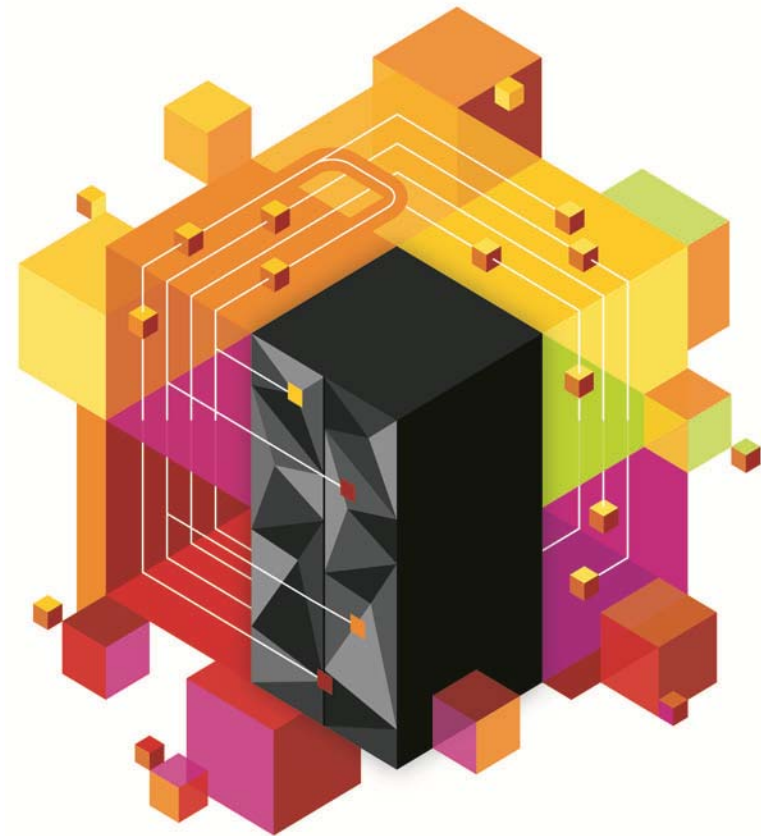




IBM zEnterprise Technology Summit

Manage IMS/IMSplex with IMS
Sysplex Manager



An abstract graphic in the top left corner composed of several 3D rectangular blocks in shades of red, pink, orange, and black, arranged in a cluster.

Agenda

- **IMS in a Sysplex challenges**
- **Product Highlights**
- **Problem Scenarios**
- **Q & A**

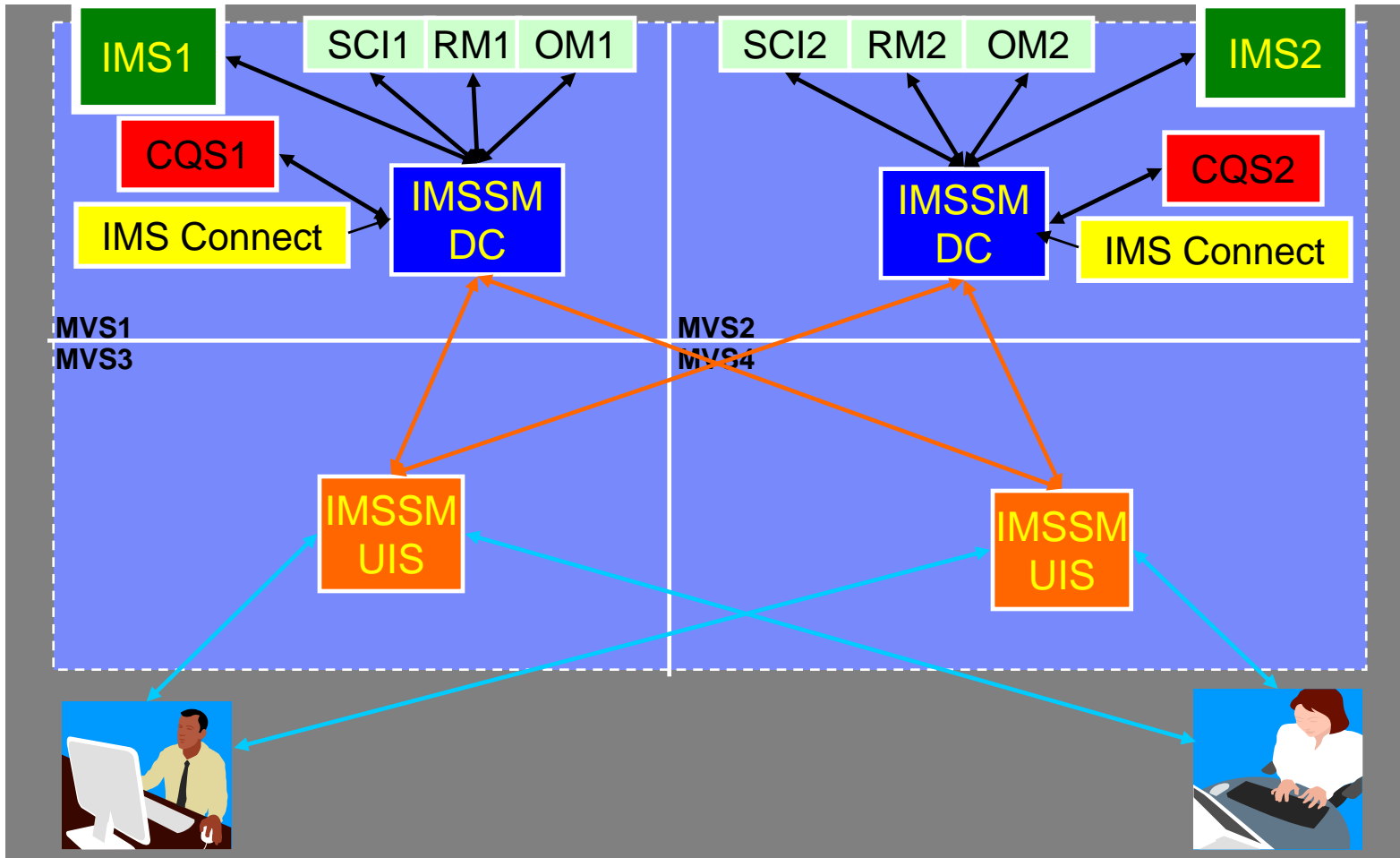
IMS in a Sysplex Challenges

- **More CF structures to configure and monitor**
 - Message queue structures
 - Lock structure
 - OSAM/VSAM cache structures
 - RM structure
- **Shared Queue**
 - Difficult to maintain transaction affinities
 - Monitor and manage queue structures utilization
 - Manage CQS log stream for queue recovery
 - Monitor queue depth and take actions as needed
 - Local buffer overflow
- **Data Sharing**
 - Long locks and deadlocks if applications are not taking sync point timely
 - Lock problems are difficult to debug without tools
 - Poor OSAM, VSAM and Shared VSO structures cache hit ratio
- **Global Resource Lockout**
 - Lterms, nodes and users can be locked by RM
 - Sysplex serial programs can be locked by RM causing bottleneck
- **Single point of Control**
 - Sysplex view of all IMS components
 - Global command capability and audit trail
 - Time consuming to capture diagnostics

IMS Sysplex Manager Highlights

- **Real-time management of the IMS Sysplex Environment**
 - Single point of control
 - Single system image thru local and aggregate view of data
 - Simplified User Interface (TSO/ISPF)
 - Structured displays of IMS resources and CF structures
 - Global Type-1 command, OM Type-2 and IMS SPOC
 - Basic z/OS performance information and SVC dump capture
 - Statistics for CSL (OM, RM and SCI), IRLM and CQS
 - Dashboard with key system indicators and threshold monitoring
 - Management functions
 - Intercept System exceptions and generate Console alerts
 - Produce real-time IRLM Long Lock Report
 - Browse, delete and recover messages on Shared Queues
 - Delete RM resource structure entries
 - Assign affinity for transactions in Shared Queues environment
 - Support IMS DB/TM, DBCTL, and DCCTL for IMS v8 and later

IMS Sysplex Manager Sample Configuration



Scenarios

- **IMS**
 - Scenario 1 – Taking Inventory and capture diagnostic data
 - Scenario 2 – Managing IMS System Parameters
 - Scenario 3 – Verifying IMS Resource Definitions
 - Scenario 4– Issuing IMS Commands
 - Scenario 5 – Maintaining Command Audit Trail
 - Scenario 6 – Managing Dependent Regions
 - Scenario 7 – Viewing IMS CF Structures
- **IMSplex**
 - Scenario 8 – Managing CSL RM Structure
 - Scenario 9 – Viewing Aggregate SCI, RM, OM Statistics
- **Data Sharing**
 - Scenario 10 – Resolving Data Sharing Long Locks
 - Scenario 11 - Viewing Real-time IRLM / PI Locking Status
 - Scenario 12 - Viewing Aggregated IRLM Statistics
- **Shared Queue and CQS**
 - Scenario 13 - Set transaction affinity and view local buffer utilization
 - Scenario 14 – Managing Destination Queue Depth
 - Scenario 15 – Viewing CQS Structures
- **Dashboard**
 - Scenario 16 – Dashboard and Thresholds

Scenario 1 – Taking Inventory and Capture Diagnostics

- **Many address spaces – IMS Control Region, IMS DLI/SAS, IMS DBRC, IRLM, CQS, RM, OM, SCI, etc..**
 - How do you identify related IMS components across the Sysplex?
 - What is the status of these components?
 - What version of IMS components are involved?
 - How much resource are they using from z/OS perspective?
 - How do you collect diagnostic data to debug sysplex problem?

- **IMS Sysplex Manger structured TSO/ISPF interface**
 - Guided display of IMS components
 - Provides component id, task or job name, version, status and basic z/OS information such as CPU time and EXCP counts
 - Drill-down to detailed component information
 - Easily capture console dumps for IMS components across the plex
 - Check DBRC RECON datasets placement and VSAM stats

Component List

```

Menu  View  Options  Help
-----
GJEP600          IMSplex/SMplex Component List          Realtime snapshot
COMMAND ===>                                         Row 1 to 19 of 19
                                                         SCROLL ==> PAGE

IMSplex. . . PLEX1          Date:          04/08/08          More:  >
SM server. : UIS1          Time:          14:50:23

Enter 's' to display statistics for the selected component
Enter 'i' to display z/OS information for the selected component
Enter 'd' to produce an SVC dump for the selected component
Enter 'dt' to produce SVC dumps for the selected component type across the plex

Cmd ID      Type  Version  z/OSname  Jobname  DBRCname  DLIname  IRLMname  Status
---  ---
IMS2        IMS   9.1.0    ECTST22   IMS2     DBREASAJ  DLIEASAJ  IRLME2N   READY
---         DBRC  9.1.0    ECTST22   DBREASAJ
---         DSAS  9.1.0    ECTST22   DLIEASAJ
---         IRLM  2.1.0    ECTST22   IRLME2N
---  CQS2        CQS   1.4.0    ECTST22   CQSEJ2
---  OM2OM       OM    1.2.0    ECTST22   OM2
---  RM2RM       RM    1.2.0    ECTST22   RM2
---  SCI2SC      SCI   1.2.0    ECTST22   SCI2
---  IMSA        IMS   9.1.0    ECTST21   IMSA     DBREASBJ  DLIEASBJ  IRLME2N   READY
---         DBRC  9.1.0    ECTST21   DBREASBJ
---         DSAS  9.1.0    ECTST21   DLIEASBJ
---         IRLM  2.1.0    ECTST21   IRLME2N
---  IMS1        IMS   9.1.0    ECTST21   IMS1     DBREASAJ  DLIEASAJ  IRLME2N   READY
---         DBRC  9.1.0    ECTST21   DBREASAJ
---         DSAS  9.1.0    ECTST21   DLIEASAJ
---  CQS1        CQS   1.4.0    ECTST21   CQSEJ1
---  OM1OM       OM    1.2.0    ECTST21   OM1
---  RM1RM       RM    1.2.0    ECTST21   RM1
---  SCI1SC      SCI   1.2.0    ECTST21   SCI1
***** Bottom of data *****

```


Component List (cont)

```

Menu View Options Help
-----
GJEP601          IMSplex/SMplex Component List          Realtime snapshot
COMMAND ==>          Row 1 to 19 of 19
                                SCROLL ==> PAGE

IMSplex. . . PLEX1          Date:          04/08/08          More: <
SM server. : UIS1          Time:          10:34:27

Enter 's' to display statistics for the selected component
Enter 'i' to display z/OS information for the selected component
Enter 'd' to produce an SVC dump for the selected component
Enter 'dt' to produce SVC dumps for the selected component type across the plex

Cmd ID      Type  IMS/Datasharing  CQS/SMQ-Structures  CPUtime(hs)  EXCPs
-----
IMS2        IMS   Y                Y                    2.95         9,540
           DBRC                .05          357
           DSAS                .17         1,230
           IRLM                4.51         319
CQS2        CQS   Y                Y                    3.34         2,609
OM2OM       OM                    .34         1,085
RM2RM       RM                    .36         1,194
SCI2SC      SCI                    .45         1,399
IMS1        IMS   Y                Y                    2.16         9,590
           DBRC                .05          357
           DSAS                .17         1,208
           IRLM                4.49         319
IMS1        IMS   Y                Y                    1.71         9,608
           DBRC                .05          385
           DSAS                .18         1,255
CQS1        CQS   Y                Y                    2.11         2,727
OM1OM       OM                    .31         1,088
RM1RM       RM                    .30         1,197
SCI1SC      SCI                    .41         1,402
***** Bottom of data *****

```

Capture Console Dumps

```

GJEPSVC                                SDUMPX Options
COMMAND ==> _____

Title . . . IMSSM SDUMPX on 04/08/08 11:14:13
_____

Jobname . . . . . : IMS1
Address space type. : IMS
z/OS name . . . . . : ECTST21

Enter Y to include or N to exclude the SDUMPX option.

ALLNUC (All nucleus areas) . . . _      ALLPSA (All PSAs in system). . _
COUPLE (Couple). . . . . _             CSA. . . . . _
GRSQ . . . . . _                       IO (I/O areas) . . . . . _
LSQA . . . . . _                       LPA (Active LPAs for region) . _
NUC (Nucleus). . . . . _               PSA (Current PSA). . . . . _
RGN (Region private area). . . . _     SQA. . . . . _
SUMDUMP (Summary dump) . . . . _      SWA (SWA for region) . . . . . _
TRT (Trace tables/GTF buffers) . _     XESDATA. . . . . _

_ Set SDUMPx option display off

```

IMS Menu Options

```
Menu View Options Help
----- Realtime snapshot
GJEPVIM View IMS Data
Option ==>
IMSplex. . . PLEX1
SM server. : UIS1
Route. . . . IMS1

Select one of the following options:

1. System configuration options and parameters
2. Destination queue depths
3. IMS resource definitions
4. IMS operations
5. Latch statistics
6. IRLM statistics
7. PI locks
8. IMS dependent region activity
9. DBRC and VSAM information for RECON data sets
10. View z/OS information for IMS address spaces
11. View shared queue local buffer utilization
12. Shared queue affinities
```

z/OS perspective for IMS address spaces

```

Menu View Options Help
-----
GJEPIAS      z/OS Information For IMS Address Spaces      Realtime snapshot
COMMAND ==>                                     Row 1 to 25 of 25
                                                    SCROLL ==> PAGE

IMSplex. . . PLEX1                                     Date. . . : 04/08/08
SM server. : UIS1                                     Time. . . : 11:23:40                               More: >

'd' to produce an SVC dump for the selected address space
'dt' to produce SVC dumps for the selected address space type plex-wide

Cmd Jobname  Type z/OSname Prty ASID  TCB time  SRB time  CPU time  EXCPs
---  ---     ---  ---      ---  ---  ---  ---  ---  ---
DBS2  IMS     ECTST22 C9   0091   3.04   .70     3.74     9,540
DBREASAJ DBRC ECTST22 FE   0088   .05     .00     .05      357
DLIEASAJ DSAS ECTST22 FE   0097   .06     .15     .21     1,230
IRLME2N IRLM ECTST22 FE   008C   .06     5.93    5.99     319
CQSEJ2  CQS  ECTST22 C2   002A   1.59    2.43    4.02    2,609
OM2     OM    ECTST22 C9   0031   .34     .11     .45     1,085
RM2     RM    ECTST22 C9   0095   .33     .11     .44     1,194
SCI2    SCI  ECTST22 C8   0028   .50     .08     .58     1,399
IMSA    IMS  ECTST21 C9   0032   2.16    .63     2.79    9,590
DBREASBJ DBRC ECTST21 FE   001A   .05     .00     .05      357
DLIEASBJ DSAS ECTST21 FE   0094   .06     .14     .20     1,208
IRLME2N IRLM ECTST21 FE   008C   .06     5.89    5.95     319
IMS1    IMS  ECTST21 C9   0091   1.90    .55     2.45    9,608
DBREASAJ DBRC ECTST21 FE   008D   .05     .00     .05      385
DLIEASAJ DSAS ECTST21 FE   0093   .06     .15     .21     1,255
CQSEJ1  CQS  ECTST21 C5   002A   .61     2.38    2.99    2,727
OM1     OM    ECTST21 C9   0031   .30     .08     .38     1,088
RM1     RM    ECTST21 C9   0028   .30     .08     .38     1,197
SCI1    SCI  ECTST21 C8   0090   .51     .07     .58     1,402
MPP23   TP    ECTST22 C9   0030   .01     .00     .01      153
MPP22   TP    ECTST22 C9   0025   .01     .00     .01      153
MPP21   TP    ECTST22 C9   0032   .01     .00     .01      153
MPP13   TP    ECTST21 C9   002F   .01     .00     .01      153
MPP12   TP    ECTST21 C9   0030   .01     .00     .01      153
MPP11   TP    ECTST21 C9   002E   .01     .00     .01      153
***** Bottom of data *****

```

DBRC RECON datasets and VSAM stats

- Show RECON datasets placement (COPY1, COPY2, SPARE) for all IMS systems
- Built-in LISTCAT for RECONS when drill down

```

Menu  View  Options  Help
-----
GJEP880          RECON / VSAM Statistics          Realtime snapshot
COMMAND ==>          Row 1 to 3 of 3
SCROLL ==> PAGE

SMplex . . . ISM01          Date. . . : 05/20/08
SM server. : UIS1          Time. . . : 10:41:43
Route. . . : *
More: >

Enter 's' to select a VSAM cluster for statistics

  Cmd  IMSid  Cluster name          Version  Status  DDname
  ---  ---  ---
s  SYS3  IMSTESTL. IMS. RECON1      V9R1    COPY1   RECON1
  ---  ---  ---
  SYS3  IMSTESTL. IMS. RECON2      V9R1    COPY2   RECON2
  ---  ---  ---
  SYS3  IMSTESTL. IMS. RECON3      V9R1    SPARE   RECON3
***** Bottom of data *****

```

DBRC RECON VSAM stats

```

Menu  View  Options  Help
-----
GJEP881                RECON / VSAM Statistics
COMMAND ==> |
Realtime snapshot
Row 1 to 23 of 84
SCROLL ==> PAGE

SMplex . . . ISM01          Date. . . : 05/20/08
SM server. : UIS1           Time. . . : 10:41:43
Route. . . : SYS3

IMSid. . . . . : SYS3
Cluster name . . . . . : IMSTESTL.IMS.RECON1
Catalog name . . . . . : VCATQAV
Version. . . . . : V9R1
Status . . . . . : COPY1
DDname . . . . . : RECON1
Last backup Date/Time. : NONE      / NONE

Description                Value
Entry data section 1
Component name . . . . . : IMSTESTL.IMS.RECON1.DATA
Comp. Type I=Index,D=Data. . : D
Creation date (yyyymmdd). . . : 2008141
Key position . . . . . : 0
Key length. . . . . : 32
Volume serial number . . . . . : USER03
Device type. . . . . : 3010200F
Number of extents. . . . . : 01
Allocation type. . . . . : TRK
Physical blocks per track. . . : 6
Tracks per allocation unit . . : 3
Number of bytes per track. . . : 0
Bytes per allocation unit. . . : 0
Primary space allocation . . . : 000003
Secondary space allocation . . : 000003
Entry data section 2
CI size. . . . . : 8,192
Maximum record size. . . . . : 143,360
Average record size. . . . . : 4,086
Physical block size. . . . . : 8,192
Bufferspace. . . . . : 24,576
High used RBA. . . . . : 147,456

```



Scenario 2 – Managing IMS System Parameters

- **Many system run-time parameters**
 - Sources: DFSPBxxx, overrides via Control Region PARM=
 - Which ones are being used?
 - Are the parameters the same across the Sysplex?

- **System parameter display**
 - Real-time scrollable display of “resolved” values
 - Parameter values across all IMS systems for easy comparison
 - New – System Parameter Tutor for instant description

IMS System Parameters

```

Menu  Edit  Option
-----
GJEP200  System configuration options and parameters  Realtime snapshot
COMMAND ===>  Row 1 to 30 of 262
SCROLL ===> PAGE

IMSplex: PLEX1          Date: 08/23/06
SM server: UIS          Time: 11:55:16
Route: *

Keyword
IMSId Parameter  Description  Value
-----
IMS1  ALOT        User auto logoff time, minutes  1440
IMS2  ALOT        User auto logoff time, minutes  1440
IMS1  AOIP        AOI pool upper limit, bytes  2147483647
IMS2  AOIP        AOI pool upper limit, bytes  2147483647
IMS1  AOIS        Cmd auth exit security option, A/C/N/R/S  N
IMS2  AOIS        Cmd auth exit security option, A/C/N/R/S  N
IMS1  AOI1        Type 1 AOI cmd auth option, A/C/N/R/S
IMS2  AOI1        Type 1 AOI cmd auth option, A/C/N/R/S
IMS1  APPC        Activate APPC/IMS LU 6.2 support, Y/N  N
IMS2  APPC        Activate APPC/IMS LU 6.2 support, Y/N  N
IMS1  APPCSE     APPC RACF security option, Check/Full/None  F
IMS2  APPCSE     APPC RACF security option, Check/Full/None  F
IMS1  APPLID1    VTAM Applid for IMS subsys
IMS2  APPLID1    VTAM Applid for IMS subsys
IMS1  APPLID2    VTAM Applid for XRF alternate subsys
IMS2  APPLID2    VTAM Applid for XRF alternate subsys
IMS1  APPLID3    VTAM Applid for RSR tracking subsys  APPL7
IMS2  APPLID3    VTAM Applid for RSR tracking subsys  APPL7
IMS1  ARC        OLDS automatic archiving interval  01
IMS2  ARC        OLDS automatic archiving interval  01
IMS1  ARMRST     MVS ARM to restart IMS after failure, Y/N  N
IMS2  ARMRST     MVS ARM to restart IMS after failure, Y/N  N

```


IMS System Parameters

```

Menu  Edit  Option
-----
GJEP200  4  1. Autorefresh
COMMAND === 2. Preferences...
          3. Enter IMS commands
          4. Display unequal values

  IMSplex: 08/30/06
SM server: 10:46:18
  Route: *

-----
Keyword
IMSid Parameter  Description  Value
-----
IMS1  ALOT      User auto logoff time, minutes  1440
IMS1  AOIP      AOI pool upper limit, bytes    2147483647
IMS1  AOIS      Cmd auth exit security option, A/C/N/R/S  N
IMS1  AOI1      Type 1 AOI cmd auth option, A/C/N/R/S

```

IMS System Parameters – Showing Unequal Parmns

```

Menu  Edit  Option
-----
GJEP201      System configuration options and parameters
COMMAND ==>

Realtime snapshot
Row 1 to 6 of 6
SCROLL ==> PAGE

IMSplex: PLEX1      Date:      08/23/06
SM server: UIS      Time:      11:55:16
Route: *

Keyword
IMSId Parameter  Description  Value
-----
IMS1 DC          DC proclib member suffix  C01
IMS2 DC          DC proclib member suffix  C02
IMS1 IMSID       IMS subsystem identifier  IMS1
IMS2 IMSID       IMS subsystem identifier  IMS2
IMS1 SHAREDQ     DFSSQxxx shared queues member suffix  EI1
IMS2 SHAREDQ     DFSSQxxx shared queues member suffix  EI2
***** Bottom of data *****

```

IMS System Parameters – Tutor

```

Menu  View  Options  Help
-----
GJEP200      System Configuration Options and Parameters      Realtime snapshot
COMMAND ==>> HELP                                     Row 1 to 30 of 131
                                                         SCROLL ==>> PAGE

SMplex . . .
SM server.
Route. . .

Keyword. : CMDMCS

N: Commands cannot be entered from an MCS console.
N is the default.
Y: Commands can be entered from an MCS or E-MSC
  console by entering the command recognition
  character (CRC) followed by the command text.
R: Commands can be entered from an MCS console in
  the form CRC followed by the command text. The
  calls RACF (or equivalent) to verify that the
  user ID of the console is authorized to issue
  the command.
C: Commands can be entered from an MCS console in
  the form CRC followed by the command text.
  DFSCCMDO is called to verify that the user ID of

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

SYS3  CIOP      Communication I/O pool upper limit, bytes      2147483647
SYS3  CMDMCS    Command security option . . . . .             N
SYS3  CPLOG     System log checkpoint frequency . . . . .     0000032767
SYS3  CRC       IMS command recognition character . . . . .  /
SYS3  CRTYPE    IMS Cntl Rgn type (DB/DC, DBCTL,DCCTL,FDR)    DB/DC
  
```

Scenario 3 – Verifying IMS Resource Definitions

▪ Resource definitions

- Transactions, Programs, Data Bases, Nodes, LTERMS, etc.
- Are the definitions the same across the Sysplex?
- What is the resource status across the Sysplex?
- How do you alter the status across the Sysplex?

▪ Resource definition display

- Query resource by status or attribute
- Real-time scrollable display of resources
- Resource attributes and status across all IMS systems for easy comparison
- Integrated IMS Type 1 command interface to alter resource status
- Ability to drill-down to related resource (from transaction to PSB, from PSB to databases...)

IMS Resource Definitions – Filter Specification

```

GJEP50S                               Transaction selection specification
COMMAND ===> _____

Enter a value for one of the selection criteria below. The default
is ALL (no filtering).

Transaction name: _____ PSB name: _____ Route code: _____

Execution class.....: _____ value (1-999)
Local system id.....: _____ value (0-9999)
Remote system id.....: _____ value (0-9999)

Status : _____ Place cursor and press enter for help.
Settings: WFI Place cursor and press enter for help.

Priority (value 0-99999 preceded by operator >, =, or <)
Current priority: _____ Normal priority : _____ Limit priority: _____

Counts (value 0-9999999 preceded by operator >, =, or <)
ENQ : _____ DEQ : _____ ONQ: _____
Limit : _____ Max region: _____ WFI: _____
Plimit: _____ PROCLIM : _____
  
```


IMS Resource Definitions – Drill-down to Database

```

Menu  Edit  Option  Filter
-----
GJEP510          IMS resource information - Programs
COMMAND ==>>>

SMplex: ISM01          Date:          08/30/06
SM server: UIS         Time:          09:48:08
Route: *
Program: HPC$M$00

Enter 'c' to exec IMS commands
      's' to view program detail data
      'p' to view PCB (databases) detail data

Realtime snapshot
Row 1 to 1 of 1
SCROLL ==>> PAGE
more: >

Cmd IMSid Name      Type  Lang  PSBSize  -ACBLIB  PSBSize  PSBSize  Size of
p_  SYS3  HPC$M$00 TP    ASSEM  1,728   19,136  19,328  3,968  GPSB  STYPE
***** Bottom of data *****

```

IMS Resource Definitions – Databases for a PSB

```

Menu Edit Option Filter
-----
GJEP520          IMS resource information - Databases
COMMAND ==>
Realtime snapshot
Row 1 to 9 of 9
SCROLL ==> PAGE

SMplex: ISM01          Date:      08/30/06
SM server: UIS         Time:      09:49:40
Route: *
Program: HPC$M$00
more: >

Enter 's' to view database detail data
      'c' under Cmd to exec IMS commands

Cmd  IMSid  Name      Area/
-----
SYS3  DBHDOJ01  DL/I      Partition
SYS3  DBHDOK01  DL/I      Type
SYS3  DBOHIDK5  DL/I      DMB
SYS3  DBOYLFPC  DL/I      Number
SYS3  DBVHDJ05  DL/I      Gl DMB
SYS3  DDVBTZ02  DL/I      Number
SYS3  DXYHIDK5  DL/I      DMBSize
SYS3  D2XHDJ05  DL/I      DMBBuff
SYS3  D2XHIDK5  DL/I      Size
SYS3  D2XHIDK5  DL/I      DBAcc

***** Bottom of data *****

```


IMS Resource Definitions – Manage Transactions

```

Menu  Edit  Option  Filter
-----
GJEP50C      IMS Resource Information - Transactions      Row 1 to 24 of 1,288
COMMAND ==>                                     SCROLL ==> PAGE

  IMSplex: PLEX1      Date:      08/23/06
  SM server: UIS      Time:      12:00:20
  Route: *
  Transact: *
                                     more: <>

Enter 's' to view transaction detail data
Enter 'p' to view PSB detail data
Enter 'c' under Cmd to exec IMS commands

  Cmd  IMSid  Tran  -----STATUS-----  -----SETTINGS-----
      Name  Stop Pstop Purge Lock Qerr Ustop  Sched Seq  Trunc WFI
              Opt  Opt  Opt  Opt  Opt  Opt  Opt  Opt  Opt
  c_  IMS1  ADDINV  Y  Y  Y  N  N  N  1  N  N  N
  _  IMS2  ADDINV  N  N  N  N  N  N  1  N  N  N
  _  IMS1  ADDPART  N  N  N  N  N  N  1  N  N  N
  _  IMS2  ADDPART  N  N  N  N  N  N  1  N  N  N
  _  IMS1  AOBMP  N  N  N  N  N  N  1  N  N  Y
  _  IMS2  AOBMP  N  N  N  N  N  N  1  N  N  Y
  _  IMS1  AOP  N  N  N  N  N  N  1  N  N  N
  _  IMS2  AOP  N  N  N  N  N  N  1  N  N  N
  _  IMS1  APOL11  N  N  N  N  N  N  1  N  N  N
  _  IMS2  APOL11  N  N  N  N  N  N  1  N  N  N
  
```

IMS Resource Definitions – Manage Transactions

```

Menu Edit Option Filter
GJEP50C          IMS Resource Information - Transactions      Realtime snapshot
COMMAND ==>                               Row 1 to 24 of 1,288
                                           SCROLL ==> PAGE

IMSplex:      GJEPTRCM ect an IMS command
SM server:
Route:        Resource name: ADDINV                          more: <>
Transact:     Resource type: TRANSACTION

Enter 's' t      1_ 1. /START
               'p' t      2. /STOP
               'c' u      3. /PSTOP
                               4. /LOCK
                               5. /UNLOCK
                               6. /PURGE

Cmd  IMSid  T
-----
c    IMS1   A      F1=HELP      F2=SPLIT      F3=END
    IMS2   A      F4=RETURN     F5=RFIND      F6=RCHANGE
    IMS1   A
    IMS2   ADDPART  N      N      N      N      N      N      1
    IMS1   AOBMP   N      N      N      N      N      N      1
    IMS2   AOBMP   N      N      N      N      N      N      1
    IMS1   AOP     N      N      N      N      N      N      1
    IMS2   AOP     N      N      N      N      N      N      1
    IMS1   APOL11  N      N      N      N      N      N      1
    IMS2   APOL11  N      N      N      N      N      N      1

SETTINGS-----
Seq  Trunc  WFI
Opt  Opt
N    N      N
N    N      N
N    N      N
N    N      N
N    N      N
N    N      N
N    N      N
N    N      N

```



Scenario 4 – Issuing IMS Commands

- **Issue Type 1 command to all IMS systems**
 - Display same resource type across Sysplex
 - Alter resource status across Sysplex

- **Command issued to each IMS system**
 - Output recorded to command file and logged history file
 - ISPF Browse(view) used to display result
 - Scrollable, Primary and line commands (find, exclude, etc.)
 - Retrievable list of previously entered commands

IMS Commands – Type-1

```

  Menu  View  Options  Help
-----
GJPCMD          Execute IMS Type-1 Commands          Row 1 to 24 of 25

COMMAND ==> _____ SCROLL ==> PAGE

IMSplex. . . PLEX1
SM server. : UIS1
Route. . . . *_____

Enter IMS command below

==> /DIS OLDS
_____
_____

Place cursor on choice and press Enter to retrieve command

=> /DIS QCNT TRAN ALL
=> /DIS OLDS
=> /DIS ACT
=>
=>
=>
=>

```

IMS Commands – Type-1

```

File Edit Edit_Settings Menu Utilities Compilers Test Help
VIEW          USRT004.ECTST21.IMSSM.CMDOUT1          Columns 00001 00080
Command ==> |                                       Scroll ==> PAGE
***** Top of Data *****
==MSG> -Warning- The UNDO command is not available until you change
==MSG> your edit profile using the command RECOVERY ON.
000001 *-----*
000002 * FIRST Response from: IMS1 *
000003 *-----*
000004
000005 W70 OLDS-DDNAME % FULL RATE ARCH-JOB   ARCH-STATUS  OTHER-STATUS
000006 W00 *DFSOLP00      65     0                AVAILABLE    IN USE
000007 W00  DFSOLP03                AVAILABLE
000008 W00  DFSOLP02                AVAILABLE
000009 W00  DFSOLP01                AVAILABLE
000010
000011 W01  SINGLE OLDS LOGGING, SINGLE WADS LOGGING
000012 W02  AUTOMATIC ARCHIVE = 01
000013 W03  WADS = *DFSWADS0 DFSWADS1
000014 W04  SLDSREAD ON
000015 X99 *08101/093352*
000016 *-----*
000017 * FIRST Response from: IMS2 *
000018 *-----*
000019
000020 W70 OLDS-DDNAME % FULL RATE ARCH-JOB   ARCH-STATUS  OTHER-STATUS
000021 W00 *DFSOLP00      41     0                AVAILABLE    IN USE
000022 W00  DFSOLP03                AVAILABLE
000023 W00  DFSOLP02                AVAILABLE
000024 W00  DFSOLP01                AVAILABLE
000025
000026 W01  SINGLE OLDS LOGGING, SINGLE WADS LOGGING
000027 W02  AUTOMATIC ARCHIVE = 01
000028 W03  WADS = *DFSWADS0 DFSWADS1
000029 W04  SLDSREAD ON
000030 X99 *08101/093352*
***** Bottom of Data *****

```

IMS Commands – Type-2

```
Menu Edit Option
-----
GJEPCMD          Execute IMS Type-2 commands          Row 1 to 24 of 25
COMMAND ===> _____ SCROLL ===> PAGE

  IMSplex: PLEX1
  SM server: UIS
  Route: *

Enter IMS command below

===> QRY IMSPLEX SHOW(ALL)

  Place cursor on choice and press Enter to retrieve command

=> QRY DB NAME(AUTODB)
=> QRY IMSPLEX SHOW(ALL)
=>
=>
=>
```

IMS Commands – Type-2

```

File Edit Edit_Settings Menu Utilities Compilers Test Help
VIEW      USRT005.IMSSM.CMDOUT1                      Columns 00001 00080
Command ==>                                         Scroll ==> PAGE
***** ***** Top of Data *****
==MSG> -Warning- The UNDO command is not available until you change
==MSG> your edit profile using the command RECOVERY ON.
000001 *-----*
000002 * FIRST Response from: SCI1 *
000003 *-----*
000004 IMSplex . . . . . : PLEX1
000005 Routing . . . . . : *
000006 Date. . . . . : 06/08/30
000007 Time. . . . . : 10:33:34.2
000008
000009 Response for: QRY IMSPLEX SHOW(ALL)
000010 IMSplex MbrName CC Member JobName Type Subtype Version OSName
000011 Status
000012 -----
000013 CSLPLEX1 OM10M 0 OM10M OM1 OM 1.2.0 ECTST21
000014 READY,ACTIVE
000015 CSLPLEX1 OM10M 0 IMS1 IMS1 IMS DBDC 9.1.0 ECTST21
000016 READY,ACTIVE
000017 CSLPLEX1 OM10M 0 DCIMS19 DCIMS19 OTHER 1.2.0 ECTST21
000018 READY,ACTIVE
000019 CSLPLEX1 OM10M 0 SCI1SC SCI1 SCI 1.2.0 ECTST21
000020 READY,ACTIVE
000021 CSLPLEX1 OM10M 0 RM1RM RM1 RM MULTRM 1.2.0 ECTST21
000022 READY,ACTIVE
***** ***** Bottom of Data *****

```

Scenario 5 – Maintaining command Audit Trail

- **Keeping track of operations of your IMS systems**
 - Need for audit trail?
 - Easy way of viewing IMS commands & system messages?
 - Automatic archive of audit log?

- **Sysplex Manager with its history datasets**
 - Log most type-1 IMS commands, command responses and MTO messages from all IMS images regardless of origins (z/OS console, terminal, OTMA, AOI programs using CMD or ICMD interface)
 - Searchable, filterable online viewing of log data using ISPF dialog
 - Automatic archive for full history dataset
 - Archive Directory to assist locating archived data
 - Issue type-1 and type-2 IMS commands while viewing log data (similar to z/OS SDSF)
 - Check SM History datasets status

Command Audit Trail

```

Menu  Edit  Option
-----
GJEPS00          System exceptions/log data selection specification
Command ===>

  IMSplex: PLEX1      SM server: UIS

Enter the criteria to view the system exceptions/Log data from history dataset:
Enter the System Exception Type for system exception view
      Data type : CMD          (LLKX, CQSX, LOG, MTO, CMD or *)
Enter the LOG, MTO, CMD filter : *          (IMSid or *)
Enter the CQS filter           : _____ (CQSid or *)

Enter the start date and time of data
      Start date: 08/25/06      (mm/dd/yy)
      Start time: 15:48:14      (hh:mm:ss)

Enter the end date and time of data
      End date   : 08/25/06      (mm/dd/yy)
      End time   : 15:49:39      (hh:mm:ss)

```

Command Audit Trail

```

ROUTE FILE 0017003:IMS1:END001
COMMAND ==>
Route: *
IMSPLEX: PLEX1
SM server: UIS1
Filters:
Data Type: *
REQUEST: Start date time: 01/03/07 14:25:04
          End date time: 01/04/07 11:25:03
RESPONSE: First record : 01/03/07 14:29:16
          Last record  : 01/03/07 17:21:32
000035 IMS1 CMD 01/03/07 16:35:48 -----> COMMAND ISSUED FROM: OTHER ORIGIN
000036 IMS1 CMD 01/03/07 16:35:48 BY USERID: LTERM: IMS1
000037 IMS1 CMD 01/03/07 16:35:48 /STD PGM HPC$M$00
000038 IMS1 CMD 01/03/07 16:35:48 DFS058I 16:35:48 STOP COMMAND COMPLETED
000039 IMS1 MTO 01/03/07 16:36:16 DFS551I MESSAGE REGION MPP11 STARTED ID=00001 TIME=1636 CLASS=001,002,003,00
000040 IMS1 MTO 01/03/07 16:36:16 4
000041 IMS1 MTO 01/03/07 16:36:17 DFS551I MESSAGE REGION MPP12 STARTED ID=00002 TIME=1636 CLASS=001,002,003,00
000042 IMS1 MTO 01/03/07 16:36:17 4
000043 IMS1 MTO 01/03/07 16:36:17 DFS551I MESSAGE REGION MPP13 STARTED ID=00003 TIME=1636 CLASS=001,002,003,00
000044 IMS1 MTO 01/03/07 16:36:17 4
000045 IMS2 CMD 01/03/07 16:36:29 -----> COMMAND ISSUED FROM: OTHER ORIGIN
000046 IMS2 CMD 01/03/07 16:36:29 BY USERID: LTERM: IMS2
000047 IMS2 CMD 01/03/07 16:36:29 /STD PGM HPC$M$00
000048 IMS2 CMD 01/03/07 16:36:29 DFS058I 16:36:29 STOP COMMAND COMPLETED
000049 IMS2 MTO 01/03/07 16:36:58 DFS551I MESSAGE REGION MPP23 STARTED ID=00001 TIME=1636 CLASS=001,002,003,00
000050 IMS2 MTO 01/03/07 16:36:58 4
000051 IMS2 MTO 01/03/07 16:36:58 DFS551I MESSAGE REGION MPP22 STARTED ID=00002 TIME=1636 CLASS=001,002,003,00
000052 IMS2 MTO 01/03/07 16:36:58 4
000053 IMS2 MTO 01/03/07 16:36:58 DFS551I MESSAGE REGION MPP21 STARTED ID=00003 TIME=1636 CLASS=001,002,003,00
000054 IMS2 MTO 01/03/07 16:36:58 4
000055 IMS1 CMD 01/03/07 16:37:18 -----> COMMAND ISSUED FROM: OTHER ORIGIN
000056 IMS1 CMD 01/03/07 16:37:18 BY USERID: LTERM: IMS1
000057 IMS1 CMD 01/03/07 16:37:18 /CLS NODE NDSL2A1
000058 IMS1 CMD 01/03/07 16:37:18 DFS551I BATCH REGION SMQBMP STARTED ID=00004 TIME=1636
000059 IMS1 CMD 01/03/07 16:37:18 DFS2500I DATABASE DBHDOJ01 SUCCESSFULLY ALLOCATED
000060 IMS1 CMD 01/03/07 16:37:18 DFS2500I DATABASE DBHDOK01 SUCCESSFULLY ALLOCATED
000061 IMS1 CMD 01/03/07 16:37:18 DFS552I BATCH REGION SMQBMP STOPPED ID=00004 TIME=1636
000062 IMS1 CMD 01/03/07 16:37:18 DFS058I 16:37:18 CLSDST COMMAND COMPLETED EXCEPT NODE NDSL2A1
000063 IMS1 CMD 01/03/07 16:37:50 -----> COMMAND ISSUED FROM: OTHER ORIGIN
000064 IMS1 CMD 01/03/07 16:37:50 BY USERID: LTERM: IMS1
000065 IMS1 CMD 01/03/07 16:37:50 /STA DC
000066 IMS1 LOG 01/03/07 16:37:50 -----> ACCOUNTING RECORD LOGREC 06
000067 IMS1 LOG 01/03/07 16:37:50 IMS ID: IMS1 VTAM RECONNECTED
000068 IMS1 LOG 01/03/07 16:37:50 PRILOG START TIME: 2007004F00330240 CURRENT TIME: 2007004F00375022
000069 IMS1 CMD 01/03/07 16:37:50 DFS2179I 16:37:19 QUICK VTAM SHUTDOWN REQUESTED
F1=HELP F2=SPLIT F3=END F4=RETURN F5=REIND F6=RCHANGE F7=UP F8=DOWN F9=SWAP F10=LEFT F11=RIGHT F12=RETRIEVE
  
```

SM History database status and usage

- Up to 8 VSAM Linear datasets make up SM history database
- Used in a circular fashion similar to IMS OLDS
- Automatic archive process to save full datasets to user-defined output location
- Directory to help users keep track of archive output
- Real-time information on status of these history datasets

```

Menu  View  Options  Help
-----
GJEP102          History Dataset Information          Realtime snapshot
COMMAND ==>>> |                                     Row 1 to 2 of 2
SCROLL ==>>> |                                     PAGE

SMplex . . . : ISM01                               Date . . . : 05/20/08
SM server . . : UIS1                               Time . . . : 14:55:39

Database ID . . . . . : IMSSMH12
Number of records recorded . . . :      8,548
Number of datasets allocated . . . :         2
Number of datasets used . . . . . :         2
Earliest history record . . . . . : 08/05/01 19:15:56 yy/mm/dd hh:mm:ss
Latest history record . . . . . : 08/05/20 17:41:43 yy/mm/dd hh:mm:ss

-----Recording yy/mm/dd hh:mm:ss-----
DDname  St.   RecCnt  Earliest          Latest          MaxSize(K)  UsedSize(K)
HIST1   F     8,490  08/05/01 19:15:56 08/05/03 12:59:45    12,956    12,288
HIST2   R        58 08/05/03 12:59:55 08/05/20 17:41:43    10,796     2,048
***** Bottom of data *****

```

Scenario 6 – Managing Dependent Regions

- **Transaction workload back-logged**
 - What dependent regions are available?
 - What transaction classes do they handle?
 - Are they occupied with work?
 - What are they doing?

- **Scrollable list of all dependent regions across Sysplex**
 - Enhanced IMS /DISPLAY ACTIVE REG
 - Displays overall DL/I DB/TM call counts
 - Sort the lock held column to see which reg holds the most locks
 - Resequenced by primary or secondary classes
 - Drill down to lower level of detail

Dependent Region Display

```

GJEP22S                               Region Selection Specification
COMMAND ==> _____

Enter a value for one of the selection criteria below. The default
is ALL (no filtering).

Jobname. . . . . : *_____
Region type. . . . . : _____ Place cursor and press enter for help.
Transaction name . . . . . : _____
Program name . . . . . : _____
Stepname . . . . . : _____
Status . . . . . : _____ Place cursor and press enter for help.

Class1 . . . . . : _____ 1-999
Class2 . . . . . : _____ 1-999
Class3 . . . . . : _____ 1-999
Class4 . . . . . : _____ 1-999

Counts (value 0-9999999) preceded by operator >, =, or <
TMCalls. . . . . : _____
DBCalls. . . . . : _____
  
```

Dependent Region Display

```

Menu  View  Options  Help
-----
GJEP220          IMS Dependent Region Activity          Realtime snapshot
COMMAND ==>          Row 1 to 8 of 8
                                SCROLL ==> PAGE

IMSplex. . . PLEX1          Date. . . : 04/10/08
SM server. : UIS1          Time. . . : 11:30:51
Route. . . . *
                                More: >

Enter 's' to select a region for detailed activity
      't' to view transaction resource definition data
      'p' to view PSB resource definition data
      'c' to process IMS commands
      'd' to produce an SVC dump for the selected region
      'dt' to produce SVC dumps for the selected region type across the plex

Cmd IMS Rgn  Type Jobname  Trancode Program  X-M Locks-held  CPUtime(hs)
--- --- ---  --- ---      ---      ---      ---
  ___ IMS1 4   BMP  BMP3      PLVAPZ12  N        3           .01
  ___ IMS1 3   BMP  BMP1      PLVAPZ02  N        2           .01
  s  ___ IMS1 2   TP  MPP02     SMQ6      SMQPSB6  Y        0           2.53
  ___ IMS1 1   TP  MPP01     N         0           .04
  ___ IMS2 4   TP  MPP21     NQF2      PMVAPZ22  Y        0           .01
  ___ IMS2 3   TP  MPP22     NQF1      PMVAPZ12  Y        0           .01
  ___ IMS2 2   BMP  BMP2      PLVAPZ22  Y        3           .01
  ___ IMS2 1   BMP  BMP21     HPC$BA00  N        2           .03
***** Bottom of data *****

```

Dependent Region Display

```

Menu  View  Options  Help
-----
GJEPRGN                                Realtime snapshot
Option ==> 2
-----
IMSplex. . . PLEX1
SM server. : UIS1

Jobname. . . : MPP02
Region-id. : 2      Type. . . : TP      Status . . : ACTIVE
PSBname. . . : SMQPSB6  Trancode. : SMQ6    Classes. : 1  2  3  4
In Cross Memory Window state. . : Y

Select one of the following options:

1.  MVS information
2.  Queue Manager statistics
3.  Database information
4.  Fastpath information and statistics
5.  DL/I information and statistics

```

Dependent Region Display

```

Menu View Options Help
-----
GJEP230          IMS Dependent Region Activity          Realtime snapshot
COMMAND ==>          Row 1 to 28 of 30
                      SCROLL ==> PAGE

IMSpIex. . . : PLEX1          Date. . . : 04/10/08
SM server. . . : UIS1          Time. . . : 11:34:34
Route. . . . : IMS1

Jobname. . . : MPP02
Region-id. . . : 2          Type. . . : TP          Status . . : ACTIVE
PSBname. . . : SMQPSB6      Trancode. : SMQ6        Classes. . : 1 2 3 4
In Cross Memory Window state. . . : Y

Userid. . . . . : SMQLTM07
Userid indicator. . . . . : L
Originating Input lterm . . . : SMQLTM07
LU6.2 network identifier . . . :
Date/time when msg rcvd . . . : 04/10/08
                               10:40:32.9

QUEUE MANAGER BUFFER COUNTS:
Short buffer . . . . . : 0
Long buffer. . . . . : 0

Messages dequeued . . . . . : 1
Accum. msg DEQ cnt. for rgn: 0

SUBQUEUE 6 TIMES:
For this message . . . . . : 0
Accumulated. . . . . : 0

ENQUEUE/DEQUEUE COUNTERS:
Test enqueues. . . . . : 0
Waits on test enqueues . . . : 0
Test dequeues. . . . . : 0
Q command enqueues . . . . . : 0
Waits on Q command enqueue: 0
Q command dequeues . . . . . : 0
Update enqueues. . . . . : 0
Waits on update enqueues . . : 0
Update dequeues. . . . . : 0
Exclusive enqueues . . . . . : 0

```


Dependent Region Display

```

Menu  View  Options  Help
-----
GJEP230          IMS Dependent Region Activity          Realtime snapshot
COMMAND ==>          Row 1 to 16 of 16
                                SCROLL ==> PAGE

IMSplex. . . : PLEX1          Date. . . : 04/10/08
SM server. . . : UIS1          Time. . . : 11:35:32
Route. . . . : IMS1

Jobname. . . : MPP02
Region-id. . . : 2          Type. . . : TP          Status . . : ACTIVE
PSBname. . . : SMQPSB6      Trancode. : SMQ6        Classes. . : 1  2  3  4
In Cross Memory Window state. . : Y

DB2 subsystem name . . . . :
DB2 plan name. . . . . :

Class assoc. with exc.tran.:          0
Number of locks,curr. held.:          0
Maximum number of locks . . :          0

PCB INFORMATION SECTION . . . :
PCB Type-TP/DB PCB . . . . : TP-PCB
Status code. . . . . :
PCB name . . . . . : IOPCB
DBD name . . . . . : N/A
Terminal name. . . . . : SMQLTM07
Segment name feedback. . . :
Function code. . . . . : GHU
Processing option. . . . . :

***** Bottom of data *****

```

Dependent Region Display

```

Menu  View  Options  Help
-----
GJEP230          IMS Dependent Region Activity          Realtime snapshot
COMMAND ==>    SCROLL ==> PAGE
Row 1 to 28 of 36

IMSpIex. . . : PLEX1          Date. . . : 04/10/08
SM server. . : UIS1          Time. . . : 11:36:36
Route. . . . : IMS1

Jobname. . . : MPP02
Region-id. . : 2             Type. . . : TP           Status . . : ACTIVE
PSBname. . . : SMQPSB6      Trancode. : SMQ6        Classes. . : 1 2 3 4
In Cross Memory Window state. . : Y

MSG GU  CALLS. . . . . : 1
MSG GN  CALLS. . . . . : 0
MSG CHNG CALLS. . . . . : 0
MSG ISRT CALLS. . . . . : 0
MSG PURG CALLS. . . . . : 0
MSG CMD  CALLS. . . . . : 0
MSG GCMD CALLS. . . . . : 0
MSG AUTH CALLS. . . . . : 0
MSG SETO CALLS. . . . . : 0
DB GU   CALLS. . . . . : 0
DB GN   CALLS. . . . . : 0
DB CNP  CALLS. . . . . : 0
DB GHU  CALLS. . . . . : 1
DB GHN  CALLS. . . . . : 0
DB GHNP CALLS. . . . . : 0
DB ISRT CALLS. . . . . : 0
DB DLET CALLS. . . . . : 0
DB REPL CALLS. . . . . : 0

TOTAL OF PREVIOUS DB CALLS: 1
DB DEQ  CALLS. . . . . : 0
System Service Calls. . . . :
APSB CALLS. . . . . : 0
DPSB CALLS. . . . . : 0
GMSG CALLS. . . . . : 0
ICMD CALLS. . . . . : 0
RCMD CALLS. . . . . : 0
CHKP CALLS. . . . . : 0

```



Scenario 7 – Viewing IMS CF Structures

- **Growing use of Coupling Facility Structures**
 - Data Sharing, Shared Message Queues, Resource Manager
 - No single source for list of in use structures and details

- **Coupling Facility Structure display**
 - Real-time display of structure list
 - Statistics, Connections, Coupling Facility information

IMS Coupling Facility Structures

```

Menu  View  Options  Help
-----
GJEP900                               Coupling Facility Structures
COMMAND ==> █                               Realtime snapshot
                                           Row 1 to 8 of 8
                                           SCROLL ==> PAGE

IMSpIex. . . PLEX1                       Date. . . : 04/10/08
SM server. : UIS1                         Time. . . : 09:37:41
Route. . . : *

Enter 's' to select a structure for statistics

  Cmd  Structure name  Type  Status  -Connections-  ---Utilization---
      |              |      |      |      Conns/Maxconns  Entries  Elements
-----|-----|-----|-----|-----|-----|-----
  ___  IMSMSGQ01      MSGQ  ALLOCATED      2 /   32      0 %      0 %
  ___  IMSMSGQ01OFLW  OVFL  UNALLOCATED  0 /    0      0 %      0 %
  ___  IMSEMHQ01      EMHQ  ALLOCATED      2 /   32      1 %      1 %
  ___  IMSEMHQ01OFLW  OVFL  UNALLOCATED  0 /    0      0 %      0 %
  ___  IMSRSRC01      RSRC  ALLOCATED      2 /   32     31 %      0 %
  ___  GJESMAFN      AFFN  UNALLOCATED  0 /    0      0 %      0 %
  ___  LT01          IRLM  ALLOCATED      2 /   32      0 %      0 %
  ___  OSAMSESXI     OSAM  ALLOCATED      2 /   32      0 %      0 %

***** Bottom of data *****

```

IMS Coupling Facility Structures

```
Menu View Options Help
----- Realtime snapshot
GJEPCFM          IMSSM Coupling Facility Structure Data
Option ==> 1
-----
IMSplex. . : PLEX1
SM server. : UIS1
Route. . . : *

Structure name. : IMSRSRC01      Type. : RSRC

Select one of the following options:

1. Structure statistics
2. Connections
3. CF Structure data
```

IMS Coupling Facility Structures

```

Menu View Options Help
-----
GJEP901                      CF Structure Statistics
COMMAND ==> |
-----
IMSplex. . . : PLEX1                      Date. . . : 04/10/08
SM server. . . : UIS1                      Time. . . : 09:37:41
Route. . . . : *

Structure name. : IMSRSRC01                Type. : RSRC

Description                                           Value
STRUCTURE STATISTICS
Entry count. . . . . :                      690
Element count. . . . . :                     14
Maximum entry count. . . . . :              2,161
Maximum element count. . . . . :            2,160
Entry ratio. . . . . :                       1
Element ratio. . . . . :                     1
Entries in use (%) . . . . . :               31
Elements in use (%) . . . . . :              0

Policy size. . . . . :                      2,048K
Policy initial size. . . . . :               0K
Policy minimum size. . . . . :               0K
Structure full threshold (%) . . . . . :     80
Actual structure size. . . . . :             2,048K
Storage increment size . . . . . :           256K

Event monitor control count. . . :           0
Max event monitor cntrl count. . :           0
Maximum connections. . . . . :              32
Nr of crnt IMS connections . . . :           2
CF Max access time (1/10th s). :            NOLIMIT
***** Bottom of data *****

```

IMS Coupling Facility Structures

```

Menu  View  Options  Help
-----
GJEP902      Coupling Facility Structure Connections      Realtime snapshot
COMMAND ==>                                     Row 1 to 2 of 2
                                                SCROLL ==> PAGE

IMSplex. . : PLEX1                               Date. . : 04/10/08
SM server. : UIS1                               Time. . : 09:37:41
Route. . . : *

Structure name. : IMSRSRC01                      Type. : RSRC

Connection name  ID      Version  OS-name  Jobname  ASID      Status
CQSCQS1CQS      0001  00010275 ECTST21  CQSEJ1  00000031  ACTIVE
CQSCQS2CQS      0002  00020002 ECTST22  CQSEJ2  00000031  ACTIVE
***** Bottom of data *****

```

IMS Coupling Facility Structures

```

Menu  View  Options  Help
-----
GJEP903          Coupling Facility Data          Realtime snapshot
COMMAND ==>          Row 1 to 12 of 12
                                SCROLL ==> PAGE

IMSplex. . . : PLEX1          Date. . . : 04/10/08
SM server. . : UIS1          Time. . . : 09:37:41
Route. . . . : *

Structure name. : IMSRSRC01      Type. . . : RSRC

Description                               Value
COUPLING FACILITY DATA
ID. . . . . : 0000DCFF3
Name (node descriptor). . . . . : LF03
Side indicator (0 or 1) . . . . . : 1
Mode (PP or SI) . . . . . : SI
LPAR partition number . . . . . : 0
Node type . . . . . : SIMDEV
Model number. . . . . : 001
Node manufacturer . . . . . : IBM
Manufacturer plantid. . . . . : EN
Sequence number . . . . . : ND0300000000
CPCID . . . . . : 00000
***** Bottom of data *****

```


Scenarios

- **IMS**
 - Scenario 1 – Taking Inventory and capture diagnostic data
 - Scenario 2 – Managing IMS System Parameters
 - Scenario 3 – Verifying IMS Resource Definitions
 - Scenario 4– Issuing IMS Commands
 - Scenario 5 – Maintaining Command Audit Trail
 - Scenario 6 – Managing Dependent Regions
 - Scenario 7 – Viewing IMS CF Structures
- **IMSplex**
 - Scenario 8 – Managing CSL RM Structure
 - Scenario 9 – Viewing Aggregate SCI, RM, OM Statistics
- **Data Sharing**
 - Scenario 10 – Resolving Data Sharing Long Locks
 - Scenario 11 - Viewing Real-time IRLM / PI Locking Status
 - Scenario 12 - Viewing Aggregated IRLM Statistics
- **Shared Queue and CQS**
 - Scenario 13 - Set transaction affinity and view local buffer utilization
 - Scenario 14 – Managing Destination Queue Depth
 - Scenario 15 – Viewing CQS Structures
- **Dashboard**
 - Scenario 16 – Dashboard and Thresholds



Scenario 8 – Managing CSL RM Structure

- **Common Service Layer RM Structure Content**
 - Holds global status of IMS Resources in IMSplex
 - Determines IMSplex wide status of Trans, LTERMs, Users
 - No capability to view content
 - No capability to alter/delete inconsistently defined resources

- **Resource Management Structure display**
 - Real-time display of structure content
 - Selectable via resource type and name filtering
 - Global status info to aid delete decision
 - Capability to delete selected resource definitions (multiple delete, delete by resource type or by owner)
 - Eliminates need to scratch and reallocate resource structure

IMS Resource Structure Content

```

Menu  View  Options  Help
----- Realtime snapshot
GJEPRML          IMS RM Management
Option ==> 14
-----
IMSplex. . . PLEX1
SM server. : UIS1
Route. . . : *
Filter . . . *
-----

Select one of the following resource types:

1.  Transactions          9.  Userids
2.  Lterms               10. Static node users
3.  Remote MSnames      11. Databases
4.  Dynamic users       12. Scheduled Serial Programs
5.  Remote Nodes        13. Areas
6.  IMSplex             14. All of the above
7.  CPIC transactions
8.  APPC descriptors

```

IMS Resource Structure Content

```

Menu  view  Options  Help
-----
GJEP7611          RM Resource Information          Realtime snapshot
COMMAND ==> _____ Row 1 to 27 of 392
                                SCROLL ==> PAGE

IMSplex. . . : PLEX1          Date. . . : 04/08/08
SM server. . : UIS1          Time. . . : 12:57:54
Route. . . . : *
Filter . . . . : *

Resource type. . : TRANSACT
Enter 'd'      to delete the resource
      'dxx'    to delete multiple resources (xx = 1-99)

Cmd  Resource      Prompt  Version          Owner    Glbl-stat  Cmd-timestamp
----  -
___  APOL21          _____ 0000000000000001  NONE     NONE
___  BHA2            _____ 0000000000000001  NONE     NONE
___  BHF1            _____ 0000000000000001  NONE     NONE
___  BHG3            _____ 0000000000000001  NONE     NONE
___  CONV12M0        _____ 0000000000000001  NONE     NONE
___  CONV21C0        _____ 0000000000000001  NONE     NONE
___  CONV21M1        _____ 0000000000000001  NONE     NONE
d   CONV21U0        _____ 0000000000000001  NONE     NONE
___  DSPINV          _____ 0000000000000001  NONE     NONE
___  ETRAN29         _____ 0000000000000001  NONE     NONE
___  GMC             _____ 0000000000000001  NONE     NONE
___  NQG1            _____ 0000000000000001  NONE     NONE
___  NQHC1           _____ 0000000000000001  NONE     NONE
___  NQH3            _____ 0000000000000001  NONE     NONE

```


IMS Resource Structure Content

```

Menu View Options Help
-----
GJEP7611          RM Resource Information          Realtime snapshot
COMMAND ==>      Row 8 to 34 of 392
SCROLL ==> PAGE

IMSpdex. . . : PLEX1          Date. . . : 04/08/08
SM server. . . : UIS1        Time. . . : 12:57:54
Route. . . . : *
Filter . . . . : *

Resource type. . : TRANSACT
Enter 'd' to delete the resource
'dxx' to delete multiple resources (xx = 1-99)

Cmd Resource Prompt Version Owner Glbl-stat Cmd-timestamp
-----
CONV21U0 Deleted 00000000000000001 NONE NONE
DSPINV 00000000000000001 NONE NONE
ETRAN29 00000000000000001 NONE NONE
GMC 00000000000000001 NONE NONE
NQG1 00000000000000001 NONE NONE
NQHC1 00000000000000001 NONE NONE
NQH3 00000000000000001 NONE NONE
NRCV11B0 00000000000000001 NONE NONE
ODSAGRC2 00000000000000001 NONE NONE
RCK1MM 00000000000000001 NONE NONE

```

IMS Resource Structure Content

```

Menu View Options Help
-----
GJEP7611      1. Autorefresh
COMMAND ===  *. Preferences...
              3. Enter IMS commands
IMSplex. .   4. Delete resources by owner
SM server.   5. Delete all displayed resources
Route. . .
Filter . . . *

Resource type. . : TRANSACT
Enter 'd'      to delete the resource
'dxx'         to delete multiple resources (xx = 1-99)

Cmd Resource      Prompt  Version      Owner      Glbl-stat  Cmd-timestamp
CONV21U0         Deleted 0000000000000001  NONE      NONE
DSPINV
ETRAN29
GMC
NQG1
NQHC1
NQH3
NRCV11B0
ODSAGRC2
RCK1MM
SHD1
SHE3
SKEA
SKT2

```

Scenario 9 – Aggregated SCI, RM, OM Statistics

- **Managing the well being of Common Service Layer (CSL) address spaces**
 - Lack of tools to obtain CSL statistical information
 - Multiple instances to check

- **Information gathered from CSL address spaces across Sysplex**
 - Aggregated into single system image
 - Drill down for information from individual address space

Aggregated RM Statistics

```
Menu  View  Options  Help
----- Realtime snapshot
GJEPVPL          View IMSplex Data
Option ==> █
IMSplex. . . PLEX1
SM server. : UIS1
Route. . . : *

Select one of the following options:

1.  RM resource management
2.  RM aggregate of locals
3.  OM aggregate of locals
4.  SCI aggregate of locals
```

Aggregated RM Statistics

```

Menu  View  Options  Help
-----
GJEP720                               Aggregated Local RM Statistics
COMMAND ==>                               Realtime snapshot
                                           Row 1 to 23 of 23
                                           SCROLL ==> PAGE

IMSpIex. . . PLEX1                       Date. . . : 04/10/08
SM server. : UIS1                         Time. . . : 09:45:03
Route. . . : *

Enter 's' to view detailed RM statistics. s

Description                               Value
LOCAL STATISTICS:
Update . . . . . : 20
Query. . . . . : 16
Delete . . . . . : 0
Register . . . . . : 8
De-register. . . . . : 0
Internal De-register (normal). : 0
Internal De-register(abnormal): 0
Initiate . . . . . : 0
Terminate: . . . . . : 0
Process: . . . . . : 0
Response . . . . . : 0
Query structure commands . . . : 0

Resource Structure Name . . . : IMSRSRC01
Structure Version (Date). . . : 04/08/08
Structure Version (Time). . . : 15:30:52.6
CQS id. . . . . : CQS1CQS
Registered Client Count . . . : 8
Resource Create Count . . . : 682
Resource Update Count . . . : 11
Resource Delete Count . . . : 0

***** Bottom of data *****

```

Aggregated RM Statistics

```

Menu View Options Help
GJEP72A RM Statistics Realtime snapshot
COMMAND ==> Row 1 to 32 of 46
SCROLL ==> PAGE

IMSpIex. . : PLEX1 Date. . : 04/10/08
SM server. : UIS1 Time. . : 09:45:03
Route. . . : *

RM-id Description Value
RM1RM LOCAL STATISTICS:
RM1RM Update . . . . . 9
RM1RM Query. . . . . 3
RM1RM Delete . . . . . 0
RM1RM Register . . . . . 4
RM1RM De-register. . . . . 0
RM1RM Internal De-register (normal).: 0
RM1RM Internal De-register(abnormal): 0
RM1RM Initiate . . . . . 0
RM1RM Terminate: . . . . . 0
RM1RM Process: . . . . . 0
RM1RM Response . . . . . 0
RM1RM Query structure commands . . . 0

RM1RM Resource Structure Name . . . : IMSRSRC01
RM1RM Structure Version (Date). . . : 04/08/08
RM1RM Structure Version (Time). . . : 15:30:52.6
RM1RM CQS id. . . . . CQS1CQS
RM1RM Registered Client Count . . . : 4
RM1RM Resource Create Count . . . . : 681
RM1RM Resource Update Count . . . . : 1
RM1RM Resource Delete Count . . . . : 0

RM2RM LOCAL STATISTICS:
RM2RM Update . . . . . 11
RM2RM Query. . . . . 13
RM2RM Delete . . . . . 0
RM2RM Register . . . . . 4
RM2RM De-register. . . . . 0
RM2RM Internal De-register (normal).: 0
RM2RM Internal De-register(abnormal): 0
RM2RM Initiate . . . . . 0

```

Scenarios

- **IMS**
 - Scenario 1 – Taking Inventory and capture diagnostic data
 - Scenario 2 – Managing IMS System Parameters
 - Scenario 3 – Verifying IMS Resource Definitions
 - Scenario 4– Issuing IMS Commands
 - Scenario 5 – Maintaining Command Audit Trail
 - Scenario 6 – Managing Dependent Regions
 - Scenario 7 – Viewing IMS CF Structures
- **IMSplex**
 - Scenario 8 – Managing CSL RM Structure
 - Scenario 9 – Viewing Aggregate SCI, RM, OM Statistics
- **Data Sharing**
 - Scenario 10 – Resolving Data Sharing Long Locks
 - Scenario 11 - Viewing Real-time IRLM / PI Locking Status
 - Scenario 12 - Viewing Aggregated IRLM Statistics
- **Shared Queue and CQS**
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 - Scenario 14 – Managing Destination Queue Depth
 - Scenario 15 – Viewing CQS Structures
- **Dashboard**
 - Scenario 16 – Dashboard and Thresholds

Scenario 10 – Data Sharing Long Locks

- **DB Lockouts by applications holding IRLM locks for an inordinate amount of time**
 - Could go unrecognized until it becomes critical
 - Lack of supported tools to assist in recognition and identification of problem
 - Manual intervention required to resolve

- **Exception processing for Long Locks**
 - Automatic real-time recognition when IRLM detects
 - Information consolidated, analyzed for top blocker, and presented
 - Information recorded in exceptions file and sent to z/OS console
 - Messages can be sent to z/OS console using user exit so that automated operations can resolve
 - Problem quickly resolved without manual intervention

Data Sharing Long Lock Exceptions

```

STLMVS1 - [24 x 80]
File Edit View Communication Actions Window Help
-----
Display Filter View Print Options Help
-----
SDSF SYSLOG      4.102 STL1 STL1 01/23/2006 3W      4367      COLUMNS 51 130
COMMAND INPUT ==>
0090 GJE0361I LOCKNAME = 090000040C800501D700000000000000 STRUCTURE = LT01
0090 GJE0361I Top Blocker-Message to IMS1
0090 GJE0361I PSTNumber=0001 PSBName=HPC$BA00 IMSID=IMS2
0090 GJE0361I Type=BMP Batch/Trans Name=BMP21 CICS Task=
0090 GJE0361I TranElapsedTime=00:07:00
0090 GJE0361I RecoveryToken=IMS2 404040400000000001
0090 GJE0361I Waiter -Message to IMS1
0090 GJE0361I PSTNumber=0002 PSBName=SMQPSB6 IMSID=IMS1
0090 GJE0361I Type=MPP Batch/Trans Name=SMQ6 CICS Task=
0090 GJE0361I TranElapsedT ime=00:07:01
-----
Mâ b 04/021
Connected to remote server/host stlmvs1.svl.ibm.com using lu/pool ST11TG44 and port 23 HP PSC 750xi on DOT4_001
  
```

Data Sharing Long Lock Exceptions

```

STLMVS1 - [24 x 80]
File Edit View Communication Actions Window Help
-----
Display Filter View Print Options Help
-----
SDSF SYSLOG      4.103 STL2 STL2 01/24/2006 2W      5721      COLUMNS 51 130
COMMAND INPUT ==>
0290 R 15,/STO REGION JOBNAME BMP21      ABDUMP.
0090 IEE600I REPLY TO 15 IS:/STO REGION JOBNAME BMP21      ABDUMP.
0090 DFS058I 10:09:46 STOP COMMAND IN PROGRESS      IMS2
0090 *16 DFS996I *IMS READY*      IMS2
0090 DFS554A BMP21      00001 BMP      HPC$BA00(2)      000,0474 PSB
      2006/024 10:09:47 IMS2
0090 DFS552I BATCH      REGION BMP21      STOPPED ID=00001 TIME=1009      IMS2
0090 WTSC      |S WTSC      THIS |W (AUTOMASTER |DFS970I 9:09:|GJE2201I DATA
      |GJE2200I IMS S|DFS554A BMP21 |DFS552I BATCH |
0090 IEA995I SYMPTOM DUMP OUTPUT 520
0090      USER COMPLETION CODE=0474
0090      TIME=10.09.46 SEQ=00065 CPU=0000 ASID=002D
0090      PSW AT TIME OF ERROR 078D1000      9130664A ILC 2      INTC 01
0090      ACTIVE LOAD MODULE      ADDRESS=113058B0      OFFSET=00000D9A
0090      NAME=DFSREXX1
0090      DATA AT PSW 11306644 - 5410AEF8 0A015850 92695860
0090      AR/GR 0: 80C62A4A/00000001      1: 00000000/1130C518
0090      2: 00000000/000069B0      3: 00000000/000000FF
0090      4: 00000000/1130C518      5: 00000000/113252D8
0090      6: 00000000/000000FF      7: 00000000/00000000
-----
MA      c      04/021
Connected to remote server/host stlmvs1.svl.ibm.com using lu/pool ST11TJ76 and port 23      HP PSC 750xi on DOT4_001
  
```

Scenario 11 – Real-time IRLM / PI Locking Display

- **Identify resource contention**
 - Which IMS, dependent region, application is holding resources
 - Untangle queue of holder/waiters
 - Determine resources with contention

- **Display of resources with contention**
 - Select by dependent region and drill down to resource
 - Select by resource and drill down to dependent region

Real-time IRLM Locking Display

```
Menu View Options Help                                     Realtime snapshot
GJEPIRLK                                                  IRLM Locks
Option ==> █
-----
IMSplex. . . PLEX1
SM server. : UIS1
Route. . . . IMS1

Select one of the following options:

1. View dependent regions holding locks
2. View locks being held
3. View dependent regions waiting for locks
4. View locks being waited on
```

Real-time IRLM Locking Display

```

Menu  View  Options  Help
-----
GJEP310                               Locks Being Held
COMMAND ==> _____ Realtime snapshot
                               Row 1 to 3 of 3
                               SCROLL ==> PAGE

IMSpdex. . . PLEX1                 Date. . . : 04/10/08
SM server. : UIS1                  Time. . . : 11:38:14
Route. . . : *

Enter 's' to see holder/waiter information

Cmd  IMSID  LockID  DBName  RBA          DCB   Lock  Global/  Waiter
     IMSID  LockID  DBName  address     number type  Local   Count
s  IMS1  LOCK   DIVNTZ02 000000001071C500 1    P    G        2
   IMS1  LOCK   DHVNTZ02 000000000006C800 1    P    G        1
   IMS2  LOCK   DBHDOK01 0000000000040C00 1    P    G        1
***** Bottom of data *****

```

Real-time IRLM Locking Display

```

Menu  View  Options  Help
-----
GJEP311                               Locks Being Held
COMMAND ==> _____

IMSpIex. . . : PLEX1                    Date. . . : 04/10/08
SM server. . : UIS1                     Time. . . : 11:38:14
Route. . . . : *

IMSIid. : IMS1      Lock. : DIVNTZ02 000000001071C500

Enter 'c' to process IMS commands
      'r' to display region activity

  Holder/
Cmd  Waiter  IMSid  RegionID  JobName  StepName  Job   Lock  CurExecStatus
-----
  ___  HOLDER  IMS1    4      BMP3    BMP      BMP   UPD   ACTIVE
  ___  WAITER  IMS2    2      BMP2    BMP      BMP   UPD   ACTIVE
  ___  WAITER  IMS2    4      MPP21   MPP      TP    TP    ACTIVE
***** Bottom of data *****

```

Real-time PI Locking Display

```
Menu View Options Help
----- Realtime snapshot
GJEPPIF          Program Isolation Locks
Option ==> _____
IMSplex. . . . PLEX1
SM server. : UIS1
Route. . . . IMS1

Select one of the following options:

1. View dependent regions holding locks
2. View locks with contention
3. View dependent regions waiting for locks
```

Real-time PI Locking Display

```

Menu  View  Options  Help
-----
GJEP350      Program Isolation: Dependent Regions Holding Lock Row 1 to 2 of 2
COMMAND ==> _____ SCROLL ==> PAGE

IMSpdex. . . PLEX1          Date. . . : 04/10/08
SM server. : UIS1          Time. . . : 09:22:51
Route. . . . *_____

Enter 's' to select a region for LOCK information
      'r' to display region activity

Cmd  IMSid  RegionID  JobName  StepName  Type  CurExecStatus
s_   IMS1   3         MPPU3   MPP       TP    ACTIVE
__   IMS2   3         BMP2    BMP       BMP   ACTIVE
***** Bottom of data *****

```

Real-time PI Locking Display

```

Menu  View  Options  Help
-----
GJEP352      Program Isolation: Dependent Regions Holding Lock Row 1 to 4 of 4
COMMAND ==>                                     SCROLL ==> PAGE
Realtime snapshot

IMSpdex. . . : PLEX1                          Date. . . : 04/10/08
SM server. . : UIS1                            Time. . . : 09:22:51
Route. . . . : *

IMSid. . . . : IMS1      RegionID . . : 3      JobName. . : MPPU3      StepName. . : MPP
Lock . . . . : DBHDK01 0000000000000404

Enter 'c' to process IMS commands
      'r' to display region activity

  Holder/
Cmd  Waiter  RegionID  JobName  StepName  Job    Lock    Wait    CurExecStatus
-----
  ---  ---      ---        ---      ---      type   state   time(ms)
  ---  ---      ---        ---      ---      ---    ---    ---
  ---  ---      ---        ---      ---      ---    ---    ---
  ---  ---      ---        ---      ---      ---    ---    ---
  ---  ---      ---        ---      ---      ---    ---    ---
  ---  ---      ---        ---      ---      ---    ---    ---
***** Bottom of data *****

```



Scenario 12 – Aggregated IRLM Statistics

- **Managing the well being of IRLM(s)**
 - Deadlocks, false contentions, storage utilization?
 - Multiple IRLMs to check

- **Information gathered from IRLMs across Sysplex**
 - Aggregated into single system image
 - Drill down for information from individual IRLMs

Aggregated IRLM Statistics

```

Menu View Options Help
GJEP140 Aggregated IRLM Statistics Realtime snapshot
COMMAND ==> Row 1 to 31 of 51
SCROLL ==> PAGE

IMSpIex. . . PLEX1 Date. . . : 04/10/08
SM server. : UIS1 Time. . . : 09:47:26
Route. . . . *

Enter 's' to view detailed IRLM statistics. s

GLOBAL ACTIVITY COUNTERS:
Total global LOCK request. . . . . : 4
Child locks propagated . . . . . : 0
IRLM to IRLM notify request. . . . . : 0

REQUESTS
Lock . . . . . : 4
Unlock . . . . . : 0
Change . . . . . : 0
Synchronous notify . . . . . : 0
Asynchronous notify. . . . . : 0
Verify . . . . . : 0
Purge. . . . . : 2
Query. . . . . : 0
Takeover . . . . . : 0

EXIT COUNTERS
Suspend. . . . . : 6
Resume . . . . . : 6
Status . . . . . : 0
Notify . . . . . : 0
Deadlock . . . . . : 0
Timeout. . . . . : 0

EXIT EXTENSION REQUESTS:
Synchronously propagated locks . . . . . : 4
Synchronously propagated change. . . . . : 0
Synchronously propagated unlocks . . . . . : 0
Asynchronously propagated locks . . . . . : 0
Visits to contention exits . . . . . : 0

```


Aggregated IRLM Statistics

```

Menu  View  Options  Help
-----
GJEP141          IRLM Statistics          Realtime snapshot
Row 34 to 62 of 146
COMMAND ==>          SCROLL ==> PAGE

IMSplex. . . PLEX1          Date. . . : 04/10/08
SM server. : UIS1          Time. . . : 09:47:26
Route. . . . *

IMSId  Description                                     Value
IMS1   RESOURCE CONTENTIONS:
IMS1   Local. . . . . : 0
IMS1   Global . . . . . : 0
IMS1   False. . . . . : 0
IMS1
IMS1   SYSTEM ACTIVITY COUNTERS:
IMS1   Identify requests. . . . . : 2
IMS1   Quit requests. . . . . : 0
IMS1   Local deadlocks. . . . . : 0
IMS1   Global deadlocks . . . . . : 0
IMS1   Timeouts RLBS purged . . . . . : 0
IMS1

```

Scenarios

- **IMS**
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 - Scenario 5 – Maintaining Command Audit Trail
 - Scenario 6 – Managing Dependent Regions
 - Scenario 7 – Viewing IMS CF Structures
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Scenario 13 – Transaction Affinity

- **IMS provides limited transaction affinity support**
 - Want to use Shared Queues, but still need special processing for some transactions?
 - Some resources (i.e. databases) only accessible from certain IMS?
 - Don't want to convert transactions to serial?
 - Need to reduce 'false' scheduling and DB lock contention?

- **Use affinity routing with Sysplex Manager**
 - Associate a transaction with an IMS or group of IMS by name, generic name or class
 - Work for all message origins (VTAM, APPC, OTMA, program-to-program switch messages)
 - Routing statistics is provided for system level and transaction level for planning and accuracy check

Transaction Affinity – PROCLIB sample

```

VIEW          IMSTOOL.IMSSM.SAMPLIB(GJEARTG1) - 01.00          Columns 00001 00072
Command ==> _____ Scroll ==> CSR
000200 OPTIONS (STRUCTURE (GJESMAFN) , STATUS (ENABLED) ,
000300 PGMREJECT (ABEND (U3303) ) , NETREJECT (2175) )
000400
000500 SYSTEM (TARG (IMSGRP01) , IMS (IMS1) , STATUS (ENABLED) )
000600 SYSTEM (TARG (IMSGRP02) , IMS (IMS2) , STATUS (ENABLED) )
000700 SYSTEM (TARG (IMSGRP03) , IMS (IMS3) , STATUS (DISABLED) )
000800 SYSTEM (TARG (IMSGRP1A) , IMS (IMS1, IMSA, IMS1) , STATUS (ENABLED) )
000900
001000 AFFINITY (TYPE (TRANSACT) , TARG (IMSGRP1A, IMSGRP02) , DISP (REJECT) ,
001100   DEST (NAME (APOL12) ) , STATUS (ENABLED) )
001200
001300 AFFINITY (TYPE (TRANSACT) , TARG (IMSGRP02, IMSGRP01) , DISP (REJECT) ,
001400   DEST (NAME (JAVC%NV*) ) , STATUS (ENABLED) )
001500
001600 AFFINITY (TYPE (TRANSACT) , TARG (IMSGRP1A) , DISP (QUEUE) ,
001700   DEST (NAME (TRAN%%C, TRANAB*) ) , STATUS (DISABLED) )
001800
001900 AFFINITY (TYPE (TRANSACT) , TARG (IMSGRP01) ,
002000   DEST (NAME (%F3, %F4) ) )
002100
002200 AFFINITY (TYPE (TRANSACT) , TARG (IMSGRP1A) , DEST (CLASS (1, 2, 3) ) )
***** Bottom of Data *****

```

Affinity Routing Statistics – System View

```

Menu  View  Options  Help
-----
GJEP93A                      Affinity Options/Systems      Realtime snapshot
COMMAND ===>                 Row 1 to 6 of 6
                               SCROLL ===> PAGE

IMSpIex. . . PLEX1           Date. . . : 04/08/08
SM server. : UIS1           Time. . . : 14:41:59
Route. . . . *

Structure name: GJESMAFN
Updated on. :Date: 04/07/08  Time: 15:46:18
Status.: ENABLED          PGMREJECT.: AB-U3303      NETREJECT.: 2175
                               More: >

Target . . . *

Total number of calls for routing. . . . . : 17
Total number of messages routed. . . . . : 9

Target  Status  Msgs-Routed to  Target-IMS -----
IMSGRP02  ENABLED  4  IMS2
IMSGRP03  DISABLED  0  IMS3
IMSGRP01  ENABLED  0  IMS1
IMSGRP13  ENABLED  2  IMS1 IMS3
IMSGRP1A  ENABLED  3  IMS1 IMSA
IMSGRP04  ENABLED  0  IMS4
***** Bottom of data *****

```

Affinity Routing Statistics – Destination View

```

Menu  View  Filter  Options  Help
-----
GJEP94A          Destination Affinities
COMMAND ===>
Realtime snapshot
Row 1 to 15 of 15
SCROLL ===> PAGE

IMSpIex. . . PLEX1          Date. . . : 04/08/08
SM server. : UIS1          Time. . . : 14:43:02
Route. . . . *

Structure name: GJESMAFN
Updated on. :Date: 04/07/08  Time: 15:46:18
Status.: ENABLED          PGMREJECT.: AB-U3303          NETREJECT.: 2175

Transact . . *

Enter 's' to view transaction detail data
      'r' to view affinity router statistics
      'c' to exec IMS commands
      -Destination- -----Target-----
Cmd   Name/Class  Primary  Secondary  Match-count  Disposition  Status
----  -
TRAN2  IMSGRP01  IMSGRP01  IMSGRP02    0 REJECT      ENABLED
APOL11 IMSGRP02  IMSGRP02  IMSGRP01    4 REJECT      ENABLED
TRAN1  IMSGRP01  IMSGRP01  IMSGRP02    0 REJECT      ENABLED
APOL12 IMSGRP1A  IMSGRP1A  IMSGRP02    3 REJECT      ENABLED
XYZ    IMSGRP04
TSTAD2R2 IMSGRP1A  IMSGRP02
APOL21 IMSGRP13  IMSGRP02
TRAN%C  IMSGRP1A
%%F3    IMSGRP01
%RAN23U% IMSGRP01  IMSGRP02
T%B%    IMSGRP01  IMSGRP02
JAVC%NV* IMSGRP02  IMSGRP01
%%F4    IMSGRP01
TXBANK* IMSGRP1A  IMSGRP02
TRANAB* IMSGRP1A
0 QUEUE  DISABLED
***** Bottom of data *****

```

Affinity Routing Statistics – Destination View

```

Menu View Options Help
-----
GJEP94R          Destination Affinities - Router Statistics      Realtime snapshot
COMMAND ==>>    _____ Row 1 to 3 of 3
                                     SCROLL ==>> PAGE

IMSplex. . . : PLEX1          Date. . . : 04/08/08
SM server. . : UIS1          Time. . . : 14:43:55

Structure name: GJESMAFN
Updated on. :Date: 04/07/08  Time: 15:46:18
Status.: ENABLED          PGMREJECT.: AB-U3303      NETREJECT.: 2175

Transact . . *

Primary target . : IMSGRP02   Secondary target : IMSGRP01
Status . . . . . : ENABLED    Disposition. . . : REJECT

Destination. . . : APOL11
From      Match-count  Other destination router statistics
IMS2                0
IMSA                2
IMS1                2
***** Bottom of data *****

```

SQ local buffer utilization

```

Menu  View  Options  Help
-----
GJEP890          Shared Queue Local Buffer Usage          Realtime snapshot
COMMAND ==>>          SCROLL ==>> PAGE
Row 1 to 10 of 10

IMSplex. . . PLEX1          Date. . . : 04/08/08
SM server. : UIS1          Time. . . : 14:45:41
Route. . . : IMS1

IMSId Description                      Value
IMS1  BUFFER QUEUE STATISTICS:
IMS1  Buffers in use . . . . . : 141
IMS1  Count of buffers available . . : 200
IMS1  Percent buffers in use . . . . : 70
IMS1  High threshold for buffers . . : 160
IMS1  Low threshold for buffers. . . : 0
IMS1  In use high water mark . . . . : 143
IMS1  Times buffer pool expanded . . : 0
IMS1  Percentage to expand/compress.: 20
IMS1  Maximum bfr expansion reached.: N
***** Bottom of data *****

```




Scenario 14 – Destination Queue Depth

- **Managing Destination Queue Depth & CQS for Shared Queues**
 - Limited tools to browse, delete and recover messages on Shared Queues
 - Lack of tools to obtain CQS statistical information and manage messages on Shared Queues
 - Required to optimize Shared Queues environment

- **DQD data & List of Shared Queue Structures in use**
 - Filter based on Destination name or ID
 - High level information, Drill down to levels of detail
 - Browse, Delete and Recover messages from Cold queue
 - Statistics for: structure, rebuild, checkpoint
 - CQS processing counters

Destination Queue Depth

```

Menu Edit Option Filter
-----
GJEP210          Destination Queue Depths          Realtime snapshot
COMMAND ===>          Row 1 to 2 of 2
SCROLL ===>          PAGE

IMSplex: PLEX1          Date: 08/24/06
SM server: UIS          Time: 10:08:12
Route: IMS1
more: >

Enter 's' to list messages on the destination queue
      'd' to delete all messages on the destination queue
      'r' to recover all messages on the cold queue

-----Counts----- Affinity
Cmd ID  Destination  Type      On-Q   Enq    Deq  SIDR IMSI
s_  CQS1  SMQ6     TRANSERQ 1,000  N/A   N/A   IMS2
_    CQS1  SMQ6     TRANSERQ  560   N/A   N/A   IMS1
***** Bottom of data *****

```


Destination Queue Depth

```

Menu  Edit  Option
-----
GJEP630          Detailed message view          Realtime snapshot
COMMAND ===>                                         Row 1 to 24 of 53
                                                    SCROLL ===> PAGE

  IMSplex: PLEX1          Date:          08/24/06
  SM server: UIS          Time:          09:59:50
  Route: IMS1

Destination.....: SMQ6          Most severe status.....:
Message source..: SMQLTM1          Message id.....: 10

  Enter 'd' to delete this message
  Enter 'r' to recover this message

Message
INPUT MESSAGE QUEUED          MSGS LENGTH:00530
NODE NAME: SMQLU111          SOURCE LTERM: SMQLTM11
DEST LTERM/TRAN: SMQ6
ORIGIN IMS:IMS2          PROCESSING IMS: IMS2
MSG TIMESTAMP: 2006235173834360135
1ST/CURRENT DRRN:08000003/08000003
UOW: C9D4E2F2404040BF4C318B87947A1AC9D4E2F2404040BF4C318B87947A1A
** SQ MESSAGE - PUT PROCESS **
BASIC PREFIX
00000000 02120000 01C18110 08000003 08000003 .. .Aa.. .. <.↓
00000010 01CE9000 C9D4E2F2 40404040 BF4C318B .δ[] IMS2 | <.↓
00000020 87947A1A C9D4E2F2 40404040 BF4C318B gm:.IMS2 | <.↓
00000030 87947A1A 80000400 00000000 00000000 gm:..~ .

SYSTEM PREFIX
00000000 00408100 C8000000 E2D4D8D3 E4F1F1F1 a H SMQLU111
00000010 00040000 00000000 00000000 00000001
00000020 E2D4D8D3 E3D4F1F1 E2D4D8F6 40404040 SMQLTM11SMQ6
00000030 00000000 00000000 40404040 40404040

```

Destination Queue Depth

```

Menu  Edit  Option
-----
GJEP620          Destination Queue Depths          Realtime snapshot
COMMAND ==>                                         Row 2 to 25 of 1,000
                                                    SCROLL ==> PAGE

IMSplex:      GJEPDMQ onfirm message delete
SM server:
Route:        QType: 00000004
              QName: 04E2D4D8F640404040C9D4E2F2404040
SysID: CQS1
Enter 's' t   _ Set message delete confirmation off
              Press ENTER to confirm delete.
              Press PF3 (END) to cancel delete.
              'd' t
              'r' t

Cmd Msg sou
d   SMQLTM1
   SMQLTM1
   SMQLTM1
   SMQLTM1
   SMQLTM11  10
   SMQLTM11  10
   SMQLTM11  10
   SMQLTM11  10
   SMQLTM11  10
   SMQLTM11  10
   SMQLTM11  10

F1=HELP      F2=SPLIT    F3=END
F4=RETURN    F5=RFIND   F6=RCHANGE

TRANSERQ

---Prompt-----
g count Action

```

Destination Queue Depth

```

Menu  Edit  Option
-----
GJEP620          Destination Queue Depths          Realtime snapshot
COMMAND ===>                                         Row 2 to 25 of 1,000
                                                         SCROLL ==> PAGE

  IMSplex: PLEX1          Date:          08/24/06
  SM server: UIS         Time:          10:11:55
  Route: IMS1

SysID: CQS1  Destination: SMQ6          Type: TRANSERQ

Enter 's' to view message on the destination queue
     'd' to delete message on the destination queue
     'r' to recover message on the cold queue

Cmd Msg source          Message  Security access RACF      -----Prompt-----
   SMQLTM11             source ID facility  UserID  Msg count Action
--- SMQLTM11             10                SMQLTM11
--- SMQLTM11             10                SMQLTM11
--- SMQLTM11             10                SMQLTM11
--- SMQLTM11             10                SMQLTM11
--- SMQLTM11             10                SMQLTM11

```

The prompt "1 Deleted" is circled in orange in the original image.

CQS Shared Message Queues

```

Menu  View  Options  Help
-----
GJEP190  Aggregated IMS Common Queue Server Structures  Realtime snapshot
COMMAND ==>                                     Row 1 to 2 of 2
                                                SCROLL ==> PAGE

IMSpIex. . . PLEX1                               Date. . . : 04/10/08
SM server. : UIS1                               Time. . . : 09:58:03
Route. . . : *

Enter 's' to select a structure for statistics

          ---Utilization---
CMD Structure      Name      Entries  Elements
---  -
s  PRIM          IMSMSGQ01  <1 %    <1 %
      OVFL          NOT-CONNECTED  0 %     0 %

***** Bottom of data *****

```

CQS Shared Message Queues

```
Menu View Options Help
----- Realtime snapshot
GJEPSQM          Common Queue Server Structure Statistics
Option ==> -----
IMSplex. . . : PLEX1
SM server. . : UIS1
Route. . . . : *

Structure name. : IMSMSGQ01          Type. : PRIM

Select one of the following options:

1. Structure statistics
2. Processing counters
3. Structure rebuild statistics
4. Structure checkpoint statistics
```


CQS Shared Message Queues

```

Menu  View  Options  Help
-----
GJEP191      Common Queue Server Structure Statistics      Realtime snapshot
COMMAND ==> █

IMSplex. . . : PLEX1
SM server. . : UIS1      Date. . . : 04/10/08
Route. . . . : *         Time. . . : 09:58:03

CQS-id. . . . : *_____ Structure name. : IMSMSGQ01      Type. : PRIM

Checkpoint
System . . . . . : 6
Structure. . . . . : 0
Rebuild . . . . . : 0
Overflow threshold processing . . . : 0
Entry counts
Total. . . . . : 41      Primary      Overflow
Maximum. . . . . : 18,084
Entry ratio . . . . . : 1
Percentage in use . . . . . : <1
Element counts
Total. . . . . : 78      Primary      Overflow
Maximum. . . . . : 18,084
Element ratio . . . . . : 1
Percentage in use . . . . . : <1
  
```

CQS Shared Message Queues

```

Menu View Options Help
-----
GJEP192 Common Queue Server Processing Counters Realtime snapshot
COMMAND ==> Row 1 to 30 of 38
SCROLL ==> PAGE

IMSpIex. . . : PLEX1 Date. . . : 04/10/08
SM server. . : UIS1 Time. . . : 09:58:03
Route. . . . : *

CQS-id. . . . : * Structure name. : IMSMSGQ01 Type. : PRIM

Description Value
Requests:
CQSBRWSE. . . . . : 0
CQSCHKPT. . . . . : 0
CQSCONN. . . . . : 4
CQSDEL. . . . . : 0
CQSDISC. . . . . : 0
CQSINFRM. . . . . : 9
CQSMOVE. . . . . : 0
CQSPUT. . . . . : 74
CQSQUERY. . . . . : 4,110
CQSREAD. . . . . : 0
CQSRECVR. . . . . : 0
CQSRSYNC. . . . . : 4
CQSUNLCK. . . . . : 2

MVS requests:
IXGWRITE (MVS LOGGER) . . . . . : 78
IXGBRWSE (MVS LOGGER) . . . . . : 0
IXLLIST DEQ EVENTQ. . . . . : 0
IXLLIST WRITE. . . . . : 53
IXLLIST READ. . . . . : 342
IXLLIST MOVE. . . . . : 0
IXLLIST DELETE. . . . . : 0
IXLMG . . . . . : 683
IXLUSYNC. . . . . : 4

```

CQS Shared Message Queues

```

Menu  View  Options  Help
-----
GJEP193      Common Queue Server Structure Rebuild Statistics
COMMAND ==> █

IMSplex. . . : PLEX1           Date. . . : 04/10/08
SM server. . : UIS1           Time. . . : 10:04:51
Route. . . . : *

CQS-id. . . . : CQS2      Structure name. : IMSMSGQ01      Type. : PRIM

                                Old   New (Rebuild)
Data Elements in use. . . . . :      78      78
Data Elements allocated . . . . : 18,084    18,084
Data Entries in use . . . . . :      41      41
Data Entries allocated . . . . . : 18,084    18,084
EMCS in use . . . . . :      1,243      622
EMCS allocated. . . . . :      36,487    36,487
Size in 4K Blocks . . . . . :      4,096      4,352
CF Total space in 4K Blocks . . . : 13,632    13,632
CF Free space in 4K Blocks. . . . : 2,048      6,144
Old CF name Structure allocated on. :      LF03      LF03

```

CQS Shared Message Queues

```

Menu  View  Options  Help
-----
GJEP194      Common Queue Server Structure Checkpoint Stats  Realtime snapshot
COMMAND ==>  _____  SCROLL ==> PAGE
Row 1 to 30 of 36

IMSplex. . . : PLEX1                      Date. . . : 04/10/08
SM server. . : UIS1                      Time. . . : 10:06:45
Route. . . . : *

CQS-id. . . . : *_____ Structure name. : IMSMSGQ01      Type. . . : PRIM

Description                                     Value
Return code for this Structure checkpoint . . . 00000000

QUIESCE TIME
Start date . . . . . 04/10/08
Start time . . . . . 10:06:36.0
End date . . . . . 04/10/08
End time . . . . . 10:06:36.4
Quiesce elapsed time(ms) . . . . . 366

DATA SPACE/DATA SET CAPTURE TIME
Start date . . . . . 04/10/08
Start time . . . . . 10:06:36.4
End date . . . . . 04/10/08
End time . . . . . 10:06:36.5
Data space capture time (ms) . . . . . 90

End data set capture date . . . . . 04/10/08
End data set capture time . . . . . 10:06:36.5
Structure resume START date . . . . . 04/10/08
Structure resume START time . . . . . 10:06:36.5
Date all System checkpoints completed . . . . 04/10/08
Time all System checkpoints completed . . . . 10:06:37.6

```

CQS Shared Message Queues

```

Menu  View  Options  Help
-----
GJEP194      Common Queue Server Structure Checkpoint Stat Row 24 to 36 of 36
COMMAND ==> _____ SCROLL ==> CSR_

IMSplex. . . : PLEX1           Date. . . : 04/10/08
SM server. . : UIS1           Time. . . : 10:08:28
Route. . . . : *

CQS-id. . . . : *_____ Structure name. : IMSMSGQ01      Type. : PRIM

Description                                     Value
PRIMARY STRUCTURE
Allocated elements . . . . .                18,084
Elements in use. . . . .                    78
Allocated list entries . . . . .            18,084
List entries in use. . . . .                42

OVERFLOW STRUCTURE
Allocated elements . . . . .                 0
Elements in use. . . . .                    0
Allocated list entries . . . . .             0
List entries in use. . . . .                0

SRDS WRITES required. . . . .               2
***** Bottom of data *****

```

Scenarios

- **IMS**
 - Scenario 1 – Taking Inventory and capture diagnostic data
 - Scenario 2 – Managing IMS System Parameters
 - Scenario 3 – Verifying IMS Resource Definitions
 - Scenario 4– Issuing IMS Commands
 - Scenario 5 – Maintaining Command Audit Trail
 - Scenario 6 – Managing Dependent Regions
 - Scenario 7 – Viewing IMS CF Structures
- **IMSplex**
 - Scenario 8 – Managing CSL RM Structure
 - Scenario 9 – Viewing Aggregate SCI, RM, OM Statistics
- **Data Sharing**
 - Scenario 10 – Resolving Data Sharing Long Locks
 - Scenario 11 - Viewing Real-time IRLM / PI Locking Status
 - Scenario 12 - Viewing Aggregated IRLM Statistics
- **Shared Queue and CQS**
 - Scenario 13 - Set transaction affinity and view local buffer utilization
 - Scenario 14 – Managing Destination Queue Depth
 - Scenario 15 – Viewing CQS Structures
- **Dashboard**
 - Scenario 16 – Dashboard and Thresholds



Scenario 16 – Dashboard Sysplex at a Glance

- **Managing the IMS Sysplex through key system indicators**
 - Determine overall Sysplex health at a Glance
 - Alert when indicators violate predefined thresholds
 - Set multiple monitoring thresholds depending on workloads, time of day...

- **Critical data from key areas summarized on one or more screens**
 - User customized content, positioning, threshold value
 - Threshold exceptions are logged for future review
 - One or more per user, default supplied
 - Automatic screen refresh capability for operational ease
 - Drill down for additional detail

Configure Your Dashboard

- Create and customize a new dashboard

```

Menu  View  Options  Help
-----
GJEPDBC          Configure Dashboards          Realtime snapshot
COMMAND ==>>>                                     Row 1 to 26 of 92
                                                    SCROLL ==>> PAGE

IMSpIex. . . : ISM01
SM server. . . : UIS1

Dashboard name . . . . IMSSM_dashboard Type ? to list defined dashboards
Enter 'x' to exclude the selected field or element from the dashboard
's' to include the selected field or element in the dashboard
'i' to insert a blank field at current location
'd' to delete the blank field

CMD  Element / Field          Field data
---  > MSGQ % in use-----
---  > P-Entry. :                999
---  > P-Element:                999
---  > O-Entry. :                999
---  > O-Element:                999
---  > Aggr. local OM request
---  > Reg commands . . :        99,999
---  > Notify rdy . . . :        99,999
---  > Notify not rdy:         99,999
---  > Dereg normal . . :       99,999
---  > Dereg abnormal:         99,999
---  > Commands . . . . :       99,999
---  > Queries . . . . . :       99,999
---  > AD commands . . . :       99,999
---  > ZQRY requests:          99,999
---  > ZSHUT requests:         99,999
---  > QRY IMSplx cmd:         99,999
---  > Reg. clients . . . :       99,999
---  > Cmd timeouts . . . :       99,999
---  > Undel.output . . . :       99,999

```


When to monitor

- Define monitoring periods

```

GJEPTPD                               Define Monitoring Periods                Row 1 to 7 of 7
COMMAND ==> _____ SCROLL ==> PAGE

Enter period data to add/edit a period.

Name. . . . . █
Active. . . . . Y                    (Y = yes, N = no)
Days. . . . . - - - - -              (1 to 7 (1=Sun, 2= Mon, ..))
Hours (AM). . . . . - - - - -        (0 to 11)
Hours (PM). . . . . - - - - -        (12,1 to 11)

Enter 's' to define thresholds for a period, or 'd' to delete a period,
'e' to edit a period

Cmd  Name      Active Days      Hours
___  ANDY      Y      1 2 3 4 5 6 7  AM: 00 01 02 03 04 05 06 07 08 09 10 11
                                   PM: 12 01 02 03 04 05 06 07 08 09 10 11
___  THRESHAB  N      1 - - - - -  AM: 00 - - - - -
                                   PM: 12 - - - - -
___  TEST01    N      1 - - - - -  AM: - - 01 - - - - -
                                   PM: - - - - -
___  B         N      - 2 - - - - -  AM: - - - - 02 - - - - -
                                   PM: - - - - 02 - - - - -
___  DJB       Y      - 2 3 4 5 6 -  AM: 00 01 02 03 04 05 06 07 08 09 10 11
                                   PM: 12 01 02 03 04 05 06 07 08 09 10 11
___  PERIOD1   Y      - 2 - - - - -  AM: - - - - -
                                   PM: - - - - 02 - - - - -
___  A         Y      - 2 - - - - -  AM: - - 01 - - - - -
                                   PM: - - - - -

***** Bottom of data *****

```

Low and High Thresholds

- Define threshold values

```

Menu  View  Options  Help
-----
GJEPTPC          Define Threshold Values          Realtime snapshot
COMMAND ==>>> |                                     Row 79 to 92 of 92
                                           SCROLL ==>>> CSR

IMSplex. . . : ISM01
SM server. . . : UIS1

Threshold dataset. . . : 'IMSTOOL.IMSSM.THRPARMS'
Period name. . . . . : ANDY

Element / Field          Field data      Low threshold    High threshold
Bfr shortage . . .      99,999          _____
Othr Rsrc shtg:         99,999          _____
Coupling facility stat
EMC high cnt :          999,999
Max EMCs. . . . :      999,999          5                10
Max connects.:          999,999
IMS connects.:          999,999
Max acc. time:          999,999
Exceptions-----
Bfr ovrlw:              99,999,999
Qbuff util:              999                2                6
IRLM locks:             99,999,999
PI locks . . . :        99,999,999          1                99999999
*** End of elements **
***** Bottom of data *****

```

Threshold Processing Interval

- Set dashboard data collection interval

```

GJEPSET                               Settings
COMMAND ==> _____

Auto-refresh interval . . . . . 10      1-59 seconds
Dashboard data collection intvl . 060    15-999 seconds (default 60)
Date format . . . . . 3                 1 = yyyy/ddd, 2 = dd/mm/yy
                                       3 = mm/dd/yy, 4 = yy/mm/dd

IMS DS high level qualifier . . . █

Options to receive notifications
  System exceptions . . . . . _         / = ON

Browse data set allocation parameters:
  Data set name . . . . . _____
  Primary CYLS. . . . . 010           1-999
  Secondary CYLS. . . . . 010         1-999
  UNIT. . . . . SYSALLDA             optional (default SYSALLDA)
  Volume serial number. . . . . _____ optional (default by system)
  Number of lines for request . . 01000 optional (default 1000)
  
```

Dashboard

```

Menu View Options Help
----- Realtime snapshot
GJEPDBD View Dashboard Page: * (1 of 1)
COMMAND ==>
IMSplex. : PLEX1 Dashboard. : IMSSM dashboard Date: 04/10/08 Time: 11:41:56
- MSGQ % in use----- Aggr. local OM request- EMHQ % in use-----
P-Entry. : <1 Reg commands. : 28 P-Entry. : 1
P-Element: <1 Notify rdy. : 12 P-Element: 1
O-Entry. : 0 Notify not rdy: 1 O-Entry. : 0
O-Element: 0 Dereg normal. : 0 O-Element: 0
- Msg queue depths (SMQ)- Dereg abnormal: 0 - CQS system resources--
COLDQ. : 0 Commands. : 0 Sys.chkp: 0
TRAN RDY Q.: 0 Queries. : 0 Str.chkp: 2
TRAN SPD Q.: 0 AD commands. : 8 - Msg queue depths(Local-
TRAN SER Q.: 0 ZQRY requests.: 1,518 TRANSACT: 0
LTRM RDY Q.: 39 ZSHUT requests: 0 LTERM. : 40
APPC RDY Q.: 0 QRY IMSplx cmd: 0 MSNAME. : 0
RMTE RDY Q.: 0 Reg. clients. : 8 LU6.2. : 0
OTMA RDY Q.: 0 Cmd timeouts. : 0 OTMA. : 0
PRGMRDYQ-FP: 0 Undel.output. : 0 - Aggr. local RM request-
- DB processing stats--- Aggr. local SCI req.--- Update. : 20
Lcl deadlocks.: 0 Local Regs. : 8 Query. : 16
Glbl deadlock.: 0 Remote Regs. : 5 Delete. : 0
- SCI IXCMMSGO statistics- Notify Rmte reg: 5 Register. : 8
Successful. : 1,578 Local Ready. : 8 Deregister. : 0
Bfr shortage. : 0 Remote Ready. : 5 Initiate. : 0
Othr Rsrc shtg: 0 Local Quiesce. : 0 Terminate. : 0
- Coupling facility stat- Remote Quiesce.: 0 Process. : 0
EMC high cnt : 1,243 Lcl Dereg norm.: 0 Response. : 0
Max EMCs. : 36,487 Lcl Dereg abn.: 0 QRY struct. : 0
Max connects.: 32 Rmte Dereg norm: 0 Regtd.clients: 8
IMS connects.: 2 Rmte Dereg abn.: 0 Rsrce create.: 682
Max acc. time: NOLIMIT Notify abnd. : 2 Rsrce update.: 11
- Exceptions----- Member init. : 2 Rsrce delete.: 0
Bfr ovrfw: 0
Qbuff util: 75
IRLM locks: 0
PI locks. : 0

```

Dashboard – Drill Down

```

Menu View Options Help
-----
GJEP890 Shared Queue Local Buffer Usage Realtime snapshot
COMMAND ==> [ ] Row 1 to 20 of 20
SCROLL ==> CSR

IMSplex. . . PLEX1 Date. . . : 04/10/08
SM server. : UIS1 Time. . . : 11:43:20
Route. . . : *

IMSid Description Value
IMS1 BUFFER QUEUE STATISTICS:
IMS1 Buffers in use . . . . . 150
IMS1 Count of buffers available . . . . . 200
IMS1 Percent buffers in use . . . . . 75
IMS1 High threshold for buffers . . . . . 160
IMS1 Low threshold for buffers. . . . . 0
IMS1 In use high water mark . . . . . 150
IMS1 Times buffer pool expanded . . . . . 0
IMS1 Percentage to expand/compress.: 20
IMS1 Maximum bfr expansion reached.: N
IMS2 BUFFER QUEUE STATISTICS:
IMS2 Buffers in use . . . . . 142
IMS2 Count of buffers available . . . . . 200
IMS2 Percent buffers in use . . . . . 71
IMS2 High threshold for buffers . . . . . 160
IMS2 Low threshold for buffers. . . . . 0
IMS2 In use high water mark . . . . . 142
IMS2 Times buffer pool expanded . . . . . 0
IMS2 Percentage to expand/compress.: 20
IMS2 Maximum bfr expansion reached.: N
***** Bottom of data *****

```

References

- **For publications and demo, visit IMS Sysplex Manager for z/OS at**
 - <http://www-306.ibm.com/software/data/db2imstools/imstools-library.html>



A decorative graphic in the top left corner consisting of several 3D cubes in various colors (red, pink, orange, black) arranged in a cluster.

Contact information

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Q & A



Questions
are
guaranteed in
life;
Answers
aren't.

CQS log stream and offloading

- **Should be large enough to minimize offloading and increase READ performance**
- **WRITE requests can run at the same time as offload processing.**
- **Should not be larger than CQS requires to leave room for other structures on CF**
- **Monitor for optimal sizing of coupling facility structures for response, throughput, and availability.**
- **If the coupling facility space allocated for a log stream reaches 100% utilization, all write requests against that log stream are rejected until offloading can complete.**

Monitoring for offload conditions

- Up to 168 offload data sets by default
- Additional extents are requested by the DSEXTENTS parameter in the LOGR policy
- CQS issues a message, deletes a few log records from the log stream to make space for structure checkpoint log records, takes a structure checkpoint, and continues processing. The CQS message is:
 - **CQS0350W CQS LOG CONNECT DS DIRECTORY FULL LOG STREAM logstr-name STRUCTURE str-name**
- While the structure checkpoint relieves the shortage, it will have a temporary impact on the availability of the log stream and CQS will not be able to process any IMS PUT requests until the structure checkpoint is complete and CQS has deleted the tail of the log stream.

CQS structure checkpoint

- **Structure checkpoint takes a snapshot of the shared queues on a queue structure and writes the data to the structure recovery data set (SRDS) so that CQS can recover the queues after a structure failure. Structure checkpoint processing copies all recoverable data objects from a structure pair to a SRDS.**
- **When it performs the copy operation, CQS stops all activity against the structure to ensure that the structure does not change while the checkpoint is being taken. If CQS receives a request to process work when a structure checkpoint is in progress, the request is held until after the structure checkpoint is complete.**
- **Recommendation: Because no other work for a structure can be processed while CQS is taking a checkpoint, consider processing structure checkpoints during non-peak hours.**
- **After all shared queues are copied to the SRDS, each CQS performs a system checkpoint to ensure its restart checkpoint has a time stamp that is more recent than the current structure checkpoint.**
- **The structure checkpoint process then deletes all log records that are not needed for structure recovery, allowing the logger to reclaim space in the CQS log and preventing the log from becoming full.**

How CQS restarts

- **During CQS restart, CQS reads the log records from the last system checkpoint and restores the environment for committed data objects and backs out uncommitted data objects on queue structures.**
- **The frequency of system checkpoint affects this restart. CQS must read more log records when checkpoints are infrequent than when the checkpoints occur more often.**
- **Because the CQS log is shared by multiple CQs, CQS restart time is affected by the number of log records written by the multiple CQs, not just the CQS that is being restarted.**
- **CQS takes an initial system checkpoint at the end of a restart.**

SSPM – Sysplex Serial Program Management

- **Sysplex serialized program management allows users in a shared queues environment to prevent application programs that are defined as serial from being scheduled in parallel on another IMS™ system in an IMSplex.**
- **Information about scheduled serial PSBs is maintained in the RM resource structure to ensure that the serial PSB is scheduled in only one IMS across an IMSplex at any point in time.**
- **For an IMS in an IMSplex to schedule a serial PSB, that IMS must successfully create a unique instance for the PSB on the RM resource structure before it completes scheduling.**
- **If another IMS finds that the PSB instance is not unique, it discontinues the scheduling process for the PSB.**



Global IMS resource status

- **IMS™ uses the RM resource structure to maintain command status for databases, DEDB areas, and transactions across an IMSplex. This global status enables all IMS systems to view databases, DEDB areas, and transactions in an IMSplex as single databases, areas, and transactions. (not for RSR tracker system)**
- **The status of global resources is maintained for most databases whether or not they are registered to DBRC, for DEDB areas, and for transactions. Database status is not maintained for shared secondary index databases and MSDBs.**
- **By maintaining this information globally using RM, you can, for example, stop a database globally, and any IMS system that joins the IMSplex recognizes that the database is stopped. Similarly, an IMS system joining the IMSplex can be prevented from accessing or updating a database that is in use by an offline process.**

RM usage

- **Resource name uniqueness**
IMS ensures that a resource name is active only once in the IMSplex at any particular time. IMS systems within the IMSplex cannot activate the same resource at the same time. The IMSplex automatically enforces resource name uniqueness only when Resource Manager (RM) is active and a resource structure is defined in the coupling facility.
- **Resource type consistency**
Resource type consistency ensures that a name is unique within a group of resources, called a *name type*. The IMSplex automatically enforces resource type consistency when RM is active and a resource structure is defined in the coupling facility.
- **Global callable services**
Callable services are provided for user-provided exit routines in order to find resources such as nodes, LTERMs, and users. Callable services returns global resource information shared in the resource structure. If no global information is available, local information is returned by default.

TM resources managed by RM

- **TM resources: APPC descriptors**
IMS defines APPC descriptors to RM at initialization or during /STA LU62DESC to maintain resource type consistency for message destinations.
- **TM resources: VTAM LTERMs**
IMS defines VTAM® LTERMs to RM for resource type consistency for message destinations, name uniqueness for LTERMs, and LTERM status recovery.
- **TM resources: MSNAMEs**
MSC networks use MSNAMEs to define remote IMS systems and logical link paths between remote and local IMS systems in an MSC network. For MSNAMEs, Resource Manager (RM) enforces only resource type consistency for message destinations, but not resource name uniqueness.
- **TM resources: VTAM terminal nodes**
IMS defines nodes to RM to enforce name uniqueness for single-session VTAM terminals and to recover node status.
- **TM resources: transactions**
IMS defines a transaction dynamically with the type-2 CREATE TRAN command or statically in the system where the application will run or dynamically as a CPI-C transaction executed by an APPC conversation. A transaction can run in multiple systems concurrently as name uniqueness is not enforced.
- **TM resources: user names**
The user name and the user ID are usually the same; however, user exits and descriptors can override the user name. The *user* is the user signed on to a dynamic terminal or parallel session subpool and has associated work and status. The *user ID* identifies a person signed on to a terminal for security authorization by a security product such as RACF®.
- **TM resources: user IDs**
The *user ID* identifies a person signed on to a terminal for security authorization by a security product such as RACF.