IBM Z Parallel Sysplex Health Check

Data Collection Guide

<customer>

<date>

Conducted by:

IBM Washington Systems Center

By choosing to send data to IBM, you acknowledge that all information contained in your data, including source, object code, binaries, executables, comments, questions, suggestions, or the like, shall be deemed to not contain PI/SPI data as construed by the EU GDPR Regulations.

Overview

The purpose of the *Parallel Sysplex Health Check* is to assess the customer's production Parallel Sysplex implementation and make recommendations on how to run the environment more effectively and/or to more fully exploit the Parallel Sysplex environment.

Subject Matter Experts (SMEs) from the Washington Systems Center (WSC) organization will assess the customer's production Parallel Sysplex implementation and provide a list of observations and recommendations to improve the environment to better meet the customer's business requirements. The assessment will focus on the following areas of the Parallel Sysplex infrastructure:

- ✓ Hardware and software redundancy
- ✓ Installation setup and parameters for implemented IBM software and subsystems
- ✓ IBM software and micro-code maintenance processes
- ✓ Operational and recovery procedures
- ✓ Deployment of Parallel Sysplex functions, such as data sharing, dynamic transaction routing, and workload balancing

Scope

Unless otherwise agreed, the scope of this assessment is limited to:

- ✓ One Parallel Sysplex and one data sharing group
- ✓ Previously agreed upon subsystems, such as: z/OS, CICS, Db2 for z/OS, VSAM/RLS, IMS, MQ, CommServer, WebSphere (Liberty or traditional), and Security (e.g. RACF)

This review is initiated remotely and requires the collection of specific data. Key inputs to this review and instructions for sending the data to IBM are documented in the following sections.

All data collected will be sent to IBM and must be available two weeks prior to interview sessions, whether virtual or on-site.

Deliverable

IBM's findings and recommendations will be provided in a report and followed up with a conference call with the customer and IBM account team. Each finding and recommendation will provide:

- Description of the component and item analyzed
- Estimated Value and Effort - (High, Medium, Low)
- Observations
- Benefit(s) of implementing the recommendation

Allow two to three weeks for delivery of the draft report once the interviews are completed. The draft report will be delivered and reviewed with the customer's technical team to ensure there are no inaccuracies or misunderstandings. The report will then be finalized and delivered to the customer within a week of this review.

Preparation

Customer Contacts

Customer involvement throughout the process is important to the success of the health check.

- Designate a single contact for the data collection process.
- Designate a customer contact for each area included in the health check. The IBM SMEs may communicate with these contacts for clarification as they analyze the data and prepare the report.

IBM Contacts

The IBM health check SMEs, responsibilities, and emails:

Team Lead: <focal point>

Subject Matter Experts:

z/OS & Sysplex:	Meral Temel (meral.temel@ibm.com) Dave Krouse (djkrous@us.ibm.com) Daniel Snyder (daniel.snyder@ibm.com)
Db2 for z/OS:	Mark Rader (mrader@us.ibm.com) Keziah Knopp (keziah.knopp@ibm.com) Tori Felt (victoria.felt@ibm.com)
CICS:	Leigh Compton (lcompton@us.ibm.com) Eric Higgins (EricHiggins@us.ibm.com)
WLM:	Brad Snyder (snyderbr@us.ibm.com) John Burg (jpburg@us.ibm.com) Stephanie DeLuca (stephanie.deluca@ibm.com) Andreas Henicke (andreas.henicke@de.ibm.com)
MQ for z/OS:	Carolyn Elkins (elkinsc@us.ibm.com) Dorothy Quincy (dorothy.quincy@ibm.com)
Liberty:	Mitch Johnson (mitchj@us.ibm.com) John Brefach (John.J.Brefach@ibm.com) Jeff Bisti (jbisti@us.ibm.com)
IMS:	Dennis Eichelberger (deichel@us.ibm.com)
RACF/Encryption:	Julie Bergh (jbergh@ibm.com)
CommServer:	Linda Harrison (lharriso@us.ibm.com) Chelsea Isaac (chelsea.t.jean-mary@ibm.com)

Define Data Collection Period

SMF/RMF data will be analyzed for selected software components. To facilitate the analysis, <customer> must identify a peak day that will be input to the analysis.

- RMF 70-78 and SMF 30, 100, and 102 data will be collected for a continuous 72-hour period covering three prime shift and three overnight peaks.

- All other SMF data will be collected for a 2-hour duration peak on-line interval and a 2-hour peak batch interval for the day identified.

Unless discussed otherwise, the day and time selected should be a normal “peak” business day - no problems or abnormalities occurring during the interval. IBM recommends the SMF and RMF recording interval be set to 10 or 15 minutes.

Softcopy Reports

For mainframe softcopy output/reports, allocate a DOCLIB PDS for each product (z/OS, CICS, Db2, etc..) using RECFM=FB and LRECL=133 and place all reports and outputs from the display commands into these data sets. Include a member named #README that identifies all the members contained in the data set and how they are used. These data sets will be TERSED and FTPed to IBM.

Schematics and other relevant documents in Microsoft PowerPoint, Word, Excel, Visio, or Adobe Acrobat PDF format should be sent as e-mail attachments to the IBM team lead.

IBM Z Parallel Sysplex Health Check

Data Collection

Hardware and Software Profile

The following information should be emailed to the IBM team lead – data can be produced in Microsoft PowerPoint, Word, or any other tool:

- Completed hardware and software spreadsheet, attached below


C:\Documents and Settings\Administrato

- Schematic of the environment - all Processors and LPARs should be marked clearly.
  - Hardware, software, and LPAR layout
  - Application mapping to systems

- Information regarding recent high impact outage(s)
  - Description of the incidents (how each was detected and recovered)
  - Problem description and post incident review documentation

- Reports and status of previous availability assessments

z/OS Input

SMF/RMF Data

Collect SMF data from *ALL* images in the Sysplex for a 72-hour period that includes the peak batch and online intervals identified in the section above.

- ✓ SMF type 30
- ✓ SMF type 70-78
- ✓ SMF type 113 subtype 1 (counters)
- ✓ SMF type 98.1 - (ensure APAR OA55887 is applied - (GAed October 2019, PTFs UJ00450 UJ00451 UJ00452)
  - *SMFPRMxx - HFTSINTVL(5)*
  - *If not active, Activate HIS and collect hardware counters*
    - S HIS
    - MODIFY HIS,BEGIN,CTR=HDWR,CNTFILE=NO,CTRONLY
    - F HIS,B,TT='Text',CTRONLY,CTR=ALL,SI=SYNC,CNTFILE=NO
    - D HIS

Collect SMF data from *ALL* images in the sysplex for the 2-hour duration peak on-line interval and the 2-hour peak batch interval for the day identified in the section above.

- ✓ SMF type 99 subtype 6
- ✓ SMF type 99 subtype 14 (not required if on a z16 with OA62064 installed)

Subsystem data

MVS PARMLIBs

- ✓ FTP all "SYS1.PARMLIB" datasets in use by production members of the Sysplex
- ✓ Include "SYS1.IPLPARM" dataset if used.

MVS Command Responses

For each group of commands - from SDSF ULOG enter the following set of commands and save the responses as a member in DOCLIB.

- ☞ From one image in the Sysplex, issue the following commands and capture the output from each.

  - ✓ D XCF,SYSPLEX
  - ✓ D XCF,COUPLE,TYPE=ALL
  - ✓ D XCF,C
  - ✓ D XCF,POLICY,TYPE=ALL
  - ✓ D GRS,A
  - ✓ D CNGRP
  - ✓ D C
  - ✓ $POLICY DISPLAY
  - ✓ $D EXIT
  - ✓ $D ACTIVATE
  - ✓ $D OUTDEF
  - ✓ $D MASDEF

- ✓ $D PROCLIB
- ✓ $D CKPTDEF
- ✓ $D CKPTSPACE
- ✓ $D SPOOLDEF
- ✓ $D SPOOL
- ✓ $DLIMITS

☞ Issue the RO *ALL,<command> for the following commands and capture the output from each (Optionally issue from each image in the sysplex)

- ✓ D IPLINFO
- ✓ D IPLINFO,BOOST
- ✓ D PARMLIB
- ✓ D IQP
- ✓ D ASM,ALL
- ✓ D SMF,S
- ✓ D SMFLIM,R
- ✓ D A,SMS
- ✓ F AXR,IAXDMEM
- ✓ D VIRTSTOR,LFAREA
- ✓ D SMS,SMSVSAM,ALL
- ✓ D ETR
- ✓ D M=STOR
- ✓ D TRACE
- ✓ D MF,STATUS
- ✓ D MPF
- ✓ D OMVS,LIMIT
- ✓ D XCF,CF,CFNAME= <for each CF configured in the Sysplex>
- ✓ D CF,CFNAME= <for each CF configured in the Sysplex>
- ✓ F DEVMAN,REPORT
- ✓ F CATALOG,ALLOCATED
- ✓ D DUMP,OPTIONS
- ✓ D IOS,CAPTUCB
- ✓ D IOS,MIH
- ✓ D IOS,HYPERWRITE
- ✓ D IOS,ZHYPERLINK
- ✓ D IOS,RECOVERY
- ✓ D IOS,STORAGE
- ✓ D LOGGER,CONNECTION
- ✓ D LOGGER,IXGCNF,MONITOR
- ✓ D OMVS,LIMIT

Sysplex Policies

- ✓ Provide listings, of the active CFRM, ARM, LOGGER and SFM sysplex policies.

WLM Policy

- ✓ Provide a copy of the active WLM Service Definition policy, saved as an XML dataset, including all classification rules, that was active during the peak period selected. Please terse the XML file and ftp along with the other files you send.

DF SORT Options

If using DF SORT run the ICETOOL to display DF Sort Options and place the report in DOCLIB

```
//LISTDEF EXEC PGM=ICETOOL
//TOOLMSG DD SYSOUT=*
//DFSMSG DD SYSOUT=*
//SHOWDEF DD SYSOUT=*
//TOOLIN DD *
  DEFAULTS LIST(SHOWDEF)
/*
```

IBM Health Checker for Parallel Sysplex and z/OS

- ✓ Produce the Health Checker report on each of the images in the Sysplex. If the IBM Health Checker is not installed, install the health checker and necessary PTFs listed in the PSP bucket and run the reports. (Beginning with z/OS 1.7 the Health Checker is part of the base OS).

```
//HZSPRNT EXEC PGM=HZSPRNT,TIME=1440,PARMDD=SYSIN
//SYSOUT DD SYSOUT=*,DCB=(LRECL=256)
//SYSIN  DD *
CHECK(*,*),EXCEPTIONS
/*
```

<u>Health Check report options:</u>

```
CHECK(*,*)          Show all HCs
CHECK(*,*),EXCEPTIONS  Show HCs with Exceptions
```


CICS Transaction Server Input

Please email the following two items to the IBM focal point and CICS SME prior to the interview session:

- ✓ The name and description of the business application being reviewed in the health check.
- ✓ A configuration diagram showing the relationship of the CICS regions to processors, LPARs, sysplex, and CICSPlex for the application that is being reviewed in the health check. The IBM team needs to understand the transactions flow through the LPARs, as well as the HA facilities in use for your CICS environment.
- ✓ A list of open CICS support Cases and recently closed CICS Support Cases.

The Health Check will look at data from a limited number of CICS regions. During the kickoff call, we will agree on which CICS regions will be studied in detail. The following data should be submitted via FTP to the Testcase server.

SMF/RMF Data

Send the following SMF records, time periods should match the 2-hour peak batch and 2-hour online periods for the other subsystems:

- ✓ SMF type 110, subtypes 1-5 - CICS records for performance, exception and statistics, the following should be considered as the optimal settings to provide the best results during data collection.
  - MN=ON
  - MNEXC=ON
  - MNFREQ=00500
  - MNPER=ON
  - MNSYNC=YES
  - STATINT=001500
  - STATRCD=ON

- ✓ SMF type 88 – z/OS Logger.
- ✓ SMF type 111 – if using CICS Transaction Gateway
- ✓ SMF type 112 – if you are running OMEGAMON XE for CICS and you use third party databases such as Adabas, CA-Datacom, IDMS, Supra

Subsystem Data

The following CICS data is to be collected and placed into the CICS DOCLIB dataset

- ✓ System Initialization Table (DFHSIT) specifications and overrides for each CICS address space to be reviewed.
- ✓ Monitoring Control Table (DFHMCT) specifications.
  - Optional - Enable additional RMI instrumentation if your release of CICS supports the RMI=YES parameter (This will assist in determining how much time is spent on the resource management interfaces for components such as IBM MQ, CPSM and CICS TCP/IP socket requests)
- ✓ Log stream definitions if you are using System Logger.
  - Use program IXCMIAPU to generate a listing of the log streams defined in the z/OS infrastructure and send a softcopy of the output.

```
//PRINT1     EXEC PGM=IXCMIAPU,REGION=0M
//SYSPRINT DD  SYSOUT=*
//SYSIN      DD  *
           DATA TYPE(LOGR) REPORT(YES)
           LIST   STRUCTURE NAME(*) DETAIL(NO)
           LIST   LOGSTREAM NAME(*) DETAIL(NO)
/*
```

- ✓ Language Environment (LE) options that are being used; this can be done by using the CLER transaction and saving the output.

- ✓ If you are using CICS Transaction Gateway (CTG), please send the XXX.ini configuration files and environment variables for the production CTG daemons.

- ✓ If you are using TCPIP.
  - ➢ CICS Sockets Domain include TCPIP Service definitions
  - ➢ IP Sockets include EZACICD macro or output from commands
    - ▪ EZAC,DISPLAY,LISTENER - Displays what is in the configuration file
    - ▪ EZAO,INQUIRE,LISTENER - Displays what is set and running

- ✓ Print the CSD used by the selected CICS regions. Terse the print output and upload to the Testcase server. You can use the following JCL:

```
//CSDUPD01  EXEC PGM=DFHCSDUP,PARM='CSD(READONLY)'
//STEPLIB   DD   DISP=SHR,DSN=CTS610.CICS.SDFHLOAD
//DFHCSD    DD   DISP=SHR,DSN=CICS.DFHCSD
//SYSPRINT  DD   DISP=(NEW,CATLG),DSN=CICS.CSDPRINT,
//            SPACE=(CYL,(10,10),RLSE)
//SYSUDUMP  DD   SYSOUT=*
//SYSIN     DD *
LIST ALL OBJECTS
/*
//TERSE    EXEC PGM=AMATERSE,PARM=PACK
//SYSPRINT DD SYSOUT=*,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=12901)
//SYSUT1   DD DISP=SHR,DSN=CICS.CSDPRINT
//SYSUT2   DD DSN=CICS.CSDPRINT.TRS,DISP=(NEW,CATLG),
//            SPACE=(CYL,(10,10),RLSE)
//
```

VSAM/RLS Input

Subsystem Data

The following VSAM/RLS configuration data is to be collected and forward to the IBM CICS Contact.

- ✓ Cache structure to cache set to Storage Class relationships.
- ✓ Description of who uses each cache set (production, test, etc.)
- ✓ Output for the following commands
  - D SMS,CFCACHE(*) - will display the list of CF cache structure names but not their size.
  - D XCF,STR,STRNAME=cachename - will show the actual ('INITSIZE') and CFRM-policy sizes.
  - D XCF,STR,STRNAME=lockname - will show the actual ('INITSIZE') and CFRM-policy sizes.
  - D SMS,CFLS - will display the sysplex wide true and false contention rates in %. Issue this command during high VSAM RLS activity.
  - D SMS,SMSVSAM,ALL - displays the status of the SMSVSAM server on this system or all the SMSVSAM servers and lock table connection status, including which systems have SMSVSAM up. Also indicates which SMS 42 subtypes are active. (Sysplex-wide command)

Db2 for z/OS Input

SMF/RMF Data

Send the following SMF records for the 72-hour period previously described:

- ✓ SMF type 100 and 102 records - these records will be used to run the Statistics Long reports. It is recommended that the following DSNZPARM settings be used to assure the correct records are collected:
  - SMFSTAT = 1,3,4,5,6,9. (if set to YES, that is okay, but including 9 is preferred) If you have additional statistic classes set on that is fine.
  - If your DSNZPARM parameters do not reflect these values, please turn on the corresponding traces with destination SMF before the agreed upon collection interval.
  - The Db2 STATIME and STATIME_MAIN parameters should be set to 1 minute, although STATIME_MAIN could be set to a shorter interval. (Statistics records take negligible overhead).
  - Please turn on IFCID 365 at least for the duration of the batch and online intervals identified above.

- ✓ If you use OMPE, feel free to run these reports and send the output in addition to sending the SMF records.

Commands and Command Timeline

- ☞ Issue the following commands one time each, at the start of the first data collection interval (either ONLINE peak or BATCH peak) described above for the other subsystems:

  - ✓ DIS GROUP [only required from one member if data sharing]
  - ✓ DIS DDF DETAIL
    - ♦ Issue *once* for *each* member of the group [if data sharing]
  - ✓ DIS GBPOOL(*) TYPE(GCONN) GDETAIL(*)
    - ♦ Issue from only one member that is connected to all the GBPs to get information since the GBPs were allocated
    - ♦ Applies only to data sharing environments

- ☞ Issue the following commands at the start ***and*** at the end of both the BATCH and the ONLINE intervals:

  - ✓ DIS GBPOOL(*) TYPE(GCONN) GDETAIL [if data sharing, issue once for the group]
    - ♦ Issue twice for *each* interval:
      - Once before *each* of the measured intervals and *again immediately at the end* of the measured interval. Leaving out the (*) for GDETAIL means the default of INTERVAL is used, and the output of the second command will include only the statistics from the interval. As above, issue from one member that is connected to the GBPs.

- ♦ Result: Four sets of output for the data sharing group

- ✓ DIS GBPOOL(*) TYPE(GCONN) MDETAIL [if data sharing]
  - ♦ Issue twice for *each* member for *each* interval:
  - – Once before *each* of the measured intervals and again immediately at the end of the measured interval. Leaving out the (*) for MDETAIL means the default of INTERVAL is used, and the output of the second command will include only the statistics from the interval. Issue from each member of the data sharing group.
  - ♦ Result: Four sets of output for each member of the data sharing group
- ✓ DIS BPOOL(ACTIVE) DETAIL
  - ♦ Issue twice for *each* interval [for *each* member if data sharing]
  - – Once before *each* of the measured intervals and *again immediately at the end* of that measured interval.
  - ♦ Result: Four sets of output [for each member if data sharing]
- ✓ Please indicate, as closely as possible, the exact time the commands were issued.

Subsystem Data

The following should be collected and sent to the Health Check team as a member in DOCLIB

- ✓ DSNZPARMs - send only one if all are the same except for subsystem/member name (and related fields)
- ✓ Print Log Map of Production (DSNJU004 output) – should cover all the members of the data sharing group. This can be a single DSNJU004 output that includes all the members or multiple DSNJU004 files, one for each member.
- ✓ LISTCAT output for all production active log data sets and BSDSs
  - ▪ This should include all LOGCOPY1 and LOGCOPY2 data sets and BSDS01 and BSDS02.

Sysplex Distributor and DVIPA data

The following should be collected and sent either with the Db2 for z/OS data or with the z/OS CommServer data

- ✓ VIPADISTRIBUTE statement for the data sharing group and related VIPARANGE and VIPADEFINE statements
- ✓ Db2 PORT reservation statements

WebSphere Liberty

SMF/RMF Data

Send the following SMF records, time periods should match the peak batch and online periods for the other subsystems:

- ✓ SMF type 72
- ✓ SMF type 120, subtypes 11 – Enabled by adding features monitor-1.0 and zosRequestLogging-1.0 to the list of features in the *featureManager* configuration element.

- ✓ SMF type 123, subtype 1 version 2 and subtype 2 version 2 – Enabled by activating the audit interceptor with both the apiRequesterSmfVersion and apiProviderSmfVersion attributes set to 2 (as below).

These SMF records will be used to generate service class reports and for analysis.

Workload Manager

Please provide any CB classification rules added for any Liberty transactions (TC), specifically the report classes as well as any *httpClassification* configuration attributes in the server XML configuration.

Java Health Center

Please enable the Java Health Center monitoring agent in Liberty runtime servers by adding the directives below to an options file in OMVS. Add *-Xoptionsfile* set to an options file containing these directives to JVM_OPTIONS environment variable in the server JCL, e.g.
JVM_OPTIONS=-Xoptionsfile=/var/zcee/properties/zceeHCD.properties
# All the health center directives should be on one line

```
Java Health Center Directives
-Dcom.ibm.tools.attach.enable=yes

-Xhealthcenter:level=headless
-Dcom.ibm.java.diagnostics.healthcenter.headless.output.directory=/var/zcee/hcd
-Dcom.ibm.java.diagnostics.healthcenter.socket.readwrite=on
-Dcom.ibm.java.diagnostics.healthcenter.headless.files.to.keep=10
-Dcom.ibm.java.diagnostics.healthcenter.headless.delay.start=value=0
-Dcom.ibm.java.diagnostics.healthcenter.headless.run.pause.duration=1
-Dcom.ibm.java.diagnostics.healthcenter.headless.run.duration=10
-Dcom.ibm.java.diagnostics.healthcenter.headless.run.number.of.runs=5
-Dcom.ibm.diagnostics.healthcenter.readonly=on #
```

For details on these and other Health Center configuration properties, see URL https://www.ibm.com/docs/en/mon-diag-tools?topic=agent-health-center-configuration-properties

Starting a Liberty server with these directives present will start the monitor agent and it will run for 10 minutes (*run.duration*). This will generate HCD files in directory /var/zcee/hcd. Please provide these files in binary format.

The Java Health Center monitoring agent can be restarted by submitting this JCL

```
//JOHNSONS JOB (ACCOUNT),NOTIFY=&SYSUID,REGION=0M,
// CLASS=A,MSGCLASS=H,MSGLEVEL=(1,1),USER=LIBSERV
//JAVA     EXEC PGM=IKJEFT01,REGION=0M
//SYSERR   DD  SYSOUT=*
//STDOUT   DD  SYSOUT=*
//SYSTSPRT DD  SYSOUT=*
//SYSTSIN  DD  *
 BPXBATCH SH +
 java -jar /usr/lpp/java/J8.0_64/lib/ext/healthcenter.jar +
 ID=16846267 level=headless +
 -Dcom.ibm.java.diagnostics.healthcenter.headless.run.number.of.runs=1
```

Where the ID value is the process ID of the Java thread of the Liberty server. The job must run under the identity associated with the server's started task.

The process ID of a Liberty server can be determined by reviewing the server's messages.log file for message. The process ID in the example below is **16781940.**

```
************************************************************************
product = WAS FOR Z/OS 23.0.0.9, z/OS Connect EE Unlimited 03.00.76 (wlp
wlp.install.dir = /shared/IBM/zosconnect/v3r0/wlp/
server.config.dir = /var/zosconnect/servers/myServer/
java.home = /usr/lpp/java/J8.0_64
java.version = 1.8.0_331
java.runtime = Java(TM) SE Runtime Environment (8.0.7.11 - pmz6480sr7fp1
os = z/OS (02.04.00; s390x) (en_US)
process = 16781940@wg31
```

The health check data files created be packaged for sending to IBM using the sample JCL below.

```
//EXPORT EXPORT SYMLIST=(*)
// SET HCDDIR='/var/zcee/hcd'
//TAR    EXEC PGM=IKJEFT01,REGION=0M
//SYSTSPRT DD SYSOUT=*
//SYSERR   DD SYSOUT=*
//STDOUT   DD SYSOUT=*
//SYSTSIN  DD *,SYMBOLS=EXECSYS
  BPXBATCH SH +
  cd &HCDDIR; +
  tar -cvf hcd.tar *.hcd
//DELETE EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
  DELETE JOHNSON.HCD.TAR
  DELETE JOHNSON.HCDTAR.TERSED
  ALLOC DSNAME('JOHNSON.HCD.TAR') +
   NEW CATALOG SPACE(10,10) CYLINDERS -
   RECFM(V) LRECL(32756) BLKSIZE(32760)
  SET MAXCC=0
//ALLOC EXEC PGM=IEFBR14
//HCDTAR   DD DISP=SHR,DSN=JOHNSON.HCD.TAR
//OGET EXEC PGM=IKJEFT01,REGION=0M
//SYSTSPRT DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*
//SYSERR   DD SYSOUT=*
//STDOUT   DD SYSOUT=*
//SYSTSIN  DD *,SYMBOLS=EXECSYS
  OGET '&HCDDIR/hcd.tar' 'JOHNSON.HCD.TAR' BINARY
//TERSE    EXEC PGM=AMATERSE,PARM=PACK
//SYSPRINT DD SYSOUT=*
//SYSUT1   DD DISP=SHR,DSN=JOHNSON.HCD.TAR
//SYSUT2   DD DISP=(,CATLG),UNIT=SYSDA,
//       DSN=JOHNSON.HCDTAR.TERSED,
//       SPACE=(CYL,(10,10),RLSE)
```

Subsystem Data

- ✓ The results of entering the MVS command below:

  D OMVS,O
  D OMVS,LIMITS,PID=**16781940**

- ✓ The entire contents of the server's server.xml file (and any included files)
- ✓ The Liberty servers' *messages.log* files
- ✓ The JCL and/or JCL procedures used to start the Liberty servers.
- ✓ Any JVM or other options specified in bootstrap property or other files.

- ✓ A high-level overview of the topology of the clients and the z/OS resources being accessed from these clients.

- ✓ A high-level overview of the security requirements. For examples which connections require TLS, where is basic authentication is sufficient and if third party tokens are being used. For the later, details about the authentication servers used to generate the tokens.

IMS Input

The following IMS data is to be collected and sent to IBM as .txt files; files can be zipped. Instructions follow this section. Please provide the following information about individual IMS components of the IMSplex.

Data:

SMF 29 & 79 records

IMS SLDS from the identified time period
IMS Connect Extensions Journals if available
IMS DC monitor report data
IMS Job logs
/DIS Pool all command responses - included in IMS region job stream
Preferably during DC monitor also
IMS PROCLIB – all members

Shared Queues and Coupling Facility information requests are below

- ✓ Schematic of the IMS/IMSplex Environment/Configuration:
  - ➢ Show LPARs with IMS Control Regions, DLISAS, DBRC, IRLM address spaces, FDBR regions, CQS address spaces, CSL address spaces, DRD address spaces, IMS Connect and connections to other subsystems.

- ✓ IMS System(s):
  - ➢ Describe the individual IMS system usage
    - ▪ Business Applications supported
    - ▪ If the IMS systems are not cloned, identify any significant differences.
    - ▪ Provide the IMS Stage 1 input
      - Include macros that define the network, databases, applications, transactions, routing codes
  - ➢ If using DRD, provide listing of the defined resource definitions
    - ▪ Using RDDSs or Repository?
  - ➢ Provide the startup JCL and PROCs for the IMS / IRLM subsystem components
  - ➢ Provide the IMS PROCLIB (need to review, i.e.. DFSPBxxx, DFSDCxxx, DFSDFxxx, DFSVSMxx , DFSFDRxx, DFSSQxxx, DFSCGxxx, DFSFIXxx, BPECFGxx, CSLxxxxx etc…)

- ✓ IMS Network Connectivity:
  - ➢ Describe briefly how end users are connected to the IMS control region(s).
    - ▪ What is the predominant means of connecting?
    - ▪ Can input traffic be rerouted in the event an IMS control region is not available and how?
      - Include input from:
        - ♦ TCP/IP, SNA, Telnet, 3270 Terminals, LU6.1 / LU6.2
        - ♦ IMS Connect
        - ♦ OTMA
        - ♦ ODBM

- ✓ IMS System Connectivity:

- Identify the subsystems/programs that connect to IMS. Where appropriate, indicate how they are connected.
  - Other IMSs (MSC, ISC, Call Out)
  - CICS (APPC, ISC, DBCTL)
  - Db2 for z/OS, (Db2 Stored Procedures)
  - IBM MQ (IMS Bridge, IMS Adapter, Trigger Monitor)
  - WebSphere (WAS, WPS, WMB, WTX)
  - ODBA (Db2 Stored Procedures, WAS, Native Tasks)
  - ODBM Clients (local or distributed)
  - OTMA Clients
  - DataPower
  - Fast Database Recovery (FDBR)
  - Others

✓ IMS Systems Management:
- Describe how you manage the IMS environment
  - How do you perform IMS operational functions (e.g., MTO, automation)?
  - Define the normal hours of operation for the IMS system
  - How do you handle IMS system data sets - especially SDFSRESL, ACBLIB, MODBLKS, FMTLIB, application program libraries, exit libraries, dynamic allocation libraries?
  - How do you apply IMS system software maintenance?
- Is the IMS Catalog enabled and is the IMS Catalog DB populated?
  - Are local or distributed clients using the IMS Metadata?
- Describe the databases used by your applications
  - Full function databases (HALDB? Using OLR?)
  - Fast path databases (DEDBs? SDEPs? VSO?)
  - Are any databases shared with Block Level Data Sharing?
  - Describe your database maintenance procedures (backup, reorganization, recovery) and the retention of IMS Logs, ICs, CAs, etc…
- Describe your transaction profile
  - Any MFS Conversational transactions?
  - Any SERIAL transactions (TRANSACT SERIAL=YES or MAXRGN=1)?
  - Any fast path transactions (using EMH and/or IFP regions)?
- Describe your application program profile
  - Any SERIAL PSBs (APPLCTN SCHDTYP=SERIAL)?
  - BMPs
  - Batch (DLI and/or DBB) Any batch data sharers?

✓ IMS Application Management:
- What types of applications are installed or soon to be installed?
- Identify which IMS subsystems they reside in or will reside in?
  - Are any applications restricted to a single IMS instance? Which? Why?
  - Do any applications have call outs to other applications? If so, please describe
  - Do any applications have call outs to other LPARs or distributed platforms? If so, please describe.
  - If you have changed defaults for any timeout values, what are they? Which ones?
    - Tran Expiry
    - OTMA
    - IMS Connect
    - IMS Call Out (ICAL)

- What tools/ mechanisms are used to control and deploy application changes/releases ?
  - Describe your application rollout procedures

✓ Describe your operational procedures as it relates to IMS
- Both human intervention and automation
- Can you and how do you redirect the workload if an IMS system is unavailable?

✓ Describe your Performance Measurement & Tuning and Capacity Planning process/tools
- Provide sample reports

✓ Describe your IMS / z/OS Capacity Planning process/tools
- Provide sample reports

IMS exploitation of Parallel Sysplex (skip repeat questions if they are answered above)

Describe the Data Sharing IMSplex configuration.

✓ Are the IMSs in a shared environment (Data Sharing and/or Shared Queues) all clones of each other?
- Describe any differences, or reasons why they are not or cannot be clones.

✓ Are there any IMS affinities?
- Describe affinity and reason
  - MQ Triggered transactions
  - Access non-shared resources
  - Conversational transactions
  - Serialized transactions
  - "Applications Group" insists on not sharing with other Applications Group
- Are BMPs using IMSGROUP?
  - Using Program Restart Facility? Or similar tool?

✓ Which Parallel Sysplex features are being exploited by IMS?
- n-Way Data Sharing
  - Are all databases shared?
    - If all are not shared, why not?
  - Are the ACBLIBs shared?
    - Do you use OLC, MOLC, GOLC ?
  - Is the RESLIB shared?
  - Is the IMS Catalog shared?
- Shared Queues
  - Are you using IMS Shared Queues?
  - Any plans to implement Shared Queues?
- Common Service Layer (CSL)
  - Are the CSL components installed?
  - Which features of the Common Service Layer (CSL) are you using?
    - Operations Manager? SPOC? IMS Control Center?
      - Type 2 Commands?
    - Resource Manager?

        - ♦ Sysplex Terminal Management?
        - ♦ Global Online Change?
        - ♦ DRD Repository Server ?
      - ODBM?
        - ♦ Using Type 2 or Type 4 Universal Drivers?
      - Automatic RECON Loss Notification (ARLN)?
  - How do you implement online change across the IMSplex?
    - Are online change libraries shared? Cloned? Unique? Which ones?
    - Using OLC, MOLC, GOLC?
    - Dynamic Resource Definitions – RDDS or Repository
  - Is Automatic Restart Management (ARM) active for your IMS address spaces?
    - Which address spaces register with ARM?
    - If not all, why not?
    -
  - How is OTMA traffic routed?
    - IMS Connect
      - Do you use exits to route traffic?
    - MQ – IMS Bridge
      - Do you use MQ Shared Queues? Cluster Queues?
    - Other
  - Sysplex Distributor
    - Are you using SD to spray connections to IMSs?
  - How are VTAM logons resolved?
    - Logon directly to IMS APPLID
    - VTAM Generic Resources (VGR)
    - TCPIP configuration information for IMS (e.g. Sysplex Distributor, VIPA, etc.).
    - USERVAR Exit
    - OSSTAB

- ✓ n-Way Block Level Data Sharing
  - Provide the definitions and policies for the CF structures
  - What are your IRLM parameters? Provide configuration setup
    - Provide a copy of the IRLM JCL / PROC / PARMs
    - Is the IRLMNM the same for all IRLMs?
  - Do any PSBs have PROCOPT=E databases?
    - How do you deal with this in a data sharing environment?
  - Do any PSBs have PROCOPT=GOx databases?
    - How do you deal with U8xx abends?
  - Do you share DEDBs?
    - With VSO?
      - Are you using look-aside buffering for SVSO?
      - Do your SVSO areas share a CF structure?
    - With SDEPs?
  - Are you using OSAM caching? Which databases and buffer pools?
  - Describe / Explain any *known* locking problems in the application databases
    - Provide DFSERA10 deadlock reports from a high locking timeframe
    - Provide SMF 79 records for IRLM lock analysis
  - Describe any problems identified with database “hot spots” causing block lock problems that present in the data sharing environment?
  - Do the online systems share databases with IMS batch DLI / DBB jobs?

    - Are batch jobs using read only database processing – PROCOPT=GOx?
    - Do batch jobs have full read and update access to databases?
  - Do BMPs and Batch data sharing jobs do frequent checkpointing?
    - Using XRST call coded in root modules?
  - Are you using Fast Database Recovery (FDBR) ?
    - If not, why not?
    - If so, provide a copy of the FDBR JCL / PROC

- ✓ Shared queues
  - Provide the contents of DFSSQxxx, CQSIPxxx, CQSSGxxx, and CQSSLxxx
  - Provide the LOGR policy for the LOGSTREAM definitions
  - Provide the CF structure and policy definitions
  - Describe any known problems with false scheduling?

IMS Failure and Recovery

Describe how you recover from the following failures (only as it applies to IMS):

- ✓ System (LPAR or z/OS) failure
- ✓ IMS failure
- ✓ IRLM failure
- ✓ BMP failure
- ✓ IMS batch failure
- ✓ CSL component failure
- ✓ CQS failure
- ✓ CF failure
- ✓ CF connectivity failure
- ✓ Structure failure
- ✓ Structure full warning
- ✓ Structure full
- ✓ Database failure (pointer error, physical DASD error, etc…)

IMS Performance Data

Collect and forward some initial performance data via FTP:

- ✓ RMF CF Activity Reports including IMS structures
- ✓ IMS Control Region SYSOUT
  - Output of /DIS POOL DBAS for each IMS
    - Right after IMS is started
    - Several times during “peak” processing periods
    - Just prior to shutting down IMS, or after IMS has been running at least one day (a “peak” day)
- ✓ IMS Subsystem Task SYSOUT, JCL, PROCs, PARMs
- ✓ IMS SLDS logs for the selected IMS subsystem(s) created during the study day/time period(s)
- ✓ Full set of IMSPA reports (if available) using IMS SLDS Logs for the selected subsystem study period(s)

- ✓ IMS Monitor reports
  - ➢ /TRACE SET ON MONITOR ALL
    - ▪ Several short intervals (5 min) during peak Transaction period (at least 1 checkpoint)
    - ▪ Several short intervals (5 min) during peak BMP periods (at least 1 checkpoint)
  - ➢ Run DFSUTR20 Utility and forward IMS monitor report
- ✓ IMS Monitor datasets for the selected IMS subsystem(s) captured during the monitor trace time periods
- ✓ If you use Fast Path databases, provide Fast Path Log Analysis Utility (DBFULTA0) reports
  - ➢ Several during peak volume times
  - ➢ Use one SLDS per utility execution
    - ▪ Use the following parameters:

```
//SYSIN DD *
NOT-MESSAGE
MAXDETAIL=2000
CALLS
BUFFERS
VSO
TT(*)=0.0
```

Communications Server Input

GENERAL INPUT for z/OS Communications Server Environment

The following Communications Server configuration data is to be collected:

- Identify all the current PMRs dealing with Communications Server.
- Output from z/OS Health Checker for following elements:
  - UNIX System Services
  - z/OS
  - z/OS Communications Server
  - Other application-related messages

UNIX System Services Input for MVS Images to be analyzed

- Provide the BPXPRMxx, ATCSTRxx, and IVTPRMxx PARMLIB member statements for each LPAR in the sysplex which is being reviewed.
- Provide the output from the following commands:
  D OMVS,O
  D OMVS,P
  D OMVS,L

VTAM Networking Input

- D NET,VTAMOPTS
- D NET,BFRUSE,BUFFER=SHORT
- D NET,CSM,OWNERID=ALL
- D NET,EE,LIST=DETAIL
- D NET,TGPS
- D NET,TRL

TCPIP Networking Input

The following TCPIP configuration data for each stack that is to be reviewed should be collected and forwarded to the IBM Network contact. If systems are alike a single system information is fine.

- The TCPIP JCL Procedure file
- The TCPIP PROFILE and its INCLUDE files
- The TN3270 PROFILE and its INCLUDE files
- The OMPROUTE Configuration File
- From every image in the sysplex which is being reviewed, issue the following command and capture the output from each:
  - F RESOLVER,DISPLAY
  - D TCPIP,,N,CONFIG
  - D TCPIP,,N,HOME
  - D TCPIP,,N,STATS
  - D TCPIP,,N,ROUTE,MAX=*
  - D SYMBOLS

IBM MQ Input

Please note these instructions have changed due to updates to IBM MQ for z/OS. Those recent changes have included changing the use of the asterisk (*) in SMF capture and production to make it behave consistently between the ZPRM macro and the START TRACE commands

SMF/RMF Data

- ✓ SMF type 115 - MQ Statistics records for at least one week (seven days), including the interval(s) selected for the study. We ask for the relatively lengthy period due to the basic asynchronous nature of MQ. While the peak MQ processing is typically the same as that for the subsystems processing and producing the messages (CICS, IMS, batch, WAS, etc.), we have seen a number of instances that the peaks for MQ are not aligned, especially when there are client applications connecting directly to z/OS queue managers or queue sharing groups.
  - ➢ All classes of the statistics information (01 thru 05) should be captured.
  - ➢ To verify the current statistics gathering, issue the DISPLAY TRACE command as shown:
    - +cpf DISPLAY TRACE(STAT)
    - The result should look similar to this:

```
RESPONSE=MPX1
 CSQW127I QML1 CURRENT TRACE ACTIVITY IS -
 TNO TYPE   CLASS        DEST     USERID   RMID
 02  STAT   01,02,03,04  SMF      *        *
 END OF TRACE REPORT
```

  - ➢ If the trace is not active, or not all the classes are being gathered, the dynamic command to turn on the correct statistics gathering, for all classes:
    - +cpf START TRACE(STAT) DEST(SMF) CLASS(*) AND
      +cpf START TRACE(STAT) DEST(SMF) CLASS(04) AND (if at MQ V9.3 or higher)
      +cpf START TRACE(STAT) DEST(SMF) CLASS(05)
    - Note that setting the ZPARM SMFSTAT attribute to an asterisk now only controls classes 1, 2 and 3. Turning on classes 4 and 5 MUST be done via the START TRACE command.

- ✓ SMF type 116 Class 3 & 4 data – MQ Task and Channel Accounting records for the one to two-hour interval(s) being examined.

  - ➢ The collection of SMF116 Class(3) and Class(4) records should be for the same evaluation period as the other subsystems.
  - ➢ We are not interested in the Accounting Class(1) records, aka Charge Back records, so we will ask you to remove them to save on transmission time and storage.
    - *There is a JCL sample below that will select SMF type 115 (all subtypes) and SMF 116 subtypes 1-10.*
  - ➢ To verify the accounting data gathering, issue the DISPLAY TRACE command as shown:
    - +cpf DISPLAY TRACE(ACCT)

- The result should look similar to this:

```
RESPONSE=MPX1
 CSQW127I QML1 CURRENT TRACE ACTIVITY IS -
 TNO TYPE   CLASS        DEST     USERID   RMID
 03  ACCTG  *            SMF      *        *
 END OF TRACE REPORT
 CSQ9022I QML1 CSQWVCM1 ' DISPLAY TRACE' NORMAL COMPLETION
```

- Note that the above example shows that Accounting class 1 is also active, that data is not reviewed for a health check. We would appreciate it if that data is not sent.
- SMF116 data collection can be turned on and off dynamically, there is no cycle of the queue manager necessary:
  - The commands to dynamically turn on and off SMF 116 collection:

    +cpf START TRACE(ACCTG) DEST(SMF) CLASS(3)
    +cpf START TRACE(ACCTG) DEST(SMF) CLASS(4)

    +cpf STOP TRACE(ACCTG) DEST(SMF) CLASS(3)
    +cpf STOP TRACE(ACCTG) DEST(SMF) CLASS(4)

- The channel accounting data requires additional set-up to produce the SMF. The steps are:
  - Issue the command to turn on gathering of the information for all sender receiver and client connections
    +cpf ALTER QMGR STATCHL(HIGH)
    The value of HIGH, MED, or LOW have the same effect
  - Issue the command to turn on gathering of the information for auto-defined cluster channels if clustering is in use:
    +cpf ALTER QMGR STATCHLS(HIGH)
    The value of HIGH, MED, or LOW have the same effect
  - Verify that all channels have STATCHL set to QMGR.
    +cpf DISPLAY CHANNEL(*) STATCHL
    Note that even SVRCONN channels will be included in the list, even though they do not have this attribute.

- ✓ For all versions of MQ, please check the following:
  - Verify the STATIME value for the queue managers being evaluated:
    - If this evaluation is for a Queue Sharing Group, please make sure that the STATIME is consistent across the QSG. If they are not, please set them to the same interval before starting the data gathering process.
    - Display the system settings using the DISPLAY SYSTEM command
      +cpf DISPLAY SYSTEM
    - If the STATIME value is 0, meaning that the statistics interval is set to the default LPAR value, then this is typically fine. We have seen instances of very high volume LPARs creating varying durations of the SMF data production. If in your evaluation of the data there have been widely varying durations, please set the STATIME to a nonzero value for all queue managers.
    - If the STATIME is set to 30 or above, alter it to be no greater than 15 via the SET SYSTEM command. The sample is setting a 5 minute interval.
      + cpf SET SYSTEM STATIME(05) or if at MQ V9.2.4 or higher
      +cpf SET SYSTEM STATIME(05.00)
      NOTE: The new interval will not take effect until the current interval has elapsed, so this change needs to be done prior to the start of data collection.
    - The various IBM groups and business partners working with SMF evaluation tools that include machine learning and or AI components are recommending an SMF interval of NO MORE than 5 minutes. We are now recommending the 5 minute or lower interval setting to comply with new tools.
  - Verify the ACCTIME value for queue managers that are at release level 9.2.4 or higher:
    - If ACCTIME is set to -1, it will be the same as the STATIME attribute.
    - If this evaluation is for a Queue Sharing Group, please make sure that the ACCTIME is consistent across the QSG. If it is not, please set the values to the same interval before starting the data gathering process.
    - If the ACCTTIME is set to 30 or above, alter it to be no greater than 15 via the SET SYSTEM command. The sample is setting a 5 minute interval.
      + cpf SET SYSTEM STATIME(05.00)
      NOTE: The new interval will not take effect until the current interval has elapsed, so this change needs to be done prior to the start of data collection.
  - Verify ACCTQ setting on the queue managers
    - Display the ACCTQ setting for the queue managers in the study
      +cpf DISPLAY QMGR ACCTQ
    - If the value is ACCTQ(ON), no further action is needed

        - Otherwise, please use the following command:
          +cpf ALTER QMGR ACCTQ(ON)

    - If clustering is in use, make sure that accounting is turned on for the SYSTEM.CLUSTER.TRANSMIT.QUEUE and any other named cluster transmit queues hosted by the queue manager. To determine whether accounting is enabled for the cluster transmission queues:
        - Display the ACCTQ setting for the queue(s)
          +cpf DISPLAY QL(SYSTEM.CLUSTER.TRANSMIT.QUEUE) ACCTQ
        - If the value of ACCTQ is ACCTQ(OFF), then it should be turned on
          +cpf ALTER QL(SYSTEM.CLUSTER.TRANSMIT.QUEUE) ACCTQ(ON)
          Display the ACCTQ value again, to verify the change.
    - For all other high-volume queues, please also verify that the ACCTQ is ON or set to QMGR for the interval under examination.

Subsystem Data

The following MQ data is to be collected and can be emailed to IBM as .txt files; files can be zipped. Or include these job outputs in the softcopy TERSED dataset to be FTPed to IBM.

- ✓ MQ topology, showing queue sharing groups, queue manager cluster(s), queue manager, and client connections
    - If the queue manager(s) is (are) part of a queue manager cluster:
        - Please provide the location of the full repositories.
        - Are multiple cluster transmission queues in use (MQ V8 and above)?
- ✓ Queue manager and channel initiator JES logs:
    - This must include the time period under evaluation
    - This must include the queue manager and channel initiator start ups OR contain the output from the following commands for each queue manager:
        - +cpf DISPLAY QMGR ALL
        - +cpf DISPLAY SYSTEM
        - +cpf DISPLAY USAGE
        - +cpf DISPLAY LOG
        - +cpf DISPLAY ARCHIVE
        - +cpf DISPLAY SECURITY
        - +cpf DISPLAY CHINIT

- If the queue managers are in a Queue Sharing Group, please include:
    - +cpf DISPLAY CFSTRUCT(*) ALL
    - +cpf DISPLAY CFSTATUS(*)
    - +cpf DISPLAY SMDS(*) all
    - +cpf DISPLAY SMDSCONN(*) CFSTRUCT(STRUCTURE NAME) for each structure

Other MQ Information

- ✓ List any open IBM MQ Cases.
- ✓ Definitions of MQ log files. If dual logging is used, both copy 1 and copy 2.

Sample JCL for IBM MQ SMF data selection (uses IFASMFDP) to be sent to WSC. If there are multiple LPARs being sent, please divide the data by LPAR if possible.

```
//SMFDMPA1  EXEC PGM=IFASMFDP
//DUMPIN   DD  DISP=SHR,DSN=MQHC.CUSTNAME.++LPAR.MQSMF.IN
//DUMPOUT  DD  DISP=(NEW,CATLG,DELETE),
//         MGMTCLAS=LARGTEMP,DATACLAS=COMT,RECFM=VB,
//         SPACE=(CYL,(5000,2000)),UNIT=SYSDA,
//         DSN=MQHC.CUSTNAME.++LPAR.MQSMF.OUT
//SYSPRINT DD   SYSOUT=*
//SYSIN  DD *
 INDD(DUMPIN,OPTIONS(DUMP))
 OUTDD(DUMPOUT,TYPE(115,116(1:10)))
/*
//
```

CRYPTO/ICSF

SMF/RMF Data

- ✓ SMF Type 82, 70-2

Subsystem Data

- ✓ The output of the following commands:
  D ICSF,LIST,SYSPLEX=YES
  D ICSF,CARDS,SYSPLEX=YES
  D ICSF,KDS,SYSPLEX=YES
  D ICSF,MKS,SYSPLEX=YES
  D ICSF,OPT,SYSPLEX=YES
  Provide the ICSF parmlib member options
  Ask for the options from parmlib
  The current IEASYSxx member to see if ICSF is started from IEASYSxx or from COMMNDxx member
- ✓ Number of keys in CKDS, PKDS, TKDS - in the ICSF panels Option 5 Utility, in there,
  - option 5 for CKDS, then option 1 to list the keys in the CKDS it will show displaying 1 of XX keys on the list,
  - option 6 for PKDS, then option 1 to list the keys in the PKD it will show displaying 1 of XX keys on the list
  - option 7 for TKDS. Then option 4 to show the entries in the TKDS
- ✓ # of keys in CKDS
- ✓ # of keys in PKDS
- ✓ # of keys in TKDS

RACF Input

SMF/RMF Data

- ✓ SMF Type 30, 80:83

Subsystem Data

- ✓ Listing of RACF options - SETROPTS LIST (this is a TSO command) from the sample below.
  - The user issuing the command MUST have the AUDIT or ROAUDIT authority
- ✓ Output of all 13 reports from the DSMON utility from the sample below (documentation in the RACF Auditor's Guide)
- ✓ Output from the IRRDBU00 and IRRUT200 utilities from the sample below (documented in the RACF System Programmer's Guide - run this in off-peak and do not do a copy unless it is part of your regular processing - use the index and map options)

RACF JCL

Use the attached JCL to run the SETROPTS/DSMON and UNLOAD in one job.

The user running the job will need to be AUDIT in RACF to be able to gather the auditing related options/data.

No PI/PSI or password information is collected.

ACF/2 Input

Subsystem Data

ACF2: ACFFDR module source

Provide the source of the CA ACF2 Field Definition Record (ACFFDR) parameter module used in the system being reviewed.

ACF2: LIST commands output

Provide the output from the following job:

```
//ACF2LIST  EXEC  PGM=IKJEFT01
//SYSPRINT DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*
//SYSIN    DD DUMMY
//SYSTSIN  DD *
ACF
SET VERBOSE
SET LID
LIST LIKE(-)
SET RULE
LIST LIKE(-)
SET RESOURCE(***)
LIST LIKE(-)
SET ENTRY(SGP)
LIST LIKE(-)
SET ENTRY(SRC)
LIST LIKE(-)
SET SCOPE(SCP)
LIST LIKE(-)
SET XREF(SGP)
LIST LIKE(-)
SET XREF(RGP)
LIST LIKE(-)
SET CONTROL(GSO)
LIST LIKE(-)
SET PROFILE(USER) DIV(OMVS)
LIST LIKE(-)
SET CONTROL(FACTOR) DIV(MFA)
LIST LIKE(-)
SET PROFILE(USER) DIV(MFA)
LIST LIKE(-)
SET PROFILE(CSFKEYS)
```


LIST LIKE(-)
SET PROFILE(DATASET) DIV(PROFILE)
LIST LIKE(-)
SET PROFILE(DATASET) DIV(DFP)
LIST LIKE(-)

ACF2: SHOW commands output

Provide the output from the following job:

```
//ACF2SHOW  EXEC  PGM=IKJEFT01
//SYSPRINT DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*
//SYSIN    DD DUMMY
//SYSTSIN  DD *
ACF
SHOW MODE
SHOW SYSTEMS
SHOW STATE
SHOW ACTIVE
SHOW CLASMAP
SHOW MUSASS
SHOW PROGRAMS
SHOW MLID
SHOW OMVS
SHOW PSWDOPTS
SHOW STCID
SHOW TSO
SHOW UNIXOPTS
SHOW DDSN
```


FTP Instructions

By choosing to send data to IBM, you acknowledge that all information contained in your data, including source, object code, binaries, executables, comments, questions, suggestions, or the like, shall be deemed to not contain PI/SPI data as construed by the EU GDPR Regulations.

As of August 31st, 2022, the use of the anonymous id to upload to Testcase and ECuRep servers will no longer be permitted. This means all individuals needing to upload or retrieve data from the servers will need a valid IBMid.

Get an IBMid at https://www.ibm.com/account/us-en/signup/register.html

Clients will then use that IBMid to obtain a Support File Transfer ID and password.

Get a Support File Transfer ID at https://www.secure.ecurep.ibm.com/transferids/

The password is displayed only once and never expires. If it is lost, a new Support File Transfer ID and password can be obtained and the old one removed. The Support File Transfer ID and password are used in the JCL to upload documentation.

Sending Data to IBM:

Note: Raw SMF records have a variable block record format. To accurately transfer the SMF data, the customer must convert the datasets to fixed block record format using the TRSMAIN Program.

1. Please compress your dataset using AMATERSE which is shipped with z/OS (MIGLIB)

Please make sure that the input dataset that you terse is on DASD, and not on tape. Tersing a tape dataset produces an output dataset with attributes that the unterse function is unable to process and we will not be able to read the data.

The following are samples of IFASMFDP and AMATERSE jobs supplied for your reference:
(Please don't specify DCB information in these jobs. This will help to avoid TERSE problems.)

```
//SMF1        EXEC PGM=IFASMFDP
//DUMPIN    DD DSN=your-gdg-smf-file(-x),DISP=SHR
//DUMPOUT DD DSN=FTP.SMFDATA,UNIT=3390,DISP=(,CATLG),
//                  VOL=SER=(volser1,volser2),SPACE=(CYL,(3000,200),RLSE)
//SYSPRINT DD SYSOUT=*
//SYSIN       DD   *
     INDD(DUMPIN,OPTIONS(DUMP))
     OUTDD(DUMPOUT,TYPE(70:75,78,89,113))
/*
//STEP2      EXEC PGM=AMATERSE,PARM=PACK
//SYSPRINT DD  SYSOUT=*
//SYSUT1    DD  DISP=SHR,DSN=FTP.SMFDATA
//SYSUT2    DD  DISP=(NEW,CATLG,DELETE),VOL=SER=volser,
//                 SPACE=(CYL,(2000,100),RLSE), DSN=ZHC.SMFDATA.TERSED
```

Instructions for PDSE Data Sets with Program Objects
Unlike sequential files or most PDSE data sets, you cannot terse PDSE's that include program objects with TRSMAIN. See Appendix B for detailed instructions on sending PDSE data sets with program objects.

2. FTP the compressed dataset to the /systems/toibm/techdata subdirectory at testcase.boulder.ibm.com.

   Please prefix the file name to be FTP'ed with the following: ZHC.custname.

   The value ZHC allows data on the FTP site to be identified as IBM Z Health Check data. An example of a dataset name would be:

   ZHC.ACME.SYSD.D030107.T70.TRS

3. Connect to the FTP site: testcase.boulder.ibm.com
   (if your installation needs to use an IP address to connect, you should ping testcase.boulder.ibm.com for the current IP address).

4. Specify BINary transfer mode for the compressed dataset.

5. Place the compressed dataset in the /systems/toibm/techdata directory using the put command.

Sample JCL to FTP a dataset to testcase.boulder.ibm.com

```
//JOBNAME JOB (????,????),'TESTCASE FTP',MSGCLASS=O
//FTPSTEP EXEC PGM=FTP,REGION=4096K,PARM='-r TLS'
//SYSMDUMP DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//OUTPUT DD SYSOUT=*
//INPUT DD *
testcase.boulder.ibm.com
<userid>
<password>
cd systems/toibm/techdata
binary
LOCSIte FWFriendly
put <input.filename> ZHC.custname....
quit
/*
```

6. When the transfer is complete, send an email to the IBM WSC team lead which includes:

   - File name(s) at the FTP site
   - MVS dataset attributes (prior to compression) including LRECL, RECFM BLKSIZE, and Primary and Secondary space

If there are any questions regarding data collection, please contact or send an e-mail to the IBM team lead.

APPENDIX A

Check List

	Type	Subsystem	Data	Instructions/Reference
	FTP	z/OS	Types: 30, 70-78, 113, 98.1 (72 Hours)	z/OS - SMF/RMF Data
	FTP	z/OS	Type: 99.6 2-hr peak online / 2-hr peak batch	z/OS - SMF/RMF Data
	FTP	z/OS	Type: 99.14 unless on z16 with OA62064 installed 2-hr peak online / 2-hr peak batch	z/OS - SMF/RMF Data
	FTP	CICS	Type 110, 88 111 & 112 (Optional) 2-hr peak online / 2-hr peak batch	CICS - SMF/RMF Data
	FTP	Db2 for z/OS	Type 100, 102 (72 Hours)	Db2 - SMF/RMF Data
	FTP	MQ	Type 115 (7 Days)	MQ - SMF/RMF Data
	FTP	MQ	Type 116(3,4) (1-2 Hour Interval)	MQ - SMF/RMF Data
	FTP	Liberty	Type 72, 120(11), 123(1,2) 2-hr peak online / 2-hr peak batch	Liberty – SMF/RMF Data
	FTP	IMS	Type 29, 79	IMS Input
	FTP	RACF	Type 80-83	RACF - SMF/RMF Data
	FTP	Crypto	Type 82, 70-2	CRYPTO/ICSF
	email	z/OS	Hardware Schematics / Profile	Hardware and Software Profile
	FTP	z/OS	SYS1.PARMLIB(s)	z/OS - MVS PARMLIBs
	FTP	z/OS	MVS Command Output	z/OS - MVS Command Responses
	FTP	z/OS	Sysplex Policies	z/OS - Sysplex Policies
	FTP	z/OS	Health Check Report	z/OS - IBM Health Checker for Parallel Sysplex and z/OS
	email	CICS	Region Schematic	CICS - Subsystem Data
	FTP	CICS	DFHSIT Parameters	CICS - Subsystem Data
	FTP	CICS	DFHMCT Parameters	CICS - Subsystem Data
	FTP	CICS	Logstream definitions	CICS - Subsystem Data
	FTP	CICS	LE Options	CICS - Subsystem Data
	FTP	CICS	STAT command output	CICS - Subsystem Data
	FTP	Db2 for z/OS	Display Command output	*Db2 - Commands and Command Timeline*
	FTP	Db2 for z/OS	Subsystem Data	*Db2 - Subsystem Data*
	FTP	MQ	Display Command output and syslog	*MQ - Subsystem Data*

	FTP	IMS	SLDS Data Sets	IMS - IMS Input
	FTP	IMS	Monitor Data Sets	IMS - IMS Input
	FTP	IMS	JCL / PROCs / PARMs / SYSOUT	IMS - IMS Input
	FTP	IMS	STAGE1 Input and DRD Definition	IMS - IMS Input
	email	IMS	Schematic of IMSPlex	IMS - IMS Input
	email	IMS	Performance and Capacity Rpts	IMS - IMS Input
	email	IMS	DFSUTR20 Monitor Rpts	IMS - IMS Input
	email	IMS	FP Log Analysis Rpts	IMS - IMS Input
	FTP	VSAM/RLS	Display Command output	*VSAM/RLS Input*

APPENDIX B

PDSE With Program Objects Instructions

Unlike sequential files or most PDSE data sets, you cannot terse PDSE's that include program objects with TRSMAIN. First, you must XMIT them into a FB, LRECL=80 format.

Prior to tersing the file(s) use this syntax:

XMIT X.Y DS('data.set(member)') OUTDSN(xmitname)

X.Y is a required placeholder for system.userid (but is ignored) and may be coded as-is (the letter X then a dot then the letter Y). The member name is optional. If omitted, the entire PDSE is used as input. This will convert your PDSE into a sequential file. The output file, "xmitname" will be RECFM=FB, LRECL=80, BLKSIZE=3120. You can then terse your OUTDSN data set. We will do the RECEIVE at our end after untersing the file.

APPENDIX C

Sending Data via a Case

In the event <Customer> is unable to send data using the standard FTP process outlined above, data may be submitted via a Case. Rather than multiple cases being opened for each product (MQ, Db2, etc.), the client will open a single Case against z/OS.

Using a Case to submit data to the WSC will cause delays in the processing of the client data by the WSC team.

Instructions for sending data via a case:

1. Open a single case against the Product z/OS and specify the Product Area to be zPP.
2. In the description field, please specify "This case is for the WSC. Please notify <focal point> this case was opened."
3. Upload all data to this case as requested in the data collection guide.

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