD SYSOUT=*,DCB=(LRECL=132,RECFM=F)
000005 //SMFIN DD DISP=SHR,DSN=SHARE.MQV8.SMFDATA
000006 //QMAC DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000007 //WTID DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000008 //WTAS DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000009 //WQ DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000010 //Q5ST DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000011 //QEST DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000012 //QESD DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000013 //QIST DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000014 //QJST DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000015 //QLST DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000016 //QMST DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000017 //QPST DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000018 //QSST DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000019 //QTST DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000020 //QCT DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
000021 //QCTDSP DD SYSOUT=*,DCB=(LRECL=233,RECFM=F,BLKSIZE=233)
    
```

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- 6) Change TEAMXX to your team ID in the job card, then save and submit the JCL.
- 7) Split your TSO session screen, using the F2 key and navigate to the System Display and Search Facility (SDSF) status panel (ST) by entering =SDSF.ST on the command line and depressing the enter key.

```

                                ISPF Primary Option Menu
Option ==> =sdsf.st_

0 Settings      Terminal and user parameters      User ID . : ELKINSC
    
```

- 8) The list of jobs should look something like this:

```

SDSF STATUS DISPLAY ALL CLASSES                                LINE 1-1 (1)
COMMAND INPUT ==> _                                         SCROLL ==> CSR
NP  JOBNAME  JobID   Owner   Prty Queue   C  Pos  SAff  ASys Status   PrtDest
   TEAMXXJ  JOB16280 ELKINSC   1 PRINT   A  210
    
```

- 9) Place a question mark to the left of the job name to display all the output files, like what is shown.

```

COMMAND INPUT ==> _                                         SCROLL ==> CSR
NP  DDNAME   StepName ProcStep DSID  Owner   C  Dest   Rec-Cnt Page-Cnt Byte-Cnt CC  Rmt  Node  O-Grp-N  SecLabel PrMoc
   QMAC     SAMPSTEP   102 ELKINSC S  LOCAL   1          1          61  1          1  1          LINE
   WTID     SAMPSTEP   103 ELKINSC S  LOCAL  60,841     4M  1          1  1          LINE
   WTAS     SAMPSTEP   104 ELKINSC S  LOCAL  498,889    30M  1          1  1          LINE
   WQ       SAMPSTEP   105 ELKINSC S  LOCAL  169,861     9M  1          1  1          LINE
   QSST     SAMPSTEP   106 ELKINSC S  LOCAL   3,004     185,026  1          1  1          LINE
   QEST     SAMPSTEP   107 ELKINSC S  LOCAL  20,308     832,068  1          1  1          LINE
   QESD     SAMPSTEP   108 ELKINSC S  LOCAL    1          90  1          1  1          LINE
   QIST     SAMPSTEP   109 ELKINSC S  LOCAL    589        18,320  1          1  1          LINE
   QJST     SAMPSTEP   110 ELKINSC S  LOCAL   2,731     104,399  1          1  1          LINE
   QLST     SAMPSTEP   111 ELKINSC S  LOCAL    232        7,517  1          1  1          LINE
   QMST     SAMPSTEP   112 ELKINSC S  LOCAL    442        14,988  1          1  1          LINE
   QPST     SAMPSTEP   113 ELKINSC S  LOCAL   4,558     155,228  1          1  1          LINE
   QSST     SAMPSTEP   114 ELKINSC S  LOCAL    568        17,735  1          1  1          LINE
   QTST     SAMPSTEP   115 ELKINSC S  LOCAL    631        21,761  1          1  1          LINE
   QCCT     SAMPSTEP   116 ELKINSC S  LOCAL    379        10,875  1          1  1          LINE
   QCTDSP   SAMPSTEP   117 ELKINSC S  LOCAL   1,261        52,477  1          1  1          LINE
   QCTADP   SAMPSTEP   118 ELKINSC S  LOCAL   1,681        68,565  1          1  1          LINE
   QCTSSL   SAMPSTEP   119 ELKINSC S  LOCAL    1          64  1          1  1          LINE
    
```


- 10) Select the QCTDSP output file, this is the ‘dump’ display of the Channel Initiator dispatcher task statistics. This is shown below:

```

***** TOP OF DATA *****
CHINIT dispatcher task statistics
--Q-C-T-D-S-P---H-E-X---P-R-I-N-T---
Address = 13529C30
00000000 : 007CF5B0 00000AD1 00000000 1015091A <.@5....J.....>
00000010 : 00000000 0EC33C52 00000070 00645E66 <....C.....;>
00000020 : 00000003 <....>
--Q-C-T-D-S-P---F-O-R-M-A-T-T-E-D---
qcttskn = 7cf5b0
qctreqn = 2769
qctcptm = 65872 microseconds
qcteltn = 60467 microseconds
qctwttm = 117442117 microseconds
qctchln = 3
    
```

- 11) You can also review the data in the QCTADP, QCTSSL and QCTDNS files. Note that SSL and DNS were not active in the environment at the time the test was run.

SMF115 data – printing the formatted data

SupportPac MP1B will soon be updated to include the V8 data. For this lab we are using a ‘beta’ copy of the print program, which should closely reflect the reports that will be produced by the GA version.

- 1) Return to the TEAMXX.SHARE.JCL file (F9 if you are in split screen mode and have not navigated from that PDS) and select the MQSMFV8 member as shown.

```

EDIT          TEAMXX.SHARE.JCL          Row 00001 of 00003
Command ===>          Scroll ===> CSR
      Name      Prompt      Size  Created      Changed      ID
----- CSQ4SMFJ          26  2014/08/04  2014/08/04  11:43:59  ELKINSC
s_     MQSMFV8  *Edited  60  2014/08/04  2014/08/04  11:36:45  ELKINSC
      SMFDUMP          16  2014/08/04  2014/08/04  11:46:22  ELKINSC
      **End**
    
```

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- 2) The JCL looks as shown below. Please alter the jobcard TEAMXX to your team number, save and submit the JCL.

```

000001 //TEAMXX JOB NOTIFY=&SYSUID
000002 //S1 EXEC PGM=MQSMF,REGION=0M
000003 //*****
000004 //* Processes MQ SMF records.
000005 //* DOn't forget to set the QM variable on the SYSIN DD|||
000006 //*****
000007 //STEPLIB DD DISP=SHR,DSN=QML0.MP1B.V80.LOAD
000008 //SMFIN DD DISP=SHR,DSN=SHARE.MQV8.SMFDATA
000009 //SYSIN DD *
000010 QM CSQ5
000011 SMF_Interval_time 5
000012 Debug 1
000013 Detail 20
000014 /*
000015 //MESSAGE DD SYSOUT=*
000016 //BUFF DD SYSOUT=*
000017 //BUFFCSV DD SYSOUT=*
000018 //DATA DD SYSOUT=*
000019 //CF DD SYSOUT=*
000020 //CFCSV DD SYSOUT=*
000021 //DB2 DD SYSOUT=*
    
```

- 3) Return to the SDSF output, F9 if still in split screen mode. Note that this job can take a few minutes to complete, so you may see it in the execution queue for a while.

SDSF STATUS DISPLAY ALL CLASSES										LINE 1-2 (2)
COMMAND INPUT ==>										SCROLL ==> CSR
NP	JOBNAME	JobID	Owner	Prty	Queue	C	Pos	SAff	ASys Status	PrtDest
	TEAMXX8	JOB16281	ELKINSC	9	EXECUTION	A			MPX1	LOCAL
■	TEAMXXJ	JOB16280	ELKINSC	1	PRINT	A	210			LOCAL

- 4) Once complete, use the '?' to display the different output files as shown:

SDSF STATUS DISPLAY ALL CLASSES										LINE 1-2 (2)
COMMAND INPUT ==>										SCROLL ==> CSR
NP	JOBNAME	JobID	Owner	Prty	Queue	C	Pos	SAff	ASys Status	
? ■	TEAMXX8	JOB16281	ELKINSC	1	PRINT	A	213			
	TEAMXXJ	JOB16280	ELKINSC	1	PRINT	A	210			

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- 5) The first page of the output will look something like is shown below.

NP	DDNAME	StepName	ProcStep	DSID	Owner	C	Dest	Rec-Cnt	Page-Cnt	Byte-Cnt	CC	Rmt	Node	0-Grp-N	SecLabel	PrMod
	MESSAGE	S1		102	ELKINSC	S	LOCAL	23		2,222	1		1	1		LINE
	BUFF	S1		103	ELKINSC	S	LOCAL	757		54,099	1		1	1		LINE
	BUFFCSV	S1		104	ELKINSC	S	LOCAL	149		16,897	1		1	1		LINE
	DATA	S1		105	ELKINSC	S	LOCAL	127		8,054	1		1	1		LINE
	CF	S1		106	ELKINSC	S	LOCAL	1		55	1		1	1		LINE
	CFCSV	S1		107	ELKINSC	S	LOCAL	1		142	1		1	1		LINE
	EOJ	S1		109	ELKINSC	S	LOCAL	2		126	1		1	1		LINE
	LOCK	S1		110	ELKINSC	S	LOCAL	23		1,901	1		1	1		LINE
	LOG	S1		111	ELKINSC	S	LOCAL	90		4,565	1		1	1		LINE
	LOGCSV	S1		112	ELKINSC	S	LOCAL	3		222	1		1	1		LINE
	MSGM	S1		113	ELKINSC	S	LOCAL	148		10,236	1		1	1		LINE
	MSGMCSV	S1		114	ELKINSC	S	LOCAL	23		3,029	1		1	1		LINE
	TASKSUM	S1		117	ELKINSC	S	LOCAL	2		86	1		1	1		LINE
	TASK	S1		118	ELKINSC	S	LOCAL	53,249		3M	1		1	1		LINE
	TASKCSV	S1		120	ELKINSC	S	LOCAL	14		1,261	1		1	1		LINE
	TOPIC	S1		121	ELKINSC	S	LOCAL	22		1,230	1		1	1		LINE
	STG	S1		122	ELKINSC	S	LOCAL	147		10,946	1		1	1		LINE
	STGCSV	S1		123	ELKINSC	S	LOCAL	22		1,355	1		1	1		LINE
	LOGBUSY	S1		124	ELKINSC	S	LOCAL	3		185	1		1	1		LINE
	CHINIT	S1		125	ELKINSC	S	LOCAL	210		11,135	1		1	1		LINE
	CHINCSV	S1		126	ELKINSC	S	LOCAL	22		1,440	1		1	1		LINE

- 6) Selecting the ‘CHINIT’ output file, you can see the basic channel initiator use statistics for the test run. This includes the number of channels defined and the number active during the SMF interval.

```

SC61,CS05,2014/08/01,15:26:40,VRM:800,
From 2014/08/01,15:24:40.843040 to 2014/08/01,15:26:40.331550 duration 119.488509 seconds
Number of current channels..... 13
Number of active channels ..... 12
MAXCHL. Max allowed current channels..... 200
ACTCHL. Max allowed active channels..... 200
TCPCHL. Max allowed TCP/IP channels..... 200
LU62CHL. Max allowed LU62 channels..... 200
Storage used by Chinit..... 22MB
SC61,CS05,2014/08/01,15:26:40,VRM:800,

```

- 7) Return to the output file list and select the CHINCSV file. The files that have the ‘CSV’ in the names are comma separated values and are quite useful for downloading and importing into a spreadsheet for long term tracking and trend analysis.

mvs	qm	qsg	date	time	QSG	CurCHL	MaxCHL	ActCHL	MaxAct	MaxTCP	MaxLU	StgMB
SC61	CSQ5	2014/08/01	15:26:40	'		13	200	12	200	200	200	22
SC61	CSQ5	2014/08/01	15:28:39	'		21	200	20	200	200	200	22
SC61	CSQ5	2014/08/01	15:30:39	'		22	200	21	200	200	200	22
SC61	CSQ5	2014/08/01	15:32:38	'		16	200	15	200	200	200	22
SC61	CSQ5	2014/08/01	15:34:38	'		7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:36:38	'		7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:38:37	'		7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:40:37	'		7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:42:36	'		7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:44:36	'		7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:46:35	'		7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:48:35	'		7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:50:34	'		7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:52:34	'		5	200	4	200	200	200	22

- 8) As an example, the CHINCSV file was downloaded and then sorted in descending order by the number of channels that are active during the SMF intervals and find that the peak number was 21 of a maximum of 200, and that occurred at 15:30:39. Knowing the peaks can be very helpful in capacity planning, and when trying to track down performance problems.

mvs	qm	qsg	date	time	QSG	CurCHL	MaxCHL	ActCHL	MaxAct	MaxTCP	MaxLU	StgMB
SC61	CSQ5	2014/08/01	15:30:39			22	200	21	200	200	200	22
SC61	CSQ5	2014/08/01	15:28:39			21	200	20	200	200	200	22
SC61	CSQ5	2014/08/01	15:32:38			16	200	15	200	200	200	22
SC61	CSQ5	2014/08/01	15:26:40			13	200	12	200	200	200	22
SC61	CSQ5	2014/08/01	15:34:38			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:36:38			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:38:37			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:40:37			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:42:36			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:44:36			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:46:35			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:48:35			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:50:34			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:54:33			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:56:33			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	16:00:32			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	16:02:32			7	200	6	200	200	200	22
SC61	CSQ5	2014/08/01	15:58:32			6	200	5	200	200	200	22
SC61	CSQ5	2014/08/01	16:04:31			6	200	5	200	200	200	22
SC61	CSQ5	2014/08/01	15:52:34			5	200	4	200	200	200	22
SC61	CSQ5	2014/08/01	16:06:31			3	200	2	200	200	200	22

- 9) Returning to the output list, page forward (F8) and select the DISP file. This contains the activity of the dispatcher tasks within the channel initiator address space during the intervals. Dispatcher tasks work with the network to send and receive messages.

In the queue manager used for this test, the default number of tasks, 5, were used. They are numbered from 0-4. Note that in this test, only the first 4 dispatcher tasks show any activity. The 5th task, dispatcher # 4 is idle during this period. Most of the activity has taken place on tasks 0 and 1, with little work flowing beyond that. The MQ V8 redbook (<http://www.redbooks.ibm.com/redpieces/abstracts/sg248218.html?Open>) discusses the distribution of work amongst the dispatcher tasks.

SC61, CSQ5, 2014/08/01, 15:26:40, VRM:800,								
From 2014/08/01, 15:24:40.843040 to 2014/08/01, 15:26:40.331550 duration 119.488509 seconds								
Task,	Type,	Requests,	Busy %,	CPU used,	CPU %,	"avg CPU",	"avg ET"	
				Seconds,		uSeconds,	uSeconds	
0,	DISP,	2769,	0.1,	0.065873,	0.1,	24,	22	
1,	DISP,	3211,	0.0,	0.071536,	0.1,	22,	18	
2,	DISP,	1763,	0.0,	0.041455,	0.0,	24,	18	
3,	DISP,	235,	0.0,	0.006181,	0.0,	26,	21	
4,	DISP,	0,	0.0,	0.000000,	0.0,	0,	0	
Summ,	DISP,	7978,	0.0,	0.185044,	0.0,	23,	20	
0,	DISP,	number of channels on this TCB,					3	
1,	DISP,	number of channels on this TCB,					2	
2,	DISP,	number of channels on this TCB,					5	
3,	DISP,	number of channels on this TCB,					3	
4,	DISP,	number of channels on this TCB,					0	
Summ,	DISP,	number of channels on all TCBs,					13	

- 10) Returning to the output file list (F3) and selecting the DISPCSV file shows the following. This is the summary of the dispatcher activity during the SMF interval, not an entry for each dispatcher. Charting this information over time will give a picture of how busy the dispatcher tasks are overall, and give feedback on when additional tasks may be needed to process the workload.

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mvs	qm	qsg	date	time	Type	Requests	Busy%	"Total CPU"	CPU%	"avg CPU"	"avg ET"
SC61	CSQ5		2014/08/01	15:26:40	DISP	7978	0	0	0	23.2	20
SC61	CSQ5		2014/08/01	15:28:39	DISP	104514	0.3	0.358341	0.3	16.8	15
SC61	CSQ5		2014/08/01	15:30:39	DISP	97035	0.3	0.320285	0.3	16.6	15
SC61	CSQ5		2014/08/01	15:32:38	DISP	81305	0.2	0.240910	0.2	16.4	15
SC61	CSQ5		2014/08/01	15:34:38	DISP	38962	0.1	0.004738	0.1	14.0	13
SC61	CSQ5		2014/08/01	15:36:38	DISP	31944	0.1	0.000000	0.1	11.9	11
SC61	CSQ5		2014/08/01	15:38:37	DISP	32302	0.1	0.000000	0.1	11.9	11
SC61	CSQ5		2014/08/01	15:40:37	DISP	31821	0.1	0.000000	0.1	11.9	11
SC61	CSQ5		2014/08/01	15:42:36	DISP	30646	0.1	0.000000	0.1	12.2	12
SC61	CSQ5		2014/08/01	15:44:36	DISP	40060	0.1	0.000000	0.1	11.6	11
SC61	CSQ5		2014/08/01	15:46:35	DISP	27744	0.1	0.000000	0.1	13.4	13
SC61	CSQ5		2014/08/01	15:48:35	DISP	17563	0.0	0.000000	0.0	16.3	15
SC61	CSQ5		2014/08/01	15:50:34	DISP	16226	0.0	0.000000	0.0	15.0	14
SC61	CSQ5		2014/08/01	15:52:34	DISP	17074	0.0	0.000000	0.0	15.0	14
SC61	CSQ5		2014/08/01	15:54:33	DISP	16475	0.0	0.000000	0.0	15.0	14
SC61	CSQ5		2014/08/01	15:56:33	DISP	16483	0.0	0.000000	0.0	15.4	14
SC61	CSQ5		2014/08/01	15:58:32	DISP	16499	0.0	0.141455	0.0	15.7	15
SC61	CSQ5		2014/08/01	16:00:32	DISP	15782	0.0	0.257752	0.0	16.5	16
SC61	CSQ5		2014/08/01	16:02:32	DISP	16666	0.0	0.233758	0.0	15.9	15
SC61	CSQ5		2014/08/01	16:04:31	DISP	14149	0.0	0.000826	0.0	15.2	14

11) Loading the file into a spreadsheet, you get the following. Please note that the column headers had to be adjusted because the QSG column is blank for this test. It is also important to note that the total CPU time is in seconds, but the average CPU and elapsed times are in microseconds.

mvs	qm	qsg	date	time	Type	Requests	Busy%	Total CPU	CPU%	avg CPU	avg ET
SC61	CSQ5		2014/08/01	15:26:40	DISP	7978	0	0	0	23.2	20
SC61	CSQ5		2014/08/01	15:28:39	DISP	104514	0.3	0.358341	0.3	16.8	15
SC61	CSQ5		2014/08/01	15:30:39	DISP	97035	0.3	0.320285	0.3	16.6	15
SC61	CSQ5		2014/08/01	15:32:38	DISP	81305	0.2	0.24091	0.2	16.4	15
SC61	CSQ5		2014/08/01	15:34:38	DISP	38962	0.1	0.004738	0.1	14	13
SC61	CSQ5		2014/08/01	15:36:38	DISP	31944	0.1	0	0.1	11.9	11
SC61	CSQ5		2014/08/01	15:38:37	DISP	32302	0.1	0	0.1	11.9	11
SC61	CSQ5		2014/08/01	15:40:37	DISP	31821	0.1	0	0.1	11.9	11
SC61	CSQ5		2014/08/01	15:42:36	DISP	30646	0.1	0	0.1	12.2	12
SC61	CSQ5		2014/08/01	15:44:36	DISP	40060	0.1	0	0.1	11.6	11
SC61	CSQ5		2014/08/01	15:46:35	DISP	27744	0.1	0	0.1	13.4	13
SC61	CSQ5		2014/08/01	15:48:35	DISP	17563	0	0	0	16.3	15
SC61	CSQ5		2014/08/01	15:50:34	DISP	16226	0	0	0	15	14
SC61	CSQ5		2014/08/01	15:52:34	DISP	17074	0	0	0	15	14
SC61	CSQ5		2014/08/01	15:54:33	DISP	16475	0	0	0	15	14
SC61	CSQ5		2014/08/01	15:56:33	DISP	16483	0	0	0	15.4	14
SC61	CSQ5		2014/08/01	15:58:32	DISP	16499	0	0.141455	0	15.7	15
SC61	CSQ5		2014/08/01	16:00:32	DISP	15782	0	0.257752	0	16.5	16
SC61	CSQ5		2014/08/01	16:02:32	DISP	16666	0	0.233758	0	15.9	15
SC61	CSQ5		2014/08/01	16:04:31	DISP	14149	0	0.000826	0	15.2	14
SC61	CSQ5		2014/08/01	16:06:31	DISP	11589	0	0	0	15.5	15

- 12) Returning to the output file list, select the adapter task file, ADAP. The adapter tasks interact with the queue manager. The default value of 8 was used for this test.

```

SC61,CSQ5,2014/08/01,15:26:40,VRM:800,
From 2014/08/01,15:24:40.843040 to 2014/08/01,15:26:40.331550 duration 119.488509 seconds
Task,Type,Requests,Busy %, CPU used, CPU %,"avg CPU","avg ET"
, , , , Seconds, , uSeconds,uSeconds
0,ADAP, 2504, 0.1, 0.073409, 0.1, 29, 32
1,ADAP, 71, 0.0, 0.002722, 0.0, 38, 43
2,ADAP, 5, 0.0, 0.000170, 0.0, 34, 32
3,ADAP, 0, 0.0, 0.000027, 0.0, 0, 0
4,ADAP, 0, 0.0, 0.000000, 0.0, 0, 0
5,ADAP, 0, 0.0, 0.000000, 0.0, 0, 0
6,ADAP, 0, 0.0, 0.000000, 0.0, 0, 0
7,ADAP, 0, 0.0, 0.000000, 0.0, 0, 0
Summ,ADAP, 2580, 0.0, 0.076328, 0.0, 30, 32
    
```

- 13) Like the dispatcher tasks, the CSV file includes the summary of the adapters per SMF interval. The data from the ADAPCSV file, downloaded and sorted by the number of requests (descending) is shown below.

mvs	qm	qsg	date	time	Type	Requests	Busy%	Total CPU	CPU%	avg CP	avg ET
SC61	CSQ5		2014/08/01	15:28:39	ADAP	34255	0.1	0.000028	0.1	20.5	29
SC61	CSQ5		2014/08/01	15:30:39	ADAP	31341	0.1	0	0.1	21.1	42
SC61	CSQ5		2014/08/01	15:32:38	ADAP	26393	0.1	0.000001	0.1	20.8	31
SC61	CSQ5		2014/08/01	15:44:36	ADAP	14568	0	0.000001	0	15.3	15
SC61	CSQ5		2014/08/01	15:34:38	ADAP	13706	0	0	0	18.5	18
SC61	CSQ5		2014/08/01	15:38:37	ADAP	11757	0	0	0	15.9	16
SC61	CSQ5		2014/08/01	15:36:38	ADAP	11655	0	0	0	15.9	15
SC61	CSQ5		2014/08/01	15:40:37	ADAP	11572	0	0	0	16	16
SC61	CSQ5		2014/08/01	15:42:36	ADAP	11183	0	0.000001	0	16.4	16
SC61	CSQ5		2014/08/01	15:46:35	ADAP	9903	0	0	0	18.8	18
SC61	CSQ5		2014/08/01	15:48:35	ADAP	6056	0	0	0	23.4	23
SC61	CSQ5		2014/08/01	15:52:34	ADAP	5886	0	0	0	20.2	20
SC61	CSQ5		2014/08/01	16:02:32	ADAP	5715	0	0	0	23	23
SC61	CSQ5		2014/08/01	15:58:32	ADAP	5674	0	0	0	22.2	22
SC61	CSQ5		2014/08/01	15:54:33	ADAP	5618	0	0	0	20.5	20
SC61	CSQ5		2014/08/01	15:56:33	ADAP	5610	0	0	0	21.7	22
SC61	CSQ5		2014/08/01	15:50:34	ADAP	5531	0	0	0	20.6	21
SC61	CSQ5		2014/08/01	16:00:32	ADAP	5368	0	0	0	25.1	25
SC61	CSQ5		2014/08/01	16:04:31	ADAP	4835	0	0	0	21.9	22
SC61	CSQ5		2014/08/01	16:06:31	ADAP	4013	0	0	0	22.5	22
SC61	CSQ5		2014/08/01	15:26:40	ADAP	2580	0	0	0	29.6	32

- 14) In addition to the dispatchers and adapter tasks, the SSL tasks and DNS task may be reported. In the sample data used for this lab, SSL was not used.

12)