

z/OS



JES3 Diagnosis

Version 2 Release 1

z/OS



JES3 Diagnosis

Version 2 Release 1

Note

Before using this information and the product it supports, read the information in "Notices" on page 399.

This edition applies to Version 2 Release 1 of z/OS (5650-ZOS) and to all subsequent releases and modifications until otherwise indicated in new editions.

© **Copyright IBM Corporation 1988, 2013.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Figures vii

Tables ix

About this document xi

Who should use this document xi

How to use this document xi

Where to find more information xii

How to send your comments to IBM xv

If you have a technical problem xv

z/OS Version 2 Release 1 summary of changes xvii

Chapter 1. Diagnosing, Resolving, and Reporting JES3 Problems 1

Diagnostic methodology 1

 Gathering relevant system supplied data 1

Solving JES3 problems 2

 Obtaining an exact description of the problem 2

Determining the Status of the System 2

Documentation that can Assist in Diagnosing JES3 Problems 3

Recommendations for Use of JES3 Dumps and

DUMPCORE 3

 JES3 WANTDUMP Recommendation 3

 Taking JES3 dumps 3

 DUMPCORE 3

Viewing the Contents of Dumps 4

Viewing JES3 Control Blocks 4

Types of problems in JES3 and associated address spaces 4

 JES3 address space performance problems 4

 Hangs or loops in the JES3 address space 6

 Abends in the JES3 Address Space 7

 Miscellaneous JES3 Problem Areas 10

 JES3 problems in user address space 13

 JES3 SSI processing problems 13

 Problems in the FSS address space 14

 Problems in the JES3DLOG Address Space 14

 Problems in the JESXCF Address Space 15

 Problems in the BDT Address Space 16

 JES3 Netserv (TCP/IP/NJE) address space problems 17

Typical JES3 Problems and Their Resolutions 17

 Shortage of JES3 Job Numbers 17

 Misrouted Messages 18

Job related diagnosis 19

 Control Block Print DSP (CBPRNT) 22

 Converter/Interpreter Debug Facility 23

 JCLTEST Facility 24

 JSTTEST facility (Print JCL allocation decisions) 25

Chapter 2. General Diagnosis 27

General System Diagnosis 27

 Display DJC Network (DISPDJC) 27

 The Monitor DSP 28

 Dump Core 30

 JESJCLIN utility 32

 Displaying JES3 Statistics (Statistics Data Area) 32

 Displaying Initialization Related Information 34

 Displaying output scheduling elements (OSEs) for a job 38

 Displaying Single Track Table (STT) Information 41

 Displaying contents of a spool record 44

Format of trace tables and JES3 diagnostic facilities 44

 Format of a JES3 event trace table 44

 Format of a Functional Subsystem (FSS) Address Space Trace Table 58

 Data set status block (DSS) spool trace tables 61

 Communication traces 64

 Dump Job Trace Output 108

 Storage Dumps 111

 JES3 Dump Suppression 111

 Output Service Diagnostic Mode 112

 IOERR Output 114

 Using the Data Collected by the Generalized

 Trace Facility 115

 Job Validation SNAP Output 119

Chapter 3. Using IPCS to View JES3 Information 127

Setting Up the IPCS JES3 Dialog 128

Using Control Block Groups 131

 Tailoring Your IPCS JES3 Session 132

 Helpful Hints for Using the IPCS JES3 Panel Dialog 138

 Using IPCS Subcommands to View JES3

 Diagnostic Data 138

Chapter 4. JES3 Formatted dump. 155

Heading Page 164

JES3 Nucleus 165

SUPUNITS Print/Punch Resources 167

PPQ/PDQ Writer Control Blocks 169

Master OSE table 171

TCP/IP Master OSE Table 172

SNA/NJE Master OSE Table 172

TCP - TCP/IP/NJE Data 173

Allocated OSS pool 176

TCP/IP Allocated OSS pool 177

SNA/NJE Allocated OSS pool 178

SUPUNITS Table 179

FSS Table entries 182

JESMAIN 184

DESTQ 185

MAINSCHD 187

MEMDATA 190

MULTI-VERSION DATA ACCESS MASTER	
CONTROL AREAS	192
GRPTBL/S	192
EXRESC/S	193
CLASS/S.	195
RESQ/S	196
JSQ/S	197
MPC/S	198
Workload Manager Data Area	199
Internal Reader Anchor Block	205
RESQUEUE Table	207
JES3 Job Queue Elements	209
Main device scheduler data area	211
MDS RESQUEUE Tables.	212
SETNAMES Table	216
SETUNITS Table	217
SYSUNITS Table	218
SETVOL Table/SETDSN Table.	220
DYNAL FCT data area	222
DYNAL ECF List Control Block	223
IATYTVT Definitions	224
I/O Parameter Block	225
Extent table	226
IOSB - SRB pairs	228
RPS Sector tables	229
Spool Partition Control Blocks.	229
Single track tables	230
File directory	231
JSAM/USAM Data buffers	232
JES3 Memory Usage	235
FCT READY QUEUE SUMMARY	236
Auxiliary Task Control Block	236
Function Control Table	237
Auxiliary task dispatching element	240
Resident Remote and Line DCT Entries	241
Resident RJP Line and Terminal Table	244
Resident SNA RJP table (SRT)	245
Resident SNA Terminal Entries	246
WSB Entry	246
Device Entry	248
LCB Entry	249
NJE Resident node table.	252
Networking Console Pointers and Queues.	254
NJE Active BSC Node Table	255
DJC JOBNET Control Blocks	257
Address range	258
SYSOUT Application Programming Interface Data	259
COW - Client output work area	262
JESMSG Queue Control Area Header	264
C/I.	264
CIDRVR ECF identifier entries.	264
CIDRVR ECF list control block	265
C/I FSS tables	265
C/I parameter tables	266
C/I related TVT information	267
Interpreter Data Area.	268
Interpreter control tables	269
PROCLIB tables	271
DFC-Device fence control blocks	272
DLY-JQEX delay information for jobs in main service.	273

DSP-DSP dictionary entries.	273
ENQ	275
AENQ control data entries	275
FCT AENQ elements	276
FCT AENQ element free queue	277
GST	278
Generalized subtask global data area	278
Non-specific subtask GSDS.	278
Specific subtask GSDS	279
SQDS in the free pool	279
LOC	281
Locate control tables	281
Locate data area	283
Locate entrance tables	285
Locate Restart Records	286
Locate subtask vector table	286
Master Locate Control Table	287
MOD-JES3 module information from the JDEs	287
SCT-SYSOUT Class table	289
SRS.	290
MDSRS Data Area	290
MDS Control Tables	292
SMS available resource blocks	294

Chapter 5. JES3 Monitoring Facility 295

Characteristics of JMF	295
Getting Started with JMF	296
Starting JMF.	296
What To Look For When Finding Problems	296
Running JMF	298
JMF Reports.	299
System Report	299
FCT and AWAIT	304
SPOOL Information	310
Control Blocks	315
Job Analysis.	317
High CPU Activity	321
Internal Reader.	322
SSI Response Time	323
Outstanding Requests	324

Chapter 6. Reading a JMF hardcopy report. 327

Usage	328
Determining the Number of Reports.	328
Determining the Number of Samples	328
Determining the Number of FCTs	328
Description of the JMF hardcopy report	329

Chapter 7. JES3 Recovery . 377

JES3 and C/I Functional Subsystem Failsoft	377
Job Recovery	377
Function or DSP Recovery	379
Alternate CPU Recovery.	379
Reconfiguring a Processor Complex	380
Checkpoint/Restart	380
Restarting A Job	381
Operator Restart Considerations	381
Restarting JES3 After a Failure.	383
Restarting the Global Processor	383

Assigning Global Processor Functions to a Local Processor	384
Restarting a Local Processor	384
JES3 Checkpoint Data Sets	384
Recovering from Permanent Errors on the JES3 Checkpoint Data Sets.	385
Recovering from a Checkpoint Data Set Out-of-Space Condition	386
Dynamic System Interchange	386
Disabling the Old Global Processor	386
Starting a Local Processor as a Global Processor	387
Defining Dynamic System Interchange Procedures	387
BSC RJP Recovery	388
Recovering from output writer functional subsystem failures.	389
Recovering from SAPI Failures	389
Recovering from Spool I/O Errors	390
Intermittent I/O Errors	391
Permanent I/O Errors	391

Replacing a Spool Data Set	392
Moving a Spool Data Set to Another DASD Volume	393
Recovering from C/I functional subsystem address space failures	394

Appendix. Accessibility 395

Accessibility features	395
Using assistive technologies	395
Keyboard navigation of the user interface	395
Dotted decimal syntax diagrams	395

Notices 399

Policy for unsupported hardware.	400
Minimum supported hardware	401
Trademarks	401

Index 403

Figures

1.	IP VERBX JES3 'OPTION=FSL' - Example	8
2.	Dump core display for job OSE 1 of 2.	40
3.	Dump core display for job OSE.	41
4.	Format of a JES3 Event Trace Table.	56
5.	Format of an FSS Event Trace Table	59
6.	Spool buffer summary table	62
7.	RJP Snaps Output	65
8.	Typical SNA RJP Protocol Sequences (a)	95
9.	Typical SNA RJP Protocol Sequences (b)	96
10.	Typical SNA RJP Protocol Sequences (c)	97
11.	Typical SNA RJP Protocol Sequences (d)	98
12.	Typical SNA RJP Protocol Sequences (e)	99
13.	Examples of Selective Tracing	100
14.	IOERR Output	115
15.	IPCS JES3 - Primary Options Panel	129
16.	IPCS MVS Dump Component Data Analysis Panel	136
17.	IPCS JES3 Primary Option Panel (IATKPOM)	137
18.	Display or Modify JES3 Control Block Information Panel	137
19.	Add a User-Defined Control Block Group Panel	138
20.	Description for a User-Defined Control Block Group Panel	138
21.	IPCS Output using the CBFORMAT Subcommand	140
22.	IPCS Output using the LIST Subcommand	153
23.	SSI RESPONSE REPORT.	323
24.	SSI RESPONSE TIME.	374

Tables

1. Commands Used to Obtain General JES3 Diagnostic Information	19	11. Caller IDs, Path A01	90
2. Commands Used to Obtain Additional Information for a Functional Area	21	12. Caller IDs, Path E01.	91
3. Dump Core Commands	30	13. Caller IDs, Path M01	93
4. JES3 Trace Events	46	14. Caller IDs, Path T01.	93
5. User's Data Supplied in an FSS Trace Entry	60	15. IAT7060 data.	112
6. Spool trace event table	62	16. IAT7060 data.	114
7. RPL trace table	63	17. GTF Records Created to Trace a Event	119
8. RJP Hardcopy Log Trace Events.	66	18. Types of JES3 Output Available through IPCS	128
9. SNA RJP Recording Environment Trace Entries	70	19. Locating ASIDs for JES3-related Problems	130
10. Sense codes	86	20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand	141
		21. Segment of JES3 Dump	156

About this document

This document supports z/OS® (5650-ZOS). This document is intended for any JES3 complex that runs z/OS MVS.

This document provides information for debugging JES3 and installation-written extensions of JES3. It describes the tools that JES3 users can use for debugging.

Who should use this document

This document is intended for system programmers and IBM® service representatives or anyone who is responsible for diagnosing and correcting problems in JES3. Users of this publication must have a working knowledge of JES3 functions.

How to use this document

This document contains information used by the system programmer for diagnosing JES3 problems.

This document is divided into the following sections:

- **Chapter 1, “Diagnosing, Resolving, and Reporting JES3 Problems,” on page 1**
Discusses a general methodology for diagnosing JES3 problems and includes topics about:
 - Collecting an exact description of the problem.
 - Gathering relevant system supplied data.
 - Determining the system's status.
 - Publications that assist in diagnosis.
 - Recommendation for using JES3 dumps and Dump Core.
 - Viewing the contents of a dump
 - Viewing the JES3 control blocks
 - Types of problems in JES3 and associated address spaces.
 - Abends in JES3 address spaces
 - Miscellaneous JES3 problems areas
 - JES3 system abends in user address space
 - Problems in the FSS address space
 - Problems in the JES3DLOG address space
 - Problems in the JESXCF address space
 - Problems in the BDT address space
 - Typical JES3 problems and their resolution
 - Job related diagnosis
 - Reporting a problem to IBM.
- **Chapter 2, “General Diagnosis,” on page 27**
Discusses facilities and tools used for general system diagnosis. This discussion includes the format of trace tables and use of JES3 diagnostic facilities, such as descriptions of:
 - JES3 Trace Tables

- FSS Trace Output
- SNA RJP Trace Output
- Dump Job Traces
- Output Service Output
- Networking Logging Facility
- IOERR Output
- GTF Trace Output
- Job Validation SNAP Output
- **Chapter 3, “Using IPCS to View JES3 Information,” on page 127**
Discusses using the interactive problem control system (IPCS) to diagnose JES3 problems.
- **Chapter 4, “JES3 Formatted dump,” on page 155**
Discusses how to identify areas in a formatted dump of a JES3 or C/I Functional Subsystem (FSS).
- **Chapter 5, “JES3 Monitoring Facility,” on page 295**
This section provides a description on how system programmers can use the JES3 Monitoring Facility (JMF) to obtain statistical data of the system.
- **Chapter 6, “Reading a JMF hardcopy report,” on page 327**
This section provides a description of the JMF hardcopy report and a description of how to generate a report using SMF records.
- **Chapter 7, “JES3 Recovery,” on page 377**
This section describes the following recovery procedures:
 - JES3 and C/I Functional Subsystem Failsoft
 - Alternate CPU Recovery
 - Reconfiguring a Processor Complex
 - Checkpoint/Restart
 - Restarting JES3 After a Failure
 - JES3 Checkpoint Data Sets
 - Dynamic System Interchange
 - BSC RJP Recovery
 - Recovering from Output Writer Functional Subsystem Failures
 - Recovering from SAPI Failures
 - Recovering from Spool I/O Errors
 - Recovering from C/I Functional Subsystem Address Space Failures

Where to find more information

The following table lists documents that contain information related to the information provided in this document.

When this document references information in other documents, the shortened version of the document title is used. The following table shows the shortened titles, complete titles, and order numbers of the documents that you might need while you are using this document.

Most licensed documents were declassified in OS/390® V2R4 and are now included on the z/OS Online Library Collection. The remaining licensed documents appear in unencrypted documentManager softcopy and PDF form on the z/OS Licensed Product Library.

Short Title	Title	Order Number
z/OS DFSMSdfp Checkpoint/Restart	z/OS DFSMSdfp Checkpoint/Restart	SC23-6862
z/OS MVS System Messages, Vol 5 (EDG-GFS)	z/OS MVS System Messages, Vol 5 (EDG-GFS)	SA38-0672

How to send your comments to IBM

We appreciate your input on this publication. Feel free to comment on the clarity, accuracy, and completeness of the information or provide any other feedback that you have.

Use one of the following methods to send your comments:

1. Send an email to mhvrcfs@us.ibm.com.
2. Send an email from the "Contact us" web page for z/OS (<http://www.ibm.com/systems/z/os/zos/webqs.html>).
3. Mail the comments to the following address:
IBM Corporation
Attention: MHVRCFS Reader Comments
Department H6MA, Building 707
2455 South Road
Poughkeepsie, NY 12601-5400
US
4. Fax the comments to us, as follows:
From the United States and Canada: 1+845+432-9405
From all other countries: Your international access code +1+845+432-9405

Include the following information:

- Your name and address.
- Your email address.
- Your telephone or fax number.
- The publication title and order number:
z/OS JES3 Diagnosis
GA32-1002-00
- The topic and page number that is related to your comment.
- The text of your comment.

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute the comments in any way appropriate without incurring any obligation to you.

IBM or any other organizations use the personal information that you supply to contact you only about the issues that you submit.

If you have a technical problem

Do not use the feedback methods that are listed for sending comments. Instead, take one of the following actions:

- Contact your IBM service representative.
- Call IBM technical support.
- Visit the IBM Support Portal at z/OS support page (<http://www.ibm.com/systems/z/support/>).

z/OS Version 2 Release 1 summary of changes

See the following publications for all enhancements to z/OS Version 2 Release 1 (V2R1):

- *z/OS Migration*
- *z/OS Planning for Installation*
- *z/OS Summary of Message and Interface Changes*
- *z/OS Introduction and Release Guide*

Chapter 1. Diagnosing, Resolving, and Reporting JES3 Problems

This chapter provides a general methodology for diagnosis and problem solving in the JES3 and associated address spaces. In addition, the information required for reporting problems to IBM is identified.

Diagnostic methodology

Diagnosis can be a difficult task. But you increase the difficulty if you do not diagnose in a disciplined way. Discipline cannot replace experience or intuition, but it can structure your diagnosis effort and save you valuable time.

This publication contains debugging techniques and guidelines that have been proven to be the most useful to system programmers that have experience in debugging JES3 problems. These techniques are presented in terms of a debugging “approach”. This debugging approach is summarized in the following steps:

1. First, eliminate any obvious problems by executing the MVS command **F JES3,CHK** and examining the output. This command executes in the background of a running system to avoid interfering with JES3 operations; as a result, the command could return false positives. If you are in doubt about the results, reissue the command and then address any problems. As an alternative, this function can be run in IPCS by using the **OPTION=CHK** parameter.
2. Obtain an exact description of the problem and the events that lead to the problem.
3. Gather relevant data from the information the system has provided in order to isolate the problem.
4. Analyze the information. Try to pinpoint the functional area where the problem occurred.
5. Determine if the system has provided you with enough information to diagnose the problem. If you do not have enough information:
 - Determine what additional information is needed
 - Use the available diagnostic tools and commands to gather the information. You can use **DUMP CORE** to supplement the information provided in the JES3 dump, or to gather information when a JES3 dump is not provided.
6. Pinpoint the problem to a module within the function.
 - If the problem is an installation problem, continue diagnosing.
 - If the problem is in IBM provided code, start searching problem reporting. See *z/OS Problem Management* for more information about search arguments.
7. Correct the problem if possible. Otherwise, report the problem to your IBM Support Center.

Gathering relevant system supplied data

After you have the external symptom identified, you can gather additional information by using commands that are described in *z/OS JES3 Commands*. Depending on the external symptom and the command that is issued, you can obtain either a portion or a complete JES3 dump to help you determine the problem.

Solving JES3 problems

The specific actions you might take in solving a JES3 problem is further refined into the following topics:

- Obtaining an exact description of the problem
- Determining the system events preceding the problem
- Determining the status of the system
- Documentation to Assist in Diagnosing JES3 Problems
- Recommendations for use of JES3 Dumps and Dump Core
- Viewing the contents of dumps - segments
- Viewing the contents of dumps - control blocks
- Types of problems in JES3 and associated address spaces
- JES3 address space performance problems
- Hangs and loops in the JES3 address space
- Abends in the JES3 address space
- Miscellaneous JES3 problem areas
- JES3 problems in a user address space
- Problems in the FSS address space
- Problems in the JES3DLOG address space
- Problems in the JESXCF address space
- Problems in the BDT address space
- Job related Diagnosis
- Reporting a problem to IBM

Obtaining an exact description of the problem

You should obtain an exact description of the problem and recent events that preceded the problem. A description of the problem can be obtained from:

- The operator who experienced the problem.
- Messages documented in the MLOG portion of the dump (if a JES3 dump is provided)
- The formatted dump (if provided)

You can use DUMP CORE to supplement the information provided in the JES3 dump, or to gather information when a JES3 dump is not provided.

Relevant data can also be gathered from:

- The failsoft logout (message IAT3713) that was issued to describe the error.
The failsoft logout is obtained from either the SYSLOG or from the queue of action messages retained by the active action message retention facility. See *z/OS JES3 Commands* for the commands that are used to display the commands.

Determining the Status of the System

You need to determine the status of the system. This includes the following items:

- What maintenance has been applied - JES3 and non-JES3
- What user and OEM code can affect JES3 operations
- What hardware changes have been made
- Any Production/workload changes
- What Initialization stream changes have been made

Documentation that can Assist in Diagnosing JES3 Problems

The information in the following publications can assist you in diagnosing JES3 problems:

- *z/OS JES3 Commands*
- *z/OS JES3 Messages*
- *z/OS JES3 Initialization and Tuning Guide*
- *z/OS JES3 Customization*
- *z/OS JES3 Diagnosis Reference*
- *z/OS MVS System Codes*
- *z/OS MVS Diagnosis: Reference*

Recommendations for Use of JES3 Dumps and DUMPCORE

You need to consider the following recommendation in securing dump information for your diagnosis efforts:

- JES3 WANTDUMP Recommendations
- Taking JES3 Dumps
- DUMPCORE

JES3 WANTDUMP Recommendation

IBM suggests that you allow the WANTDUMP option on the STANDARDS initialization parameter to default to "YES" instead of setting it to "ASK". Using the default of "YES" allows the system to determine what action to take when a JES3 failure condition occurs. In today's sysplex environment setting this parameter to "ASK" can cause delays in operations because the JES3 address space essentially stops functioning until you respond to the IAT3714 message. Also, certain portions of the dump, such as the system trace, are invalid because the system continues processing until you response to message IAT3714.

Taking JES3 dumps

To take a dump of JES3 in an environment where JES3 commands are accepted, issue the JES3 *DUMP command. Running this command ensures that JES3, JESXCF and JES3AUX are dumped, along with the associated dataspace.

To take a dump of JES3 in an environment where the *DUMP command is not accepted, or to take a dump of an FSS address space, always include the SDATA parameters RGN, LSQA, LPA, SUM, CSA, NUC, PSA, and SWA, and the parameter DSPNAME=('JES3'.*). JES3 stores most of its control blocks and modules in the private region, using several dataspace.

To take a dump of a JES3 netserv address space, include the SDATA parameters RGN, LSQA, LPA, SUM, CSA, NUC, PSA, and SWA.

To take a dump of JESXCF, always include its data spaces. See Information APAR II09383 for instructions on including this information.

DUMPCORE

DUMPCORE is an alternative to a dump for many problems associated with JES3. DUMPCORE is a tool that allows you to:

- Examine control blocks

- Set traps
- Find modules
- Zap storage

You can get additional information using DUMPCORE that is not included in a dump. See *z/OS JES3 Commands* and the *START,DC command for DUMPCORE options that you can use. DUMPCORE options are similar to options you can use with IPCS.

Viewing the Contents of Dumps

You can use the IPCS VERBX JES3 command to view online a portion or the entire JES3 formatted dump. You specify IP VERBX JES3 'OPTION=xxx', where "xxx" is the keyword for a specific segment. For example, you may want to view the Client Output Work (COW) Area segment of the dump. In this case you would enter:

```
IP VERBX JES3 'OPTION=COW'
```

For a description of each segment see Chapter 4, "JES3 Formatted dump," on page 155.

Viewing JES3 Control Blocks

You can format JES3 control blocks using IPCS. Use the CBFORMAT subcommand to format "online" single control blocks with the field name followed by the values in the fields. See "Viewing Specific JES3 Control Blocks Mappings Using IPCS" on page 140.

Types of problems in JES3 and associated address spaces

Any problems in JES3 and associated address spaces occur in the following general categories:

- JES3 address space performance problems
- Hangs or loops in the JES3 address space
- Abends in the JES3 address space
- Miscellaneous JES3 problem areas
- JES3 problems in the user address space
- Problems in the FSS address space
- Problems in the JES3DLOG address space
- Problems in the JESXCF address space
- Problems in the BDT address space
- JES3 SSI processing problems
- JES3 Netserv (TCP/IP/NJE) address space problems

JES3 address space performance problems

The symptoms of JES3 address space performance problems include:

- High CPU usage by the address space
- Inquiry commands are not being responded to in a timely manner
- TSO logons are backing up
- Output processing slowdowns
- Poor job throughput

- System not connecting.

Documentation required for diagnosing performance problems

The following documentation is required for diagnosing JES3 address space performance problems:

- JES3 Job Monitor Facility (JMF) output during problem and non-problem periods
It is recommended that JMF be run periodically to establish a baseline of normal performance. This is especially important following system modifications. This baseline can then be used as comparison reference point in respect to current performance.
- Dump/s created during the problem period
- JES3 initialization stream
- RMF™ (Remote Measurement Facility) reports if problem isn't centralized to JES3
- DEV (Device Activity Report) to diagnose slow spool I/O response time.

Debugging Performance Problems

- Obtain Job Monitor Facility (JMF) Output

Depending on the parameters specified and where it is run (global or local), the following reports or SMF type 84 records can be generated:

- System report
- FCT and AWAIT report
- Spool data management report
- JES3 control block utilization report
- Job analysis report
- Hot spot analysis report
- JES3 function report

- Interpret the Reports

A description of how to interpret each report is provided in Chapter 6, “Reading a JMF hardcopy report,” on page 327.

- Running JMF and suggested parameters

Example, on the global processor issue the following command:

```
*X JMF, TIME=10, SPOT=Y, WIDTH=100, DEBUG=Y, OUT=nnn, WTR=Y
```

Run JMF for 10 minutes (TIME=10), creating a HOT SPOT report (SPOT=Y) for 100 bytes of data within a CSECT (WIDTH=100), take a dump when it's finished (DEBUG=Y), and send the report output to printer nnn (OUT=nnn, WTR=Y).

If you run JMF on a local processor, SMF records are created, but a dump is not taken. There are a number of parameters that can be used depending on the nature of the problem. See *z/OS JES3 Commands* for a description of these parameters.

- Examining the dump.

- Look for repetitious code paths in JES3 trace*
- Look for large gaps between JES3 trace entries*
- Look for FCTs not giving up control for long periods of time*

Note: * These conditions could indicate inefficient algorithms in the code. See “Format of trace tables and JES3 diagnostic facilities” on page 44 for an explanation of JES3 trace entries.

- Compare JES3 dispatching priority to other address spaces in system.

If JES3 is defined lower than other non-system address spaces, there may not be getting enough CPU time defined for JES3. This is a tuning situation, not a code defect.

Hangs or loops in the JES3 address space

The following symptoms indicate system hangs or loops in the JES3 address space:

- High CPU usage by the JES3 address space
- No response to JES3 commands
- No JES3 messages being issued
- No job throughput

Hangs or loops in the JES3 address space require you to take JES3 down by using the FORCE command or by a re-IPL.

Documentation required for diagnosing hangs or loops

The following documentation is required for diagnosing JES3 address space hangs or loops:

- Dump of JES3, JESXCF and associated data spaces created during the problem period by the JES3 *DUMP command, if possible. Otherwise, take an SVC dump specifying SDATA parameters RGN, LSQA, LPA, SUM, CSA, NUC, PSA, and SWA and the parameter DSPNAME=('JES3'.*, 'JESXCF'.*)
- SYSLOG

Debugging hangs or loops in JES3 address space

- Examine SYSLOG for communication that was lost between JES3 and JESXCF (IXZ messages) if running JES3 Release SP5.1.1 or higher.

Look at all IXZ messages. There are many types of communication failures and the IXZ message is the most common failure message. For example:

```
IXZ0108E COMMUNICATION FROM xcfmember TO xcfmember2 HAS BEEN LOST, GROUP xcffgroup
```

- Examine SYSLOG for the most current processing up to the time when no response occurs. This tells you what was the most recent functions executing.
- Examining the dump:
 - Examine the JES3 nucleus task TCB (IATNUC).

Is the JES3 nucleus task in an MVS™ WAIT (ACTIVE PRB WLIC=00020001)? If yes, where is it waiting and on whom? (use OPSW value to find out what code is executing). The nucleus task cannot be made to wait because of an MVS WAIT, because this will cause the address space to stop functioning. The only valid MVS WAIT that can be issued against JES3 is for the WAIT FCT, which indicates that JES3 has no work to do.
 - Examine the FCTs using IP VERBX JES3 'OPTION=FCT'.

Are there any FCTs that are not posted, but waiting for a specific JES3 response (such as for file directory entries or JSAM buffers)? These FCTs can indicate a shortage or lockout condition if an FCT is not posted where it is waiting. If this wait condition is not specified in the explanation of the await reason code, find what code is in control from storage using the await return address.
 - Examine the JES3 trace for loops in the FCTs running under the nucleus task TCB. A loop is indicated by the same call and return sequence executing repetitively. See "Format of trace tables and JES3 diagnostic facilities" on page 44 for an explanation of JES3 trace entries.

- Examine the system trace for interruptions in the JES3 nucleus TCB and look for the same address range being executing repetitively.
- Look for system resource contention by issuing, IP ANALYZE RESOURCE (find JES3). If the response to this command is "YES", find out who holds the resource that is needed.
- Examining the master trace looking for JES3 messages; if there are IAT messages on the branch entry, delayed issue queue JES3 is running and messages are not getting displayed on the console. A dump of the consoles and master address spaces is required for diagnosis.

Abends in the JES3 Address Space

For JES3 address space abends, you should examine the following:

- User completion codes
- JES3DM abend codes
- System completion codes

Documentation Required to Diagnose ABENDS in the JES3 Address Space

The following documentation is required to diagnose abends in the JES3 address space:

- A dump produced by JES3
- SYSLOG

Depending on the nature of the abend the following additional items may be required:

- The JCL/joblog
- Your Initialization statements
- JES3OUT

Debugging abends in JES3 address space

- You should obtain abend information from the failsoft logout area located in SYSLOG (IAT3713 messages) or by issuing the IP ST, or IP VERBX JES3 'OPTION=FSL' command for the dump. For example, the IP ST command results in:

```
Dump Title: JES3 OS290 FLNO=001 WTR FCT=052AF150 S878-00000014
IN NOT JES3 PSW=070C1000815A6FB6 209/1717
```

- For user abend codes (JES3 errors encountered during initialization) and DM abend codes (JES3 errors encountered under a DSP) see *z/OS JES3 Diagnosis Reference* for a description of the abend. The system action and programmer response given in the abend code description may be sufficient for determining the cause of the problem.
- For system abend codes see *z/OS MVS System Codes* for a description of the abend.
- JES3 does not always produce a dump when an abend occurs. The common situations in which a dump is not taken are as follows:
 - DM133 - JES3 abend code issued as a result of a FAIL command issued for a DSP. A dump will not be taken unless the keyword "DUMP" is added to the FAIL command.
 - DM146 - A subtask request has abended. When JES3 is notified of the abend, DM146 is issued and the DSP is terminated. No dump is taken because the failing subtask should have called for a dump. Examine the messages in the SYSLOG to identify the failure. If SYSLOG is not available and the problem

persists, set a SLIP on the JES3 completion code to get a dump. JES3 completion codes are considered user completion codes to the MVS (for example, completion code, DM133 to JES3 is U085 to MVS).

- ABENDDM137 is an abend taken as a result of the operator issuing the *DUMP command, or as a result of an SVC dump taken for a task running on a JES3 local, and the JES3 dump exit code determines that the task was waiting for a response to a JES3 SSI request. This is a diagnostic dump; it is not necessarily indicative of a JES3 problem.
- Abends in the JES3 address space and other address spaces can be suppressed through Dump Analysis Elimination (DAE). If a dump is not produced, check to see if DAE has suppressed it. If yes, find out when the dump took place and how often it occurred.
- Examining a dump regardless of abend type:

For a high level path taken through code leading up to abend issue the following IPCS command and examine the output from the command as illustrated below:

```
IP VERBX JES3 'OPTION=FSL'
```

```
DATE = 1998126   TIME =      184552  JES3   OS130
JES3 FAILURE NUMBER = 0015  FAILED  DM722
FAILURE REASON CODE = 00000000
FAILURE EXPLANATION:  MESSAGE NUMBER = IAT3751
THE VALIDATION FIELD (VALID) IN THE DATA BUFFER JUST.....
INPUT FOR A MULTI RECORD FILE DOES NOT MATCH THE .....
VALID IN THE JES3SDM FILE DIRECTORY (FD).....
ACTIVE FCT = NJESND      DEVICE = A00003S1  FCT  FAILURE NO = 0001
JOB NAME = TCPNET          JOB NUMBER = JOB10536
MODULE = IATDMDT -NUC      MOD  BASE = 1EA1A398  DISP = 000EBE
APAR NUMBER =             PTF NUMBER = SP130
CALLING SEQUENCE (HIGHEST LEVEL MODULE LISTED LAST)
MODULE = IATNTSD . . . . . MOD  BASE = 1F90B776  DISP = 0006E6
APAR NUMBER =             PTF NUMBER = SP521
PSW AT TIME OF FAILURE 071C0000 800141B4  ILC  02
THE FAILING INSTRUCTION ID  0A0D
REGISTERS AT TIME OF FAILURE
REGS   0 - 3   00000000  000002D2  1EA1B174  0000034B
REGS   4 - 7   1F036370  7F41500C  00000000  9EA1AEA6
REGS   8 - 11  1FE091B0  9EA1AF9A  1EA1AE28  1F3E8DDE8
REGS  12 - 15  1EA01000  1FE09198  800141B0  1EA25B82
```

Figure 1. IP VERBX JES3 'OPTION=FSL' - Example

For a lower level path taken through code that leads to an abend, examine the JES3 trace. Obtain fctaddr from IP ST results:

```
Dump title: JES3 OS130 FLN0=015 NJESND FCTA=1F3E8DE8 DM722
```

Issue the command:

```
IP VERBX JES3 'OPTION=TRC,FCT=address from FCTA'
```

The results are illustrated below:

```

NJESND  TYP=CALL  MOD=IATGRSV  FCT=1F3E8DE8  TOD=184154-327315  ID=0028  TCB=006E0E88  FAILDSP
        1FE09198  9EA1B256  00014070  1F3E8DE6  000002D2  1EA1B174  0000034E  1F036370
        7F41500C  00000000  9EA1AEA6  1FE091B0  9EA1AF9A  1EA1AE28  1F3E8DE6  1EA01000

NJESND  TYP=RETURN  MOD=IATGRSV  FCT=1F3E8DE8  TOD=184154-327312  ID=0029  TCB=006E0E88  IATDMDT+00CE4
        1FE09196  1EA1B07C  00000010  000002D2  00000000  00000001  1EA95E9C  1FE091B0
        000002D2  00000001  9EA1AEA6  7F416000  9EA1AF9A  1EA1E56A  1F3E8DE8  1EA01000

NJESND  TYP=RETURN  MOD=IATGRSV  FCT=1F3E8DE8  TOD=184154-327311  ID=0029  TCB=006E0E88  IATDMNC+0162E
        1FE09198  1EA1E7A6  00000000  00000000  00000000  7F82CA10  00000600  7F82C9A0
        00000000  00000000  9EA1AEA6  7F416000  9EA1AF9A  1EA1F174  1F3E8DE8  1EA01000

NJESND  TYP=CALL  MOD=IATGRSV  FCT=1F3E8DE8  TOD=184154-327392  ID=0028  TCB=006E0E88  APUTBUF
        1FE09198  9EA1E7A6  1EA1F174  7F41600C  00000000  7E14600C  1EA95E92  1F9091B0
        000002D2  00000010  9EA1AEA6  7F416000  9EA1AF9A  1EA1E56A  1F3E8DE6  1EA01000

```

- When examining the JES3 trace table the most recent entry appears first in the list of entries. You can map out the calling sequence to determine the path through the code that was taken. From the example above:
 1. A CALL was issued from IATDMNC+0162E to the APUTBUF macro and RETURNed.
 2. IATDMNC then RETURNed to whoever called it. In this case IATDMDT+CE2.
 3. IATDMDT recognized that an error occurred of some nature (R0 return contains 000002D2, hex value for 722).
 4. IATDMDT will issue a CALL to the FAILSOFT macro to take a dump.
- Format of a JES3 Event Trace Table.
 See "Format of trace tables and JES3 diagnostic facilities" on page 44 for a description of trace table events. A trace event can include the following information:
 - FCT active when trace was taken
 - A Descriptor identifying the function being traced (call, return, etc.)
 - Name of module issuing the trace
 - Address of active FCT
 - Time stamp
 - Identification number
 - TCB
 - In addition, an event can include registers at the time the trace was taken, error information, and pertinent function information.

EXAMPLE:

```
NJSEND   TYP=CALL      MOD=IATGRSV  FCT=1F3E8DE8  TOD=184154-327292  ID=0028  TCB=006E0E88  APUTBUF
          1FE09198 9EA1E7A6 1EA1F174 7F41600C      00000000 7F41600C 1EA95E9C 1FE091B0
          000002D2 00000010 9EA1AEA6 7F416000      9EA1AF9A 1EA1E56A 1F3E8DE8 1EA01000
```

where:

```
FCT active time of trace:      NJESND
Descriptor identifying function: CALL
Name of mod issuing trace:     IATGRSV
Address of active FCT:         1F3E8DES
Time stamp:                     184154-327292 (6:41:54 pm)
Identification number:          28
TCB:                             006E0E88
What was being executed:        APUTBUF
The remainder:
          1FE09198      R13 from calling routine (usually data CSECT)
          9EA1E7A6      Return address ( routine issuing APUTBUF)
          1EA1F174      Entry point to called routine (APUTBUF)
          7F41600C - > 7F416000  R0 - R12 of calling routine
```

- The JES3 trace provides the footprints the function took through the code. The registers provide the storage addresses of the control blocks used by the function. Use CBF (control block format) to format the pertinent control blocks used by the function. For many DM abends *z/OS JES3 Diagnosis Reference* provides tips and hints of what control blocks to examine to determine the cause of the abend.

Miscellaneous JES3 Problem Areas

The miscellaneous JES3 problems areas are:

- Initialization problems
- C/I Problems
- MDS Problems
- GMS problems
- DJC problems
- Output service problems
- Communications problems with remotes

Initialization Problems

You can approach initialization problems as follows:

- Obtain contents of JES3OUT data set and look for error messages issued during initialization. Determine if changes were made to the initialization deck since the last restart was flagged.
- If initialization completes you can use DUMPCORE to display the intermediate text and initialization checkpoint records.
- If an abend is issued follow the same procedures as defined under "Abends in the JES3 Address Space".
- If the cause of the error cannot be determined from an analysis of JES3OUT, use the INTDEBUG facility by placing a INTDEBUG card in the initialization deck statement preceding the point where the error message occurs in the JES3OUT contents. See *JES3 Initialization and Tuning Reference* for specific syntax. This is only valid on restarts that read the initialization stream (cold, warm, hot/refresh).

Note: When modifying the JES3 initialization stream you should always run the JES3 initialization stream checker.

Converter/Interpreter (C/I) problems

- If a job is failing converter/interpreter and the reason cannot be determined from an examination of the joblog, rerun the job inserting the following JECL (JES3 control statements):

Note: JECL is invalid for started tasks.

```
//MYJOB JOB etc.  
//*PROCESS CI  
    DEBUG=ALL  
//*PROCESS CBPRNT  
//*PROCESS MAIN  
//*PROCESS CBPRNT  
//*PROCESS OUTSERV  
//OUTI OUTPUT etc.
```

An examination of the control blocks will be required

- If a job is hung in CI (*I,J,=xx,W or *I,A,D=CI, or messages from the JES3 monitor), take a dump of JES3 by running the *DUMP command. Find the FCT that is processing the job by running IP VERBX JES3 'OPTION=FCT' to determine what the job is waiting for. If the job is waiting for a locate subtask to complete an examination, the MVS TCB structure is required to determine the cause; find the associated subtask. If a catalog locate SVC has been issued, a dump of the catalog address space is required.
- If the JES3 monitor indicates that a job is under the control of a CI FSS address space, an SVC dump of that address space must be taken and examined to determine where the job is in process, using the same procedures as defined for within the JES3 address space. The issue could be related to JES3 and SMS resource availability. If SMS is involved, a dump of that address space is required.

MDS (Main Device Scheduling) problems

Approach MDS problems as follows:

- If an inquiry on a job indicates that it is stuck on an MDS queue (*I,S,A,J - allocate, unavailable, error, restart):
 - issue *I,S,V=VOLSER,E
 - issue *I,S,DE=DSN
 - issue *CALL,DISPLAY,J=xx
 - issue *S DC,OPTION=SNP (to get the JSTs and the resqueue)
 - issue *S DC.OPTION=SYS or STU or STN or MDS or VLM
- If an inquiry on a job indicates that it is stuck on the system select queue:
 - issue *I,S,SS,J=xx
 - issue D SMS,SG(xx),LISTVOL - then talk to SMS
- If necessary, rerun the job adding C/I debug statements (see C/I above for instructions).

Note: Jobs getting stuck in MDS, failing, or failing execution are often a result of C/I processing, SMS resource availability or changes made to JES3 initialization deck device definitions, the associated MVS HCD definitions, or SMS ACS routines.

GMS (Generalized Main Scheduling) problems

Problem - Job stuck in GMS select.

- Issue *I,J=xx,W - what is job waiting for?
- Enter the following commands on each main:
 - *I,G,main-name,G (inquiry on GROUP status)
 - *I,G,main-name,S (inquiry on SELECT mode options)
 - *I,G,main-name,C (inquiry on CLASS status)
- Get a display listing for job in question:
 - Issue *CALL,DISPLAY,J=xx
- If more details regarding GMS is required use DUMPCORE with OPTION=GMS or MPC

Note: GMS problems are typically caused by an insufficient number of initiators being available for the job class group. For JES3-managed initiators, this can be a result of a decrement of the total counts when an MVS start command for an initiator fails. In this case, JES3 will decrement the total number allowed and issue message IAT2008 indicating a change in the maximum initiator count. Determine or modify the maximum initiator value with the *INQUIRY,G,main,S,MAXI or *MODIFY,G,main,S,MAXI,nnn command. These commands are not valid until the maximum initiator value has been set. Reconnect the main by issuing the *S,main,connect command to validate GMS counters. See *z/OS JES3 Commands* for more information.

DJC (Dependent Job Control) Problems

Problem - DJC net job not executing as expected:

- Execute command to obtain DISPLAY DJC output.

```
*CALL,DISPDJC,OUT=nnn.NET=xxx
```

Where: nnn is the printer to be used
xxx is the name of the network to be displayed

- Typical cause - A job may have abnormally terminated and did not have an ABCMP statement in the JCL

Output service problems

Problem – Job stuck in output service.

- Use DUMPCORE to obtain the job's output service related control blocks:
 - *S,DC,OPTION=(SNP),J=jobnum - OSEs, JDSs, resqueue
 - If running R3 and up, also run DUMPCORE including the DIAG keyword on the command to obtain formatted OSEs. See “Displaying output scheduling elements (OSEs) for a job” on page 38 for a description of the contents.

Problem – Output not printing as expected.

- Turn on diagnostic mode when starting the writer (*START,wtr,D). This will provide additional message IAT7060 during output service processing. See “Output Service Diagnostic Mode” on page 112 for a description of the contents.

Problem – Unable to cancel a job with scheduled output.

- Once a job has been scheduled to an external writer, it is no longer under JES3 control; a standard JES3 cancel will not cancel the job. To remove the job, a hot start with analysis is required; specify the job when prompted.

Communication Problems with Remote Connections

Approach communication problems with remote connections as follows:

- BSC RJP problems:
 - Run the RJPSNPS service aid during a failure transmission sequence. Issue *CALL,RJPSNPS or *START,RJPSNPS
- SNA RJP problems:
 - Turn on SNA RJP trace facility for the failing line. Issue *START,SNARJP,T=wsname,TRACEON
 - Turn on VTAM[®] GTF trace for the failing LU. Use the CID specified in the logon message and trace LU and NCP buffers. See “Communication traces” on page 64 for a description of the traces.

JES3 problems in user address space

The following describes debugging system abends issued from JES3 modules running under control of user address space (ABEND1FB, ABEND6FB, etc.).

Documentation Required for JES3 System Abends in User Address Space

The documentation required for diagnosis of JES3 system abends in user address spaces is:

- System created dump
- Syslog

Debugging system abends

- Obtain abend code from dump or syslog and examine *z/OS MVS System Codes* for explanation.
- Examine TCB, RB, SVRB, linkage stack structure, and save area chains associated with failing task. Use OPSWs and WLICs to see what path was taken leading up to abend.
- Examine system trace for trace entries leading up to abend. Search for *RCVY to find where abend occurred in most cases.
- Examine code up to point of failure.

Data management issues in user address spaces

If the problem is related to data management, the JES3 I/O trace information which is formatted as part of the DSS/DSB structure (dataset status and dataset block, normally pointed to by R9 in the failure registers, or obtained through the address space MEM) can be used to assist with analysis. Refer to “Format of trace tables and JES3 diagnostic facilities” on page 44.

JES3 SSI processing problems

Address spaces issue SVCs and SSI requests that JES3 is responsible for processing: for example, OPEN, SAPI, etc. Symptoms depend on the specific request issued, such as a dynamic allocation failures or a SAPI request not receiving the expected response.

JES3 has available traces that can be activated depending on the particular issue: refer to “Events Eligible for Tracing” on page 118.

Problems in the FSS address space

The FSS (Functional SubSystem) is a separate address space which can be used in a JES3 environment to offload converter/interpreter or writer functions from the global. The use of FSS allows installations to use products such as PSF to drive printers in a JES3 environment.

FSS Problems - C/I or WTR

There is a variety of problems that can occur in either kind of FSS. Most should be treated like any other JES3 problem with the exception that we are dealing with a separate address space. The types of problems are:

- DM or system abends
- Hangs
- Lost connection messages from JESXCF
- Printers not picking up work

Documentation Required for FSS Problems

The documentation required for diagnosis of FSS problems is:

- Dump of JES3 and FSS address space (include JESXCF if running JES3 5.1.1 or higher)
- Syslog

Debugging FSS Problems

- For abends - follow the same procedure as with a JES3 dump. There is one difference - to obtain the FSS trace table issue:

```
IP VERBX JES3 'ASID=xxx,OPTION=yyy' or  
'FSSNAME=xxx,OPTION=yyy'
```

Look at the last FSS entry in the table and compare it to what the JES3 trace table activity for the FSS FCT shows. See "Format of a Functional Subsystem (FSS) Address Space Trace Table" on page 58 for a description of a FSS event ID table and explanation of FSS events.

- For hangs or if a printer is not printing:
 - Examine the FSS/FSA table status flags , issue:

```
IP VERBX JES3 'OPTION=FSS'
```
 - Examine the JES3 FCT activity associated with the FSS. Is it waiting for a post from the address space?
- With WTR FSSs there is the FSS application to consider as well (such as PSF, Printway, etc.). For WTRs additional diagnostic information can be obtained by turning on diagnostics when calling, starting, or restarting the writer by adding D to the command. This will cause an additional messages with diagnostic information to be issued. See "Output Service Diagnostic Mode" on page 112 for an explanation of the message contents.
- If a C/I FSS hangs because of a minimal spool condition, and it is defined (or was modified with) TERM=YES, it will not be possible to automatically bring it down by ending the global address space. Therefore exercise care when restarting JES3 during a minimal spool condition.

Problems in the JES3DLOG Address Space

The JES3DLOG address space was introduced in Release 5.2.1 as a means of tracking all message activity in a sysplex in the JES3 format. It is a separate

address space that uses an MCS extended console. Installations can choose JES3DLOG or Operlog. JES3DLOG problems are indicated by:

- External symptoms similar to JES3 such as:
 - Performance - high CPU usage
 - Hangs
- DLOG suspend/alert conditions
- Missing DLOG messages

Documentation Required for JES3DLOG Problems

The following documentation is required for diagnosing JES3DLOG problems:

- Dump of JES3DLOG address space and the data space associated with the Consoles asid that is created for DLOG.

```
JOBNAME=(CONSOLE,JES3DLOG),DSPNAME=('console'.ieam*).
```

Explanation: DLOG will obtain MDBs (message data blocks) from the consoles data space to create the messages it will put in the log.

Debugging JES3DLOG Problems

- DLOG has an alert mechanism that will signal when it reaches its maximum message or dataspace limitation (messages will be issued). In many cases the alerts will be relieved internally. If not, it indicates a problem. DLOG will save trace events for startup/termination, suspend/alert conditions, abnormal termination , and resmgr within its address space.
- Issue an inquiry (*I,O,DLOG) to obtain what JES3 believes to be the status of the asid. JES3 message IAT7000 provides a lengthy explanation.
- An examination of the TCB structure and the data being accessed in the console dataspace may be necessary if the trace table does not indicate a specific problem.
- If messages missing from JES3DLOG are not displayed on the console, then console support needs to be contacted.

Problems in the JESXCF Address Space

JES3 support for JESXCF was introduced in Release 5.1.1. It acts as a communication vehicle between all the address spaces in a complex. JESXCF uses XCF and a coupling facility or CTCs for communication. If an installation is running JES3 5.1.1 or higher, then JESXCF exists. Often JESXCF problems will manifest themselves as a problem with another address space. For this reason it is important to dump JESXCF and its dataspace even when it is not apparent that JESXCF is involved. There is a JESXCF address space on each processor. JESXCF problems are indicated by JESXCF abends and communication failures.

Documentation Required for JESXCF Problems

The following documentation is required for diagnosing JESXCF problems:

- Dump of JESXCF address space including its dataspace for each processor (unless the system has created a dump).
- Depending on the nature of the problem XCF may be required.
- Syslog.

Debugging JESXCF Problems

- JESXCF code is delivered with the Userexit and Flow component traces active: these traces need to be left active for debugging purposes.

- IP VERBX JESXCF provides control block information about the mailboxes defined for members in the sysplex. For communication failures, examine the formatted transport buffers.
 - Examine head/tail pointers. If the tail value is high it may indicate an accumulation of messages which is an indication of lost transport buffers.
- JESXCF is shipped Object Code Only (OCO). Level 2 Support will need to examine the documentation to determine the cause of the problem.

Problems in the BDT Address Space

BDT is a mechanism for transferring data (sysout or jobs) between nodes using SNANJE or File-to-File Transfer. Installations can choose whether to use BDT. BDT problems are indicated by BDxxx abends, system abends, and hangs.

Note: Often a problem externally looks like a BDT problem, but internally it is a result of a VTAM problem. A thorough understanding of the received messages is required for an accurate diagnosis.

Documentation Required for BDT Problems

The following documentation is required for diagnosing BDT problems:

- For BDxxx and system abends
 - Dump provided
 - Syslog
- For Hangs
 - Dump of sending system and JES (if using SNANJE)
 - Dump of receiving system and JES (if using SNANJE)
 - Syslog
 - VTAM traces

Debugging BDT Problems

- For BDxxx abends, examine *BDT Messages and Codes* for an explanation of the abend. The information provided may be sufficient for determining the cause of the problem.
- To format the BDT address space issue one of the following:

IP SUMMARY FORMAT JOBNAME(jobname)

where: jobname is the name of the BDT job

(OR)

IP SUMMARY FORMAT ASIDLIST(xxx)

(OR)

IP TCBX BDTABPR TCBxxxB

where: xxx is the decimal value of the BDT ASID

- If the TCBX fails, you are missing the formatter. In SYS1.PARMLIB member BLSCCT you need to INCLUDE the following TCB exit:

```
'EXIT EP(BDTABPR) FORMAT(TCB) AMASK(x'00FFFFFF')/*BDT'
```

- Examine the FCT chain for the failing function (format similar to JES3 FCT chain)

- Hangs
 - Examine BDT and VTAM messages in each syslog
 - For nodes in question - is one unavailable?

- If message BDT9311 exists BDT may not be hung. JES3 may have not told it that there is work available. Examine the JES3 dump.
- Determine if there is work available for BDT from JES3. Issue JES3 inquiry:

*I,U,J=?,Q=BDT,BS=?,H=?,BG=?

Note: BS status can indicate what is happening.

JES3 Netserv (TCP/IP/NJE) address space problems

For transmission problems, use the command

*MODIFY,SOCKET=sockname,JTRACE=YES,ITRACE=YES. (Optionally you can also specify VTRACE=YES.) Then start up a GTF procedure to collect trace records.

For socket connection problem, use the command

*MODIFY,NETSERV=nsvname,JTRACE=YES,ITRACE=YES. (Optionally you can also specify VTRACE=YES.) If you are having trouble with a signon of a TCP/IP node it might be useful to turn on Netserv and socket traces. Then start a GTF procedure to collect trace records.

To determine if a host name specified on a socket definition is properly defined through TCP/IP, you can try a 'ping' command from TSO. For example, if a socket is defined with HOSTNAME=MYCORP.COM and you suspect that MYCORP.COM is not defined to TCP/IP, you can go to a TSO session and enter the command PING MYCORP.COM. If the command times out without sending any packets, the host is likely undefined to TCP/IP. You can also try to ping the IP address, for example, 'ping 11.22.33.44'. If the ping for the IP address works but the ping for the host name does not, suspect that the IP address is not defined correctly to the TCP/IP resolver.

If you take a dump to aid diagnosis, the JES3 Global and Netserv address spaces will likely be needed. They might not be on the same processor.

Typical JES3 Problems and Their Resolutions

The following section discusses how to identify a problem with JES3 and gives a suggested solution to the problem.

Shortage of JES3 Job Numbers

Problem Description:

An indication of a shortage of job numbers in your installation is a backlog of jobs which will eventually affect the performance of your installation. If your installation has experienced a shortage of job numbers, messages such as IAT6192, IAT4075, and IAT9126 may be issued. These messages are retained by the action message retention facility. Scan the messages on the action message retention queue to determine if any of these messages were retained on the message queue.

Suggested Resolution:

The situation may be eased by one of the following:

- Canceling some jobs.
- Locating the bottleneck of jobs in your installation.

Suggested Changes for Temporary Fix:

In an installation, jobs typically become backlogged while waiting to be processed by CI, MAIN, OUTSERV, and NJESND. Issue an *INQUIRY,B or *INQUIRY,Q,D=dspname command to determine the jobs that are waiting to be processed by the CI, MAIN, OUTSERV, and NJESND DSPs. See *z/OS JES3 Commands* for more information on this command. The maximum number of jobs active under any particular DSP is dependent on the installation. Each installation must determine the maximum number of jobs that can run under a particular DSP.

If a bottleneck of jobs exists in output service, either:

- Cancel some jobs by issuing a *MODIFY,J=jobno,C or *MODIFY,J=jobname,C,N=ALL command.
- Cancel output data sets from the HOLD queue by issuing a *MODIFY,U,Q=queue,{JAGE|DAGE} command.
- Change the printer requirements for the job. Issue a *MODIFY,U,Q=WTR command to change the printing requirements for the job.

See *z/OS JES3 Commands* for more information.

If there is a bottleneck of jobs waiting to be processed by the NJESND DSP, ensure:

- The BSC lines are active. Issue an *INQUIRY,NJE command to display the status of the lines defined to your node.
- The lines are not hung. Issue an *INQUIRY,NJE,NODE=nodename,LINE command to determine the status of the lines defined to your node.
- That a large job is not tying up the line. Issue an *INQUIRY,A,D=NJESND command to display the amount of time that the job has used to transmit a job. If too much time has been taken to transmit the job, issue either:
 - *R,dspname to terminate the job and requeue it to the DSP or
 - *C,dspname to terminate the job and place it in operator hold.

Suggested Changes for Next Restart:

To prevent a shortage of job numbers in the future, check the JOBNO parameter on the OPTIONS initialization statement. Allocate enough direct-access space to accommodate your installation's working data set for JCT records. (See *z/OS JES3 Initialization and Tuning Guide* for more information on determining the size of the JCT.)

Misrouted Messages

Problem Description:

Because JES3 has a complex method of routing messages, some messages issued in your installation may not appear where you expect. JES3 messages are issued by using information specified on a JES3 MESSAGE macro. JES3 converts the message macro into a WTO and the destination class into MVS routing codes. The message processing facility (MPF) can change, add, or delete the routing codes specified on the message macro.

Suggested Resolution:

You can use the Generalized Trace Facility (GTF) to gather information to help diagnose where your system is routing messages for display. GTF intercepts

requests to route messages from JES3 and MVS and records information for the request. See *z/OS JES3 Customization* for additional information on using GTF in JES3.

Job related diagnosis

This topic discusses the statements used to invoke the diagnostic facilities and commands that you can use to obtain information when JES3 is active.

The system can supply you with information that is gathered while the installation is experiencing a problem. However, sometimes it can be necessary to recreate the problem and collect additional information. This information can help diagnose problems the installation is experiencing.

Whenever JES3 is active, commands can be entered from a console to obtain diagnostic information. Use the commands in Table 1 to obtain information that will help you:

- Identify the functional area where JES3 might be experiencing a problem.
- Obtain additional information while recreating a JES3 problem. You can use the information obtained using the commands in this section and the information in the formatted dump to diagnose the problem.

After you have identified the functional area that might be experiencing a problem, use the commands in Table 2 on page 21 to obtain information specific to that functional area.

For more information about the commands used in Table 1 and Table 2 on page 21, see *z/OS JES3 Commands*.

Table 1. Commands Used to Obtain General JES3 Diagnostic Information

If you want to:	See the following sections in this book or use command specified:
stop the processing of a JES3 FCT	Dump

Job Related Diagnosis

Table 1. Commands Used to Obtain General JES3 Diagnostic Information (continued)

If you want to:		See the following sections in this book or use command specified:
obtain	CLASS (Job Class Table)	Dump
	CSA (Common Service Area)	Dump
in-	DJST (Dynamic Job Summary Table)	Control Block Print
formation	DYNAL (DYNAL FCT Data Areas)	Dump
	EXRESC (Execution Resource Table)	Dump
	FCT (Function Control Table)	Dump
contained in	FSS (Function Subsystem Tables)	Dump
a control	GRPTBL (Job Class Group Table)	Dump
block or	ICP (Initialization Checkpoint Record)	Dump
storage	IDD (C/I DSP Data Area)	C/I Debug Facility
	IJS (Intermediate Job Summary Table)	C/I Debug Facility
	ITX (Intermediate Text)	Dump
	JBT/TAT/JOBTAT(Job Track Allocation Table)	Control Block Print, Dump
	JCT (Job Control Table)	Control Block Print, Dump
	JDAB (Job Data Accounting Block)	Control Block Print, Dump
	JDS (Job Data Control Block)	Control Block Print, Dump
	JNCB (DJC JOBNET Control Blocks)	Dump
	JQE (Job Queue Element)	Dump
	JSQ (Job Select Queue Element)	Dump
	JST (Job Summary Table)	Control Block Print, Dump
	JVT (Job Volume Table)	Control Block Print, Dump
	LRS (Locate Response Table)	C/I Debug Facility
	LVS (Locate Table Entries)	Dump
	MEM (JES3 Memory Usage Table)	Dump
	MPC (Main Processor Control Table)	Dump
	NUC (JES3 Nucleus)	Dump
	OSE/MOSE (Output Scheduling Element)	Dump, Control Block Print
	PCAT (Pass/Catalog Table)	C/I Debug Facility
	RQ/RESQ (Resident Job Queue Table)	Dump, Control Block Print
	SDA (Statistics Data Area)	Dump
	STN (SETNAMES Table)	Dump
	STT (Single Track Table)	Dump
	STU (SETUNITS Table)	Dump
	SUP (SUPUNITS Table)	Dump
	SWA Control Blocks	Dump
	SYS (SYSUNITS Table)	Dump
	TRC (JES3 Trace Tables)	C/I Debug Facility
	VLM (SETVOL and SETDSN Tables)	Dump
obtain	display information for a specific job	*CALL,DISPLAY or *INQUIRY,J
job-related		
in-	display the status of jobs being processed by a particular or all JES3 DSPs	*INQUIRY,A
formation	display the status of jobs on a specific or on all processors	*INQUIRY,A
	display a summary of jobs in the queue, by JES3 function	*INQUIRY,B
	obtain the status of a particular job including why the job is waiting to be scheduled and how long the job has been active or waiting to be scheduled	*INQUIRY,J
	obtain information on a single or all jobs on the JES3 job queue	*CALL,DISPLAY or INQUIRY,Q
	display information for jobs which have allocated spool space	*CALL,DISPLAY or *INQUIRY,Q
	display information for DJC network and jobs within DJC networks	*INQUIRY,N Display DJC Network
	select events that JES3 traces	JES3 Trace
	display portions of storage	Dump
	display a particular spool record	Dump
	determine the devices JES3 allocated to a job	DISPLAY, C/I Debug Facility, or JSTEST Facility

Table 1. Commands Used to Obtain General JES3 Diagnostic Information (continued)

If you want to:	See the following sections in this book or use command specified:
obtain information for a specific module	*INQUIRY,X or Dump
obtain DSP related information	*INQUIRY,X

Use the commands in the following table to obtain diagnostic information for a particular JES3 functional area. For more information about using these commands, see *z/OS JES3 Commands*.

Table 2. Commands Used to Obtain Additional Information for a Functional Area

If you want to obtain more information for:	See the following sections in this book or use commands specified:	
Initialization and you want to:	force a storage dump when JES3 encounters an error while initializing the global	INTDEBUG (See <i>z/OS JES3 Initialization and Tuning Guide</i> for more information.)
	gather statistics that were recorded during JES3 initialization.	Dump (*START,DC,OPTION=SDA)
	display the configuration information that JES3 created from the initialization statements that were processed	Dump (*START,DC,OPTION=ITX,ICP)
Input Service and you want to:	obtain a list of interpreted JCL for a job processed by the MVS converter interpreter	JCLTEST Facility
	display control blocks or storage related to input service: FRP (format parameter buffer) IRA (internal reader anchor block) IRE (internal reader element)	Control Block Print, Dump Dump Dump
C/I and you want to:	display control blocks or storage related to C/I: FSS-Functional Subsystem Table Entries IDD IJS JST JVT LRS LVS PCAT SWA control blocks	C/I Debug Facility C/I Debug Facility C/I Debug Facility C/I Debug Facility, CBPRNT, DC C/I Debug Facility, CBPRNT, DC C/I Debug Facility C/I Debug Facility C/I Debug Facility C/I Debug Facility, CBPRNT
	display the status of a procedure library	*INQUIRY,PROCLIB=
	display information for a CI FSS	*INQUIRY,F
	display why a job is not being scheduled for C/I	*INQUIRY,J
Main Device Scheduling and you want to:	display a list of the devices JES3 has allocated to a job	JSTTEST Facility
	display control blocks related to main device scheduling JST MDS (Main Device Scheduler Area) STN (SETNAMES Table) STU (SETUNITS Table) SYS (SYSUNITs Table) VLM (SETVOL/SETDSN Tables)	Control Block Print Dump Dump Dump Dump Dump
	display why a job is waiting in MDS processing	*INQUIRY,J and *INQUIRY,S,A,J=
	display a summary of the jobs in MDS allocation processing and why they are waiting	*INQUIRY,S,A,SUMM

Job Related Diagnosis

Table 2. Commands Used to Obtain Additional Information for a Functional Area (continued)

If you want to obtain more information for:	See the following sections in this book or use commands specified:	
Output Service and you want to:	display jobs that originate from a designated device group	*INQUIRY,B
	display information for a WTR FSS	*INQUIRY,F
	display control blocks or storage related to output service: FSS-Functional Subsystem Table Entries MOSE (Master OSE and OSS) OSE (Disk Resident OSE) PPQ/PDQ-Pipeline Writer Control Blocks WTR (Writer Data Area)	Dump Dump, Control Block Print Dump, Control Block Print Dump Output Service Diagnostic Mode
Consoles and you want to:	trace information for misrouted messages	Generalized Trace Facility
	display console status information	*INQUIRY,O and *INQUIRY,D
	display outstanding action messages	MVS Commands: D R and D CONSOLES
	display message routing information	*INQUIRY,M , *INQUIRY,O and D CONSOLES
	display status of console buffers	*INQUIRY,C,C
Networking and you want to:	obtain information for a node that uses BSC protocols	Network Log Facility
	display control blocks or storage related to networking: NJE (networking node table) TCP (TCP/IP/NJE structures)	Dump
	display the status of all networking nodes and lines	*INQUIRY,NJE
	inquire about output destined for other NJE nodes	*INQUIRY,U,Q=BDT
	Spool and you want to:	display control blocks or storage related to spool: JBT (job track allocation table) JDS (job data sets) JIO (spool related control blocks)	Dump, Control Block Print Dump, Control Block Print Dump
display information for spool partitions		*INQUIRY,C and *INQUIRY,Q
display information for JSAM spool buffers		*INQUIRY,C
display information for spool data sets		*INQUIRY,Q
display information for allocated spool space		*INQUIRY,Q and DISPLAY
display a summary of records that are in the Single Track Table (STT) or dump the contents of all records or specific records		*START,DC,OPTION=STT
display the contents of a spool record		*START,DC,SPADDR=
Remote Job Workstations and you want to:		display control blocks or storage related to RJP workstations: RJP-resident RJP line, terminal tables WSB-resident workstation block	Dump Dump
	display the status of a BSC or SNA RJP workstation	*INQUIRY,D,T=
	display BSC line information	*INQUIRY,T

Control Block Print DSP (CBPRNT)

CBPRNT prints JES3 and MVS control blocks to the CBPRNT data set. CBPRNT prints the data set when the job ends.

To use the facility, take the following steps:

1. Determine the control blocks you require to diagnose the problem.
2. Use the following list to identify the control blocks you can request:
 - The TAT, JDAB, PARM, JDS, FRP, ASR, or the RESQ, after any scheduler element.
 - The JVT, JST, or the SWA control blocks, after the CI or a subsequent scheduler element.
 - The MOSE, after the OUTSERV scheduler element.
3. Place a `/**PROCESS CBPRNT` statement after the scheduler element that creates the required control block.

If a `/**PROCESS CBPRNT` statement is placed at the beginning of the job, CBPRNT prints all the control blocks associated with the job's scheduler elements.

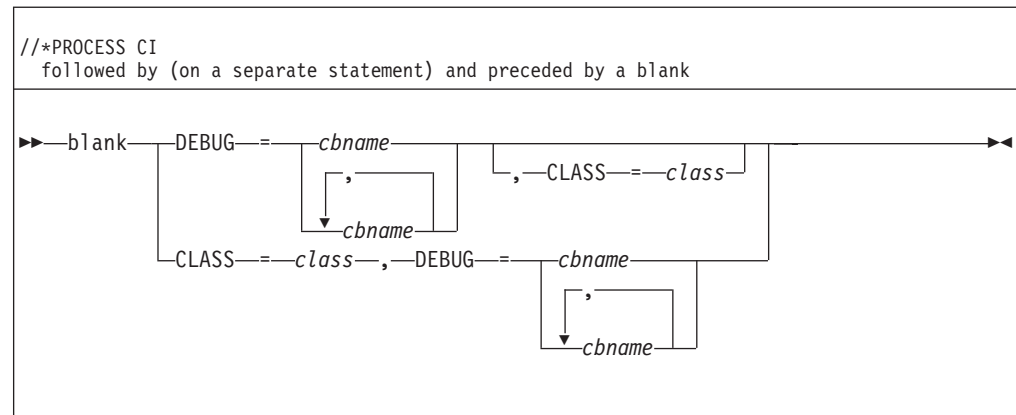
Converter/Interpreter Debug Facility

The converter/interpreter debug facility provides additional parameters that you can specify on the `/**PROCESS CI` statement used to create a non-standard job.

Consider the following when using this diagnostic facility:

- Errors in the `DEBUG` statement inhibit the converter/interpreter debug facility for the job. JES3 will not flush the job from the system.
- You should include a `/**PROCESS OUTSERV` statement with this job to insure that the debug output will be printed.

The syntax for using `DEBUG` and `CLASS` statements for the C/I Debug Facility follows:



Note: The `DEBUG` or `CLASS` parameter must start on a new line following the `/**PROCESS CI` statement and a blank must precede the first parameter you specify.

DEBUG=cbname

Identifies the one or more control blocks to be printed. You must separate the control blocks by a comma if you specify more than one control block.

cbname

converter/interpreter debug facility will print the:

Converter/Interpreter Debug Facility

LOC Locate table (LVS) entries as they are built and the Locate Response Area (LRS).

JST Job summary table (JST) entries as they are built.

JVT Job volume table (JVT) entries as they are built.

COMP

MVS control blocks as they are read and the compatibility interface records as they are referenced. Control blocks are the JCT, ACT, SCT, SIOT, and JFCB. Compatibility interface records are the JES3 job level, step level, and DD level records (JBL, STP, DDL).

SWB Scheduler work blocks after processing is complete.

PCAT Pass/catalog entries as they are built.

IJS Intermediate job summary table (IJS) entries as they are built.

CKPT Checkpointed buffers for any of the specified options. This provides the final contents of the control blocks.

ALL All the previously listed control blocks.

CLASS

Allows the user to assign a JES3 message class to the DEBUG data set for a job. The class must be a single alphabetic (A through Z) or a numeric (0 through 9) character. It can either precede or follow the DEBUG=keyword and must be separated by a comma.

If you do not specify the message class for the converter/interpreter debug facility, JES3 uses the message class specified by the DBGCLASS parameter on the STANDARDS initialization statement.

The following examples show correct and incorrect ways to specify the DEBUG control statement:

Correct and Incorrect DEBUG statements

VALID

```
DEBUG=ALL
DEBUG=ALL,CLASS=M
DEBUG=IJS,JST,JVT,CLASS=C
CLASS=4,DEBUG=ALL
```

NOT VALID

```
DEBUG=ANY
CLASS=*,DEBUG=ALL
DEBUG=(IJS,JST),CLASS=E
```

JCLTEST Facility

The JCLTEST facility generates a listing of interpreted JCL that has been processed by the MVS converter interpreter. You can use this listing to verify JCL results before allowing further processing of the job.

If you specify the PGM=JCLTEST parameter on an EXEC statement, JES3 stops processing the job when it completes converter/interpreter processing; the job is not scheduled for execution. The JCL and any applicable diagnostic messages are then printed.

If you want to use JCLTEST for a deferred-restart job, you must specify PGM=JCLTEST on the EXEC statement located after the one for the step names on the RESTART parameter of the JOB statement.

The output from the JCLTEST facility is a listing of interpreted JCL. The JCL below runs the JCLTEST facility.

```
// EXEC PGM=JCLTEST
```

JSTTEST facility (Print JCL allocation decisions)

The JSTTEST facility allows you to obtain summary information that describes the resources required by a job in order to execute.

If you specify the PGM=JSTTEST parameter on an EXEC statement, JES3 uses the job's Job Summary Table (JST) to produce a summary of the devices that should be allocated to your job. JES3 then stops processing the job when it completes converter/interpreter processing; the job is not scheduled for execution. The JCL and JSTTEST output are then printed.

An example of output from the JSTTEST facility is included in the following. The JCL to run the facility is illustrated below:

```
//stepname EXEC PGM=JSTTEST
```

The JSTTEST facility uses the information in the job summary table (JST) to obtain information for the messages that describe the allocation decisions made during CI. Sets of messages are written to the JESMSG data set. The first set of messages describes the job step of the job. The information that describes a job step is the:

- step name
- procedure name
- step number

The second set of messages describes the job's data sets defined by the DD statements. The information generated by JSTTEST for a data set is the:

- ddname of each DD statement
- names of the devices
- setup status of the devices
- disposition and share status of the devices
- scratch status of each device
- device type (disk, tape, unit, or graphic)
- ring requirement (tape only)
- first 20 characters of the data set name
- serial of the first volume
- ddname of any explicit backwards reference that appears on the DD statement

To invoke the JSTTEST facility, enter the JCL statements in the job stream in place of one of the job's actual EXEC statements:

Converter/Interpreter Debug Facility

To use JSTTEST for a deferred-restart job, place the EXEC statement for JSTTEST so that it replaces one of the EXEC statements after the one for the step named on the RESTART parameter of the JOB statement.

Below is sample JCL used to invoke the JSTTEST facility for JES3-managed devices:

```
//TESTCS JOB MSGCLASS=A,MSGLEVEL=(1,1)
//*PROCESS CI
  DEBUG=IJS,JST
//*PROCESS MAIN
//*PROCESS OUTSERV
//STEP1 EXEC PGM=JSTTEST
//DD1 DD DSN=DATA.ONE,DISP=OLD,UNIT=3380
//DD2 DD DSN=DUMMY.DS,DISP=OLD
```

Output generated from the JSTTEST facility using the sample JCL:

```
IAT6140 JOB ORIGIN FROM GROUP=LOCAL , DSP=CR , DEVICE RDR012, 012
14:51:41 IAT4802 ATTEMPTED DEBUG OPTIONS ARE AS FOLLOWS
14:51:41 DEBUG=IJS,JST
14:51:41 IAT4401 LOCATE FOR STEP=STEP1 DD=DD1 DSN=DATA.ONE
14:51:41 IAT4402 UNIT=3380 , VOL (S)=V3380A
14:51:41 IAT4401 LOCATE FOR STEP=STEP1 DD=DD2 DSN=DUMMY.DS
14:51:41 IAT4402 UNIT=3480 , VOL (S)=V3380A
14:51:41 IAT4811 *STP/DD PSTP/DEV MT/DV DISP/STP# TYPE 1ST VOL BK-REF SCR RING DSN 20(BYT)
14:51:41 IAT4812 *STEP 1001
14:51:41 IAT4812 DD1 3380 Y/Y OLD/NONX DISK V3380A (NONE) NO NO DATA.ONE
14:51:41 IAT4812 DD2 3480 N/N OLD/NONX DISK V3480A (NONE) NO NO DUMMY.DS
14:51:41 IAT4810 JOB TERMINATED BY JES JESTEST FACILITY
```

Sample JCL used to invoke the JSTTEST facility for MVS-managed devices:

```
//TESTCS JOB 'ACCT01','P.WEIGEL',MSGCLASS=A,MSGLEVEL=(1,1)
//STEP1 EXEC PGM=JSTTEST
//DD1 DD DSN=SMSX.NEW.DATA.SET01,DISP=(NEW,DATLG),
// STORCLAS=STANDARD,DATACLAS=PDS,MGMTCLAS=NEVER
//DD2 DD DSN=SMSX.NEW.DATA.SET01,DISP=SHR
//STEP3 EXEC PGM=IEFBR14
//DD3 DD DSN=SMSX.NEW.DATA.SET01,DISP=(SHR,DELETE)
//*
```

Output generated from the JSTTEST facility for MVS-managed devices using the sample JCL:

```
IAT6140 JOB ORIGIN FROM GROUP=LOCAL , DSP=CR , DEVICE RDR012, 012
11:04:00 IAT4811 *STP/DD PSTP/DEV MT/DV DISP/STP# TYPE 1ST VOL BK-REF SCR RING DSN(20BYT)
11:04:00 IAT4812 *STEP 1001
11:04:00 IAT4812 DD1 N/A N/N NEW/NONX SMS N/A (NONE) NO YES SMSX.NEW.DATA.SET01
11:04:00 IAT4812 DD2 N/A N/N SHR SMS N/A DD1 NO NO SMSX.NEW.DATA.SET01
11:04:00 IAT4812 DD3 N/A N/N SHR SMS N/A DD1 NO NO SMSX.NEW.DATA.SET01
11:04:00 IAT4810 JOB TERMINATED BY JES JESTEST FACILITY
```

Chapter 2. General Diagnosis

This chapter describes two general areas of diagnosis in the following order:

- General System Diagnosis
- Formats of Trace Tables and JES3 Diagnostic Facilities

General System Diagnosis

This chapter discusses diagnostic facilities that you can use to obtain information about JES3.

Display DJC Network (DISPDJC)

Use the DISPDJC facility to display the status of a dependent job control network on a printer.

For **each network** the DISPDJC facility displays:

- The name of the network.
- The FLAG1 parameters as defined in the job network control block (JNCB).
- The FLAG2 parameters as defined in the JNCB.
- The number of jobs in the designated network.
- The number of jobs in the designated network that have completed.

For **each job in the network** the DISPDJC facility displays:

- The job name.
- The current status of the job (completed, active, inactive, or in network hold).
- The names of the jobs that are successors to the designated job and cannot be processed until its completion.
- The name and net-id of a successor in another network.
- The number of predecessor jobs that must complete before the designated job can be processed.
- The action to be taken when a predecessor job ends normally or abnormally.
- The FLAG1 attributes as defined in the network control block (NCB). The following are possible values for FLAG1:

X'01' the successors to the job were updated

X'02' the JCT is no longer in HOLD

X'04' the job was updated by a predecessor

X'08' the job completed but had to be resubmitted

X'10' the job did not include a MAIN scheduler element (SE)

X'20' an error occurred during CI that caused the job to fail

X'40' the job has completed

X'80' no changes have been made to the job's control blocks and the control blocks do not have to be written back to spool.

- The FLAG2 attributes as defined in the NCB. The following are possible values for FLAG2:

- X'01' the job abnormally ended
- X'02' the job has been placed in NET HOLD
- X'04' the NCB is missing a successor
- X'08' the job is missing a successor in a sub-net
- X'10' the job must be resubmitted
- X'20' the NCB does not contain any information
- X'40' the job segment scheduler (JSS) processed a NCB that did not contain any information

X'80' the job has been placed in operator hold.

- The FLAG3 attributes as defined in the NCB.
- The FLAG4 attributes as defined in the NCB.
- The FLAG5 attributes as defined in the NCB. The following are possible values for FLAG5:

X'80' when the job is completed processing, it will release a dedicated device

X'40' input service is currently processing the job

X'20' the completed count has been updated

nn is the number of successors for the job.

- The FLAG6 attributes as defined in the NCB.

Example

```

*** NET-ID=DJC2          ***      98.089  15:08:36
** JNCB PARAMETERS **  FLAG1=00  FLAG2=00  TOTAL COUNT=0000027  COMPLETED=0000000  PENDING=0000000
                                H/R
                                ACTION  ATTRIBUTES  ATTRIBUTES
JOB NAME  STATUS  SUCCESSORS  COUNT  PARAMETERS  FLAG1  FLAG2  FLAG3  FLAG4  FLAG5  FLAG6
J24       IN NET HOLD  J28       00001  NRML=D ABNML=D  00    00    24    00    00    88
                                J29
J214      IN NET HOLD           00001  NRML=D ABNML=D  00    00    24    00    00    88
J224      IN NET HOLD           00001  NRML=D ABNML=D  00    00    24    00    00    88
J25       IN NET HOLD  J210      00001  NRML=D ABNML=D  00    00    24    00    00    88
                                J211
J215      IN NET HOLD           00001  NRML=D ABNML=D  00    00    24    00    00    88
J26       IN NET HOLD  J212      00001  NRML=D ABNML=D  00    00    24    00    00    88
                                J213
J225      IN NET HOLD           00001  NRML=D ABNML=D  00    00    24    00    00    88
J27       IN NET HOLD  J214      00001  NRML=D ABNML=D  00    00    24    00    00    88
                                J215
J226      IN NET HOLD           00001  NRML=D ABNML=D  00    00    24    00    00    88
J216      IN NET HOLD           00001  NRML=D ABNML=D  00    00    24    00    00    88
J28       IN NET HOLD  J216      00001  NRML=D ABNML=D  00    00    24    00    00    88
                                J217

```

The Monitor DSP

You can use the monitor DSP to monitor a resource or queue based on information you specify. JES3 starts the MONITOR DSP and monitors various queues and resources automatically.

The information that the monitor DSP displays includes both of the following:

- The queue or resource the job or Function Control Table (FCT) is waiting for.
- The amount of time the job or FCT has been waiting.

The monitor DSP provides you with the ability to monitor how long a job or FCT has been waiting for a specific JES3 function or resource. For example, if you want to know when a job has been waiting for a CI DSP for more than five minutes, you can set the monitor DSP to issue a message when five minutes have elapsed.

The following is a chronological example of the monitor DSP in use:

10:01 AM

You issue the *START,MONITOR,DISPLAY command to examine the current monitoring parameters.

The system issues the following messages:

IAT6399	ID	INTERVAL	THRESHOLD	COUNT	SUMMARY	STATUS
IAT6400	RESOURCE	005	001	ALL	YES	INACTIVE
IAT6400	LOCATE	005	001	ALL	YES	INACTIVE
IAT6400	CIFSS	005	001	ALL	YES	INACTIVE
IAT6400	SYSSELQ	005	005	ALL	YES	INACTIVE
IAT6400	ALLOQC	000	000	ALL	YES	INACTIVE
IAT6400	VERIFYQ	000	000	ALL	YES	INACTIVE
IAT6400	SYSVERQ	005	001	ALL	YES	INACTIVE
IAT6400	DSPWAIT	005	005	ALL	YES	INACTIVE
IAT6400	JSSWAIT	005	005	ALL	YES	INACTIVE
IAT6400	IOWAIT	030	001	ALL	YES	INACTIVE

You see that CIFSS is being monitored among others.

10:02 AM

You want to increase the frequency at which the C/I FSS queue is monitored from once every 5 minutes to once every minute.

You modify the monitoring parameters as follows:

*START,MONITOR,ID=CIFSS,INTERV=1

The system issues:

IAT6402 MONITOR MODIFY PROCESSING COMPLETE

10:03 AM

The PAYROLL job is scheduled to the C/I FSS.

The monitor DSP examines the C/I FSS queue because the one minute interval has expired and finds that no jobs have been waiting for more than one minute. The monitor DSP displays no information.

10:04 AM

The AMORT job is scheduled to the C/I FSS.

The monitor DSP examines the C/I FSS queue and finds that the PAYROLL job has been scheduled for one minute. Since you issued SUMMARY=YES, the system issues the following messages:

```
IAT6395 00001 REQUEST(S) ACTIVE IN A C/I FSS
IAT6396 JOB PAYROLL (JOB123400) ACTIVE IN A C/I FSS
IAT6398 0000 HOURS 01 MINUTES 00 SECONDS
```

10:05 AM

The monitor DSP examines the C/I FSS queue and finds that the PAYROLL job has been scheduled for two minutes and the AMORT job has been scheduled for one minute.

The system issues the following messages:

```

IAT6395 00001 REQUEST(S) ACTIVE IN A C/I FSS
IAT6396 JOB PAYROLL (JOB01234) ACTIVE IN A C/I FSS
IAT6398 0000 HOURS 02 MINUTES 00 SECONDS
IAT6396 JOB AMORT (JOB1235) ACTIVE IN A C/I FSS
IAT6398 0000 HOURS 01 MINUTES 00 SECONDS

```

Dump Core

Use the dump core (DC) facility to do the following:

- Display and then modify data in main storage
- Intercept program flow during processing
- Format control blocks for debugging purposes
- Find the location of a module in storage
- Display a requested portion of JES3's storage
- Display the contents of a spool record.

To use the dump core facility, perform the following:

1. Determine where the output from the dump core DSP should be routed. You specify the destination of the output by using the OUT= parameter on the *CALL DC command when you invoke the dump core facility or any *START DC command.
2. Invoke the DC DSP using the *CALL DC command.
3. Use Table 3 to locate the task you would like to perform and then the appropriate parameters you should use on the DC command to perform the task.

Table 3. Dump Core Commands

If you want to:		Use this parameter:	On this command:
invoke dump core			*CALL,DC
specify the device DC output should be routed to		OUT=	*CALL,DC *START,DC
display:	registers at a specific address	TREGS	*START,DC
	registers with snapshots at a specific address	REGSON	*START,DC
	all active traps	ACTIVE	*START,DC
	dynamic parch area within IATUTDC	PATCH	*START,DC
	storage at a specific address	PTRAP	*START,DC
locate a module		FIND	*START,DC
locate a module in a load list		FIND=mod, SEQ=nn	*START,DC
display storage at a specific address		C=adr	*START,DC
alter data in storage		C=adr	*START,DC
set a trap at a specific address		C=adr	*START,DC
display a job's control blocks or display JES3 control blocks		OPTION=	*START,DC

Table 3. Dump Core Commands (continued)

If you want to:	Use this parameter:	On this command:
display the contents of a spool record	SPADDR=mmmm.rrrrrrr	*START,DC
intercept JES3's processing	TRAP=adr	*START,DC
restart JES3 after DC waits at an address	TRAPGO	*START,DC
activate a trap	TRAPON	*START,DC
deactivate a trap	TRAPOFF	*START,DC
clear all waiting traps	TRAPGO	*START,DC

4. Determine if you will be setting traps to examine data at critical points during the processing of the program.
5. To clear any traps that are waiting, enter a *START,DC,TRAPGO command.
6. After you have identified where JES3 can be experiencing a problem, end the dump core DSP using the *CANCEL,DC command.

The following options can be used with the *START,DC, OPTION= parameter. See *z/OS JES3 Commands* for more information.

OPTION=(name ,name1 ,...)

The name of dump contents of storage option(s) to be displayed.

DMP

Causes all the standard formatting to be performed just as though a completely formatted JES3 dump was requested without system intervention.

INS

Displays information about internal reader control blocks.

SNP

Causes a dump of job-related control blocks to be recorded on the output device.

(SNP=name)

Causes a dump of a specific job-related control block to be recorded on the output device. You can request any one of the following control blocks:

Name Dumps the

ARL Allocation resource list

ASR Available spool records

JDAB Job description accounting block

JDS Job data set control block

RQ Resqueue

FRP Format parameter buffer

JST Job summary table

JVT Job volume table

TAT Job or data set track allocation table

MOSE

Master output service element

OSE Output service element

DIAG Displays a formatted OSE, which includes such information as:

- class
- forms
- queue
- destination

Use **caution** when specifying this parameter. Control block displays are potentially very long, and output directed to the operator's console can disrupt normal operator/system interaction.

Depending on the command that you issue, the dump core facility responds with at least one of the following:

- Formatted storage
- Unformatted storage
- Messages

JESJCLIN utility

The JESJCLIN utility runs as a dynamic service program (DSP) in the JES3 global address space, and helps manage JESJCLIN data sets for jobs whose JCL includes in-stream SYSIN data sets.

In-stream SYSIN data are stored in spool data sets and are referenced from the JESJCLIN data set by special JES3-generated records called SYSIN pointer records. Although technically not part of the JESJCLIN data set, they were included in the JESJCLIN data set's record count. Beginning with APAR OA33040, the records were no longer included in the count, which interfered with some programs' ability to navigate through JESJCLIN files. APAR OA34642 corrected this issue by defining the DATCTLRD (IATYDAT) flag to identify records, including SYSIN pointer records, that are not included in a data set's records count.

The JESJCLIN utility addresses JESJCLIN data sets that were created after OA33040 was applied, but before OA34642 was applied. It examines a job's JESJCLIN data set and turns on the DATCTLRD flag for SYSIN pointer records that are not included in the data set's record count. JESJCLIN data sets converted by the utility have the same internal format as those created after OA34642 was applied. Data sets not converted by the utility have an internal format that is the same as JESJCLIN data sets that were created before OA33040 was applied.

The JESJCLIN utility is invoked using the ***CALL,JU,J=xx** command. See *z/OS JES3 Commands* for additional information.

Displaying JES3 Statistics (Statistics Data Area)

Statistics are collected by JES3 in a control block called the statistics data area (SDA). The statistics data area consists of a header (mapped by IATYSDA) and function dependent extensions.

The following types of statistics are collected:

- Initialization related statistics (mapped by macro IATYSDA1)

The following is an example of the type of information collected about JES3 initialization:

- Total initialization time
- Times for different phases of initialization (job validation, read initialization statements, RJP initialization, device initialization)
- Number of jobs in the queue (total, DJC, in main, in output service)
- I/O counts during job validation for different control blocks
- Restart/Connect related statistics (mapped by macro IATYSDA2)
The following is an example of the type of information collected about JES3 restart/connect processing:
 - MDS restart time and number of jobs processed
 - Total connect time for each system
 - Times for the different phases of connect for each system (for example, initial verify time)
- Output service related statistics (mapped by macro IATYSDA3)
The following is an example of the type of information collected about output service:
 - Output service restart time

You can use dump core to dump the information in the Statistics Data Area by issuing the following command:

```
*S,DC,OPTION=SDA
```

The following is an example of the output that is produced when the *S,DC,OPTION=SDA command is issued.

Displaying JES3 Statistics

```

*** STATISTICS DATA AREA ENTRIES ***
SDA ENTRY - 04F00460 - INITIALIZATION
00000000-E2C4C1C5 00010000 00000170 C9D5C9E3 C9C1D3C9 E9C1E3C9 D6D54040 40404040 *SDAE.....INITIALIZATION.....*
00000020-40404040 40404040 40404040 00000000 00000000 00000000 00000000 00000000 *.....*
00000040-84010000 00000000 AE8E2D18 6C553001 AE8E2D79 21550809 AE8E2D3C 1F300F09 *d.....*
00000060-AE8E2D3C 22F92804 AE8E2D3C 25551607 AE8E2D3C 66687109 00000000 00000000 *...9.....*
00000080-00000000 00000000 AE8E2D3C DA7A5804 AE8E2D50 5B19BC06 AE8E2D50 5CEE9504 *.....*
000000A0-AE8E2D78 72CBA501 AE8E2D50 5D1E7604 AE8E2D53 16DA2807 AE8E2D53 7031D604 *.....*
000000C0-AE8E2D56 5CB89504 AE8E2D56 673ECA09 AE8E2D5C 4261B809 AE8E2D5C 44735B03 *.....*
000000E0-AE8E2D61 737AF005 AE8E2D61 737AF805 AE8E2D62 D4F27307 AE8E2D64 29CCF908 *.....*
00000100-00000000 E1910A08 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00000120-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00000140-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00000160-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*

SDA ENTRY - 04F005D0 - RESTART (CONNECT)
00000000-E2C4C1C5 00010000 0000008E D9C5E2E3 C1D9E340 4DC3D6D5 D5C5C3E3 5D404040 *SDAE.....\RESTART (CONNECT) *
00000020-40404040 40404040 40404040 00000000 00000000 00000000 00000000 00000000 *.....*
00000040-AE8E2DB8 F938B205 AE8E2DB8 FB763107 AE8E2DB8 FB8C0C07 00000000 00000000 *...-.....*
00000060-AE8E2DB9 46382505 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00000080-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
000000A0-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
000000C0-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
000000E0-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00000100-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00000120-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00000140-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00000160-AE8E2DD0 F0293401 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00000180-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
.
.
.
000008C0-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*

SDA ENTRY - 04F00EB0 - OUTPUT SERVICE
00000000-E2C4C1C5 00010000 00000050 D6E4E3D7 E4E340E2 C5D9E5C9 C3C54040 40404040 *SDAE.....&OUTPUT SERVICE.....*
00000020-40404040 40404040 40404040 00000000 00000000 00000000 00000000 00000000 *.....*
00000040-AE8E2D91 398BCC05 00000000 00000000 00000000 00000000 00000000 00000000 *...j.».....*

```

In order to determine what information is present in the SDA, you need to assemble macro IATYSDA and match the offsets in the assembly to the offsets in the Dump Core Output.

Displaying Initialization Related Information

When the initialization stream is read, the initialization statements are converted into an internal format and written to the spool or the checkpoint data set.

There are two types of information is created from the initialization statements:

1. Intermediate text (ITX) - Intermediate text is a spool file that contains information from an initialization statement. Not all initialization statements cause an intermediate text file to be created.
2. Initialization Checkpoint Record (ICP) - The Initialization Checkpoint Record contains the checkpointed portions of the following control blocks:
 - IATYTVT - Transfer Vector Table (TVT)
 - IATYTVTC - Checkpointed TVT Extension (TVTC)
 - IATYSVT - Subsystem Vector Table (SSVT)
 - IATYOSD - Output Service Data Area (OSD)
 - IATYINT - Initialization Data CSECT (INT)

Displaying Initialization Related Information

Information that does not go into the intermediate text files are typically put into one the above control blocks. The checkpointed portions of those control blocks are used to create the ICP which is written to the JES3 checkpoint data set.

You can use Dump Core to dump the intermediate text files by issuing one of the following commands:

- *S,DC,OPTION=ITX - Dump all of the intermediate text files.
- *S,DC,OPTION=(ITX=fileid) - Dump a specific intermediate text file.

To dump a specific intermediate text file, an intermediate text file id must be specified. The following table shows the file ids that can be specified and the mapping macros or DSECT names that are used to map the intermediate text records:

File id on *S,DC,OPTION= Command	Initialization Statement(s)	Mapping Macro or DSECT location	Description
CIPARM	CIPARM	IATYCTX	CIPARM intermediate text
CLASS	CLASS (MDEPTH parameter) CLASS (MLIMIT parameter) CLASS (TLIMIT parameter) CLASS (SYSTEM parameter) GROUP (EXRESC) SELECT	DSECT MDTABLE in IATINCL DSECT MLTABLE in IATINCL DSECT MLTABLE in IATINCL DSECT MCSTABLE in IATINCL DSECT MGXSTART in IATYMGP IATYMPS DSECT SELCGST in IATINSL	See initialization statement description Each record is proceeded by a two byte id that identifies the type of record CLASS(MDEPTH) - 5 CLASS(MLIMIT) - 7 CLASS(TDEPTH) - 6 CLASS(SYSTEM) - 10 GROUP(EXRESC) - 8 SELECT(class/group list) - 9 SELECT(other) - 2
COMPACT	COMPACT	IATYCTE	COMPACT intermediate text
CONSTD	CONSTD	Label CSTDREC in IATINPK	CONSTD intermediate text
DEADLINE	DEADLINE	IATYDLT (DSECT DLTENTRY)	DEADLINE intermediate text
DYNALDSN	DYNALDSN	IATYDYD	DYNALDSN intermediate text
FENCE	GROUP (EXRESC and DEVPOOL parameters)	IATYDFC	Device fence intermediate text from EXRESC and DEVPOOL parameters
FSSDEF	FSSDEF	DSECT FDEFAREA in IATINFS	FSSDEF intermediate text
HWSNAME	HWSNAME	IATYHTX	HWSNAME intermediate text

Displaying Initialization Related Information

File id on *S,DC,OPTION= Command	Initialization Statement(s)	Mapping Macro or DSECT location	Description
MAINPROC	MAINPROC CLASS (except MDEPTH MLIMIT, TLIMIT, SYSTEM parameters) GROUP (except EXRESC parameter)	IATYMPE IATYMCL IATYMGP	See initialization statement description Each record is preceded by a two byte id which identifies the type of record MAINPROC - 1 CLASS - 3 GROUP - 4
MSGROUTE	MSGROUTE	IATYINM	MSGROUTE intermediate text
NETSERV	NETSERV	DSECT NTSVSTRT in IATYNTSV	NETSERV intermediate text
NJERMT	NJERMT	DSECT NJEENTRY in IATYNJY	NJERMT intermediate text
RESDSN	RESDSN	None - first byte = length, remaining bytes = data set name	RESDSN intermediate text
RJPLINE	RJPLINE	DSECT RLNSTART in IATYRLT	RJPLINE intermediate text
RJPTERM	RJPTERM	DSECT RTMSTART in IATYRLT	RJPTERM intermediate text
RJPWS	RJPWS	DSECT RTMSTART in IATYRLT	Resident Line/Terminal table for RJPWS
RMTCONS	CONSOLE	IATYINC	CONSOLES intermediate text for remote consoles
SETNAME	SETNAME	DSECT STNAMES in IATINMD	SETNAME intermediate text
SETPARAM	SETPARAM	DSECT SPARM in IATINMD	SETPARAM intermediate text
SETACC	SETACC	Label ACCVOL in IATINMD	SETACC intermediate text
SETRES	SETRES	Label SETRESVL in IATINMD	SETRES intermediate text
SETUNITS	DEVICE (XTYPE and XUNIT parameters)	DSECT SETINIT in macro IATYINT	SETUNITS intermediate text
SOCKET	SOCKET	DSECT SOCKSTRT in IATYSOCK	SOCKET intermediate text
SUPUNITS	DEVICE (parms other than XTYPE, XUNIT)	IATYSUP	SUPUNITs intermediate text
SYSOUT	SYSOUT	IATYSCT	SYSOUT intermediate text
WSB	RJPWS	IATYWSB	Workstation Blocks for SNA RJP workstations
USER1	User defined	User defined	User defined
USER2	User defined	User defined	User defined
USER3	User defined	User defined	User defined
USER4	User defined	User defined	User defined

Displaying Initialization Related Information

File id on *S,DC,OPTION= Command	Initialization Statement(s)	Mapping Macro or DSECT location	Description
USER5	User defined	User defined	User defined
USER6	User defined	User defined	User defined
USER7	User defined	User defined	User defined
USER8	User defined	User defined	User defined
USER9	User defined	User defined	User defined
USER10	User defined	User defined	User defined

In the following example, the *S,DC command is used to dump the CIPARM intermediate text:

```
*S,DC,OPTION=(ITX=CIPARM)
```

```
*** INTERMEDIATE TEXT - CIPARM
RECORD NUMBER = 0000001 - CIPARM
00000000-F0F1F4F0 F0F0F0F3 F5F0F0F5 F1F2F2F1 C5F0F0F0 F1F1C1F0 F5F1F2D2 00000000 *0140000350051221E00011A0512K*
00000020-00000000 *
RECORD NUMBER = 0000002 - CIPARM
00000000-C9F1F4F0 F0F0F0F3 F5F0F0F5 F1F2F3F1 C5F0F0F0 F1F1E3F0 F5F1F2D2 00000000 *I140000350051231E00011T0512K*
00000020-00000000 *
RECORD NUMBER = 0000003 - CIPARM
00000000-E2F1F4F0 F0F0F0F3 F5F0F0F5 F1F2F3F1 C5F0F0F0 F1F1C4F0 F5F1F2D2 00000000 *S140000350051231E00011D0512K*
00000020-00000000 *
RECORD NUMBER = 0000004 - CIPARM
00000000-E3F1F4F0 F0F0F0F3 F5F0F0F5 F1F2F3F1 C5F0F0F0 F1F1C9F0 F5F1F2D2 00000000 *T140000350051231E00011I0512K*
00000020-00000000 *
```

In the following example, the *S,DC command is used to dump the Initialization Checkpoint Record.

```
*S,DC,OPTION=ICP
```

Displaying Output Scheduling Elements

```

*** INITIALIZATION CHECKPOINT RECORD (ICP) ***
INITIALIZATION CHECKPOINT RECORD HEADER
00000000-C9C3D740 00000000 000018C2 AE8E2D78 923CE201 00000000 00000000 00000000 *ICP .....*
00000020-0097113F 14063053 0000003C 000004D0 00000DE6 00001122 000011C2 *.....*

INITIALIZATION CHECKPOINT RECORD DATA - IATYTVT
00000000-0000048C E3E5E340 0097113F 14063053 00000000 00000000 00000000 00000000 *...TVT.....*
00000020-00000000 00000000 00000000 00000000 00000000 00000000 000C0305 00006000 *.....*
00000040-00000000 000000C8 00000064 000003E8 000005DC 00000FF4 FF000000 00000000 *.....H.....Y.....4.....*
.
.
.
00000480-00000000 00000000 00000000 000000E0 00000000 *.....*

INITIALIZATION CHECKPOINT RECORD DATA - IATYTVTC
00000000-0000090E E3E5E3C3 C9C1E3C7 D9E5E3C3 C8D1E2F6 F6F0F440 F0F361F1 F461F9F7 *...TVTCIATGRVTCHJS6604 03/14/97*
00000020-F1F54BF3 F3400000 04F03D26 E3E5E340 C3C8C5C3 D2D7D6C9 D5E3C5C4 40C5E7E3 *15.33.....TVT CHECKPOINTED EXT*
00000040-C5D5E2C9 D6D54040 00000000 00000000 00000000 0000090E 00000000 C3D5C4C2 *ENSIION.....CNDB*
.
.
.
00000900-00000000 00000000 00000000 00000000 00000000 0000 *.....*

INITIALIZATION CHECKPOINT RECORD DATA - IATYOSD
00000000-00000334 D6E2C440 0000D6E2 C440F5F0 F8F14040 4040F640 40404040 4040F1D7 *...OSD...OSD.5081....6.....1P*
00000020-D9E34040 4040D7D5 40404040 4040D3C9 D5C54040 40400420 301C0800 00000000 *RT...PN.....LINE.....*
00000040-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
.
.
.
00000320-00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*

INITIALIZATION CHECKPOINT RECORD DATA - IATYSVT
00000000-00000098 E2E5E340 00000FF4 00000FC8 00007FFF 0000FFFF 00001000 00FFFFFF *...SVT...4...H.....*
00000020-55553200 00002710 00000000 FFFFFFFF 00000000 000002D6 00000000 00000000 *.....*
00000040-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00000060-00000000 00000012 01F40FCC 0001003C 00C80BB8 001F0004 00000000 00000000 *.....4.....H.....*
00000080-00000000 00000000 00000000 04000000 00000000 00485880 80000000 00000000 *.....*

INITIALIZATION CHECKPOINT RECORD DATA - IATYINT
00000000-000006F8 C9D5E340 00020000 13140490 80000000 0001001D 00002119 0003BFB8 *...8INT.....*
00000020-000204C0 000000EA 00052BD6 00030074 00000017 000009F8 00040000 00000000 *.....*
00000040-00000000 00050014 00000009 000000A0 00060000 00000000 00000000 00070027 *.....*
.
.
.
000006E0-00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*

```

Displaying output scheduling elements (OSEs) for a job

You can use the dump core command to provide diagnostic information for a job's output scheduling element (OSE) control block. When you use the dump core command and the keyword DIAG with the OPTION=(SNP=OSE) keyword, you will get a formatted display of the OSE. The formatted version of the OSE shows characteristics associated with the scheduling of SYSOUT to print devices. Using the dump core command in this way greatly reduces the manual formatting of a 'raw' OSE dumped from spool. Below is the JCL for a job that creates SYSOUT on the WTR queue, the HOLD queue, and the BDT queue. The JCL includes the //OUTPUT and //FORMAT statements.

```

//MARIOA      JOB      MSGLEVEL=(1,1),MSGCLASS=A
//OUT1        OUTPUT   MODIFY=(MODA),FORMDEF=SPRNT
//MARIOA      JOB      MSGLEVEL=(1,1),MSGCLASS=A
//OUT1        OUTPUT   MODIFY=(MODA),FORMDEF=SPRNT
//*FORMAT     PR,DDNAME=SYSUT2,MODIFY=(MODB)
//STEP1       EXEC     PGM=IEBGENER
//SYSIN       DD       DUMMY
//SYSPRINT    DD       SYSOUT=A,DEST=SAPIAPPL
//SYSUT2      DD       SYSOUT=A,DEST=SAPIAPPL
//SYSUT1      DD       *
-----
|             |
| STEP1.SYSUT2 |
|             |
-----
//STEP2       EXEC     PGM=IEBGENER
//SYSIN       DD       DUMMY
//SYSPRINT    DD       SYSOUT=(Z,SAPIUSER)
//SYSUT2      DD       SYSOUT=(Z,SAPIUSER),OUTPUT=*.OUT1
//SYSUT1      DD       *
-----
|             |
| STEP2.SYSUT2 |
|             |
-----
//STEP3       EXEC     PGM=IEBGENER
//SYSIN       DD       DUMMY
//SYSPRINT    DD       SYSOUT=0
//SYSUT2      DD       SYSOUT=A,DEST=NODE5
//SYSUT1      DD       *
-----
|             |
| STEP3.SYSUT2 |
|             |
-----
/*

```

The following dump core display is for the above job's OSE. Note that:

- 1** The first OSE variable section is marked complete (CMPLT=Y). Data sets JESMSG LG, JESJCL, and JESYSMSG were processed by device PRT002. Therefore, the data set name is not displayed.
- 2** The // *FORMAT statement exists for all OSEs created from a SYSUT2 DD statement. The // *FORMAT statement was not applied to the SYSUT2 on the HOLD queue. // *FORMAT statements are not applied to SYSOUT on the HOLD queue. Use the *MODIFY,U,NQ=WTR command to move the SYSOUT to the WTR queue to allow the system to apply the // *FORMAT statements to the SYSOUT on the HOLD queue.
- 3** The SYSUT2 data set for STEP2 has an OSE for the //OUTPUT statement and the // *FORMAT statement. When a data set is directly referenced by a //OUTPUT statement and a // *FORMAT statement, JES3 creates an OSE for both references.
- 4** FMDF=Y is set to reflect the FORMDEF specification on the //OUTPUT statement for STEP2.SYSUT. This indication suggests that at least one data set entry represented by this variable section contains a FORMDEF specification. This is also true of PAGEDEF and IPADDR.
- 5** The characteristics for SYSOUT destined for a SNA node are in the NJE data set header. The OSE does not contain this information. Consequently, SYSOUT on the BDT queue does not display SYSOUT characteristics.

Displaying Output Scheduling Elements

```
*S DC OPTION=(SNP=OSE),J=17,DIAG
***** TIME=97288.09005085
***** JOB=JOB00017 MARIOA
OSE BUFFER NO. 1 INFORMATION.
-----
VAR SEC HAS 3 DATA SETS; 3 MARKED DONE
Q=WTR CMPLT=Y SCHD=N PRTY=2 CLASS=A OUTST=N
DEST=PRT002 FORM=1PRT CARR=6 FRMT=N
TPID=none PRMD=LINE USID=+++++++
OTBN=none UCS=PN FLASH=NONE MODID=NONE
L=77 PG=0 SR=77 BY=12252
VAR SEC HAS 1 DATA SETS; 0 MARKED DONE
Q=WTR CMPLT=N SCHD=N PRTY=2 CLASS=A OUTST=N
DEST=SAPIAPPL FORM=1PRT CARR=6 FRMT=N
TPID=none PRMD=LINE USID=+++++++
OTBN=none UCS=PN FLASH=NONE MODID=NONE
STCK=C MODRC=0 IPAD=N XTKW=N FMDF=N PGDF=N
L=4 PG=0 SR=4 BY=4084
DD=.STEP1.SYSPRINT
DSN=+++++++.MARIOA.JOB00017.D0000012.?
VAR SEC HAS 1 DATA SETS; 0 MARKED DONE
Q=WTR CMPLT=N SCHD=N PRTY=2 CLASS=A OUTST=N
DEST=SAPIAPPL FORM=1PRT CARR=6 FRMT=Y
TPID=none PRMD=LINE USID=+++++++
OTBN=none UCS=PN FLASH=NONE MODID=MODB
STCK=C MODRC=0 IPAD=N XTKW=N FMDF=N PGDF=N
L=9 PG=0 SR=9 BY=4084
DD=.STEP1.SYSUT2
DSN=+++++++.MARIOA.JOB00017.D0000013.?
VAR SEC HAS 1 DATA SETS; 0 MARKED DONE
Q=HLD CMPLT=N SCHD=N PRTY=2 CLASS=Z OUTST=N
DEST=ANYLOCAL FORM=1PRT CARR=6 FRMT=N
TPID=none PRMD=LINE USID=+++++++
OTBN=none UCS=PN FLASH=NONE MODID=NONE
STCK=C MODRC=0 IPAD=N XTKW=N FMDF=N PGDF=N
WTRN=SAPIUSER TSO=N
L=4 PG=0 SR=4 BY=4084
DD=.STEP2.SYSPRINT
DSN=+++++++.MARIOA.JOB00017.D0000014.?
VAR SEC HAS 1 DATA SETS; 0 MARKED DONE
Q=HLD CMPLT=N SCHD=N PRTY=2 CLASS=Z OUTST=Y
DEST=ANYLOCAL FORM=1PRT CARR=6 FRMT=N
TPID=none PRMD=LINE USID=+++++++
OTBN=none UCS=PN FLASH=NONE MODID=MODA
STCK=C MODRC=0 IPAD=N XTKW=N FMDF=Y PGDF=N
WTRN=SAPIUSER TSO=N
L=9 PG=0 SR=9 BY=4084
DD=.STEP2.SYSUT2
DSN=+++++++.MARIOA.JOB00017.D0000015.?
```

Figure 2. Dump core display for job OSE 1 of 2

```

VAR SEC HAS 1 DATA SETS; 0 MARKED DONE           3 OSE #2
Q=HLD  CMLPT=N  SCHD=N  PRTY=2  CLASS=Z  OUTST=N
DEST=ANYLOCAL  FORM=1PRT  CARR=6  FRMT=Y
TPID=none      PRMD=LINE  USID=+++++++
OTBN=none      UCS=PN     FLASH=NONE  MODID=NONE
STCK=C  MODRC=0  IPAD=N  XTKW=N  FMDF=N  PGDF=N
WTRN=SAPIUSER  TSO=N
L=9           PG=0           SR=9           BY=4084
DD=.STEP2.SYSUT2
DSN=+++++++.MARIOA.JOB00017.D0000015.?
VAR SEC HAS 1 DATA SETS; 0 MARKED DONE           5
Q=BDT  CMLPT=N  SCHD=N  PRTY=2
BG=BDT00000  BT=SYS  BS=INACTV  SEG=JH
DD=..*SNAJBHD
DSN=+++++++.MARIOA.JOB00017.B0810002.?
*****
OSE BUFFER NO. 2 INFORMATION.
-----
VAR SEC HAS 1 DATA SETS; 0 MARKED DONE           5
Q=BDT  CMLPT=N  SCHD=N  PRTY=2
BG=BDT00000  BT=SYS  BS=INACTV  SEG=DSH
DD=..*NJEDSHD
DSN=+++++++.MARIOA.JOB00017.B0860002.?
VAR SEC HAS 1 DATA SETS; 0 MARKED DONE           5
Q=BDT  CMLPT=N  SCHD=N  PRTY=2  CLASS=  OUTST=N
DEST=NODE5    FORM=          CARR=          FRMT=Y
TPID=none     PRMD=          USID=+++++++
BG=BDT00000  BT=SYS  BS=INACTV  SEG=DS
L=9           PG=0           SR=9           BY=4084
DD=.STEP3.SYSUT2
DSN=+++++++.MARIOA.JOB00017.D0000017.?
VAR SEC HAS 1 DATA SETS; 0 MARKED DONE           5
Q=BDT  CMLPT=N  SCHD=N  PRTY=2
BG=BDT00000  BT=SYS  BS=INACTV  SEG=JT
DD=..*SNAJBTR
DSN=+++++++.MARIOA.JOB00017.B09B0002.?
*****
*IAT7921 ISSUE START/CANCEL/RESTART DC REQUEST
    
```

Figure 3. Dump core display for job OSE

If you omit the DIAG keyword from the dump core command when displaying the OSE, JES3 displays the 'raw' OSE. Additional information is displayed during this processing. If an OUTPUT statement exists for a data set, the 'raw' scheduler work block (SWB) information is displayed following the OSE data set section it represents. If the 'raw' OSE was displayed for the above job, the OUTPUT statement information would be displayed following the display of the OSE data set section for STEP1.SYSUT2. This SWB information is shown below:

```

OUTPUT  00000000  E2D1D7C6 021C001C D6E4E3D7 E4E34040
D6E4E3F1 40404040 00000000 00160001 *SJPF...OUTPUT  OUT1  ....*
SWBTU   00000020  0004D4D6 C4C10017 00010000 001D0001
0006E2D7 D9D5E340          *..MODA.....SPRNT      *
    
```

Displaying Single Track Table (STT) Information

The single track table (STT) is used to allocate spool space to system related control blocks. Its purpose is to be economical with spool space by allocating only one record at a time instead of an entire track group.

The STT contains the following information:

- DJC net control blocks
- Checkpoint records for:
 - Main Device Scheduler (MDS)
 - Generalized Main Scheduling (GMS)

Displaying Single Track Table Information

- Locate
- Dynamic allocation
- Volume unavailable table
- Online devices
- FSS status
- Deadline control blocks
- JESNEWS
- Control blocks for DSP's invoked through the *CALL command
- JOB0 control blocks (for example, JDS and OSE)

The STT is defined using the STT or STTL parameters on the FORMAT and TRACK statements. These parameters allow you to control which spool data sets contain the STT. The STT that is allocated using the FORMAT and TRACK statements is called the preallocated or primary STT. If the preallocated STT fills up, JES3 gets a track group from the default partition and creates an expansion STT. When an expansion STT is created, it is never deleted. Therefore, if you want to control which spool data sets contain STT information, you should define the preallocated STT large enough so that it never expands. See *z/OS JES3 Initialization and Tuning Reference* for more information on allocating the STT.

You can use dump core to display STT information. This is useful for determining which spool records reside on a spool data set that will be replaced or deleted, and for displaying information for diagnostic purposes. The information in the STT can be displayed in one of the following ways:

- *S,DC,OPTION=STT - Formats the spool address and control block identifier associated with each allocated spool record. If the spool record does not have a valid IATYSRF format, the first X'80' bytes of the record will be formatted.
- *S,DC,OPTION=(STT=ALL) - Formats the spool address and control block identifier and also dumps the entire spool record.
- *S,DC,OPTION=(STT=nnnn) - Formats the spool address and control block identifier and also dumps *nnnn* hex bytes of the spool record.
- *S,DC,OPTION=(STT='id') - Formats those spool records in the STT that contain the specified control block identifier. The entire spool record is formatted. The control block identifier must be four characters or less.

Note: When a spool record in the STT is displayed, only the non-zero portion of the spool record is displayed. For example, if a spool record contains zeros starting at offset X'100' into the record, and you request that X'200' be dumped, only X'100' bytes will be dumped.

The following is an example of the output that is produced when the *S,DC,OPTION=STT command is issued:

Displaying Single Track Table Information

```
STT SEGMENT: SPOOL1    TOTAL = 00024  AVAIL = 00007
SPOOL RECORD: 0002.0000129D - UNKNOWN
00000000-00020000 129D0000 D1C2E340 00000000 *......JBT ....*
00000010-00000000 00000000 00000000 00020000 *......*
00000020-129D0044 00000299 005C0004 00000000 *......r.*.....*
00000030-5CA2A3A3 0518AAE8 00000000 00000000 **stt...Y.....*
00000040-00000000 00020000 01070002 00000108 *......*
00000050-00020000 01000002 000000F5 *......5 *
```

```
SPOOL RECORD: 0002.0000129E - SMR
SPOOL RECORD: 0002.0000129F - SMR
SPOOL RECORD: 0002.000012A0 - JMR
SPOOL RECORD: 0002.000012A1 - JMR
SPOOL RECORD: 0002.000012A2 - JDAB
SPOOL RECORD: 0002.000012A3 - CSB
SPOOL RECORD: 0002.000012A4 - JMR
SPOOL RECORD: 0002.000012A5 - JDAB
SPOOL RECORD: 0002.000012A9 - DYN
SPOOL RECORD: 0002.000012AA - DDC
SPOOL RECORD: 0002.000012AB - VUT
SPOOL RECORD: 0002.000012AC - OCK
SPOOL RECORD: 0002.000012AD - OCK
SPOOL RECORD: 0002.000012AE - OCK
SPOOL RECORD: 0002.000012AF - OCK
SPOOL RECORD: 0002.000012B0 - LCP
```

```
STT SEGMENT: SPOOL1    TOTAL = 00012  AVAIL = 00000  DYNAMIC
```

```
SPOOL RECORD: 0002.00001249 - GMS
SPOOL RECORD: 0002.0000124A - JDS
SPOOL RECORD: 0002.0000124B - OSE
SPOOL RECORD: 0002.0000124C - JDAB
SPOOL RECORD: 0002.0000124D - OSC
SPOOL RECORD: 0002.0000124E - CSB
SPOOL RECORD: 0002.0000124F - JMR
SPOOL RECORD: 0002.00001250 - JDAB
```

```
.
.
.
```

```
IAT7921 ISSUE START/CANCEL/RESTART DC REQUEST
```

The following is an example of the output that is produced when the *S,DC,OPTION=(STT=10) command is issued:

```
STT SEGMENT: SPOOL1    TOTAL = 00024  AVAIL = 00000
SPOOL RECORD: 0002.0000129D - UNKNOWN
00000000-00020000 129D0000 D1C2E340 00000000 *......JBT ....*

SPOOL RECORD: 0002.0000129E - SMR
00000000-00020000 129E0000 E2D4D940 00000000 *......SMR ....*

SPOOL RECORD: 0002.0000129F - SMR
00000000-00020000 129F0000 E2D4D940 00020000 *......SMR ....*

SPOOL RECORD: 0002.000012A0 - GMS
00000000-00020000 12A00006 C7D4E240 00000000 *......GMS ....*
.
.
.
IAT7921 ISSUE START/CANCEL/RESTART DC REQUEST
```

The following is an example of the output that is produced when the *S,DC,OPTION=(STT='OSE') command is issued:

Displaying Single Track Table Information

```
STT SEGMENT: SPOOL1    TOTAL = 00024  AVAIL = 00000
STT SEGMENT: SPOOL1    TOTAL = 00012  AVAIL = 00004  DYNAMIC

SPOOL RECORD: 0002.0000124B - OSE
00000000-00020000 124B0001 D6E2C540 00000000 *......OSE ....*
00000010-00000000 00000000 5CA2A3A3 00600060 *......*stt.--*
00000020-00000000 00000000 00000000 00000000 *......*
00000030-00000000 00000000 00000000 00000000 *......*
00000040-00000000 00000000 00000000 00000000 *......*
00000050-00000000 00000000 00000000 00000000 *......*
00000060-FFFFFFFF *......*
IAT7921 ISSUE START/CANCEL/RESTART DC REQUEST
```

Displaying contents of a spool record

When diagnosing problems, it may be useful to view the contents of a spool record. You can use dump core to dump the spool record having a spool address of *mmmm.rrrrrrr* by issuing the following command:

***S,DC,SPADDR=mmmm.rrrrrrr**

- The *mmmm* portion of the spool address is the spool extent address number (module) where the record resides.
- The *rrrrrrrr* portion of the spool address is the spool record number within the spool extent.

To display the contents of storage, the KEY=password must first be specified when issuing the *CALL command for the function. The following is an example of the output that is produced when you issue *S,DC,SPADDR=0002.0000124B:

```
SPOOL RECORD: 0002.0000124B
00000000-00020000 124B0001 D6E2C540 00000000 *......OSE ....*
00000010-00000000 00000000 5CA2A3A3 00600060 *......*stt.--*
00000020-00000000 00000000 00000000 00000000 *......*
00000030-00000000 00000000 00000000 00000000 *......*
00000040-00000000 00000000 00000000 00000000 *......*
00000050-00000000 00000000 00000000 00000000 *......*
00000060-FFFFFFFF *......*
IAT7921 ISSUE START/CANCEL/RESTART DC REQUEST
```

Note: When a spool record is displayed, only the non-zero portion of the spool record is displayed. For example, if a spool record contains zeros starting at offset X'100' into the record, and you request that X'200' be dumped, only X'100' bytes will be dumped.

Format of trace tables and JES3 diagnostic facilities

The following sections describe the format of trace tables and JES3 diagnostic facilities.

Format of a JES3 event trace table

The JES3 event tracing facility allows the system programmer to obtain diagnostic information pertinent to a JES3 system failure. The information appears in the JES3 abend dump each time an abend dump is displayed. In addition, the operator can also request that the information be displayed on the console.

JES3 uses up to four separate trace tables that are merged during abend formatting:

- EVENT

- NUCPATH
- AUXPATH
- DSPACE

The DSPACE is activated by the `*MODIFY,E,START= tracename` command. An IBM Service Representative may ask you to activate the trace when additional tracing information is required.

The DSPACE trace requires:

- Sufficient paging space allocated to hold all the data space pages. The default size of the data space is 10 megabytes.
- Sufficient amount of space in your dump data sets (if those data sets are pre-allocated).

The trace is deactivated when the `*MODIFY,E,STOP= tracename` command is entered or when JES3 is stopped.

You can request that a subset of tables be used for formatting by specifying the TABLE keyword on the IPCS VERBX JES3 command. For example:

```
VERBX JES3 'OPTION=TRC, TABLE=(EVENT,NUCPATH)'
```

You can also limit the trace format to specific identifiers. For example:

```
VERBX JES3 'OPTION=TRC, ID=(37,38,39)'
```

The trace table can contain one or more entries. Each entry represents an event that occurred in the address space. There is a unique identifier assigned to each JES3 event. JES3 traces all events, however, the installation can control the events that are traced through the use of modify commands. For additional information on the commands used to trace events see *z/OS JES3 Commands*.

Each entry contains a header that may be followed by additional information, such as the contents of the registers at the time of the trace or data in a work area. The header for an entry contains at least the following information:

- The FCT that was active when the trace was taken
- A descriptor that identifies the function being traced
- The name of the module that issued the trace request
- The address of the active FCT
- A time stamp
- A identification number
- The address of the task control block (TCB)

The C/I FSS address space has its own trace table in private area subpool 230 managed by a copy of module IATGRTX loaded into the FSS address space. When formatting a C/I FSS address space, the events that occurred in the C/I FSS address space are traced.

Additionally, all FSS address spaces (both C/I and WTR) have a private FSS trace table, which is contained in load module IATFCTR. These traces cannot be affected by the *FE command.

For each trace id, Table 4 on page 46 provides:

- The module that issues the IATXTRC macro to record the event

JES3 Event Trace Table

- A description of the event
- Information in the entry other than the header for the entry

Table 4. JES3 Trace Events

Trace ID	Module of origin	Description of Trace Origin (function)	Additional data (by word number)
1	IATGRITX	*F E,TRAP=nnnnnn and location nnnnnn has been reached	None
24	IATDMNC	ZEROCORE	1: Return address 2: Address of entry point 3: Address area 4: Count
25	IATDMGB	I/O completion	1: Address of data queue element
26	IATDMGB	USAM track allocation	1: Address of staging area
27	IATDMDT	MOVEDATA	1: Return address 2: TO address 3: FROM address 4: Count
28	IATGRSV	Entry to ASAVE (CALL)	1: Register 13 from calling routine 2: Return address 3: Entry point to called routine 4: Register 0 5: Register 1 6-16: Registers 2-12 from calling routine (register 10 is caller's base)
29	IATGRSV	Exit from ASAVE (RETURN)	1: Address of save area from pool 2: Return address to calling routine (based on return code) 3: Register 15 from called routine 4: Register 0 from called routine 5: Register 1 from called routine 6-16: Registers 2-12 of the calling routine
30	IATGRCT	Ready DSP dispatched by MFM	1: Posted ECF address 2: Posted ECF content
32	IATSIEM	End-of-memory call	1-7: Registers 2-8 8: Address of SSVT 9-35: SEL data, starting at label SELSEC1
37	IATGRCT	IATXELA macro	1: Register 14 - return address 2: Register 15 - entry point of the routine 3: Register 0 - address of ECF 4: Register 1 - ECF mask 5: Register 2 - address of ECF list control block (IATYELB)

Table 4. JES3 Trace Events (continued)

Trace ID	Module of origin	Description of Trace Origin (function)	Additional data (by word number)
38	IATGRCT	IATXELD macro	1: Register 14 - return address 2: Register 15 - entry point of the routine 3: Register 0 - relative position number of ECF entry 4: Register 1 - address of ECF list control block (IATYELB)
39	IATGRCT	IATXELS macro	1: Register 14 - return address 2: Register 15 - entry point of the routine 3: Register 0 - relative position number of ECF entry 4: Register 1 - address of ECF list control block (IATYELB)
40	IATDMNC	IATXIOX macro	1: Register 14 - Return address 2: Register 15 - Entry point address 3: Dump code 4: Reason code 5: Control block identifier 6: FDB address

JES3 Event Trace Table

Table 4. JES3 Trace Events (continued)

Trace ID	Module of origin	Description of Trace Origin (function)	Additional data (by word number)
41	IATMSMS	Determine which initiators to stop	(No additional data defined for IDs 41 through 58)
42	IATMSMS	Staging area purge (SSISERV)	
43	IATMSMS	JOB select for a task which has been started	
44	IATMSMS	End of job step task (EOT)	
45	IATMSJT	End of job (EOJ)	
46	IATMSMS	End of initiator (EOM)	
47	IATMSMS	VS initiator request that job be reenqueued	
49	IATMSMS	Determine number of initiators to start or the number to start for a group	
50	IATMSMS	Checkpoint GMS data in MPCPROC	
51	IATMSMS	RESQUEUE add	
52	IATMSMS	Logical storage update	
53	IATMSMS	ECF posted for error recovery	
54	IATMSMS	Inspect job select queue element	
55	IATMSMC	Job flush (*S,main,FLUSH command or job IPLed off main)	
56	IATMSMS	Cannot start initiator	
57	IATMSMS	Out-of-tracks conditions for GMS	
58	IATMSMS	End of job (EOJ) or end of initiator (EOM) during job select	
60	IATABMN	JES3 ESTAE routine entered	
61	IATABRT	Entry to JESTAE exit routine	1: Address of JESTAE exit routine 2: Address of FSWA

Table 4. JES3 Trace Events (continued)

Trace ID	Module of origin	Description of Trace Origin (function)	Additional data (by word number)
62	IATABRT	Exit from JESTAE exit routine	1: Return code from JESTAE exit routine 2: Address of JESTAE retry routine if return code is 4
63	IATDMGB	I/O error	None
65	IATRJM6	Event on RJP line	1: Identifier of event type (see "RJP Debugging Aids") 2: Action taken 3-4: Line name 5: Register 0 6: Register 1 7: Register 2 8: Register 3 9: Register 4
66	IATDMNC	JES3 file directory FIND routine	1: Return address 2: Entry address 3: TAT FDB address 4: FDB address
67	IATDMNC	JES3 file directory ADD routine	1: Return address 2: FD entry address 3: TAT FDB address 4: FDB address
68	IATDMNC	JES3 file directory DELETE routine	1: Return address 2: Address of entry point of function 3: Address of FDB 4: Address of file directory entry
69	IATGRCT	Multifunction Monitor (AWAIT)	1: Address of ECF 2: ECF mask (If this is the list form of AWAIT, the above two words are repeated for each entry in the list)
71	IATDMJA	JDS access routine for user data set allocation	1: Return address 2: Address of staging area
72	Many MDS modules	MDS trace record from the module indicated within the record	Variable number of words, in EBCDIC
75	IATFCxx IATFPxx IATSICD	FSS trace record from the module indicated within the trace record.	See "Functional Subsystem (FSS) Address Space Trace Output" in <i>z/OS JES3 Diagnosis</i> for a description of the FSS trace records. Note: This ID will appear in the JES3 FSS formatted trace.

JES3 Event Trace Table

Table 4. JES3 Trace Events (continued)

Trace ID	Module of origin	Description of Trace Origin (function)	Additional data (by word number)
76	IATOSENF	Indicates an ENF signal was issued	<p>1: Register 2 - ENF exit routine address</p> <p>2: Register 3 - Work register</p> <p>3: Register 4 - Address of the caller's parameter list</p> <p>4: Register 5 - Work area address</p> <p>5: Register 6 - Work register</p> <p>6: Register 7 - Work register</p> <p>7: Register 8 - Return code from the ENFREQ macro</p> <p>8: Register 9 - Work register</p>
77	IATCNNF	Indicates an ENF signal was received by JES3 from MCS.	<p>1: Qualifier code</p>
78	IATMDxx	Indicates the status of an SMS-managed volume has changed	
79	IATCNDxx	DLOG event	Variable, see macro IATYDTR
80	IATGRCT	IATXSTMD (Setmode)	<p>1: Contains following, Byte 0 - the option byte from R0 at entry to setmode. The high order bit of this byte indicates the task mode requested. 1 indicates IATAUX task mode. 0 indicates IATNUC task mode. Byte 1 - FCTMODE field at entry to setmode Byte 2 - TVTATFLG field at entry to setmode Byte 3 - unused</p> <p>2: Return address</p>
81	IATMOTR	The traced parameters of the *F/E command are: ON OFF EXEL=RESET EXCL=id	<p>1-3: Contains parameters (in hexadecimal) from the *F/E command</p>
82	IATOSPD	Indicates that a PSO staging area has been received by the PSO DSP	<p>1: RESQUEUE address</p> <p>2: SSOB header address</p> <p>3: WSP address</p> <p>4: Staging area address</p>
83	IATOSSD	Indicates that a SYSOUT application program interface staging area has been received by the SYSOUT application program interface DSP	<p>1: Checkpoint job's RESQUEUE address or zero</p> <p>2: SSOB header address</p> <p>3: COW address</p> <p>4: Staging area address</p>

Table 4. JES3 Trace Events (continued)

Trace ID	Module of origin	Description of Trace Origin (function)	Additional data (by word number)
84	IATDJSV	DJ server address space events	<p>1-8 Registers 2-9</p> <p>9-10: "IATDJSV"</p> <p>11-12: Event Type:</p> <ul style="list-style-type: none"> • DYNALLOC - Dynamic allocation request has completed. • WAKEUP - DJ address space has been posted to process a request. • OPEN - Open request has completed. • CLOSE - Close request has completed. • EOVS - End of volume (EOV) request has completed. • EXCP - Execute channel program (EXCP) has completed. • RETURN - Server address space has been told to terminate by JES3. • EXIT - Server address space is terminating; this will occur as a result of a RETURN request or when the server address space determines that JES3 is down. • JES3DOWN - The timer exit has determined that JES3 is down. <p>13: DJ server job id</p> <p>14: ASCB address</p> <p>15: DJ FCT address</p> <p>WAKEUP Requests</p> <p>16: Function code from the ECB</p> <p>DYNALLOC Requests</p> <p>16: SVC 99 request block address</p> <p>17: DYNALLOC return code</p> <p>18: Bytes 1-2: DYNALLOC error reason code. Bytes 3-4: DYNALLOC information reason code</p> <p>OPEN Requests</p> <p>16: DCB address</p> <p>17: OPEN return code</p> <p>18: First four bytes of current volser</p> <p>19: Bytes 1-2: last two bytes of current volser. Bytes 3-4: zero</p> <p>CLOSE Requests</p> <p>16: DCB address</p> <p>17: CLOSE return code</p> <p>EOV Requests</p> <p>16: DCB address</p> <p>17: EOV return code</p> <p>18: First four bytes of current volser</p> <p>19: Bytes 1-2: last two bytes of current volser. Bytes 3-4: zero</p>

JES3 Event Trace Table

Table 4. JES3 Trace Events (continued)

Trace ID	Module of origin	Description of Trace Origin (function)	Additional data (by word number)
84 cont.	IATDJSV	DJ server address space events.	<p>EXCP Requests</p> <p>16: IOB address</p> <p>17: I/O completion ECB contents</p> <p>18: Byte 1: IOBFLAG1. Byte 2: IOBSENS0. Byte 3: IOBSENS1. Byte 4: zero</p> <p>19: First four bytes of CSW</p> <p>20: Bytes 1–3: last three bytes of CSW. Byte 4: zero.</p> <p>JES3DOWN Requests</p> <p>16–17: Set to POST if the server address space was posted for termination. Set to CANCEL if the server address space was cancelled.</p> <p>For RETURN and EXIT requests, there is no additional information</p>
85	IATGRENF	Indicates an ENF signal was issued	<p>1: Register 2 - work register</p> <p>2: Register 3 - work register</p> <p>3: Register 4 - address of the caller's parameter list (GREXPRML)</p> <p>4: Register 5 - address of GRENFSIG Routine Work Area (GRENWKAR)</p> <p>5: Register 6 - SVT address</p> <p>6: Register 7 - work register</p> <p>7: Register 8 - return code from the ENFREQ macro call</p> <p>8: Register 9 - IATGRENF Subtask Work Area (SWRKTASK)</p>
105	IATDMNC	Traced JSAM buffer contents on SRF mismatch for a JESREAD ABEND DM704, RC X'14'.	<p>1: Register 2 - work register</p> <p>2: Register 3 - return code</p> <p>3: Register 4 - FDB address</p> <p>4: Register 5 - JQX address</p> <p>5: Register 6 - return address</p> <p>6: Register 7 - SRF identifier</p> <p>7: Register 8 - buffer address</p> <p>8: Register 9 - work register</p> <p>9-488 or 1023: Failing buffer contents</p>
107	IATGRQC	Error exit from IATXGCL	<p>1-8: Registers 2-9 for IATGRQC</p> <p>9-13: Caller's registers 2-7</p> <p>14: Caller's register 10</p> <p>15: Primary CPB address from the caller</p> <p>16: Return code from IATXGCL</p> <p>17: Return address</p>

Table 4. JES3 Trace Events (continued)

Trace ID	Module of origin	Description of Trace Origin (function)	Additional data (by word number)
108	IATDMNC	A MRF was read from spool using the ADEBLOCK, APOINT, AOPEND or ABACKR macros. The VALID in the spool buffer did not match the VALID in the file directory entry. JES3 issued an abend code of DM722.	<p>1: Register 2-buffer address</p> <p>2: Register 3-FD entry address</p> <p>3: Register 4-FDB address</p> <p>4: Register 5</p> <p>5: Register 6</p> <p>6: Register 7</p> <p>7: Register 8-</p> <p>8: Register 9</p> <p>9-488: Failing buffer contents</p>
109	IATGRQC	Error exit from IATXRCL	<p>1-8: Registers 2-9 for IATGRQC</p> <p>9-13: Caller's registers 2-7</p> <p>14: Caller's register 10</p> <p>15: Primary CPB address from the caller</p> <p>16: Return code from IATXRCL</p> <p>17: Return address</p> <p>18: Cell address to be released</p>
120	IATDMTK	Track allocation	<p>1: X from X.G</p> <p>2: G from X.G</p> <p>3: VALID from the TAT</p> <p>4: Slot address from VALID array</p> <p>5: The RQ address from FCTRQAD</p> <p>6: Job number from RQ</p> <p>7: DSP dict. address</p> <p>8-12: ASAVE return for the last 5 ACALLS</p> <p>Identifier 120 is present only when the SAT trace has been activated via the *F,E,START=SAT command.</p>
121	IATDMTK	Track allocation	<p>1: X from X.G</p> <p>2: G from X.G</p> <p>3: VALID from the TAT</p> <p>4: Slot address from VALID array</p> <p>5: The RQ address from FCTRQAD</p> <p>6: Job number from RQ</p> <p>7: DSP dictionary address</p> <p>8-12: ASAVE return for the last 5 ACALLS</p> <p>Identifier 121 is present only when the SAT trace has been activated via the *F,E,START=SAT command.</p>

JES3 Event Trace Table

Table 4. JES3 Trace Events (continued)

Trace ID	Module of origin	Description of Trace Origin (function)	Additional data (by word number)
128	IATGRSV	Entry to ASAVE (CALL in 64-bit mode)	<p>1: Register 13 from calling routine</p> <p>3: Return address</p> <p>5: Entry point to called routine</p> <p>7: Register 0</p> <p>9: Register 1</p> <p>11-32: Registers 2-12 from calling routine (register 10 is caller's base)</p>
129	IATGRSV	Entry to ASAVE (RETURN in 64-bit mode)	<p>1: Address of save area from pool</p> <p>3: Return address to calling routine (based on return code)</p> <p>5: Register 15 from called routine</p> <p>7: Register 0 from called routine</p> <p>9: Register 1 from called routine</p> <p>11-32: Registers 2-12 of the calling routine</p>
130	IATGRSV	Entry to ASAVE (CALL in AR mode)	<p>1: Register 13 from calling routine</p> <p>2: Return address</p> <p>3: Entry point to called routine</p> <p>4: Register 0</p> <p>5: Register 1</p> <p>6-16: Registers 2-12 from calling routine (register 10 is caller's base)</p> <p>17-32: Corresponding Access registers AR13-AR12</p>
131	IATGRSV	Exit from ASAVE (RETURN in AR mode)	<p>1: Address of save area from pool</p> <p>2: Return address to calling routine (based on return code)</p> <p>3: Register 15 from called routine</p> <p>4: Register 0 from called routine</p> <p>5: Register 1 from called routine</p> <p>6-16: Registers 2-12 of the calling routine</p> <p>17-32: Corresponding Access registers AR13-AR12</p>
132	IATGRSV	Exit from ASAVE (CALL in 64-bit and AR mode)	<p>1: Register 13 from calling routine</p> <p>3: Return address</p> <p>5: Entry point to called routine</p> <p>7: Register 0</p> <p>9: Register 1</p> <p>11-32: Registers 2-12 from calling routine (register 10 is caller's base)</p> <p>33-48: Corresponding Access registers AR13-AR12</p>

Table 4. JES3 Trace Events (continued)

Trace ID	Module of origin	Description of Trace Origin (function)	Additional data (by word number)
133	IATGRSV	Exit from ASAVE (RETURN in 64-bit and AR mode)	<p>1: Address of save area from pool</p> <p>3: Return address to calling routine (based on return code)</p> <p>5: Register 15 from called routine</p> <p>7: Register 0 from called routine</p> <p>9: Register 1 from called routine</p> <p>33-48: Corresponding Access registers AR13-AR12</p>
3000-4005		Available to installations	

Format of a JES3 trace entry

Figure 4 on page 56 illustrates the format of a JES3 event trace table found in a formatted dump.

JES3 Event Trace Table

```

*** JES3 TRACE (MOST RECENT ENTRY FIRST) ***
ALL TRACE IDS ARE ENABLED
BRAVO  TYP=RETURN  MOD=IATGRSV  FCT=02ADD6B0  TOD=222552-277582  ID=0029  TCB=007FF190  IATABM+008A4  TODX=C2C9539D1084E896
0274A738 000118A4 027197C0 0000258F 80011888 027197C0
BRAVO  TYP=CALL    MOD=IATGRSV  FCT=02ADD6B0  TOD=222552-277492  ID=0028  TCB=007FF190  ATIME          TODX=C2C9539D107F4796
007E6910 800118A4 027197C0 00000010 80011888 82749E00 00012290 007E6290
007E6528 00000000 00000000 00013810 0001208E 8001108E 02ADD6B0 02701000
BRAVO  TYP=ESTAE   MOD=IATABMN  FCT=02ADD6B0  TOD=222544-227713  ID=0060  TCB=007FF190          TODX=C2C9539563381A16
-----
00000010 007E6290 071C0000 82ADD7B6 840C1000 80060001 40040001 00000502
02ADD6B0 00000000 00000258 7F56200C 0000000B 02ADC0C8 02689506 02B928D8
02AC8200 02AD5DA8 0268A000 02ADA0C8 02ADD6B0 02701000 02ADB0C8 02ADD7B0
027191BE
BRAVO  TYP=RETURN  MOD=IATGRSV  FCT=02ADD6B0  TOD=222544-227672  ID=0029  TCB=007FF190  EP-NFND          TODX=C2C9539563358896
0274A738 82ADD7B0 027191BE 00000000 00000258 00012800
BRAVO  TYP=CALL    MOD=IATGRSV  FCT=02ADD6B0  TOD=222544-227644  ID=0028  TCB=007FF190  FAILDSP          TODX=C2C953956333CE96
02ADB0C8 82ADCE1E 00012800 02ADD6B0 00000258 7F56200C 0000000B 02ADC0C8
02689506 02B928D8 02AC8200 02AD5DA8 0268A000 02ADA0C8 02ADD6B0 02701000
BRAVO  TYP=RETURN  MOD=IATGRSV  FCT=02ADD6B0  TOD=222536-535395  ID=0029  TCB=007FF190  IATSMS+00B58  TODX=C2C9538E0D363A96
0274A738 02ADAC20 0000000C 000002D1 02701000 02716508
BRAVO  TYP=RETURN  MOD=IATGRSV  FCT=02ADD6B0  TOD=222536-535370  ID=0029  TCB=007FF190  IATDMTK+009AE  TODX=C2C9538E0D34A896
02C4EC08 0271654E 00000004 000002D1 02701000 02716A90
BRAVO  TYP=RETURN  MOD=IATGRSV  FCT=02ADD6B0  TOD=222536-535365  ID=0029  TCB=007FF190  IATDMTK+00EFE  TODX=C2C9538E0D345D16
02CE0210 02716A9E 00000000 7F6C300C 02B92948 02713DC8
BRAVO  TYP=DISPATCH MOD=IATGRCT  FCT=02ADD6B0  TOD=222536-533062  ID=0030  TCB=007FF190          TODX=C2C9538E0CA46216
02701B4E 000000FF
CONSDM TYP=AWAIT   MOD=IATGRCT  FCT=02727268  TOD=222536-533018  ID=0069  TCB=007FF190          TODX=C2C9538E0CA1A996
7F5460F5 00000040
CONSDM TYP=RETURN  MOD=IATGRSV  FCT=02727268  TOD=222536-532991  ID=0029  TCB=007FF190  IATDMNC+00D46  TODX=C2C9538E0C9FF796
02C177E8 02713CA6 02714354 02B92948 7F5460E8 027138D6
CONSDM TYP=RETURN  MOD=IATGRSV  FCT=02727268  TOD=222526-901439  ID=0029  TCB=007FF190  IATDMNC+009D4  TODX=C2C95384DD2BF816
02C4E4D0 02713934 02714354 02B92948 7F5460E8 02714354
CONSDM TYP=CALL    MOD=IATGRSV  FCT=02727268  TOD=222526-901400  ID=0028  TCB=007FF190  DISKIO          TODX=C2C95384DD298F16
027027A0 82713934 02714354 7F53900C 7F5460E8 7F51F00C 0275CDE8 7F5460E8
00000000 00000000 7F5460E8 0003A300 00000042 027138D6 02727268 02701000
CONSDM TYP=FD-FIND  MOD=IATDMNC  FCT=02727268  TOD=222526-901354  ID=0066  TCB=007FF190          TODX=C2C95384DD26AB96
827138E0 02715006 7F53900C 7F5460E8
CONSDM TYP=CALL    MOD=IATGRSV  FCT=02727268  TOD=222526-901353  ID=0028  TCB=007FF190  OUTPUT          TODX=C2C95384DD269216
027027A0 82713CA2 027138D6 7F53900C 7F5460E8 7F53900C 0275CDE8 7F5460E8
00000000 00000000 7F5460E8 0003A300 00000042 82713B00 02727268 02701000

```

Figure 4. Format of a JES3 Event Trace Table

***JES3 TRACE is the information in the JES3 trace table. The first line following this heading may be one of the following:

- ALL TRACE IDS ARE ENABLED
This is the default JES3 takes when the installation has not selected specific trace ids. JES3 creates an entry for all events that occur in the address space.
- ALL TRACE IDS ARE DISABLED
This indicates the installation turned off the tracing facility. JES3 will not create any entries for the trace table.
- THE FOLLOWING TRACE IDS ARE ENABLED: 0044 0045 0047
The installation selected the specified trace ids using the modify commands. See *z/OS JES3 Commands* for more information on the commands.

name - is a DSP name (for example, CONSOLES) for the FCT that is active at the time of trace.

TYP=cccccc - is a one- to eight-character descriptor of the JES3 function being traced.

MOD=cccccc - is the name of the module in which the trace originated.

FCT=hhhhhhh - is a 6-digit hexadecimal address. This can be an MPC address, but is typically the FCT address.

TOD=dddddd-dddddd - is the time of day, expressed as "hours, minutes, seconds-fraction". The fraction is a decimal fraction of a second down to one millionth of a second.

ID=dddd - is the trace identification number extracted from the IATXTRC macro.

TCB=hhhhhhh - is the address of the TCB under which the trace entry is made for either the primary task or the auxiliary task. In the case of trace entries created under SRBs, the TCB address will be formatted as TCB=N/A.

cccccc - is the symbolic name of a called routine or (for RETURN) the symbolic location of the caller. The CALL/RETURN sequence occurs each time ASAVE (register save) is used, since it is in most JES3 macro calls. The symbolic name is either the name of the actual routine being entered or the name of a module plus offset.

TODX=xxxxxxxxxxxxxxxx - is the time of day, expressed as an 8-byte hexadecimal quantity in STCK (Store Clock) format.

Up to 128 words of data as specified in IATXTRC may follow. See Table 4 on page 46 for descriptions of individual trace events.

(Not shown) - EBCDIC translation of user data for some types of entries.

Note: Serialization logic is implemented for the trace function in order to prevent concurrent entry to the routine. As a result of this serialization, some trace entries may be lost.

TRACE FORMAT COMPLETE dd contains a code (dd) that shows what happened when tracing was attempted:

Code	Explanation
00	The TVT could not be found.
01	There was a problem entering one of the trace pointers.
02	The last trace entry was invalid, or there were no entries.
03	Unassigned.
04	A trace entry address is for a location before the start of the trace table, or the entry is otherwise inaccessible.
05	A trace entry address is for a location beyond the end of the trace table, or the entry is otherwise inaccessible.
06	The address of the previous trace entry is invalid.

JES3 Event Trace Table

- 07 A trace entry was found in the table, but the entry had an invalid ID.
- 08 A specific trace entry could not be found.
- 09 The last entry in the trace table was processed. (Normal completion.)

Format of a Functional Subsystem (FSS) Address Space Trace Table

Information about the events that occurred in a C/I or writer FSS address space provides FSS trace output. The events are recorded in an FSS trace table in the private area. Each FSS and FSA maintains its own trace table to record events that occur within that particular FSS or FSA.

The trace table from an FSS address space is obtained when a dump of the address space is taken. The trace output is located in the MVS portion of a dump.

JES3 defines the size of the FSS trace table that contains the trace output. The FSS trace table contains a limited number of entries. When the number of entries in the table exceeds the size of the table, JES3 starts placing entries at the beginning of the table and continues to replace the entries with new trace entries. The FSS trace table provides the installation with the addresses of several trace entries in the FSS trace output. These addresses define the size and bounds of the FSS trace table and identify the last entry that was recorded.

Entries are added to the FSS trace table when a IATXTRC macro with an identifier of 75 is issued. A trace identifier of 75 invokes the FSS trace routine IATFCTR. The events that an FSS address space records in the FSS trace table are:

- Connect and disconnect FSI functions, if the trace routine is available.
- FSS-to-JES3 FSI functions after the function has completed. The FSS to JES3 FSI functions are:
 - GETDS
 - GETREC
 - FREEREC
 - RELDS
 - CHKPT
 - SEND
- JES3-to-FSS FSI functions after the interface routine has finished processing the request. The JES3-to-FSS FSI functions are:
 - ORDER
 - POST
- Errors detected by a service routine that does not generate a DFB abend.
- Initialization, non-abend error conditions, termination, and entry to an ESTAE routine for each of the JES3-created asynchronous tasks in the FSS address space. See Table 5 on page 60 which identifies the asynchronous tasks in an FSS address space that are traced.

Format of an FSS Trace Entry

Figure 5 on page 59 illustrates the format of an FSS trace table found in a formatted dump.

```
TRACE TABLE FOR DEVICE: ATD13000
```

```
TYP=FSSTRACE MOD=SEE TEXT R11=000B58F8 TOD=131207-250717 ID=0075 TCB=006D0E88
```

```
006EEF10 006F01A0 006EFF60 8933D61A 09309420 00000000 00BE8B10 03FA1000 -----0-----
C9C1E3C6 C3D3E340 C4C5D840 E2D9D340 IATFCLT-DEQ-SRL-----
```

```
TYP=FSSTRACE MOD=SEE TEXT R11=000B58F8 TOD=094254-810564 ID=0075 TCB=006D0E88
```

```
006EEF10 006F01A0 006EFFD0 8933D61A 09309420 00000000 00BE8B10 03FA1000 -----0-----
C9C1E3C6 C3D7E340 D7D6E2E3 40404040 00000024 00000002 00050001 00000000 IATFCPT-POST-----
00000000 00000000 80000000 0000AAD8 00000000 -----Q-----
```

```
TYP=FSSTRACE MOD=SEE TEXT R11=000B58F8 TOD=094254-810279 ID=0075 TCB=006D0E88
```

```
006EEF10 006F01A0 006EFFD0 8933D61A 09309420 00000000 00BE8B10 03FA1000 -----0-----
C9C1E3C6 C3D3E340 C4C5D840 E2D9D340 IATFCLT-DEQ-SRL-----
```

```
TYP=FSSTRACE MOD=SEE TEXT R11=006F0178 TOD=093957-460796 ID=0075 TCB=006D7100
```

```
006F03E0 006F01A0 7F759918 00BE8B10 006F0458 000AB9E0 00000444 09374EE8 -----Y
C9C1E3C6 D7C7C440 C7C5E3C4 E2404040 000000AC 00000003 00050001 00000000 IATFPGD-GETDS-----
00000000 000A3F0C 00000800 00000784 000B5978 00000000 00000000 00000000 -----
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 -----
00000000 00000000 00000000 40404040 40404040 40404040 40404040 40404040 -----
40404040 -----
```

```
TYP=FSSTRACE MOD=SEE TEXT R11=090AFD28 TOD=093957-452516 ID=0075 TCB=006FA5E0
```

```
006CFB88 006F01A0 7F759918 00BE8B10 006CFC30 093A4D30 00000000 006F9D28 -----
C9C1E3C6 D7D9C440 D9C5D3C4 E2404040 00000038 00000006 00050001 00000000 IATFPRD-RELD-----
00000000 00000000 80000000 A9078E9D 65C50581 00000000 00000000 00000000 -----E-----
00000000 00000000 D7404040 40404040 D7404040 40404040 D9D47BF1 F5C8D940 -----P-----P-----RM-15HR-
```

```
TYP=FSSTRACE MOD=SEE TEXT R11=090AFD28 TOD=093957-452227 ID=0075 TCB=006FA5E0
```

```
006CFB88 006F01A0 7F759918 00BE8B10 006CFC30 00000258 00000000 006F9D28 -----
C9C1E3C6 D7E2C240 E2E6C240 C4C5D340 IATFPSB-SWB-DEL-----
```

```
TYP=FSSTRACE MOD=SEE TEXT R11=090AD728 TOD=093921-958261 ID=0075 TCB=006D7100
```

```
006CFB88 006F01A0 7F759918 00000000 00000001 89373340 00000000 00000000 -----
C9C1E3C6 D7C7C640 C7C5E3D9 C5C34040 00000044 00000004 00050001 00000000 IATFPGF-GETREC-----
00000000 00000000 40008400 00000000 00000000 00000000 A9078E9D 65C50581 -----E--
00000000 00000000 00000000 00000000 00000000 D7404040 40404040 D7404040 -----P-----P---
40404040 D9D47BF1 F5C8D940 C9C4E740 00080003 00037B27 06436000 ----RM-15HR-IDX-----
```

Figure 5. Format of an FSS Event Trace Table

TRACE TABLE FOR describes the information in the FSS trace table. The first line following this heading may be one of the following:

- TRACE TABLE FOR DEVICE: *dev*
Indicates that this is a FSS trace table for the specified device.
- TRACE TABLE FOR FSS: *fssname*
Indicates that this is a FSS trace table for the specified FSS.

TYP=FSSTRACE - is an eight-character descriptor of the FSS trace.

MOD=SEE TEXT - see the EBCDIC version of the entry (located to the right of the trace entry) for the name of the module in which the trace originated.

R11=nnnnnnnn - is the contents of the caller's register 11.

TOD=dddddd-dddddd - is the time of day, expressed as "hours, minutes, seconds-fraction". The fraction is a decimal fraction of a second down to one millionth of a second.

ID=dddd - is the event id (0075).

TCB=hhhhhhhh - is the address of the TCB under which the trace entry is made.

FSS Traces

The first line of the trace entry is the contents of the caller's registers 2-9.

The second line of the trace entry is 114 bytes of the user's data. The user's data contains the:

MODULE

specifies the module that is recording the trace entry.

EVENT ID

is the EBCDIC mnemonic of the function being traced.

OTHER INFORMATION

is additional information available in the trace record.

The following chart identifies the contents of the user's data area by each FSS module:

Table 5. User's Data Supplied in an FSS Trace Entry

MODULE	EVENT ID	OTHER INFORMATION
IATFCLT	INIT DEQ SRL TERM ESTAE	none none none none
IATFCOR	ORDER	FSIP(ORDBSIZ1+24)
IATFCPT	POST	FSIP(POSTSIZ1)
IATFCSN	SEND	FSIP(SNDSIZ1)
IATFPCC	FSA CONN	none
IATFPCP	CHKPT	FSIP(CHKSIZ1) ddname
IATFPCW	INIT PERM ERR TERM ESTAE	none none none none
IATFPDD	FSA DCON	none
IATFPGD	GETDS CKPT ERR NO NEWS ESTAE	FSIP(GDSSJMSG-FSIPARM) ddname none none none
IATFPGF	GETREC NO BUFF PERM ERR LOG ERR FREEREC	FSIP(GLRSIZ1) ddname IDX IDXNUM IDXRECID IDXFLAG1 none none none FSIP(FLRSIZ1) ddname

Table 5. User's Data Supplied in an FSS Trace Entry (continued)

MODULE	EVENT ID	OTHER INFORMATION
IATFPRA	INIT NO BUFF NO INDEX PERM ERR RCID ERR UNEX EOF TERM ESTAE	none none none none none none none none
IATFPRD	RELDS BAD DSID	FSIP(RDSSIZ1) ddname none
IATFPSB	SWB BLD SWB DEL NO SWB PERM ERR PARM ERR	none none none none none
IATSICD	FSS CONN FSA CONN FSA DCON	FSIP(CDFSIZ1) FSIP(CDFSIZ1) FSIP(CDFSIZ1)

Data set status block (DSS) spool trace tables

The following data set status block (DSS) spool trace tables can be accessed by formatting the DSS. A pointer to the trace data for a data set is maintained in the data set control block (DSB), so the DSB and its associated DSS must both be available in the dump for the spool trace to format properly. The trace output is located in the MVS portion of a dump and displayed using the IPCS CBF `xxxxxxxxSTRUCTURE(IATYDSS)` command.

Spool buffer summary table

Figure 6 on page 62 illustrates the format of buffers that are associated with a dataset in a spool browse session. The ALC column indicates whether the buffer has been allocated. For additional table heading definitions, see the IATYDMC include macro.

DMC ADDR.	DMCNXDMC	ALC.	DMCDAT	DMCBPTR	DATTHIS	DATFIRST	DATPREV	DATNEXT	DATLOREC
7F4D9EC0	7F4D9F78	YES	7F4DB000	7F4DBFCA	00020000133A	00020000133A	000000000000	00020000133B	00000001
7F4D9F78	7F4DA030	YES	7F4DC000	7F4DC034	00020000133B	00020000133A	00020000133A	00020000133C	00000027
7F4DA030	7F4DA0E8	YES	7F4DD000	7F4DD034	00020000133C	00020000133A	00020000133B	00020000133D	00000049
7F4DA0E8	7F4DA1A0	YES	7F4DE000	7F4DE034	00020000133D	00020000133A	00020000133C	00020000133E	0000006B
7F4DA1A0	7F4DA258	YES	7F4DF000	7F4DF034	00020000133E	00020000133A	00020000133D	00020000133F	0000008C
7F4DA258	7F4DA310	YES	7F4E0000	7F4E0034	00020000133F	00020000133A	00020000133E	000200001340	000000AC
7F4DA310	7F4DA3C8	YES	7F4E1000	7F4E1034	000200001340	00020000133A	00020000133F	000200001341	000000CC
7F4DA3C8	7F4DA480	YES	7F4E2000	7F4E2034	000200001341	00020000133A	000200001340	000200001342	000000EB
7F4DA480	7F4DA538	YES	7F4E3000	7F4E3034	000200001342	00020000133A	000200001341	000200001343	0000010E
7F4DA538	7F4DA5F0	YES	7F4E4000	7F4E4034	000200001343	00020000133A	000200001342	000200001344	00000133
7F4DA5F0	7F4DA6A8	YES	7F4E5000	7F4E5034	000200001344	00020000133A	000200001343	000200001345	00000158
7F4DA6A8	7F4DA760	YES	7F4E6000	7F4E6034	000200001345	00020000133A	000200001344	000200001346	0000017D
7F4DA760	7F4DA818	YES	7F4E7000	7F4E7034	000200001346	00020000133A	000200001345	000200001347	000001A3
7F4DA818	7F4DA8D0	YES	7F4E8000	7F4E8034	000200001347	00020000133A	000200001346	000200001348	000001C9
7F4DA8D0	7F4DA988	YES	7F4E9000	7F4E9034	000200001348	00020000133A	000200001347	000200001349	000001F8
7F4DA988	7F4DAA40	YES	7F4EA000	7F4EA034	000200001349	00020000133A	000200001348	00020000134A	0000021D
7F4DAA40	7F4DAAF8	YES	7F4EB000	7F4EB034	00020000134A	00020000133A	000200001349	00020000134B	00000240
7F4DAAF8	7F4DABB0	YES	7F4EC000	7F4EC034	00020000134B	00020000133A	00020000134A	00020000134C	00000265
7F4DABB0	7F4DAC68	YES	7F4ED000	7F4ED034	00020000134C	00020000133A	00020000134B	00020000134D	00000289
7F4DAC68	7F4DAD20	YES	7F4EE000	7F4EE034	00020000134D	00020000133A	00020000134C	00020000134E	000002AA
7F4DAD20	7F4DADD8	YES	7F4EF000	7F4EF034	00020000134E	00020000133A	00020000134D	00020000134F	000002CE
7F4DADD8	7F4DAE90	YES	7F4F0000	7F4F0034	00020000134F	00020000133A	00020000134E	000200001350	000002EF
7F4DAE90	7F4DAF48	YES	7F4F1000	7F4F1034	000200001350	00020000133A	00020000134F	000200001351	00000315
7F4DAF48	00000000	YES	7F4F2000	7F4F2034	000200001351	00020000133A	000200001350	000200001352	0000033C

Figure 6. Spool buffer summary table

Spool trace event table

JES3 defines the size of the Spool I/O trace table that contains the trace output. The trace table contains a limited number of entries. When the number of entries in the table exceeds the size of the table, JES3 starts placing entries at the beginning of the table and continues to replace the entries with new trace entries. The trace table provides the installation with the addresses of several trace entries in the Spool trace output. These addresses define the size and bounds of the Spool trace table and identify the last entry that was recorded.

Table 6 describes the trace entries produced by the IATXSTR macro, executed on entry to each function. The number in parentheses after each heading indicates the length of the field. For table heading and term descriptions, see the IATYDSS, IATYDSB, IATYFDB, IATYBWA, IATYDMC, IATYCLST and IFGRPL macro include files.

Table 6. Spool trace event table

Entry Type (1)	Time Stamp (8)	Flags (3)	UNIQUE-1 (4)	UNIQUE-2 (4)	UNIQUE-3 (4)	UNIQUE-4 (4)	UNIQUE-5 (4)
GET EOB	TS (8)	*	DSBCDMC	DSBBDMC	DSBLSTBF	*	*
PUT EOB	TS (8)	*	DSBCDMC ¹	*	*	*	*
OUTLIM	TS (8)	*	DSBCDMC	*	*	*	*
DM POINT	TS (8)	*	DSBCDMC	RPLARG (M.R (4))	RPLARG+4 (M.R (2))	DSBBDMC	*
ENDREQ	TS (8)	*	*	*	*	*	*
BF CKPT	TS (8)	*	*	*	*	*	*
SSI PNT	TS (8)	*	*	DSBRBADK (4)	DSBRBADK+4 (4)	*	*
GET UPDT	TS (8)	*	*	DSSFIRST (4)	DSSFIRST+4 (2)	*	*
PUT UPDT	TS (8)	*	*	DSSTHIS (4)	DSSTHIS+4 (2)	*	*

Table 6. Spool trace event table (continued)

Entry Type (1)	Time Stamp (8)	Flags (3)	UNIQUE-1 (4)	UNIQUE-2 (4)	UNIQUE-3 (4)	UNIQUE-4 (4)	UNIQUE-5 (4)
SPINOFF	TS (8)	*	*	*	*	*	*
SPBSYSIN	TS (8)	*	RPL addr	*	*	*	*
SPB CLUP	TS (8)	*	RPL addr	*	*	*	*
SYSL PNT	TS (8)	*	*	*	*	*	*
SYSL SWI	TS (8)	*	*	*	*	*	*
COREBUF	TS (8)	DSBFLAG4 BWAFLAG1	R8	DSBCBSPA (4)	DSBCBSPA+4 (2)	BWABUFDL (4)	*
IATXSIO	TS (8)	DSSFLAG2-4	R8	M.R (4)	M.R+4 (2)	Return address	*
IATDMEBS	TS (8)	DSSFLAG2-4	DMCDMCP	DSSPBUFF	DSSIOQ	DSBFLAG3-6 (2)	*
STCKDATA	TS (8)	*	DSBCDMC	CLSTJNUM	CLSTDSNO	STCKDATA address	STCKDATA length
* Not applicable ¹ DSBCDMC is not traced for INTRDR reopen							

Request parameter list (RPL) trace table

The spool trace is followed by a request parameter list (RPL) trace that is taken on exit from a function in IATDMDM using the IATXRBA macro. Its primary purpose is to document the last number of RPLRBAR values passed to the caller, followed by the DMCBPTR value, which has already been updated for the next record, except when the RPLINBUF (x'2c') return code is used. The classic RPLRBAR value is defined as a length 8 variable consisting of a 6-byte spool address, followed by a 2-byte relative record number.

An extended format is defined for SYSLOG Browse. The extended RPLRBAR value is defined as a length 8 variable consisting of a 1-byte extended indicator, followed by a 1-byte function code, and depending on the function code, a 6-byte timestamp or a relative or absolute record number.

This trace typically has many entries that span a much shorter period of time than the entries in the spool trace.

JES3 defines the size of the RPL trace table that contains the trace output. Table 7 contains a limited number of entries. When the number of entries in the table exceeds the size of the table, JES3 starts placing entries at the beginning of the table and continues to replace the entries with new trace entries. The trace table provides the installation with the addresses of several trace entries in the RPL trace output. These addresses define the size and bounds of the RPL trace table and identify the last entry that was recorded. For table heading and term descriptions, see the IATYDMC and IFGRPL macro include files.

Table 7. RPL trace table

REQUEST (1)	RPLFDBK (3)	RPLRBAR (8)	DMCBPTR (4)
GET	XXXXXX	CCCCCCCC CCCCCCCC	AAAAAAAA

Table 7. RPL trace table (continued)

REQUEST (1)	RPLFDBK (3)	RPLRBAR (8)	DMCBPTR (4)
POINT	XXXXXX	CCCCCCCC CCCCCCCC	AAAAAAAA
PUT	XXXXXX	CCCCCCCC CCCCCCCC	AAAAAAAA
ERASE	XXXXXX	CCCCCCCC CCCCCCCC	AAAAAAAA

Communication traces

This section is divided into the following topics:

BSC remote job processing snaps output

Examines the output from the RJP line snap facility described in "BSC Remote Job Processing (RJP) Snaps Output." The output is a storage dump that describes:

- The line device characteristics table (DCT)
- The remote device DCTs for a signed-on terminal
- Current SRB/IOSB
- Transmission data areas for each channel end processed

RJP Hardcopy Log trace output

Entries are added to the JES3 trace table when this facility is invoked. An entry is added to the JES3 trace table when a I/O operation is performed on a specified line.

SNA RJP trace output

Suggests solutions when the problems seems to be with SSNA RJP. Included are discussions of:

- Exception responses
- Error recovery after communications stops between a remote workstation and the host
- The SNA RJP recording environment

BSC network logging facility

Describes the format of the trace output produced for a BSC node.

TCP/IP/NJE trace

Describes the format of the trace output produced by a Netserv, a socket for a TCP/IP node, or both.

BSC Remote Job Processing (RJP) Snaps Output

Figure 7 on page 65 shows an example of the RJP snaps output. See mapping macros in the program listings to find where specific information appears in the snap output. Mapping macros for RJP snaps output are:

LINE DCT

- IATYSUP

LINE RAT

- IATYRAT

SRB - IHASRB

IOSB - IECDIOSB

RMDCT
- IATYSUP

```

*****
1 * RJP SNAPS OUTPUT 87.203 *****
*****
13295457 00000000 01C5E6C4 01CBD488 01CDAE48 01CD2B20 00000000 01C45340 000012C0 40404040 *.EWD..M.....D. .... *
LINE DCT 00000020 40404040 00000000 00000000 00000000 00000000 00000000 00000000 40000000 00000000 *
LINE1 00000040 00000000 04000045 C0100000 0049A08D 00000028 00000004 00040000 00000000 *
00000060 00000000 03000000 80000000 01C99A00 00000000 00000000 00000000 00000000 *
00000080 F0F0C2F8 00000000 01CD4F10 EE000000 01C99A00 *00B8.....I.. *
RMDCT 01CBD488 01CBD42C 01CDAE48 01C5E720 00000000 00000000 0002BCE0 00000000 01C45470 *.M.....EX.....D.. *
LINE1 01CBD4A8 01CBD524 00000000 00450084 800201B8 00001302 80CC0000 00000000 00000000 *.N..... *
RMDCT 01CBD524 01CBD4C8 00000000 01C5E720 00000000 00000000 00000000 00000000 01C45470 *.MH.....EX.....D.. *
LINE1 01CBD544 01CBD64C 00000000 00000050 800201B8 00001302 10CC0000 00000000 00000000 *.O.....&..... *
RMDCT 01CBD64C 01CBD564 00000000 01C5E720 00000000 00000000 00000000 00000000 01C45470 *.N.....EX.....D.. *
LINE1 01CBD66C 01CBD774 00000000 00000050 800201B8 00001302 40CC0000 00000000 00000000 *.P.....&..... *
RMDCT 01CBD774 01CBD68C 00000000 01C5E720 00000000 00000000 00000000 00000000 01C45470 *.O.....EX.....D.. *
LINE1 01CBD794 00000000 00000000 00000084 800201B8 00001302 20CC0000 00000000 00000000 *. *
LINE RAT 01CDAE48 D9C1E340 00000000 10610000 00000000 00000000 41000000 00000000 01CDAEC0 *RAT..... *
LINE1 01CDAE68 01958388 00000000 01CDAEC0 01CDAED8 0E000008 01000000 FF000000 00000000 *. *
01CDAE88 01CDAEF8 01CDAEF8 00000000 01C5E720 6E0001B8 00701070 00000000 00000000 *.8..8....EX..... *
01CDAEA8 2F600001 00000000 23600001 004C8E9C 27600001 00000000 03600004 008C8B20 *
01CDAEC8 01600001 008C8B52 02200008 004C8EF8 00000000 00000000 00000000 *. *
01CDAEE8 C0C1C2CA CAC6C0C0 00000003 00000000 *.AB..F..... *
SRB IOSB 01958388 40800000 08000008 81CD2110 08419C80 00FCE850 004C8ED8 0E000008 019583F4 *. *Y&..Q.....4 *
LINE1 019583A8 00000000 00000000 40170100 00000000 00000000 00000000 00000000 81CD21E0 *. *
019583C8 81CD21E0 81CD2166 004C8EC0 01CDAEC0 00D1E2F3 01000000 00100000 00000000 *. *JS3..... *
019583E8 00000000 00000000 00000000 E2D9C240 00000000 00FA1E00 00000000 00000000 *. *SRB..... *
01958408 0000 00000000 01958388 00000000 00000000 00000000 *. *
WRITE 01CD2B52 37 3 * 5 *
READ
4 13300245 00000000 01C5E6C4 01CBD488 01CDAE48 01CD2B20 00000000 01C45340 000012C0 40404040 *.EWD..M.....D. .... *
LINE DCT 00000020 40404040 00000000 00000000 00000000 00000000 00000000 00000000 40000000 00000000 *
LINE1 00000040 00000000 04000045 C0100000 0049A08D 00000029 00000004 00040000 00000000 *
00000060 00000000 03000000 80000000 01C99A00 00000000 00000000 00000000 00000000 *
00000080 F0F0C2F8 00000000 01CD4F10 EE000000 01C99A00 *00B8.....I.. *
RMDCT 01CBD488 01CBD42C 01CDAE48 01C5E720 00000000 00000000 0002BCE0 00000000 01C45470 *.M.....EX.....D.. *
LINE1 01CBD4A8 01CBD524 00000000 00450084 800201B8 00001302 80CC0000 00000000 00000000 *.N..... *
RMDCT 01CBD524 01CBD4C8 00000000 01C5E720 00000000 00000000 00000000 00000000 01C45470 *.MH.....EX.....D.. *
LINE1 01CBD544 01CBD64C 00000000 00000050 800201B8 00001302 10CC0000 00000000 00000000 *.O.....&..... *
RMDCT 01CBD64C 01CBD564 00000000 01C5E720 00000000 00000000 00000000 00000000 01C45470 *.N.....EX.....D.. *
LINE1 01CBD66C 01CBD774 00000000 00000050 800201B8 00001302 40CC0000 00000000 00000000 *.P.....&..... *
RMDCT 01CBD774 01CBD68C 00000000 01C5E720 00000000 00000000 00000000 00000000 01C45470 *.O.....EX.....D.. *
LINE1 01CBD794 00000000 00000000 00000084 800201B8 00001302 20CC0000 00000000 00000000 *. *
LINE RAT 01CDAE48 D9C1E340 00000000 10610000 00000000 00000000 7F000000 00000000 01CDAEC0 *RAT..... *
LINE1 01CDAE68 01958388 00000000 01CDAEC0 01CDAED8 0C000006 00000000 FF000000 00000000 *. *
01CDAE88 01CDAEF8 01CDAEF8 00000000 01C5E720 6E0001B8 00700000 00000000 00000000 *.8..8....EX..... *
01CDAEA8 2F600001 00000000 23600001 004C8E9C 27600001 00000000 03600004 008C8B20 *
01CDAEC8 01600001 008C8B50 02200008 004C8EF8 00000000 00000000 00000000 *. *
01CDAEE8 C0C1C2CA CAC6C0C0 00000003 00000000 *.AB..F..... *

```

Figure 7. RJP Snaps Output

1 Shows the time of day the snap was taken, the control block printed, and the RJP line number. Time of day is in the form hhmmsssth where hh is the hour, mm is the minute, ss is the second, and th is tenths and hundredths of a second. Time of day appears at the beginning of each snap.

2 WRITE shows the location from which data was written. READ shows the location from which data was read.

3 Shows the data that was written or read.

4 Begins a snap taken after channel-end. Each remote DCT (RMDCT) represents a device.

5 Shows the data being sent or received displayed in EBCDIC.

Communication Traces

RJP Hardcopy Log Trace Facility: The RJP hardcopy log trace facility generates a continuous indication of the internal program flow within RJP. Data is printed on the hardcopy log each time an important event occurs. An entry is also added to the JES3 event trace table with an id of 65. For the format of a JES3 event trace entry see "Format of a JES3 event trace table" on page 44. Table 8 lists the hardcopy log events and contains a brief description of each. The facility should never trace more lines than necessary, since console buffers may be filled faster than they can be printed, resulting in a lockout condition. The same problem may occur when tracing a very fast line.

Table 8. RJP Hardcopy Log Trace Events

Event Name	Module (IATRjxx)	Description
CEND	M1	Channel-end processing started.
CENDSNAP	M1	Channel-end processing started; IOSB/SRB, LDCT, RDCT, and data buffers snapped.
CLOSSIO	M2/M3	RJPCLOSE issued. Write last buffer to non-programmable terminal.
CONQ	M1	Remote console is in ALERT condition.
DISASIO	M3	At line termination time, issue the disable line command.
IDLE	M3	Timer is set to cause line idle cycle for multi-leaving terminal.
INIOSIO	M3	After receiving control sequence from multi-leaving terminal, start appropriate I/O.
INIT	M1	Initialize RJP I/O control blocks.
MGET	M1	Received data on a line with no terminal currently signed on.
OPENSIO	M2/M3	Read for first block of data from a remote non-programmable terminal.
OPS	M3	Received permission to send from a suspended device on a multileaving terminal.
OPSTxxx	M3	Received permission to send or request to send from remote device or multi-leaving terminal. xxx is the device address.
POSTPRNT POSTPNCH POSTCONS	M1	Positive response to ENQ received. Post output processor for nonprogrammable terminal.
POSTxxx	M1	I/O to terminal ended normally. xxx is the logical device name.
QBUF	M3	Buffer queued for output to programmable terminal. Buffers not written because I/O is active or line already has buffers queued.
RCON	M1	Remote console message received.
READSIO	M2/M3	Read for next block of data from a remote non-programmable terminal.
RETSIO RPSTxxx	M1/M3 M3	Restart I/O after error condition. Post FCT of current RCB in current input buffer. xxx is the logical device name.
SRDR	M1	ENQ received from non-programmable terminal; RJP issues *X,CR.

Table 8. RJP Hardcopy Log Trace Events (continued)

Event Name	Module (IATRjxx)	Description
STRTSIO	M1/M3	Initial EXCP at start line time.
TEXPSIO	M1/M3	Timer expired for this line; start some I/O.
WABTSIO	M3	Write buffer to programmable terminal. Wait bit sequence.
WAIT	M1	No pending activity for this line.
WEOTSIO	M2/M3	Write EOT sequence to nonprogrammable terminal.
WPSTxxx	M1	Post output devices based on received FCS. xxx is the logical device name.
WRITSIO	M2/M3	RJPPUT issued; current buffer full. Issue EXCP to non-programmable terminal.
WTXTSIO	M3	Write previously queued output buffer and read data from programmable terminal.

SNA RJP Trace Output and Problem Analysis

This section describes what to do if you encounter some of the situations unique to SNA RJP. Included are:

- The format of the output from the SNA RJP recording environment.
- An analysis of the problems unique to SNA RJP. The topics included are:
 - Exception responses
 - Error recovery after communication stops between a workstation and the host

SNA RJP Recording Environment

The SNA RJP recording environment produces traces for problem determination of SNA RJP modules. For a discussion of the commands used to invoke the SNA RJP recording environment, see *z/OS JES3 Commands*.

Traces can include:

- Protocols, including chaining, bracket, and function management header information.
- Negative response sense data.
- Task control block and service request block interactions.
- Results of compare and swap operations.
- Error returns from VTAM.
- Up to four bytes of pertinent data.

The traced information is printed automatically:

- A session is ended.
- The operator entered a *STARTRJP command with the TRACEOFF parameter.
- Inbound data errors are detected by JES3.

The SNA RJP recording environment also produces snapshot dumps when decompress or deblock errors occur for inbound data. Like traces, snapshot dumps are produced only if the SNA RJP recording environment has been activated for a workstation; they are then printed automatically when the errors are detected.

Communication Traces

The trace output consists of a trace table header, a number of 8-byte entries, and the following control blocks: logical unit control block (LCB); buffer entries (BFEs); request/response units (RUs); workstation block (WSB); and device entries (DVEs).

```

*****
*                               SESSION TRACE TABLE SNAP 85.004
*                               *****
***** TRACE TABLE - REASON FOR SNAP IS OPER. CANCEL 1
09510270 02101940 2 E3D9C3C5 00000000 E2F8F1F0 F0D3F8F1 F0F24040 40500040 00000000 00000000 *TRCE....
02101960 00000000 00000000 00000000 00000000 00000000 00000000 02101B50 02101CA0 *.&.....*
02101980 3 E8030000 00000000 E301E805 00000000 E3040000 00000000 E313000E 00000000 *Y.....T.Y.....T.....*
021019A0 E3090000 00000000 D6030000 00000000 D401D90C 00000000 E30D800E 00000000 *T.....O.....M.R.....*
021019C0 E401C000 5D000000 D401D90C 00000000 E30D8000 00000000 E30D800E 00000000 *U...).M.R.....T.....*
021019E0 C30C0000 00000000 D401D90C 00000000 E3130000 00000000 E501000E 00000000 *C.....M.R.....T.....V.....*
02101A00 E506C000 03000000 D401E50B 00000000 D401C309 00000000 E301D40E 00000000 *V.....M.V.....M.C.....T.M.....*
02101A20 E3130000 00000000 D6030000 00000000 D401D90C 00000000 E30D800E 00000000 *T.....O.....M.R.....T.....*
02101A40 E4014000 61000000 D401D90C 00000000 E30D8000 00000000 E30D800E 00000000 *U.....M.R.....T.....*
02101A60 C30C0000 00000000 D401D90C 00000000 E3130000 00000000 E501000E 00000000 *C.....M.R.....T.....V.....*

***** DVE'S 7
09510273 020F61FC 00000000 00000000 020F615C 020F6154 00000000 00000000 00000000 11204000 *.&.....*
020F621C 00000000 00000000 00000000 00000000 FFFFFFFF 00000000 00000000 00000000 *.&.....*
020F623C 00000000 00000000 00000000 00000000 00000000 00000000 00000000 020F6154 *.&.....*
020F625C 020F64F8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.B.....*
020F627C 00000000 FFFFFFFF 00000000 00000000 00000000 00000000 00000000 00000000 *.&.....*

4 5
***** LCB - BFE'S START AT 021156DC RU'S START AT 021157FC
09510271 02115008 D3C3C240 D3F8F1F0 F2404040 02116008 020F6154 01000001 02042810 00000100 *LCB L8102 .....*
02115028 00000000 00000000 00000000 00000000 00000000 00000000 00000000 010303A1 *.&.....*
02115048 A1708000 03858504 00011000 00B10080 00000100 00000800 40404044 40404000 *.&.....*
02115068 00000000 00000000 00000000 00000003 00000002 00000000 00020000 02115700 *.&.....*
02115088 02115700 021156D8 021156DC 00080100 021157FC 00000000 C000000C 00000000 *.&.....Q.....*
021150A8 00000000 00000000 00000000 00000000 00000000 00000000 10000001 00000000 *.&.....*
021150C8 00000000 00300000 00000000 00400040 00012000 00000000 00000000 20080000 *.&.....*

***** WSB 6
09510272 020F6154 E6E2C240 E2F8F1F0 F0404040 40404040 40404040 40404044 00000000 *WSB S8100 .....*
020F6174 00000000 02100008 020F63C0 020944A8 020F61FC 020F6202 00000000 020F62F8 *.&.....8*
020F6194 020F61FC 00000500 00000002 00000000 00000000 50000050 00000000 00000000 *.&.....*
020F61B4 00000000 00000000 00000000 00000000 01000002 00000000 00000000 00000000 *.&.....*
020F61D4 C2C1E3C3 C8404040 00000000 00000000 00000000 00000000 00000000 00000000 *BATCH .....*
020F61F4 00000000 00000000 *.&.....*

```

1 TRACE TABLE - REASON FOR SNAP IS . . . can indicate one of the following:

Reason

Explanation

OPER. REQUEST

The command *S,SNARJP,T=WSnnn,TRACEOFF was entered by the operator.

OPER. CANCEL

The command *C(or *R),SNARJP,T=WSnnn was entered by the operator.

OPER. CANCEL (,I)

The command *C(or *R),SNARJP,T=WSnnn,I was entered by the operator.

LU LOGGED OFF COND.

A LOGOFF TYPE=COND command was entered from the workstation.

LU LOGGED OFF UNCOND.

A LOGOFF TYPE=UNCOND command was entered from the workstation.

DFC INTERNAL CANCEL

An event such as session abend occurred.

DFC RESTARTED LU

JES3 entered a Clear or Start Data Traffic command for this session (instead of quiescing the session).

The trace table header contains the following:

Offset Description

- X'08' Workstation name
- X'0D' Logical unit (LU) name
- X'15' Session bind options:
 - X'80' Peripheral data set information records (PDIRs)
 - X'40' Card format input
 - X'20' Card format output
 - X'10' Document format output
 - X'08' Inbound compression
 - X'04' Outbound compression
 - X'02' Inbound compaction
 - X'01' Outbound compaction
- X'16' Session bind options:
 - X'80' ASCII
 - X'40' Cards may span request/response units (RUs)
- X'17' Console simulation:
 - X'80' Console is simulated
- X'38' Address of next available trace entry (the preceding 8 bytes contain the most current entry)
- X'3C' End of trace table

Each trace table entry is eight bytes long. The general format of an entry is:

module-id	subpath	data
0	1	2-8

module-id

A one-character identifier for the module being traced. For the IATSNDx series of modules, the module ID is the last letter of the module name. For other modules, identifiers are:

Module ID	Module
W	IATSNLD
X	IATSNLO
Y	IATSNLS
Z	IATSNLB

subpath

A two-digit number that identifies the trace point within the module.

Communication Traces

data

The traced information, which varies with placement of the IATXSNTR macro and with its subparameters.

2 Trace table entries begin at offset X'40'. With no table wraparound, the first entry will be the oldest, and offset X'38' will point to the next available entry. With a table wraparound, offset X'38' will point to the oldest entry.

3 To analyze a trace entry, first locate the path identifier in the first two bytes of the entry. The path identifier consists of a one-character module identifier and a two-digit subpath identifier. Next, look up the path identifier in the first column of Table 9, and find the type of trace (PATH, DFC, RESP, or ERR) in the second column. The third column explains the circumstances of the trace and describes the format of the trace.

4 The logical unit control block (LCB) is the internal representation of a session. The LCB contains the session's send/receive request parameter lists (RPLs), the node initialization block (NIB) used to connect with the logical unit, stack pointers, and pointers for managing send/receive buffers.

5 There is one buffer entry (BFE) per request/response unit (RU). BFEs contain summaries of information about RUs, including chain element position and protocols. Each BFE points to its associated RU. The BFE is the basic interface to module IATSNNDM, which updates session states for protocols.

6 The workstation block (WSB) is built by module IATINWS during processing of the RJPWS initialization statement. The WSB is the anchor for all session control blocks associated with a specific terminal.

7 The device entry (DVE) is used for allocating a device to a session, and is the mechanism used for managing session interrupt situations. Each LCB contains two push-down stacks, an inbound stack and an outbound stack. When a device is allocated to a session, its DVE is pushed into the appropriate stack. When the device is allocated, its DVE is removed from the stack.

Table 9. SNA RJP Recording Environment Trace Entries

IATSNDA Trace Entries		
Module IATSNDA is the error check module. It is called to issue the CHECK macro upon completion of an asynchronous request. Module IATSNDA is also called if the contents of register 15 are nonzero following issuance of a VTAM macro either upon acceptance of an asynchronous request, or upon completion of a synchronous request.		
Path ID	Type	Explanation
A01	ERR	There has been a VTAM macro error return. See "Trace entry formats" on page 87 for the trace format.
A05	PATH	An error return indicates that the request cannot be satisfied, but can be retried. IATSNDA issues an EXECRPL macro and checks the result. No data is traced.
A0D	PATH	IATSNDA is returning to its caller. Byte 5 of the trace entry contains the return offset if the return is not a normal return. Byte 5 can contain: X'00' Retry X'04' Permanent error X'08' Temporary error

Table 9. SNA RJP Recording Environment Trace Entries (continued)

IATSNDC Trace Entries										
<p>Module IATSNDC is the workstation close module. It is called when a session is no longer needed, or when a session is to be temporarily released (a writer may temporarily release a session to allow sending of console data).</p>										
Path ID	Type	Explanation								
C01	PATH	<p>During CLOSE processing, the quiesce-immediate bit was set on in the logical unit control block. Information about the device being closed is traced. The trace entry format is:</p> <table border="1"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>C01</td> </tr> <tr> <td>2</td> <td>DVEDVSL</td> </tr> <tr> <td>3</td> <td>DVECON</td> </tr> </tbody> </table> <p>DVEDVSL X'30' Printer X'20' Reader or punch X'10' Exchange or basic exchange device X'00' Subaddress (for example, X'30' is PR1, X'31' is PR2)</p> <p>DVECON X'08' Outbound console on a stack X'20' Inbound console X'28' Inbound console on a stack</p>	Offset	Contents	0	C01	2	DVEDVSL	3	DVECON
Offset	Contents									
0	C01									
2	DVEDVSL									
3	DVECON									
C03	PATH	A CLOSE macro has been issued for a writer. No data is traced.								
C05	DFC	The writer has entered CLOSE processing specifying TYPE=TEMP, and its session may be interrupted. A Suspend Destination will be sent if the console close routine needs to send. A Suspend Destination, Change Direction will be sent if a Signal RU has been received from the workstation.								
C07	DFC	One of the following will be sent for the writer being closed: <ul style="list-style-type: none"> • End Destination, End Bracket • End Destination, Change Direction • Abort Destination 								
C0A	PATH	<p>See "Trace entry formats" on page 87 for the trace formats.</p> <p>The console close routine will find a suspended writer and will send a Resume Destination. The resume address is traced. The trace entry format is:</p> <table border="1"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>C0A</td> </tr> <tr> <td>2</td> <td>FMH1DTY</td> </tr> </tbody> </table> <p>FMH1DTY X'30' Printer X'20' Punch X'0F' Subaddress (for example, X'30' is PR1, X'31' is PR2)</p>	Offset	Contents	0	C0A	2	FMH1DTY		
Offset	Contents									
0	C0A									
2	FMH1DTY									
C0C	PATH	The console close routine will send End Destination, End Bracket to close a prior console Begin Bracket, Begin Destination. No data is traced.								
C0E	PATH	The console close routine will send Only in Chain, Change Direction because it found a reader on the inbound stack. No data is traced.								

Communication Traces

Table 9. SNA RJP Recording Environment Trace Entries (continued)

C10 CFF	PATH ABEND	<p>The workstation close processing abnormally ended while using this session. An attempt was made to reuse a request parameter list (RPL) which is still active.</p> <p>Offset Contents</p> <p>0 CFF</p> <p>2 MODE</p> <p>3</p> <p>4 RPLPLHPT</p> <p>MODE</p> <p>X'00' The abnormal end is a DM551.</p> <p>X'80' The abnormal end is a X'AFB'.</p> <p>RPLPLHPT is the link register of the current RPL user.</p>
<p>IATSNDD Trace Entries</p> <p>Module IATSNDD is the DFASY module. It is an exit routine that is scheduled when one of the following is sent by a workstation:</p> <ul style="list-style-type: none"> • Signal RU (request for Change Direction) • Request Shutdown command 		
Path ID D01	Type PATH	<p>Explanation</p> <p>Identifies request/response unit (RU) type (Signal or Shutdown). A Signal RU is supported as a request for Change Direction. A Request Shutdown is a request for immediate session termination. The trace entry format is:</p> <p>Offset Contents</p> <p>0 D01</p> <p>2 RPLCNTDC</p> <p>3 RPLCNTSC</p> <p>4-5 RPLSIGDA</p> <p>RPLCNTDC</p> <p>X'10' Signal RU received</p> <p>RPLCNTSC</p> <p>X'10' Request Shutdown command received</p> <p>RPLSIGDA</p> <ul style="list-style-type: none"> • Must be X'0001' for Signal RU, otherwise the session will be terminated.
D02	PATH	<p>Following processing of a Signal RU, module IATSNLO is scheduled. Module IATSNLO will send Suspend Destination, Change Direction. No data is traced.</p>
<p>IATSNDE Trace Entries</p> <p>Module IATSNDE is the termination module. It is called when a session is to be quiesced or cleared, in response to an operator command or following a session error.</p>		
Path ID	Type	Explanation

Table 9. SNA RJP Recording Environment Trace Entries (continued)

E01	PATH	<p>Module IATSNDE has been entered. Each entry to module IATSNDE causes a trace, even when no action is taken. The trace entry format is:</p> <p>Offset Contents</p> <p>0 E01</p> <p>2-4 caller-id</p> <p>5 type of quiesce requested</p> <p>Caller ID</p> <ul style="list-style-type: none"> • See Figure 24. <p>Type of quiesce requested</p> <p>X'00' Quiesce at End Bracket</p> <p>X'04' Quiesce immediately</p> <p>X'08' Send Clear or Start Data Traffic command</p>
E02	PATH	<p>Module IATSNDE has been entered for a normal quiesce and has determined that the session is between brackets. No data is traced.</p>
E05	PATH	<p>The reset routine found the outbound console's device entry on the stack, but the console is waiting for a response to an End Destination. Since the console has already been through CLOSE processing, module IATSNDE will do the destack. The trace entry format is:</p> <p>Offset Contents</p> <p>0 E05</p> <p>2 WSBCOPN</p> <p>WSBCOPN</p> <p>X'08' Console requested a session; an outstanding End Destination response exists.</p>
E06	PATH	<p>The reset routine found a writer on the stack, but the destack routine is waiting for a response to End Destination. Since the console has already been through CLOSE processing, module IATSNDE will do the destack. No data is traced.</p>
E07	PATH	<p>All session users have been quiesced. Module IATSNDE is about to do the ENQUEUE for the CLSDST routine, or is about to call module IATSNDDT to send a Start Data Traffic command. The trace entry format is:</p> <p>Offset Contents</p> <p>0 E07</p> <p>2 LCBCSFL2</p> <p>3 LCBCSFL0</p> <p>LCBCSLF2</p> <p>X'80' Store session at end of chain</p> <p>X'10' Quiesce immediately</p> <p>X'08' Send Clear or Start Data Traffic command</p> <p>LCBCSFL0</p> <p>X'20' Writer is in OPEN processing</p> <p>X'10' Console is in OPEN processing</p>
E09	PATH	<p>The SESSIONC (cleared) exit routine has been scheduled. No data is traced.</p>

Communication Traces

Table 9. SNA RJP Recording Environment Trace Entries (continued)

IATSNDM Trace Entries												
Module IATSNDM is the state manager module. It updates the session state for brackets, chains, change directions, and function management headers.												
Path ID	Type	Explanation										
M01	PATH	Module IATSNDM has been entered. The trace entry format is: <table border="0"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>M01</td> </tr> <tr> <td>2-3</td> <td>caller-id</td> </tr> </tbody> </table> Caller ID • See Table 13 on page 93.	Offset	Contents	0	M01	2-3	caller-id				
Offset	Contents											
0	M01											
2-3	caller-id											
M04	PATH	Module IATSNDM did an ENQUEUE for inbound console data because Begin Bracket, Begin Destination Select was received. No data is traced.										
M05	PATH	The line control block (LCB) is placed on the Open queue for processing.										
M06	RESP	Routine NRSP was called to send a negative response. See "Trace entry formats" on page 87 for the trace format.										
M09	DFC	A positive response was sent to the query request routine; a compaction table is being sent. The trace entry shows the query for the compaction table function management header. See "Trace entry formats" on page 87 for trace formats.										
M0B	PATH	A negative response was sent to an inbound stream and a Cancel or End of Chain has been received. The trace entry format is: <table border="0"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>M0B</td> </tr> <tr> <td>2</td> <td>RPLRH3</td> </tr> </tbody> </table> RPLRH3 X'40' End Bracket	Offset	Contents	0	M0B	2	RPLRH3				
Offset	Contents											
0	M0B											
2	RPLRH3											
MFF	ABEND	An attempt was made to reuse a request parameter list (RPL) which is still active. <table border="0"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>MFF</td> </tr> <tr> <td>2</td> <td>MODE</td> </tr> <tr> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td>RPLPLHPT</td> </tr> </tbody> </table> MODE X'00' The abnormal end is a DM551. X'80' The abnormal end is a X'AFB'. RPLPLHPT is the link register of the current RPL user.	Offset	Contents	0	MFF	2	MODE	3		4	RPLPLHPT
Offset	Contents											
0	MFF											
2	MODE											
3												
4	RPLPLHPT											
IATSNDN Trace Entries												
Module IATSNDN is the negative response routine. It sends a negative response for data-related errors for VTAM-detected protocol violations.												
Path ID	Type	Explanation										
N01	RESP	Module IATSNDN will send the negative response. Either module IATSNFI found a data-related error (sense - 1001), or VTAM detected an inbound protocol violation. See "Trace entry formats" on page 87 for the trace format.										

Table 9. SNA RJP Recording Environment Trace Entries (continued)

NFF	ABEND	<p>An attempt was made to reuse a request parameter list (RPL) which is still active.</p> <p>Offset Contents</p> <p>0 NFF</p> <p>2 MODE</p> <p>3</p> <p>4 RPLPLHPT</p> <p>MODE</p> <p>X'00' The abnormal end is a DM551.</p> <p>X'80' The abnormal end is a X'AFB'.</p> <p>RPLPLHPT is the link register of the current RPL user.</p>
<p>IATSND0 Trace Entries</p> <p>Module IATSND0 is the workstation open routine. It obtains sessions for writers and consoles.</p>		
Path ID	Type	Explanation
O03	PATH	A Begin Bracket, Begin Destination is being sent for a console. The session is idle. No data is traced.
O04	PATH	<p>A Suspend Destination is being sent for the indicated writer. The trace entry format is:</p> <p>Offset Contents</p> <p>0 O04</p> <p>2 FM1DTY</p> <p>FM1DTY</p> <p>X'F0' Media indicator</p> <p>X'30' Printer</p> <p>X'20' Punch</p> <p>X'0F' Subaddress (for example, 30 is PR1)</p>
O06	DFC	A Begin Destination is being sent on behalf of the writer. See "Trace entry formats" on page 87 for trace formats.
O07	PATH	A peripheral data set information record (PDIR) is being sent for the writer. The PDIR copies field is traced.
O09	PATH	A session was found for the calling writer. However, the buffer cannot be used because the receive exit routine may be receiving an inbound bracket. To prevent multiple simultaneous use of the logical unit control block (LCB), buffer entries (BFES), and request units (RUs), a Begin Bracket, Only in Chain is sent. No data is traced.
O0B	DFC	The compaction table will be sent. See "Trace entry formats" on page 87 for trace formats.
O0D	PATH	A negative response was received during writer OPEN processing. No data is traced.
O0F	PATH	The workstation open processing abnormally ended when using this session.

Communication Traces

Table 9. SNA RJP Recording Environment Trace Entries (continued)

OFF	ABEND	<p>An attempt was made to reuse a request parameter list (RPL) which is still active.</p> <p>Offset Contents</p> <p>0 OFF</p> <p>2 MODE</p> <p>3</p> <p>4 RPLPLHPT</p> <p>MODE</p> <p>X'00' The abnormal end is a DM551.</p> <p>X'80' The abnormal end is a X'AFB'.</p> <p>RPLPLHPT is the link register of the current RPL user.</p>
<p>IATSNDR Trace Entries</p> <p>Module IATSNDR is the RUPUT module. It obtains a request/response unit (RU) to be filled with data and makes the previously filled RU available to the send exit routine (IATSNDS).</p>		
Path ID P07	Type PATH	<p>Explanation</p> <p>Module IATSNDR detected a session-related error. The error reason code returned to the caller is traced is follows:</p> <p>Offset Contents</p> <p>0 P07</p> <p>2 reason code</p> <p>Reason Code</p> <p>X'0C' Temporary device error</p> <p>X'10' Permanent device error</p> <p>X'14' Session error</p> <p>X'18' Terminate immediately</p> <p>X'20' Intervention required (writer only)</p>
P08	PATH	The workstation put processing abnormally ended when using this session.
<p>IATSNDR Trace Entries</p> <p>Module IATSNDR is the inbound response exit routine. IATSNDR is scheduled when a positive or negative response is received from a workstation. For positive responses, it calls module IATSNDR; for negative responses, it calls its PURGE routine to determine whether a Cancel must be sent.</p>		
Path ID R01	Type RESP	<p>Explanation</p> <p>A negative response to an outbound chain was received before the End of Chain RU was sent. This is an interrupt request block (IRB) scheduled entry to IATSNDR. Sense bytes are traced. See "Trace entry formats" on page 87 for the trace format.</p>
R03	RESP	<p>A negative response was received after the End of Chain RU was sent. This is a system request block (SRB) scheduled entry to IATSNDR. Sense bytes are traced. See "Trace entry formats" on page 87 for the trace format.</p>

Table 9. SNA RJP Recording Environment Trace Entries (continued)

R04	PATH	<p>A negative response was received and the PURGE routine was called. The trace entry format is:</p> <table border="0"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>R04</td> </tr> <tr> <td>2</td> <td>LCBWTRO</td> </tr> <tr> <td>3</td> <td>DVEDTYP</td> </tr> </tbody> </table> <p>LCBWTRO X'20' Writer is in OPEN processing X'10' Console is in OPEN processing</p> <p>DVEDTYP X'80' Console X'40' Punch X'20' Printer</p>	Offset	Contents	0	R04	2	LCBWTRO	3	DVEDTYP
Offset	Contents									
0	R04									
2	LCBWTRO									
3	DVEDTYP									
R05	PATH	A negative response (sense 0802) was received to a writer OPEN request. A RECEIVE SPEC macro is issued for the expected LUSTAT. (Sense value 0802 means intervention required. The status is sent inbound when the device is readied.) No data is traced.								
R07	PATH	A Begin Bracket, End Bracket will be sent because a permanent console error occurred following a console Begin Bracket, Begin Destination. No data is traced.								
R09	PATH	In the case of a negative response to an outbound console RU, the PURGE routine determined that the send exit routine (IATSNDS) either is active or will be activated. No data is traced.								
R0A	PATH	A Cancel RU is sent to cancel an outbound console request. No attempt is made to reactivate the send exit routine (IATSNDS). No data is traced.								
R0D	PATH	A positive response to a writer End of Chain was received and the writer (SNDP) was posted to handle it. No data is traced.								
R0E	PATH	In the case of a negative response to a writer RU, the PURGE routine determined that the send exit routine (IATSNDS) either is now active or will be activated. No data is traced.								
R0F	PATH	In the case of a negative response to a writer RU, the PURGE routine determined that the send exit routine (IATSNDS) was no longer active and so posted the writer (IATSNDP) to handle the negative response. No data is traced.								
R10	PATH	The SRB error routine, SRBTERR, has been invoked because a SEND EOC request completed with a temporary error because of a negative response to a previous RU. No data is traced.								
R11	PATH	When processing a temporary error condition for a SEND EOC request, the SRBTERR routine determined that the SEND was issued by a writer and that the IRB negative response exit already processed the pending - R. Therefore, SRBTERR posted the writer (SNDP) to handle the error. No data is traced.								
R12	PATH	When processing a temporary error condition for a SEND EOC request, SRBTERR routine determined that the IRB negative response exit had not yet processed the pending - R. Therefore, SRBTERR exited from SRB processing. No data is traced.								

Communication Traces

Table 9. SNA RJP Recording Environment Trace Entries (continued)

RFF	ABEND	<p>An attempt was made to reuse a request parameter list (RPL) which is still active.</p> <p>Offset Contents</p> <p>0 RFF</p> <p>2 MODE</p> <p>3</p> <p>4 RPLPLHPT</p> <p>MODE</p> <p>X'00' The abnormal end is a DM551.</p> <p>X'80' The abnormal end is a X'AFB'.</p> <p>RPLPLHPT is the link register of the current RPL user.</p>
<p>IATSNDS Trace Entries</p> <p>Module IATSNDS is the send exit routine. It is scheduled through a system request block (SRB), and it issues SEND macros if data is available.</p>		
Path ID S02	Type PATH	<p>Explanation</p> <p>VTAM responded to a SEND macro with the error return code 0C, 0D (request cancelled, prior negative response outstanding). The SEND request was for an outbound console RU. The trace entry format is:</p> <p>Offset Contents</p> <p>0 S02</p> <p>2 RPLCHN</p> <p>RPLCHN</p> <p>X'80' First of Chain</p> <p>X'40' Middle of Chain</p> <p>X'20' End of Chain</p> <p>X'10' Only in Chain</p>
S03	PATH	<p>VTAM responded to a SEND macro with the error return code of 0C, 0D (request cancelled, prior negative response outstanding). The SEND request was for writer output. The trace entry format is:</p> <p>Offset Contents</p> <p>0 S03</p> <p>2 RPLCHN</p> <p>RPLCHN</p> <p>X'80' First of Chain</p> <p>X'40' Middle of Chain</p> <p>X'20' End of Chain</p> <p>X'10' Only in Chain</p>
<p>IATSNDDT Trace Entries</p> <p>Module IATSNDDT is the restart routine. It initializes a session for logon complete and session restart situations. At every End of Chain, IATSNDDT determines what activity should occur next. At First of Chain and Middle of Chain, IATSNDDT activates receive or send exits.</p>		
Path ID	Type	Explanation

Table 9. SNA RJP Recording Environment Trace Entries (continued)

T01	PATH	<p>Module IATSNDDT has been entered. The trace entry format is:</p> <table border="1"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>T01</td> </tr> <tr> <td>2</td> <td>caller-id</td> </tr> </tbody> </table> <p>Caller ID</p> <ul style="list-style-type: none"> • See Table 14 on page 93. 	Offset	Contents	0	T01	2	caller-id		
Offset	Contents									
0	T01									
2	caller-id									
T02	PATH	The receive system request block (SRB) is reactivated. No data is traced.								
T04	PATH	The start data traffic exit routine has been scheduled. No data is traced.								
T06	PATH	The session is between brackets and in normal quiesce state. No data is traced.								
T09	PATH	The line control block (LCB) is placed on the Open queue for processing.								
T0A	PATH	A RECEIVE macro is issued for the expected LUSTAT after a negative response (0802) to a writer or console data chain. No data is traced.								
T0B	PATH	<p>The writer's session will be interrupted because the console will send or because Signal was received. The trace entry format is:</p> <table border="1"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>T0B</td> </tr> <tr> <td>2</td> <td>RPLRH3</td> </tr> <tr> <td>3</td> <td>DVEDVSL</td> </tr> </tbody> </table> <p>RPLRH3</p> <p>X'20' Change Direction</p> <p>DVEDVSL</p> <p>X'30' Printer</p> <p>X'20' Reader or punch</p> <p>X'10' Exchange or basic exchange device</p> <p>X'0F' Subaddress (for example, X'30' is PR1, X'31' is PR2)</p>	Offset	Contents	0	T0B	2	RPLRH3	3	DVEDVSL
Offset	Contents									
0	T0B									
2	RPLRH3									
3	DVEDVSL									
T0C	PATH	The compare-and-swap lock between IATSNDDT and IATSNDDO is checked. No data is traced.								
T0D	PATH	<p>The SDDTCONS routine has been entered under the assumption that the console must be serviced. The trace entry format is:</p> <table border="1"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>T0D</td> </tr> <tr> <td>2</td> <td>DVEDTYP</td> </tr> </tbody> </table> <p>DVEDTYP</p> <p>X'80' Console</p> <p>X'40' Punch</p> <p>X'20' Printer</p>	Offset	Contents	0	T0D	2	DVEDTYP		
Offset	Contents									
0	T0D									
2	DVEDTYP									
T0E	PATH	The SDDTCONS routine will send Only in Chain, Change Direction in the case where IATSNDDV received a Change Direction, but in the process the console acquired another session. No data is traced.								
T0F	PATH	An End Bracket will be sent to the workstation. No data is traced.								

Communication Traces

Table 9. SNA RJP Recording Environment Trace Entries (continued)

T10	PATH	<p>A Resume Destination will be sent. A writer was suspended for a reader or console completion and the address of the device on which the writer is to resume activity is traced. The trace entry format is:</p> <p>Offset Contents</p> <p>0 T10</p> <p>2 DVEDVSL</p> <p>DVEDVSL</p> <p>X'30' Printer</p> <p>X'20' Reader or punch</p> <p>X'10' Exchange or basic exchange device</p> <p>X'0F' Subaddress (for example, X'30' is PR1, X'31' is PR2)</p>
T13	PATH	<p>The session is between brackets and has issued a RESETSR macro to put the session in continue any (CA) mode.</p>
TFF	ABEND	<p>An attempt was made to reuse a request parameter list (RPL) which is still active.</p> <p>Offset Contents</p> <p>0 TFF</p> <p>2 MODE</p> <p>3</p> <p>4 RPLPLHPT</p> <p>MODE</p> <p>X'00' The abnormal end is a DM551.</p> <p>X'80' The abnormal end is a X'AFB'.</p> <p>RPLPLHPT is the link register of the current RPL user.</p>
<p>IATSNDU Trace Entries</p> <p>Module IATSNDU is the output routine that is used by the restart (module IATSNDT) to activate the Send exit routine (module IATSNDS). Module IATSNDU is also used by the Send exit routine for sending of the front request/response unit (RU) or for sending a cancel command</p>		
Path ID	Type	Explanation
U01	DFC	<p>The SENDIT routine is about to send the front RU. Only the first End of Chain (Only in Chain) between function management headers is traced to avoid frequent End of Chain, positive response sequences likely for outbound mains. See "Trace entry formats" on page 87 for the trace formats.</p>
U02	PATH	<p>The writer is sending a Set Vertical Format (FCB load) sequence. The trace entry format is:</p> <p>Offset Contents</p> <p>0 U02</p> <p>2-5 SUPCARR</p> <p>SUPCARR</p> <ul style="list-style-type: none"> • Function control block (FCB) name
U03	PATH	<p>IATSNDU has detected a purging chain state, and will send a cancel command. No data is traced.</p>

Table 9. SNA RJP Recording Environment Trace Entries (continued)

U05	PATH	<p>IATSNDU has received an OC,0D return code on an outbound console SEND request (indicating a Send was cancelled because a previous negative response was outstanding). The trace entry format is:</p> <p>Offset Contents</p> <p>0 U05</p> <p>2 RPLCHN</p> <p>RPLCHN</p> <p>X'80' First of Chain</p> <p>X'40' Middle of Chain</p> <p>X'20' End of Chain</p> <p>X'10' Only in Chain</p>
U07	PATH	<p>IATSNDU has received an 0C,0D return code on a SEND request for writer output (indicating a Send was cancelled because a previous negative response was outstanding). The trace entry format is:</p> <p>Offset Contents</p> <p>0 U07</p> <p>2 RPLCHN</p> <p>RPLCHN</p> <p>X'80' First of Chain</p> <p>X'40' Middle of Chain</p> <p>X'20' End of Chain</p> <p>X'10' Only in Chain</p>
UFF	ABEND	<p>An attempt was made to reuse a request parameter list (RPL) which is still active.</p> <p>Offset Contents</p> <p>0 UFF</p> <p>2 MODE</p> <p>3</p> <p>4 RPLPLHPT</p> <p>MODE</p> <p>X'00' The abnormal end is a DM551.</p> <p>X'80' The abnormal end is a X'AFB'.</p> <p>RPLPLHPT is the link register of the current RPL user.</p>
<p>IATSNDV Trace Entries</p> <p>Module IATSNDV is the receive exit routine. It contains two SRB-scheduled routines: receive any (RCVANY) and receive specific (RCVSPEC).</p>		
Path ID V01	Type PATH	Explanation The receive any routine has been scheduled and a Begin Bracket request/response unit (RU) has been received. The session direction, regardless of initial setting, has been forced to inbound. No data is traced.

Communication Traces

Table 9. SNA RJP Recording Environment Trace Entries (continued)

V04	PATH	<p>A non-data RU such as LUSTAT has been received. The trace entry format is:</p> <table border="1"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>V04</td> </tr> <tr> <td>2</td> <td>RPLCNTDC</td> </tr> <tr> <td>3</td> <td>RPLCNTDF</td> </tr> </tbody> </table> <p>RPLCNTDC</p> <p>X'40' Ready to Receive (RTR) command received</p> <p>X'20' LU status received</p> <p>RPLCNTDF</p> <p>X'80' Data RU</p> <p>X'40' Cancel</p> <p>X'04' Chase</p>	Offset	Contents	0	V04	2	RPLCNTDC	3	RPLCNTDF
Offset	Contents									
0	V04									
2	RPLCNTDC									
3	RPLCNTDF									
V05	PATH	<p>VTAM has detected an inbound protocol error and requires JES3 to send a negative response with the sense bytes traced. The trace entry format is:</p> <table border="1"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>V05</td> </tr> <tr> <td>2-5</td> <td>LCBSNS</td> </tr> </tbody> </table> <p>LCBSNS</p> <ul style="list-style-type: none"> • Sense Bytes (See <i>VTAM Macro Language Reference</i>). 	Offset	Contents	0	V05	2-5	LCBSNS		
Offset	Contents									
0	V05									
2-5	LCBSNS									
V06	DFC	<p>A First of Chain or Only in Chain has been received. See "Trace entry formats" on page 87 for trace formats.</p>								
V07	PATH	<p>Module IATSNDV will send a Signal (0001) RU to request Change Direction. The console routine entered OPEN processing and found no available sessions and no currently outbound sessions. Therefore, it set an indicator so module IATSNDV would request interruption of an outbound session. No data is traced.</p>								
V08	PATH	<p>A purging chain state has been detected, probable because module IATSNDN sent a negative response. The first entry to the PURGE routine will be traced, and the receipt of the End of Chain. Cancel will be traced. Intervening RUs are not traced. The trace entry format is:</p> <table border="1"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>V08</td> </tr> <tr> <td>2</td> <td>RPLCNTDF</td> </tr> <tr> <td>3</td> <td>RPLCHN</td> </tr> </tbody> </table> <p>RPLCNTDF</p> <p>X'80' This is a data RU</p> <p>X'40' Cancel</p> <p>X'04' Chase</p> <p>RPLCHN</p> <p>X'80' First of Chain</p> <p>X'40' Middle of Chain</p> <p>X'20' End of Chain</p> <p>X'10' Only in Chain</p>	Offset	Contents	0	V08	2	RPLCNTDF	3	RPLCHN
Offset	Contents									
0	V08									
2	RPLCNTDF									
3	RPLCHN									

Table 9. SNA RJP Recording Environment Trace Entries (continued)

V09	PATH	A cancel command or end of chain has been received, and a purging chain state exists. No data is traced.												
V0C	PATH	<p>A data flow control request/response unit (RU) has been received. The trace entry format is:</p> <table border="1"> <thead> <tr> <th>Offset</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>V0C</td> </tr> <tr> <td>2</td> <td>validity</td> </tr> <tr> <td>3</td> <td>LCBRXM</td> </tr> <tr> <td>4</td> <td>LCBCNSO</td> </tr> <tr> <td>5</td> <td>DVEDVSL</td> </tr> </tbody> </table> <p>validity</p> <p>X'80' Byte 5 (DVEDVSL) contains a valid address X'00' Byte 5 (DVEDVSL) contains an invalid address</p> <p>X'80' Wait for Logical Unit Status (LUS) command. The sense bytes contain X'0802'</p> <p>X'40' Wait for Logical Unit Status (LUS) command. The sense bytes contain X'081B'</p> <p>X'20' Unit is available if RU is an LUS command; unit is unavailable in all other cases.</p> <p>LCBCNSO</p> <p>X'20' OPEN processing being performed for a writer. X'10' OPEN processing being performed for a console.</p> <p>DVEDVSL</p> <p>Valid only if byte 2 (validity) contains X'80'. Upon receipt of a negative response (sense bytes contain X'0802' or X'081B') module IATSNDR provides the address of the device entry representing the unit for which there is a wait for an LUS command.</p> <p>X'30' Printer X'20' Reader or punch X'10' Exchange or basic exchange device X'00' Console X'0F' Subaddress (for example, X'30' is PR1, X'31' is PR2)</p>	Offset	Contents	0	V0C	2	validity	3	LCBRXM	4	LCBCNSO	5	DVEDVSL
Offset	Contents													
0	V0C													
2	validity													
3	LCBRXM													
4	LCBCNSO													
5	DVEDVSL													
V0D	PATH	The DFRCRU subroutine will send a Begin Bracket, End Bracket, Only in Chain, Null request/response unit (RU) for an error recovery program when a LUSTAT follows a console Begin Destination.												
V0F	PATH	The "receive any" exit has been scheduled for a session that is already inbound. Another "receive any" will be issued without issuing a "receive specific."												

Communication Traces

Table 9. SNA RJP Recording Environment Trace Entries (continued)

VFF	ABEND	<p>An attempt was made to reuse a request parameter list (RPL) which is still active.</p> <p>Offset Contents</p> <p>0 VFF</p> <p>2 MODE</p> <p>3</p> <p>4 RPLPLHPT</p> <p>MODE</p> <p>X'00' The abnormal end is a DM551.</p> <p>X'80' The abnormal end is a X'AFB'.</p> <p>RPLPLHPT is the link register of the current RPL user.</p>
<p>IATSNLB Trace Entries</p> <p>Module IATSNLB builds required control blocks for a new logon and searches the remote logon table (RLT) entries for workstations which require logon.</p>		
<p>Path ID BFF</p>	<p>Type ABEND</p>	<p>Explanation</p> <p>An attempt was made to reuse a request parameter list (RPL) which is still active.</p> <p>Offset Contents</p> <p>0 BFF</p> <p>2 MODE</p> <p>3</p> <p>4 RPLPLHPT</p> <p>MODE</p> <p>X'00' The abnormal end is a DM551.</p> <p>X'80' The abnormal end is a X'AFB'.</p> <p>RPLPLHPT is the link register of the current RPL user.</p>
<p>IATSNLO Trace Entries:</p> <p>Module IATSNLO provides the SNA DSP with the following routines: console queued-to-depth, console message appendage, operator command processor, and work queue processor. The services provided are requested by TCB/SRB/IRB routines through the IATXENQ macro.</p>		
Path ID	Type	Explanation

Table 9. SNA RJP Recording Environment Trace Entries (continued)

X01	PATH	<p>The work queue processor routine sends Suspend Destination, Change Direction if the writer is 'temporarily closed'. Module IATSNDD initiated the request because a Signal RU was received. The trace contains the address of the suspended unit. The trace entry format is:</p> <p>Offset Contents</p> <p>0 X01</p> <p>2 DVEDVSL</p> <p>DVEDVSL</p> <p>X'30' Printer</p> <p>X'20' Reader or punch</p> <p>X'10' Exchange or basic exchange device</p> <p>X'00' Console</p> <p>X'0F' Subaddress (for example, X'30' is PR1, X'31' is PR2)</p>
XFF	ABEND	<p>An attempt was made to reuse a request parameter list (RPL) which is still active.</p> <p>Offset Contents</p> <p>0 XFF</p> <p>2 MODE</p> <p>3</p> <p>4 RPLPLHPT</p> <p>MODE</p> <p>X'00' The abnormal end is a DM551.</p> <p>X'80' The abnormal end is a X'AFB'.</p> <p>RPLPLHPT is the link register of the current RPL user.</p>
<p>IATSNLS Trace Entries</p> <p>Module IATSNLS is the SNA RJP subtask. It:</p> <ul style="list-style-type: none"> • Opens the access method control block (ACB) and issues a SETLOGON macro • Closes the ACB and returns to MVS upon termination of SNA RJP • Contains VTAM exit routines scheduled through IRBs 		
Path ID	Type	Explanation
Y03	PATH	The OPNDST exit routine has been entered. A response has been received to the JES3 bind request. No data is traced.
Y06	PATH	The CLSDST exit routine has been entered. No data is traced.

Communication Traces

Table 9. SNA RJP Recording Environment Trace Entries (continued)

Y0D	PATH	<p>The LOSTERM routine has been entered (because of logoff, buffer limit exceeded, or lost contact). LOSTERM reason codes are documented in module IATSNLS. See <i>VTAM Macro Language Reference</i> for additional codes. The trace entry format is:</p> <p>Offset Contents</p> <p>0 Y0D</p> <p>2 LOSTERM</p> <p>LOSTERM</p> <p>Major codes are:</p> <p>X'14' LU logoff immediate</p> <p>X'20' LU logoff conditional</p> <p>X'24' Buffer limit exceeded</p> <p>Note: If the buffer limit is exceeded 5 times, a CLR/Start Data Traffic will be issued for the session.</p>
<p>IATSNRS Trace Entries</p> <p>Module IATSNRS is responsible for resetting:</p> <ul style="list-style-type: none"> • Printers • Punches • Card readers • Consoles 		
Path ID	Type	Explanation
H01	PATH	Module IATSNRS is entered. No data is traced.
H02	PATH	The console device is being reset. No data is traced.
H03	PATH	The console device is closed. No data is traced.
H04	PATH	The writer type devices are reset. No data is traced.
H05	PATH	The reader type devices are reset. No data is traced.

While attempting to logon to a SNARJP workstation, JES3 encountered an error. JES3 returns sense information to the VTAM application or workstation. The LOGON command failed for one of the following reasons:

Table 10. Sense codes

Sense Code in Hex	Explanation
0801	The resource is not available. The LOGON command was entered issuing a request to a workstation that is not defined to JES3 or JES3 is unable to obtain the necessary resources to establish the session.
0804	An incorrect password was specified by a workstation logging on.
0805	JES3 reached the maximum number of active sessions.
080F	The workstation is not available for logon. The maximum number of attempts to logon has been reached.
0815	The workstation is already logged on.
0818	The workstation is currently ending.
0821	The workstation specified incorrect parameters.

Trace entry formats

DFC Trace Entry Format, FMH Present:

Offset	Contents
0	path-id
2	BFECFLG1
3	FMHLNGTH
4	FMHTYPE
5	FMH1DTY FMH2CODE
6	FMH1DSFL
7	FMH1ERCL

BFECFLG1

- X'80' First of Chain
- X'40' End of Chain
- X'20' Middle of Chain
- X'C0' Only in Chain
- X'10' Next entry is function management header (FMH) present entry
- X'08' Begin Bracket
- X'04' End Bracket
- X'02' Change Direction
- X'01' Associated request/response unit (RU) is in ASCII

FMHLNGTH (length of the FMH)

FMHTYPE

- X'01' Type 1 header
- X'02' Type 2 header: JES3 peripheral data set information record (PDIR) or box query for compaction table
- X'03' Type 3 header: used by JES3 to send compaction tables

FMH1DTY (Type 1 headers only)

- X'30' Printer
- X'20' Reader or punch
- X'10' Select-diskette/data format is SNA
- X'00' Console

FMH2CODE (Type 2 and type 3 headers)

- X'03' Box query for compaction table (type 2 headers)
- X'02' Compaction table (type 3 headers)
- X'01' Print/punch setup header (type 2 headers)

FMH1DSFL (Type 1 headers only)

- X'80' Suspend Destination

Communication Traces

X'40' Begin Destination
X'20' End Destination
X'10' Select-diskette/data format is non-SNA
X'E0' Resume Destination
X'C0' Continue Destination
X'A0' Abort Destination
X'04' Stream will be compressed
X'02' Stream will be compacted

FMH1ERCL (Type 1 headers only - logical length of the stream)

DFC Trace Entry Format, FMH Not Present:

Offset Contents

0 path-id
2 BFECFLG1
3-4 BFEDATL

BFECFLG1

X'80' First in Chain
X'40' End of Chain
X'20' Middle of Chain
X'C0' Only in Chain
X'10' Next entry is FMH present entry
X'08' Begin Bracket
X'04' End Bracket
X'02' Change Direction
X'01' Associated RU is in ASCII

BFEDATL

is the RU length

RESP Trace Entry Format:

Offset Contents

0 path-id
2-5 sense bytes

Sense Byte 1

X'80' Path error
X'40' RH error in the transmitted RU (RH indicates chaining, brackets, RMH, CD)
X'20' State error, such as:

X'20010000'
 Sequence error
 X'20020000'
 Chaining violation
 X'20030000'
 Bracket protocol error

X'10' Request error

X'10010000'
 Deblock/decompress error, inbound
 X'1008xxxx'
 FMH error:

 X'1008080B'
 Invalid compaction table name
 X'10082001'
 Invalid destination, destination is active
 X'10082004'
 Interruption level violation
 X'10082007'
 Destination not available
 X'10082008'
 Invalid end sequence
 X'10082009'
 Invalid FMH length
 X'1008200A'
 Invalid field setting
 X'10082010'
 Bind FMH header violation
 X'10082019'
 Stack reference error
 X'10084001'
 Invalid FMH type
 X'10084002'
 Invalid FMH code
 X'10084007'
 Media not supported
 X'10084009'
 Concatenation error

X'08' Request reject, such as:

X'08020000'
 Intervention required
 X'08140000'
 Bracket reject, Ready to Receive may follow
 X'081B0000'
 Bracket reject, LU status may follow

ERR Trace Entry Format:

Offset Contents

Communication Traces

0 path-id
 2 RPLREQ
 3 RPLRTNCD
 4 RPLFDB2
 5-6 caller-id

RPLREQ

- Request type, traced if a logical unit control block (LCB) pointer exists.
 - X'15' Set logon
 - X'16' Simulate logon
 - X'17' Open Destination
 - X'1A' Inquiry, session parameters
 - X'1F' Close Destination
 - X'22' Send
 - X'23' Receive
 - X'24' Reset Send or Receive
 - X'25' Clear or Start Data Traffic

RPLRTNCD

Return code, traced if an LCB pointer exists.

See *VTAM Programming*.

RPLFDB2

Feedback code, traced if an LCB pointer exists.

See *VTAM Programming*.

Caller ID

See Table 11.

Table 11. Caller IDs, Path A01

Caller ID	Caller	Explanation
A03	IATSNDA	ERCK000 called internally after EXECRPL macro issued.
A04	IATSNDA	ERCK000 called internally after EXECRPL macro issued.
C04	IATSNDC	Cancel send by the writer CLOSE routine.
C06	IATSNDC	Suspend Destination or Suspend Destination, Change Direction sent by the writer CLOSE routine.
C08	IATSNDC	End Destination, End Bracket or End Destination, Change Direction or Abort Destination sent for the writer.
C0B	IATSNDC	Resume Destination select sent by the console CLOSE routine.
C0D	IATSNDC	End Destination, End Bracket sent by the console CLOSE routine.
C0F	IATSNDC	Only in Chain, Change Direction sent to resume activity of an inbound reader interrupted for the outbound console.
E08	IATSNDE	SESSIONC macro issued (SRB scheduled).
E0A	IATSNDE	SESSIONC macro entered cleared exit. IATXERCK macro issued to check a VTAM return code.
M02	IATSNDM	Send positive response (SRB control).
M03	IATSNDM	Send positive response (DSP control).
M07	IATSNDM	Negative response sent by the NRSP routine.
M08	IATSNDM	Send positive response to query for compaction table.
M0A	IATSNDM	Compaction table sent.
M0C	IATSNDM	Send End Bracket or Change Direction for ERP after negative response sent and Cancel or End of Chain seen.
M0E	IATSNDM	POSREXIT system request block (SRB) scheduled after sending of positive response is complete.

Table 11. Caller IDs, Path A01 (continued)

Caller ID	Caller	Explanation
N02	IATSNDN	Negative response sent.
N03	IATSNDN	NREXIT SRB scheduled after sending of negative response is complete.
005	IATSNDO	Suspend Destination sent by the console OPEN routine (writer is temporarily closed).
008	IATSNDO	Peripheral data set information record (PDIR) or Begin Destination sent.
00A	IATSNDO	Writer Begin Bracket sent.
00C	IATSNDO	Compaction table sent.
00F	IATSNDO	End Bracket sent from the reject routine for an ERP (after negative response to writer Begin Destination or compaction table).
R02	IATSNDR	Positive or negative response received after End of Chain RU sent.
R06	IATSNDR	PURGE routine issued Receive Spec for LU status after negative response (0802) was sent to writer Begin Destination.
R08	IATSNDR	PURGE routine sent Begin Bracket, End Bracket, Only in Chain to workstation (permanent console device error).
R0B	IATSNDR	PURGE routine issued Cancel after negative response to data chain.
S01	IATSNDS	Send exit (Check RU sent by IATSNDU).
T03	IATSNDT	RESETSR exit routine scheduled.
T05	IATSNDT	Start data traffic SESSIONC exit routine scheduled.
T07	IATSNDT	RESETR macro issued by Between Brackets routine to put session in ANY mode (SRB).
T08	IATSNDT	RESETR macro issued by Between Brackets routine to put session in ANY mode (DSP).
T11	IATSNDT	Common error check (IRB/SRB).
T12	IATSNDT	Common error check (DSP).
U04	IATSNDU	Common error check called by the SENDIT routine (after sending front RU) or by the CANCEL routine (DSP control).
U06	IATSNDU	Common error check called by the SENDIT routine (after sending front RU) or by CANCEL (SRB control).
V02	IATSNDV	Common error check (CHECK=yes).
V03	IATSNDV	Common error check (CHECK=no).
Z01	IATSNLB	CLSDST macro was issued for LOGON abort.
Z02	IATSNLB	OPNDST macro was issued.
W01	IATSNLD	SIMLOGON macro was issued.
W02	IATSNLD	CLSDST (error) macro was issued from JESTAE routine (ABEND during logon).
X02	IATSNLO	Work queue processor sent Suspend Destination, Change Direction.
X03	IATSNLO	CLSDST macro was issued by work queue processor.
Y01	IATSNLS	OPEN/CLOSE subtask issued SETLOGON macro.
Y02	IATSNLS	OPEN/CLOSE subtask issued RECEIVE macro to allow data transfer from any LU.
Y04	IATSNLS	OPNDST exit.
Y07	IATSNLS	CLSDST exit.
Y08	IATSNLS	CLSDST error exit.
Y09	IATSNLS	SETLOGON exit.
Y0A	IATSNLS	SIMLOGON exit.
Y0B	IATSNLS	Logon exit (INQUIRE macro was issued for SESSPARMS and logon data).
Y0C	IATSNLS	CLSDST macro was issued in logon exit.
Y0F	IATSNLS	CLSDST macro was issued in ESTAE routine.

Table 12. Caller IDs, Path E01

Caller ID	Caller	Explanation
DA02	IATSNDA	Error condition, return code (RTNCD) is greater than X'14'.
DA03	IATSNDA	Error condition, return code (RTNDC) is zero.

Communication Traces

Table 12. Caller IDs, Path E01 (continued)

Caller ID	Caller	Explanation
DA04	IATSNDA	Exception condition routine gets FDBK2 for basic mode (SNA RJP uses record mode).
DA08	IATSNDA	Asynchronous retry limit was reached.
DA09	IATSNDA	Synchronous retry limit was reached (SIMLOGON).
DA0A	IATSNDA	Data integrity routine gets FDBK2 for basic mode.
DA0B	IATSNDA	Environmental error routine gets unknown FDBK2.
DA0C	IATSNDA	Unrecoverable error routine terminates for all codes except X'12'.
DC01	IATSNDC	Reader entered CLOSE and End Destination has not arrived.
DC02	IATSNDC	Inbound console entered CLOSE and End Destination Select has not arrived.
DD01	IATSNDD	Unsupported DFASY exit routine request or unsupported SIGNAL code.
DF01	IATSNDF	Functional recovery routine cancels session for SRB abend on session.
DM01	IATSNDM	End Bracket was processed, but attempt to decrease workstation session counts resulted in a negative value (RB control).
DM02	IATSNDM	End Bracket was processed, but attempt to decrease workstation session counts resulted in a negative value (DSP control).
DM03	IATSNDM	End Bracket was processed without prior End Destination Select; destack implied for all session users (RB control) TYPE=CLEAR.
DM04	IATSNDM	End Bracket was processed without prior End Destination Select; destack implied for all session users (DSP control) TYPE=CLEAR.
DM05	IATSNDM	FMH routine was called to process an FMH that occurred on First of Chain, but will take effect on End of Chain. No FMH backout bits were on, nor was End Destination Select pending (RB control).
DM06	IATSNDM	FMH routine was called to process an FMH that occurred on First of Chain, but will take effect on End of Chain. No FMH backout bits were on, nor was End Destination Select pending (DSP control).
DM07	IATSNDM	JES3 sent an exchange or basic exchange header and the device entry (DVE) could not be located.
DM08	IATSNDM	NRSP routine has been called for a bracket error, or has been called for an outbound session.
DM09	IATSNDM	Change Direction routine attempted to update workstation session counts with a resulting negative value (RB control).
DM10	IATSNDM	Change Direction routine attempted to update workstation session counts with a resulting negative value (DSP control).
DM11	IATSNDM	JES3 received a negative response sequence error (TYPE=CLEAR).
DM12	IATSNDM	An only in chain, end bracket, with FMH header detected while in chain state. Session terminated. (RB mode)
DM13	IATSNDM	An only in chain, end bracket, with FMH header detected while in chain state. Session terminated. (DSP mode)
DO01	IATSNDO	A new compaction table was sent and rejected; the previous (active) table was re-sent and also rejected.
DR01	IATSNDR	Negative response received to Suspend Destination Select, Resume Destination Select, Continue Destination Select (TYPE=CLEAR).
DR02	IATSNDR	Negative response received for error recovery program RU; there is a path or response header error; or a negative response was received with the error code 20xx, where xx is not 01.
DR03	IATSNDR	Negative response received after the SEND of the EOC RU was scheduled.
DR05	IATSNDR	The negative response exit in IATSNDR has detected an incorrect sense code of X'1008'.
DT11	IATSNDT	Module IATSNDR called IATSNDT to restart the session traffic outbound and the session flipped to inbound. Session direction changed by the RECEIVE exit in IATSNDR.
DV01	IATSNDR	DFCRU routine was called and it received an error return from IATXERCK upon sending an error recovery program RU.

Table 12. Caller IDs, Path E01 (continued)

Caller ID	Caller	Explanation
DV02	IATSNDV	BUFF routine found the inbound stack to be empty, indicating no active inbound users.
DV03	IATSNDV	A permanent error was detected in the CHKOUT routine. CHKOUT found the LCBIQF flag on, indicating that a quiesce normal was in progress. CHKOUT will call the termination routine (IATSNDV).
LC01	IATSNLC	Operator cancel or SNA RJP cancel (TYPE=Q,QI).
LD01	IATSNLD	JESTAE recovery after DM551.
LS01	IATSNLS	OPNDST failed.
LS02	IATSNLS	LOSTERM routine was entered, not logoff immediate. (TYPE=Q for logoff conditional, TYPE=CLEAR for BUFLIM exceeded.)
LS03	IATSNLS	LOSTERM routine was entered, logoff immediate.
LS04	IATSNLS	ESTAE recovery for LOSTERM abend.
LS05	IATSNLS	ESTAE recovery for RESP IRB routine abend.
LS06	IATSNLS	LOPNDST exit entered for a session that has an outstanding operator CANCEL.

Table 13. Caller IDs, Path M01

Caller ID	Caller	Explanation
C02	IATSNDV	Positive response to End Destination (reader).
C09	IATSNDV	Console close positive response to End Destination Select.
G01	IATSNDG	Send positive response to End of Chain (data chain).
G03	IATSNDG	Send positive response to Chase or Cancel.
N04	IATSNDN	Negative response sent, receive exit has seen End of Chain or Cancel.
O01	IATSNDV	Begin Destination Select arrived, call for positive response (reader).
O02	IATSNDV	Positive response to inbound console Begin Destination Select.
P02	IATSNDP	Process positive response to writer End of Chain.
P03	IATSNDP	Negative response received to writer chain; End of Chain was already sent.
R0C	IATSNDV	Process Purging Chain State or positive response to End of Chain RU.
V0A	IATSNDV	Negative response sent, receive exit routine has seen End of Chain or Cancel.
V0B	IATSNDV	Update session state for First of Chain, Only in Chain.

Table 14. Caller IDs, Path T01

Caller ID	Caller	Explanation
E08	IATSNDV	Send Start Data Traffic.
G02	IATSNDG	Issue a Receive.
M0D	IATSNDM	ERP inbound complete.
M0F	IATSNDM	Issue Receive after positive response to End of Chain.
N05	IATSNDN	Issue Receive; End of Chain has not arrived and Receive exit routine is not active.
P01	IATSNDP	I/O not pending, buffer 50% full or End of Chain, activate send exit routine.
P04	IATSNDP	Negative response was received for writer chain and End of Chain had already been sent; give the console or reader a chance to use the session.
P05	IATSNDP	Activate send exit to Cancel-for-Writer chain (negative response received).
P06	IATSNDP	Activate send exit to Cancel-for-Console chain; negative response was received.
V0E	IATSNDV	Data flow control RU processed.
Y05	IATSNLS	OPNDST complete, send Start Data Traffic.

Typical SNA RJP Protocol Sequences

A general understanding of SNA RJP protocol sequences is important when using traces for debugging. Figure 8 on page 95 contains sample protocols you can use in establishing a context for interpreting trace output.

Communication Traces

Abbreviations used in Figure 8 on page 95 are:

+R	Positive Response
-R	Negative Response
BB	Begin Bracket
BDS	Begin Destination
CD	Change Direction
CDS	Continue Destination
CTAB	Compaction Table
EB	End Bracket
EDS	End Destination
EOC	End of Chain
FMH	Function Management Header
FOC	First in Chain
LUSTAT	Logical Unit Status
MOC	Middle of Chain
OC	Only in Chain
PDIR	Peripheral Data Set Information Record
RDS	Resume Suspended Destination
RH	Request Header
RQD	Request Definite Response
RQE	Request Exception Response
RU	Request Unit
SDS	Suspend Destination
SVF	Set Vertical Format
TH	Transmission Header

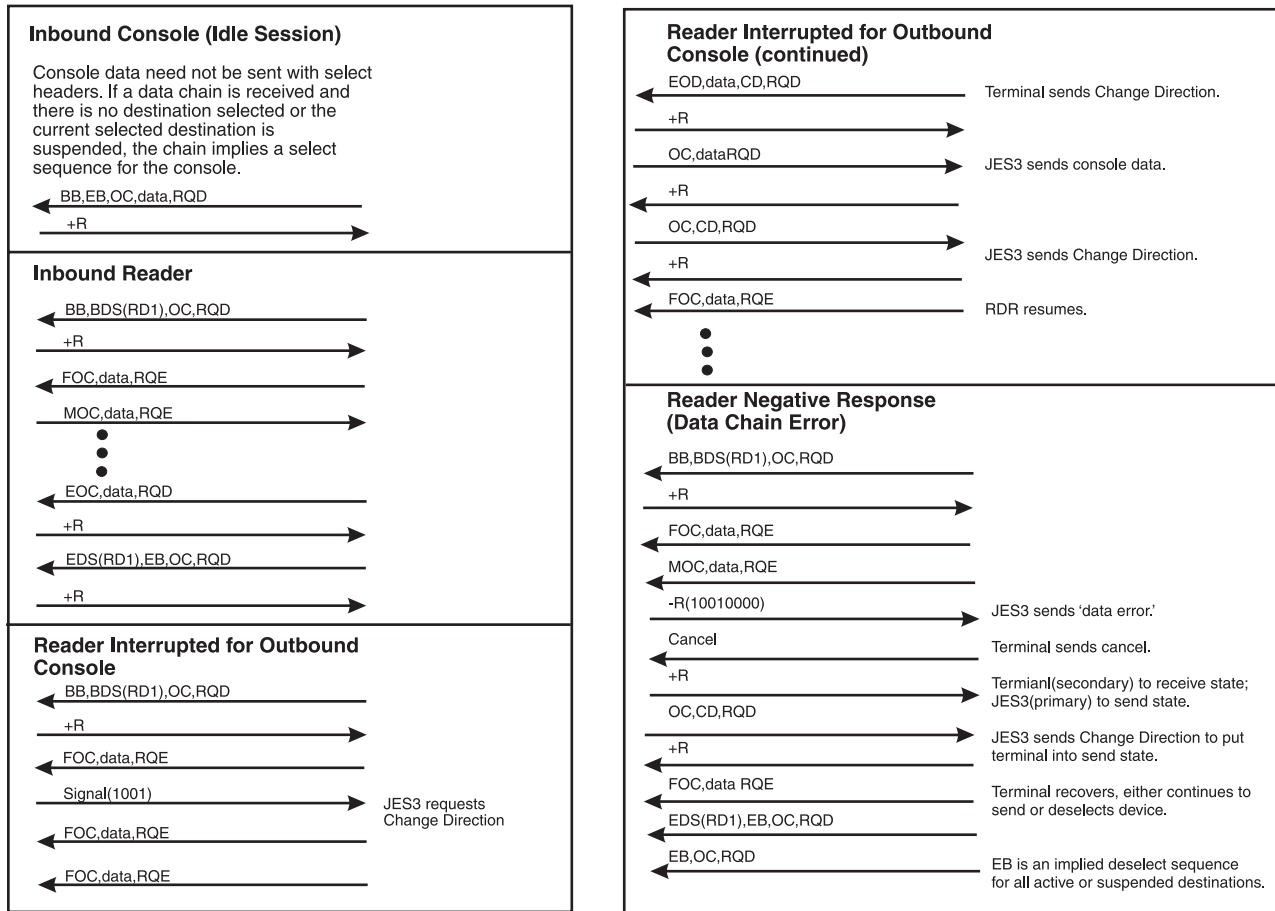


Figure 8. Typical SNA RJP Protocol Sequences (a)

Communication Traces

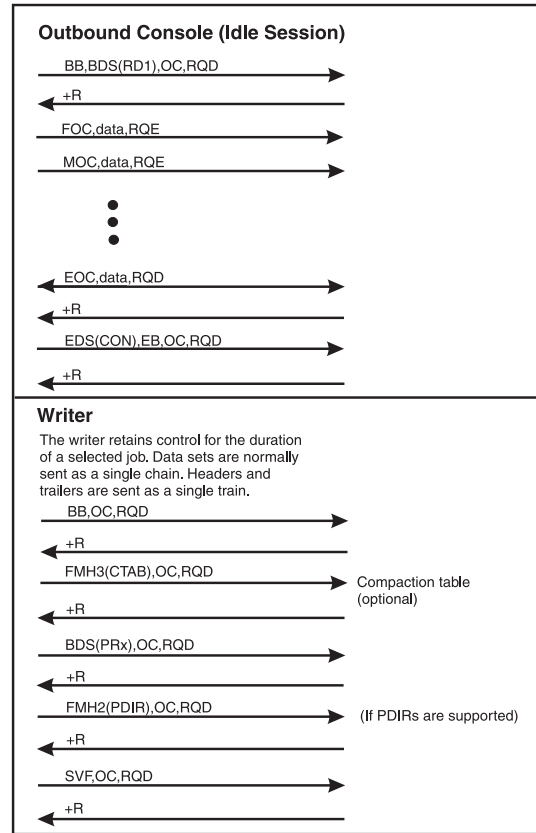
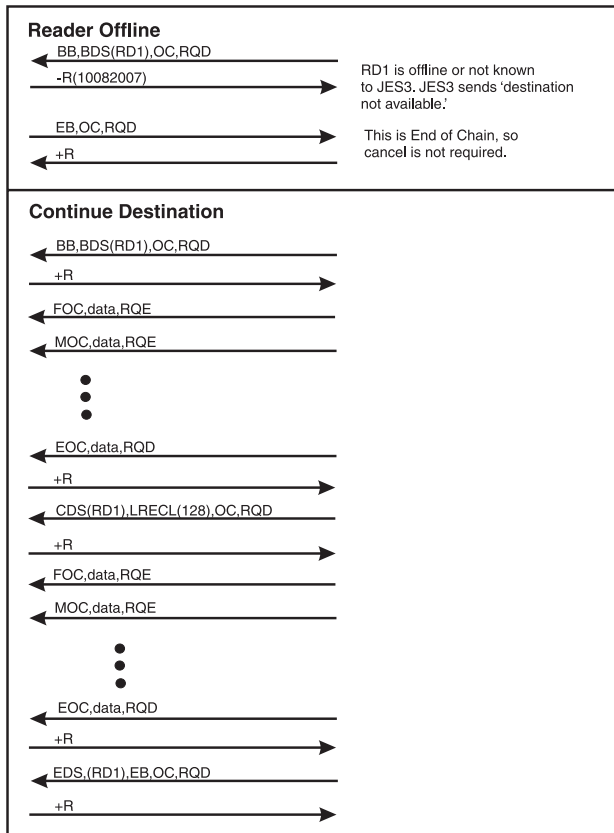


Figure 9. Typical SNA RJP Protocol Sequences (b)

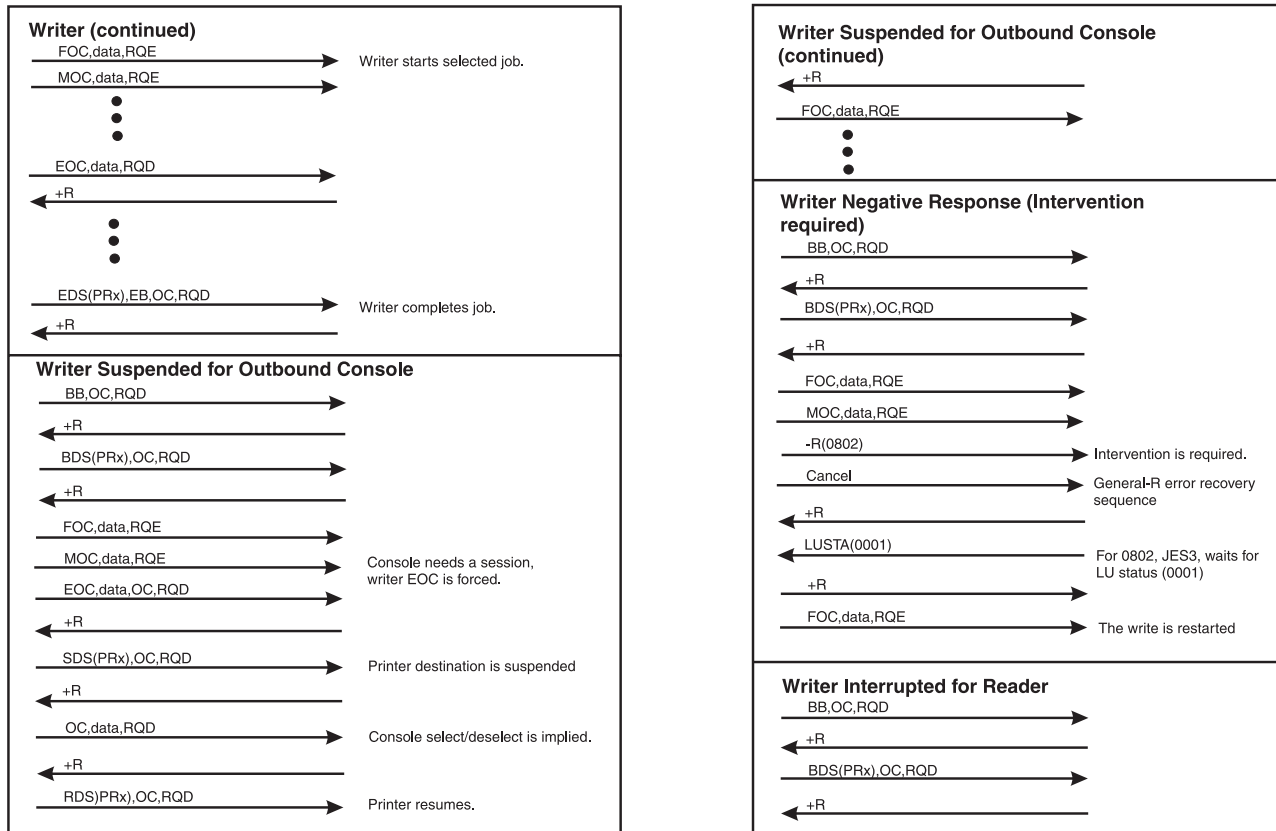


Figure 10. Typical SNA RJP Protocol Sequences (c)

Communication Traces

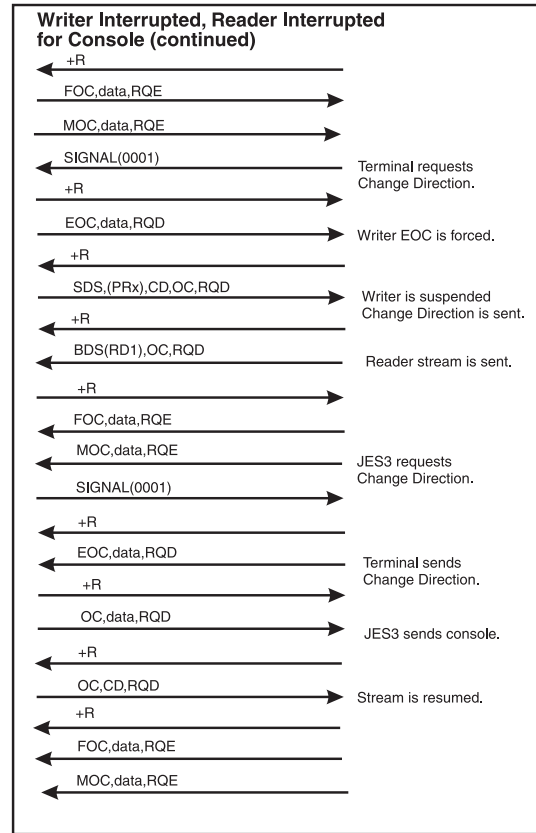
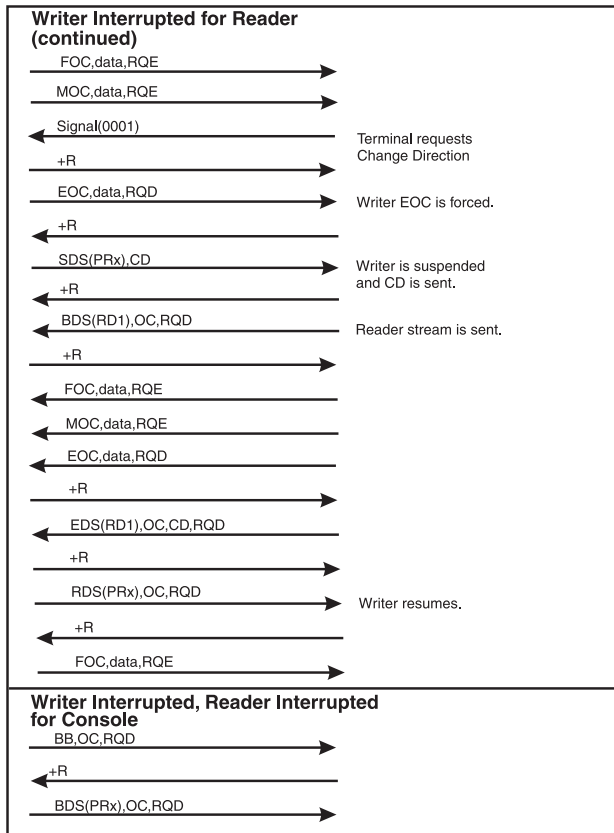


Figure 11. Typical SNA RJP Protocol Sequences (d)

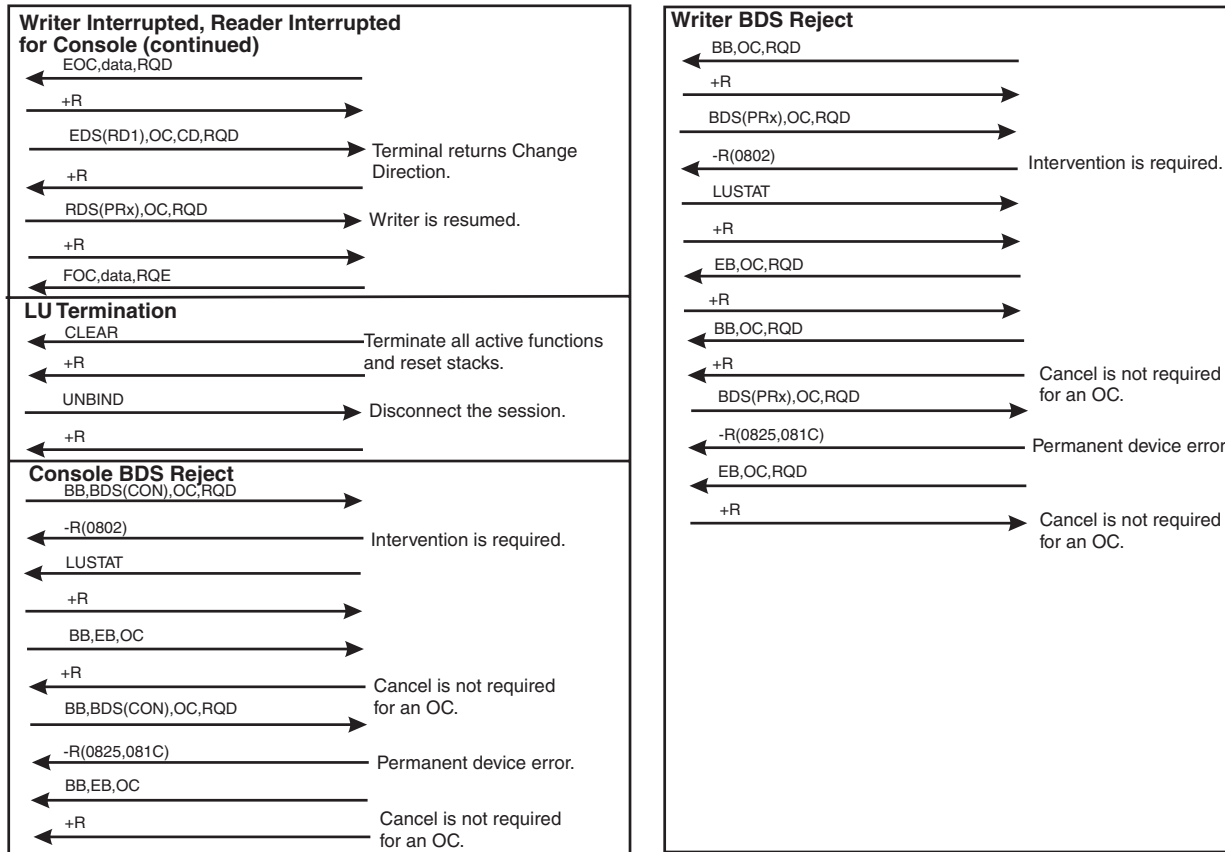


Figure 12. Typical SNA RJP Protocol Sequences (e)

Trace Data Reduction

To reduce the number of repetitive entries that would otherwise appear in a trace, the SNA RJP recording environment performs some data reduction and, for certain situations, selectively prints entries.

For inbound chains, traces include every First of Chain and End of Chain request/response unit (RU) for path ID V06. However, intervening Middle of Chain RUs are not traced (protocols may be sent on First of Chain or End of Chain, but not Middle of Chain).

For outbound chains, traces include only the first End of Chain between activity changes at path ID U01. An activity change is defined as processing for a function management header, Begin Bracket, Change Direction, or End Bracket RU. Thus, for outbound chains, the trace table will show only one data chain although many data chains may have been sent. Outbound protocols are always traced. Also, writer cancel data set conditions are always traced (in this case, an Only in Chain, Null RU may be sent), and FCB load sequences (such as Set Vertical Format) are traced. Data reduction for outbound chains prevents trace entries for the frequently-occurring End of Chain, positive response sequences. If the entry for path ID U01 is suppressed, the entries for path ID M01 and R0D are also suppressed (the entries for path ID M01 and R0D would be that for the positive response). Figure 13 on page 100 illustrates selective tracing for a standard writer sequence and for a writer sequence where the writer is interrupted for console

Communication Traces

activity:

Standard Writer Sequence		Inturrupted Writer Sequence	
Begin Bracket	Traced	Begin Bracket	Traced
Positive Response	Traced	Positive Response	Traced
Begin Destination	Traced	Begin Destination	Traced
Positive Response	Traced	Positive Response	Traced
First of Chain	Not Traced	First of Chain } Chain 1	Not Traced
End of Chain	Traced	End of Chain }	Traced
First of Chain	Not Traced	First of Chain } Chain 2	Not Traced
End of Chain	Not Traced	End of Chain }	Not Traced
End of Destination	Traced	Suspend Destination	Traced
Positive Response	Traced	Positive Response	Traced
		First of Chain } Chain 3	Not Traced
		End of Chain }	Traced
		First of Chain } Chain 4	Not Traced
		End of Chain }	Not Traced
		Resume Destination	Traced
		Positive Response	Traced
		First of Chain } Chain 4	Not Traced
		End of Chain }	Traced
		First of Chain } Chain 5	Not Traced
		End of Chain }	Not Traced

Figure 13. Examples of Selective Tracing

Entries to modules IATSNDA and IATSNDE are always traced at path IDs A01 and E01, respectively. Entry to module IATSNDM is always traced at path M01 except as noted earlier for outbound chains. Entry to module IATSNDDT at path ID T01 is selectively traced. Events not traced at path T01 are:

- **Positive responses to outbound chains:** If a positive response to an outbound console chain is received, module IATSNDR will invoke module IATSNDM for updating session states. In this case, module IATSNDM will always use its EOCH routine to invoke module IATSNDDT. Similarly, if a positive response to an outbound writer chain is received, module IATSNDDP will invoke module IATSNDM to update session states. However, in this case, IATSNDM will not invoke IATSNDDT. Instead, control will be returned to IATSNDDP, and IATSNDDP will invoke module IATSNDDT to restart session activity.
- **Positive responses to inbound Only in Chain, no data:** If an Only in Chain, no data RU is received or, in certain cases, if an Only in Chain, function management header (FMH) is received, module IATSNDM will use its EOCH routine to send the required positive response and will then call module IATSNDDT. (Module IATSNDM is called by module IATSNDDV for First of Chain processing.)

- **Reactivation of send/receive exits:** Module IATSNDDT may be called by module IATSNDDG to reactivate the receive exit routine, as would happen when the receive exit routine had previously filled all buffers and the reader has processed enough buffers to resume receiving. Module IATSNDDT may also be called by module IATSNDDP to reactivate the send exit routine. Neither of these entries to module IATSNDDT are traced at path ID T01. There will, however, be a trace entry for reactivation of the receive exit routine at path ID T02. For reactivation of the send exit routine, there will be no trace in module IATSNDDT.

Snapshot dump output

When the SNA RJP recording environment is activated, a snapshot dump is produced and printed automatically every time a decompress or deblock error is found in an inbound stream. The format of a snapshot dump is different from that of a trace.

```

*****
*                               -R(1001) SNAP 79.109                               *
*****

***** ERROR BFE 1

09053464 1C2728 001C2A00 00B60008 20000000 00000000 00000000 00000000 00000000 00000000 *.....*
1C2748 00000000 *....*

***** LCB - BFE'S START AT 1C26E0 RU'S START At IC2800 2

09053466 1C1F38 D3C3C240 D3E4F3F7 F7F6C440 00000000 001BEAC4 30592005 000C7320 00000100 *LCB LU3776D .....D.....*
1C1F58 00000000 00000000 00000000 00000000 00000000 00000000 00000000 010303A3 *.....*
1C1F78 A3708000 03858501 00011000 00B10000 80000100 40000840 40404040 40404000 *.....*
1C1F98 001BE800 00000000 00000000 00000000 00000005 00010000 00040029 001C2728 *.....*
1C1FB8 00102770 001C2770 001C27DC 00080100 001C2900 00B00007 80000000 00000000 *.....*
1C1FD8 00000000 00000000 00000000 00000000 00000000 00000000 50000000 00000002 *.....&.....*
1C1FF8 00000007 28008000 00800000 C8400008 80014020 00000000 00000000 20030000 *.....H.....*
1C2018 00000000 00000000 00000000 00000000 00004200 00200070 00000000 00000000 *.....*
1C2038 00000000 00001000 00800000 001A5E50 00000000 00000000 30592005 20800000 *.....&.....*
1C2058 00000000 00000000 00000000 90309450 00000000 80800000 40000000 00000000 *.....&.....*
1C2078 00000000 00000000 00000000 00000000 00000000 80008010 10010000 00000000 *.....*
1C2098 00000000 001C1F38 00000000 00000000 00000000 00202370 00000000 00000000 *.....*
1C20B8 00000000 20002020 00800000 001A5E50 00000000 001C2B00 30592005 20800000 *.....&.....*
1C20D8 00000000 000000B4 00000100 90309450 00000000 80800009 42000000 00000000 *.....&.....*
1C20F8 00000000 00000000 00000000 00000000 001C1F38 80008020 00000000 001BC690 *.....F.....*
1C2118 00000000 001C1F38 00000000 00000000 00000000 00201770 00000000 001BAA48 *.....*
1C2138 00000000 00001000 00800000 001A5E50 00000000 001C222C 30592005 28800000 *.....&.....*
1C2158 00000000 00000000 00000000 10308450 00000000 80800000 20000000 00000000 *.....&.....*
1C2178 00000000 00000000 00000000 00000000 00000000 80008010 00000000 00000000 *.....*
1C2198 00000000 001C1F38 00000000 00000000 00000000 00200070 00000000 00000000 *.....*
1C21B8 00000000 00001000 00800000 001A5E50 00000000 00000000 30592005 20800000 *.....&.....*
1C21D8 00000000 00000000 00000000 10309450 00000000 80800000 40000000 00000000 *.....&.....*
1C21F8 00000000 00000000 00000000 00000000 00000000 80008010 00000000 00000000 *.....*
1C2218 00000000 001C1F38 00000000 00000000 00000000 D0000040 30592005 001C1F38 *.....*
1C2238 D3E4F3F7 F7F6C440 D9C5C3D6 D9C44040 C06D0000 01800000 19000002 68000001 *LU3776 RECORD .....*
1C2258 00000000 00000000 00000000 001C1F74 00000000 00000000 40000050 00000000 *.....&.....*
1C2278 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
1C2298 00000000 00000000 001BF280 001C2AB6 001BED9C 00500028 00200000 00410030 *.....2.....&.....*
1C22B8 00000100 04000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
1C22D8 00000000 00000000 00000000 00000000 F31EC3C1 D9C440F0 F0F41EC3 C1D9C440 *.....3.CARD 004.CARD *
1C22F8 F0F0F51E C3C1D9C4 40F0F0F6 1EC3C1D9 C440F0F0 F71EC3C1 D9C440F0 F0F81EC3 *005.CARD 006.CARD 007.CARD 008.C*
1C2318 C1D9C440 F0F0F91E C3C1D9C4 40F0F1F0 1E000000 00000000 00000000 00000000 *ARD 009.CARD 010.....*
1C2338 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*

```

ERROR BFE contains the address of the RU for which a negative response was sent.

The reason for the negative response is at offset X'384'. Reason codes are:

- X'02' Decompression error, module IATSNPI. Possible causes are:
 1. The string control byte (SCB) count indicates more data than exists in the current RU.
 2. The SCB indicates compaction, but decompaction is not supported.

Communication Traces

3. Pointers were incorrectly managed, and a data byte was taken to be an SCB (resulting in #2, above).
 4. The SCB count is zero.
- X'03' The transparent data (TRN) count indicated more data than was available.
- X'04' There is a short record in the current RU, and the bind image specifies that data cannot span RUs (readers only).

The presentation services interface area begins at offset X'334'. Four values in the interface area control the decompression process:

Offset Meaning

- X'33C' The current position of module IATSNPI in the RU
- X'340' The current position of module IATSNPI in the 512-byte work area
- X'344' The number of bytes to be processed in the RU
- X'346' The number of unused bytes in the 512-byte work area

The function management inbound area begins at offset X'368'. Relevant values are:

Offset Meaning

- X'36C' Scan pointer to the RU or 512-byte work area
- X'376' The maximum number of records that will fit in the caller's area
- X'378' The number of unused record slots in the caller's area
- X'37C' The data count for the temporary work area
- X'37E' The count from the last TRN,CNT sequence
- X'3B0' The start of the temporary work area, which is used for spanning

Format of a BSC Network Trace Entry

The BSC network logging facility is a debugging aid for nodes that use BSC networking protocols. An entry is added to the trace data set from each I/O operation performed on a BSC networking line.

The following is a sample of the trace function report:

```

*****
*                               JES3 NETWORK I/O LOG OUTPUT   85.011   LINE1
*                               *****
*****
10212577 019472A0 40000000 08000008 820AF856 087F9C80 00FCD590 020AF218 00000000 0194730C * .....8.....N...2.....*
LNIO SB 019472C0 00000000 00000000 40070000 00000000 00000000 00000000 820AF850 * .....8&.....*
019472E0 820AF850 00000000 00323210 020AF210 00FCD590 01000000 00100000 00000000 * ..8&.....2...N.....*
01947300 00000000 00000000 00000000 * ..... *
10212577 0194730C E2D9C240 00000000 00F91A00 00000008 00000000 8100FAC0 80FE07EA 019472A0 *SRB ....9.....*
SRB 0194732C 00000000 00000000 00000000 * ..... *
CCWCHAIN 020AF210 04200001 00323083 * ..... *
READ 020AF083 00 * .. *
10212578 019472A0 40000000 08000008 820AF856 087F9C80 00FCD590 020AF150 0C00018E 0194730C * .....8.....N...1&.....*
LNIO SB 019472C0 00000000 00000000 40070000 00000000 00000000 00000000 820AF850 * .....8&.....*
019472E0 820AF850 00000000 00323140 020AF140 00FCD590 01000000 00000000 00000000 * ..8&.....1 ..N.....*
01947300 00000000 00000000 00000000 * ..... *
10212579 0194730C E2D9C240 00000000 00E91A00 00000008 00000000 8100FAC0 80FE07EA 019472A0 *SRB ....9.....*
SRB 0194732C 00000000 00000000 00000000 * ..... *
CCWCHAIN 020AF140 07600001 00000000 02200190 004C6008 * ..... *
READ 02095008 323D * .. *
10212580 019472A0 40000000 08000008 820AF856 087F9C80 00FCD590 020AF210 0C00018E 0194730C * .....8.....N...2.....*
LNIO SB 019472C0 00000000 00000000 40070000 00000000 00000000 00000000 820AF850 * .....8&.....*
019472E0 820AF850 00000000 003231F0 020AF1F0 00FCD590 01000000 00100000 00000000 * ..8&.....0..10..N.....*
01947300 00000000 00000000 00000000 * ..... *
10212580 0194730C E2D9C240 00000000 00F91A00 00000008 00000000 8100FAC0 80FE07FA 019472A0 *SRB ....9.....*
SRB 0194732C 00000000 00000000 00000000 * ..... *
CCWCHAIN 020AF1F0 04600001 00323083 01600002 0032343A 07600001 00000000 02200190 004C6008 * ..... *
READ 020AF083 07 * .. *
WRITE 020AF43A 012D * .. *
READ 02095008 1070 * .. *

```

The time-stamp is in the form *hhmmsssth*, where *hh* is the hour, *mm* is the minute, *ss* is the second and *th* is the tenths and hundredths of a second. The time-stamp indicates the time of day the trace entry was made and appears at the beginning of each trace entry.

LNIO SB is the input/output supervisor block for the line. It is mapped by IECDIOSB.

CCWCHAIN is the full channel program used which caused this trace entry to be taken.

READ and WRITE refer to data read from or written to the line and bear a direct relationship to the CCW chain. Any CCW which causes data to be read, such as READ or SENSE, will cause a READ data entry to be made. Any CCW which causes data to be written will cause a WRITE entry to be made. These full READ and WRITE data entries will follow CCWCHAIN and appear in an order corresponding to the order of the CCW string.

Exception Responses: JES3 may receive an exception response after transmitting data to a remote workstation, or it may transmit an exception response after receiving data from a remote workstation. For each exception response, 01 console. The meanings of exception response codes are described in *z/OS MVS System Messages, Vol 5 (EDG-GFS)*.

Actions taken by SNA RJP to recover from exception response situations depend upon the type and seriousness of the error. Failing devices are varied offline. Errors

Communication Traces

related to data files cause input jobs to be flushed and output data sets to be requeued in hold status. When permanent session errors occur, the session is terminated.

Some exception responses are the result of inoperable devices or line failures and program debugging would be meaningless. Others can be program-related, as when an invalid protocol is transmitted by JES3 or when input data is misinterpreted by JES3. Before notifying the IBM representative about program-related problems, obtain the following:

- A listing of the initialization stream
- SNA RJP trace output
- The console log containing the exception response message

No Communication Between a Workstation and the Host: In the event that SNA RJP will not accept input from a remote workstation console or reader and at the same time will not transmit to the console, printer, or punch at that workstation, the operator of the remote console should direct the host operator to restart SNA RJP for the workstation. If such a problem occurs repeatedly and you seek assistance from the IBM representative, obtain the following:

- A listing of the initialization stream.
- SNA RJP trace output.
- The console log.
- An MVS dump of JES3 address space (with the CSA), taken before restarting or canceling the workstation.

Format of TCP/IP/NJE Trace Records

TCP/IP/NJE trace records are generated by IAZNJTCP at the direction of JTRACE and ITRACE on the Netserv and socket definitions. These trace records are collected by using GTF record F60, subtype 0004.

Each record contains an identifier consisting of the string "NETSERV" or "SOCKET", which is followed by the letter "I" or "J". The "NETSERV" or "SOCKET" characters identify the level of the trace record. The letter "I" or "J" identifies the type of trace record (for example, ITRACE or JTRACE). An ITRACE record contains internal trace information that is passed between IAZNJTCP and TCP/IP. A JTRACE record contains NJE control information and data. NJE control information and data is a subset of the trace information that is produced by BSC line logging. Compressed data, control information, and header/trailer records are generated in TCP/IP/NJE. Trace records consisting of CCW, IOSB, or SRB information, unlike BSC logging, are not generated in TCP/IP/NJE.

TCP/IP traces contain most trace records at the socket level. Trace records at the Netserv level are typically produced early in the signon sequence before a socket connection is established.

ITRACE and JTRACE records are controlled by the ITRACE= and JTRACE= parameters that is on the NETSERV or SOCKET initialization statements or on the *MODIFY,NETSERV and *MODIFY,SOCKET commands. The records are written using the Generalized Trace Facility (GTF). See "Using the Data Collected by the Generalized Trace Facility" on page 115 for more information.

IAZNJTCP produces a third type of trace record that is called Verbose Trace (VTRACE). VTRACE records are controlled by the VTRACE= parameter that is on the NETSERV and SOCKET initialization statements or on the *MODIFY,NETSERV

and *MODIFY,SOCKET commands. VTRACE records are produced as console messages that are written by IAZNJTCP. They are not written, intercepted, or otherwise handled by JES3.

The following example is a TCP/IP/NJE trace after it has been collected and formatted in IPCS.

```

**** GTFTRACE DISPLAY OPTIONS IN EFFECT ****
USR=ALL
**** GTF DATA COLLECTION OPTIONS IN EFFECT: ****
  USRP option
**** GTF TRACING ENVIRONMENT ****
Release: SP7.0.7 FMID: HBB7720 System name: SY1
CPU Model: 4381 Version: FF Serial no. 111515
HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ...JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 280000A4 E3E3D9C3 998583A5 00000000 | ...uTTRCrcv.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000000 00000008 00000001 00000000 | ..... |
+0060 17594028 00000008 00000000 00000000 | .. |
+0070 00000000 00000000 00000000 00000000 | ..... |
+0080 00000000 00000000 00000086 00010400 | .....f.... |
+0090 00000000 00000000 00000008 00000000 | ..... |
+00A0 00000000 00000000 00000000 00000000 | ..... |
+00B0 00000000 174097B8 00000010 174097C8 | ..... p..... pH |
+00C0 00000000 00000000 00000000 00000000 | ..... |
+00D0 00000000 00000000 | ..... |
GMT-04/30/2005 23:38:07.523579 LOC-04/30/2005 19:38:07.523579

```

```

HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ...JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 300000A1 E3E3D9C3 998583A5 00000000 | ...~TTRCrcv.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000080 00000001 00000000 17594030 | ..... |
+0060 0000000E 00000000 00000000 00000000 | ..... |
+0070 00000000 00000000 00000000 00000000 | ..... |
+0080 00000000 00000086 00010400 00000000 | .....f..... |
+0090 00000000 00000000 00000000 00000000 | ..... |
+00A0 00000000 00000000 00000000 00000000 | ..... |
+00B0 174097B8 00000010 174097C8 00000000 | . p..... pH.... |
+00C0 00000000 00000000 00000000 00000000 | ..... |
+00D0 00000000 00 | ..... |
GMT-04/30/2005 23:38:07.523677 LOC-04/30/2005 19:38:07.523677

```

```

HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ...JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 280000A4 E3E3D9C3 998583A5 00000000 | ...TTRCrcv.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000000 00000000 | ..... |
GMT-04/30/2005 23:38:07.523772 LOC-04/30/2005 19:38:07.523772

```

Communication Traces

```
HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 280000A4 E3E3D9C3 998583A5 00000000 | ...uTTRCrecv.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000000 0000000E 00000001 00000000 | ..... |
+0060 17594030 0000000E 00000000 00000000 | ..... |
+0070 00000000 00000000 00000000 00000000 | ..... |
+0080 00000000 00000000 00000086 00010400 | .....f.... |
+0090 00000000 00000000 0000000E 00000000 | ..... |
+00A0 00000000 00000000 00000000 00000000 | ..... |
+00B0 00000000 174097B8 00000010 174097C8 | .... p..... pH |
+00C0 00000000 00000000 00000000 00000000 | ..... |
+00D0 00000000 00000000 | ..... |
GMT-04/30/2005 23:38:07.523964 LOC-04/30/2005 19:38:07.523964
```

```
HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3D140 7CF0F0F0 F0F0F0F1 | SOCKETJ @0000001 |
+0030 80000016 00000016 00000000 00000006 | ..... |
+0040 1002838F CF000000 0000 | ..c..... |
GMT-04/30/2005 23:38:07.524045 LOC-04/30/2005 19:38:07.524045
```

```
HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 300000A1 E3E3D9C3 998583A5 00000000 | ...~TTRCrecv.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000080 00000001 00000000 17594028 | ..... |
+0060 00000008 00000000 00000000 00000000 | ..... |
+0070 00000000 00000000 00000000 00000000 | ..... |
+0080 00000000 00000086 00010400 00000000 | .....f..... |
+0090 00000000 00000000 00000000 00000000 | ..... |
+00A0 00000000 00000000 00000000 00000000 | ..... |
+00B0 174097B8 00000010 174097C8 00000000 | . p..... pH.... |
+00C0 00000000 00000000 00000000 00000000 | ..... |
+00D0 00000000 00 | ..... |
GMT-04/30/2005 23:38:07.524168 LOC-04/30/2005 19:38:07.524168
```

```
HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 28000024 E3E3D9C3 998583A5 00000000 | ....TTRCrecv.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000000 00000000 | ..... |
GMT-04/30/2005 23:38:07.524241 LOC-04/30/2005 19:38:07.524241
```

```

HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 300000A1 E3E3D9C3 A2859584 00000000 | ...~TTRCsend.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000080 00000001 00000000 1755265C | .....* |
+0060 00000016 00000000 00000000 00000000 | ..... |
+0070 00000000 00000000 00000000 00000000 | ..... |
+0080 00000000 0000008A 00010400 00000000 | ..... |
+0090 00000000 00000000 00000000 00000000 | ..... |
+00A0 00000000 00000000 00000000 00000000 | ..... |
+00B0 174097B4 00000010 174097C8 00000000 | . p..... pH.... |
+00C0 00000000 00000000 00000000 00000000 | ..... |
+00D0 00000000 00 | ..... |
GMT-04/30/2005 23:39:07.524583 LOC-04/30/2005 19:39:07.524583

```

```

HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 28000024 E3E3D9C3 A2859584 00000000 | ...TTRCsend.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000000 00000000 | ..... |
GMT-04/30/2005 23:39:07.525144 LOC-04/30/2005 19:39:07.525144

```

```

HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 280000A4 E3E3D9C3 A2859584 00000000 | ...uTTRCsend.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000000 00000016 00000001 00000000 | ..... |
+0060 1755265C 00000016 00000000 00000000 | ...*..... |
+0070 00000000 00000000 00000000 00000000 | ..... |
+0080 00000000 00000000 0000008A 00010400 | ..... |
+0090 00000000 00000000 00000016 00000000 | ..... |
+00A0 00000000 00000000 00000000 00000000 | ..... |
+00B0 00000000 174097B4 00000010 174097C8 | ..... p..... pH |
+00C0 00000000 00000000 00000000 00000000 | ..... |
+00D0 00000000 00000000 | ..... |
GMT-04/30/2005 23:39:07.525471 LOC-04/30/2005 19:39:07.525471

```

```

HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 280000A4 E3E3D9C3 998583A5 00000000 | ...uTTRCrecv.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000000 00000008 00000001 00000000 | ..... |
+0060 17594028 00000008 00000000 00000000 | ..... |
+0070 00000000 00000000 00000000 00000000 | ..... |
+0080 00000000 00000000 00000086 00010400 | .....f.... |
+0090 00000000 00000000 00000008 00000000 | ..... |
+00A0 00000000 00000000 00000000 00000000 | ..... |
+00B0 00000000 174097B8 00000010 174097C8 | ..... p..... pH |
+00C0 00000000 00000000 00000000 00000000 | ..... |
+00D0 00000000 00000000 | ..... |
GMT-04/30/2005 23:39:07.525582 LOC-04/30/2005 19:39:07.525582

```

Communication Traces

```
HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 300000A1 E3E3D9C3 998583A5 00000000 | ...~TTRCrecv.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000080 00000001 00000000 17594030 | ..... |
+0060 0000000E 00000000 00000000 00000000 | ..... |
+0070 00000000 00000000 00000000 00000000 | ..... |
+0080 00000000 00000086 00010400 00000000 | .....f..... |
+0090 00000000 00000000 00000000 00000000 | ..... |
+00A0 00000000 00000000 00000000 00000000 | ..... |
+00B0 174097B8 00000010 174097C8 00000000 | . p..... pH.... |
+00C0 00000000 00000000 00000000 00000000 | ..... |
+00D0 00000000 00 | ..... |
GMT-04/30/2005 23:39:07.525664 LOC-04/30/2005 19:39:07.525664
```

```
HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 28000024 E3E3D9C3 998583A5 00000000 | ...TTRCrecv.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000000 00000000 | ..... |
GMT-04/30/2005 23:39:07.525756 LOC-04/30/2005 19:39:07.525756
```

```
HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3C940 7CF0F0F0 F0F0F0F1 | SOCKETI @0000001 |
+0030 280000A4 E3E3D9C3 998583A5 00000000 | ...uTTRCrecv.... |
+0040 00000000 00000000 00000000 00000000 | ..... |
+0050 00000000 0000000E 00000001 00000000 | ..... |
+0060 17594030 0000000E 00000000 00000000 | .. |
+0070 00000000 00000000 00000000 00000000 | ..... |
+0080 00000000 00000000 00000086 00010400 | .....f.... |
+0090 00000000 00000000 0000000E 00000000 | ..... |
+00A0 00000000 00000000 00000000 00000000 | ..... |
+00B0 00000000 174097B8 00000010 174097C8 | ..... p..... pH |
+00C0 00000000 00000000 00000000 00000000 | ..... |
+00D0 00000000 00000000 | ..... |
GMT-04/30/2005 23:39:07.525960 LOC-04/30/2005 19:39:07.525960
```

```
HEXFORMAT AID FF FID 00 EID EF60
+0000 00FA1780 D1C5E2F3 E2F34040 C7E3D9C3 | ....JES3S3 GTRC |
+0010 00000004 00010001 E2E8F140 40404040 | .....SY1 |
+0020 E2D6C3D2 C5E3D140 7CF0F0F0 F0F0F0F1 | SOCKETJ @0000001 |
+0030 80000016 00000016 00000000 00000006 | ..... |
+0040 1002848F CF000000 0000 | ..d..... |
GMT-04/30/2005 23:39:07.526049 LOC-04/30/2005 19:39:07.526049
```

For general information on JES3 GTF trace records and how the record header is mapped, see “Using the Data Collected by the Generalized Trace Facility” on page 115. For TCP/IP records specifically, the information that follows the GTF record header is mapped by macro IATYG004.

Dump Job Trace Output

Three types of trace output may be obtained from the dump job facility (DJ):

- Channel command word (CCW) tracing

- Control block (CB) name tracing
- Control block data (CBD) tracing

If ALL is specified on the TRACE= parameter of the *START command, all three types of tracing are performed. The output of DJ tracing is written to the DJ message log data set and is described below.

CCW Trace Output

When CCW tracing is requested, the dump job facility traces the channel command words for each I/O operation. A trace entry is generated for each CCW in the channel program that is about to be initiated.

```

1
***** CCW TRACE -- 01210000 200010E8
***** CCW TRACE -- 1F000000 60000001
***** CCW TRACE -- +03000000 20000001
IAT7229 DJ572-0017: SUCCESSFULLY DUMPED JOB PAGE      (0005)
***** CCW TRACE -- 0120A878 20000050
***** CCW TRACE -- 27000000 60000001
***** CCW TRACE -- +03000000 20000001
***** BLK TRACE -- JCT  DUMPED   FOR JOB OUT03      (0008)

```

- 1** Is the contents of a CCW in the channel program. If a plus sign(+) precedes the CCW, the CCW is chained to the CCW that precedes it. In this example, 1F000000 60000001 is chained to 03000000 20000001.

CB Name Trace Output

When CB name tracing is requested, the dump job facility traces the names of the control blocks and multi-record files (MRFs) (pointed to by the job data set (JDS) control block) that are dumped or restored for each job or DJC network. No data is traced. A single trace entry is generated each time a control block or MRF is dumped or restored. The entry identifies the name of the control block or MRF and the associated job or DJC network.

```

***** BLK TRACE -- JCT  DUMPED   FOR JOB PAGE      (0005) 4
***** BLK TRACE -- JDAB DUMPED   FOR JOB PAGE      (0005)
***** BLK TRACE -- OSE  DUMPED   FOR JOB PAGE      (0005)
***** BLK TRACE -- JST  DUMPED   FOR JOB PAGE      (0005)
***** MRF TRACE -- JDS  DUMPED   FOR JOB PAGE      (0005)
***** MRF TRACE -- MRF  DUMPED   FOR JOB PAGE      (0005) -- JCLIN      5 RECORD CNT = 000000004
***** MRF TRACE -- MRF  DUMPED   FOR JOB PAGE      (0005) -- JESMSG      RECORD CNT = 000000007
***** MRF TRACE -- MRF  DUMPED   FOR JOB PAGE      (0005) -- JESJCL      RECORD CNT = 000000031
***** MRF TRACE -- MRF  DUMPED   FOR JOB PAGE      (0005) -- JESYSMSG    RECORD CNT = 000000005
***** MRF TRACE -- MRF  DUMPED   FOR JOB PAGE      (0005) -- JCBLOCK     RECORD CNT = 000000046
***** MRF TRACE -- MRF  DUMPED   FOR JOB PAGE      (0005) -- JOURNAL     RECORD CNT = 000000000
***** MRF TRACE -- MRF  DUMPED   FOR JOB PAGE      (0005) -- JESI0001    RECORD CNT = 000000013
***** JMR TRACE -- MRF  DUMPED   FOR JOB PAGE      (0005)

```

- 1** Is the ID of the control block being traced (for example, JCT, or JDAB) or MRF.
- 2** DUMPED indicates that the control block or MRF is being written to tape. RESTORED may appear instead, and indicates that the control block or MRF is being written back to spool.
- 3** Indicates the DJC network or specific job with which the control block data or MRF is associated. **JOB** appears in all the trace entries for job-related control blocks (for example, JCT and JDAB). The number in parentheses is

Dump Job Traces

the job number of the job at the time it was dumped. **NET** will appear instead, but only in the trace entries for control blocks that describe a DJC network such as JNCB or NCB.

- 4** Indicates the release identification (fmid), such as HJS2329, of the control block data or the ddname associated with the MRF. This is included in the trace entry only if control block translation is being performed.
- 5** **RECORD CNT=nnnnnnnn** indicates the number of logical records in the file and appears only for MRF tracing.

CBD Trace Output

When control block data tracing is requested, the dump job facility traces the names of the control blocks and multi-record files or MRFs that are dumped or restored for each job or DJC network in the same way as control block name tracing. In addition, the dump job facility traces the actual data contents of the control block buffers.

When **TRANS=YES** is specified, the dump job facility traces both the input and output versions of the control blocks. That is, the dump job facility traces the control blocks when they are read in from tape or spool before translation and then again when they are restored to spool or dumped to tape after translation.

Note that the traced versions of the control block buffers might not always appear in sequence in the Dump Job message log data set. Other processing being performed may result in messages or other type of trace entries being generated between the control block traces. Nor does a one to one correspondence between the traced versions of a control block buffer always exist. A single input control block buffer may expand into two or more control block buffers when the translation is performed.

When **TRANS=NO** is specified, the dump job facility traces only single copies of each control block buffer when it is dumped or restored.

```
000000 80000000 D1D5C3C2 D5C5E3F3 40404040 00020000 0D7904D0 80000000 00700002
000020 00000000 00000200 00000000 00000000 001B6BB0 00000000 00000000 00000000
000040 00000000 00000000 00000000 00000000 00000000 00000000 00000000
000060 00000000 00000000 00000000 00000000 00000000 00000000 00000000
***** 1 2 3 4 5
        BLK TRACE -- JNCB DUMPED FOR NET NET3 -- HJS2327
6 000000 00000000 D1D5C3C2 D5C5E3F3 40404040 E3C1D7C5 0D79004E 00020000 00000000
000020 00000000 00000000 00000000 00000000 00000000 00000000 00000000
000040 00000000 00000000 00000000 0000 00000000 00000000 00000000
***** BLK TRACE -- NCB READ IN FOR NET NET3 -- HJS2329
```

- 1** Is the ID of the control block being traced (for example, JCT or JDAB) or MRF.
- 2** indicates either **DUMPED**, **RESTORED**, or **READ IN**. **DUMPED** indicates that the control block or MRF is being written to tape. If translation is required, it has already been translated by this time. **RESTORED** indicates that the control block or MRF is being written back to spool. If translation is required, it has already been translated by this time. **READ IN** indicates that the control block was read in from tape (if restoring) or spool (if dumping). This type of tracing only occurs when translation is in effect and the data has not yet been translated.

- 3** Indicates the DJC network or specific job with which the control block data or MRF is associated. **NET** appears only in the trace entries for control blocks that describe a DJC network such as JNCB or NCB. **JOB** appears in all the trace entries for job-related control blocks (for example, JCT and JDAB). The number in parentheses is the job number of the job at the time it was dumped.
- 4** Indicates the release level (fmid), such as HJS2327, of the control block data or the ddname associated with the MRF. **fmid** is included in the trace entry only if control block translation is being performed.
- 5** **RECORD CNT=nnnnnnnn** indicates the number of logical records in the file and appears only for MRF tracing.
- 6** Indicates the control block data in hexadecimal format. The entire control block buffer is traced.

Storage Dumps

An abnormal end of JES3 produces a storage dump of the JES3 address space. In certain situations, it can become necessary or desirable to produce such an abend dump intentionally. Use the *DUMP command for this purpose. After the dump, JES3 must be reinitialized, as the *DUMP command causes JES3 to end. You cannot enter the *DUMP command in the input stream.

Dumps produced by the *DUMP command, or because of a JES3 failure, are handled according to the specification made at initialization time on the OPTIONS statement. See *z/OS JES3 Initialization and Tuning Reference* for additional information. The type of dump taken at the time of the failure is indicated by JES or MVS:

- A JES3-formatted dump is written to the JESABEND data set. This data set is defined by the JESABEND DD statement in the JES3 procedure.
- An MVS dump of JES3 is written to either the SYSUDUMP or SYSABEND data set, depending upon which DD statement is used in the JES3 procedure. The storage areas dumped are controlled by the IEADMP00 or IEAABD00 dump default lists in SYS1.PARMLIB. These dump lists can be dynamically changed by the MVS CHNGDUMP (CD) command. See *z/OS MVS System Commands* for more detail on CHNGDUMP.

When a system failure occurs, the system attempts to write a storage dump on a SYS1.DUMP system data set, record the failure on the SYS1.LOGREC data set, recover from the failure, and continue processing.

If you want a dump of the JES3 address space without terminating the JES3 address space, you can issue the MVS DUMP command. For more information about the MVS DUMP command, see *z/OS MVS System Commands*.

JES3 Dump Suppression

JES3 failsoft (ABENDDMxxx) dumps taken on the global processor can be suppressed using the JES3 dump suppression facility. All JES3 failsoft codes with the exceptions of dumps taken during initialization or dumps taken as a result of the *FAIL,DSP,DUMP command (ABENDDM133), can be suppressed. Dump suppression remains active across a JES3 hot start and warm start.

JES3 dump suppression can only be used for JES3 failsoft dumps (ABENDDMxxx). To suppress other types of dumps, such as an ABEND0C4 or an ABEND2FB, see *z/OS Problem Management*.

Dump Job Traces

JES3 dump suppression is available only when a JES3 failsoft normally issues a dump for ABENDDMxxx failures. This is set by the OPTIONS initialization stream statement, by either specifying the WANTDUMP=YES parameter or by omitting the WANTDUMP parameter from the OPTIONS statement.

If your system automatically asks the operator if a dump is to be taken (WANTDUMP=ASK), or if dumps are automatically bypassed (WANTDUMP=NO), JES3 dump suppression is not available. To change the WANTDUMP parameter, a warm start of JES3 is required.

Output Service Diagnostic Mode

Using the output service diagnostic mode, you can display information on the data sets that are selected by a writer for processing. The output service diagnostic mode is invoked by including the D parameter on the *CALL, *START, *RESTART, and *CANCEL command. The diagnostic mode remains active until it is reset using the /D parameter.

When the output service diagnostic mode has been invoked for a writer, messages IAT7006 and IAT7060 are displayed to identify the data set that was selected for output processing. Following message IAT7006, the output service diagnostic mode displays a seven byte field of information, within the text of message IAT7060, about the writer data area. The writer data area is mapped by either:

- IATODWD for a hot or dynamic writer
- IATODFD for a FSS writer

This data is obtained from the following fields in the writer work area in module IATODWD: WTRIMFLP, WTRIFLG1, WTRIFLG2, WTRIFLG3, WTRIFLG4, WTRIFLG5, and WTRINDEX. The data FSS mode writers also display this information from IATODFD and append five additional bytes (WTRFFLG1, WTRFFLG2, WTRFFLG3, WTRFFLG4, and WTRFFLG5) to the message. See *z/OS JES3 Messages* for an explanation of these messages.

The following data displayed in message IAT7060:

Table 15. IAT7060 data. Data displayed by message IAT7060

Field	Byte	Bits	Name	Description		
diagfld	1		WTRIMFLP	Flag byte		
		1...	WTRISTR	Command is an *START		
		.1..	WTRISTR	Command is an *RESTART		
		..1.	WTRICNCL	Command is an *CANCEL		
		...1	WTRICALL	Command is an *CALL		
		.... 1..	WTRISYND	Writer synchronization has been done	
		.... .1.	WTRIJOB	Job selected	
		.... ..1.	WTRIDSS	Data set selected	
		.... ...1	WTRIMNT	Mount (setup) condition	
		diagfld	2		WTRIFLG1	Save area for OSEDFLG1
		diagfld	3		WTRIFLG2	Flag byte
				1...	WTRIOS	OSE selected flag
				.1..	WTRISTUP	Command implementation in setup
				..1.	WTRINNPR	processing
...1	WTRIREOF			No NPRO value specified		
.... 1..	WTRISTER			EOF on repositioning forward		
.... .1.	WTRIERIN			Syntax error detected		
.... ..1.	WTRINEGV			Parameter error detected		
.... ...1	WTRIPFOK			Ignore selection characteristics (/ used)		
					WTRIPFOR has a valid value	

Output Service Diagnostic Mode Output

Table 15. IAT7060 data (continued). Data displayed by message IAT7060

Field	Byte	Bits	Name	Description
diagfld	4		WTRIFLG3	Flag byte
		1...	WTRIDSBG	Data started
		..1.	WTRIDSDN	Data completed
		..1.	WTRIPAGE	Reposition by pages
		...1	WTRIDSLD	Data set label exit called
		.... 1..	WTRITRNC	Short output required
		.... .1.	WTRIRSCD	Job rescheduling required
		.... .1.	WTRIRJPE	Terminate by RJP cancel
		.... ...1	WTRIKPJS	Keep job start PPQ/PDQ
		diagfld	5		WTRIFLG4	Flag byte
1...	WTRIENTD			Termination flag
..1.	WTRIHOT			Hot writer flag
..1.	WTRIRSCH			Job (PDQ) rescheduling required
...1	WTRIDLE			Hot writer going idle
.... 1..	WTRICHNG			OSE rescheduling required
.... .1.	WTRINDSR			Data set rescheduling required
.... .1.	WTRICPPL			Plus copies option
.... ...1	WTRICPMI			Minus copies option
diagfld	6				WTRIFLG5	Flag byte
		1...	WTRISREQ	Setup required
		..1.	WTRIJOB	Job selected flag
		..1.	WTRIDS	Data set selected flag
		...1	WTRIMANM	Dynamic manual mode
		.... 1..	WTRINONE	OPEN LABEL=NONE required
		.... .1.	WTRIDSOP	Data set opened
		.... .1.	WTRIWMSG	Wait message queued
		.... ...1	WTRIVLOR	Volume label open required
		retindex	7		WTRINDEX	Return index for input message. This field can have any one of the following indicated:

Hex Value

Hex Value	Name and Description
0	WTRIJS - Job select
4	WTRISU - Device setup
8	WTRIVO - Volume open
C	WTRIRM - Ready message
10	WTRIDSO - Data set open
14	WTRIDSR - Data set repositioning
18	WTRIDL - DEBLOCK loop
1C	WTRIEP - EOD put
20	WTRIPT - Put truncate
24	WTRIPO - Put output
28	WTRIDSD - Data set done
2C	WTRIDSC - Data set complete
30	WTRIGNO - Get next OSE
34	WTRITLC - Trailer label close

The following data is also displayed for FSS mode writers:

Output Service Diagnostic Mode Output

Table 16. IAT7060 data. Data displayed by message IAT7060 for FSS mode writers

Field	Byte	Bits	Name	Description		
diagfld2	8		WTRFFLG1	Flag byte		
		1... ..	WTRFMFSS	This is an FSS writer		
		..1.	WTRFFSS	This writer supports an FSS		
		...1.	WTRFFDA	This writer supports an FSA		
		.... 1...	WTRFFSAA	FSS is active	
		.... ..1.	WTRFFSAA	FSA is active	
		.... ..1.	WTRFRESP	Order response pending	
		.... ..1.	WTRFMPPER	OSMP in command error processing	
		.... ...1	WTRFNCKP	New checkpoint buffer without spool address	
		diagfld2	9		WTRFFLG2	Flag byte
1... ..	WTRFMPDL			ADELETE module IATOSMP		
..1.	WTRFISSET			Setup to complete processing		
...1.	WTRFSRC			OSFS received reject command		
.... 1...	WTRFUIR			Update intervention required		
.... ..1.	WTRFCPMQ			Checkpoint error message queued		
.... ..1.	WTRFPORQ			POST for GETDS required		
.... ..1.	WTRFDUMP			Operator requested dump during failsoft -		
.... ...1	WTRFRCUR			abend FSS address space with dump Failsoft recursion		
diagfld2	10				WTRFFLG3	Flag byte
		1... ..	WTRFGTRL	Release writer's pending OSEs		
		..1.	WTRFTREQ	Set order required		
		...1.	WTRFSVAL	DS validation on synch order required		
		.... 1...	WTRFSMSG	WTRIOSE has message IAT7018 in formation	
		.... ..1.	WTRFDRET	OSMP return without command	
		.... ..1.	WTRFSARS	implementation	
		.... ...1	WTRFDVRS	WTRFDSAD DS unprintable by FSS FSA restart requested Device is to be restarted	
		diagfld2	11		WTRFFLG4	Flag byte
				1... ..	WTRFDCPI	WTRFDSAD DS checkpoint invalid
..1.	WTRFRSCD			RELDS incomplete received		
...1.	WTRFJTRL			Job trailer was specified on synch order to device		
.... 1...	WTRFJNDS			JESNEWS being selected		
.... ..1.	WTRFCLR			JESNEWS to be sent next		
.... ..1.	WTRFFAIL			PDQ clear in progress		
.... ...1	WTRFDOSU			FSS and writer to terminate Update DOSE on PDQWOSWR		
diagfld2	12				WTRFFLG5	Flag byte
				1... ..	WTRFRSTR	FSS writer to restart after IPL of FSS main
		..1.	WTRFSTRS	Staging area received—resent over restart		
		...1.	WTRFSYWT	Waiting for data set synchronization message		
		.... 1...	WTRFFRIP	FSA restart in progress	
		.... 1...	WTRFJOSL	Job/OSE selected status lock	

IOERR Output

IOERR output is produced after an I/O error is detected by IOS, recognized by IATDMIT, and processed by IATDMER. Sample IOERR output is shown in Figure 14 on page 115. Because recovery from the I/O error can involve multiple retries, there could be more output than is shown. The output goes to the class specified in the DBGCLASS parameter of the STANDARDS initialization statement

if the retry occurred on the global in the JES3 address space. Local JES3 and all C/I FSS IOERR activity is not traced, except through messages to the operator.

```

*****
                          IOERR OUTPUT                      87.202
*****
11314507 01179040 44000000 08000041 81CBB454 00419080 00F73FC0 0207A028 0D4007F4 011790F4 *.....7.....4...4.*
IOSB     01179060 00BDEB70 00000000 40170000 00000000 00000000 00000000 00000000 81C8C2A0 *.....B..*
         01179080 81C8C0FE 81CB97F0 00399000 0207A000 00BDEE0C 00000061 00000000 00000000 *...0.....*
         011790A0 1800020B 00000000 1800020B C9E2D940 BAF00000 019BC3B0 00399030 011792E0 *....ISR....C.....*
         011790C0 0207A000 81CBA550 *.....&
ROR      0207A000 07400006 00399030 23400001 00399037 31600005 00399032 08000000 00399010 *.....*
DMC      0207A020 054007F4 002E900C 03000000 00000000 00000000 00020B76 C4D4C340 0205C000 *..4.....DMC.....*
00399000 0207A040 00000000 00000000 00000000 00000001 00000000 00000000 00000000 *.....*
         0207A060 2100C800 00000000 00000000 00000000 00000000 00000000 0201F1C0 00000000 *..H.....1.....*
         0207A080 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....H..C.....+.....*
         0207A0A0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
         0207A0C0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
         0207A0E0 C4C1E340 0207A000 00000000 00050000 05140005 00000514 00000000 *DAT.....*
         0207A100 00000000 07B9229E 00000001 00000001 00000001 00000054 *.....*
ERROR    0205C000 C4C1E340 0207A000 00000000 00020000 197F0002 0000197F 00000000 *DAT.....*
DAT      0205C020 00000000 07B9229E 00000001 00000001 00000001 0000001F *.....002E9000

FDB/DSS  0201F1C0 C4E2E240 009F7AF8 00000000 A0000001 00020000 197F0002 0000197F 00000000 *DSS..8.....*
         0201F1E0 00000000 00000000 0201FC90 00BDEB70 00F33E00 0201FD34 00000000 009E9AC0 *.....3.....*
         0201F200 0201F990 000000C8 00000000 00000000 00000000 00000000 00000000 7FFCC30 *..9..H.....*
         0201F220 7FFCCD18 00000008 2ED50000 00000000 00000000 00000000 00000000 *.....N.....*
         0201F240 00000000 81C88A78 8115439A 00000033 00F55600 000000C8 00F73FC0 81C88AAE *.....5..H.7.....*
         0201F260 80C2D0A2 81C88080 00BDEB70 0207A000 0201F1C0 80C2B540 00C2C540 80C29A60 *..B.....1.B..BE..B..*

1314508 011792E0 44000000 08000041 81CBB454 00419080 00F73808 7F51F028 0C4003F4 01179394 *.....7..0..4....*
IOSB     01179300 00BDEB70 00000000 40170000 00000000 00000000 00000000 00000000 81C8C2A0 *.....B..*
         01179320 81C8C0FE 81CB97F0 00092000 7F51F000 00BDEE0C 00000000 00000000 00000000 *...0....0.....*
         01179340 05000D01 00000000 05000D01 C9E2D940 BAF00000 019BC5C0 000920C8 00000000 *....ISR...E...H....*
         01179360 7F51F000 81CBA550 *..0..&
ERROR    7F51F000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
DMC      7F51F020 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
002D6000 7F51F040 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
         7F51F060 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....z.....*
         7F51F080 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
         7F51F0A0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
         7F51F0C0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
         7F51F0E0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
         7F51F100 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
ERROR    00000000 040C0000 810940F0 00000000 00000000 00FDB0B0 00000000 070C0000 810F9066 *.....0.....*
DAT      00000020 071C3000 821F70C6 071C1000 82112CF6 00000000 *.....F.....6.....
00000000

```

Figure 14. IOERR Output

This section of IOERR output contains data about the I/O operation that failed. Shown first is a time stamp, in the form hhmmsssth where hh is the hour, mm is the minute, ss is the second, and th is tenths and hundredths of a second. Also shown are the IOSB, DMC, DAT, and the FDB (for JSAM errors) or DSS (for USAM errors). The real storage addresses of the DMC and DAT appear beneath the words 'ERROR DAT', respectively.

This section of IOERR output shows the content of the DMC and DAT upon entry to the JES3 channel-end routine (before retry of the I/O operation).

The IOERR output shows the content of control blocks after retry of the I/O operation. The retry may have been a successful retry or an unsuccessful retry. Included are the IOSB, DMC, DAT, and the FDB (for JSAM errors) or DSS (for USAM errors). The IOERR also shows the content of the IEB. The IEB summarizes I/O error retry attempts.

Using the Data Collected by the Generalized Trace Facility

You can use the generalized trace facility (GTF) to trace information such as the message traffic in your installation. For information on starting GTF, see *z/OS JES3 Commands*. For background information on message processing, see:

- *z/OS JES3 Initialization and Tuning Guide*
- *z/OS JES3 Customization*

Setting up and tracing JES3 events

In the GTF procedure, you either:

- Specified the name of a data set allocated for GTF records
- Did not specify a data set. If you did not specify a data set, the GTF records remain in storage.

Before GTF records are created, GTF must be started.

Starting GTF - Example

```
S gtfproc.GTF
```

gtfproc is the procedure library name that contains the JCL used to start GTF. GTF is the name that the GTF address space can be referred to (for example, in a STOP command).

The following is an example of a procedure used to start GTF. In this procedure, the GTF output will be written to a data set, but you can change it so that the GTF records remain in-storage in the GTF address space. See *z/OS MVS Diagnosis: Tools and Service Aids z/OS* for more information.

GTF Start Procedure - Example

```
//GTFJES3 PROC MEMBER=GTFJES3
//IEFPROC EXEC PGM=AHLGTF,PARM='MODE=EXT,DEBUG=NO,TIME=YES',
// TIME=1440,REGION=2880K
//IEFRDTER DD DSNAME=SYS1.JES3.TRACE,UNIT=SYSALLDA,SPACE=(TRK,20),
// DISP=(NEW,CATLG),VOL=SER=TSPACE
//SYSLIB DD DSNAME=SYS1.PARMLIB(&MEMBER),DISP=SHR
```

In this example, the GTF procedure points to a member GTFJES3 in SYS1.PARMLIB. The following shows the contents of that member:

```
TRACE=USRP
USR=(F60)
END
```

Note that in the member USR=(F60) is specified. This is necessary because JES3 GTF records are created using the event identifier X'F60'. If you do not specify this event identifier in the GTF procedure, you can specify it in response to AHL125A when GTF is started (see below).

The following shows the messages that are displayed when GTF is started:

GTF Start Messages

```

AHL121I  TRACE OPTION INPUT INDICATED FROM MEMBER GTFJES3  OF PDS
        SYS1.PARMLIB
        TRACE=USRP
        USR=(F60)
        END
AHL103I  TRACE OPTIONS SELECTED --USR=(F60)
*10 AHL125A  RESPECIFY TRACE OPTIONS OR REPLY U

        10,U

```

Reply U, unless you want to change the options

After GTF is started, you must also activate JES3 GTF tracing using the *TRACE command. For example, if you want to trace events related to Workload Management (WLM), you would issue the following command:

Tracing WLM Events

```
*TRACE,ON,WLMENF
```

As a result, the following message is issued:

```

IAT7136 JES3 GTF TRACE STATUS
TRACE ID  TRACE NAME  STATUS  TRACE ID  TRACE NAME  STATUS
-----  -
          14  WLMENF    ACTIVE

```

You then issue commands, run jobs, or do whatever you need to do to cause the GTF records to be created. For example, if you are tracing WLM-related events, you might issue an F WLM,RESOURCE= command or a VARY WLM,POLICY= command. After the trace records have been created, you should turn JES3 GTF tracing off.

Turning GTF Tracing Off

```
*TRACE,OFF,WLMENF
```

As a result, the following message is issued:

```

IAT7136 JES3 GTF TRACE STATUS
TRACE ID  TRACE NAME  STATUS  TRACE ID  TRACE NAME  STATUS
-----  -
          14  WLMENF    INACTIVE

```

If the GTF output is being written to a data set, you must stop the GTF address space. If the GTF output is being kept in storage in the GTF address space, you must issue an MVS DUMP command to dump the GTF address space. In this example, because the GTF output is being written to a data set, the following command is issued to stop the GTF address space:

Stopping the GTF Address Space

```
P GTF
```

IOERR Output

The following shows the messages that are displayed when GTF is stopped:

```
AHL006I  GTF ACKNOWLEDGES STOP COMMAND
AHL904I  THE FOLLOWING TRACE DATA SETS CONTAIN TRACE DATA :
          SYS1.JES3.TRACE
IEF404I  GTFJES3 - ENDED - TIME=17.20.09
```

In the above example, the GTF output was written to a data set SYS1.JES3.TRACE. The following job can be used to print the GTF output and delete the data set:

Printing GTF Output

```
//GTFPRINT JOB ...
//STEP1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=A
//PRINTDD DD DSNAME=SYS1.JES3.TRACE,
           DISP=(OLD,DELETE)
//SYSIN DD *

PRINT INFILE(PRINTDD) -
      DUMP

/*
```

The GTF output has the following format:

```
IDCAMS SYSTEM SERVICES          TIME: 17:26:47
LISTING OF DATA SET -SYS1.JES3.TRACE

RECORD SEQUENCE NUMBER - 1
000000 0001FFFF CA5BB03B 09D89CE9 9B080000 00090001 0000C7E3 E2400100 4000E2D7 *....$....Q.Z.....GTS .. .SP*
000020 F64BF04B F640C8C2 C2F6F6F0 F640E2E8 F1404040 4040FF11 53054381 00000000 *6.0.6 HBB6606 SY1 .....*
000040 00000000 0000FFFF CA5B1700 00000000 00090001 0000          *.....$......          *

RECORD SEQUENCE NUMBER - 2
000000 FF00B03B 09ED44CF 7D02EF60 00FADE00 E6D3D440 40404040 C7E3D9C3 0000000E *.....'..-...WLM   GTRC....*
000020 00010001 E2E8F140 40404040 E6D3D4C5 D5C64040 40404040 E2E8F140 40404040 *...SY1   WLMENF   SY1   *
000040 00000039 80000000 B03B09ED 44C23402 04B25000 04CB7018 01000000 00000000 *.....B....&.....*
000060 C3C8C1D9 C1F2F37C 7B5B4040 40404040 00000000 00000000 00000000 00000000 *CHARA230#$          .....*

RECORD SEQUENCE NUMBER - 3
000000 FF00B03B 09F27073 7406EF60 00FADE00 E6D3D440 40404040 C7E3D9C3 0000000E *.....2.....-...WLM   GTRC....*
000020 00010001 E2E8F140 40404040 E6D3D4C5 04B25000 04CB7018 01000000 00000000 *...SY1   WLMENF   SY1   *
000040 00000039 80000000 B03B09F2 706DA206 00000000 00000000 00000000 00000000 *.....2_....&.....*
000060 C1C2C3C4 C5C6C7C8 C9D1 F0F1 F2F3F4F5 00000000 00000000 00000000 00000000 *ABCDEFHGIJ012345.....*
```

The records written by JES3 contain the string GTRC at offset X'18' into the record. The GTRC is the JES3 GTF record header. It is eight bytes long and mapped by macro IATYGTRC. The information that follows the JES3 GTF record header is event specific and mapped by an event specific macro. For example, the event specific information for the WLMENF event (event number 14) is mapped by IATYG014.

Events Eligible for Tracing

Table 17 on page 119 identifies the GTF records that are written to the GTF data set for each event that JES3 traces.

Table 17. GTF Records Created to Trace a Event

Event No.	Event Name	GTF Record Macro	Module	Description
1	WTOSSI	IATYG001	IATSIWO	Created for a single line WTO at entry to the subsystem interface.
2	WTOSSI	IATYG002	IATSIWO	Created for a single line WTO at exit from the subsystem interface.
3	WTOSSI	IATYG003	IATSIWO	Created when information is sent to the JES3 global if a WTO requires special processing in the global (for example, an automatic reply), or when User Exit 69 determines that the information should be routed to the global so that User Exit 70 can examine it.
4	NJETCP	IATYG004	IATNTTXR	Created by exits NXASTRAC and NXSTRAC when called by IAZNJTCP to trace Netserv or Socket level activity.
5	WTLSSI	IATYG005	IATSIWO	Created for a WTL request at entry to the subsystem interface.
6	WTLSSI	IATYG006	IATSIWO	Created for a WTL request at exit from the subsystem interface.
7	MBSTATS	IATYG007	IATSIAD	Created during unallocation of a multiple-buffer spool input data set.
8	WTOSSI	IATYG008	IATSIWO	Created for a multi-line WTO (major WQE) at entry to the subsystem interface.
9	WTOSSI	IATYG009	IATSIWO	Created for a multi-line WTO (major WQE) at exit from the subsystem interface.
11	WTOSSI	IATYG011	IATSIWO	Created for a multi-line WTO (minor WQE) at entry to the subsystem interface.
12	WTOSSI	IATYG012	IATSIWO	Created for a multi-line WTO (minor WQE) at exit from the subsystem interface.
14	WLMENF	IATYG014	IATMSEWL	Created when a WLM ENF signal is processed by JES3's listen exit.
15	WLMMDSFCT	IATYG015	IATMDWLE	Created when a WLM related event is processed by the MDS (SETUP) FCT.
16	WLMMDSJOB	IATYG016	IATMDWLE	Created when a job is updated by MDS as a result of a WLM related event.
17	WLMGMSFCT	IATYG017	IATMSWLE	Created when a WLM related event is processed by the GMS (MAIN) FCT.
18	WLMGMSJOB	IATYG018	IATMSWLE	Created when a job is updated by GMS as a result of a WLM related event.
19	SAPI	IATYG019	IATSISO	Created when a SAPI request is received through the subsystem interface and when information is returned to the subsystem interface caller.

Job Validation SNAP Output

During a JES3 warm start with or without analysis or hot start with or without analysis, JES3 evaluates the jobs that remain in the job queue to ensure they can be restarted when JES3 has been reinitialized.

Job Validation SNAP Output

To validate a job on the job queue, JES3 evaluates job-related control blocks. If JES3 determines a control block is not valid, JES3 issues message IAT4174. Message IAT4174 allows the operator to:

- Take a SNAP of the incorrect control block
- Cancel the job
- End JES3 initialization

Respond SNAP to message IAT4174 to obtain information that can help you determine why JES3 found the job in error.

If you have started JES3 without analysis, JES3 only provides you with the:

- Job control table (JCT)
- Job track allocation table (JBT)
- Job data set control block (JDS)
- Job description accounting block (JDAB)
- Job management record (JMR)

If JES3 is started with analysis, JES3 provides additional job-related control blocks.

Evaluating SNAP Output from Job Validation

JES3 generates five sections when you ask JES3 to provide SNAP output for the incorrect job. These sections provide you with information that you can use to determine why JES3 found the job incorrect.

You can use the first section of the job validation SNAP output, the **SNAP of the Job Validation Work Area**, to identify the contents of the work area used by the job validation DSP. The work area contains the addresses of the job's control blocks that are in storage.

The second section of the SNAP output, the **Job Validation Work Area Status Indicators**, provides a summary of the:

- Errors JES3 found while validating the job
- Processing JES3 performed for the job

The third section, the **Job Validation JES3OUT/Console Messages**, provides you with messages that summarize the reasons JES3 found the job incorrect.

You can use the fourth section, **Summary of Spool Records Validated**, to identify the control blocks associated with the job and their chaining structure.

The last section, the **SNAPs of the incorrect control blocks for the job**, provides a snap of the job's control blocks that were incorrect.

To evaluate SNAP output for a job:

1. Examine the JES3OUT/CONSOLE MESSAGE section of the SNAP output. This section and *z/OS JES3 Messages* should provide you with the reasons JES3 found the job incorrect.
2. Examine the SUMMARY OF SPOOL RECORDS section of the SNAP output. This section provides you with a list of the spool records associated with the job. If JES3 found an incorrect spool record associated with the job, JES3 snaps the contents of the spool record to the SNAP output.

If JES3 found the spool record incorrect because it was unable to read or write to the spool record, a failsoft (DM) code and dump will provide you with additional information. See *z/OS JES3 Diagnosis Reference* for information for the failsoft code.

If JES3 found the spool record incorrect for some other reason, a message may be provided under the SNAP output for the control block. Verify the length of the record and its variable sections. If the control block contains scheduler elements for the job, ensure the control block contains valid SEs.

Format of Job Validation SNAP Output

These sections should provide you with enough information to determine why the job is incorrect:

- SNAP of the Job Validation Work Area (IATYJVW)
- Job Validation Work Area Status Indicators
- Job Validation JES3OUT/Console Messages
- Summary of Spool Records Validated
- SNAPs of the incorrect control blocks for the job

SNAP of the job validation work area (IATYJVW):

```
***** WAVE3 (JOB10002) VALIDATION SNAP *****
*** SNAP OF THE JOB VALIDATION WORK AREA (IATYJVW) ***

JOBNM WAVE3      JOBID JOB10002
JVDAD 00000000  SRVAD 024EC4BC  JCTSZ 01A00      MSGQ  025065E8  MSGQE 025065E8  SYSTM          FSSID
JCT   024EC31C  JDAB  00000000  JMR   00000000  FUNC  0B        ACTSE 024EC480  DSPNM OUTSERV
RESQ  024B4118  RCEAD 00000000  JDSCT 0001

JCFDB 000100008979000000000000  JDFDB 0002000010ED049080000000  JMFDB 0002000019EC049080000000
JSFDB 000000000000000000000000  DJFDB 000000000000000000000000

+0000 D1E5E640 00000000 00000000 024EC4BC 01A00001 00000000 00000005 00000000 *JVW .....+D.....*
+0020 00000000 0010002F 00000001 E6C1E5C5 F3404040 D1D6C2F1 F0F0F0F2 025065E8 *.....WAVE3 JOB10002 ..Y*
+0040 025065E8 00000000 00000000 00000000 00000000 00010000 89790000 00000000 *..Y.....*
+0060 024EC31C 00020000 19ED0490 80000000 00000000 00020000 19EC0490 80000000 *..+C.....*
+0080 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00020000 *.....*
+00A0 19E30490 80000000 024B4118 00000000 024EC2B0 006C0001 40840080 01001060 *.T
+00C0 0B000000 024EC480 02429E00 024EC484 7F515A98 0242A1B8 D6E4E3E2 C5D9E540 *....+D.....+D."!.....OUTSERV *
**** +00E0 TO +00FF SUPPRESSED, DATA CONTAINS ZEROS ****
+0100 00000000 00000000 00000000 00000000 00000000 00020000 19E10690 80000000 *.....*
+0120 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00020000 *.....*
+0140 19E50490 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.V.....*
**** +0160 TO +019F SUPPRESSED, DATA CONTAINS ZEROS ****
+010A 7F518 FC 024EC13C 0245D872 E6D6E2C5 00000000 00000000 00000000 00000000 *"...+A...Q.WOSE.....*
**** +01C0 TO +021F SUPPRESSED, DATA CONTAINS ZEROS ****
+0220 00000000 00000000 00000000 00000000 00000000 004A0000 C9C1E3F4 F1F3F140 *.....IAT4131 *
+0240 E2D7D6D6 D340D9C5 C3D6D9C4 40C5D9D9 D9D940C4 C5E3C5C3 E3C5C440 4DD1C3E3 *SPOOL RECORD ERROR DETECTED (JCT*
+0260 405D40C6 D6D940D1 D6C240E6 C1E5C5F3 40404040 4DD1D6C2 F1F0F0F0 F25D0000 * ) FOR JOB WAVE3 (JOB10002)..*
**** +0280 TO +029F SUPPRESSED, DATA CONTAINS ZEROS ****
+02A0 00000000 00000000 00000000 00000000 *.....*
```

Validation SNAP Heading:

Each job that JES3 found incorrect during JES3 initialization is identified by a heading. The heading contains the job name, the job identifier, which is followed by the heading VALIDATION SNAP.

SNAP of the JOB Validation Work Area:

Job Validation SNAP Output

The JVV contains job-related information that JES3 uses during job validation/restart processing. You can use the information in the JVV to:

- Identify the incorrect job
- Locate addresses of control blocks that are in storage that represent the job
- Identify the parameters used on the IATXVFDB and IATVXSRV macros. The parameters specified on these macros can be used on subsequent occurrences of the IATXVFDB, IATXVSRV and IATXVTAT macros.

JOBNM ccccccc - The job name of the job JES3 is validating.

JOBID ccccccc - The job identifier of the job JES3 is validating.

JVDAD ccccccc - The address of the job validation data csect for the job validation/restart FCT.

SRVAD ccccccc - The address of the first spool validation entry (SRV). Each SRV entry represents a control block that the job validation/restart FCT validates.

JCTSZ cccc - The length of the JCT record.

MSGQ ccccccc - The address of the beginning of the message queue for the job. Buffers that contain messages are added to the queue when the job validation/restart routines issue either a IATXVSRE or IATXVMSG macro.

MSGQE ccccccc - The last buffer that contains a message on the message queue.

SYSTM ccccccc - Name of the main that the job was running on before JES3 was restarted. The job must be active for the name to appear.

FSSID ccccccc - The id of CI FSS address space that is processing the job. The active SE must be CI for a name to appear in this field.

JCT ccccccc - The address of the JCT in storage.

JDAB ccccccc - The address of the JDAB in storage.

JMR ccccccc - The address of the JMR in storage.

FUNC nn - is a footprint that identifies the processing the job validation DSP was performing when the error occurred.

A footprint of:

Indicates JES3:

- 1 was validating the fixed segment of the JCT
- 2 was validating the scheduler elements (SEs) in the JCT
- 3 was validating the status of the job
- 4 was performing initial job spool space validation
- 5 was initiating I/O for spool control blocks
- 6 was validating the spool data management control blocks for the job
- 7 was validating the fixed segment of the JDAB
- 8 was validating the SEs in the JDAB

- 9 was validating the JMR
- 10 was ensuring the job's JCT and JDAB contained the same SEs
- 11 started DSP specific job validation processing
- 12 was performing job validation cleanup
- 13 was performing job validation I/O services (IATXVIO) cleanup
- 14 job validation complete

ACTSE cccccccc - The address of the scheduler element (SE) that the job was active in when the job failed.

DSPNM cccccccc - The name of the DSP that the job was active in when JES3 terminated.

RESQ cccccccc - The address of the RESQUEUE for the job.

RCEAD cccccccc - The address of the RCE for the job.

JDSCT cccc - The number of JDSes associated with the job.

JCFDB cccccccc - The file descriptor block (FDB) that contains the address of the job control table (JCT) for the job.

JDFDB cccccccc - The FDB that contains the address of the job data accounting block (JDAB) for the job.

JMFDB cccccccc - The FDB that contains the address of the job management record (JDAB) for the job.

JSFDB cccccccc - The FDB that contains the address of the job summary table (JST) for the job.

DJFDB cccccccc - The FDB that contains the address of the dynamic job summary table (DJST) for the job.

+nnnn - is the offset into the JVW. The information that follows is the contents of the JVW in hex and EBCDIC.

Job Validation Work Area Status Indicators:

JOB VALIDATION WORK AREA STATUS INDICATORS

JVWSTA1	X'80' - SPOOL RECORD ERROR DETECTED X'04' - JOB SPOOL SPACE NOT REALLOCATED
JVWSTA3	X'80' - JDAB HAS AN ISDRVR SCHEDULER ELEMENT
JVWSTA4	X'01' - JVW SNAP PROCESSING ACTIVE
JVWSTA6	X'10' - OSE SCHEDULED OR DATA SET PROCESSED
JVWSTA7	X'40' - RQ BUILT BY DSP VALIDATION RESTART X'20' - DSP USE COUNT UPDATED BY VALIDATION RESTART

Job Validation SNAP Output

The Job Validation Work Area Status Indicators identify the status of the job. You can use the status indicators from the job validation work area to obtain an understanding of the types of errors that caused JES3 to find the job incorrect.

For each flag that is on in the JVW, the job validation work area status indicators section of the SNAP provide you with:

- The bits that are set for the flag
- An explanation of the bit

The status indicators in the job validation work area (JVW) are set by the job validation/restart routines.

Job Validation JES3OUT/CONSOLE Messages:

```
JOB VALIDATION JES3OUT/CONSOLE MESSAGES
IAT4131 SPOOL RECORD ERROR DETECTED (JCT ) FOR WAVE3 (JOB10002)
```

The job validation JES3OUT/CONSOLE message section of the SNAP output produced for a job contain informational messages that JES3 issued while validating the job. They summarize the reasons why JES3 found the job incorrect.

Summary of Spool Records Validated:

```
**** SUMMARY OF SPOOL RECORDS VALIDATED FOR JOB WAVE3 (JOB10002) ****
```

SEQ#	ROOT	SPOOL-ADDRESS	-ID-	SPOOL RECORD DESCRIPTION
* 1	---	0001.00008979	JCT	JOB CONTROL TABLE ENTRY
* 2	1	0002.000019E1	JBT	JOB TRACK ALLOCATION TABLE
3	1	0002.000019EB	JDS	JOB DATA SET CONTROL BLOCK
4	1	0002.000019ED	JDAB	JOB DESCRIPTION/ACCOUNTING BLOCK
5	1	0002.000019EC	JMR	JOB MANAGEMENT RECORD
6	1	0002.000019E3	JST	JOB SUMMARY TABLE
7	1	0002.000019E2	DJST	DYNAMIC JOB SUMMARY TABLE
8	1	0002.000019E5	OSE	OUTPUT SERVICE ELEMENT
9	8	0002.000017B1	WOSE	WORK OUTPUT SERVICE ELEMENT

The Summary of Spool Records Validated identifies the control blocks that JES3 validated for the job. You can use this section to identify the chaining structure of the job's control blocks. Each control block is assigned a sequence number. The sequence number is used to identify the control block that contains the addresses of the job's other control blocks. For example, the job's JCT is assigned a sequence number of 1 and it contains the addresses of the job's JBT, JDS, JDAB, JMR, JST, DJST, and the job's OSE. (These control blocks have a sequence number of 1 under the heading ROOT.) The job's OSE is assigned a sequence number of 8 and contains the address of the job's WOSE. (The WOSE has a sequence number of 8 under the heading ROOT.)

If an * precedes the sequence number of the control block, it indicates JES3 logged diagnostic messages for the control block. The diagnostic messages can be found preceding the SNAP of the control block.

SEQ# nnnn - A record sequence number used to identify the record.

ROOT nnnn - Identifies the control block, by sequence number, that contains the address of the control block.

SPOOL-ADDRESS cccccc - The spool record address of the control block on spool.

ID cccc - The acronym that identifies the control block.

SPOOL RECORD DESCRIPTION - A description of the record being validated.

SNAP of the Job's Incorrect Control Blocks:

```
JCT FOR JOB WAVE3 (JOB10002) AT 0001.00008979 DDNAME=JES3JCT CYL=000002E H=0 R=3
*** SPOOL RECORD DIAGNOSTIC/ERROR MESSAGES ***
JBT FDB ERROR

+0000 00010000 89790000 D1C3E340 00000000 00000000 00000000 D1C3E340 *.....JCT .....JCT *
+0020 016C015C 00040000 27120000 E6C1E5C5 F3404040 00000000 00000000 040102FF *%*.....WAVE3 .....*
+0040 00000064 000005DC 000003E8 00C81111 02000200 1F000000 00000000 00000000 *.....Y.H.....*
+0060 00000000 00000000 00000000 00020000 19ED0490 80000000 00020000 19E10690 *.....*
+0080 80000000 00000000 00000000 22D43E6C 00000000 00020000 19EB0490 80000000 *.....M.%.....*
+00A0 00020000 19E50490 80000000 00020000 19EC0490 80000000 00020000 19E30490 *.....V.....T.*
+00C0 80000000 00000000 00000000 00000000 00000000 0000D3D6 C3C1D340 4040C140 *.....LOCAL A *
+00E0 40404040 40400000 00000000 00000000 00000000 00010000 00000400 00000000 *.....*
+0100 04000000 04000000 0000003B 9E4122D4 00010000 00000000 00000000 00000000 *.....M.....*
+0120 00000000 00002720 000C851C 00000000 00000000 00000000 00000000 00000000 *.....*
**** +0140 TO +015F SUPPRESSED, DATA CONTAINS ZEROS ****
+0160 00000000 00000000 9E4122D4 00000000 00000000 00000000 C000011B C0000216 *.....M.....*
+0180 40000307 00000415 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
```

cbname FOR JOB jobname (jobid) at adr1 DDNAME=ddname CYL=cccccc H=h R=r is the heading that identifies the control block that JES3 validated.

- cbname identifies the control block.
- jobname identifies the job the control block represents.
- jobid is the job identifier associated with the job.
- adr1 is the spool record address (M.R) of the control block.
- ddname is the name of the data set where the control block resides.
- adr2 is the address (cylinder, head, and record) of the control block on spool.

SPOOL RECORD DIAGNOSTIC/ERROR MESSAGES - informational messages that identify why JES3 found the job's control block incorrect.

SNAP of the control block - A snap of the control block. For information on the contents of these control blocks see *z/OS MVS Data Areas* in the *z/OS Internet Library*: <http://www.ibm.com/systems/z/os/zos/bkserv/>.

Job Validation SNAP Output

Chapter 3. Using IPCS to View JES3 Information

You can view a dump data set by using the interactive problem control system (IPCS). IPCS is an interactive, online facility used to diagnose problems. IPCS allows the installation to examine information in a dump data set without having to print the data. It provides the option of printing the information in the data set and allows you to:

- Locate key control blocks
- View a portion of or the entire formatted dump
- View portions of storage
- Format specific control block mappings

In addition to the capabilities that IPCS provides, JES3 support in IPCS:

- Provides you with panel support that minimizes the number of IPCS subcommands you have to issue to retrieve JES3 diagnostic information.
- Allows you to logically group information to diagnose a problem or to create groups of information for a particular dynamic support program (DSP) or JES3 function. “Tailoring Your IPCS JES3 Session” on page 132 contains additional information on creating models for control blocks and creating control block groups.
- Allows you to supplement the diagnostic information IBM supplies by adding formatters for control blocks that IBM does not supply or by creating formatters for control blocks that your installation has created.

To use the IPCS JES3 panels to view JES3 information, select JES3 in the Component Analysis option. You can display JES3 diagnostic information by:

- Using the panels provided in the JES3 Component Analysis Option. Using the panels minimizes the number of IPCS subcommands you have to issue to retrieve JES3 diagnostic data.
- Issuing IPCS subcommands. See *z/OS MVS IPCS Commands* for additional information on IPCS subcommands.

You may choose one particular method of accessing JES3 diagnostic information or you can combine methods. *z/OS JES3 Diagnosis Reference* contains some IPCS subcommands you may find useful while using the panels.

Before starting an IPCS session, read the following topics in *z/OS MVS IPCS User's Guide* to create a dump data set and establish an IPCS session:

- Introduction to IPCS
- Accessing IPCS
- Using the IPCS Dialog

You should also be familiar with the different types of information you can obtain using IPCS. Table 18 on page 128 identifies the different options available through the IPCS JES3 panels and through IPCS subcommands.

Table 18. Types of JES3 Output Available through IPCS

Type of JES3 Information	Selection on IPCS JES3 - Primary Options Panel	IPCS Subcommand	Documentation for Output
Summary Information through control blocks	<ul style="list-style-type: none"> • CI FSS Summary Information • JES3 Summary Information 	VERBEXIT JES3	<i>z/OS JES3 Diagnosis</i>
Formatted JES3 Control Blocks	<ul style="list-style-type: none"> • JES3 Control Block Information 	CBFORMAT	
JES3 Event Trace Information	<ul style="list-style-type: none"> • Trace Information for JES3, CI FSS and Writer FSS • JES3 Summary Information • CI FSS Trace Information 	VERBEXIT JES3	<i>z/OS JES3 Diagnosis Reference;</i> <i>z/OS JES3 Diagnosis</i>

Setting Up the IPCS JES3 Dialog

After you have allocated all the necessary data sets IPCS requires as stated in *z/OS MVS IPCS User's Guide*, select the 'JES3D' option on the **IPCS Component Analysis Option** panel.

Note:

1. The data set 'SYS1.SIATTBL0' must contain the members IATIPCSC, IATIPCSG, and IATIPCSS. If another data set is to be used, you must allocate the alternate data set with a DD statement that designates IATTABL as the DDNAME. (Do not allocate this data set to the ISPTLIB DD name or assign a LIBDEF for ISPTLIB to it.) The IATTABL data set must be partitioned and cannot be concatenated. If you are using IPCS to look at a dump that was created on a different JES3 release than the one currently running on the system to which you are logged on, you must allocate as an alternate data set a table data set from that release instead of the one for the JES3 release currently running.
2. You will have to scroll down the list of options before you will find the 'JES3D' option on the **Component Analysis Option** panel.
3. In order to bring up the JES3 dialog, you must include the members of 'SYS1.VvRrMm.SIATPARM' in the PARMLIB data set you use when you bring up IPCS. You can do this by copying the members into 'SYS1.PARMLIB' or an alternate PARMLIB data set as described in *z/OS MVS IPCS Customization*, or you can include 'SYS1.SIATPARM' in the alternate PARMLIB concatenation. If you copy the members, keep in mind that the members must be recopied if they are updated by JES3 maintenance.

The IPCS dialog displays the **IPCS JES3 - Primary Options** panel (Figure 15 on page 129) after you select the JES3 component.

```

-----IPCS JES3 - Primary Options -----
OPTION ===
Select one option only, and enter S next to it.

- JES3 Control Block Information
- JES3 Summary Information
- CI FSS Summary Information
- Trace Information for JES3, CIFSS and Writer FSS

List of valid ASIDs (Y or N) ==> N (Default is N)

Enter the default ASIDs to be used.

ASID      Address Space      Control Block Prefix
-----
X'_____ ' JES3                IATY
X'_____ ' CI FSS          CI
X'_____ ' WTR FSS          WTR
X'_____ ' TSO User, Started Task, or Batch Job JOB
X'_____ ' Other Address Space

```

Figure 15. IPCS JES3 - Primary Options Panel

On the IPCS JES3 - Primary Options panel you should:

1. Obtain a list of valid address space identifiers (ASIDs) for the dump. If you specify Y for yes, IPCS JES3 produces the output IPCS would produce for the SUMMARY subcommand. Use Table 19 on page 130 for information on locating the ASIDs you can specify on the IPCS JES3 - Primary Options panel.

2. Specify the ASIDs you want to use for the IPCS JES3 session.

Each ASID is associated with a prefix and a type of address space. The following list identifies the available prefixes and their associated address spaces.

- Prefix Associated Address Space**
- CI** CI FSS address space
- JOB** Address space for a batch job, started task, or a TSO/E user
- IATY** JES3 address space or common storage
- WTR** WTR FSS address space

Every control block IBM-supplies for IPCS JES3 is prefixed by either CI, IATY, WTR, or JOB. The prefix indicates which ASID is used to obtain the control block. If a control block is not prefixed, the ASID specified for Other Address Space is used to format the control block. You can respecify the ASID on any panel, and it will be used as the ASID. You should use caution when respecifying ASIDs because you could eventually assign the same ASID to all the prefixes.

3. Select the type of data you want to display.

IPCS JES3 allows you to display the following types of JES3 diagnostic information:

- Summary information JES3 gathers from control blocks for processing in a JES3 or CI FSS address space.
- JES3 control blocks that were created for processing in a JES3, CI FSS, or WTR FSS address space or an address space for a TSO/E user, started task, or batch job.
- Events that are traced in a JES3, CI FSS, or WTR FSS address space.

Table 19. Locating ASIDs for JES3-related Problems

Address Space	How to Obtain the ASID
JES3	<p>Locate the ASID for the JES3 address space by:</p> <ol style="list-style-type: none"> 1. Indicating you want a list of valid ASIDs for the dump by specifying Y for List of valid ASIDs. The output provides you with a list of the jobs that are in the dump. 2. Locate the entry for the JES3 ASID by entering 'L JES3' on the option command line. 3. Obtain the ASID for the JES3 address space on the far right of the entry.
CI FSS	<p>If you have a dump of the CI FSS address space and the CI FSS abended, you can obtain the ASID for the CI FSS by either:</p> <ul style="list-style-type: none"> • Locating message IAT3713 in the SYSLOG. Message IAT3713 contains the ASID and fssname of the CI FSS address space that failed. • OR by <ol style="list-style-type: none"> 1. Indicating you want a list of valid ASIDs for the dump by specifying Y for List of valid ASIDs. The output provides you with a list of the jobs that are in the dump. 2. Locating the entry for the CI FSS ASID by entering 'L CIFSS' on the option command line. 3. Obtaining the ASID for the CI FSS address space on the far right of the entry. <p>If you have a dump of the JES3 address space and there was a problem in communications between the JES3 and CI FSS, you can obtain the ASID for the CI FSS by:</p> <ol style="list-style-type: none"> 1. Obtaining the ASID of the JES3 address space as described above. 2. Specifying the JES3 ASID for the IATY prefix on the "IPCS JES3 - Primary Options" panel. 3. Selecting the option Display all Control Block Groups from the "Display or Modify JES3 Control Block Information" panel. 4. Selecting the CIFSS, JES3 or a control block group you have defined that contains the DESTQ. You can examine the queue of staging areas on the destination queue 153 to determine the CI FSS address space JES3 last attempted to communicate with.

Table 19. Locating ASIDs for JES3-related Problems (continued)

Address Space	How to Obtain the ASID
WTR FSS	<p>When diagnosing WTR FSS address spaces, you should have obtained at least one of the following from the SYSLOG:</p> <ul style="list-style-type: none"> • The FSS name of the WTR FSS • The name of the device (jname) • The address of the device <p>If you have a dump of a JES3 address space:</p> <ol style="list-style-type: none"> 1. Obtain the ASID of the JES3 address space as described above. 2. Specify the JES3 ASID for the IATY prefix on the "IPCS JES3 - Primary Options" panel. 3. Select the JES3 Control Block Information option from the "IPCS JES3 - Primary Options" panel. 4. Select the option Display all Control Block Groups from the "Display or Modify JES3 Control Block Information" panel. 5. Select the JES3 group or a control block group you have defined that contains the FSS control block. The FSS control block contains the ASID of the WTR FSS address space in field FSSASID. <p>If you have a dump of only the WTR FSS address space:</p> <ol style="list-style-type: none"> 1. Indicate you want a list of valid ASIDs for the dump by specifying Y for List of valid ASIDs on the "IPCS JES3 - Primary Options" panel. The output provides you with a list of the jobs that are in the dump. 2. Locate the job names that have the procname for a WTR FSS address space. You can identify the valid WTR FSS procnames by examining the JES3 FSSDEF initialization statements from your initialization stream, if available. 3. Record the ASIDs for each WTR FSS address space. 4. Return to the "IPCS JES3 - Primary Options" panel and select the JES3 Control Block Information option. 5. Select the Display all Control Block Groups option from the "Display or Modify JES3 Control Block Information" panel. 6. Select the WTRFSS group or a control block group you have defined that contains the FSCB control block. 7. Select the FSCB from the list of control blocks that are defined to the group. 8. For each ASID you recorded from step 3 <ol style="list-style-type: none"> a. Enter the ASID of a WTR FSS address space on the "WTRFSCB - FSS/FSA Information" panel. b. Obtain the valid FSIDs for the WTR FSS address space c. Return to the "WTRFSCB - FSS/FSA Information" panel and enter a valid FSSID and FSAID for the ASID. If the FSAID is 0, FSCBNAME contains the fssname for the FSS address space. If the FSAID contains a hexadecimal number, FSCBNAME contain the name of the device. FSCBATRA contains the address of the trace area for the FSS or FSA.

Using Control Block Groups

All IBM-defined control blocks are grouped according to the address spaces where the control block resides. All the control blocks in the IBM-defined control block groups are prefixed to allow you to relate the ASID to the control block you require. The control blocks provided in a group can reside in either the specified address space or in common storage. The following are IBM-defined control block groups:

JES3 Contains control blocks that reside in the JES3 address space and in

common storage. Use this control block group when diagnosing problems in the JES3 local or global address space.

CIFSS Contains control blocks that reside in the CI FSS address space and in common storage. Use this control block group when you are diagnosing problems in a CI FSS address space.

WTRFSS

Contains control blocks that reside in the WTR FSS address space or in common storage. Use this control block group when you are diagnosing problems in a WTR FSS address space.

JOBASID

Contains control blocks that reside in the specified address space or in common storage. Use this control block group when you are diagnosing problems in an address space for a started task, batch job, or TSO/E user.

You should select a control block group based on the type of address space where the problem occurred. If your installation experiences a recurring problem or experiences problems in a specific functional area, you may want to create control block groups that will display information more closely related to the problem. See "Adding Control Block Models to Your IPCS JES3 Session" for information.

Tailoring Your IPCS JES3 Session

You can enhance your IPCS JES3 session to include formatters for your installation-specific control blocks or control block groups that are specific to problems or JES3 functional areas where your installation may be experiencing a problem.

Adding Control Block Models to Your IPCS JES3 Session

It may be necessary for you to include control blocks in your IPCS session to allow you to view all the information necessary to solve a JES3 problem. The control block may be an IBM-defined control block your installation has modified or it may be a control block specific to your installation.

Creating a Model for a Modified IBM-defined Control Block: If your installation has added fields to an IBM-defined control block you change the control block's model to ensure it formats correctly. You can add the additional fields to the control block's model by using SMP/E or by:

1. Naming and creating a new member in the IATIPCSI member of SYS1.VnRnMn.SIATPARM for the control block your installation has modified.
2. Copying the model's source code for the control block from SYS1.VnRnMn.AIATSRC. Use Table 20 on page 141 to determine the model name for the control block you are creating a new model for.
3. Identifying the fields that your installation has added to the control block.
4. Adding the BLSQMFLD macros in the appropriate location in your copy of the model. *z/OS MVS Programming: Assembler Services Reference ABE-HSP* syntax for the macro.
5. Assembling and link-editing the new member into the appropriate system library. To use the model that contains the fields your installation has added, each system programmer requiring the control block's model must:
 - a. Select the option JES3 Control Block Information from the **IPCS JES3 - Primary Options** panel.
 - b. Select the option Add a Control block from the **Display or Modify JES3 Control Block Information** panel.

- c. Complete the information on the **Add a Control Block** panel.
6. Including the control block in an IBM-defined control block group or an installation-defined control block group.

Creating a Model for an Installation-defined Control Block: To add an installation-defined control block to your installation:

1. Name and create a new member in the IATIPCSI member of SYS1.VnRnMn.SIATPARM for the control block you are creating a model for.
2. Assign the model residency of AMODE31 and RMODE ANY
3. Code a CSECT for the model
4. Code a BLSMDEF macro. IBM suggests you include the following keywords on the macro invocation:

CBLLEN

Specifies the total length of the control block.

ACRONYM

Specifies the contents of the control block acronym field.

LBLSPC

Specifies the spacing between label fields in the formatted output. All IBM-supplied formatters code a 20 as the value for this keyword.

PREFIX

Specifies the number of characters to be removed from the front of a field name to produce the field label.

OFFSETS

Specifies whether the field offset information should be printed at the beginning of each output line of the formatted control block. IBM suggests you specify PRINT as the value for this keyword.

ACROLEN

Specifies the length of the acronym name, defined by the ACRONYM keyword.

MAINTLV

Specifies the maintenance level of the control block.

To obtain additional information for invoking the BLSQMDEF macro see *z/OS MVS Programming: Assembler Services Reference ABE-HSP*.

Note: If the control block you are creating a model for includes a file descriptor block (FDB), IBM supplies the following models for FDBs:

IATIPFDB

Formats an FDB for a single-record file (SRF)

IATIPFDM

Formats an FDB for a multiple-record file (MRF)

5. Code a BLSQMFLD macro for each field in the mapping macro. IBM suggests you include the following keywords on the macro invocation:

NAME

Specifies the name of the control block field described by the BLSQMFLD macro.

OFF

Specifies the offset of the field from the beginning of the mapping macro.

LEN

Specifies the length of the control block field.

VIEW Allows you to display selected types of fields in the control block.

To obtain additional information for invoking the BLSQMFLD macro see *z/OS MVS Programming: Assembler Services Reference ABE-HSP*.

6. Code a BLSQMDEF END instruction to indicate you have included all the fields for the control block.

To obtain additional information for invoking the BLSQMFLD macro see *z/OS MVS Programming: Assembler Services Reference ABE-HSP*.

7. Assemble and link-edit the new member into the appropriate system library. To use the model that contains the fields your installation has added, each system programmer requiring the control block's model must:
 - a. Select the option JES3 Control Block Information from the **IPCS JES3 - Primary Options** panel.
 - b. Select the option Add a Control block from the **Display or Modify JES3 Control Block Information** panel.
 - c. Complete the information on the **Add a Control Block** panel.
8. Include the control block in an IBM-defined control block group or an installation-defined control block group.

Creating Control Block Groups

You can create control block groups that contain the control blocks that you may need to examine while you are diagnosing a particular problem. The control block groups are created for your user id, they cannot be shared by other users at your installation unless the other users create their own groups.

The IBM-supplied control block groups identify the control blocks that are available for a particular address space. You can create your own control block groups by adding and deleting control blocks from the IBM-supplied control block groups. The control blocks in your control block groups cross address space boundaries.

1. Determine the control blocks you need to diagnose the problem or functional area.
2. Identify the control blocks that IBM supplies models for. Table 20 on page 141 identifies the control blocks for which IBM supplies models.
3. Determine if your installation should create models for control blocks that IBM does not format. Select the correct prefix for the control block. If the control block resides in:
 - A CI FSS address space prefix the control block with CI.
 - An address space for a batch job, started task, or a TSO/E user prefix the control block with JOB.
 - The JES3 address space prefix the control block with IATY.
 - WTR FSS address space prefix the control block with WTR.

You could follow the directions in "Adding Control Block Models to Your IPCS JES3 Session" on page 132 to add those control blocks that IBM does not provide formatters for.

4. Establish an IPCS session and select JES3 from the **IPCS Component Analysis** panel.
5. Select JES3 Control Block Information from the **IPCS JES3 - Primary Options** panel.
6. Select Add a user-defined Control Block Group from the **Display or Modify JES3 Control Block Information** panel.

7. Enter the control block group name next to each control block you want to include in your control block group for WTR FSS problems.
8. Press PF 3 to create the control block group and to enter the description of the control block group you just created.

Example of Creating a Control Block Group: If you were diagnosing a problem for a 3812 printer, you might want to create your own control block group to diagnose WTR FSS problems. Some of the control blocks you need to diagnose the problem could reside in the JES3 address space, common storage, and in the writer FSS address space.

The following is an example of how you might build a control block group, named MYWTR, to diagnose a problem for a 3812 printer driven by an FSA in a writer FSS address space.

1. *Determine the control blocks you need to diagnose the problem or functional area.*

For example, to diagnose FSS-managed printers, you would need the following control blocks to diagnose a problem:

- BFPX
- CHK
- DESTQ
- FCT
- FSA
- FSBX
- FSCB
- FSCT
- FSDB
- FSIP
- FSS
- FSVT
- GFC
- IDX
- INPX
- JSPA
- PDQ
- OSE
- QCP
- RESPA
- SUPUNITS
- SRL
- WTR

2. *Identify the control blocks that IBM supplies models for.*

Table 20 on page 141 indicates IBM supplies models for the following control blocks.

- BFPX
- DESTQ
- FCT
- FSA
- FSCB

- FSS
 - OSE
 - PDQ
 - SUP
3. *Determine if your installation should create models for control blocks that IBM does not format.*

If you created models for the:

- FSBX, FSDB, INPX, QCP, SRL, FSIP, JSPA, RESPA, CHK, FSCT, FSVT, and IDX, you would prefix those control blocks with WTR. When you selected one of the previous control blocks, IPCS JES3 would use the ASID specified for the WTR prefix to format the control block.

Notice that the FSIP, JSPA, RESPA, CHK, FSCT, FSVT, and IDX are not JES3 control blocks. You can create formatters for these control blocks and include them into a control block group.

- PDQ, GFC, FSIP, JSPA, and RESPA, you would prefix those control blocks with IATY. When you selected one of the previous control blocks, IPCS JES3 would use the ASID specified for the IATY prefix to format the control block.

Notice that the FSIP, JSPA, and RESPA appear in both lists because these control blocks can reside in the WTR FSS address space and in the JES3 address space.

4. *Establish an IPCS session and select JES3 from the Component Analysis panel.*

```

----- IPCS MVS DUMP COMPONENT DATA ANALYSIS -----
OPTION ==>                                SCROLL ==> CSR

To display information, specify the corresponding option name or enter S
to the left of the option desired.  Enter ? to the left of an option to
display help regarding the component support.

  Name      Abstract
  IMSDUMP   IMS analysis
  IOSCHECK  Active input/output requests
  IRLM      IMS Resource Lock Manager analysis
  JES2      JES2 analysis
s JES3      JES3 analysis
  LISTEDT   Format eligible device table
  LLATRACE  LNKLST lookaside trace
  LOGDATA   LOGREC formatter
  LPAMAP    Map link pack area
  MTRACE    Master trace formatter
  NUCMAP    Nucleus CSECT Map
  SADMPMSG  Format SADMP console messages
  SMSDATA   SMS control block analysis
  SRMDATA   SRM control block analysis
  SUMDUMP   Format summary dump data
  SYMPTOMS  Format symptoms

```

Figure 16. IPCS MVS Dump Component Data Analysis Panel

5. *Select JES3 Control Block Information from the IPCS JES3 - Primary Options panel (IATKPOM).*

-----IPCS JES3 - Primary Options -----

OPTION ===

Select one option only, and enter S next to it.

- S JES3 Control Block Information
- JES3 Summary Information
- CI FSS Summary Information
- Trace Information for JES3, CIFSS and Writer FSS

List of valid ASIDs (Y or N) ==> N (Default is N)

Enter the default ASIDs to be used.

ASID	Address Space	Control Block Prefix
-	JES3	IATY
-	CI FSS	CI
-	WTR FSS	WTR
-	TSO User, Started Task, or Batch Job	JOB
-	Other Address Space	

Figure 17. IPCS JES3 Primary Option Panel (IATKPOM)

6. Select the option. Add a user-defined Control Block Group from the Display or Modify JES3 Control Block Information.

----- DISPLAY OR MODIFY JES3 CONTROL BLOCK INFORMATION -----

OPTION ===

Select one function only, and enter S next to it.

- Display all control blocks
- Display all Control Block Groups
- List the Control Block Groups for a control block
- Add a control block
- S Add a user-defined Control Block Group
- Add a control block to an existing Control Block Group
- Delete a control block from all Control Block Groups
- Delete a control block from a Control Block Group
- Delete a user-defined Control Block Group

Figure 18. Display or Modify JES3 Control Block Information Panel

7. Enter the control block group name next to each control block you want to include in your control block group.

IPCS JES3 displays all the control blocks IBM has supplied models for and the control blocks have been added to the IPCS session. Place a unique control block group name next to each control block required in the control block group that you are creating.

```

----- ADD A USER-DEFINED CONTROL BLOCK GROUP -----
OPTION ===                                     SCROLL ===

Enter a one to eight character Control Block Group name next to the
control blocks that you want to assign to a new control block group.

Group      Name      Description
-----
          CIBAL      Buffer Allocator Block
          CIDAT      Data Buffer Block
          CIDMC      Data Management Control Block
          .
          .
          .
MYWTRFSS   IATYFSA   Functional Subsystem Application Table
MYWTRFSS   IATYFSS   Functional Subsystem Table
          .
          .
          .

```

Figure 19. Add a User-Defined Control Block Group Panel

8. Press PF 3 to create the control block group and to enter the description of the control block group you just created. Figure 20 illustrates the panel for specifying the description of the control block group.

```

----- DESCRIPTION FOR A USER-DEFINED CONTROL BLOCK GROUP -----
OPTION ===

Enter a description for the new group MYWTRFSS you defined.

Cross Address space group for WTR FSS problems ____
      (Up to 50 characters)

```

Figure 20. Description for a User-Defined Control Block Group Panel

Helpful Hints for Using the IPCS JES3 Panel Dialog

The IPCS JES3 panel dialog consists of panels that help retrieve JES3 diagnostic information. Each panel has a panel identifier and help panels that may be useful when working with IBM service representatives.

To obtain the panel identifier, enter **PANELID** on the command line; the panel identifier appears in the upper left-hand side of the screen.

To obtain help information for error messages and help for the functional panels, press the PF1 key. If an error message is displayed in the upper right-hand corner of the screen, obtain an extended description of the error message, by pressing the PF1 key. The extended description of the error message appears immediately underneath the OPTION command line. If you need additional help on supplying information on an IPCS JES3 panel, you can press the PF1 key or enter HELP on the OPTION command line.

Using IPCS Subcommands to View JES3 Diagnostic Data

To view JES3 diagnostic information, enter an IPCS subcommand on the command line in an IPCS session. The following list identifies the IPCS commands you might find useful when diagnosing JES3 problems:

VERBEXIT

Provides sections of the JES3 formatted dump. The JES3 formatted dump summarizes information from JES3 control blocks. See either “Viewing JES3 Formatted or Summary Information” or *z/OS JES3 Diagnosis Reference* for information about the IPCS subcommand.

CBFORMAT

Provides the contents of an entire JES3 control block. See either “Viewing Specific JES3 Control Blocks Mappings Using IPCS” on page 140 or *z/OS JES3 Diagnosis Reference* with information about the IPCS subcommand.

LIST Provides a list of storage starting at a specified address. See either “Viewing Portions of JES3’s Storage” on page 153 or *z/OS JES3 Diagnosis Reference* for information about the IPCS subcommand.

SUMMARY JOBSUMMARY ALL

Provides a list of valid address space ids (ASIDs) for the dump that you are viewing. See either *z/OS MVS IPCS Commands* or *z/OS JES3 Diagnosis Reference* for information about the IPCS subcommand.

STACK x

Places the symbol name for the requested control block on a stack. Use this command to aid in the retrieval of data you have already displayed. See *z/OS MVS IPCS Commands* for information about the IPCS subcommand.

WHERE

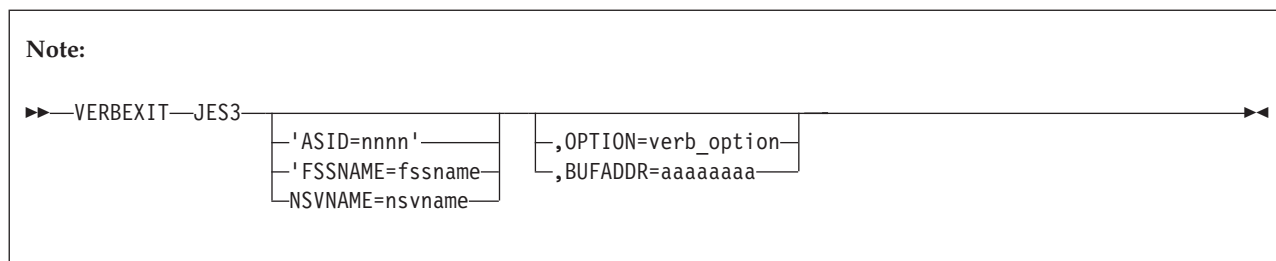
Identifies the area in a dump where an address resides. See *z/OS MVS IPCS Commands* for information about the IPCS subcommand.

FIND Locates literal values in a dump. See *z/OS MVS IPCS Commands* for information about the IPCS subcommand.

Viewing JES3 Formatted or Summary Information

You can use the IPCS VERBEXIT command to view a portion of or the entire JES3 formatted dump online. The JES3 formatted dump provides summary information from JES3 control blocks. For additional restrictions and a list of keywords you may want to include on the VERBEXIT subcommand, see *z/OS MVS IPCS User’s Guide*.

The syntax for the VERBEXIT command follows:



ASID=[nnnn | (nnnn)]

Formats the JES3 control blocks associated with a JES3, a CI FSS, a writer FSS address space, a Network Server, or an address space for a batch job, TSO/E user, or started task.

FSSNAME=fssname

Specifies the job name of a CI FSS address space or a writer FSS address space. Use the ASID= keyword if it is necessary to specify the JES3 address space. To

obtain the job name associated with the required address space issue a JES3 *I,F,ACTIVE command to display information for all active FSSs.

NSVNAME=nsvname

Specifies the name of a Network Server (Netserv). This parameter, or alternatively ASID=nnnn, can be used to limit all Netserv and socket level formatting to the specified Netserv address space.

OPTION=verb_option

Specifies the portion of the JES3 formatted dump that you want to display. The verb_options and the portion of the JES3 formatted dump they display are shown in the table in Chapter 4, "JES3 Formatted dump," on page 155. If you do not specify a verb_option, the entire JES3 formatted dump is displayed. If the JES3 address space does not contain the requested section of the dump, the system issues the following message to indicate the section does not exist:

NO DATA CAN BE ACCESSED

BUFADDR=aaaaaaaa

Specifies the address of the MRF buffer whose information has to be displayed. This option can be used only if OPTION=DAT is specified. For each record in the MRF buffer, the DATCC and a portion of data in the record is displayed.

Viewing Specific JES3 Control Blocks Mappings Using IPCS

IPCS can also be used to view a single requested control block online. The CBFORMAT subcommand is used to format single control blocks with the field name followed by the values for the fields.

```
IATGRVT: 030010000

      Transfer Vector Table (TVT)

+0024          TVTLNGTH . 0D68          TVTINDAT . 0091193P
+0000 NAME ..... IATGRVT  REL ..... HJS4421  DATE ..... 06/28/91
+0018 TIME ..... 03.48    APAR ..... 0300230B
+002C          10255142    FCTTOP ... 0302FCC8    AINTDATA.. 00000000
+0038 ASPECB ... 00B49F7C    AWAITEP .. 03021388    ASAVE .... 03039ABC
+0044 ARETNAD .. 03039B42    JESTAE ... 0000DCA8    FAILDSP .. 0000DB58
+0050 TVTXBPL .. 03035EE4    TVTXGCL .. 03036564    TVTXRCL .. 030368A6
+005C TVTXDPL .. 03036AF4    TVTXCND . 03004BD8    TVTFTVT .. 03002C40
+0068 TVTCTVT .. 03002320    TVTHOBOF . 7FFFFFFF    TVTRD005.. 00000000
```

Figure 21. IPCS Output using the CBFORMAT Subcommand

The syntax for the CBFORMAT subcommand follows:



adr

Specifies the address of the requested control block. See Table 20 on page 141 to determine if an address is required for the control block you want to format. If an address is not required, replace the structure name for the address.

STRUCTURE (name)

Specifies the name of the requested control block. See Table 20 on page 141 to determine the structure name of the control block you want to format.

MODEL (name)

Specifies the name of the IPCS model associated with the control block. See Table 20 to determine the model name of the control block you want to format.

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
ADA	IATYADA	Yes	IATIPADA	Authorization Data Area	Register 6 in IATSIAU
ARL	IATYARL	Yes	IATIPARL	Allocation resource list	RQARLADD in IATYRSQ ARLFCHN in IATYARL
BAL	IATYBAL	Yes	IATIPBAL	First buffer allocator block for the JES3 address space	SVTBALJC or SVTBALP in IATYSVT; TVTBALJ in IATYTVT
	CIBAL	No	IATIPBAL	First buffer allocator block for a CI FSS address space	
BFPX	WTRBFPX	Yes	IATIPBFP	FSA buffer prefix control block for a WTR address space	FSBXABUF in IATYFSBX INPXBA in IATYINPX BFPXCHAN in IATYBFPX
BLK	IATYBLK	Yes	IATIPBLK	Block spooler parameter list	
	CIBLK	Yes	IATIPBLK	Block spooler parameter list	
	WTRBLK	Yes	IATIPBLK	Block spooler parameter list	
BWA	IATYBWA	Yes	IATIPBWA	Spool Browse Core Storage Buffer Work Area	DSBCBWKA
CAT	IATYCAT1	Yes	IATIPCA1	Catalog allocate parameter list	LCTALLOC in IATYLCT for IATYCAT1; LCTUNALC in IATYLCT for IATYCAT2
	IATYCAT2	Yes	IATIPCA2	Catalog unallocate parameter list	
CFGS	IATYCFGS	Yes	IATIPCF5	Configuration Services Data Area	ITKCFGTK in IATYITK INTCFGTK in IATYITK CFCFGTKN in IATYCFW
CFT	IATYCFT	Yes	IATIPCF1	CI FSS table	FSSEXTPT in IATYFSS IDACFTST in IATYIDA CFTCHAIN in IATYCFT for the next CFT in the chain
CLST	IATYCLST	Yes	IATABCLS	Data set concatenation list header and entries	DSBCLST
	IATYCLSH	Yes	IATIPCL1	Data set concatenation list header	DSBCLST
	IATYCLSE	Yes	IATIPCL2	Data set concatenation list entry	
CNB	IATYCNCB	No	IATIPCNB	Console buffer control block	Address contained in ACONSCB in IATYTVT
CNC	IATYCNC1	Yes	IATIPCC1	Console service constants	ACONCONS in IATYTVT for IATYCNC1

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
CNDB	IATYCNDB	Yes	IATIPCDB	Console Destination Block	CALLCNDB, LMOPCNDB in IATYNDDT; CONCNDB in IATYCNS; CONSOLE in IATYPRM; DJCLCNDB in IATYDJB; DCON in IATYUTDA; FSACNDB and FSACNDB2 IN IATYFSA; FSSCNDBM, FSSCNDB, and FSSMCNDB IN IATYFSS; IQOSCNS, IQOSCNSL in IATYIQOS; ISDCNDB in IATYISD; JCTCNDB in IATYJCT; JDABCNDB in IATYJDA; JNDTCNDB IN IATYJNR; JSQCNDB in IATYJSQ; MDSCNDB, CNDBMDSM, CNDBMDSN, CNDBMDS5, CNDBMDS6 in IATYMDS; MEMHCNDB, MEMECNDB in IATYMEM; MOOSCNSL, MOOSCNS in IATYMOOS; MPCCNDB in IATYMP; NCDCNDBW in IATYNCD; NRSCNDB in IATYNRS; PURCNDB in IATYPUR; RDSCNDB, RSDCNDB in IATYRDS; RTTCNDB in IATYRTL; QMSCNDB, SRDCNDB in IATYSRD; SUPCNDB, SUPFCNDB, SUPICNDB, SUPRCNDB in IATYSUP; STATCNDB in IATYJMF; S34CNDB in IATYS34; TVTCNJEM, TVTCBDTM in IATYTVTC; VMSGCNDB in IATYVVFY; VRYCNDB in IATYVRY; WSBCNDB in IATYWSB; WTDCNDB in IATYWTD; WTRDCCDB, WTRDDCDB in IATYWTR
CNS	IATYCNS1 IATYCNS4 IATYCNS6	Yes Yes Yes	IATIPCNS1 IATIPCNS4 IATIPCNS6	Console buffer map CONSACTN DSECT Console spool buffer	ACONSBCB in IATYTVT FCTCBPTR in IATYFCT JDABPFDB in IATYJDA
COW	IATYCOW	Yes	IATIPCOW	Client Work Area	SSS2JEST in IAZSSS2
CPB	IATYCPB	Yes	IATPCPB	Cell pool control block	CPBNXCPB in IATYCPB for the next IAYTCPB
CSCP	IATYCSCP	Yes	IATPCSCP	Chained single-record file (SRF) cell pool pointers	TVTCSCP in IATYTVT
DAT	IATYDAT	Yes	IATIPDAT	Data buffer block for the JES3 address space	BALDATBA and BALXDTBA of IATYBAL; DSBDATBA of IATYDSB; WTRIDATA of IATYWTR
	CIDAT	Yes	IATIPDAT	Data buffer block for a CI FSS address space	BALDATBA and BALXDTBA of CIBAL; WTRIDATA of IATYWTR
DLA	IATYDLA	Yes	IATIPDLA	DLOG address space data area	DLGDLA in IATYDLOG
DLG	IATYDLOG	Yes	IATIPDLG	DLOG common data area	SVTDLOG in IATYSVT

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
DMC	IATYDMC	Yes	IATIPDMC	Data management control block	BALDMCBA of IATYDSB DSBDMCBA of IATYDSB OSDDMCCP of IATYOSD - points to the first cell pool extent
	CIDMC	Yes	IATIPDMC	Data management control block for a CI FSS address space	BALDMCBA of IATYDSB DSBDMCBA of IATYDSB OSDDMCCP of IATYOSD - points to the first cell pool extent
DOI	IATYDOI	Yes	IATIPDOI	Dataset Output Information	JDSDOFDB in IATYJDS, OSEOTFDB in IATYOSE
DOIX	IATYDOIX	Yes	IATIPDOX	Dataset Output Information Extension	DOEXTOF in IATYDOI contains offset
DOT	IATYDOT	Yes	IATIPDOT	Dataset Output Table	JETEDTAD in IATYJET
DOTPLIST	IATYDOTP	Yes	IATIPDOP	IATXDOT Parameter List	Embedded in IATYPUR, IATYJAD, IATYJVV
DSB	IATYDSB	Yes	IATIPDSB	Data set block	DSSDSB in IATYDSS
	RCVR	Yes	IATIPRID	Receiver ID and log string from browse token	DSBRCVR in IATYDSB
DSN	IATYDSN	Yes	IATIPDSN	SETDSN table	VLMDSNPT in SETVOL (IATYVLM)
DSP	IATYDSP	Yes	IATIPDSP	Dynamic support program dictionary for the JES3 address space	FCTDSPDC of IATYFCT
	CIDSP	Yes	IATIPDSP	Dynamic support program dictionary for a CI FSS address space	FCTDSPDC of CIFCT
DSQ	IATYDSQ	Yes	IATIPDSQ	JES3 destination queue	DSQLOC in IATYTVT
DSS	IATYDSS	Yes	IATIPDSS	Data set status block for the JES3 address space	MEMDSS and MEMRRDSS in IATYMEM; DEBIRBAD in IEZDEB; ICTJCDSS, ICTJEDSS, ICTSYSOSS in IATYICT; DFRDSS in IATYDFR; DSBDSS in IATYDSB; SVTPBUFQ in IATYSVT; ICTCHAIN in IATYICT
	CIDSS	Yes	IATIPDSS	Data set status block for a CI FSS address space	MEMDSS and MEMRRDSS in CIMEM; DEBIRBAD in IEZDEB; ICTJCDSS, ICTJEDSS, ICTSYSOSS in CICT; SVTPBUFQ in IATYSVT
DTR	IATYDTR	Yes	IATIPDTR	DLOG trace table header	DLGTRACE in IATYDLOG DTRCURR in IATYDTR DTRNEXT in IATYDTR
DTRE	IATYDTRE	Yes	IATIPDT2	DLOG trace table entry	
DUL	IATYDUL	Yes	IATIPDUL	Dump list for CSA	SVTDULST in IATYSVT
DVE	IATYDVE	Yes	IATIPDVE	SNARJP device entry table	Contiguous to the WSB
DYA	IATYDYA1	Yes	IATIPDA1	Dynamic allocation buffer Request buffer Response buffer	SELDATA in IATYSEL SELDATA in IATYSEL
	IATYDYA2	Yes	IATIPDA2		
DYN	IATYDYN	No	IATIPDYN	DYNAL FCT data area	
DYQ	IATYDYQ	No	IATIPDYQ	Dynamic allocation queue entries	

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
DYR	IATYDYR	Yes	IATIPDYR	Dynamic allocation record control block	AWADYR in IATYAWA
	JOB DYR	Yes	IATIPDYR	Dynamic allocation record control block for a batch job or TSO	AWADYR in IATYAWA
	CIDYR	Yes	IATIPDYR	Dynamic allocation record control block for a CI FSS address space address space	AWADYR in IATYAWA
FCT	IATYFCT	No	IATIPFCT	Function control table chain for the JES3 address space	
	CIFCT	Yes	IATIPFCT	Function control table chain for the CI FSS address space	FCTTOP in CITVT RQFCTAD in IATYRSQ
FDD	IATYFDD	Yes	IATIPFDD	File directory entry for the JES3 address space	AIOFDTOP in IATYTVT
	CIFDD	Yes	IATIPFDD	File directory entry for the CI FSS address space	AIOFDTOP in CITVT
FSA	IATYFSA	Yes	IATIPFSA	Functional subsystem application table	FSSFSAPT in IATYFSS FSACHAIN in IATYFSA
FSCB	WTRFSCB	No	IATIPFSC	Functional subsystem control block a writer FSS address space	
FSL	IATYFSL	Yes		Failsoft logout message (IAT3713) for the JES3 address space	
	CIFSL	Yes		JES3 failsoft logout message (IAT3713) for a CI FSS address space	
FSS	IATYFSS	No	IATIPFSS	Functional subsystem table	
HWS	IATYHWS1 IATYHWS2 IATYHWS3	No Yes Yes	IATIPHWS IATIPHW1 IATIPHW3	High-watermark setup table Fixed portion Major entry Minor entry	TIHWST in IATYTVT for IATYHWS1; first major entry is contiguous to IATYHWS1; HWSMJCHN in IATYHWS1 for the next major entry; count of minor entries in HWSALTCT in IATYHWS2; minor entries are contiguous to IATYHSW2
	CIHWS1 CIHWS2 CIHWS3	Yes Yes Yes	IATIPHWS IATIPHW1 IATIPHW3	High-watermark setup table for the CI FSS address space Fixed portion Major entry Minor entry	TIHWST in IATYTVT for CIHWS1; first major entry is contiguous to CIHWS1; HWSMJCHN in CIHWS1 for the next major entry; count of minor entries in HWSALTCT in CIHWS2; minor entries are contiguous to CIHWS2
ICT	IATYICT	No	IATIPICT	Interpreter control table for the JES3 address space	
	CIICT	Yes	IATIPICT	Interpreter control table for a CI FSS address space	TVTICTCH in CITVT IDICT in CIIDD1
IDA	IATYIDA	No	IATIPIDA	Interpreter Data Area	TVTIDAAD in IATYTVT

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
IDD	IATYIDD1 IATYIDD2 IATYIDD3 IATYIDD4	Yes Yes Yes Yes	IATIPID1 IATIPID2 IATIPID3 IATIPID4	Interpreter DSP area for the JES3 address space Common section of the interpreter DSP area CI section of the interpreter DSP area Prescan section of the interpreter DSP area Post scan section of the interpreter DSP area	Register 13 of the CI DSP ICTIDD in IATYICT
	CIIDD1 CIIDD2 CIIDD3 CIIDD4	Yes	IATIPID1 IATIPID2 IATIPID3 IATIPID4	Interpreter DSP area for a CI FSS address space Common section of the interpreter DSP area CI section of the interpreter DSP area Prescan section of the interpreter DSP area Post scan section of the interpreter DSP area	Register 13 of the CI DSP ICTIDD in CIIDD
IFC	IATYIFC	Yes	IATIPIFC	Interpreter FSS control block for the JES3 address space	TVTIFCAD in IATYTVT
	CIIFC	Yes	IATIPIFC	Interpreter FSS control block for a CI FSS address space	TVTIFCAD in CITVT
INC	IATYINC	Yes	IATIPINC	Intermediate console status table	Initialization spool record
INM	IATYINM	Yes	IATIPINM	Intermediate MSGROUTE table	Address contained in INTMSGID in IATYINT
IOP	IATYIOP	Yes	IATIPIOE	JES3 I/O parameter block	SVTIOPRM in IATYSVT or TVTIOPRM in IATYTVT for IATYIOP; IPBEXTAB in IATYIOP for IATYIOPE
	IATYIOPE	Yes	IATIPIOE	JES3 fixed section Extent entry	
ISR	IATYISR	Yes	IATIPISR	IOSB/SRB pair	IOPFRISR, IOPLOISR, IOPHIISR in IATYIOP SRBPARM in IHASRB
ITK	IATYITK	Yes	IATIPITK	Initialization task parameters	Local data in IATINTK, TVTITKPM in IATYTVT
JAD	IATYJAD	Yes	IATIPJAD	JDS Access Interface Data Area	TVTJADAD in IATYTVT, R13 in module IATDMJA
JCT	IATYJCT	Yes	IATIPJCT	Job control table	JQEFDB in IATYJQE JVWJCFDB and JVWJCT in IATYJVW
JDAB	IATYJDA1 IATYJDA2	Yes Yes	IATIPJD1 IATIPJD2	Job description accounting block for the JES3 address space Common section SE entries	JCTJDFDB in IATYJCT or RQJDBFDB in IATYRSQ for IATYJDA1; IATYJDA2 is contiguous to IATJDA1
	CIJDA1 CIJDA2	Yes Yes	IATIPJD1 IATIPJD2	Job description accounting block for a CI FSS address space Common section SE entries	JCTJDFDB in CIJCT or RQJDBFDB in CIRSQ for CIJDA1; CIJDA2 is contiguous to CIJDA1

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
JDE	IATYJDE	Yes	IATIPJDE	JES3 directory element for the JES3 address space	TVTJDEQ in IATYTVT
	CIJDE	Yes	IATIPJDE	JES3 directory element for a CI FSS address space	TVTJDEQ in CITVT
JDO	IATYJDOE	Yes	IATIPJDO	Job Data Set Output Entry	Follows the JDO fixed section
	IATYJDOF	Yes	IATIPJD3	Job Data Set Output Fixed Section	OSDHDJDO in IATYOSA, OSDCHALL in IATYOSA, OSDCHSTP in IATYOSA, OSDCHJOB in IATYOSA
JDS	IATYJDSE	Yes	IATIPJDS	Job Data Set Block Entry	Follows the JDS fixed section
	IATYJDSEF	Yes	IATIPJD5	Job Data Set Block Fixed Section	JCTJDSEF in IATYJCT, RQJDSEFDB in IATYRSQ
JET	IATYJET	Yes	IATIPJT1	JDS Entry Table header	CSBTUSER in JDS type CSBT entry
	IATYJETE	Yes	IATIPJT2	JDS Entry Table entry	CSBTUSER in JDS type CSBT entry
JIBX	IATYJIBX	Yes	IATIPJI4	JIB extension	JIBXTOFF contains the offset from JIBSTART
JMQ	IATYJMQ1	Yes	IATIPJM1	JESMSG queue control area Header section Entry section	TVTJMQA in IATYTVT IMQFIRST in IATYJMQ1. JMQEJNXT, JMQEJPRV, JMQUEMNXT, and JMQUEMPRV in IATYJMQ2.
	IATYJMQ2	Yes	IATIPJM2		
JNM	IATYJNM	Yes	IATIPJNM	Job number table	JOBNRTN in IATYTVT
JNT	IATYJNT	Yes	IATIPJNT	Job-net control block	JNCBTOP in IATYTVT
JPRT	IATYJPRT	Yes	IATIPJPT	JCT data space page release table	JQXPAGRL in IATYJQX
JQE	IATYJQE	Yes	IATIPJQE	Job queue element	JQX4AD in IATYJQX
JQX	IATYJQX	No	IATIPJQX	JCT access method data area	TVTJQX in IATYTVT
JSQ	IATYJSQ	Yes	IATIPJSQ	Job select queue element	Imbedded in IATYJSA, IATYSTA
JVD	IATYJVD	Yes	IATIPJVD	Job validation/restart data csect	Register 13 if failed DSP is INJOBVAL JVWJVQAD in IATYJVD
JVL	IATYJVL	Yes	IATIPJVL	Job validation/restart error logout data area	Register 13 if the failed FCT is INJOBSNP
JVQ	IATYJVQ	Yes	IATIPJVQ	Job initialization job validation queue	JVDJVQAD in IATYJVD JVLJVQAD in IATYJVL JVWJVQAD in IATYJVW
JVW	IATYJVW	Yes	IATIPJVW	Job validation/restart work area	JVDJVWAD in IATYJVD JVQJVWAD, JVQJVWVQ, JVQJVWSQ and JVQJVWTQ in IATYJVQ, JVLJVWAD in IATYJVL, JVWNEXT in IATYJVD
LCA	IATYLCA	Yes	IATIPLCA	Locate communication area	LDALRLCA, LDACNLCA, and LDACCLCA in IATYLDA
LCB	IATYLCB	Yes	IATIPLCB	Logical unit control block	WSBLCB in IATYWSB DVELCB in IATYDVE

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
LCP	IATYLC1 IATYLC2 IATYLC3	No Yes Yes	IATIPL1 IATIPL2 IATIPL3	Locate checkpoint data area Header Main processor entries Job entries	LDALCPFD in IATYLDA for IATYLC1; first IATYLC2 entry is contiguous to IATYLC1; next IATYLC2 is in LCPMPNXT in IATYLC2; first job entry is in LCPJB1ST in IATYLC2 and next job entry is in LCPJB1ST in IATYLC3
LCR	IATYLCR1 IATYLCR2	No Yes	IATIPLR1 IATIPLR2	Locate restart area Header Job entry	LDALCR in IATYLDA for IATYLCR1; LCRNEXT in IATYLCR1 is next IATYLCR1; IATYLCR2 is contiguous to IATYLCR1
LCT	IATYLCT1 IATYLCT2 IATYLCT3	Yes Yes Yes	IATIPLT1 IATIPLT2 IATIPLT3	Locate control table for the JES3 address space Master task section Locate subtask section Parmlist passed to IATLVAT	LDAMLCT in IATYLDA for IATYLCT1; LDALCT in IATYLDA and LCTNEXT in IATYLCT1 for IATYLCT2; LDAATLCT in IATYLDA for IATYLCT3
	CILCT1 CILCT2 CILCT3	Yes Yes Yes	IATIPLT1 IATIPLT2 IATIPLT3	Locate control table for a CI FSS address space Master task section Locate subtask section Parameter list passed to IATLVAT	LDALCT in CILDA for first CILCT1; LDAMLCT in CILDA for CILCT1; LCTNEXT in CILCT; LDAATLCT in IATYLDA
LDA	IATYLDA	No	IATIPLDA	Locate data area for the JES3 address space	TVTLDAAD in IATYTVT
	CILDA	Yes	IATIPLDA	Locate data area for a CI FSS address space	TVTLDAAD in CITVT
LSVT	IATYLSV1 IATYLSV2	No Yes	IATIPLDA	Locate subtask vector table for the JES3 address space Header section Table entries	LDALSVT in IATYLDA
	CILSV1 CILSV2	Yes Yes	IATIPLDA	Locate subtask vector table for a CI FSS address space Header section Table entries	LDALSVT in CILDA
MDS	IATYMDS	No	IATIPMDS	Main device scheduling table	Pointed to by MDSPARM in IATYTVT
MEM	IATYMEMH	No	IATIPMEMH	Memory data block for the JES3 address space	SVTMEMD in IATYSVT MEMCHAIN in IATYMEM MEMHEAD in IATYMEM
MGR	IATYMGR	No	IATIPMGR	Message routing table	SVTMGR in IATYSVT
MLWO	IATYMLWO	Yes	IATIPMLO	Multi-Line message token	MESSAGE macro parameter list on entry to MESSAGE service routine.
MPC	IATYMP	No	IATIPMPC	Main processor control table	MAINDATA in IATYTVT MAINACT in IATYTVT SVTMPEDA in IATYSVT SVTMPACT in IATYSVT MPNEXT in IATYMP
NAM	IATYNAH IATYNAE	Yes Yes	IATIPNAH IATIPNAE	SETNAMES table Header entry Format entry	SETNAMES in IATYTVT and SVTSETNM in IATYSVT for IATIPNAH

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
NCB	IATYNCB1 IATYNCB2 IATYNCB3	Yes Yes Yes	IATIPNC1 IATIPNC2 IATIPNC3	DJC net control block Prefix portion Fixed portion Variable portion	JNNCBFDB in IATYJNT for IATYNCB1; IATYNCB2 is contiguous to IATYNCB1; IATYNCB3 is contiguous to IATYNCB2
NCF	IATYNCF	Yes	IATIPNCF	New configuration data entry	CFSNCFAD in IATYCFGS NCFNEXT in IATYNCF
NCK	IATYNCK1 IATYNCK2	Yes Yes	IATIPNK1 IATIPNK2	DJC net checkpoint record Prefix portion Entry portion	DJCKKFDB in IATYTVT CKDJCFDB in IATYJCT
NDH	IATYNDH	Yes	IATIPNDH	Networking data set header	NTDHNH in IATYNTDH NRDADSHB in IATYNRD ADSHWRK in IATYNFD NRSTDASHW in IATYNRS
NDN	IATYNDN	Yes	IATIPNDN	NJE Reader data area	
NDP	IATYNDP	Yes	IATIPNDN	NJE decompression parameter list	
NJH	IATYNJH	Yes	IATIPNJH	Networking job header	ISNHDFDB in IATYNIS NTHTNJH in IATYNTHT
NJT	IATYNJT	Yes	IATIPNJT	Networking job trailer	NTHTNJT in IATYNTHT
NRD	IATYNRD	Yes	IATIPNRD	NJE receiver work area	NDTNRDPT in IATYNDT, NDNNRDPT in IATYNDN
NTSV	IATYNTSV	Yes	IATIPNSV	Netserv table, as defined on the JES3 global	SUPFEND of the containing SUPUNIT; the SUPUNIT is pointed to by TVTNTSV in IATYTVT, SOCKNTSV in IATYSOCK, SUPCHAIN in IATYSUP, and SUPTYPCB in IATYSUP
OCF	IATYOCF	Yes	IATIPOCF	Old configuration data entry	CFSDCFAD in IATYCFGS OCFNEXT in IATYOCF
ODP	IATYODP	Yes	IATIPODP	NJE Reader data area	
OSA	IATYOSA	Yes	IATIPOSA	Output service data area	Register 13 contains its address in modules IATOSDR and IATOSDO
OSD	IATYOSD	Yes	IATIPOSD	Output service resident data area	TVTYOSD in IATYTVT
OSE	IATYOSEF IATYOSEV IATYOSED	Yes	IATIPOS3 IATIPOS1 IATIPOS2	Output service element Fixed section of the OSE Variable section of the OSE Data set section of the OSE	RQOSEFDB in IATYRSQ JCTOSEFD in IATYJCT OSDOSECH in IATYOSD JDABOSE and JDABOSES in IATYJDA
OSS	IATYOSSJ IATYOSSM	Yes Yes	IATIPOSS	Output service summary table	Select IATYOSSJ to obtain OSS control blocks for a job. RQOSSTOP in IATYRSQ points to the first OSS for a job. Select IATYOSSM to obtain OSS control blocks for a MOSE. OSEOSS in IATYOSE points to the first OSS on a MOSE chain.
OSPL	IATYOSPL	Yes	IATIPOSL	SPLITOSE service parameter list	
PAB	IATYPAB	Yes	IATIPPAB	PPQ Attributes Block	PPQPAB in IATYPPQ

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
PAR	IATYPAR	No	IATIPPAR	Interpreter parameter list for the JES3 address space	TIPARMS in IATYTVT
	CIPAR	Yes	IATIPPAR	Interpreter parameter list for a CI FSS address space	TIPARMS in CITVT
PCD	IATYPCD	Yes	IATIPPCD	Program Call Descriptor table	SVTPCDP in SSVT
PDQ	IATYPDQ	Yes	IATIPPDQ	Pending data set queue	WTRFPDQF in IATYWTR points to the first PDQ on the chain; WTRFPDQL in IATYWTR points to the last PDQ on the chain; WTRFPDQC in IATYWTR points to the PDQ at the channel; WTRFPDQS in IATYWTR points to the "synched to" entry
PPQ	IATYPPQ	Yes	IATIPPPQ	Pending Page Queue entry	WTROPPQF in IATYWTR
PRO	IATYPRO1 IATYPRO2	No Yes	IATIPPR0 IATIPPR1	Procedure library table for the JES3 address space Header section Entry section	TPROCCHN in IATYTVT ICTPRCAD in IATYICT
	CIPRO1 CIPRO2	No	IATIPPR0 IATIPPR1	Procedure library table for a CI FSS address space Header section Entry section	TPROCCHN in CITVT ICTPRCAD in CICT
PUR	IATYPUR	Yes	IATIPPUR	Purge Data Area	R13 in module IATPURG
RAB	IATYRAB	Yes	IATIPRAB	USAM record allocation block	DSSRAB in IATYDSS IDDRAB in IATYIDD RQCIRAB in IATYRSQ
RIP	IATYRIP	Yes	IATIPRIP	Reply Information Prefix	JESXCF CADS buffer, at the starting data address minus the prefix length
RLT	IATYRLT	YES	IATIPRLT	RJP line & terminal table	RJPTAB IN IATYTVT SRTPRTRM IN IATYTVT SRTPSRTR IN IATYTVT WSBRLTA IN IATYWSB LCBSRPL IN IATYLCB
RRE	IATYRRE	Yes	IATIPRRE	RAB Refresh element	DMCRREAD in IATYDMC
RSQ	IATYRSQ	Yes	IATIPRQ3 IATIPRQ2 IATIPRQ1 IATIPRQ4 IATIPRQ5 IATIPRQ6	Resident job queue table	
SDE	IATYSDE	Yes	IATIPSDE	SYSOUT application program interface DSP entry	TVTSDEAD, SDEFIRST, SDELAST, SDENEXT, SDEPREV, SDEIDLEQ
SDW	IATYSDW	Yes	IATIPSDW	SYSOUT application program interface DSP work area	SDESDWAD
SEE	IATYSEE	Yes	IATIPSEE	SAPI Exclusion Element	OSTSEEQ in IATYOST, RQSAPSEE in IATYRSQ
	IATYSE1	Yes	IATIPSE1	SAPI Thread Exclusion List	SEETHRED in IATYSEE
SEL	IATYSEL	Yes	IATIPSEL	Service entrance list for SSI requests	Register 1 of the SSISERV invocation AWASEL in IATYAWA
SETUNITS	IATYSET	No	IATIPSET	SETUNIT table entry	

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
SETVOL	IATYVLM	Yes	IATIPVLM	Resident volume allocation table	MDSVLCHN in IATYMDS SYSVOLAD in IATYSYS VLMCHAIN in IATYVLM DSNVOLAD in IATYDSN
SFW	IATYSFW	Yes	IATIPSWF	SYSOUT application program interface FCT work area	SDESFWAD
SLBF	IATYSLB2	Yes	IATIPSL2	SYSD data (SLBUFREC)	
	IATYSLB3	Yes	IATIPSL3	SYSLOG time stamp data (STCKDATA)	CLSTSYSD
SMW	IATYSMW	Yes	IATIPSMW	SSI 70 SWB merge/modify work area	
SNFS	IATYSNFS	Yes	IATIPSNF	SNARJP fail DSP work area	Register 2 in an AFB-08 dump and register 2 in DM552 and DM553 dumps
SOCK	IATYSOCK	Yes	IATIPSOC	Socket table, as defined on the JES3 global	TVTSOCK in IATYTVT SOCKNEXT in IATYSOCK SOCKNXNS in IATYSOCK SOCKNXND in IATYSOCK NTSVFSOC in IATYNTS NTSVLSOC in IATYNTS NJESOCK in IATYNJY NJELSOCK in IATYNJY
SPB	IATYSPB	Yes	IATIPSPB	Spool partition block	TVTSPLST in IATYTVT EXTSPB in IATYIOP
SPW	IATYSPW	Yes	IATIPSPW	SSI 82 spool partition work area	
SQD	IATYSQD	Yes	IATIPSQD	Subtask Queue Descriptor	GSDSQDAD in IATYGSD, GSGFRSQD in IATYGSG, QELDATA in IATYQUE, SQDNEXT in IATYSQD
SRT	IATYSRT	Yes	IATIPSRT	Resident SNA RJP table	SRJPSRT in IATYTVT
SRVC	IATYSRVC	Yes	IATIPSRV	Service Class table	WLM_SRVCFRS in IATYWLM, WLM_SRVCLAST in IATYWLM, SRVC_NEXT in IATYSRVC
SST	IATYSST	Yes	IATIPSSST	Security subtask control table	
SSVT	IATYSVT	No	IATIPSVT	Subsystem vector table	
SSWE	IATYSSWE		IATIPSSW	Security subtask work element	NRDSSWRK in IATYNRD Pointers in IATYSST
SSX	IATYSSX	Yes	IATIPSSX	Security installation exit parameter list	Register 1 in IATUX58 and IATUX59
STA	IATYSTA	Yes	IATIPSTA	Staging area SELSTAG in IATYSEL MPSTAGE and MPSTATL in IATYMP DSQQHD and DSQQTAIL in IATYDSQ STACHAIN and STAPREV in IATYSTA	
	CISTA	Yes	IATIPSTA	Staging area for a CI FSS SELSTAG in IATYSEL JADSTAR in IATYJAD	
STLP	IATYSTLP	Yes	IATIPSTL	Status List Parameter Area	GRESSTLP
STT	IATYSTT1	Yes	IATIPST1	Single track allocation table	JCTSTT of IATINJQ JBTSTT of IATYJBT
	IATYSTT2	Yes	IATIPST2		

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
SUPUNITS	IATYSUP1 IATYSUP2 IATYSUP3 IATYSUP4	Yes	IATIPSU1 IATIPSU2 IATIPSU3 IATIPSU4	Support units table Fixed section - applies to all devices Initialization section Remote devices RJP lines	CONSUP in IATYCND; GLADDR in IATYFCT; FSASUPPT in IATYFSA; LCBFISU and LCBFOSUP in IATYLCB; MPYSYADD in IATYMP; PRTAB, PUNTAP, SUPUNITS, SYSTAB in IATYTVT; WSPASUP in IATYWSP
SVTX	IATYSVTX	Yes	IATIPSVX	JES3 Subsystem Vector Table Fixed Extension	SVTSSVTX in IATYSVT
	IATYSVTX	Yes	IATIPSVX	JES3 Subsystem Vector Table Pageable Extension	SVTSSVTP in IATYSVT
SWBB	IATYSWBB	Yes	IATIPSWB	SWBCMPT service parameter list	
SWBC	IATYSWBC	Yes	IATIPSWC	SWBSPLCE service parameter list	
SWBG	IATYSWBG	Yes	IATIPSWG	SWBGET service parameter list	
SWBL	IATYSWBL	Yes	IATIPSWL	SWBSPLIT service parameter list	
SWBM	IATYSWBM	Yes	IATIPSWM	SWBMERGE service parameter list	
SWBT	IATYSWBT	Yes	IATIPSWT	SWBGETTU service parameter list	
SWBW	IATYSWBW	Yes	IATIPSWW	SWBWRITE service parameter list	
SWE	IATYSWE	Yes	IATIPSWE	SYSOUT application program interface wait for work element	TVTSAPWQ; SWEFIRST; SWELAST; SWENEXT; SWEPREV
SYSL	IATYSYS3	Yes	IATIPSY3	SYSLOG job data header	TVTYSYSL
	IATYSYS4	Yes	IATIPSY4	SYSLOG job data entry	
	IATYSYS5	Yes	IATIPSY5	SYSLOG job data build header	JVQSYSLH
	IATYSYS6	Yes	IATIPSY6	SYSLOG job data build entry	
SYSUNITS	IATYSYS	No	IATIPSYS	System units table	SYSUNITS in IATYTVT; SVTSYSUN in IATYSVT; SYSHNEXT in IATYSYS; SETADD in IATYSET; SUPADD in IATYSUP
S34	IATYS34	Yes	IATIPS34	SVC 34 data area	STADATA in IATYSTA
TEL	IATYTEL	Yes	IATIPTL	Timer element	TVTTELT in IATYTVT for the first TEL element; TVTTELEN in IATYTVT for the last TEL element; TELNEXT in IATYTVT for the next TEL; TELPREV in IATYTVT for the previous TEL; FCTTELT in IATYFCT for the TEL elements for an FCT; TELFNEXT in IATYTEL for then next TEL element for an FCT
TVT	IATYTVT	No	IATIPTVT	Transfer vector table for the JES3 address space	
	CITVT	No	IATIPTVT	Transfer vector table for a CI FSS address space	
T35	IATYT35	Yes	IATIPT35	WTO/WTOR text and JES3 prefix	STADATA in IATYSTA
UX57	IATYU57	Yes	IATIPU57	Parameter list for exit IATUX57	
VIO	IATYVIO	Yes	IATIPVIO	Job validation I/O element	VIONEXT, VIOPREV, VIOIONXT in IATYVIO VIWVIOAD, VIWVIORF, VIWVIORL, VIWVIOWF, VIWVIOWL in IATYVIW

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
VITR	IATYVITR	Yes	IATIPVIT	Job validation I/O trace entry	VIWTRSTR in IATYVIW VIWTRCUR in IATYVIW
VIW	IATYVIW	Yes	IATIPVIW	Job validation I/O work area	JVWVIWAD in IATYVIW
WBQS	IATYWBQS	Yes	IATIPWB1	Workload Manager Batch Queue Sampling information - Matrix Prefix (WBQS_PREFIX)	SRVC_CRSYSPLX in IATYSRVC, SRVC_PVSYSPLX in IATYSRVC, SRVC_CRSYSTEM in IATYSRVC, SRVC_PVSYSTEM in IATYSRVC, WLM_PVPLEXRC in IATYWLM, WLM_CRPLEXRC in IATYWLM
	IATYWBQS	Yes	IATIPWB2	Workload Manager Batch Queue Sampling information - Sysplex Wide Service Class Data Entry (WBQS_SYSPLEX_SC_ENTRY)	SRVC_CRSYSPLXin IATYSRVC, SRVC_PVSYSPLX in IATYSRVC, WLM_PVPLEXRC in IATYWLM, WLM_CRPLEXRC in IATYWLM
	IATYWBQS	Yes	IATIPWB3	Workload Manager Batch Queue Sampling information - Sysplex Wide Report Class Data Entry (WBQS_SYSPLEX_RC_ENTRY)	SRVC_CRSYSPLXin IATYSRVC, SRVC_PVSYSPLX in IATYSRVC, WLM_PVPLEXRC in IATYWLM, WLM_CRPLEXRC in IATYWLM
	IATYWBQS	Yes	IATIPWB4	Workload Manager Batch Queue Sampling information - System specific Service Class Data Entry (WBQS_SYSTEM_SC_ENTRY)	SRVC_CRSYSTEM in IATYSRVC, SRVC_PVSYSTEM in IATYSRVC
WKGS	IATYWKGS	Yes	IATIPWGS	IATGPJPS module work area	
WKSR	IATYWKSR	Yes	IATIPWSR	IATSIJP module work area	
WKSS	IATYWKSS	Yes	IATIPWSS	IATSIJPS module work area	
WJS	IATYWJS	Yes	IATIPWJ1	Workload Manager Job Sampling Element - GMS Job Sampling Element (WJS_GMSSTART)	WLM_WJSGMS in IATYWLM
	IATYWJS	Yes	IATIPWJ2	Workload Manager Job Sampling Element - MDS Job Sampling Element (WJS_MDSSTART)	WLM_WJSMDs in IATYWLM
	IATYWJS	Yes	IATIPWJ3	Workload Manager Job Sampling Element - Main Service Wait WLM Sampling Element (WJS_MSWSTART)	WLM_WJSMAINW in IATYWLM
WLM	IATYWLM	Yes	IATIPWLM	Workload Manager Data Area Element - (WLM_START)	TVTXWLM in IATYTVTX
WRKGR70	IATYG70	Yes	IATIPG70	IATGR70 module work area	
WRKSI70	IATYS70	Yes	IATIPS70	IATSI70 module work area	
WSB	IATYWSB	Yes	IATIPWSB	Workstation control block	IATYDVE
WSP	IATYWSP	Yes	IATIPWSP	Output service parameter mapping area	IATOSDR or IATYWTR
WTR	IATYWTR	Yes	IATIPWTI	Writer work/control area (input area)	WTRDIARE in IATYWTR
	IATYWTR	Yes	IATIPWTO	Writer work/control area (output area)	WTDAREA in IATYWTR
WTRX	IATYWTRX	Yes	IATIPWTX	Writer work/control area extension	WTROWTRX in IATYWTR
YIQOS	IATYIQOS	Yes	IATIQO	Output Service Inquiry data area	
YMOOS	IATYMOOS	Yes	IATIPMOO	Output Service Modify data area	MOOSNEXT in IATYMOOS
YOSPC	IATYOSPC	Yes	IATIPOSP	IATOSPC Work area	Register 13 in IATOSPC
YSWBR	IATYSWBR	Yes	IATIPSWR	SWB Retrieve parameter list	

Table 20. JES3 Control Blocks for IPCS JES3 and the IPCS CBFORMAT Subcommand (continued)

Common Name	Structure (name)	adr	Model (name)	Formats the	Address contained in
YUX72	IATYUX72	Yes	IATIPU72	IATUX72 parameter list	

Viewing Portions of JES3's Storage

IPCS can also be used to view JES3's storage online. The LIST subcommand can be entered in a CLIST.

```
IATYTVT - JES3 TRANSFER VECTOR TABLE
LIST 03001000 ASID(X'0011') LENGTH(3432) STRUCTURE(IATYTVT)
+00000000 03001000. C9C1E3C7 D9E5E340 C8D1E2F4 F4F2F140 |IATGRVT HJS4421 |
+00000010 03001010. F0F661F2 F861F9F1 F0F34BF4 F8400000 |06/28/9103.48 ..|
+00000020 03001020. 0300230B 0D680000 0091193F 10255142 |.....j.....|
+00000030 03001030. 0302FCC8 00000000 00B49F7C 03021388 |...H.....@...h|
+00000040 03001040. 03039ABC 03039B42 0000DCA8 0000DB58 |.....y.....|
+00000050 03001050. 03035EE4 03036564 030368A6 03036AFA |...U.....w....|
+00000060 03001060. 03004BD8 03002C40 03002320 7FFFFFFF |...Q... ....."...
```

Figure 22. IPCS Output using the LIST Subcommand

The syntax for the LIST subcommand follows:

Note:

►►—LIST—*adr*—*length*—◄◄

adr

Specifies the address of the requested control block.

Note: Use the FIND subcommand to locate the SSVT to obtain the addresses of other JES3 control blocks. After you have located the SSVT, you can locate the address of the required control block and use the LIST subcommand to display its storage.

length

Specifies the number of bytes to be displayed. The value can be specified as a decimal or hexadecimal value.

For restrictions and more information on IPCS keywords you may want to include on the LIST subcommand, see *z/OS MVS IPCS User's Guide* and *z/OS MVS IPCS Commands*.

Chapter 4. JES3 Formatted dump

The descriptions on the following pages should be used to identify areas in a formatted dump of a JES3 or CI FSS address space. Specific areas of a dump are shown, followed by an explanation. In the descriptions, the lowercase characters following the field names identify the type of data as follows:

- b - bit
- c - character
- dev - device
- d - decimal
- h - hexadecimal

To conserve space, the formatted dumps are truncated or compressed. More than one dump was used to produce these examples, and the order of items shown may not correspond to the order in a specific dump. Use the following chart to locate the segment of the formatted dump you are interested in. The chart also identifies the address space that provides information for the specified segment.

The page headings of each section of the formatted dump includes (in parentheses) the verb_option that you would use when referencing that section of the dump with IPCS.

Table 21. Segment of JES3 Dump

verb_option	Segment of JES3 Dump	Description	Address Space	Page
C/I	CIDRVR ECF identifier entries	Displays information that identifies the type of ECF/EVENT, an FCT is awaiting on	JES3	"C/I" on page 264
	CIDRVR ECF list control block	Displays information required by the ECF list management routines	JES3	"C/I" on page 264
	C/I FSS tables	Contains data to keep track of the status and work being processed by C/I FSS	JES3	"C/I" on page 264
	C/I parameter tables	Contains the converter parmlist and region size for a particular PARMID	JES3, CI FSS	"C/I" on page 264
	C/I related TVT information	Displays the information related to C/I control blocks	JES3, CI FSS	"C/I" on page 264
	Interpreter data area	Contains information related to the CI FSS	JES3	"C/I" on page 264
	Interpreter control tables	Contains Converter/Interpreter work area and status information	JES3, CI FSS	"C/I" on page 264
	PROCLIB tables	contains a header and an entry for every dataset in concatenation	JES3, CI FSS	"C/I" on page 264
COW	Client Output Work area	contains information pertaining to a SAPI thread COW and copy of its SSOB and SSS2.	JES3	"COW - Client output work area" on page 262
CSA	Address Range	maps the JES3 control blocks and data from CSA, SQA, the JES3 private area, and the JES3 auxiliary address space private area.	JES3, C/I FSS	"Address range" on page 258
DFC	Device fence control blocks	Contains information used to allocate or deallocate fenced devices for job class groups or DJC networks	JES3	"DFC-Device fence control blocks" on page 272
DJC	DJC JOBNET control blocks (JNCB)	contains information on the total network of jobs in DJC.	JES3, CI FSS	"DJC JOBNET Control Blocks" on page 257
DLY	JQEX delay information for jobs in main service	Delay information for jobs that are waiting to be scheduled for or active in main service	JES3	"DLY-JQEX delay information for jobs in main service" on page 273
DSP	DSP dictionary entries	Displays the information regarding each Dynamic Support Program entry	JES3, CI FSS	"DSP-DSP dictionary entries" on page 273

Table 21. Segment of JES3 Dump (continued)

verb_option	Segment of JES3 Dump	Description	Address Space	Page
DYN	DYNAL FCT data area	information used to control the dynamic allocation requests to the DYNAL DSP.	JES3	"DYNAL FCT data area" on page 222
	ECF list	maintains information on the completion of I/O requests that are issued by the DYNAL FCT.	JES3	"DYNAL ECF List Control Block" on page 223
ENQ	AENQ control data entries	Contains information about exclusive or shared use of JES3 resources.	JES3, CI FSS	"ENQ" on page 275
	FCT AENQ elements	Contains information to map AENQ resource with the corresponding FCT	JES3, CI FSS	"ENQ" on page 275
	FCT AENQ element free queue	Contains information about the resources in the FCT AENQ element free queue	JES3	"ENQ" on page 275
FCT	Auxiliary Task Control Block	contains status and control information on the execution of the auxiliary task	JES3	"Auxiliary Task Control Block" on page 236
	FCT Ready Queue Summary	contains the addresses of the FCTs that have completed a JSAM I/O request.	JES3	"FCT READY QUEUE SUMMARY" on page 236
	Function control table	contains information on a JES3 DSP.	JES3, CI FSS	"Function Control Table" on page 237
FSS	FSS table entries	contains definition and status information on functional subsystem address spaces.	JES3	"FSS Table entries" on page 182

Table 21. Segment of JES3 Dump (continued)

verb_option	Segment of JES3 Dump	Description	Address Space	Page
GMS	CLASS/S	contains information specified on the CLASS initialization statement.	JES3	"CLASS/S" on page 195
	EXRESC/S	identifies and defines the resources that JES3 can allocate.	JES3	"EXRESC/S" on page 193
	GRPTBL/S	defines the characteristics of a job class and group. It also contain information specified on the GROUP initialization statement.	JES3	"GRPTBL/S" on page 192
	JSQ/S	contains information used to schedule communication with initiators via SSI routines.	JES3	"JSQ/S" on page 197
	MPC/S	describes each main in the complex. The information in the table is obtained from the MAINPROC initialization statement.	JES3, CI FSS	"MPC/S" on page 198
	RESQ/S	contains information JES3 uses to start a job. It contains an entry for each job that has been sent to, or selected by a main for execution.	JES3	"RESQ/S" on page 196
GST	Generalized subtask global data area	Contains information used to manage the generalized subtasks and the work associated with those tasks	JES3, CI FSS	"GST" on page 278
	Non-specific subtask GSDS	Generalized subtask directories for the non-specific subtasks	JES3, CI FSS	"GST" on page 278
	Specific subtask GSDS	Generalized subtask directories for the specific subtasks	JES3, CI FSS	"GST" on page 278
	SQDS in the free pool	Contains information that is used by a generalized subtask to process an IATXCSF request	JES3, CI FSS	"GST" on page 278
HED	Heading page	contains summary information on the failure.	JES3,CI FSS	"Heading Page" on page 164
INS	Internal reader anchor block	contains information used to schedule individual internal reader jobs	JES3	"Internal Reader Anchor Block" on page 205

Table 21. Segment of JES3 Dump (continued)

verb_option	Segment of JES3 Dump	Description	Address Space	Page
JIO	Data management extent table	contains information on each spool data set JES3 can access	JES3, CI FSS	"Extent table" on page 226
	Data management file directory	contains information on multi-record and some single-record files.	JES3, CI FSS	"File directory" on page 231
	Data management IOSB - SRB pairs	contains information used by the STARTIO macro to write data to spool.	JES3	"IOSB - SRB pairs" on page 228
	Data management JSAM/USAM data buffers	contains information about the JSAM and USAM buffer pools.	JES3, CI FSS	"JSAM/USAM Data buffers" on page 232
	I/O parameter block	contains information used to control spool I/O and information on spool data sets.	JES3, CI FSS	"I/O Parameter Block" on page 225
	RPS sector tables	information contained in this table is used for scheduling spool I/O.	JES3	"RPS Sector tables" on page 229
	Single track table	maintains a record of the spool space allocated to the JES3 single track table.	JES3	"Single track tables" on page 230
	Spool partition control blocks	contains information on each spool partition defined to JES3.	JES3	"Spool Partition Control Blocks" on page 229
JMQ	Header and entries	JESMSG control queue.	JES3	"JESMSG Queue Control Area Header" on page 264
JQE	JES3 job queue elements	contains job-related information.	JES3	"JES3 Job Queue Elements" on page 209
JTV	Data management IATYTVT definitions	contains the entry point addresses for most JES3 data management routines and tables.	JES3, CI FSS	"IATYTVT Definitions" on page 224

Table 21. Segment of JES3 Dump (continued)

verb_option	Segment of JES3 Dump	Description	Address Space	Page
LOC	Locate control tables	Contains information used by each Locate subtask and Locate FCT	JES3, CI FSS	"LOC" on page 281
	Locate data area	Contains information used by all locate modules under the Locate FCT	JES3, CI FSS	"LOC" on page 281
	Locate entrance tables	Contains information used by a DSP to request the services of the Locate FCT	JES3, CI FSS	"LOC" on page 281
	Locate Restart Records	Contains information about jobs active in Locate on a local processor during connect processing	JES3, CI FSS	"LOC" on page 281
	Locate subtask vector table	Contains information to map Locate subtask control table with Locate subtask TCB address	JES3, CI FSS	"LOC" on page 281
	Master locate control table	Contains information regarding Locate Master task like Master task ECB,LCT for the subtask that is being attached, parameter list, etc	JES3, CI FSS	"LOC" on page 281
MDS	Main device scheduler data area	contains information used by the main device scheduler to schedule jobs.	JES3	"Main device scheduler data area" on page 211
	MDS RESQUEUE tables	lists the jobs that are waiting to be processed by each MDS function.	JES3	"MDS RESQUEUE Tables" on page 212
MEM	Auxiliary Task Dispatching Element	used to select an FCT for dispatching under the auxiliary task TCB	JES3	"Auxiliary task dispatching element" on page 240
	JES3 memory usage	contains the addresses of modules and control blocks in the JES3 address space.	JES3, CI FSS	"JES3 Memory Usage" on page 235
MOD	JES3 module information from the JDEs	Displays information regarding JES3 directory elements	JES3, CI FSS	"MOD-JES3 module information from the JDEs" on page 287

Table 21. Segment of JES3 Dump (continued)

verb_option	Segment of JES3 Dump	Description	Address Space	Page
MPC	DESTQ	contains a list of all the unsolicited staging areas received by JES3 according to the function.	JES3	"DESTQ" on page 185
	JESMAIN	contains information on main processors.	JES3	"JESMAIN" on page 184
	MAINSCHD	identifies the staging areas waiting to be processed by a main.	JES3	"MAINSCHD" on page 187
	MEMDATA	contains information on active address spaces for each main and the jobs within an address space.	JES3	"MEMDATA" on page 190
MVD	Multi-version data access Master control areas	Contains data that is used by JES3 to control access to data areas that have multiple versions	JES3, CI FSS	"MULTI-VERSION DATA ACCESS MASTER CONTROL AREAS" on page 192
NJE	Networking console pointers and queues	contains information on the buffers containing NMRs	JES3	"Networking Console Pointers and Queues" on page 254
	NJE active BSC node table	formats work areas used by the network.	JES3	"NJE Active BSC Node Table" on page 255
	NJE resident node table	contains information on the nodes in the network.	JES3	"NJE Resident node table" on page 252
NUC	JES3 Nucleus	contains a list of modules and their entry points within the JES3 nucleus.	JES3, CI FSS	"JES3 Nucleus" on page 165
OSS	Master OSE table	summary information of the OSEs that are placed on spool.	JES3	"Master OSE table" on page 171
	TCP/IP Master OSE table	describes the TCP/IP/NJE Master OSE Table.	JES3	"TCP/IP Master OSE Table" on page 172
	SNA/NJE Master OSE table	describes the SNA/NJE Master OSE Table.	JES3	"SNA/NJE Master OSE Table" on page 172
	Allocated OSS Pool	describes the Allocated OSS Pool.	JES3	"Allocated OSS pool" on page 176
	TCP/IP Allocated OSS Pool	describes the TCP/IP/NJE Allocated OSS Pool.	JES3	"TCP/IP Allocated OSS pool" on page 177
	SNA/NJE Allocated OSS Pool	describes the SNA/NJE Allocated OSS Pool.	JES3	"SNA/NJE Allocated OSS pool" on page 178
PRT	PPQ/PDQ writer control blocks	contains information on JES3 writers.	JES3	"PPQ/PDQ Writer Control Blocks" on page 169
	SUPUNITS print/punch resources	describes the types of print and punch resources defined to JES3.	JES3	"SUPUNITS Print/Punch Resources" on page 167

Table 21. Segment of JES3 Dump (continued)

verb_option	Segment of JES3 Dump	Description	Address Space	Page
RJP	Resident remote and line DCT entries	contain device control information for lines and terminals.	JES3	"Resident Remote and Line DCT Entries" on page 241
	Resident RJP line and terminal table	contains control information for each line or terminal.	JES3	"Resident RJP Line and Terminal Table" on page 244
	Resident SNA RJP Table (SRT)	contains information specified on the COMMDEFN initialization statement.	JES3	"Resident SNA RJP table (SRT)" on page 245
	Resident SNA terminal entries	contains information on started RJP lines and remote RJP workstations that are signed on.	JES3	"Resident SNA Terminal Entries" on page 246
RSQ	RESQUEUE table	contains an entry for each active job.	JES3, CI FSS	"RESQUEUE Table" on page 207
SAPI	SAPI processing control blocks	contains the following SAPI control blocks: the SFW, all of the SDEs, all of the SDWs, and all of the SWEs.	JES3	"SYSOUT Application Programming Interface Data" on page 259
SCT	SYSOUT Class Table	Contains the device characteristics of SYSOUT class	JES3	"SCT-SYSOUT Class table" on page 289
SRS	MDSSRS Data Area	Contains information needed by the MDSSRS FCT	JES3	"SRS" on page 290
	MDS Control Tables	Contains status information, addresses and work areas used by MDS subtasks, the MDS master task and MDSSRS FCT	JES3	"SRS" on page 290
	SMS Available Resource Blocks	Contains information regarding the status of an SMS managed resource	JES3	"SRS" on page 290
STN	SETNAMES table	contains information specified on the SETNAMES initialization statements.	JES3, CI FSS	"SETNAMES Table" on page 216
STU	SETUNITS table	contains control information for all devices attached to a main. The table contains information specified on the DEVICE initialization statement.	JES3, CI FSS	"SETUNITS Table" on page 217

Table 21. Segment of JES3 Dump (continued)

verb_option	Segment of JES3 Dump	Description	Address Space	Page
SUP	SUPUNITS table	identifies the devices that are allocated to the global. These devices are used by JES3's support services (i.e. readers, printers, tape units, RJP lines and networking lines).	JES3	"SUPUNITS Table" on page 179
SYS	SYSUNITS table	contains a unique entry for each device in the complex. Each entry maintains the allocation status of the device.	JES3, CI FSS	"SYSUNITS Table" on page 218
TCP	TCP/IP/NJE information	contains information on Netservs, Sockets, and TCP/IP networking requests.	JES3, Netserv	"TCP - TCP/IP/NJE Data" on page 173
TRC	JES3 event trace table	contains diagnostic information pertinent to a JES3 system failure.	JES3, CI FSS	"Format of a JES3 trace entry" on page 55
VLM	SETDSN table	contains information on data sets that are allocated to volumes.	JES3	
	SETVOL table	contains information on all known volume requirements for jobs in the system and maintains the status of all currently mounted volumes.	JES3	"SETVOL Table/SETDSN Table" on page 220
WLM	IATYWLM	JES3 work load manager data area	JES3	"Workload Manager Data Area" on page 199
	IATYSRVC	JES3 data area for WLM service class, including the sampling statics for service class	JES3	"Workload Manager Data Area" on page 199
	IATYWJS	GMS WLM job sampling device	JES3	"Workload Manager Data Area" on page 199
WSB	LCB Entry	Describes all the active LCBs associated with the workstation.	JES3	"Device Entry" on page 248
	LCB Entry	describes all the active LCBs associated with the workstation.	JES3	"LCB Entry" on page 249
	Resident WSB/LUCB entries	contains information on each active work station.	JES3	
	WSB Entry	describes the contents of the workstation control block (WSB) which contains information for all the active workstations.	JES3	"WSB Entry" on page 246

Heading Page

The heading is a consolidation of the failure. The heading always appears in dumps dynamically formatted by the JES3. Similar information is concurrently recorded in the logrec data set.

```
JES3 OS290  FLNO=003 C1          FCT=052AF150  S/FB-00000008 IN IATGRJA  PSW=071C2000085133F8A 209/1403
SYSTEM ABEND CODE IS 1FB
PROGRAM ABENDED IN MODULE IATTEST, LOCATION 028678EA (REL LOC 000008EA), MODULE BASE IS 02867000
INTERRUPTING INSTRUCTION IS 0A0D
GENERAL REGISTERS AT TIME OF INTERRUPT
REGS 0- 7  04000000  041FB000  00C61244  00C0CB50  80C61000  00000000  027197F0  028687A8
REGS 8-15  02719B65  00000008  02867488  027D1FC0  00010000  02719D5C  027198EA  00000008
ACCESS REGISTERS AT TIME OF INTERRUPT
REGS 0- 7  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
REGS 8-15  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
ACTIVE FCT ENTRY IS IATTEST AT 027D1FC0
```

JES3 cccc - identifies the failing subsystem and its release level.

FLNO=ddd - is the number of failures since initialization.

Note:

1. A more extensive heading is generated through a normal abend rather than one which is generated by the *DUMP command.
2. Another line is printed when running in an FSS address space. See FSS and ASID below.

FSS ccccccc - is the FSS name, obtained from field TVTFSSNM in module IATGRVTF.

ASID=cccc - is the ASID of the FSS obtained from field TVTEASID in module IATGRVTF.

ccccccc - is the name of the DSP in control at failure.

FCTA=hhhhhhhh - is the address of the active FCT at failure.

Sccc-hhhh - is the system completion code, followed by the actual interrupt code.

IN ccccccc - is the name of the module in control at failure.

PSW=hhhhhhhhhhhhhhhhhh - is the PSW at failure.

D=ddd - is the Julian day of the year.

T=ddddddd - is the time in hours, minutes, seconds and tenths.

Data is formatted to assist in pinpointing the source of the termination for dumps being dynamically processed by JES3.

SYSTEM or USER ABEND CODE IS hhh - is the system or user abend code.

0C1, if the dump is the result of a FAILDSP macro or operator *FAIL command.

PROGRAM ABENDED IN MODULE ccccccc - is the name of the module that was in control at the time of the interruption.

LOCATION hhhhhhhh - is the PSW address at the time of interrupt.

REL LOC hhhhhhhh - is the relative displacement into the named module where the interrupt occurred.

MODULE BASE IS hhhhhhhh - is the address of the module in storage.

INTERRUPTING INSTRUCTION IS hhhhhhhh - can be one of the following forms:

- CALL, if the dump originated from the DC (Dump Core) DSP.
- DMxxx, if the dump is the result of a FAILDSP macro or operator *FAIL.
- hhhhhhhh, if neither of the above, the actual instruction image in hexadecimal (see below).
- *DUMP, if the user abend code is X'008' (operator *DUMP command), or when LOCATION is on a byte boundary.
- IMPRECISE (ILC=0), if the PSW instruction length code is zero. It signifies that the hardware could not determine the precise location of the interrupt.
- INACCESSIBLE, if interrupted location cannot be accessed.
- "Instruction image" is printed when none of the foregoing conditions exist (hhhhhhh).
- (Not shown) - TVTABLE ADDRESS IS INVALID is printed if the beginning of the TVT does not contain the character constant 'IATGRVT' ('IATGRVTF' for an FSS address space) or when the end of the TVT cannot be accessed in the dump.

ACTIVE FCT ENTRY IS ccccccc - is the name of the active DSP.

AT hhhhhhhh - is the address of the active FCT.

JES3 Nucleus

MAP OF JES3 NUCLEUS is a list of all modules and their entry points within the JES3 nucleus (module IATNUC). FSS is substituted for JES3 when running in an FSS address space (module IATNUCF) and the mapping is significantly shorter.

MAP OF JES3 NUCLEUS

17509000	IATGRVT
17509000	TVTABEL
1750A728	IATGRVTC
1750B048	IATGRVTX
1750B2A0	IATATCB
1750B328	IATCNCM
1750BD28	IATCNCN
1750CA88	CNCNLCMD
1750D0A8	IATCNDB
1750E8E0	IATCNDM
1750F170	IATCNDQ
1750F3C0	IATCNIA
17512D58	IATCNIC
17513768	IATCNIN
1751A980	IATCNJS
1751AED0	IATCNRN
1751C410	IATCNSV
1751D838	IATCNTC

JES3 Nucleus (NUC)

1751E1F0	IATCNWO
1751F0F8	IATCS03
1751FC28	IATCS06
17520CC0	IATCS07
17521F80	IATCS08
17523110	IATCS09
17523F38	IATCS10
17524890	IATCS11
175253C0	IATCS12
17525C10	IATDCNC
17527700	IATDMCS
17528818	IATDMDT
1752A820	IATDMGB
1752BF98	IATDMNC
17531558	IATDMST
17531AE8	IATDMTK
17534440	IATDSI1
175355E0	IATGRCP
175362A8	IATGRCT
17536EF8	IATGRDLY
17537D18	IATGRES
1753B8F8	IATGRGM
1753BCC0	IATGRGPF
1753BFC0	IATGRGS
1753CBA0	IATGRGU
1753F208	IATGRG1
1753FD50	IATGRJA
17543678	IATGRJN
17543E68	IATGRJQS
175446E8	IATGRJR
17545208	IATGRJS

MAP OF JES3 NUCLEUS (cont'd)

175499B8	IATGRJX
1754C188	IATGRJXS
1754C330	IATGRLD
1754D3C0	IATGRLG
1754D560	IATGROCO
17550198	IATGRPJ
17550C88	IATGRPT
17550CB0	DSPDICT
17553418	DEVREQ
175592B8	IATGRQC
1755A740	IATGRRQ
1755D558	IATGRSR
1755DC98	IATGRSV
1755E1F0	IATGRTM
1755F148	IATGRWD
1755F910	IATGRWP
17560590	IATGRWQ
17561CF8	IATINIT
175636A0	IATIQDV
17565398	IATMFDR
17567560	IATMODV
17569D90	IATMOVL
1756AF78	IATMSGC
1756B640	IATMSGCX
1756CD98	IATMSCC
1756D9C8	IATMSWLD
1756DCB0	IATMSWLS
1756DF20	IATNTSR
1756E4A0	IATOSBM
1756FF10	IATOSDA
17570510	IATOSDO
17573C70	IATOSDR
175777F0	IATOSGP
17579110	IATOSGR

1757C5F8	IATOSOR
17580CD8	IATOSPC
175852F0	IATOSSC
17586C80	IATOSSO
1758D848	IATOSSR
1758E8F0	IATOSSWB
1758F8A8	IATOSWP
17593738	IATOSWS
17596488	IATPUSC
17596688	IATRJGR
175984A0	IATRJPC
175993C0	IATSSDS
17599CD8	IATSSJS
1759A110	IATWLCLF
1759AEB0	IATWLCSM
1759B438	IATWLDRG
1759B5D0	IATWLDRV
1759BA88	IATWLFSM
1759BE20	IATWLGSM
1759D198	IATWLJCK
1759D508	IATWLRCL
1759DFE0	IATWLSRR
1759E4F8	IATWLSRV
1759EDA8	IATWLSTK
1759EEB8	IATGRJM
175A0260	IATGRLMC
175A0618	IATMSSCR
175A0C70	IATWLEVT
175A16E0	IATWLSCS
175A2870	IATWLFJR
175A2968	IATWLSTA

SUPUNITS Print/Punch Resources

PRINT/PUNCH RESOURCES are not formatted in an FSS dump. The information in this portion of the dump is mapped by the IATYSUP macro instruction.

SUPUNITS Print/Punch Resources (PRT)

02AD69B0	PRINT/PUNCH RESOURCE FOR PRT002									
DTYPE	DGROUP	DEVAD	FORMS	CARRIAGE	RJP	TRAIN				
3211	LOCAL	0002	1PRT	6	NO	P11				
WTRWAREA	F1 F2 F3 F4 F5	LINELIM	PAGELIM	IC	CKLNCT	FLASH	STACKER			
00000000	03 E0 20 88 00	0000000000+	000000	002	02000		C			
WS	WC									
C, F, FL, U, CL, D, P										
PRMODE										
LINE										
02AD6AA0	PRINT/PUNCH RESOURCE FOR PRT003									
DTYPE	DGROUP	DEVAD	FORMS	CARRIAGE	RJP	TRAIN				
3211	LOCAL	0003	1PRT	6	NO	P11				
WTRWAREA	F1 F2 F3 F4 F5	LINELIM	PAGELIM	IC	CKLNCT	FLASH	STACKER			
00000000	03 E0 20 88 00	0000000000+	000000	002	02000		C			
WS	WC									
C, F, FL, U, CL, D, P										
PRMODE										
LINE										
02AD6B90	PRINT/PUNCH RESOURCE FOR PRT005									
DTYPE	DGROUP	DEVAD	FORMS	CARRIAGE	RJP	TRAIN				
4248	LOCAL	0005	1PRT	6	NO	P11				
WTRWAREA	F1 F2 F3 F4 F5	LINELIM	PAGELIM	IC	CKLNCT	FLASH	STACKER			
00000000	03 E0 20 88 00	0000000000+	000000	002	02000		C			
WS	WC									
C, F, FL, U, CL, D, P										
PRMODE										
LINE										
02AD6C80	PRINT/PUNCH RESOURCE FOR PRT006									
DTYPE	DGROUP	DEVAD	FORMS	CARRIAGE	RJP	TRAIN				
4248	LOCAL	0006	1PRT	6	NO	P11				

DTYPE - is the type of the device.

DGROUP - is the device group.

DEVAD - is the device number of the device.

FORMS - is the type of forms used for this device.

CARRIAGE ccccccc - is either the carriage tape of the forms control buffer (FCB) in use.

RJP (YES or NO) - indicates whether this is an RJP device.

TRAIN ccccccc - indicates either the train or universal character set (UCS) of the CHARS for this device.

WTRWAREA hhhhhhhh - is the pointer to the writer data CSECT.

F1 through F5 hh - are SUPUNIT flags bytes SUPPRFL1, SUPPRFL2, SUPPRFL3, SUPPRFL4, and SUPPRFL5 respectively.

LINELIM nnnnn - is the total number of lines for all data sets in one OSE. A "+" symbol to the right of the line limit indicates that only data sets with the number of lines indicated can be scheduled for the device.

PAGELIM - is the maximum amount of pages that can be processed per data set on this device. A "+" symbol to the right of the page limit indicates that only data sets with the number of pages indicated can be scheduled for the device.

IC hh - is the number of spool records to build and chain ahead for the device. It comes from the RECORDS parameters on the DEVICE statement.

CKLNCT ddddd - is the number of records which are processed between checkpoints.

FLASH cccc - is the name of the flash cartridge to load for the 3800 printer.

STACKER - is the stacker option for the 3800 printer. C specifies that the output is to be placed in the continuous forms stacker. S specifies that the output is to be placed in the sheet stacker.

FSSTABLE hhhhhhh - is the address of the FSS table.

FSA TABLE hhhhhhhh - is the address of the FSA table.

NPRO nnnn - is the nonprocess run-out interval for the 3800-3 printer running in FSS mode.

CKINT nnnn - is the checkpoint record value.

WS - is the work selection criteria for this writer.

WC - is the writer class selection list.

PRMODE - are the process modes in effect for this device. If NO PRMODE DATA AVAILABLE appears for a device, the device is a remote workstation that is not defined by a DEVICE statement in the JES3 initialization stream.

PPQ/PDQ Writer Control Blocks

PPQ/PDQ Writer Control Blocks - the following three segments of the JES3 dump document the PPQ/PDQ writer control blocks:

- 3800 Writer Segcomon Pageids
- Pending Data set Queue for FSS Writers
- Pending Data set Queue for 3800 Writers

PPQ/PDQ Writer Control Blocks (PRT)

3800 WRITER SEGCOMON PAGEIDS

CHANNEL PAGEID	XFER PAGEID	FUSER PAGEID	STACKER PAGEID
2572	2572	256D	2568

PENDING PAGE QUEUE FOR 3800 WRITER PRT803

PPQ ADDRESS	PPQAPID	PPQPID	LINE POSITION	FLG1	FLG2	WTR OSE FDB	RESQUEUE
02211374	00000000	2572	8001	8C	08	028C300C	021D0158
02211330	00000000	2570	0004	13	00	022111DC	021CED74
022112EC	00000000	2570	0001	80	00	022111DC	021CED74
022112A8	0000256F	256F	0005	10	40	022111DC	021CED74
02211264	0000256F	256F	0001	80	40	022111DC	021CED74
02211220	0000256F	256E	0006	10	40	022111DC	021CED74
022111DC	0000256F	256E	0001	8C	C0	028C24F8	021CF6E0

PENDING DATA SET QUEUE FOR FSS WRITER PRT803

TYPE	PDQ	ADDR	RESQUEUE	WTR	OSE	FDB	F1	F2	F3	F4	JNEWS	QUALIFIED	DATA SET NAME	DATA SET ID
JOB	020BA100	020750E8	7F6F880C0000	D4	00	00	20	00000000	.	.	JESMSG	988C1CF6EC682A1000000000		
	020BA200	020750E8	000000000000	00	00	00	00	00000000	.	.	JESJCL	988C1D01DB53B01000000000		
	020BA280	020750E8	000000000000	00	00	00	00	00000000	.	.	JESMSG	988C1D09DCDADE1000000000		
	020BA300	020750E8	000000000000	00	00	00	00	00000000	.	STEP	.SYSPRINT	988C1D0B59A2CC1000000000		
	020BA000	020750E8	000000000000	01	00	00	00	00000000	.	STEP	.SYSUT2	988C1D0D11B1221000000000		

3800 WRITER SEGCOMON PAGEIDS - are the most recent page numbers returned by the 3800 device in response to a "REQUEST PRINTER INFORMATION, SENSE INTERMEDIATE BUFFER" CCW sequence. These represent the position of user data within the 3800 with respect to the various synchronization points (that is, channel, transfer station, fuser, and stacker).

PENDING PAGE QUEUE FOR 3800 WRITER- is the format of the pending page queue entries currently active for the 3800 device.

TYPE - is the type of the PPQ. There are two PPQ types, 'JOB', or 'OSE'.

PPQ ADDR - is the storage address of this PPQ entry.

RESQUEUE - is the storage address of the job's RESQUEUE entry.

WTR OSE FDB - is the spool address of the writer's OSE.

PPQAPID - is the adjusted pageid of this PPQ entry. This field represents the pageid if repositioning occurs within this entry.

PPQPID - is the pageid of this PPQ entry. This is the pageid returned from the 3800 device when the entry was created.

LINE POSITION - is the FCB line position returned from the 3800 device when the entry was created.

PENDING DATA SET QUEUE FOR FSS WRITER- is the format of the pending data set queue entries currently active for the FSS device.

TYPE - is the type of the PDQ. There are two PDQ types, 'JOB', or 'OSE'.

PDQ ADDR - is the virtual storage address of this PPQ entry.

RESQUEUE - is the storage address of the job's RESQUEUE entry.

WTR OSE FDB - is the spool address of the writer's OSE.

F1 hh to F4 hh - are the values (in hexadecimal) of the flag fields PDQFLG1 to PDQFLG4.

JNEWS hhhhhhhh - is the address of JESNEWS control block PDQJNEWS.

DATA SET ID - is the name of the data set.

Master OSE table

MASTER OSE TABLE (MOSE) is not formatted in the FSS dump. The MOSE table contains a summary of the information in the OSE that is out on spool. The MOSE is kept in main storage and is a system-related control block in that every output data set in the system is associated with an MOSE. The MOSE is mapped by the IATYOSE macro.

MASTER OSE TABLE																
LOC	GROUP	DEST	TYPE	FORMS	CARRIAGE	UCS	FLASH	MOD-RC	CHARS	CL	PTY	TOTLINES	F1	F2	M1	OSS
02200010	ANYLOCAL	ANYLOCAL	PRT	1PRT	6	PN	NONE	NONE-0	GS10	A	00	00000437	00	10	00	022010CC

LOC hhhhhhhh - is the address of the MOSE entry.

GROUP ccccccc - is the name of the output device group.

DEST ccccccc - is the output destination.

TYPE ccccc - is the output device type.

FORMS ccccc - is the forms identifier.

CARRIAGE c - is the printer carriage tape or FCB identifier.

UCS cc - is the printer chain or train image (UCS) identifier.

FLASH ccccc - is the flash-ID, if printer on a 3800, or NONE.

MOD-RC cccc-s - is the copy modification and table reference character, if printed on a 3800, or NONE-0.

CHARS cccc [,+] - are the character arrangements, if printed on a 3800. The first arrangement is identified. If more than one arrangement is specified in the MOSE, a "+" sign follows the first arrangement name.

CL c - is the output class.

PTY hh - is the output priority.

Master OSE Table (OSS)

TOTLINES dddddddd - specifies the total number of records reflected by this MOSE.

F1 hh F2 hh - is FLAG1 and FLAG2 fields, respectively.

M1 hh - specifies the value of OSEMFLG1.

OSS hhhhhhhh - specifies the OSS pointer.

TCP/IP Master OSE Table

TCP/IP Master OSE Table is not formatted in the FSS dump. The TCP/IP MOSE contains a summary of the TCP/IP OSEs that exist on spool. Related groups of TCP/IP data sets are associated with a unique TCP/IP MOSE. JES3 macro IATYOSE maps the TCP/IP MOSE.

```
          TCP/IP MASTER OSE TABLE
LOC      DEST    PTY  TPTY  FLAG  BFLG1  BFLG2  OSS
04CA9100 NODE3   02    02    00    20     08    04CAA05C
```

LOC hhhhhhhh - is the address of the TCP/IP/NJE MOSE entry.

DEST cccccccc - is the final destination of the network stream.

PTY hh - is the output priority.

TPTY hh - is the TCP/IP/NJE transmission priority.

FLAG hh - indicates the status of the network job.

BFLG1 hh - indicates the type of the network stream (job or SYSOUT).

BFLG2 hh - indicates the state of the network job.

OSS hhhhhhhh - is the address of the OSS entry in the LOC field of the TCP/IP Allocated OSS Pool dump listing.

SNA/NJE Master OSE Table

SNA/NJE MASTER OSE TABLE is not formatted in the FSS dump. The SNA/NJE MOSE contains a summary of the SNA/NJE OSE that exist on spool. Related groups of SNA/NJE data sets are associated with a unique SNA/NJE MOSE. JES3 macro IATYOSE maps the SNA/NJE MOSE.

```
          SNA/NJE MASTER OSE TABLE
LOC      DEST    PTY  TPTY  FLAG  BFLG1  OSS
04CA92E0 NODE6   02    02    00    A0    04CAA2E0
04CA9100 NODE5   02    02    00    A0    04CAA0B8
```

LOC hhhhhhhh - is the address of the SNA/NJE MOSE entry.

DEST cccccccc - is the final destination of the network stream.

PTY hh - is the output priority.

TPTY hh - is the SNA/NJE transmission priority.

FLAG hh - indicates the status of the network job.

BFLG1 hh - indicates the type of the network stream (job or SYSOUT).

BFLG2 hh - indicates the state of the network job.

OSS hhhhhhhh - is the address of the OSS entry in the LOC field of the SNA/NJE ALLOCATED OSS POOL dump listing.

TCP - TCP/IP/NJE Data

Various tables are formatted when you enter the "VERBX JES3" IPCS command, the "VERBX JES3 'OPTION=TCP'" dump formatting command (with or without the ASID or NSVNAME parameter), or the *START,DC,OPTION=TCP operator command. What table is formatted depends on the following conditions:

- Global Netserv and socket tables if the JES3 Global address space is available.
- Netserv control tables (NSCT) if CSA is available.
- Netserv socket control tables (NSST) under the associated NSCT, for each Netserv address space that is available. NSSTs are not formatted if the *START,DC,OPTION=TCP command is used.
- TCP/IP request (TCRQ) chains under the associated NSCT if CSA is available.

TCP/IP/NJE Data (Global)

JES3 GLOBAL NETSERV SUPUNITS

```
ADDRESS      DD
170C9818    JES3S1
```

NETSERV WITHIN SUPUNIT

```
ADDRESS      NAME      FLG1  FLG2   STAK  SYSN   MAIN   ASID   FCT    TCPA    JBNO    RQ
170C98D0    JES3S1   40    00           SY1   16940000 001B   17E58050 170CD398 000002B8 174FA87

ADDRESS      PORT    HST
170C98D0    0000
```

JES3 GLOBAL SOCKET TABLES

```
ADDRESS      NAME      FLG1  FLG2   NODE    NVNM   JTRN  OTRN  JRCV  ORCV  SPDX
170CF038    S313A    04    00   NODE3    JES3S1  02    02    02    02    0000
170D4E90    S313B    04    00   NODE4    JES3S1  02    02    02    02    0000
170CB8A0    S313C    04    00   NODE5    JES3S1  02    02    02    02    0000
172389F8    @0000001 06    00   NODE4    JES3S1  00    00    00    00    0000
17243AA8    @0000002 06    00   WSC      JES3S1  00    00    00    00    0000
17330138    @0000003 06    00   NODE6    JES3S1  00    00    00    00    0000

ADDRESS      PORT    ACTP      HST
170CF038    0000    00AF      9.57.1.158
170D4E90    0000    00AF      9.57.1.158
170CB8A0    0000    00AF      9.57.1.158
172389F8    0000    0404
17243AA8    0000    0405
17330138    0000    0406
```

NETSERV CONTROL TABLES

```
ADDRESS      NNAM   STAK   TCT      EECB   WECB   MEM      FLG1  FLG2
16A71358    JES3S1 16A39648 00000000 804FF298 16A71218 00    80
```

NETSERV SOCKET CONTROL TABLES

```
ADDRESS      NAME      NODE    TSCT      JTRN  OTRN  JRCV  ORCV  FEAT    SPDX  FLG1  DDNM
17418820    S3        NODE3    17582460  01    01    01    01    04000000 0000  04
176F1820    @0000001 NODE4    176EA058  01    01    01    01    04000000 0000  06
```

TCRQ WORK CHAIN

TCRQ JOB REQUEST CHAIN

TCRQ PENDING REQUEST CHAIN

TCRQ FREE CHAIN

```
ADDRESS      NNAM   NEXT   PREV   LEN      FUNC
16A394B8    JES3S1 00000000 00000000 00000190 01
```

```
ADDRESS      DATX
16A394B8    E2D6C3D2C5E3016C01000000E2F34040404040D5D6C4C5F3404040D1C5E2F3E2F14040170CA3E8170CA3E800000000170
C981817E2B8D4
```

```
ADDRESS      SOCKET %   S3      NODE3   DATA
16A394B8    JES3S1    Y    Y      S M
```

In the formatted Netservs:

FLG1 The flag byte NTSVFLG1.

FLG2 The flag byte NTSVFLG2.

STAK The TCP/IP stack name.

SYSN The system name on which the Netserv runs.
MAIN The MPC corresponding to the above system name.
ASID The address space of the Netserv.
FCT The pointer to the TCP FCT corresponding to this Netserv.
TCPA The a pointer to IATYTCP (data CSECT) for the above FCT.
JBNO The JES3 job number of the Netserv.
RQ The RESQUEUE address of the Netserv.

In the formatted Sockets:

FLG1 The flag byte SOCKFLG1.
FLG2 The flag byte SOCKFLG2.
NODE
The node name that this socket communicates with.
NVNM
The name of the Netserv under which this socket runs.
JTRN The number of job transmitters (from the above node).
OTRN
The number of output transmitters (from the above node).
JRCV The number of job receivers (from the above node).
ORCV
The number of output receivers (from the above node).
SPDX The index of the spool partition where jobs received over this socket are assigned (from the a node).

In the formatted NSCTs:

NNAM
The name of the Netserv.
STAK The TCP/IP stack name.
TCT A pointer to the NJE/TCP Control Table in IAZNJTCP.
EECB The task end ECB.
WECB The work ECB.
MEM The pointer to IATYMEM for the Netserv.
FLG1 The flag byte NSCTFLG1 (copy of NTSVFLG1).
FLG2 The flag byte NSCTFLG2 (copy of NTSVFLG2).

In the formatted NSSTs:

NODE
The name of the node that is connected to this socket.
TSCT A pointer to the NJE/TCP socket control table in IAZNJTCP.
JTRN The number of job transmitters (from the above node).
OTRN
The number of output transmitters (from the above node).

TCP/IP/NJE Data (Global)

JRCV The number of job receivers (from the above node).

ORCV

The number of output receivers (from the above node).

FEAT The feature flags.

SPDX The spool partition index (from the above node).

FLG1 Flag byte NSSTFLG1 (copy of SOCKFLG1).

DDNM

The current DD name for the dummy data set in the job/SYSOUT receiver.

In the formatted TCRQs:

NNAM

The name of the Netserv that the TCRQ is sent to.

NEXT The address of the next TCRQ in the chain.

PREV The address of the previous TCRQ in the chain.

LEN The length of the TCRQ and associated data.

FUNC The function code assigned to the TCRQ.

DATX The first 60 bytes of the data contained in the TCRQ printed in hexadecimal form.

DATA The same 60 bytes in DATX printed in character form.

Allocated OSS pool

ALLOCATED OSS POOL is not formatted in the FSS dump. Only allocated OSS entries are formatted; the entire OSS pool is not formatted. This control block is mapped by the IATYOSS macro.

```
                ALLOCATED OSS POOL
LOC      RQCHAIN  JPTY NEXT      PRTY MOSE   FLAG1 BUFF RESQUEUE MAXLINES MINLINES TOTLINES AVAIL  SCHD  OUTBIN
04CAA114 00000000 0F    00000000 0F    04CA91F0 44    0001 04812340 00000005 00000005 00000005 0000  0001 00000000
```

LOC hhhhhhhh - is the address of the OSS.

RQCHAIN hhhhhhhh - is the RESQUEUE chain field. If more than one OSS is required to represent a job's output, this field points to the next OSS.

JPTY dd - is the job's priority.

NEXT hhhhhhhh - is the pointer to the next OSS chained to the MOSE.

PRTY hh - is the output priority.

MOSE hhhhhhhh - is the master OSE pointer.

FLG1 hh - is the OSSFLAG1 field.

BUFF hhhh - is the buffer number of the 1st OSE in the OSE chain represented by this OSS.

RESQUEUE hhhhhhhh - is the pointer to the RESQ for which the OSS represents output.

MAXLINES dddddddd - is the maximum record count.

MINLINES dddddddd - is the minimum record count.

TOTLINES dddddddd - is the total record count.

AVAIL dddd - is the number of OSEs that are available for scheduling.

SCHD dddd - is the number of OSEs that are scheduled or in operator hold.

OUTBIN hhhhhhhh - is the printer output bin ID in hexadecimal.

TCP/IP Allocated OSS pool

TCP/IP Allocated OSS Pool is not formatted in the FSS dump. JES3 formats only allocated OSS entries; the entire TCP/IP OSS pool is not formatted. JES3 macro IATYOSS maps this control block.

TCP/IP ALLOCATED OSS POOL															
LOC	RQCHAIN	JPTY	NEXT	PRTY	MOSE	FLAG1	BUFF	RESQUEUE	AVAIL	SCHD	BFLG1	BFLG2	OUTBIN	GROUPID	LINES
04CAA05C	00000000	02	04CAA0B8	02	04CA9100	04	0001	047E3F00	0004	0000	20	08	00000000	TCP00001	00000018
04CAA0B8	00000000	02	00000000	02	04CA9100	04	0001	047E2000	0004	0000	20	08	00000000	TCP00001	00000018

LOC hhhhhhhh -is the address of the TCP/IP/NJE OSS.

RQCHAIN hhhhhhhh - is the RESQUEUE chain field. If more than one TCP/IP/NJE OSS is required to represent a job's output, this field points to the next TCP/IP/NJE OSS.

JPTY hh - is the job's priority.

NEXT hhhhhhhh - is the pointer to the next OSS chained to the MOSE.

PRTY hh - is the network job/SYSOUT stream priority.

MOSE hhhhhhhh - points to the MOSE for this OSS.

FLAG1 hh - is the status indicator (HOLD or NOHOLD) of the OSS.

BUFF hhhh - is the buffer number of the 1st OSE in the OSE chain represented by this OSS.

RESQUEUE hhhhhhhh - is the pointer to the RESQUEUE for which the OSS represents output.

AVAIL dddd - is the number of OSEs that are available for scheduling.

SCHD dddd - is the number of OSEs that are scheduled or in operator hold.

BFLG1 hh - indicates the type of the network stream (job or SYSOUT) and indicates whether the data set is a job header, a data set header, a data set, or a job trailer.

TCP/IP Allocated OSS Pool (OSS)

BFLG2 hh - status flag, OSEBFLG2, of the network job. This flag indicates whether the job has been sent to a Netserv.

OUTBIN hhhhhhhh - is the printer output bin ID in hexadecimal.

GROUPID ccccccc - identifies a related group of network data sets.

LINES hhhhh - identifies the number of lines of the transmission stream represented by the OSS.

SNA/NJE Allocated OSS pool

SNA/NJE ALLOCATED OSS POOL is not formatted in the FSS dump. JES3 formats only allocated OSS entries; the entire SNA/NJE OSS pool is not formatted. JES3 macro IATYOSS maps this control block.

SNA/NJE ALLOCATED OSS POOL															
LOC	RQCHAIN	JPTY	NEXT	PRTY	MOSE	FLAG1	BUFF	RESQUEUE	AVAIL	SCHD	BFLG1	BFLG2	OUTBIN	GROUPID	LINES
04CAA05C	00000000	02	04CAA1CC	02	04CA9100	04	0001	047E3F00	0004	0000	A0	00	00000000	BDT00001	00000
04CAA0B8	00000000	02	04CAA170	02	04CA9100	04	0001	048121A0	0006	0000	A0	00	00000000	BDT00000	00000
04CAA170	04CAA05C	02	04CAA05C	02	04CA9100	04	0001	047E3F00	0004	0000	A0	00	00000000	BDT00000	00000
04CAA1CC	04CAA228	02	04CAA228	02	04CA9100	04	0001	047E4400	0004	0000	A0	00	00000000	BDT00000	00000
04CAA228	00000000	02	04CAA284	02	04CA9100	04	0001	047E4400	0004	0000	A0	00	00000000	BDT00001	00000
04CAA284	00000000	02	00000000	02	04CA9100	04	0001	04812680	0006	0000	A0	00	00000000	BDT00000	00000
04CAA2E0	04CAA33C	02	04CAA33C	02	04CA92E0	04	0001	047E4900	0004	0000	A0	00	00000000	BDT00000	00000
04CAA33C	00000000	02	04CAA398	02	04CA92E0	04	0001	047E4900	0004	0000	A0	00	00000000	BDT00001	00000
04CAA398	00000000	02	00000000	02	04CA92E0	04	0001	048124E0	0006	0000	A0	00	00000000	BDT00000	00000

LOC hhhhhhhh -is the address of the SNA/NJE OSS.

RQCHAIN hhhhhhhh - is the RESQUEUE chain field. If more than one SNA/NJE OSS is required to represent a job's output, this field points to the next SNA/NJE OSS.

JPTY hh - is the job's priority.

NEXT hhhhhhhh - is the pointer to the next OSS chained to the MOSE.

PRTY hh - is the network job/SYSOUT stream priority.

MOSE hhhhhhhh - points to the MOSE for this OSS.

FLAG1 hh - is the status indicator (HOLD or NOHOLD) of the OSS.

BUFF hhhh - is the buffer number of the 1st OSE in the OSE chain represented by this OSS.

RESQUEUE hhhhhhhh - is the pointer to the RESQUEUE for which the OSS represents output.

AVAIL dddd - is the number of OSEs that are available for scheduling.

SCHD dddd - is the number of OSEs that are scheduled or in operator hold.

BFLG1 hh - indicates the type of the network stream (job or SYSOUT) and indicates whether the data set is a job header, a data set header, or a job trailer.

BFLG2 hh - status flag, OSEBFLG2, of the network job. This flag indicates the job has been sent to MVS/BDT or queued in the MVS/BDT work queue.

OUTBIN hhhhhhhh - is the printer output bin ID in hexadecimal.

GROUPLD ccccccc - identifies a related group of network data sets.

LINES hhhhh - identifies the line number of the transmission stream represented by the OSS.

SUPUNITS Table

SUPUNITS TABLE is not formatted in the FSS dump but for JES3 represents devices belonging to the global main for JES3 support services (consoles, readers, printers, punches, main processors, tape units, RJP lines and networking lines).

SUPUNITS Table (SUP)

SUPUNITS TABLE											
LOC	TYPE	DDNAME	GROUP	UNIT1	UNIT2	FLAG1	FLAG2	SYSUNIT	DCTADD	UCB1	UCB2
183653DC	NJELINE	LINE3	LOCAL	0505		80	00	16D6E8C8		00F12A30	
18365494	NJELINE	LINE4	LOCAL	0506		80	00	16D6E980		00F12A80	
1836554C	NJELINE	LINE2	LOCAL	0907		80	00	16D6EA38		00F219E0	
1836F704	NJESNDR	A00002SN	NODE2			00	00	16D6EAF0		00000000	
1834BD88	PRT3203	PRT650	LOCAL	0650		A0	00	16D23FA8		00F19800	
1834BEE8	PRT3203	PRT658	LOCAL	0658		A0	00	16D24060		00F19870	
1834C048	PRT3203	PRT880	LOCAL	0880		A0	00	16D24118		00F1F620	
1834C1A8	PRT3211	PRT0002	LOCAL	0002		20	00	16D241D0		00F04190	
1834C308	PRT3211	PRT0003	LOCAL	0003		20	00	16D24288		00F04200	
1834C468	PRT3211	PRT0004	LOCAL	0004		20	00	16D24340		00F04270	
1834C5C8	PRT3211	PRT0005	DGRP1	0005		A0	00	16D243F8		00F042E0	
1834C728	PRT3211	PRT1005	DGRP1	1005		A0	00	16D244B0		00F3ECF8	
1834D228	PRT38003	PRT1803	LOCAL	1803		A0	00	16D24A70		00F3F368	
1834D388	PRT3820	VPRT047	LOCAL			00	00	16D6E6A0		00000000	
1834FE3C	PRTAFP1	PRT0006	LOCAL	0006		A0	00	16D24B28		00F04350	
18350C78	PRTAFP1	PRT0007	LOCAL	0007		A0	00	16D24BE0		00F043C0	
18363764	PRTAFP1	PRT0B08	LOCAL	0B08		A0	00	16D25AF8		00F292F8	
183645A0	PRTAFP1	PRT0B09	LOCAL	0B09		A0	00	16D25BB0		00F29368	
1836F7BC	PRTNJE	NJEPRT03	NETWORK			00	00	16D6EBA8		00000000	
1836F91C	PRTNJE	NJEPRT02	NETWORK			00	00	16D6EC60		00000000	
1836FA7C	PRTNJE	NJEPRT01	NETWORK			00	00	16D6ED18		00000000	
1834B548	PUN3525	PUN001B	LOCAL	001B		A0	00	16D23B58		00F04A00	
1836FBDC	PUNNJE	NJEPUN03	NETWORK			00	00	16D6EDD0		00000000	
1836FD3C	PUNNJE	NJEPUN02	NETWORK			00	00	16D6EE88		00000000	
1836FE9C	PUNNJE	NJEPUN01	NETWORK			00	00	16D6EF40		00000000	
1834B1B0	RDR3505	RDR0011	LOCAL	0011		A0	00	16D237C0		00F046C0	
1834B268	RDR3505	RDR0012	LOCAL	0012		A0	00	16D23878		00F04700	
1834B320	RDR3505	RDR0013	LOCAL	0013		A0	00	16D23930		00F04740	
1834B3D8	RDR3505	RDR1011	DGRP1	1011		A0	00	16D239E8		00F3F228	
1834B490	RDR3505	RDR1012	DGRP1	1012		A0	00	16D23AA0		00F3F268	
1834ABF0	SYSMAIN	SY1				00	00	16D6E0E0		00000000	
1834ACA8	SYSMAIN	SY2				00	00	16D6E198		00000000	
1834AD60	SYSMAIN	SY3				00	00	16D6E250		00000000	
1834AE18	SYSMAIN	SY4				00	00	16D6E308		00000000	
1834AED0	SYSMAIN	SY5				00	00	16D6E3C0		00000000	
1834AF88	SYSMAIN	SY6				00	00	16D6E478		00000000	
1834B040	SYSMAIN	SY7				00	00	16D6E530		00000000	
1834B0F8	SYSMAIN	SYLOCAL8				00	00	16D6E5E8		00000000	
18365604	TA03480	T0560	LOCAL	0560		A0	00	16D25C68		00F143F8	
183656BC	TA03480	T0561	LOCAL	0561		A0	00	16D25D20		00F144D8	
18365774	TA03480	T0562	LOCAL	0562		A0	00	16D25DD8		00F145B8	
1836582C	TA03480	T0563	LOCAL	0563		A0	00	16D25E90		00F14698	
183658E4	TA03480	T0564	LOCAL	0564		A0	00	16D25F48		00F14778	
1836599C	TA03480	T0565	LOCAL	0565		A0	00	16D26000		00F14858	
18365A54	TA03480	T0566	LOCAL	0566		A0	00	16D260B8		00F14938	
18365B0C	TA03480	T0567	LOCAL	0567		A0	00	16D26170		00F14A18	
18365BC4	TA03480	T0568	LOCAL	0568		A0	00	16D26228		00F14AF8	
1836B204	TA33490	T05B0	LOCAL	05B0		A0	00	16D2B868		02178500	
1836B2BC	TA33490	T05B1	LOCAL	05B1		A0	00	16D2B920		021785E0	
1836B374	TA33490	T05B2	LOCAL	05B2		A0	00	16D2B9D8		021786C0	
1836B42C	TA33490	T05B3	LOCAL	05B3		A0	00	16D2BA90		021787A0	
1836B4E4	TA33490	T05B4	LOCAL	05B4		A0	00	16D2BB48		02178880	
1836B59C	TA33490	T05B5	LOCAL	05B5		A0	00	16D2BC00		02178960	
1836B654	TA33490	T05B6	LOCAL	05B6		A0	00	16D2BCB8		02178A40	
1836B70C	TA33490	T05B7	LOCAL	05B7		A0	00	16D2BD70		02178B20	
1836B7C4	TA33490	T05B8	LOCAL	05B8		A0	00	16D2BE28		00F176B8	
175C65F8	NETSERV	JES3S4				00	00	00000000		00000000	
185018A0	RMTCONSL	T0001CON	T0001			00	4C		18501958	00000000	
185019F4	RDR	T0001RD1	T0001			00	40		18501AAC	00000000	
18501B48	PRT	T0001PR1	T0001			00	40		18501CA8	00000000	
18501D44	PRT	T0001PR2	T0001			00	40		18501EA4	00000000	

LOC hhhhhhhh - is the address of the table entry.

TYPE - is the device type as defined by the DTYPE parameter on the DEVICE initialization statement.

SUPUNITS Table (SUP)

DDNAME - is the ddname as defined by the JNAME parameter on the DEVICE initialization statement.

GROUP - is the group name as defined by the DGROUP parameter on the DEVICE initialization statement.

UNIT1 - is the device number as defined by the JUNIT parameter on the DEVICE initialization statement.

UNIT2 - is the device number of the alternate path CTC.

FLAG1 hh and FLAG2 hh - are, respectively, SUPFLAG1 and SUPFLAG2 in IATYSUP.

SYSUNIT hhhhhhhh - is the address of the system unit table for the device, except when it is an RJP device.

DCTADD hhhhhhhh - is the address of the DCT if the device is an RJP device.

UCB1 hhhhhhhh - is the address of the primary UCB in storage.

UCB2 hhhhhhhh - is the address of the alternate path CTC UCB in storage.

FSS Table Entries (FSS)

FSS Table entries

FSS TABLE ENTRIES														
FSSNAME	---FSSID---	ENTRY	FCT	CNDB	STATUS-FLAGS:			SYSTEM	JOB	ASID	FSS	-----ECF----	-FLAGS	
	FSSID FSAID	ADDRESS	ADDRESS	ADDRESS	ST1	ST2	M/W	/JNAME	NUMBER		TYPE	ADDRESS	MASK	REQ OPT
CIFSS1	0001	00017CA8	00000000	00017D70	00	00	00	SY1	00000000	0000	02	00000000	00	00 08
CIFSS2	0002	00017A38	00000000	00017B00	00	00	00	SY1	00000000	0000	02	00000000	00	00 40
CIFSS3	0003	0001AA58	00000000	0001AB20	00	00	00	**NONE**	00000000	0000	02	00000000	00	00 40
CIFSS4	0004	0001A7E8	00000000	0001A8B0	00	00	00	SY2	00000000	0000	02	00000000	00	00 40
CIFSS5	0005	0001A578	00000000	0001A640	00	00	00	SY2	00000000	0000	02	00000000	00	00 40
CIFSS6	0006	0001A308	00000000	0001A3D0	00	00	00	SY6	00000000	0000	02	00000000	00	00 00
CIFSS7	0007	0001A098	00000000	0001A160	00	00	00	SY7	00000000	0000	02	00000000	00	00 40
CIFSS8	0008	0003A0A8	00000000	0003A170	00	00	00	SY3	00000000	0000	02	00000000	00	00 40
MF1	0009	0003D898	00000000	0003DC60	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AC150	00000000	040AC19C	00	00	00	PRT008				00000000	00	00 00
	0002	040AC030	00000000	040AC07C	00	00	00	PRT00A				00000000	00	00 00
	0003	040B01E8	00000000	040B0234	00	00	00	PRTC03				00000000	00	00 00
PRT804	000A	0003D928	00000000	0003D9F0	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040B0428	00000000	040B0474	00	00	00	PRT804				00000000	00	00 00
PRTB03	000B	0003D6B8	00000000	0003D780	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040B0308	00000000	040B0354	00	00	00	PRTB03				00000000	00	00 00
PRTB08	000C	0003D448	00000000	0003D510	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040B2E08	00000000	040B2E54	00	00	00	PRTB08				00000000	00	00 00
PRTB09	000D	0003D1D8	00000000	0003D2A0	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040B2CE8	00000000	040B2D34	00	00	00	PRTB09				00000000	00	00 00
VPRT047	000E	0001ED90	00000000	0001EE58	00	00	00	SY1	00000000	0000	01	00000000	00	00 7C
	0001	03C95018	00000000	03C95064	00	00	00	VPRT047				00000000	00	00 00
VPRT048	000F	0001EB20	00000000	0001EBE8	00	00	00	SY1	00000000	0000	01	00000000	00	00 7C
	0001	040A1820	00000000	040A186C	00	00	00	VPRT048				00000000	00	00 00
PRT006	0010	0001E8B0	00000000	0001E978	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AA050	00000000	040AA09C	00	00	00	PRT006				00000000	00	00 00
PRT007	0011	0001E640	00000000	0001E708	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AC270	00000000	040AC2BC	00	00	00	PRT007				00000000	00	00 00
PRT00B	0012	0001E3D0	00000000	0001E498	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AE388	00000000	040AE3D4	00	00	00	PRT00B				00000000	00	00 00
PRT203	0013	0001E160	00000000	0001E228	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AE268	00000000	040AE2B4	00	00	00	PRT203				00000000	00	00 00
PRT204	0014	0001FD90	00000000	0001FE58	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AE148	00000000	040AE194	00	00	00	PRT204				00000000	00	00 00
PRT303	0015	0001FB20	00000000	0001FBE8	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AE028	00000000	040AE074	00	00	00	PRT303				00000000	00	00 00
PRT304	0016	0001F8B0	00000000	0001F978	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AEE78	00000000	040AEEC4	00	00	00	PRT304				00000000	00	00 00
PRT403	0017	0001F640	00000000	0001F708	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AED58	00000000	040AEDA4	00	00	00	PRT403				00000000	00	00 00
PRT404	0018	0001F3D0	00000000	0001F498	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AEC38	00000000	040AEC84	00	00	00	PRT404				00000000	00	00 00
PRT803	0019	0001F160	00000000	0001F228	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040AEB18	00000000	040AEB64	00	00	00	PRT803				00000000	00	00 00
PRTC04	001A	00020D90	00000000	00020E58	00	00	00	SY1	00000000	0000	01	00000000	00	00 3C
	0001	040B00C8	00000000	040B0114	00	00	00	PRTC04				00000000	00	00 00

FSS TABLE ENTRIES contains:

FSSNAME - is the name of the FSS as supplied on an FSSDEF or DEVICE initialization statement.

FSSID - is the numeric id that uniquely identifies this FSS (assigned during initialization.)

FSAID - is the numeric id that, in combination with the FSSID, uniquely identifies this FSA. It is assigned during initialization.

Note: C/I FSS address spaces do not have FSAIDs.

ENTRY'S ADDRESS - is the address of the FSS table entry or FSA table entry.

FCT ADDRESS - is the address of the FCT that controls this FSS or FSA. This field is zero if the FSS or FSA is inactive.

FSS Table Entries (FSS)

CNDB ADDRESS - is the address of the CNDB containing message delivery information for the device.

STATUS-FLAGS - is the FSSSTAT1 field (startup status), FSSSTAT2 field (shutdown status) and the FSSMSTAT field (*MODIFY command status) for FSS and the FSASTAT1 field (startup status), FSASTAT2 field (shutdown status) and the FSAWSTAT field (FSS writer status) for FSA.

SYSTEM/JNAME - is the name of the system (specified either by a FSSDEF statement or a *MODIFY,F command) where the FSS and FSA are assigned to run. JNAME is the name of the device assigned to the FSA.

JOB NUMBER nnnnn - is the number of the job that is running as the FSS address space.

ASID nnnn - is the address space id of the FSS address space.

FSS TYPE - is the type of FSS address space. 01 indicates a writer FSS and 02 indicates a C/I FSS.

ECF - is the address and mask of the status change ECF.

FLAGS - is the request flags (FSSREQ) for use with the IATXFSS macro and the option flags (FSSOPT) representing the options on the FSSDEF initialization statement.

JESMAIN

*****	JESMAIN	*****										
*****	JESMAIN	*****										
*****	JESMAIN	*****										
MPC	MPNAME	CTCIXIF	CTCFLAGS	CTCMSWA	MF	RELEASE	H/R DATE	H/R TIME	CFG DATE	CFG TIME	PL	SL
046FD000	SY1	046FA778	20000000	04C00350	10	HJS6608	00000000	00000000	0097111F	15534647	0B	00
*****	JESMAIN	*****										
*****	JESMAIN	*****										
MPC	MPNAME	CTCIXIF	CTCFLAGS	CTCMSWA	MF	RELEASE	H/R DATE	H/R TIME	CFG DATE	CFG TIME	PL	SL
046FC000	SY2	046F97D0	20002000	04C00240	20	HJS6606	00000000	00000000	00000000	00000000	00	00
*****	JESMAIN	*****										
*****	JESMAIN	*****										
MPC	MPNAME	CTCIXIF	CTCFLAGS	CTCMSWA	MF	RELEASE	H/R DATE	H/R TIME	CFG DATE	CFG TIME	PL	SL
046FB000	SY3	046F9750	20002000	04C04490	20	HJS6606	00000000	00000000	00000000	00000000	00	00
*****	JESMAIN	*****										
*****	JESMAIN	*****										
MPC	MPNAME	CTCIXIF	CTCFLAGS	CTCMSWA	MF	RELEASE	H/R DATE	H/R TIME	CFG DATE	CFG TIME	PL	SL
046FA000	SY4	046F87D0	20002000	04C04B40	20	HJS6606	00000000	00000000	00000000	00000000	00	00
*****	JESMAIN	*****										
*****	JESMAIN	*****										
MPC	MPNAME	CTCIXIF	CTCFLAGS	CTCMSWA	MF	RELEASE	H/R DATE	H/R TIME	CFG DATE	CFG TIME	PL	SL
046F9000	SY5	046F8750	20002000	04C92050	20	HJS6606	00000000	00000000	00000000	00000000	00	00
*****	JESMAIN	*****										
*****	JESMAIN	*****										
MPC	MPNAME	CTCIXIF	CTCFLAGS	CTCMSWA	MF	RELEASE	H/R DATE	H/R TIME	CFG DATE	CFG TIME	PL	SL
046F8000	SY6	046F7CC0	20002000	04CA5120	20	HJS6606	00000000	00000000	00000000	00000000	00	00
*****	JESMAIN	*****										
*****	JESMAIN	*****										
MPC	MPNAME	CTCIXIF	CTCFLAGS	CTCMSWA	MF	RELEASE	H/R DATE	H/R TIME	CFG DATE	CFG TIME	PL	SL
046F7000	SY7	046F7C40	20002000	04CA6500	20	HJS6606	00000000	00000000	00000000	00000000	00	00
*****	JESMAIN	*****										
*****	JESMAIN	*****										
MPC	MPNAME	CTCIXIF	CTCFLAGS	CTCMSWA	MF	RELEASE	H/R DATE	H/R TIME	CFG DATE	CFG TIME	PL	SL
046F6000	SYSLOCAL8	046F7BC0	20002000	04CA6200	20	HJS6606	00000000	00000000	00000000	00000000	00	00

CTCIXIF - address of JESXEF information; mapped by IXZYIXIF.

CTCFLAGS hhhhhhhh - are flag bytes CTCFLG1, CTCFLG2, CTCFLG3, and CTCFLG4.

CTCMSWA - address of IATMSDR work area.

MF hh - is the MPLFLG status byte. The MF field contains flag bytes that indicate the status of the main represented by the MPC.

RELEASE - the JES3 release that the system is running.

H/R DATE - hot start with refresh date associated with this main (MPCHRDAT).

H/R TIME - hot start with refresh time associated with this main (MPCHRTIM).

CFG DATE - *MODIFY,CONFIG date associated with this main (MPCCFDAT).

CFG TIME - *MODIFY,CONFIG time associated with this main (MPCCFTIM).

PL - the JES3 product level associated with the JES3 release running on this main (MPCPLEVL) as defined in macro IATYGLOB.

SL - the JES3 service level associated with significant JES3 maintenance running on this main (MPCSLEVL) as defined in macro IATYGLOB.

DESTQ

DESTQ is the destination routing table. It is used to queue all unsolicited staging areas received by JES3 to the appropriate JES3 function routine for processing. The table is mapped by macro IATYDSQ.

There is a unique table for every DESTQ that has staging areas associated with it.

Note: The addresses under staging addresses for the MAINSCHD DESTQ are not staging addresses, they are MPC addresses.

DESTQ (MPC)

```

***** DESTQ *****
***** DESTQ *****
***** DESTQ *****
FUNCTION FSSID FSAID QUEUE FL MK ECF-ADR EC
MAINSERV 843D78C0 44 80 04801BCF 00 04D49890
MAINSCHD 843D78E4 C4 00 00000000 04375000 04374000 04373000 04372000 04371000 04370000
VERIFY 843D7908 44 01 04801BD7 F8
LOCATE 843D792C 44 40 04C9C97C 00
JESIO 843D7950 00 00 00000000
USERTKAL 843D7974 44 40 04801BD4 00
SVC34 843D7998 44 40 00BE8EF0 00
WTO 843D79BC 44 80 00BE8ED4 00
RESERVED 843D79E0 00 00 00000000
DYNALLOC 843D7A04 54 80 04CD8CB5 00
COMALLOC 843D7A28 54 08 04CD8CB5 00
COMUALOC 843D7A4C 54 40 04CD8CB5 00
VERRESP 843D7A70 54 10 04CD8CB5 00 04D49090 04DB1890 04DB1090 04DB2890 04DB2090 04DB3890
CHGDDNME 843D7A94 54 20 04CD8CB5 00
WTDDRVR 843D7AB8 44 40 04801BE3 00
SSIQ1 843D7ADC 00 00 00000000
SSIQ2 843D7B00 00 00 00000000
MODDRVR 843D7B24 44 10 0484E780 00
INQDRVR 843D7B48 44 10 0484A83C 00
CHUSEATR 843D7B6C 54 04 04CD8CB5 00
PROCSYSO 843D7B90 44 20 04801227 01
TAPE_DDR 843D7BB4 44 04 04801BD4 00
RESERVED 843D7BD8 00 00 00000000
VARYPATH 843D7BFC 44 10 04801BCF 00
ALLDYNAL 843D7C20 44 80 04801BC1 00
UNADYNAL 843D7C44 44 40 04801BC1 00
CDDYNAL 843D7C68 44 20 04801BC1 00
DASD_DDR 843D7C8C 44 02 04801BD4 00
FSS 843D7CB0 08 00 0000001A DYNAMIC DESTQ ANCHOR
0001 04443590 00 00000000 FSS-LEVEL ENTRY
0002 044435A0 00 00000000 FSS-LEVEL ENTRY
0003 044435B0 00 00000000 FSS-LEVEL ENTRY
0004 044435C0 00 00000000 FSS-LEVEL ENTRY
0005 044435D0 00 00000000 FSS-LEVEL ENTRY
0006 044435E0 00 00000000 FSS-LEVEL ENTRY
0007 044435F0 00 00000000 FSS-LEVEL ENTRY
0008 04443600 00 00000000 FSS-LEVEL ENTRY
0009 04443610 00 00000000 FSS-LEVEL ENTRY
000A 04443620 00 00000000 FSS-LEVEL ENTRY
000B 04443630 00 00000000 FSS-LEVEL ENTRY
000C 04443640 00 00000000 FSS-LEVEL ENTRY
000D 04443650 00 00000000 FSS-LEVEL ENTRY
000E 04443660 00 00000000 FSS-LEVEL ENTRY
000F 04443670 00 00000000 FSS-LEVEL ENTRY
0010 04443680 00 00000000 FSS-LEVEL ENTRY
0011 04443690 00 00000000 FSS-LEVEL ENTRY
0012 044436A0 00 00000000 FSS-LEVEL ENTRY
0013 044436B0 00 00000000 FSS-LEVEL ENTRY
0014 044436C0 00 00000000 FSS-LEVEL ENTRY
0015 044436D0 00 00000000 FSS-LEVEL ENTRY
0016 044436E0 00 00000000 FSS-LEVEL ENTRY
0017 044436F0 00 00000000 FSS-LEVEL ENTRY
0018 04443700 00 00000000 FSS-LEVEL ENTRY
0019 04443710 00 00000000 FSS-LEVEL ENTRY
001A 04443720 00 00000000 FSS-LEVEL ENTRY
CI DRVR 843D7CD4 44 40 04801BF0 00
IO ERROR 843D7CF8 44 01 04801BD4 00
BDT 843D7D1C 44 40 04801D9A 00
SNA NJE 843D7D40 44 80 04801D9A 00
ARM PJCL 843D7D64 44 80 048018AC 00
SAPI 843D7D88 44 04 04801227 01
ENSTATUS 843D7DAC 44 20 04801BE3 00
RESERVED 843D7DD0 00 00 00000000
RESERVED 843D7DF4 00 00 00000000
RESERVED 843D7E18 00 00 00000000
RESERVED 843D7E3C 00 00 00000000
RESERVED 843D7E60 00 00 00000000
RESERVED 843D7E84 00 00 00000000
RESERVED 843D7EA8 00 00 00000000

```

FUNCTION - is the internal name of the destination queue.

FSSID - is the numeric id that uniquely identifies this FSS (assigned during initialization.)

FSAID - is the numeric id that, in combination with the FSSID, uniquely identifies this FSA. It is assigned during initialization.

QUEUE hhhhhhhh - is the address of the queue entry.

FL hh - is flag byte DSQFLG.

MK hh - is the ECF mask.

ECF-ADDR hhhhhhhh - is the ECF address. The ECF is posted when a staging area is added to the queue.

EC hh - is the contents of the ECF whose address is in MSK-ADDR.

DYNAMIC DESTQ ANCHOR - indicates that this is the primary DESTQ entry for a dynamic destination queue. The ECF-ADDR field contains the number of FSS-level entries.

FSS-LEVEL ENTRY - indicates that this is the FSS-level dynamic destination queue entry. The ECF-ADDR field contains the number of FSA-level destination queues.

MAINSCHD

MAINSCHD shows the staging areas on the DESTQ. BRAVO is the queue of staging areas chained from MPSTAGE in the MPC for the main named BRAVO in the initialization stream. SVC34 is the queue of staging areas chained from the SVC34 entry on the DESTQ. Queues for other MPC entries and other entries on the DESTQ are shown if the staging areas exist. The formatted areas are mapped by the macro IATYSTA.

```

***** MAINSCHD *****
***** BRAVO *****

  SA          MESSAGE TOKEN      FLAGS   SAID   FSID   TP  FU  MD  SD  RD  UF  RECL  MPC
0264C428     00042090005A018      80000008 0014  00000000 80  05  00  07  06  00  0164  0268A000
02662AF0     0000420E0009741      80000008 0016  00000000 80  05  00  07  06  00  0164  0268A000
02654C70     0000421000096C2      80000008 0017  00000000 80  05  00  07  06  00  0164  0268A000
02660F20     000459C81990000      80000008 0018  00000000 80  05  00  07  06  00  0164  0268A000
02664130                                     80000008 0019  00000000 80  05  00  07  06  00  0164  0268A000
02652B10                                     80000008 001A  00000000 80  05  00  07  06  00  0164  0268A000
02656578                                     80000008 001B  00000000 80  05  00  07  06  00  0164  0268A000
0265E830                                     80000008 00EB  00000000 80  05  00  07  06  00  0164  0268A000
02658C68                                     80000008 0024  00000000 80  05  00  07  06  00  0164  0268A000

```

STAGING AREA ADDRESSES - is a list of the addresses of the first six staging areas for the staging areas on the destination routing table.

Note: For the MAINSCHD queue, it is not the staging area address, but the MPC addresses of the main service functions. The MPSTAGE field in IATYMP points to the staging areas. The MPCs are already formatted under the heading MPC/S.

SA hhhhhhhh - is the address of the staging area.

MAINSCHD (MPC)

MESSAGE TOKEN - is the value for the JESXCF message token for the JESXCF message corresponding to this staging area.

FLAGS hhhhhhhh - are flag bytes STAFLAG1, STAFLAG2, STAFLAG3, and STAFLAG4.

SAID hhhh - is the address space identification (ASID) of the address space associated with the staging area.

FSID hhhhhhhh - is the functional subsystem identifier of the address space and application from which the staging area came or to which the staging area is going.

TP hh - is the type of SSISERV request.

FU hh - is the function code of an SSISERV macro (SSOB function code of requester or JES3 destination code).

Code Destination Queue

01	TSO output
02	TSO cancel
03	TSO status
04	end-of-task
05	job select
06	allocate
07	unallocate
08	end-of-memory
09	write-to-operator (WTO)
0A	SVC34
0B	validate id
0C	job termination
0D	job requeue
10	OPEN
11	CLOSE
12	CHECKPOINT
13	RESTART
14	request job id
15	return job id
16	beginning of step
17	dynamic allocation
18	common allocation
19	common unallocation
1A	change ddname

1B	change ENQ
1C	DDR candidate select
1D	DDR candidate verify
1E	DDR DASD swap request
1F	DDR swap complete
20	SVC34 command failure
22	write-to-log
28	early volume release
35	FSS/FAA connect/disconnect
36	subsystem version information
3E	BDT subsystem
3F	BDT staging area shuttle
40	transaction processing
48	Vary path
4B	Notify user
4D	Persistent JCL
4F	SAPI (SSOB function code)
50	Extended Status (SSOB function code)
80	main service
81	generalized main scheduling
82	verify
83	locate
84	JES3 data management
85	user track allocation
86	consoles SVC34
87	consoles WTO
89	verify response
8A	work to do driver
8B	SSICS
8C	SSICS
8D	ENDREQ
8E	modify driver
8F	inquiry driver
90	SYSOUT interface
91	system connect
92	alternate CTC retry
93	main service

MAINSCHD (MPC)

94	staging area shortage
95	DYNAL allocation
96	DYNAL unallocation
97	DYNAL change DDNAME
98	communication from an FSS
99	CI Driver
9A	IOERR
9B	FSS start failure
9D	SAPI (JES3 destination code)
9E	Extended Status (JES3 destination code)
9F	Workload Manager
A0	JESMSG
A1	Local Module Load/Call
A2	TCP/IP Server Request
A3	JES Properties - Class Information
A4	JES Properties - Initiator Information
A5	JES Properties - Node Information
A6	JES Properties - Spool Partition
A7	JES Properties - JESplex Information
A8	Scheduler JCL Facilities

MD hh - is the MOD parameter of the SSISERV macro to further identify requests within function code.

SD hh - is the number of the main sending a request.

RD hh - is the number of the main receiving a request.

UF hh - is the user-defined staging area flags (STAUFLG field).

RECL hhhh - is the record length of the staging area data for the request.

MPC hhhhhhhh - is the address of the main processor control table associated with the staging area.

MEMDATA

MEMDATA (memory data control block) represents information about active address spaces within a given main and jobs within an address space. There is one MEMDATA per address space. They are used by SSI routines for job information. MEMDATA is mapped by macro IATYMEM.

```

***** MEMDATA *****
***** MEMDATA *****
***** MEMDATA *****

MEMDATA  ASID    ASCB    WSELS    GROUPNM  ENTRY1   JOB1    ENTRY2   JOB2
0238A448 00B4  00F24A00 00000000          00000000          00000000
0238A230 00B3  00F24C00 00000000  SYSLOG  00000000          00000000
023A1580 00B2  00F25300 00000000  SYSLOG  00000000          00000000
026D0020 00B1  00F24E00 00000000  SYSLOG  00000000          00000000
02395C80 0093  00F25A80 00000000  SYSLOG  023995C8  LOG90CA1 00000000
0239C218 009A  00F25500 00000000  SYSLOG  02399EA0  LOG90CA1 00000000
0239CBD0 008E  00F25700 00000000  SYSLOG  0238ADE0  LOG90CA1 00000000
0239C5A8 009E  00F1F600 00000000  SYSLOG  00AE24F8  LOG90CA1 00000000
026CEE20 00A2  00F1F800 00000000  SYSLOG  00B3A748  LOG90CA1 00000000
0239E310 0052  00F1FA00 00000000  SYSLOG  02396548  LOG90CA1 00000000
0239C478 00A0  00F1FC00 00000000  SYSLOG  0238A728  LOG90CA1 00000000

```

MEMDATA hhhhhhhh - is the address of the MEMDATA control block in CSA.

ASID hhhh - is the ASID of the user address space represented by this MEMDATA control block.

ASCB hhhhhhhh - is the address of the address space control block of the user address space represented by this MEMDATA.

WISEQ hhhhhhhh - for WLM managed initiators, this is the unique sequence number assigned to the initiator. For JES managed initiators or demand select jobs this is always zero.

WSELS hhhhhhhh - is a queue of SEL control blocks. This queue is the result of requests that had to be postponed because the barrier count for ACTSAS was reached.

GRP/SRVC ccccccc - For JES managed initiators, this is the name of the group that belongs to the initiator for the the job associated with this MEMDATA. For WLM managed initiators, this is the name of the service class that belongs to the initiator for the the job associated with this MEMDATA. For demand select jobs this is an 8-character identifier that was used when the address space was created.

ENTRY1 hhhhhhhh - is the address of a MEMDATA entry containing control data for the initiator (or the job, if demand select).

JOB1 ccccccc - is the name of the initiator (or the job, if demand select) for the associated address space.

ENTRY2 hhhhhhhh - is the address of a MEMDATA entry containing control data for the job started by the initiator and identified in JOB2.

Note: JES3's own entry contains the job name in ENTRY2, even though it is a demand select job.

JOB2 ccccccc - is the name of the job started by the initiator in the associated address space.

MULTI-VERSION DATA ACCESS MASTER CONTROL AREAS

The Multi-Version Data Access Master Control areas are control blocks in CSA that control serialized access to the JES3 tables SETUNITS, SETNAMES, and DYNALDSN tables, which are also in CSA. The control areas are used by JES3 to determine if there are any address spaces still using an old version of a table when a new version of the table is built upon a JES3 restart (including additions, deletions, and changes during a hot start with refresh). When an old version of a table is no longer being used, its storage is freed. Each table has one master control area and each master control area has zero or more version control areas. Each version control area points to and controls one version of the table.

A sample output of the multi-version data access master control areas is shown below:

MULTI-VERSION DATA ACCESS MASTER CONTROL AREAS										
ADDRESS	TABLE	CVCT	OVCT	BVCT	TTYP	CUSE	OUSE	BTKN		
04C7A930	SETUNITS TABLE	04CDB140	00000000	00000000	01	00000000	00000000	00000000		
VERS	04CDB140	TYPE=CURRENT	VNXT=00000000	VTAB=04BB6B60	TSIZ=0000C49C	VUSE=00000000	MCTL=04C7A930	TMFL=04BB90C8		
04C7A978	SETNAMES TABLE	04CFFF58	00000000	00000000	02	00000000	00000000	00000000		
VERS	04CFFF58	TYPE=CURRENT	VNXT=00000000	VTAB=04BC5430	TSIZ=00000BCC	VUSE=00000000	MCTL=04C7A978	TMFL=00000000		
04C7A9C0	DYNALDSN TABLE	04CE3E28	00000000	00000000	03	00000000	00000000	00000000		
VERS	04CE3E28	TYPE=CURRENT	VNXT=00000000	VTAB=04D5D1C8	TSIZ=00000014	VUSE=00000000	MCTL=04C7A9C0	TMFL=00000000		
04C7AA08	RESERVED	00000000	00000000	00000000	04	00000000	00000000	00000000		
04C7AA50	RESERVED	00000000	00000000	00000000	05	00000000	00000000	00000000		
04C7AA98	RESERVED	00000000	00000000	00000000	06	00000000	00000000	00000000		
04C7AAE0	RESERVED	00000000	00000000	00000000	07	00000000	00000000	00000000		
04C7AB28	RESERVED	00000000	00000000	00000000	08	00000000	00000000	00000000		
04C7AB70	RESERVED	00000000	00000000	00000000	09	00000000	00000000	00000000		
04C7ABB8	RESERVED	00000000	00000000	00000000	0A	00000000	00000000	00000000		

GRPTBL/S

GRPTBL/S define characteristics of a job class group defined by a GROUP initialization statement.

***** GRPTBL/S *****										
GRPTBL	GRPNAM	MODE	GS	FL	RESQ	EXRESC	BR	JSP	ENABLED	DFCB
02AC81A0	JES3TEST	JES	01	40	02BC0358	02AD52F8	NO	ALL	FFFFFFFF	00000000
02AC81D0	JES3HOLD	JES	02	40	00000000	02AD5340	NO	ALL	FFFFFFFF	00000000
02AC8200	EF	WLM	03	40	02A88738	02AD5388	NO	ALL	FFFFFFFF	00000000
02AC8230	GH	JES	04	40	02AA2BE8	02AD53D0	NO	ALL	FFFFFFFF	00000000
02AC8260	IJ	JES	05	40	02AA2548	02AD5418	NO	ALL	FFFFFFFF	00000000
02AC8290	JS3BATCH	JES	06	80	00000000	02AD5460	NO	ALL	FFFFFFFF	00000000

GRPTBL hhhhhhhh - is the address of the group table.

GRPNAM ccccccc - is the name of the job class group, as defined by the NAME parameter of a GROUP initialization statement.

MODE - is WLM if the group is WLM managed, JES if the group is JES managed.

GS dd - is a unique sequence number assigned to the group.

FL hh - is flag byte MGFLAG.

RESQ hhhhhhhh - is the address of the first RESQUEUE entry in a chain of RESQUEUE entries that belong to this group.

EXRESC hhhhhhhh - is the address of the execution resources table that defines the resources to allocate.

BR hh - is the priority level at which jobs must be scheduled before any jobs below the barrier priority can schedule for execution. NO is inserted if BAR was not specified.

JSP hhhh - is the number of jobs to examine in the group for scheduling at any one time. ALL is inserted if JSPAN=ALL was specified or invoked as a default.

ENABLED hhhhhhhh - is a main mask of systems where the group has been enabled.

DFCB hhhhhhhh - is a pointer to the device fence control block for the group (zero if none).

EXRESC/S

EXRESC/S is the execution resources table. It is the result of EXRESC parameters on the GROUP initialization statement. These parameters define the execution resources to be assigned to a job class group. EXRESC is mapped by macro IATYMGF.

EXRESC/S (GMS)

***** EXRESC/S *****

EXRESC	MS	GS	PS	DI	AI	PI	UI	ST	AL	JL	TI	RI	DFCB
02AD52F8	01	01	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5340	01	02	80	0005	0000	0000	0000	00	30	00	0000	0000	00000000
02AD5388	01	03	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD53D0	01	04	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5418	01	05	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5460	01	06	82	0002	0000	0000	0000	02	91	C0	0000	0000	00000000
02AD54A8	02	01	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD54F0	02	02	80	0005	0000	0000	0000	00	30	00	0000	0000	00000000
02AD5538	02	03	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5580	02	04	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD55C8	02	05	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5610	02	06	86	0002	0000	0000	0000	02	91	C0	0000	0000	00000000
02AD5658	03	01	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD56A0	03	02	80	0005	0000	0000	0000	00	30	00	0000	0000	00000000
02AD56E8	03	03	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5730	03	04	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5778	03	05	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD57C0	03	06	82	0002	0000	0000	0000	02	91	C0	0000	0000	00000000
02AD5808	04	01	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5850	04	02	80	0005	0000	0000	0000	00	30	00	0000	0000	00000000
02AD5898	04	03	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD58E0	04	04	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5928	04	05	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5970	04	06	82	0002	0000	0000	0000	02	91	C0	0000	0000	00000000
02AD59B8	05	01	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5A00	05	02	80	0005	0000	0000	0000	00	30	00	0000	0000	00000000
02AD5A48	05	03	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5A90	05	04	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5AD8	05	05	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5B20	05	06	82	0002	0000	0000	0000	02	91	C0	0000	0000	00000000
02AD5B68	06	01	86	0003	0003	0000	0001	00	48	00	0000	0000	00000000
02AD54F0	02	02	80	0005	0000	0000	0000	00	30	00	0000	0000	00000000
02AD5538	02	03	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5580	02	04	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD55C8	02	05	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5610	02	06	86	0002	0000	0000	0000	02	91	C0	0000	0000	00000000
02AD5658	03	01	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD56A0	03	02	80	0005	0000	0000	0000	00	30	00	0000	0000	00000000
02AD56E8	03	03	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5730	03	04	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5778	03	05	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD57C0	03	06	82	0002	0000	0000	0000	02	91	C0	0000	0000	00000000
02AD5808	04	01	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5850	04	02	80	0005	0000	0000	0000	00	30	00	0000	0000	00000000
02AD5898	04	03	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD58E0	04	04	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5928	04	05	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5970	04	06	82	0002	0000	0000	0000	02	91	C0	0000	0000	00000000
02AD59B8	05	01	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5A00	05	02	80	0005	0000	0000	0000	00	30	00	0000	0000	00000000
02AD5A48	05	03	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5A90	05	04	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5AD8	05	05	86	0003	0000	0000	0000	00	48	00	0000	0000	00000000
02AD5B20	05	06	82	0002	0000	0000	0000	02	91	C0	0000	0000	00000000
02AD5B68	06	01	86	0003	0003	0000	0001	00	48	00	0000	0000	00000000

EXRESC hhhhhhhh - is the address of the execution resources table.

MS dd - is the unique sequence number of the main for this entry.

GS hh - is a unique group sequence number.

PS hh - is flag byte MGXPOST.

DI hhhh - is the number of initiators exclusively assigned (dedicated initiators) to the job class group.

AI hhhh - is the number of dedicated initiators that have been started (activated initiators).

PI hhhh - is the number of dedicated initiators for which the S INIT command has been issued, but for which no INIT STARTED message have been received (pending initiators).

UI hhhh - is the number of initiators in use (that is, jobs active).

ST hh - is flag byte MGXSTAT.

AL hh - is flag byte MGXALLOC.

JL hh - is flag byte MGXJAL.

TI hhhh - is the number of initiators ended by the system.

RI hhhh - is the number of ended initiators that can be restarted.

CLASS/S

CLASS/S are the class tables generated from the CLASS initialization statement. It is used to define characteristics of a JES3 job class as it appears on the JOB statement, MAIN statement, or by default. The class table is mapped by macro IATYMCL.

```

***** CLASS/S *****
CLSTBL  CLSNAM  CONSTR  SD  SM  TD  TM  IO  PR  GS  CS  FL  IN  ENABLED  ELIGIBLE
02AC82C0 A          00000000 00 FF 00 FF 04 FF 01 01 00 7F000000 00 7F000000
02AC8300 A1         00000000 00 FF 00 FF 04 FF 01 02 00 7F000000 00 7F000000
02AC8340 B          00000000 00 FF 00 FF 04 FF 03 03 00 7F000000 00 7F000000
02AC8380 C          00000000 00 FF 00 FF 04 FF 04 04 00 7F000000 00 7F000000
02AC83C0 D          00000000 00 FF 00 FF 04 FF 02 05 00 7F000000 00 7F000000
02AC8400 E          00000000 00 FF 00 FF 01 FF 03 06 00 7F000000 00 7F000000
02AC8440 EDIEAKLL 00000000 00 FF 00 FF 04 FF 01 07 00 7F000000 00 7F000000
02AC8480 F          00000000 00 FF 00 FF 01 FF 03 08 00 7F000000 00 7F000000
02AC84C0 G          00000000 00 FF 00 FF 04 FF 04 09 00 7F000000 00 7F000000
02AC8500 H          00000000 00 FF 00 FF 04 FF 04 0A 00 7F000000 00 7F000000
02AC8540 I          00000000 00 FF 00 FF 04 FF 05 0B 00 7F000000 00 7F000000
02AC8580 J          00000000 00 FF 00 FF 04 FF 05 0C 00 7F000000 00 7F000000
02AC85C0 R          00000000 00 FF 00 FF 04 FF 01 0D 00 7F000000 00 7F000000
02AC8600 S          00000000 00 FF 00 FF 04 FF 02 0E 00 7F000000 00 7F000000
02AC8640 SD         00000000 00 FF 00 FF 04 FF 01 0F 00 7F000000 00 7F000000
02AC8680 T          00000000 00 FF 00 FF 04 FF 02 10 00 7F000000 00 7F000000
02AC86C0 1          00000000 00 FF 00 FF 04 FF 01 11 00 7F000000 00 7F000000
02AC8700 1A         00000000 00 FF 00 FF 04 FF 01 12 00 7F000000 00 7F000000
02AC8740 12         00000000 00 FF 00 FF 04 FF 01 13 00 7F000000 00 7F000000
02AC8780 12345678 00000000 00 FF 00 FF 04 FF 01 14 00 7F000000 00 7F000000
02AC87C0 2          00000000 00 FF 00 FF 04 FF 02 15 00 7F000000 00 7F000000
02AC8800 3          00000000 00 FF 00 FF 04 FF 03 16 00 7F000000 00 7F000000
02AC8840 4          00000000 00 FF 00 FF 04 FF 01 17 00 7F000000 00 7F000000
02AC8880 5          00000000 00 FF 00 FF 04 FF 04 18 00 7F000000 00 7F000000
02AC88C0 6          00000000 00 FF 00 FF 04 FF 05 19 00 7F000000 00 7F000000
02AC8900 7          00000000 00 FF 00 FF 04 FF 02 1A 00 7F000000 00 7F000000
02AC8940 8          00000000 00 FF 00 FF 04 FF 03 1B 00 7F000000 00 7F000000
02AC8980 9          00000000 00 FF 00 FF 04 FF 05 1C 00 7F000000 00 7F000000

```

CLASS/S (GMS)

CLSTBL hhhhhhhh - is the address of the table.

CLSNAM ccccccc - is the name of the job class for this entry.

CONSTR hhhhhhhh - is the address of a class constraints entry.

SD hh - is the current total setup depth accumulated.

SM hh - is the maximum number of jobs in this job class that can concurrently be in setup. This is derived from the SDEPTH parameter on the CLASS statement.) 'FF' means no limit.

TD hh - is the number of jobs active in this job class in the complex.

TM hh - is the maximum number of jobs in this job class than can be currently in execution. This is derived from the TDEPTH parameter on the CLASS statement.) 'FF' means no limit.

IO hh - is the I/O rate specified in the IORATE parameter of the CLASS initialization statement or MAIN statement. A value of 01 indicates a low I/O rate, a value of 02 indicates a high I/O rate, and a value of 04 indicates a medium I/O rate.

PR hh - is the JES3 job priority to be assigned to each job in this class.

GS hh - is the unique sequence number of the group for this job class.

CS hh - is the unique sequence number of this job class.

FL hh - is flag byte MCSCHFG.

IN hh - is flag bye MCINFLG

ENABLED hhhhhhhh - is a bit pattern representing the enable-disable mask (1=enabled) for mains that can execute this job class and are varied online. The high-order byte corresponds to the main mask.

ELIGIBLE hhhhhhhh - is a bit pattern representing the enable-disable mask (1=enabled) for mains eligible to execute jobs in this class but not necessarily online. If a bit in ENABLED is on with its corresponding ELIGIBLE bit off, a condition of exceeded constraints exists. The high order byte corresponds to the mask.

RESQ/S

RESQ/S is the resident job queue for JES3. It is formatted for all jobs that have been sent to, or selected for, a main for execution. It contains information used to start a job. It is mapped by macro IATYRSQ.

RESQ	INDEX	GRPCHN	JOBID	JOBNAME	ASID	CS	GS	MS	M1	M2	SRVCLASS	WLMCLSTK	WISEQ
03B6C000	ONMAIN	03B6C500	JOB00001	SYSLOG	0001	01	01	01	00	00		00000000	00000000
03B6C500	ONMAIN	03B6C280	JOB00004	VTAMJ3	001B	01	01	01	00	00		00000000	00000000
003B6280	ONMAIN	00000000	JOB00007	TCAS	001D	01	01	01	00	00		00000000	00000000

RESQ hhhhhhhh - is the address of the RESQ.

INDEX ccccc - is a job status corresponding to the field RQINDEX.

GRPCHN hhhhhhhh - is the address of the next RESQ in the group chain or MPC chain.

JOBID ccccccc - is the job identifier associated with the job.

JOBNAME ccccccc - is the job name.

CS hh - is the unique sequence number of this job class.

GS hh - is the unique sequence number of the group for this job class.

MS nn - is the MPC (IATYMP) sequence number.

M1 hh - is the flag byte RQMSFL1.

M2 hh - is the flag byte RQMSFL2.

SRVCLASS ccccccc - is the WLM service class for the job.

WLMCLSTK hhhhhhhh - is the WLM classification token for the job.

WISEQ hhhhhhhh - is the sequence number of the WLM managed initiator that selected the job, zero if the job is running in a JES managed group.

JSQ/S

JSQ/S represents the job select queue (JSQ) elements. They are used by generalized main scheduling (GMS) for communication with initiators through SSI routines. The area is mapped by macro IATYJSQ.

JSQ/S (GMS)

***** JSQ/S *****

JSQTBL	MPNAME	FI	F2	F3	F4	F5	F6	F8	TYPE	GRP/SRVC	WISEQ	JOBNAME	JOBID	ASID
0267074E	CHARLIE	40	00	00	00	00	00	00	JES	IJ			INT00028	0029
0266397E	CHARLIE	40	00	00	00	00	00	00	WLM	DISCRETN	00000001		INT04062	0301
02685246	CHARLIE	40	00	00	00	00	00	00	WLM	DISCRETN	00000002		INT04058	012F
02684CB6	CHARLIE	40	00	00	00	00	00	00	JES	IJ			INT00027	0120
02656E76	CHARLIE	40	00	00	00	00	00	00	WLM	DISCRETN	00000003		INT04066	0202
0266606E	CHARLIE	40	00	00	00	00	00	00	WLM	DISCRETN	00000004		INT00019	0302
026568E6	CHARLIE	40	00	00	00	00	00	00	WLM	DISCRETN	00000005		INT03634	0203
0265B98E	CHARLIE	40	00	00	00	00	00	00	JES	GH			INT00032	012E
0268923E	CHARLIE	40	00	00	00	00	00	00	WLM	DISCRETN	00000006		INT04064	0405
02686E16	CHARLIE	40	00	00	00	00	00	00	JES	GH			INT00021	0142
02689D5E	CHARLIE	40	00	00	00	00	00	00	JES	IJ			INT00030	0308
02686886	CHARLIE	40	00	00	00	00	00	00	WLM	DISCRETN	00000007		INT03632	0277
02666CEE	CHARLIE	40	00	00	00	00	00	00	WLM	DISCRETN	00000008		INT04070	0406
02659DBE	CHARLIE	40	00	00	00	00	00	00	JES	GH			INT00025	022B
0265340E	CHARLIE	80	10	00	00	00	00	00	JES	SYSLOG			JOB15063	0143
02666B8E	CHARLIE	40	00	00	00	00	00	00	JES	JES3TEST			INT00017	022F
026541F6	CHARLIE	40	00	00	00	00	00	00	JES	JES3TEST			INT00020	03E0
02688456	CHARLIE	80	10	00	00	00	00	00	JES	SYSLOG			JOB15243	022D
02657996	CHARLIE	80	10	00	00	00	00	00	JES	SYSLOG			JOB15416	0204
0264C4CE	BRAVO	80	10	00	00	00	00	00	JES	STARTING			JOB00049	0307
02662B96	BRAVO	80	10	00	00	00	00	00	JES	STARTING			JOB00053	012D
02654D16	BRAVO	80	10	00	00	00	00	00		STARTING			JOB00054	0141
02660FC6	BRAVO	80	10	00	00	00	00	00		STARTING			JOB00055	0069
026641D6	BRAVO	80	10	00	00	00	00	00		STARTING			JOB00056	0321
02652BB6	BRAVO	80	10	00	00	00	00	00		STARTING			JOB00057	009A
0265661E	BRAVO	80	10	00	00	00	00	00		STARTING			JOB00058	0127
0265E8D6	BRAVO	80	10	00	00	00	00	00		STARTING			JOB01720	022E

JSQTBL hhhhhhhh - is the address of the JSQ.

MPNAME ccccccc - is the name of the main.

F1-F6, F8 hh - are flag bytes JSQFLG1 - JSQFLG6, JSQFLG8 respectively.

TYPE ccc - JES or WLM, indicating the type of initiator making this job selection request.

GRP/SRVC ccccccc - For JES managed initiators, this is the name associated with the initiator group. For WLM managed initiators, this is the service class associated with the initiator.

INITGRP ccccccc - is the name associated with the initiator group.

JOBNAME ccccccc- is the name of the job.

JOBID ccccccc - is the job identifier associated with the job.

MPC/S

MPC/S begins the list of the main control (MPC) tables. There is one MPC table for each main in a complex. Each main contains the MPCs of all defined mains. The source of the data is the MAINPROC initialization statement. Macro IATYMP maps the MPC.

```

***** MPC/S *****
MPCDAT  MPNAME  SELECT  ACTSTA  EXRESC  MAINFCT  AI  DEEP  RQONMN  MAXI  WTOT
02690000 JULLIET  Z      00000000 02AD52F8 0275EC70 0000 0000 00000000 0000 0000
0268F000 ECHO     Z      00000000 02AD54A8 0275F158 0000 0000 00000000 0000 0000
0268E000 INDIA    Z      00000000 02AD5658 02762E30 0000 0000 00000000 0000 0000
0268D000 LIMA     Z      00000000 02AD5808 02762A78 0000 0000 00000000 0000 0000
0268C000 GOLF     Z      00000000 02AD59B8 027640C0 0000 0000 00000000 0000 0000
0268B000 CHARLIE Z      00000000 02AD5B68 02AD4080 0013 0003 02A844F8 0000 0000
0268A000 BRAVO   Z      02689460 02AD5D18 02ADD6B0 0037 0004 02A841A8 0000 0000

```

MPCDAT hhhhhhhh - is the address of the MPC.

MPNAME hhhhhhhh - is the name of the MPC (main) as specified on the MAINPROC statement.

SELECT ccccccc - is the name of the job selection mode as defined by the SELECT parameter on the MAINPROC initialization statement, unless the default of JS3BATCH is applied.

ACTSTA - is the address of the active staging area.

EXRESC - is the address of the first execution resource entry for this main processor.

MAINFCT - is the address of the MAIN FCT that is responsible for the Generalized Main Scheduling (GMS) function for this main processor.

AI - is the number of allocated initiators for this main processor.

DEEP - is the number of jobs in execution on this main processor.

RQONMN - is the address of the first RQ on the "on main" or execution queue for this processor.

MAXI - The initiator high water mark value for this main.

WTOT - The total number of WLM managed jobs running on this main.

Workload Manager Data Area

Workload Manager Data Area represents the data used by the JES3 WLM FCT, which communicates with the Workload Manager component of z/OS. This information is formatted when the WLM formatter is invoked using the IPCS command VERBX JES3 'OPTION=WLM' or the Dump Core command *S DC,OPTION=WLM. The following data areas are formatted:

- **IATYWLM**, the JES3 WLM data area.
- **IATYSRVC**, the JES3 data area for a WLM service class, including the sampling statistics for service class.
- **IATYWJS**, the GMS WLM job sampling elements.

IATWLDRV
Module IATWLDRV address (WLM FCT driver)

IATWLEVT
Module IATWLEVT address (WLM event processing)

IATWLFJR
Module IATWLFJR address (WLM FCT JESTAE retry routine)

IATWLFSM
Module IATWLFSM address (WLM FCT sampling services)

IATWLGSM
Module IATWLGSM address (WLM global subtask sampling services)

IATWLJCK
Module IATWLJCK address (WLM JCT delay checkpointing)

IATWLLSM
Module IATWLLSM address (WLM local subtask sampling services)

IATWLRCL
Module IATWLRCL address (WLM reclassification processing)

IATWLSRR
Module IATWLSRR address (WLM subtask recovery)

IATWLSTA
Module IATWLSTA address (WLM staging area processor)

IATWLSTK
Module IATWLSTK address (WLM subtask)

SRVCFRST
Address of first Service Class Table (SRVC)

SRVCLAST
Address of last Service Class Table (SRVC)

CLSFYWRK
Address of preallocated WLM Classification Work Area (WCWA)

TASKTCB
WLM subtask TCB address

SAMPECB
Sampling ECB

TIMEECB
Timer ECB - posted when a specified time elapses.

COMMECB
Communication ECB - posted when mail is sent by the global to the WLM subtask on the local

LOCKECB
Lock ECB - posted when the sampling lock is released

BQSHDR
Address of Batch Queue Samples header

BQSSC
Service class matrix

BQSRC
Report class matrix

MPC/S (GMS)

WSTBADDR	WLM sampling transport buffer address
WSTBSIZE	WLM sampling transport buffer size
DSPALET	Data space ALET
DSPSTOKN	Data space STOKEN
DSPORIGN	Data space origin
DSPEND	Data ending address
PVPLEXRC	Address of report class matrix that contains SYSPLEX wide information for the previous sampling interval
CRPLEXRC	Address of report class matrix that contains SYSPLEX wide information for the current sampling interval
DSPFREE	Data space free space pointer
WJSGMS	WLM job sampling element queue for jobs in GMS select
WJSMDS	WLM job sampling element queue for jobs in MDS
WJSMAINW	WLM job sampling element queue for jobs that are waiting to be scheduled for main service
SAMPINTV	Current sampling interval in 100ths of a second
SAMPTMID	Sampling timer id
SAMPOWNR	Owning TCB or FCT address of the sampling lock
SAMPWAIT	Wait indicators for the sampling lock
ECF1	CF one
FLAG1	Flag one
FLAG2	Flag two
FCTFLG1	FCT flag 1
TSKFLG1	Subtask flag 1

PVHIGHSC
High service class index during the previous sampling interval

CRHIGHSC
High service class index during the current sampling interval

PVHIGHRC
High report class index during the previous sampling interval

CRHIGHRC
High report class index during the current sampling interval

MSGDATAD
Message data address

MSGDATLN
Message data length

MSGTOKEN
Message token

BSMPRETC
IWMBSMP Return code

BSMPRESN
IWMBSMP Reason code

In the SERVICE CLASS TABLES formatted output:

NAME
Service class name

INDEX
Service matrix index

NEXT
Address of next Service Class Table

QFIRST
Address of first RQ on the service class queue

QLAST
Address of last RQ on the service class queue

FLAG1
Flag one

FLAG2
Flag two

NINTMMSK
Main mask of systems where there are no initiators started for this service class

BRIPMMSK
Main mask of systems to be included in the IWMBRIP request that will be used to start initiators

REGRETC
Return code from IWMBREG

REGRESN
Reason code from IWMBREG

MPC/S (GMS)

RQ The address of a Resident Queue element (IATYRSQ) for a job in the service class being formatted. The IATYRSQ fields formatted together with this RQ address are all from this RQ.

JOBNAM

Job name

JNUM

Job number in EBCDIC

WLMCTK

WLM classification token

MSARIV

Main service arrival time

GRPPRV

Previous RQ pointer on RQ subchain (RQGRPCHN points to next rq on rq subchain)

GRPSEQ

Group sequence number

JCLASS

Job class

MSFL1

GMS flag 1

JSTAT

A list of 32 bytes for each potential system in the complex, each byte representing the reason why the job has not been selected on the corresponding system (defined in IATYRQJS)

MSWCOUNT

Number of jobs waiting to be scheduled for main service

MDSCOUNT

Number of jobs in MDS

GMSCOUNT

Number of jobs in GMS select

MNCOFFCT

Number of jobs ineligible because main is not connected or is offline

GRPDISCT

Number of jobs ineligible because the group is disabled

JOBHLDCT

Number of jobs ineligible because it is in operator hold

CLSDISCT

Number of jobs ineligible because the class is disabled

SCHENVCT

Number of jobs ineligible because the scheduling environment is not available or undefined

MSPARTCT

Number of jobs ineligible because a marginal spool space condition exists

TDEPTHCT

Number of jobs ineligible because the TDEPTH has been reached

TLIMITCT

Number of jobs ineligible because the TLIMIT has been reached

MDEPTHCT

Number of jobs ineligible because the MDEPTH has been reached

MLIMITCT

Number of jobs ineligible because the MLIMIT has been reached

In the SAMPLING STATISTICS FOR SERVICE CLASS formatted output:

SCOPE

Indicates whether the sampling statistics being formatted are for the entire SYSPLEX or a particular main

ELIG The number of jobs eligible to run

INELIG

The number of jobs ineligible to run

LIMITED

The number of jobs that cannot run because of GMS limits

GMSJOBNO

Job number being sampled

GMSMAINS

Main eligibility mask from RQMAINS

In the GMS WLM JOB SAMPLING ELEMENTS formatted output:

GMSSCHMM

Scheduling environment main mask from RQSCHEMM

GMSSRVCL

Service class name from RQSRVCLS

GMSWLMTK

WLM Classification token from RQWLMCTK

GMSSPNDX

Spool partition index from RQSPNDX or zero

GMSGRPSQ

Group sequence number from RQGRPSEQ

GMSCLSSQ

Class sequence number from RQJCLASS

GMSFLG1

Flag one

GMSBYPAS

Bypass code (defined in IATYRQJS) if sampling determines that the job is not eligible to run

Internal Reader Anchor Block

The INTERNAL READER ANCHOR BLOCK (IRA) contains information used to control the scheduling of internal reader jobs. The information for this portion of the dump is obtained from IATYIRA. This section of a formatted dump is not formatted in an dump taken from an FSS address space.

Internal Reader Anchor Block (INS)

INTERNAL READER ANCHOR BLOCK							
LOC	IRE	ISCD	DICT	ACTIVE	IDLE	HI-WATER	
027005B8	02C12CA0	02C200A0	02745B78	0366	0000	0687	
INTERNAL READER ELEMENT CHAIN							
LOC	RESQ	NEXT	PREV	ECFA	FLAG	INTRDR	JOBID
02C12CA0	02AC3780	02C11FD0	00000000	02D14CB2	00	JOB10530	
02C11FD0	02AC2878	02C0E6A8	02C12CA0	02CC9CB2	00	JOB10514	
02C0E6A8	02AC3530	02BEB628	02C11FD0	02D03CB2	00	JOB10522	
02BEB628	02AC2750	02BE9028	02C0E6A8	02CC6CB2	00	JOB10513	
02BE9028	02AC32E0	02BE4CB8	02BEB628	02CD9CB2	00	JOB10516	
02BE4CB8	02AC1F38	02AF3008	02BE9028	02CD3CB2	00	JOB10515	
02AF3008	02AC1970	02AE8008	02BE4CB8	02CFFCB2	00	JOB10525	

LOC adr - is the address of the IRA in storage.

IRE adr - is the address of the first internal reader element (IRE) chained from the IRA.

ISCD adr - is the entry point address for module IATISCD. Module IATISCD schedules internal reader data sets that are submitted using TSO or by a batch job.

DICT adr - is the address of the internal reader dictionary.

ACTIVE nnnn - is the number of internal reader jobs on the JES3 job queue that are waiting to be scheduled or are scheduled for processing.

IDLE nnnn - is the number of internal reader DSPs that are not processing any internal reader jobs.

INTERNAL READER ELEMENT CHAIN (IRE) The IRE contains information used to schedule individual internal reader jobs. The information for this portion of the dump is obtained from IATYIRE.

LOC adr - is the address of the IRE in storage.

RESQ adr - is the address of the RESQ for the internal reader job.

NEXT adr - is the address of the next IRE in the queue.

PREV adr - is the address of the previous IRE in the queue.

ECFA adr - is the address of the work-to-do driver or the CANCEL ECF.

FLAG nn - indicates the state of the internal reader DSP that the job is running under. The possible states that an internal reader DSP can be in are:

X'80' the internal reader DSP is idle. The internal reader DSP is not processing any internal reader data sets.

X'40' the work-to-do driver is posted. JES3 has processed the internal reader data sets.

X'20' the internal reader DSP was canceled. The operator issued a command to cancel the internal reader DSP.

INTRDR JOBnnnnn - indicates the job number of the internal reader DSP.

JOBNO JOBnnnnn - indicates the job number of the job being processed by the internal reader DSP.

RESQUEUE Table

RESQUEUE TABLE is the table of RESQs for active jobs. This section illustrates the general usage field of the RESQ. The RESQ is mapped by macro IATYRSQ.

RESQUEUE TABLE																		
LOC	JOBID	JOB-NAME	FUNCTION	PRIORITY	OWNERID	TUSERID	SECLABEL	F1	F2	F3	F4	F5	F6	F7	F8	F9	DJCF	ADDITIONAL IN
03C0B000	JOB00000	JES3	NO INDEX	30,00,15	IBMUSER			00	00	00	00	00	00	00	02	00	00	OSS=00000000
03BDC000	JOB00001	SYSLOG	ON MAIN	15,00,15	+MASTER+		SYSHIGH	40	00	00	00	80	03	02	00	00	00	SEE GMS SECTI
03BDC280	JOB00005	VTAMJ3	ON MAIN	15,00,15	VTAMJ3			48	20	00	88	80	00	02	00	00	00	SEE GMS SECTI
03BDC500	JOB00006	TCAS	ON MAIN	15,00,15	IBMUSER			48	20	00	88	80	01	02	00	00	00	SEE GMS SECTI
03C34000	JOB00007	RJP	NO INDEX	15,00,15				00	00	00	00	00	00	02	00	00	00	OSS=00000000
03C341B0	JOB00009	RJPSNPS	NO INDEX	15,00,15				00	00	00	00	00	00	02	00	00	00	OSS=00000000

LOC ccccccc - is the address of the resqueue in storage.

JOBID ccccccc - is the job identifier assigned to the job that the resqueue represents.

JOB-NAME ccccccc - is the job name assigned to the job that the resqueue represents

FUNCTION ccccccc - is the functional state that currently exists for the job. A functional state of:

cccccccc

Indicates the job:

ALLOC

is waiting for one or more resources

BRKDOWN

is in MDS breakdown

DONE

has completed GMS and MDS processing

DSELECT

is a demand select job

EFBAD

encountered an error while it was in the ending function

EFFWAIT

is in the ending function but is waiting for I/O to complete

ERROR

is on the MDS error queue

FETCH

is waiting for the MDS fetch function

FSSCI is active in a CI FSS address space

INVALID

is in a function that JES3 is unaware of

NO INDEX

does not have any scheduler elements associated with it

RESQUEUE Table (RSQ)

ON MAIN	is scheduled to execute on a main
OSCOMPLT	has completed output service processing
PSTBATCH	is a batch job and is waiting for the postscan phase
PSTDMSEL	is a demand select job is waiting for the postscan phase
RESTART	is waiting for MDS to restart
SELECT	is waiting to be selected on a main
SYSSEL	is waiting on the system select queue
SYSVER	is waiting on the system verify queue
VERIFY	is waiting for a volume to be mounted
VOLUAV	is waiting for an unavailable volume
WAITOS	is waiting for output service processing
WAITOSW	is waiting for an writer
WAITRSVD	has completed MAIN processing but has not completed output service processing
WAITVOL	is waiting for setup processing

PRIORITY dd, dd, dd - is the job priority, the group priority, and the RESQUEUE priority for the job, respectively.

OWNERID ccccccc - identifies the owner of the job.

TUSERID ccccccc - is the TSO user ID expressed in EBCDIC.

SECLABEL ccccccc - identifies the security level assigned to the job.

FLG1-FLG9 hh - are RESQ flags obtained starting at RQFLG1.

DJCF hh - is flag byte RQDJCFLG.

ADDITIONAL INFO cccc...cc - contains notes that depend on the FUNCTION active for the RESQ entry.

Note: "ADDITIONAL INFO" will read "SEE FSS SECTION" when the job is a demand select job which is running as an FSS address space.

JES3 Job Queue Elements

JES3 JOB QUEUE ELEMENTS are not formatted in the FSS dump but for JES3 are resident in main storage to facilitate quick access to information pertinent to a particular job. The JQE controls I/O scheduling and ENQ/DEQ for the job's JCT, provides a pointer to a job's RESQ entry, and contains basic information for a job.

JES3 JOB QUEUE ELEMENTS																			
JQEADD	JOBNO	JOB-NAME	ORIGIN	PREV	NEXT	RESQ	ENQB	FCTADDR	QPREV	QNEXT									
03BAA1A0	0000001	SYSLOG	ANYLOCAL	0000000	0000005	03BDC000	00	03B39440	00000000	00000000									
03BAA20C	0000005	VTAMJ3	ANYLOCAL	0000001	0000006	03BDC280	00	03B39440	00000000	00000000									
03BAA278	0000006	TCAS	ANYLOCAL	0000005	0000007	03BDC500	00	03B39440	00000000	00000000									
03BAA2E4	0000007	RJP		0000006	0000009	03C34000	00	03B39440	00000000	00000000									
03BAA350	0000009	RJPSNPS		0000007	0000000	03C341B0	00	03B39440	00000000	00000000									
JQEADD	JOBNO	JOB-NAME	JCTFDB	UCT	J1	J2	PR	S1	S2	F1	F2	CL	GR	TOD	ST	QF	SE		
03BAA1A0	0000001	SYSLOG	00010000	0D3004D0	80000000	000	00	00	15	16	40	80	20	02	02	B03AD225	00	00	02
03BAA20C	0000005	VTAMJ3	00010000	0D3104D0	80000000	000	08	00	15	16	40	80	20	02	02	B03AEB90	00	00	02
03BAA278	0000006	TCAS	00010000	0D3204D0	80000000	000	08	00	15	16	40	80	20	02	02	B03AD225	00	00	02
03BAA2E4	0000007	RJP	00010000	0D3304D0	80000000	000	00	00	15	2A	40	80	20	02	02	B03AEB9E	00	00	02
03BAA350	0000009	RJPSNPS	00010000	0D3404D0	80000000	000	00	00	15	37	40	80	20	00	00	AB1622CA	00	00	01

JQEADD ccccccc - is the address of the JQE in storage.

JOBNO ccccccc - is the number of the job the JQE represents.

JOB-NAME ccccccc - is the name of the job the JQE represents.

ORIGIN ccccccc - is the group name of the device that originated the job.

PREV dddd - is the job number for the previous job in this priority level.

NEXT dddd - is the job number for the next job in this priority level.

RESQ hhhhhhhh - is the address of the RESQUEUE entry for the job.

ENQB hhhh - is the read/write enqueue type.

FCTADDR hhhhhhhh - is the address of the FCT that has Read/Write access to the JCT.

QPREV hhhhhhhh - is the address of the JQE that precedes the current JQE on the chain described by QF.

QNEXT hhhhhhhh - is the address of the JQE that follows the current JQE on the chain described by QF.

JQEADD ccccccc - is the address of the JQE in storage. This address is used to associate the information for each JQE in each section of the JQE Job Queue Elements.

JCTFDB hhhhhhhh hhhhhhhh hhhhhhhh - is the FDB for the JCT.

UCT ddd - is the number of read only users for this JCT.

J1 hh - is flag byte JCTFL1.

JES3 Job Queue Elements (JQE)

J2 hh - is flag byte JCTFL2.

PR dd - is the job priority level.

S1 hh - is the DSP number for the currently active scheduler element (SE) or the next SE to be scheduled.

S2 hh - is flag byte SEFLGS in the currently active SE or the next SE to be scheduled.

F1 hh - is flag byte JQEFLG1.

F2 hh - is flag byte JQEFLG2.

CL hh - is the sequence number for the GMS job class.

GR hh - is the sequence number for the GMS EXRESC group.

TOD ccccccc - is the time of day the job entered the system.

ST hh - indicates the status of the JQE.

Value Meaning

X'40' The job is waiting to be processed by the ending function for the last active scheduler element (SE) for the job.

X'20' JSS suspended processing the job after the last SE.

X'10' Another function was accessing the JCT that represents the job. JSS places the job on the FCT ready queue so that the job is rescheduled when the JCT is released.

X'08' OUTSERV should use the current RESQUEUE.

X'04' The DSP pending use count was incremented for the JQE.

X'02' JES3 encountered an error while processing the JQE.

QF hh - is used to determine why JES3 should not process the job.

Value Meaning

X'01' The job is waiting to be processed by the scheduling or ending function.

X'02' The use count for the DSP has reached the maximum. The JQE was placed on the HOLD or WAIT queue.

X'03' JSS is waiting for a RESQUEUE to become available so the job can be scheduled.

X'04' The job is waiting for a required proclib to become available so the job can be rescheduled.

X'05' The job is waiting for a required main, group or class to become available so the job can be rescheduled.

X'06' The job came from the C/I DSP backlog but was not scheduled because of being rejected by a user exit.

X'07' The job is waiting for SMS resources to become available.

X'08' The job is waiting for a main processor to perform locates to become available.

X'09' The job is waiting for a job with the same job name to complete execution.

SE hh - is the sequence number of the current scheduler element (SE)

Main device scheduler data area

MAIN DEVICE SCHEDULER DATA AREA - LOC 0509C000																							
DEEP	RMTLM	DSNSZ	OPTN	ECF	IECF	ALECF	SSECF	DARET	DASUB	TARET	TASUB	OTRET	OTSUB										
000	01	44	C3	00	00	00	02	00	00	00	00	00	01										
AFL1	AFL2	BFL1	BFL2	BFL3	DFL1	DFL2	FFL1	FFL2	SBFL1	RFL1	RFL2	SFL1	SFL2	SFL3	SFL4	VFL1	VFL2	GFL1	GFL2	GFL3	GFL4		
00	00	90	80	00	00	00	00	00	00	B8	00	00	40	00	80	00	00	00	00	40	00	00	

MAIN DEVICE SCHEDULER DATA AREA - LOC hhhhhhhh

This is not formatted in the FSS dump but for JES3:

DEEP hh - is the current number of jobs that have been set up.

RMTLM hh - is the maximum number of times a job will be allowed to attempt correction of operator volume mount errors before releasing the devices and reentering MDS allocation.

DSNSZ dd - is the maximum number of characters of the data set name to be included in volume fetch, mount, and breakdown messages.

OPTN hh - is a flag byte set from the various options on the SETPARAM statement.

ECF hh - is the ECF that is posted to activate for MDSECF.

IECF hh - is a further posting definition for MDSECF.

ALECF hh - is the allocation descriptor byte and is a further description of the reason for posting MDSECF.

SSECF hh - is the subsystem descriptor and is a further description of the reason for posting MDSECF.

DARET hh - is the number of direct access devices returned to MDS.

DASUB hh - is a number for internally used algorithms.

TARET hh - is similar to DARET, except that it is for magnetic tape devices.

TASUB hh - is a number for internally used algorithms.

OTRET hh - is similar to DARET, except that it is for devices other than direct access or tape.

OTSUB hh - is a number for internally used algorithms.

AFL1 hh - is flag byte MDAFLG1.

AFL2 hh - is flag byte MDAFLG2.

Main Device Scheduler Data Area (MDS)

BFL1 hh - is flag byte MDBFLG1.

BFL2 hh - is flag byte MDBFLG2.

BFL3 hh - is flag byte MDBFLG3.

DFL1 hh - is flag byte MDDFLG1.

DFL2 hh - is flag byte MDDFLG2.

FFL1 hh - is flag byte MDFFLG1.

FFL2 hh - is flag byte MDFFLG2.

SBFL1 hh - is flag byte MDSBFLG1.

SBFL2 hh - is flag byte MDSBFLG2.

RFL1 hh - is flag byte MDRFLG1.

RFL2 hh - is flag byte MDRFLG2.

SFL1 hh - is flag byte MDSFLG1.

SFL2 hh - is flag byte MDSFLG2.

SFL3 hh - is flag byte MDSFLG3.

SFL4 hh - is flag byte MDSFLG4.

VFL1 hh - is flag byte MDVFLG1.

VFL2 hh - is flag byte MDVFLG2.

GFL1 hh - is flag byte MDSGFLG1.

GFL2 hh - is flag byte MDSGFLG2.

GFL3 hh - is flag byte MDSGFLG3.

GFL4 hh - is flag byte MDSGFLG4.

MDS RESQUEUE Tables

MDS ccccc RESQUEUE TABLE is the queue of jobs waiting to be processed by the indicated MDS function. The MDS functions (ccccc) are:

- FETCH
- ALLOCATE
- DYNAMIC
- WAITVOL
- UNAVAILABLE
- VERIFY
- ERROR
- BREAKDOWN

- RESTART
- SYSSEL
- SYSVER

The MDS Resqueue Table contains fields that are common to all the functions and some of the MDS Resqueue tables contain additional information.

```

MDS ALLOCATE RESQUEUE TABLE
LOC  JOBNAME  JOBID    H MAIN    CL GP    JSTFDB    M1 M2 M3 VFY DA TA OT TY SCHENV
038CD000 TAPEDSET JOB00078 487FDE48 01 01 0002000000B75 80 00 00    01    00 2DB2A
  ARL 02F6B000 MPC = 01 BYSCAN = 0000 REFRESH = 0000
  DEVICE TY=00 NAME=02A6B416 DEVRQ=0001 DEVFL=0001

SY1  - RESC  SY2    - MNAV  SY3  - MNAV  SY4  - MNAV  SY5  - MNAV  SY6  - MNAV
SY7  - MNAV  SYLOCAL8- MNAV  SY9   - MNAV  SY10 - MNAV
    
```

Common Information:

LOC hhhhhhhh - is the address of the RESQUEUE table.

JOBNAME hhhhhhhh - is the job name for the job the RESQUEUE represents.

JOBID hhhhhhhh - is the job identifier of the job the RESQUEUE represents.

H c - Y indicates job-held status. If the job is not held, this field is blank.

MAIN hhhhhhhh - consists of all eight bytes of RQMAINS, which shows which mains are eligible to execute the job.

CL hh - GMS class sequence number, used to index the class table.

GP hh - GMS group sequence number, used to index the group table.

JSTFDB hhhhhhhhhhhh - is the FDB.

M1-M3 hh hh hh - are flag bytes obtained consecutively starting at RQMDFLG1.

VFY ddd - is the number of volumes remaining to be mounted.

DA dd - is the number of required but unavailable DASD.

TA dd - is the number of required but unavailable tape devices.

OT dd - is the number of required but unavailable unit record or graphic devices.

TY hh - is the flag byte RQMDSREQ.

SCHENV - is the job's scheduling environment.

SY1 - CCCC, SY2 - CCCC,... - lists the processor name along with the reason (obtained from the RQJSTAT field) why allocation was not attempted on the indicated main, as follows:

- RSUP - resource update scan
- HELD - job is held
- REGN - minimum region size not available

MDS RESQUEUE Tables (MDS)

- REST - scan for MDS restart jobs
- MNAV - main not available
- CLGP - GMS class/group not available
- RESC - required resource not available
- FNCE - device fence not available
- M DP - main setup depth exceeded
- C DP - GMS class setup depth exceeded
- RNAV - restart main has not connected
- PRSC - pre-allocation scan failed
- SMSU - SMS managed resources are unavailable
- SEUD - scheduling environment is undefined
- SENA - scheduling environment is unavailable

Additional Information for the MDS Allocation Resqueue: This portion of the MDS ALLOCATE RESQUEUE TABLE contains information that is obtained from the first header in the allocation requirements list (ARL). The ARL header is followed by a list of all the devices, data sets, and volumes that JES3 could not allocate to a job during the prescan phase of converter interpreter. The information for this portion of the dump is mapped by the IATYARL mapping macro.

ARL identifies the allocation requirements list for the job.

adr is the address of the first ARL for the job.

MPC= nn is the index for the main processor control table (MPC) where the job attempted to obtain the resources.

BYSCAN= is the number of times the job was bypassed for allocation.

REFRESH= is the number of times the ARL was refreshed because of an unsuccessful allocation attempt despite a successful preallocation ARL scan.

DEVICE identifies the device that JES3 attempted to allocate to the job. The devname can be a device, data set, or volume.

TY= is obtained from field ARLDEVTY for a **device**. Possible values for the field when the resource is a device are:

X'40' a specific device was requested

For a **volume** the information is obtained from field ARLVOLTY. Possible values for the field when the resource is a volume are:

X'80' JES3 could not allocate the volume

X'40' the volume could not be allocated

For a **data set** the information is obtained from field ARLDSNTY.

X'80' the data set could not be allocated

X'40' the GDG base could not be allocated

For a device:

NAME= contains the address of the SETUNIT or SETNAME entry for the device.

DEVREQ= is the number of devices requested by the job.

DEVFL= is the number of devices that were unavailable.

For a volume or data set:

FLG1= indicates the type of usage the job requires of the device. The job can request exclusive use over the volume or data set.

VOL= adr - is the address of the SETVOL entry for the volume.

DSN= adr - is the address of the SETDSN entry for the data set. If the entry is for a volume the address will be 00000000.

Additional Information for the MDS System Select Resqueue: If SMS cannot obtain a resource required by a job, SMS creates a Scheduling Services Resource List (SCHRL). The SCHRL in the MDS System Select RESQUEUE Table contains the following information:

SCHRL - indicates the beginning of a list of resources SMS was unable to allocate to the job.

LOC= adr - is the address of the SCHRL for the job.

LEN=nnnnn - is the length in bytes of the SCHRL.

NUMRESC=nn - indicates the total number of resources SMS was unable to allocate to the job.

1ST SCHPL= adr - is the address of the first Scheduling Processor Resource List (SCHPL). JES3 creates one SCHPL for each main where the job could have executed. It identifies the resources that SMS could not allocate to the job.

SCHPL - indicates the following information refers to the SCHPL.

LOC= adr - is the address of the SCHPL in storage.

LEN =nnnn - is the length of the SCHPL.

NEXT = adr - is the address of the next SCHPL in for the job.

1ST SCHRE= adr - is the address of the Scheduling Services Required Resource Element (SCHRE). Each SCHRE identifies a resource SMS was unable to obtain for the job on the main identified by the SCHPL.

LOC= adr - indicates the address of the resource.

TYPE= ccc - indicates the type of resource SMS could not obtain.

NAME= ddname - identifies the name assigned to the device. JES3 uses the name you assigned to the device on the JNAME parameter of the DEVICE statement.

REQST=c - is the status the SMS-managed resource must be in for the job to execute.

MDS RESQUEUE Tables (MDS)

GROUP=ccccccc - indicates if the resource is the only resource required by the job. If GROUP indicates ONLY, that resource is the only resource required to execute the job. If GROUP indicates FIRST, MID, or LAST, that resource is part of a group defined to SMS and the entire group of resources is needed to execute the job.

SETNAMES Table

SETNAMES TABLE is generated from parameters on the SETNAME statements. The data is used to identify a name than can be used in the UNIT parameter of a DD statement for a device represented in a DEVICE initialization statement. The area is mapped by IATYNAM.

SETNAMES TABLE					
LOC	TYPE	NAME	ALT-TYPE	ALT-ADDR	CLASS
0479F34A	01	DASD	YES	0479F3E6	DA
0479F364	01	SYSDA	YES	0479F400	DA
0479F37E	01	SYSSQ	YES	0479F482	DA
0479F398	01	9345	NO	00000000	DA
0479F3CC	02	3380	YES	0479F434	DA
0479F3E6	02	DASD	YES	0479F44E	DA
0479F400	02	SYSDA	YES	0479F468	DA
0479F434	03	3380	YES	0479F4B6	DA
0479F44E	03	DASD	YES	0479F4D0	DA
0479F468	03	SYSDA	YES	0479F4EA	DA
0470F482	03	SYSSQ	YES	0479F504	DA
0479F4B6	04	3380	YES	0479F56C	DA
0479F4D0	04	DASD	NO	00000000	DA
0479F4EA	04	SYSDA	NO	00000000	DA
0479F504	04	SYSSQ	NO	00000000	DA
0479F51E	04	SYSVIO	NO	00000000	DA
0479F538	04	V3380	NO	00000000	DA
0479F56C	05	3380	NO	00000000	DA
0479F5A0	06	3390	NO	00000000	DA
0479F5D4	07	TAPE	YES	0479F6D8	TA

LOC hhhhhhhh - is the address of the SETNAME entry.

TYPE hh - is a hexadecimal code count representing the XTYPE parameter on the SETNAME initialization statement.

NAME ccccccc - is the name defined by the SETNAME statement.

ALT-TYPE cc - specifies that the name also appears for another device (TYPE B).

ALT-ADDR - address of next SETNAMES entry for the same device name.

CLASS ccccc - is one of the following:

- TA (tape)
- DA (direct access)
- UR (unit record)
- GR (graphics)
- POOL (name appeared in POOLNAME parameter)

SETUNITS Table

SETUNITS TABLE FOR 'main name'. The SETUNITS table is generated to contain control information for all devices attached to a main that can be set up by MDS from the global main. The data for the table originates from the XUNIT and XTYPE parameters of the DEVICE initialization statement. One complete table is formatted for each main. The main is identified in the format heading for each table. The table is mapped by macro IATYSET.

SETUNITS TABLE FOR JULLIET

LOC	TYPE	NUMBER	VID	VNXT	FLG1	FLG2	FLG3	MOUNT-ID	RESQUEUE	SYSUNIT
023CB1C0	01	0100			00	00				02692980
023CB1F4	01	0101			00	00				026929A8
023CB228	01	0102			00	00				026929D0
023CB25C	01	0103			00	00				026929F8
023CB290	01	0104			00	00				02692A20
023CB2C4	01	0105			00	00				02692A48
023CB2F8	01	0106			00	00				02692A70
023CB32C	01	0107			00	00				02692A98
023CB360	01	0110			00	00				02692AC0
023CB394	01	0111			00	00				02692AE8
023CB3C8	01	0112			00	00				02692B10
023CB3FC	01	0113			00	00				02692B38
023CB430	01	0114			00	00				02692B60
023CB464	01	0115			00	00				02692B88
023CB498	01	0116			00	00				02692BB0
023CB4CC	01	0117			00	00				02692BD8
023CB500	01	0120			00	00				02692C00
023CB534	01	0121			00	00				02692C28
023CB568	01	0122			00	00				02692C50
023CB59C	01	0123			00	00				02692C78
023CB5D0	01	0124			00	00				02692CA0
023CB604	01	0125			00	00				02692CC8
023CB638	01	0126			00	00				02692CF0
023CB66C	01	0127			00	00				02692D18
023CB6A0	01	0130			00	00				02692D40
023CB6D4	01	0131			00	00				02692D68
023CB708	01	0132			00	00				02692D90
023CB73C	01	0133			00	00				02692DB8
023CB770	01	0134			00	00				02692DE0
023CB7A4	01	0135			00	00				02692E08
023CB7D8	01	0136			00	00				02692E30
023CB80C	01	0137			00	00				02692E58
023CB840	01	0210			00	00				02692E80
023CB874	01	0211			00	00				02692EA8
023CB8A8	01	0212			00	00				02692ED0
023CB8DC	01	0213			00	00				02692EF8
023CB910	01	0214			00	00				02692F20
023CB944	01	0215			00	00				02692F48
023CB978	01	0216			00	00				02692F70
023CB9AC	01	0217			00	00				02692F98
023CB9E0	01	0230			00	00				02692FC0
023CBA14	01	0231			00	00				02693FE8
023CBA48	01	0232			00	00				02693010
023CBA7C	01	0233			00	00				02693038
023CBAB0	01	0234			00	00				02693060
023CBAE4	01	0235			00	00				02693088
023CBB18	01	0236			00	00				026930B0
023CBB4C	01	0237			00	00				026930D8
023CBB80	01	0250			00	00				02693100
023CBBB4	01	0251			00	00				02693128
023CBBE8	01	0252			00	00				02693150
023CBC1C	01	0253			00	00				02693178
023CBC50	01	0254			00	00				026931A0
023CBC84	01	0255			00	00				026931C8
023CBCB8	01	0256			00	00				026931F0

SETUNITS Table (STU)

LOC hhhhhhhh - is the address of the SETUNITS table entry.

TYPE nn - is a binary sequential count representing the XTYPE parameter on the SETNAME initialization statement.

NUMBER dev - is the device number.

VID cc - is the last verify response ID character received from this device.

VNXT cc - the address of next SETUNITS on SETUNITS verify chain.

FLG1 hh - is a flag byte that contains the information in SETFLG1.

FLG2 hh - is a flag byte that contains the information in SETFLG2.

FLG3 hh - is an indicator that you can use to determine if the volume is managed by SMS or JES3.

MOUNT-ID ccccc - is the last volume serial number needed for mounting during job execution on the main.

RESQUEUE hhhhhhhh - is the address of the RESQ entry for a job that currently requires that a volume be mounted on this device.

SYSUNIT hhhhhhhh - is the address of the SYSUNITS table entry corresponding to the device.

SYSUNITS Table

SYSUNITS TABLE contains a unique entry with allocation status for each device in the complex. Separate entries exist for the same device when it is shared by two or more mains. The table is mapped by macro IATYSYS.

SYSUNITS TABLE																
LOC	MAINADR/MAIN	JADR	STATUS	RES	SETVOL	SERIAL	LBL	UCB	FL1	FL2	FL3	FL4	MDAL	UCT	RPTY	UNLD
01BD2450		0C06	AV						00	00	00	00	00			
01BD26F8	0002 TOPAZ	0002	AV/OFF	R/					00	00	00	27	00			
	0002 EMERALD		/OFF													
	0002 OPAL		/OFF													
	0002 QUARTZ		/OFF													
	0002 RUBY		/OFF													
01BD2720	0003 TOPAZ	0003	AV/OFF						00	00	00	27	00			
	0003 EMERALD		/OFF													
	0003 OPAL		/OFF													
	0003 QUARTZ		/OFF													
	0003 RUBY		/OFF													
01BD2748	0004 TOPAZ	0004	AC/OFF						80	08	00	27	00			
	0004 EMERALD															
	0004 OPAL		/OFF													
	0004 QUARTZ		/OFF													
	0004 RUBY		/OFF													
01BD2770	0005 TOPAZ	0005	AV/OFF						00	00	00	27	00			
	0005 EMERALD		/OFF													
	0005 OPAL		/OFF													
	0005 QUARTZ		/OFF													
	0005 RUBY		/OFF													
01BD2798	0006 TOPAZ	0006	AV/OFF						00	00	00	27	00			
	0006 EMERALD		/OFF													
	0006 OPAL		/OFF													
	0006 QUARTZ		/OFF													
	0006 RUBY		/OFF													
01BD27C0	000A TOPAZ	000A	AV						00	00	00	27	00			
	000A EMERALD		/OFF													
	000A OPAL		/OFF													
	000A QUARTZ															
	000A RUBY															
01BD2758	0012 TOPAZ	0012	AV						00	00	00	27	00			
	0012 EMERALD		/OFF													
	0012 OPAL		/OFF													
	0012 QUARTZ															
	0012 RUBY															
01BD2810	000B TOPAZ	000B	AV						00	00	00	27	00			
	000B EMERALD		/OFF													
01BD28C4	*** FREE ENTRY ***		NEXT=01BD28C4			PREVIOUS=00000000										INDEX=0009
01BD2978	*** FREE ENTRY ***		NEXT=01BD2978			PREVIOUS=01BD28C4										INDEX=000A
01BD2A2C	*** FREE ENTRY ***		NEXT=01BD2A2C			PREVIOUS=01BD2978										INDEX=000B
01BD2AE0	*** FREE ENTRY ***		NEXT=01BD2AE0			PREVIOUS=01BD2A2C										INDEX=000C
01BD2B94	*** FREE ENTRY ***		NEXT=01BD2B94			PREVIOUS=01BD2AE0										INDEX=000D
01BD2C48	*** FREE ENTRY ***		NEXT=01BD2C48			PREVIOUS=01BD2B94										INDEX=000E
01BD2CFC	*** FREE ENTRY ***		NEXT=01BD2CFC			PREVIOUS=01BD2C48										INDEX=000F
01BD2DB0	*** FREE ENTRY ***		NEXT=01BD2DB0			PREVIOUS=01BD2CFC										INDEX=0010
01BD2E64	*** FREE ENTRY ***		NEXT=01BD2E64			PREVIOUS=01BD2DB0										INDEX=0011
01BD2F18	*** FREE ENTRY ***		NEXT=00000000			PREVIOUS=01BD2E64										INDEX=0012

LOC hhhhhhhh - is the address of the entry.

MAINADR/MAIN - is the device number for the indicated main.

JADR dev - is the device number of the unit attached to the global main (JUNIT).

STATUS cc - is AC (allocated) when FLG1 is either 80 or 40. RS (reserved). OFF indicates that it is offline to the indicated main. POF indicates that it is pending offline.

RES cc - is the volume mount characteristic. The first portion identifies the JES3 mount; the second half shows the MVS mount. The JES3 portion is R for "removable" or P for "volume mounted by operator" command. The MVS portion is P for permanently resident. If either portion indicates P, the volume is treated as "not removable".

SYSUNITS Table (SYS)

SETVOL hhhhhhhh - is the address of the SETVOL table entry for the currently mounted volume.

SERIAL ccccc - is the volume serial number of the currently mounted volume.

LBL cccc - is the type of volume label for the currently mounted volume:

- A-ANSI (label)
- B-BLP (bypass label processing)
- N-NL (no label)
- S-SL (standard label)
- X-NSL (non standard label)

UCB hh - is the UCB status byte.

F1 hh FL2 hh FL3 hh FL4 hh MDAL hh - are obtained from SYSFLAG1 through SYSMDSAL. They are flag bytes.

UCT hh - is the current number of jobs requiring the use of the volume.

RPTY hh - is the priority of the job reserving the device.

UNLD hh - is the main processor sequence number of the processor on which an unload is pending for the device.

NEXT - Next SYSUNITS entry on the free queue.

PREVIOUS - Previous SYSUNITS entry on the free queue.

INDEX - The SYSUNITS index assigned to the SYSUNITS entry.

SETVOL Table/SETDSN Table

SETVOL TABLE is not formatted in the FSS dump but for JES3 is generated to maintain information regarding all known volumes requirements for jobs in the system and to track the status of currently mounted volumes. The source of data includes DD statements, automatic verification (by JES3 VERIFY), and operator commands. The table is mapped by macro IATYVLM.

SETVOL Table/SETDSN Table (VLM)

SETVOL TABLE

LOC	VOLSER	UCT	ACT	RSP	SYSMNTD	SYSALOC	FL1	FL2	FL3
040CB434	APPCVL				0373560C		00	20	00
040CBEDC	CICSPK				03749D00		00	20	00
040CB74C	CPLPKA				037366EC		00	20	00
040CB6F4	CPLPKP				03736638		00	20	00
040CB86C	CTTPAK				03748EF0		00	20	00
040CB904	C90265				0374424C		00	20	00
040CB594	DB2DBS				03735990		00	20	00
040CB644	DB2PRD				03735AF8		00	20	00
040CB48C	DRV520	00001	00001		03735774	03735774	80	A0	00
SETDSN	LOC=040F4ED8			HASH=08	USE=00001	RSPTY=	FL1=C0	FL2=00	DSN=SYS1.VTAMLIB
	NEXT=040F4F68			PREV=00000000	RSRV=00000000		SETVOL=05184224	GDGBASE=00000000	
SETDSN	LOC=040F4F68			HASH=08	USE=00001	RSPTY=	FL1=C0	FL2=00	DSN=SYS1.VTAMLST
	NEXT=00000000			PREV=040F4ED8	RSRV=00000000		SETVOL=05184224	GDGBASE=00000000	
040CB854	D72CT1				03738474		00	20	00
040CB8AC	D72CT2				03738528		00	20	00
040CB384	D75700				037353F0		00	20	00
040CB3DC	D75800				037354A4		00	20	00
040CB2D4	D75901				03734F04		00	20	00
040CB27C	D75902	00002	00002		03734E50	03734E50	80	A0	00
SETDSN	LOC=040F4F98			HASH=05	USE=00001	RSPTY=	FL1=C0	FL2=00	DSN=D75JES3.VTAMLST
	NEXT=00000000			PREV=00000000	RSRV=00000000		SETVOL=05184224	GDGBASE=00000000	
SETDSN	LOC=040F4E70			HASH=07	USE=00001	RSPTY=	FL1=C0	FL2=00	DSN=SYS1.V6R2M1.SIATPARM
	NEXT=00000000			PREV=00000000	RSRV=00000000		SETVOL=05184224	GDGBASE=00000000	
040CB7FC	FDSPKA				03736854		00	20	00
040CB7A4	FDSPKP				037367A0		00	20	00
040CBF34	IMSPAK				03749DB4		00	20	00
040CB5EC	IODFPK				03735A44		00	20	00
040CBD7C	IPCS01				03749544		00	20	00
040CB1CC	JESPK1				03734C34		00	20	00
040CB32C	JESPK3	00001	00001		03734FB8	03734FB8	80	A0	00
SETDSN	LOC=040F4F08			HASH=05	USE=00001	RSPTY=	FL1=C0	FL2=00	DSN=C49FCT.VTAMLIB
	NEXT=040F4F38			PREV=00000000	RSRV=00000000		SETVOL=05184224	GDGBASE=00000000	
SETDSN	LOC=040F4F38			HASH=05	USE=00001	RSPTY=	FL1=C0	FL2=00	DSN=C49FCT.VTAMLST
	NEXT=00000000			PREV=040F4F08	RSRV=00000000		SETVOL=05184224	GDGBASE=00000000	
SETDSN	LOC=040F4EA0			HASH=07	USE=00001	RSPTY=	FL1=C0	FL2=00	DSN=SYS1.COMMON.NCPLOAD
	NEXT=00000000			PREV=00000000	RSRV=00000000		SETVOL=05184224	GDGBASE=00000000	
SETDSN	LOC=040F4FCC			HASH=09	USE=00001	RSPTY=	FL1=C0	FL2=00	DSN=SYS1.NCP1.SSPLIB
	NEXT=00000000			PREV=00000000	RSRV=00000000		SETVOL=05184224	GDGBASE=00000000	

040CB06C	JT00L1				03734310		00	20	00
040CB014	J2COM1				0373425C		00	20	00
040CB95C	J2COM2				03748734		00	20	00
040CB9B4	J2COM3				037487E8		00	20	00
040CBA0C	J2COM4				0374889C		00	20	00
040CBA64	J2COM5				03748950		00	20	00
040CBABC	J2LNKS				03748A04		00	20	00
040CB0C4	J2SHR1				037343C4		00	20	00
040CB11C	J2SHR2				03734478		00	20	00
040CB224	J2SPA1				03734D9C		00	20	00
040CBB14	J2TEST				03748AB8		00	20	00
040CB174	MMSPAK				03734694		00	20	00
040CBF8C	PAGEP2				0374A4BC		00	20	00
040CBE2C	PAGE13				03749B98		00	20	00
040CB53C	PPLB80				037358DC		00	20	00
040CB4E4	PRODAL				03735828		00	20	00
040CBD24	RDBBAR				03749490		00	20	00
040CBE84	SPOOL1				03749C4C		00	A0	00
040CBB4C	SPOOL2				037491C0		00	20	00
040CBC1C	SPOOL3				03749274		00	20	00
040CBC74	SPOOL4				03749328		00	20	00
040CBCCC	SPOOL5				037493DC		00	20	00
040CB69C	SRV520				03735C60		00	20	00
040CBDD4	TSPACE				03749814		00	A0	00

LOC hhhhhhhh - is the address of the entry.

SETVOL Table/SETDSN Table (VLM)

VOLSER ccccc - is the volume serial number of the entry. If an * is followed by a data set name appears as the VOLSER, the volume contains one or more SMS-managed data set.

UCT hh - is the current number of jobs requiring the use of the volume.

ACT hh - is the current number of jobs allocated to the volume.

RSP hh - is the priority of the job reserving the volume.

SYSMNTD hhhhhhhh - is the address of the SYSUNITS table entry for the device on which the volume is currently mounted.

SYSALOC hhhhhhhh - is the address of the SYSUNITS table entry for the device originally allocated to the volume.

FL1 hh FL2 hh and FL3 hh - are obtained from VLMFL1, VLMFL2, and VLMFL3, respectively. They are flag bytes. If VLMFL3 contains a X'04', the data set is managed by SMS.

SETDSN TABLE - is not formatted in the FSS dump but for JES3 is created to represent all data sets allocated to volumes. It is used in conjunction with the SETVOL table to ascertain when a volume is no longer in use. The table is mapped by macro IATYDSN.

LOC hhhhhhhh - is the address of the entry.

HASH - Is the SETDSN hash table queue number that the SETDSN entry is on.

USE hhhhh - is the number of jobs allocated to this data set.

RSPTY - is the priority of the job reserving the data set.

FL1 hh and FL2 hh - are obtained from DSNFL1 and DSNFL2, respectively. They are flag bytes.

DSN - is the data set name.

NEXT - is the address of the next SETDSN on the hash queue.

PREV - is the address of the previous SETDSN on the hash queue.

RSRV - is the address of the next SETDSN on the SETDSN reserve chain.

SETVOL - is the SETVOL.

GDGBASE - is the address of the SETDSN entry for the GDG base or zero.

DYNAL FCT data area

DYNAL FCT DATA AREA . . . IATYDYN is not formatted in the FSS dump but for JES3 is used by the DYNAL DSP to control the processing of the dynamic allocation requests to the DYNAL DSP.

```

02AF33E0          DYNAL FCT DATA AREA...IATYDYN
DYNTRK=00060002177B DYNCHN=00000000000000000000000000000000 DYNCKFDB=00060002177B04D080000000 DYNCNT=000 DYNCURSA=0264EDE0
02AF340C  02C1D0D0 0266CA1E 7F53A00C 02CAFFC0 02A88738 02A88738 00000000 00000000
02AF342C  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
02AF344C  00000000 00000000 02BE5300 02BE5362 02BE53E2 02BE5468 02BE54CE 02BE54DE
02AF346C  02BE5780 02BE5986 02BE564E 02BE74C8 02AD8028 02AF363C 02AF3544 0268A000
02AF348C  02727608 00000003 00000000 00000000 00000000 82BE78E8 02BE74C8 0264EDE0
02AF34AC  00000000 00000000 0000

DYNMSG=IAT5830
02AF3530  135CE540 4040406B D6C6C66B 40404040 40404040
    
```

DYNTRK=hhhhhhhhhhhh - is the record address of this file.

DYNCHN=hhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhh - is the chain FDB.

DYNCKFDB=hhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhh - is the checkpoint area FDB. Location of the DYNAL DSP checkpoint record.

DYNCNT=ddd - is the user count.

DYNCURSA=hhhhhhhh - is a pointer to the current staging area being processed by the DYNAL DSP.

DYNMSG - is the message data area for the IAT5830 message.

DYNAL ECF List Control Block

THE DYNAL ECF LIST control block (IATYELB) is used by the DYNAL DSP to keep track of the completion of the I/O requests.

```

02AF3544  THE ECF LIST-          MAXIO=026 ALWIO=011 INUSE=001 RPN=000
ECFREGS= 82BE7140 02719518 00000000 02AF3544 02AF3544 ECFEFLG=80 ECFRSV= 000000
LIST OF ECF'S AND RELATED DYQ'S
ECF-00=02701B41 000000E0 LOC=02AF3568
LOC      THE RELATED DYQ-
02AF363C C4E8D840 00000000 00000000 00000000 00000000 00000000 00000000 00000000
02AF365C 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
02AF367C 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
    
```

MAXIO - specifies the maximum number of simultaneous I/O requests that can be processed simultaneously. This value is one greater than the value specified on the SETPARAM initialization statement.

ALWIO - specifies the current maximum (less than or equal to MAXIO) number of asynchronous I/O requests which can be processed at the same time. This value is one greater than the value specified on the SETPARAM initialization statement.

INUSE - is the number of simultaneous requests being processed by the DYNAL DSP.

RPN - is the relative position number in the ECF list, of the last I/O request processed.

DYNAL ECF List Control Block (DYN)

ECFREGS - is the register save area.

ECFEFLG is the flag byte.

ECFRSV - is a reserved area.

IATYTVT Definitions

DATA MANAGEMENT IATYTVT ADDRESSES are the entry point addresses for most JES3 data management routines and tables. They are extracted from the TVT, which is mapped by macro IATYTVT.

DATA MANAGEMENT IATYTVT ADDRESSES

LABEL	DATA	LABEL	DATA	LABEL	DATA	LABEL	DATA
ABACKR	02711A3C	ABLOCK	02710AF4	ACLOSE	02713B00	ADEBLOCK	027110F0
AFDADD	02715070	AFDDELET	02715172	AFDFIND	02715006	AGETBUF	02713DC8
AIOFDADD	0275C000	AIOFDFRE	0275C6E0	AIOFDLST	0275C050	AIOFDTOP	0275CFA0
ALOCATE	02710894	ANOTE	0271167C	AOPEN	02712F8C	AOPEN	027117EE
APOINT	027116B0	APURGE	02716198	APUTBUF	02714082	ARELEASE	02714298
ATRACK	02715BCC	AWRITE	02713454	IATXIOX	0271375A	IATXRABC	027162D0
IATXRABD	02716508	IATXRELC	02711538	IATXSIO	82299730	IOERRFCT	00000000
JESREAD	02713122	MOVEDATA	02711C94	PURCHAIN	027149FE	TVTBALJ	7FFDDB88
TVTBR	00000000	TVTDMCQ	7F71F558	TVTDISK	02714354	TVTDMK	82299730
TVTERRQ	00000000	TVTERRWK	00000000	TVTEXREL	02700040	TVTINPUT	02713976
TVTIOPRM	01CA6A88	TVTJBTS	02717668	TVTJBTXP	02715FC0	TVTOUTPT	027138D6
TVTPBITL	02716878	TVTPTATS	02716820	TVTPTCAD	0275B0E0	TVTPTCKP	02718B7A
TVTSPDEF	02700AD8	TVTSPINT	02700AD8	TVTSPREL	02700050	TVTSTTAL	0271567C
TVTSTTBD	02715AF0	TVTSTTBL	02715908	TVTSTTPG	02715970	TVTSTTSR	02715A8C
TVTTAWK	00000000	TVTTGBAD	00000000	TVTTGBUP	02716D20	TVTXCKPT	00008B44
WRTCHAIN	02714AD4	ZEROCORE	02715248				

DATA MANAGEMENT IATYTVT FULLWORD CONSTANTS

LABEL	DATA	LABEL	DATA	LABEL	DATA	LABEL	DATA
AIONOBFN	00003791	SIZEBUF	00000FF4	TVTBSZDT	00000FCC	TVTDATSZ	00001000
VTMUBLN	00000FC8						

DATA MANAGEMENT IATYTVT HALFWORD CONSTANTS

LABEL	DATA	LABEL	DATA	LABEL	DATA	LABEL	DATA
TVTDMCSZ	0098	TVTDMCPG	001A	AIOBFUSE	01FF	AIONBUFS	0200
AIONOBFM	0200	BUFSZ	0FF4	TVTDATFS	000C	TVTGRPSZ	0014

DATA MANAGEMENT IATYTVT FLAGS

LABEL	DATA	LABEL	DATA	LABEL	DATA	LABEL	DATA
AIOBFECF	FF	AIOFDPRY	00	AIOFLAG1	40	AIOFLAG2	02
DECF	C0	IOERRECF	00	TATFLAGS	40	TVTSPFLG	81
TVTSPFL2	00	TVTTAECF	00				

LABEL ccccccc - is the name of the JES3 data management routine or table as it appears in the TVT.

DATA hhhhhhhh - is the entry point address of the routine or table.

DATA MANAGEMENT IATYTVT FULLWORD CONSTANTS are data from the TVT used by JES3 data management to manage buffers and spool space.

LABEL ccccccc - is the field name in the TVT. Data for labels TVTERRQ, TVTERRWK, and TVTTAWK are filled in only when running in an FSS address space.

DATA hhhhhhhh - is the contents of the location.

DATA MANAGEMENT IATYTVT HALFWORD CONSTANTS are data from the TVT used by JES3 data management to manage buffers and spool space.

LABEL ccccccc - is the field name in the TVT.

DATA hhhh - is the contents of the location.

DATA MANAGEMENT IATYTVT FLAGS are flag bytes in the TVT used by JES3 I/O routines.

LABEL ccccccc - is the field name in the TVT.

DATA hh - is the contents of the location.

I/O Parameter Block

DATA MANAGEMENT I/O PARAMETER BLOCK contains parameters used to manage ISRs (IOSB/SRB block for STARTIO) and JES3 spool data sets. It is also used to validate track addresses (spool record address) referenced for I/O and for checking the DASD characteristics and extent information. The IOSB contains data essential for IOS, and the SRB is used by IOS to schedule I/O termination routines the JES3 address space. The I/O parameter block is addressed by TVTIOPRM in the TVT. The mapping macro is IATYIOP.

DATA MANAGEMENT I/O PARAMETER BLOCK									
FRISR	ISRQ	LOISR	HIISR	FRSRB	LOSRB	HISRB	SRBQ	JASCB	FS
019C43A0	00000000	019C41E0	019C4640	0197E7EC	0197E47C	0197EEA0	00000000	00F2F200	C0

FRISR hhhhhhhh - is the address of the first free ISR in the ISR area.

ISRQ hhhhhhhh - is the address of the queue of extents (logical spool data sets) waiting for ISRs (that is, waiting to be initiated).

LOISR hhhhhhhh - is the address of the first ISR (lowest storage address) in the ISR area.

HIISR hhhhhhhh - is the address of the last ISR (highest storage address) in the ISR area.

FRSRB hhhhhhhh - is the address of the first free SRB in the stand-alone SRBs area. SRBs are used for USAM I/O termination.

LOSRB hhhhhhhh - is the address of the first SRB (lowest storage address) in the stand-alone SRBs area.

HISRB hhhhhhhh - is the address of the last SRB (highest storage address) in the stand-alone SRBs area.

SRBQ hhhhhhhh - is the address of the queue of data set status blocks (DSSs) waiting for SRBs.

JASCB hhhhhhhh - is the address of the JES3ASCB.

FS hh - is flag byte IOPFLAGS.

Extent table

DATA MANAGEMENT EXTENT TABLE (EXT) is the extent information for each extent defined by a DDNAME parameter on the TRACK or FORMAT statement. The EXT is used to validate spool record addresses. The EXT is mapped within macro IATYIOP.

DATA MANAGEMENT EXTENT TABLE														
02519B00	DDNM	JES3JCT	SPNM	NPEX	00000000	SPB	00000000	IOCNT	00000B9A	UCBAD	00F2A620	UCBCHAN	9818	
	WAITQ	00000000	LOADR	0C590000	CTADR	0CA40000	ISRAD	00000000	CHN	02519BD0	BUFSZ	000002E0		
	BUSY	00000000	HIADR	0CEE000E	CTLOG	00000000	CTHIG	00000000	LOWR	001DA9D0	HIGHR	001F1229		
	NLEFT	00000000	SIZE	00000000	NXEXT	00000000	CYLCT	2721	SPNDX	0000				
	DEVTP	200F	RECTK	0029	GRPSZ	0000	TKCYL	000F	NDX	0001	GRPSP	0000		
	FLAGS	20	STFLG	00	FLAG2	00	FLAG3	00						
02519BD0	DDNM	SPLN41	SPNM	PART1	NPEX	02519CA0	SPB	294C1640	IOCNT	00008A3C	UCBAD	00F29708	UCBCHAN	9801
	WAITQ	251523A8	LOADR	10D50000	CTADR	193B0000	ISRAD	05170590	CHN	02519CA0	BUFSZ	00000FF4		
	BUSY	25156618	HIADR	21A0000E	CTLOG	00003EFD	CTHIG	00003EFE	LOWR	000BD5C5	HIGHR	0017A534		
	NLEFT	00007ACE	SIZE	00007DFA	NXEXT	00000000	CYLCT	2721	SPNDX	0003				
	DEVTP	200F	RECTK	000C	GRPSZ	0018	TKCYL	000F	NDX	0002	GRPSP	0014		
	FLAGS	20	STFLG	00	FLAG2	00	FLAG3	00						

hhhhhhhh - is the storage address of the extent table.

DDNM ccccc - is the ddname of the spool extent.

SPNM ccccc - is the name of the partition to which belongs to this spool data set.

NPEX hhhhhhhh - is the address of the next extent entry in the same spool partition.

SPB hhhhhhhh - is the address of the SPB for this extent.

IOCNT hhhhhhhh - is the I/O count for this extent.

UCBAD hhhhhhhh - is the address of the UCB for this extent.

UCBCHAN hhhh - contains the UCBCHAN value (that is the device number) of the UCB that the content of UCBAD points to.

WAITQ hhhhhhhh - is the address of the queue of data buffers waiting for I/O.

LOADR hhhhhhhh - is the low cylinder and head number in this extent (CCHH).

CTADR hhhhhhhh - is the center cylinder and head number in this extent (CCHH).

ISRAD hhhhhhhh - is the address of the "active" I/O ISR.

CHN hhhhhhhh - is the address of the next entry in the IOP table.

BUFSZ hhhhhhhh - is the buffer size for this extent.

BUSY hhhhhhhh - is the address of the first data buffer using this extent.

HIADR hhhhhhhh - is the high cylinder and head number in this extent (CCHH).

CTLOG hhhhhhhh - contains the 'G' portion of the X.G track group address. It identifies the first track group to the left of the center of the cylinder.

CTHIG hhhhhhhh - contains the 'G' portion of the X.G track group address. It identifies the first track group to the right of the center.

LOWR hhhhhhhh - contains the 'R' portion of the M.R record address. It identifies the first record in the extent.

HIGHR hhhhhhhh - contains the 'R' portion of the M.R record address. It is the last record in the extent.

NLEFT hhhhhhhh - is the number of available track groups.

SIZE hhhhhhhh - is the number of track groups in the extent.

NXEXT hhhhhhhh - is the address of the next extent waiting for an ISR.

CYLCT hhhh - is the number of cylinders on the volume.

SPNDX hhhh - is the spool partition index.

DEVTP devtyp - is the model number of the device. *z/OS JES3 Initialization and Tuning Reference* contains a list of the possible device types.

RECTK hhhh - is the number of records in a track.

GRPSZ hhhh - is the number of records in each track group.

TKCYL hhhh - is the number of tracks in each cylinder.

NDX hhhh - is the extent number.

GRPSP hhhh - is the size of the partition track group.

FLAGS hh - is flag byte EXTFLAGS in the EXT.

Value Meaning

X'80' Indicates the STRTIO linkup routine is using the busy queue.

X'20' Indicates the device is a buffered DASD.

X'10' Indicates at least one badtrack entry exists for the device.

STFLG hh- is flag EXTSTFLG which is used to indicate the status of the extent. The following are the possible hexadecimal values for hh and their meanings:

Value Meaning

X'80' The extent was not allocated for use.

X'40' The extent was moved to the DRAIN partition.

X'20' The extent is in a HELD state.

X'10' The extent contains dynamic single track tables (STT).

X'08' The extent was replaced.

X'04' The extent was deleted. A TRACK statement for the extent was not included in the initialization stream.

X'02' Formatting is required for the extent.

Extent Table (JIO)

FLAG2 hh - is flag byte EXTFLAG2 in the EXT.

Value Meaning

X'80' Indicates the linkup routine is in Cross-Memory mode and is protected by a second-level Functional Recovery Routine (FRR).

X'40' Purge is holding extent lock.

FLAG3 hh - is flag byte EXTFLAG3 in the EXT.

Value Meaning

X'80' Extent is being added to wait for ISR queue.

IOSB - SRB pairs

DATA MANAGEMENT IOSB-SRB PAIR are used for JES3 STARTIO. The IOSB contains data essential for IOS to perform a start I/O, and the SRB is used by IOS to schedule JESIO in the JES3 address space when the I/O operation has completed. The ISR is used to locate JES3-related control blocks when JES3 data management receives control after the I/O has completed. The mapping macro is IATYISR.

DATA MANAGEMENT IOSB-SRB PAIR														
IOSB										ISR				
START	CSW	VST	FA	FB	FC	PR	CO	OP	EXTEN	CPEND	NXISR	ERDMC	F1	F2
01CA5040	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA54A0	00000000	00	00
01CA5120	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5820	00000000	00	00
01CA5200	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5040	00000000	00	00
01CA52E0	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5740	00000000	00	00
01CA53C0	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5580	00000000	00	00
01CA54A0	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA53C0	00000000	00	00
01CA5580	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5900	00000000	00	00
01CA5660	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5200	00000000	00	00
01CA5740	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5660	00000000	00	00
01CA5820	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA52E0	00000000	00	00
01CA5900	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA59E0	00000000	00	00
01CA59E0	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5AC0	00000000	00	00
01CA5AC0	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5BA0	00000000	00	00
01CA5BA0	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5C80	00000000	00	00
01CA5C80	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5D60	00000000	00	00
01CA5D60	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5E40	00000000	00	00
01CA5E40	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	01CA5F20	00000000	00	00
01CA5F20	0000000000000000	00000000	40	00	00	00	00	90	00000000	00000000	00000000	00000000	00	00

CSW hhhhhhhhhhhhhhh - is the CSW from the I/O operation.

VST hhhhhhhh - is the virtual address of the channel program.

FA hh FB hh FC hh - are IOS flags for the I/O, from the IOSB.

PR hh - is an indicator for the type of special processing to be performed by IOS components that are operating asynchronously to the mainline.

CO hh - is the I/O completion code.

OP hh - is an options byte to direct IOS operations per JES3 requirements.

EXTEN hhhhhhhh - is the address of the JES3 extent table entry for this I/O request.

CPEND hhhhhhhh - is the address (+8) of the last CCW executed for the I/O request.

NXISR hhhhhhhh - is the address of the next ISR.

ERDMC hhhhhhhh - is the address of the data management control block (DMC) with an I/O error.

F1 hh - is a flag byte in the ISR (ISRFLAG1).

F2 hh - is a flag byte in the ISR (ISRFLAG2).

RPS Sector tables

RPS (rotational position sensing) SECTOR TABLES are used during spool I/O scheduling. There is one entry in the table for each unique combination of device type and record per track.

RPS SECTOR TABLES										
01C1D208	DEVTP	200E	BUFSZ	01A0	RECTK	0033	TABLE	05090D12161A1E22262A2F33373B3F43474C5054585C6064696D7175797		
01C1D241	DEVTP	200E	BUFSZ	OFF4	RECTK	000A	TABLE	051A2E42576B8094A9BD		

DEVTP hhhh - is the device type for this table entry.

BUFSZ hhhh - is the record length (buffer size) for this table entry.

RECTK hhhh - is the number of records that will fit on one track.

TABLE hhhh.... - is the sector number for each record within a track. The number of table entries corresponds to RECTK. Each sector number is 2 hexadecimal characters long and they are formatted in a continuous string.

Spool Partition Control Blocks

SPOOL PARTITION CONTROL BLOCK describes a spool partition. The information for an SPB comes from the spool partition checkpoint record (IATYSPR) and from the I/O parameter block (IATYIOP) spool data set extent entries.

SPOOL PARTITION CONTROL BLOCKS												
027009F8	NAME	DRAINED	OVRFL	PTAT	00000000	TATSZ	00000000	SCNPT	00000000	SCNSZ	00000000	
	EXT	00000000	EXREL	00000000	TALL	00000000	NTEXT	00000000	NLEFT	00000000	MINGP	00000000
	MRGGP	00000000	MSGPT	00000000	GRPSZ	0000	EXTN	0000	NDX	0001	OVNDX	0000
	MINTR	00	MRGTR	00	FLAG	28	STFLG	00	WTFLG	00	FLAG2	000
02700A68	NAME	UNAVAIL	OVRFL	PTAT	00000000	TATSZ	00000000	SCNPT	00000000	SCNSZ	00000000	
	EXT	00000000	EXREL	00000000	TALL	00000000	NTEXT	00000000	NLEFT	00000000	MINGP	00000000
	MRGGP	00000000	MSGPT	00000000	GRPSZ	0000	EXTN	0000	NDX	0002	OVNDX	0000
	MINTR	00	MRGTR	00	FLAG	28	STFLG	00	WTFLG	00	FLAG2	000
02700AD8	NAME	PART1	OVRFL	PTAT	0275B154	TATSZ	00000EA8	SCNPT	0275B35C	SCNSZ	00000CA0	
	EXT	01CA6C90	EXREL	02700044	TALL	00006978	NTEXT	00001770	NLEFT	000009CB	MINGP	00000546
	MRGGP	00000A8C	MSGPT	06020AF0	GRPSZ	0014	EXTN	0005	NDX	0003	OVNDX	0000
	MINTR	05	MRGTR	0A	FLAG	E0	STFLG	C0	WTFLG	40	FLAG2	000

Spool Partition Control Blocks

NAME ccccc - is the spool partition name, from the SPART initialization statement.

EXT hhhhhhhh - is the address of the first extent entry in the IOP.

MRGGP hhhhhhhh - is the marginal condition track group count.

MINTR hhhhhhhh - is the minimal track group percentage.

OVRFLL hhhhhhhh - is the overflow partition name.

EXREL hhhhhhhh - is the address of the extent relative vector.

MSGPT hhhhhhhh - is the address of the pending action message.

MRGTR hhhhhhhh - is the marginal track group percentage.

PTAT hhhhhhhh - is the address of the partition TAT.

TALL hhhhhhhh - is the number of track groups in the partition.

GRPSZ hhhh - is the number of records per track group in this partition.

FLAG nn - is the flag byte (SPBFLAG).

FLAG2 nn - is the flag byte SPBFLAG2.

TATSZ hhhhhhhh - is the length (in bytes) of the PTAT bit map.

NTEXT hhhhhhhh - is the largest extent size in track groups.

EXTN hhhh - is the number of extents in this partition.

STFLG hhhhhhhh - is the allocation status flag (SPBSTFLG).

SCNPT hhhhhhhh - is the PTAT allocation scan resume address.

NLEFT hhhhhhhh - is the number of track groups available in the partition.

NDX hhhh - is the partition index.

WTFLG nn - is the flag byte (SPBWTFLG).

SCNSZ hhhhhhhh - is the scan length remaining in the PTAT bit map.

MINGP hhhhhhhh - is the minimal condition track group count.

OVNDX hhhh - is the index to the overflow partition.

Single track tables

DATA MANAGEMENT COMMON SINGLE TRACK TABLE is used to allocate and purge records that are system-related, single-record files. Its purpose is to be economical with queue space by allocating only one record at a time instead of a track group. The table is mapped by macro IATYSTT.

DATA MANAGEMENT COMMON SINGLE TRACK TABLE									
MNRKFDB (02801ABC): 7F61800C 000006D0 00000000									
HEADER					ENTRY				
START	SIZE	NSTT	SCAN	SCANL	F1	SEGMENT	RECCT	AVAIL	SPADR
02865038	0000004C	0001	02865050	0001	20	02865050	012C	0110	00020000079F

DATA MANAGEMENT JCT SINGLE TRACK TABLE									
JCTRFDB (02801AF0): 02865408 00000000 00000000									
HEADER					ENTRY				
START	SIZE	NSTT	SCAN	SCANL	F1	SEGMENT	RECCT	AVAIL	SPADR
0286544C	000000C4	0001	02865464	0001	A0	02865464	04EC	04E9	000100007135

MNRKFDB hhhhhhhh - is the address of the STT JBTAT FDB, followed by the actual FDB.

START hhhhhhhh - is the first STT header in the chain.

SIZE hhhh - is the size of the STT.

NSTT hh - is the number of entries in the STT.

SCAN hhhhhhhh - is the address of the fixed segment in the STT that JES3 will allocate space from on the next allocation request.

SCANL hhhh - is the number of fixed segments remaining.

F1 hh - is a flag byte in the STT (STTFLG1).

SEGMENT hhhhhhhh - is the address of this segment.

RECCT hhhh - is the number of records in this segment.

AVAIL hhhh - is the number of records available in this segment.

SPADR hhhhhhhhhhhh - is the M.R of the first record in this STT.

DATA MANAGEMENT JCT SINGLE TRACK TABLE - is used to allocate and purge records that are maintained in the JCT data set. The formatted fields have the same explanation as those in the COMMON SINGLE TRACK TABLE above.

File directory

DATA MANAGEMENT FILE DIRECTORY accounts for all opened multi-record files and some single-record files. The directory is a prioritized queue of 24 byte entries. It is mapped by macro IATYFDD.

File Directory (JIO)

DATA MANAGEMENT FILE DIRECTORY																	
ENTRY									FDB								
START	JTFDB	FCTADD	VALID	FD	WF	WC	START	DATA	BPTR	RL	IO	ER	F0	FS	FL	F1	F2
0275CFA0	02CA8AE4	02AC37E0	00000000	00	00	00	02CA8AB4	7F54B00C0000					E0	00	00		
0275C320	0009816C	02ACE3D0	00000000	00	00	00	00098128	000000000000	7F544478	0B88	00	00	00	08	00	00	00
0275CBB8	0008A16C	02C76650	00000000	00	00	00	0008A128	000000000000	7F5942D4	0D2C	00	00	00	08	00	00	00
0275C168	000BD16C	02AC9498	00000000	00	00	00	000BD128	000000000000	7F5453D0	0C30	00	00	00	08	00	00	00
0275CB40	000CA16C	02AC96A0	00000000	00	00	00	000CA128	000000000000	7F52B2D4	0D2C	00	00	00	08	00	00	00
0275C960	00000000	02C7E278	187E14D2	00	00	00	02CFC11C	7F54300C0000	7F56DF68	0098	00	00	00	A8	00	00	00
0275CCD0	00000000	02C9EDF8	18E31E89	00	00	00	02D1D11C	000000000000	7F5AC080	0F80	00	00	00	A8	00	00	00
0275CEB0	00000000	02C9B200	190AF681	00	00	00	02CD611C	000000000000	7F5E5518	0AE8	00	00	00	A8	00	00	00

START hhhhhhhh - is the address of the file directory entry.

FD nn - is a flag byte in the FDD (FDFLAGS).

WF nn - is a WRTCHAIN flag FDWRTBYT.

WC nn - is the WRTCHAIN completion flag (FDWRTPST).

JTFDB hhhhhhhh - is the address of the JBTAT FDB (output files).

FCTADD hhhhhhhh - is the address of the FCT associated with the FDB.

VALID hhhhhhhh - is a validity check data field for input files.

START hhhhhhhh - is the address of the FDB.

DATA hhhhhhhh - is the address of the buffer or track address for the data.

BPTR hhhhhhhh - is the address of the current buffer (multi-record files only).

RL hhhh - is the number of unused bytes remaining in the buffer.

IO hh - is the number of outstanding I/O requests.

ER hh - is the number of uncorrected I/O errors.

F0 hh FS hh FL hh F1 hh F2 hh - are flag bytes in the FDB (F1 and F2 are multi-record files only).

JSAM/USAM Data buffers

DATA MANAGEMENT JSAM DATA BUFFERS is the buffer pool that is constructed during initialization as the result of parameters specified on the BUFFER statement. The buffer allocator block (BAL) is used to allocate and de-allocate buffers from this pool. One to two buffers per block per page is possible. The page containing any buffer in use may be fixed in main storage (that is, it cannot be paged out). The data buffer is mapped by macro IATYDAT and IATYDMC, and the buffer allocator block is mapped by IATYBAL.

DATA MANAGEMENT USAM DATA BUFFERS is used by a user address space to read data from spool or write data to spool. A USAM unprotected buffer (UBUF) is allocated from a page in the user address space. USAM contains the data that the user application is writing to or has read from spool. The actual I/O to or from spool uses a USAM protected buffer (PBUF). The data is transferred from a UBUF

to a PBUF before writing it to spool. When reading data from spool the data is placed in a PBUF and then transferred to a UBUF for the user application to access. The buffer allocator block (BAL) is used to allocate and de-allocate PBUFS. The protected buffer pool resides in CSA, the JES3 auxiliary address space, or both. See the PRTPAGE keyword in *z/OS JES3 Initialization and Tuning Reference*, for defining the USAM PBUF pool of buffers.

DATA MANAGEMENT JSAM DATA BUFFERS																	
BALDMCBA	BALDMCEA	BALDATBA	BALDATEA	BALBALBY	BALTRT	BALBUFCT	BAL4KBLK										
7F71C000	7F72FAAF	7F51C000	7F71C000	7FFDDBD4	7FFDDBAC	00000200	000001FF										
DMC	DMCNXDMC	DMCFCT	I/O-DSP	OWN-DSP	F1	F2	F3	F4	FDSTART	F0	FS	F1	DMCDAT	DATTHIS	SRFID	RQ-ADR	JOBID
7F71C000	00000000	02728870	JSS	JSS	88	00	58	00	02763898	80	6C	47	7F51C000	00020000D409			
7F71C098	00000000	02728870	JSS	JSS	88	00	58	00	02701A6C	04	F0	00	7F51D000	00030000CEC9	NCK		
7F71C130	00000000	02AC9290	WTR	WTR	88	00	58	00	02C695A0	04	B0	00	7F51E000	0003000101DF	WOSE		
7F71C1C8	7F71EAB0	02727268	CONSDM	CONSDM	88	00	58	00	7F5460E8	00	88	00	7F51F000	000300010BDD			
7F71C260	00000000	02728870	JSS	JSS	88	00	58	00	02701ACC	04	F0	00	7F520000	00020000D40E	OCK	STTTABLE	JES3
7F71C390	00000000	02ACAAAF	DMJA	JSS	00	00	00	20	00000000	00	00	00	7F522000	000000000000			
7F71C558	00000000	02AC8A70	CIDRVR	JSS	81	00	58	00	02701AD4	04	D0	00	7F525000	00030000CEC7	FCK	STTTABLE	JES3
7F71C7B8	00000000	02727098	JSAM	JSAM	88	00	58	00	7F536078	06	B0	00	7F529000	000300000F47	JBT		
7F71C850	00000000	02C9B200	INTRDR	INTRDR	00	00	00	00	00000000	00	00	00	7F52A000	000000000000			
7F71C980	00000000	02ACA2D0	DMJA	DMJA	88	00	58	00	02B34798	04	B0	00	7F52C000	000200015D7E	JDS		
7F71CA18	7F7202F8	02727098	JSAM	JSAM	88	00	58	20	02D1D13C	04	B0	00	7F52D000	000400019415	ISP		
7F71CBE0	7F71E428	02ACEBF0	CI	CI	88	00	58	00	0001BAF0	04	B0	00	7F530000	0005000046D8	JVT		

DATA MANAGEMENT USAM DATA BUFFERS																
BALDMCBA	BALDMCEA	BALDATBA	BALDATEA	BALBALBY	BALTRT	BALBUFCT	BAL4KBLK	BALXDTBA	BALXDTBA	BALXDTBA						
1DE66000	1DEAF240	00000000	00000000	01C64C00	01C64BD8	00000400	000003FF	7F300000	7F700000							
START	DMCMULT1	DMCMULT2	DMCCREC	DMCNXDMC	DMCNXDUP	DMCDATPT	F1	F2	F3	F4	F5	DMCDAT	DMCSRCH	DATTHIS	A/S	DMCFDSS
16C3E000	00000000	00040404	000003DC	00000000	00000000	7F60ED40	01	10	F8	20	00	16C20000	0010000B0C	000200000B00	CSA	16BE1230
16C404C0	030A4000	96C1B0E8	00002E16	16C405F0	16C405F0	7F4FAD90	00	00	30	00	00	FFF57000	0024000103	00020000195F	AUX	16BE10C8

- BALDMCBA hhhhhhhh - is the starting address of the DMC pool.
- BALDMCEA hhhhhhhh - is the ending address of the DMC pool.
- BALDATBA hhhhhhhh - is the starting address of the JSAM or USAM CSA protected buffers.
- BALDATEA hhhhhhhh - is the ending address of the JSAM or USAM CSA protected buffers.
- BALBALBY hhhhhhhh - is the address of the buffer allocator bytes.
- BALTRT hhhhhhhh - is the address of the translation tables (used during allocation).
- BALBUFCT hhhhhhhh - is the number of buffers in the buffer pool.
- BAL4KBLK hhhhhhhh - is the number of 4K blocks (pages) minus one.
- DMC hhhhhhhh - is the pointer to the data management control block.
- DMCNXDMC hhhhhhhh - is the chaining field for linking DMCs.
- DMCFCT hhhhhhhh - is the address of the last FCT to issue I/O on the buffer.
- I/O-DSP ccccccc - is the name of the FCT that issued the last I/O request.

JSAM/USAM Data Buffers (JIO)

OWN-DSP cccccc - is the name of the DSP that obtained the buffer.

F1 hh F2 hh F3 hh F4 hh - are the DMC flag bytes. These come from DMCFLAG1, DMCFLAG2, DMCFLAG3, and DMCFLAG4.

FDBSTART hhhhhhhh - is the address of the FDB.

F0 hh FS hh F1 hh - are FDB FLAG0, FLAGS, and FLAG1.

DMCDAT hhhhhhhh - is the address of the DAT associated with this DMC.

DATTHIS hhhhhhhh - is the self track address of the single record file (SRF).

SRFID ccc - is the SRF ID of the record.

RQ-ADR cccccc - is the RESQUEUE address if the JOBTAT is from the RESQUEUE. Otherwise, it is the address of the STTABLE if the JOBTAT is from MNTRKFDB.

JOB# cccc - is the job number if the RESQUEUE is available. This field displays "JES3" if the JOBTAT is for the STT.

DATA MANAGEMENT USAM DATA BUFFERS is formatted identically to JSAM information with the following additional fields:

BALXDTBA hhhhhhhh - is the starting address of the USAM protected buffer pool in the JES3AUX address space.

BALXDTEA hhhhhhhh - is the ending address of the USAM protected buffer pool in the JES3AUX address space.

DMCMULT1 and DNCMULT2 -

- If the address of the DMC being formatted was obtained from the DSB, these 2 fields correspond to the DMCBPTR and DMCRL fields.
- If the address of the DMC being formatted was obtained from the ISR, these 2 fields correspond to the DMCDATRA and DMCWORK fields.

DMCCREC - Current record being processed

DMCNXDUP - Original DMC chain pointer

DMCDATPT hhhhhhhh - is a pointer to the associated unprotected (UBUF) DMC in the requesting address space.

F1 hh F2 hh F3 hh F4 hh F5 hh - are the DMC flag bytes. These come from DMCFLAG1, DMCFLAG2, DMCFLAG3, DMCFLAG4 and DMCFLAG5.

DMCSRCH hhhhhhhhhh - is the DASD search address for the record on spool.

A/S -

- If CSA, the DAT is in CSA
- If AUX, the DAT is in JES3AUX

DMCFDDSS -

- DSS FOR NON-JES address space I/O

- FDB FOR JES address space I/O

Note: This portion of the dump is not printed when running in an FSS address space because protected buffers are managed only from the JES3 address space.

JES3 Memory Usage

JES3 MEMORY USAGE is a map of the JES3 address space. It is developed by scanning the VS storage management blocks for contiguous free space in the region (FBQE chain), contiguous space in a subpool (DQE chain), contiguous free space in a subpool (FQE chain), and space within a subpool that is allocated to a module (CDE/XL and JDE chains). Note that space allocated by GETMAIN (except module space) is not mapped, but can be deduced.

Note: If running in an FSS address space, this header will read "FSS MEMORY USAGE".

JES3 AUXILIARY ADDRESS SPACE MEMORY MAP is formatted identically to JES3 MEMORY USAGE.

Note: This portion will not appear in the dump when running in an FSS address space.

JES3 MEMORY USAGE				
START	END	LENGTH		CONTENTS
00005470	00005547	0000D8	000216	MODULE IATISCB
00005548	00005CDF	000798	001944	MODULE IATGROP
0000C000	000106CF	0046D0	018128	MODULE IATABM
000126A8	00013FFF	001958	006488	MODULE IATABN0
00014000	00017A2F	003A30	014896	MODULE IATBDC
0001AD08	0001AE27	000120	000288	MODULE IEFQBJST
0001C180	0001C58F	000410	001040	MODULE IATIICA
0001FF30	00020FFF	0010D0	004304	MODULE IATIICX
0003ADF8	0003DFFF	003208	012808	MODULE IATLVVR
0003E0D8	0003E477	0003A0	000928	MODULE IATIICTX
.				
04700A20	04700A5F	000040	000064	MODULE IATUX19
04701000	04772907	071908	465160	MODULE IATNUC
04773798	04773FFF	000868	002152	MODULE IATSSCK
.				
04D0B200	04D0BF5F	000D60	003424	MODULE IATISCD
04D0BF60	04D0DFFF	0020A0	008352	MODULE IATIIIP1
04D0E560	04D0EF8F	000A30	002608	MODULE IATOSSD
04D0EF90	04D13FFF	005070	020592	MODULE IATIIIP0
04D14FC8	04D16FFF	002038	008248	MODULE IATISDT
04D27B28	04D29FFF	0024D8	009432	MODULE IATOSWC
04D2ACA0	04D2CFFF	002360	009056	MODULE IATOSWD
.				
.				

SP ddd - subpool identifier associated with the line (or lines).

START/END hhhhhhhh - starting and ending address for the item being formatted.

LENGTH hhhhhhhh dddddd - size of the area described by the formatted item, stated first in hex, then in decimal.

JES3 Memory Usage (MEM)

CONTENTS ccccc... - a description of the area being formatted (an overview of the control blocks involved is shown in "General Information").

- SPACE ASSIGNED TO DQE - always appears first in a block of formatted data. The DQE describes a contiguous segment of space within a subpool.
- FREE SPACE - represents unallocated space in the subpool.

FCT READY QUEUE SUMMARY

FCT Ready Queue Summary contains any FCT that has completed a JSAM I/O request. The MFM dispatches the FCTS on the queue.

FCT READY QUEUE SUMMARY

TVTRDQTP 82ACA4D8

FCT ADDRESS	FCTRDQCH	FCTPRTY
82ACA4D8	82C83230	04
82C83230	82C78158	07
82C78158	827277F0	04
827277F0	82C710A0	1E
82C710A0	82AC9EC0	07
82AC9EC0	82AC9AB0	07
82AC9AB0	82C7C180	04
82C7C180	82ACB518	1E
82ACB518	82C4C348	07
82C4C348	00000000	0E

TVTRDQTP hhhhhhhh - is the address of the FCT ready queue.

FCT ADDRESS ccccccc - is the address of the next FCT on the FCT Ready Queue.

PRTY cc - is the priority level of the FCT.

Auxiliary Task Control Block

AUXILIARY TASK CONTROL BLOCK (ATCB) is the primary control block used by the auxiliary task to save status and control information relating to its execution.

AUXILIARY TASK CONTROL BLOCK

TCB	ECBA	FCT	ATDC	WAIT	WCNT	POOL	ARQ
007DD828	00B9EE2C	02BE6A60	02BFD180	02BE6A60	00001657	02BFD1C0	00000000
ECBF-ECFF							
00000000 00							

The following ATCB fields will be formatted if the auxiliary task exists at the time of the dump.

TCB=hhhhhhhh - is the address of the TCB for the auxiliary task.

ECBA=hhhhhhhh - is the address of the ECB for the auxiliary task.

FCT=hhhhhhhh - is the address of the currently dispatched FCT.

Auxiliary Task Control Block (FCT)

ATDC=hhhhhhhh - is the address of the auxiliary task dispatching queue.

WAIT=hhhhhhhh - is the address of the WAIT FCT.

WCNT=hhhhhhhh - is the auxiliary task wait count in decimal.

POOL=hhhhhhhh - is the address of the ATDE free pool.

ARQ=hhhhhhhh - is the address of the attach request queue.

ECBF=hhhhhhhh - is the ECB used for serialization during *MODIFY,MT processing.

ECFF=hh - is the ECF used for serialization during *MODIFY,MT processing.

Function Control Table

FUNCTION CONTROL TABLE is the JES3 control block which represents a DSP or function. The FCT is used by the multi-function monitor (MFM) to allocate processing time in the JES3 address space. When a function must wait for an event to occur, control is passed to the MFM, which selects the highest priority FCT whose function is ready to be dispatched. Control is then given to that function. This method is analogous to the VS technique of multi-programming tasks by using a TCB chain and a system dispatcher. System related functions (that is, functions not job related, such as CONSOLES, JSS and SETUP have permanent FCT entries. All others are created and deleted dynamically. The entries are defined by the IATYFCD macro. The FCT is mapped by macro IATYFCT.

Function Control Table (FCT)

```

05951608 PROGRAM NAME IS CONCMD
ECF OF X'40' AT 05B125FC IS POSTED          AWAIT RETURN IS 8593580C

AWAIT REASON CODE IS: X'0002'
EXPLANATION: WAITING FOR A GENERALIZED SUBTASK TO BECOME AVAILABLE OR TO FINISH PROCESSING A REQUEST

CDE          SAVCH          SESEQ-RQAD    PRTY-DSPDC   CSECT        TIMON        LOGIN
00000000    0599B7E0          00 00000000  FE 0594C340  00000000    00000000    00000000

TNEXT        TUID          TIMEI        TFLAG-TIMEX  CBPTR        JCTPY-GLIST  GSD
00000000    40404040          00000000    D0 00000000  00000000    00 05951868  059A3C20

FLAGS        FSFLS          MFCNT        JESTAE-----CONTROL-----BLOCK
1 2 3 4      1 2          MFCNT        SCBLAST      SCBEXIT      SCBPARM      SCBSYMEX
00 00 40 00  60 00          0000        00000000    05906978    00000000    00000000

FSCOD        FSLOC          FSRTN        FCNT-PCNT    FSWA         SLEVL        CLEVL
DM137        00000000          8590F3B0    0000 0000    8599ADB8    00000000    00000000

NQADD        RSFLG-CNFLG    DMDSP        DMID          DMRT         EFPST        RDQCH
00000000    00 20          0000        00000000    00000000    00000000000  00000000

WORK        MASK-ECFAD     ATDE-MODE    LOCK-LTYPE    RSVD2
00000000 0000137F    40 05B125FC  00000000 00  00000000 00  00000000 00000000

TOD          NEXT          PREV         TELPT         ASTCB        RESON        FSEA
094319-042824 0594C530    00000000    00000000    00000000    00000000    05951870

FCT REGISTER SAVE AREA
REG 0- 7    05B125FC  80000240  059A3C20  00000008  00000000  0599B4E0  05B48940  05B12588
REG 8-15    85935628  00000000  05935474  05951608  05904000  05935B48  8593580C  05930AD8
           R10 - IATGRGS +0002C R14 - IATGRGS +003C4 R15 - IATGRCT +00030

ACTIVE SAVE AREA CHAIN
0599B7E0    REG 0- 7    00000000  05B1A000  05B1E000  05B1E000  05B1BF20  05B04030  00000000  85906614
           REG 8-15    7F321890  00000000  05906318  05951608  05904000  05906C38  8590670C  0590E474
           SAVWORK---0595DD40 SAVJESCB---00000000---0590F3B0---00000000
           R10 - IATCNCM +00000 R14 - IATCNCM +003F4 R15 - IATCNIN +0002C

:exp.

```

ECF information - indicates the ECF mask and address the DSP last waited on, and indicates whether the ECF is posted. This information is extracted from the associated ATDE if the DSP was running under the auxiliary task at the time of the dump. Otherwise, it is obtained directly from the FCT. If the REASON= parameter was specified on the AWAIT macro, the AWAIT reason code in hex and its description is formatted. If the DATA= parameter was specified on the AWAIT macro, the AWAIT specific data is also formatted.

CDE hhhhhhhh - is the JDE (JES3 directory element) address of the driver DSECT.

SAVCH hhhhhhhh - is the address of the save area for the routine currently in control.

SESEQ-RQAD hh hhhhhh - is the sequence number of the scheduler element being processed by this function. The three low-order bytes are the address of the RESQUEUE.

PRTY-DSPDC hh hhhhhh - is the dispatching priority of the DSP. The three low-order bytes are the address of the DSP dictionary entry.

CSECT hhhhhhhh - is the address of the DSP's data CSECT (register 13).

Function Control Table (FCT)

TIMON hhhhhhhh - is time when the DSP started with a LOGIN macro.

LOGIN hhhhhhhh - is the address of a routine to be given control when console service has a message for this function. (Established by the LOGIN macro.)

TNEXT hhhhhhhh - is the address of the ATIME queue for this function so that multiple ATIME time intervals can be maintained.

TUID hhhhhhhh - is the name associated with the ATIME currently in effect.

TIMEI hhhhhhhh - is the interval (in hundredths of a second) that is to elapse before the ATIME exit routine is entered.

TFLAG-TIMEX hh hhhhhh - are obtained from FCTTFLAG and FCTTIMES, respectively. TFLAG is a flag for time control. TIMEX is the low-order three bytes, and represents the address of the routine to be given control when the time interval is exhausted.

CBPTR hhhhhhhh - is the address of the console buffer chain.

JCTPY-GLIST hhhhhhhh - is the JCT priority (for called DSPs) and the address of the GETUNIT list.

GSD hhhhhhhh - is the address of the general subtask directory.

FLAGS hh hh hh hh - are flag (IATYGSD) bytes FCTFLAG1 through FCTFLAG4.

FSFLS hh hh - are the flag bytes (FCTFSFL1, FCTFSFL2) for failsoft obtained from FCTFSFLG.

MFCNT hhhh - is the maximum number of failures which can occur before the DSP is terminated without retry.

ASTCB hhhhhhhh - is the associated subtask TCB address.

JESTAE---CONTROL---BLOCK - the first word is a chain address to the last JESTAE control block, if there are any. The second word is the address of a JESTAE exit routine. The third word is the address of the user-defined parameter list from the PARAM keyword of the JESTAE macro when it was issued for this function.

FSCOD hh - is the failure code issued from a FAILDSP macro when the function is failed.

FSLOC hhhhhhhh - is the location of the FAILDSP macro.

FSRTN hhhhhhhh - is the address in the DSP where the FAILDSP macro was issued.

FCNT-PCNT hhhh hhhh - are the FCT failure count and JESTAE percolation count, respectively.

FSWA hhhhhhhh - is the address of the failsoft work area (IATYFSWA).

SLEVL hhhhhhhh - is the address of current level of JESTAE ASAVE.

CLEVL hhhhhhhh - is the address of the current JESTAE control block.

Function Control Table (FCT)

RSCNT hhhh - is the number of resources enqueued by this function by use of AENQ.

RSFLG-CNFLG hh hh - are the specialized reschedule and console flags.

DMDSP hhhh - is the JSAM SRF chain displacement.

DMID hhhh - is the JSAM SRF ID (FCTDMIO).

DMRT hhhhhhhh - is the JSAM SRF root FDB address.

EFPST hhhhhhhh - is the EFP mask and address for post.

WORK - is the FCT work area (FCTWORK).

ECFAD=hhhhhhhh - is the ECF mask and ECF address.

ATDE=hhhhhhhh - is the address of the associated ATDE.

MODE=hh - is the FCTMODE flag byte.

LOCK=hhhhhhhh - is the address of the JES3 lock held by this FCT or zero.

LTYPE=hh - indicates the type of lock held if any.

RSVD2 - is a field reserved for the user.

TOD hhmmss-fffff - is the time of day when an FCT was last active. The time stamp is expressed as "hours, minutes, seconds-fraction." The fraction is a decimal fraction of a second down to one millionth of a second.

FCT REGISTER SAVE AREA - is the area used to save registers over an AWAIT macro service. R10, R14 and R15 show the name of the module and the offset whose address is in those registers. If no JES3 module could be found, the displayed text shows UNKNOWN.

Auxiliary task dispatching element

AUXILIARY TASK DISPATCHING ELEMENT (ATDE) is the JES3 control block which is used to select an FCT for dispatching under the JES3 auxiliary task. This block is created and chained to the FCT only in the case of a writer DSP and the GENSERV DSP. If an ATDE is chained to a FCT, the ATDE will follow the FCT in the formatted dump output.

Auxiliary Task Dispatching Element (MEM)

02BFD180	NEXT 02BFD0C0	ECFAD 02BFD1AD	FCT 02ACB928	ACTB 00000000	PRTY-DISP 03 00	FLAGS 80 00
02ACACF8	DSP NAME IS LOAD MODULE IS JDAB FDB IS	WTR IATOSWC	JOB ID IS MODULE BASE IS	JOB12446 02C6D988	JOB PRIORITY IS 12 SE SEQUENCE IS 00	DSP PRIORITY IS 004
	ECF OF X'20' AT 02C6559F IS NOT POSTED		AWAIT RETURN IS 82C42FB4			
	ECF OF X'40' AT 02C655A2 IS NOT POSTED		AWAIT RETURN IS 82C42FB4			
CDE 02C11780	SAVCH 02C043C8	SESEQ-RQAD 00 02AA9780	PRTY-DSPDC 03 02745050	CSECT 00000000	TIMON 2130104F	LOGIN 02C68ACC
TNEXT 00000000	TUID 00000000	TIMEI 00000000	TFLAG-TIMEX D0 00000000	CBPTR 0003DA28	JCTPY-GLIST 00 02ACAEB C	GSD 02AD9020
FLAGS 1 2 3 4 A4 00 04 00	FSFLS 1 2 00 00	MFCNT 7FFF	ASTCB 00000000	JESTAE-----CONTROL-----BLOCK SCBLAST 00000000	SCBEXIT 02C6E26A	SCBPARM 02C30160
FSCOD	FSLOC 00000000	FSRTN 00000000	FCNT-PCNT 0000 0000	FSWA 00000000	SLEVL 00000000	CLEVL 00000000
RSCNT 0000	RSFLG-CNFLG 00 80	DMDSP 0000	DMDID D6E2C540	DMRT 00000000	EFPST 00000000	RDQCH 00000000
WORK 47F0E000 00050000		MASK-ECFAD 00 02C655A4	ATDE-MODE 02BFD0C0 00	LOCK-LTYPE 00000000 00	RSVD2 00000000 00000000	
TOD 213010-712686						

The ATDE fields that will be formatted are as follows:

NEXT=hhhhhhhh - is the address of the next ATDE.

ECFAD=hhhhhhhh - is the ECF mask and ECF address.

FCT=hhhhhhhh - is the address of the FCT.

ATCB=hhhhhhhh - is the address of the ATCB if the associated FCT was active under the auxiliary task at the time of the dump. Otherwise, this field is zeros.

PRTY=hh - is the priority of the FCT associated with ATDE.

DISP=hh - is the dispatching control switch.

FLAGS=hh hh - the first hh is the ATDEFLG1 byte and the second hh is a reserved flag byte.

Resident Remote and Line DCT Entries

RESIDENT REMOTE AND LINE DCT ENTRIES are not formatted in the FSS dump but for JES3 represent device control information for lines and terminals. A line is the device used by RJP to communicate with a terminal. A terminal refers to one device or a collection of terminal devices at the other end of the line (remote). A line is used exclusively by RJP. The DCT is an extension to the SUPUNITS entry for a line or terminal. These SUPUNIT entries and their DCT extensions are not part of the system SUPUNITS chain. Rather, they are maintained on the JES3 queue (direct-access spool device) until a line is started or until a terminal is

Resident Remote and Line DCT Entries (RJP)

signed on. The resident remote and line DCT entries are mapped by macro IATYSUP. The entries are addressed by the RJP remote/line table, which is mapped by macro IATYRLT.

02C6FD50	DEVICE NAME S0167CON	SUPAD 02C6FCF4	BUFAD 00000000	LINE DCT 02C6FBF4	PR.WORK 00000000	COM.OWA 00000000	USERIOB 00000000	USER FCT 00000000	RES. AD 02AD3924	NEXT DCT 02C6FDEC		
		RECSIZ 0078	MAXSIZ 0078	NO 80D9	BUFSIZ 0000	FCS 0040	RCB/PUN 91	FL1 00	FL2 80	FL3 AE	FL4 00	FL5 00
02C6FDEC	DEVICE NAME S0167RD1	SUPAD 02C6FD90	BUFAD 00000000	LINE DCT 02C6FB14	PR.WORK 00000000	COM.OWA 00000000	USERIOB 00000000	USER FCT 02AC96A0	RES. AD 02AD3924	NEXT DCT 02C6FF1C		
		RECSIZ 0050	MAXSIZ 00FF	NO 80D9	BUFSIZ 0000	FCS 0000	RCB/PUN 00	FL1 00	FL2 10	FL3 AE	FL4 00	FL5 00
02C6FF1C	DEVICE NAME S0167PR1	SUPAD 02C6FE2C	BUFAD 00000000	LINE DCT 02C6FB84	PR.WORK 00000000	COM.OWA 00000000	USERIOB 00000000	USER FCT 02AC96A0	RES. AD 02AD3924	NEXT DCT 02C6FF1C		
		RECSIZ 0084	MAXSIZ 0084	NO 80D9	BUFSIZ 0000	FCS 0000	RCB/PUN 00	FL1 00	FL2 20	FL3 AE	FL4 00	FL5 00
02C6F558	DEVICE NAME S0168CON	SUPAD 02C6F4FC	BUFAD 00000000	LINE DCT 02C6F3FC	PR.WORK 00000000	COM.OWA 00000000	USERIOB 00000000	USER FCT 02727268	RES. AD 02AD3970	NEXT DCT 02C6F5F4		
		RECSIZ 0078	MAXSIZ 0078	NO 80DA	BUFSIZ 0000	FCS 0040	RCB/PUN 91	FL1 00	FL2 80	FL3 AE	FL4 08	FL5 00
02C6F5F4	DEVICE NAME S0168RD1	SUPAD 02C6F598	BUFAD 00000000	LINE DCT 02C6F31C	PR.WORK 00000000	COM.OWA 00000000	USERIOB 00000000	USER FCT 02ACD390	RES. AD 02AD3970	NEXT DCT 02C6F724		
		RECSIZ 0050	MAXSIZ 00FF	NO 80DA	BUFSIZ 0000	FCS 0000	RCB/PUN 00	FL1 00	FL2 10	FL3 AE	FL4 00	FL5 00

LINENAME ccccccc - is the name of the line.

SUPAD hhhhhhhh - is the address of the SUPUNIT entry for the line.

DCTAD hhhhhhhh - is the address of the first remote DCT.

BUFAD hhhhhhhh - is the address of the line input buffer.

CODAD hhhhhhhh - is the address of one of the two possible code tables, used for the line transparency features.

OBUFAD hhhhhhhh - is the address of the first output buffer on the output queue, and it applies only to intelligent terminals.

RES.AD hhhhhhhh - is the address of the LINE entry in the RJP line and terminal table.

BAUD dddd - is the line speed rating, as specified by the S parameter of the RJPLINE initialization statement.

FCS hhhh - is the function control sequence last received from a programmable terminal.

RSQ hhhh - is the receive block sequence count for a programmable terminal.

TSQ hhhh - is the transmit block sequence count for a programmable terminal.

Resident Remote and Line DCT Entries (RJP)

OCT hhhh - is the number of OEM remote devices for the line.

ATT hh - is a flag byte.

FL1 and FL2 hh - are flag bytes from SUPLNFL1 and SUPLNFL2.

EXCPS hhhh - is the number of transmissions for the line.

ERRORS hhhh - is the number of line I/O errors.

TOTS hhhh - is the number of timeouts for the line.

LOCKWORD hhhhhhhh - is the line DCT lockword.

LOCKFCT hhhhhhhh - is the address of the FCT holding lock.

DEVICE NAME ccccccc - is the device name for a terminal.

SUPAD hhhhhhhh - is the address of the SUPUNIT entry for the terminal.

BUFAD hhhhhhhh - is the address of the output buffer.

LINE DCT hhhhhhhh - is the address of the line DCT for which the terminal has signed on.

PR. WORK hhhhhhhh - is the address of the printer work area.

COM.OWA hhhhhhhh - is the address of the work area for compress.

USER IOB hhhhhhhh - is the address of the terminal user's IOB.

USER FCT hhhhhhhh - is the address of the terminal user's FCT.

RES. AD hhhhhhhh - is the address of the terminal entry in the RJP line and terminal table.

NEXT DCT hhhhhhhh - is the address of the next remote DCT when there is more than one device associated with a terminal.

RECSIZ hhhh - is the logical record length most recently written.

MAXSIZ hhhh - is the maximum record length permitted for the device.

NO hh - is the terminal number.

BUFSIZ hhhh - is the length of the RJP buffer.

FCS hhhh - is the function control sequence last sent from a programmable terminal.

RCB/PUN hh - is the record control byte for punch select characters.

FL1 hh FL2 hh FL3 hh FL4 hh FL5 hh - are flag bytes obtained, consecutively, starting from SUPRMFL1 in IATYSUP.

Resident RJP Line and Terminal Table

RESIDENT RJP LINE AND TERMINAL TABLE is not formatted in the FSS dump but in JES3 is used to locate a line SUPUNIT or DCT entry when a line is to be started, and to locate a remote SUPUNIT or DCT entry when a terminal is being signed on. It also contains control information for each line or terminal. The table is mapped by macro IATYRLT.

LOC	DDNAME	TYPE	GROUP	PASSWORD	SUPUNITS	FLG1	FLG2	FLG3	FLG4	XCFE	FDB
02AD4250	LINE87	LINE		TAM66701	00000000	10	00	00			00050000CE96049080000000
02AD429C	LINE88	LINE			00000000	10	00	00			00050000CE97049080000000
02AD42E8	LINE89	LINE			00000000	10	00	00			00050000CE98049080000000
02AD4334	LINE8A	LINE			00000000	10	00	00			00050000CE99049080000000
02AD4380	LINE8B	LINE			00000000	10	00	00			00050000CE9A049080000000
02AD43CC	LINE8C	LINE			00000000	10	00	00			00050000CF13049080000000
02AD4418	LINE8D	LINE			00000000	10	00	00			00050000CF14049080000000
02AD4464	LINE8E	LINE			00000000	10	00	00			00050000CF15049080000000
02AD44B0	LINE8F	LINE			00000000	10	00	00			00050000CF16049080000000
02AD44FC	LINE90	LINE			00000000	10	00	00			00050000CF17049080000000
02AD4548	LINE91	LINE			00000000	10	00	00			00050000CF18049080000000
02AD4594	LINE92	LINE			00000000	10	00	00			00050000CF19049080000000
02AD45E0	LINE93	LINE			00000000	10	00	00			00050000CF1A049080000000
02AD462C	LINE94	LINE			00000000	10	00	00			00050000CF1B049080000000
02AD4678	LINE95	LINE			00000000	10	00	00			00050000CF1C049080000000
02AD46C4	LINE96	LINE			00000000	10	00	00			00050000CF1D049080000000
02AD4710	LINE97	LINE			00000000	10	00	00			00050000CF1E049080000000
02AD475C	LINE98	LINE			00000000	10	00	00			00050000CF1F049080000000
02AD47A8	LINE99	LINE			00000000	10	00	00			00050000CF20049080000000
02AD47F4	LINE9A	LINE			00000000	10	00	00			00050000CF21049080000000
02AD4840	LINE9B	LINE			00000000	10	00	00			00050000CF22049080000000
02AD488C	LINE9C	LINE			00000000	10	00	00			00050000CF23049080000000
02AD48D8	LINE9D	LINE			00000000	10	00	00			00050000CF24049080000000
02AD4924	BSC87	TERM		BSC87	00000000	10	00	00			00050000CF25049080000000
02AD4970	BSC88	TERM		BSC88	00000000	10	00	00			00050000CF26049080000000
02AD49BC	BSC89	TERM		BSC89	00000000	10	00	00			00060002173D049080000000
02AD4A08	BSC8A	TERM		BSC8A	00000000	10	00	00			00060002173E049080000000
02AD4A54	BSC8B	TERM		BSC8B	00000000	10	00	00			00060002173F049080000000
02AD4AA0	WS08C	TERM		WC08C	00000000	10	00	02			000600021740049080000000
02AD4AEC	WS08D	TERM		WS08D	00000000	10	00	02			000600021741049080000000
02AD4B38	WS08E	TERM		WS08E	00000000	10	00	02			000600021742049080000000
02AD4B84	WS08F	TERM		WS08F	00000000	10	00	02			000600021743049080000000
02AD4BD0	WS090	TERM		WS090	00000000	10	00	02			000600021744049080000000
02AD4C1C	WS091	TERM		WS091	00000000	10	00	02			000600021745049080000000
02AD4C68	WS092	TERM		WS092	00000000	10	00	02			000600021746049080000000

GROUP ccccccc - is the group name to which the terminal belongs. Output from a job entered in the group may be routed to any terminal in the same group. The name is assigned by the G parameter of the RJPTERM initialization statement.

SUPUNITS hhhhhhhh - is the starting address of the DCT-SUPUNITS entries for the line or terminal. It is zero when a line has not started or a terminal has not signed on.

FLG1 hh FLG2 hh FLG3 hh FLG4 hh are control bytes obtained, consecutively, starting at RTTFLAG1 in IATYRLT.

XCFE is the control byte RTTXCFE in IATYRLT used for the communications between JESXCF and RJPCONS

FDB hhhhhhhhhhhh - is the FDB for the DCT-SUPUNITS entries spooled to the queue, which occurs when a terminal is not signed on, or when a line is not started.

Resident SNA RJP table (SRT)

RESIDENT SNA RJP TABLE (SRT) is not formatted in the FSS dump but in JES3 is a multipurpose table built by IATINSNA and augmented with information from the COMMDEFN initialization statement.

RESIDENT SNA RJP TABLE (SRT)											
LOC	APLID	CTE	CIDU	SRDC	OUTM	MSG	INCD	RDRS	TERM	RESET	FRCB
0275F328	JES3	00000000	0275F3A0	000273D8	FFFFFFFF	FFFFFFFF	FFFFFFFF	02D28F70	FFFFFFFF	FFFFFFFF	FFFFFFFF
	WSOPN	WSCHN	WSBWQ	CMNDQ	LPFQ	WPFQ	TRQ	FLAG			
	FFFFFFFF	02CE256C	FFFFFFFF	FFFFFFFF	00000000	00000000	0	00000000	00		

APLID ccccccc - is the application name, obtained from the COMMDEFN initialization statement.

CTE hhhhhhhh - is the address of the CTE list for the compaction tables.

CIDU hhhhhhhh - is the address of the communications ID (CID)-to-session control block address (LCB) map table.

SRDC hhhhhhhh - is the address of the data CSECT for the SNA RJP DSP.

OUTM through CLRQ hhhhhhhh - are addresses of exit work queues.

MSG hhhhhhhh - is the address of the local console message queue.

INCD hhhhhhhh - is the address of the inbound console command queue.

RDRS hhhhhhhh - is the address of the reader call queue.

TERM hhhhhhhh - is the address of the terminate queue.

FRCB hhhhhhhh - is the address of the LUCB free queue.

WSOPN hhhhhhhh - is the address of the console out queue.

WSCHN hhhhhhhh - is the address of the workstation chain.

LPFQ hhhhhhhh - is the address of the LCB pending free queue.

WPFQ hhhhhhhh - is the address of the WSB pending free queue.

WPFQQ hhhhhhhh - is the address of the WSB pending free queue.

CMNDQ hhhhhhhh - is the address of the intercom command queue.

TRQ hhhhhhhh - is the address of the TR table free queue.

FLAG hh - are SRTFLG1 flag bytes.

Resident SNA Terminal Entries

RESIDENT SNA TERMINAL ENTRIES are not formatted in the FSS dump but are in a JES3 formatted dump.

RESIDENT SNA TERMINAL ENTRIES											
LOC	DDNAME	TYPE	GROUP	PASSWORD	SUPUNITS	FLG1	FLG2	FLG3	FLG4	XCFF	FDB
02ACFF8C	S007A	TERM	S007A		00000000	04	00	08	00040000D55F04908000000		
02ACFFD8	S007B	TERM	S007B		00000000	04	00	08	00040000D56104908000000		
02D0024	S008A	TERM	S008A		00000000	04	00	08	00040000D56304908000000		
02AD0070	S028A	TERM	S028A		00000000	04	00	08	00040000D56504908000000		
02AD00BC	S028B	TERM	S028B		00000000	04	00	08	00040000D56704908000000		
02AD0108	S028C	TERM	S028C		00000000	04	00	08	00040000D56904908000000		
02AD0154	S008B	TERM	S008B		00000000	04	00	08	00040000D56B04908000000		
02AD01A0	S009A	TERM	S009A		00000000	04	00	08	00040000D56D04908000000		
02AD01EC	S009B	TERM	S009B		00000000	04	00	08	00040000D56F04908000000		
02AD0238	S010A	TERM	S010A		00000000	04	00	08	00050000CEAF04908000000		
02AD0284	S010B	TERM	S010B		00000000	04	00	08	00050000CEB104908000000		
02AD02D0	S010C	TERM	S010C		00000000	04	00	08	00050000CEB304908000000		
02AD031C	S011A	TERM	S011A		00000000	04	00	08	00050000CEB504908000000		
02AD0368	S011B	TERM	S011B		00000000	04	00	08	00050000CEB704908000000		
02AD0384	S011C	TERM	S011C		00000000	04	00	08	00050000CEB904908000000		
02AD0400	S0061	TERM	S0061		00000000	04	00	08	00050000CEBB04908000000		
02AD044C	S0062	TERM	S0062		00000000	04	00	08	00050000CEBD04908000000		
02AD0498	S0063	TERM	S0063		00000000	04	00	08	00050000CEBF04908000000		
02AD04E4	S0080	TERM	S0080		00000000	04	00	08	00050000CEC104908000000		
02AD0530	S0081	TERM	S0081		00000000	04	00	08	00050000CEC304908000000		
02AD057C	S0082	TERM	S0082		00000000	04	00	08	00050000CEC504908000000		
02AD05C8	S0083	TERM	S0083		00000000	04	00	08	00050000CEC704908000000		
02AD0614	S0084	TERM	S0084		00000000	04	00	08	00050000CECF04908000000		
02AD0660	S0085	TERM	S0085		00000000	04	00	08	00050000CECF30490800000		
02AD06AC	S086A	TERM	S086A		00000000	04	00	08	00050000CEF504908000000		
02AD06F8	S086B	TERM	S086B		00000000	04	00	08	00050000CEF704908000000		
02AD0744	S087A	TERM	S087A		00000000	04	00	08	00050000CEF904908000000		
02AD0790	S087B	TERM	S087B		00000000	04	00	08	00050000CEFB04908000000		
02AD07DC	S088A	TERM	S088A		00000000	04	00	08	00050000CEFD04908000000		

GROUP ccccccc - is the group name to which the terminal belongs. Output from a job entered in the group may be routed to any terminal in the same group. The name is assigned by the G parameter of the RJPTERM initialization statement.

SUPUNITS hhhhhhhh - is the starting address of the DCT-SUPUNITS entries for the line or terminal. It is zero when a line has not started or a terminal has not signed on.

FLG1 hh FLG2 hh FLG3 hh FLG4 hh - are control bytes obtained, consecutively, starting at RTTFLAG1 in IATYRLT.

XCFF - is the control byte RTTXXCFG in IATYRLT used for the communications between JESXCF and RJPCONS.

FDB hhhhhhhhhhhh - is the FDB for the DCT-SUPUNITS entries spooled to the queue, which occurs when a terminal is not signed on, or when a line is not started.

WSB Entry

RESIDENT WSB/LUCB ENTRIES are not formatted in the FSS dump but in JES3 shows the contents of the WSB for each active workstation, followed by the device entries for the workstation and all active LCBs associated with the workstation.

RESIDENT WSB/LUCB ENTRIES														
WSB ENTRY														
LOC	NAME	AUTLU	WSCHN	WQ	LCBA	RLTA	RDRDE	PTRDE	PUNDE	CONDE	CSFL	FLG1	ALF1	FLG2
02CE256C	S0189		02CE2A6C	00000000	02D35F70	02AD3FAC	02CE2614	02CE2684	00000000	02CE26F4	A0	50	00	00

WSB ENTRY

NAME ccccccc - is the name of this workstation.

AUTLU ccccccc - is the name of the LU for auto-logon.

WSCHN hhhhhhhh - is the next resident WSB in the system.

WQ hhhhhhhh - is the continue field for SRTWSBWQ.

LCBA hhhhhhhh - is the first session LCB for this WSB.

RLTA hhhhhhhh - is the address of the resident terminal entry for this WSB.

RDRDE hhhhhhhh - is the address of the first device entry (DVE) for the reader device type.

PRTDE hhhhhhhh - is the address of the first DVE for the printer device type.

PUNDE hhhhhhhh - is the address of the first DVE for the punch device type.

CONDE hhhhhhhh - is the address of the inbound console DVE. The outbound console DVE follows the inbound DVE.

CSFL hh FLG hh ALF1 hh (not shown) FLG2 hh (not shown) - are flag bytes obtained from WSBCSFL1, WSBFLAG1, WSBALLF1, and WSBFLAG2, respectively.

Device Entry

DEVICE ENTRY

LOC	LCB	NSTE	WSB	SUP	SNSD	FL1	FL2	FL3	FL4	CSFL	DVSL	EXFL	LRCL
02CE2614	02D35F70	00000000	02CE256C	02CE2890	00000000	88	00	00	20	00	20	00	0050

DEVICE ENTRY

LOC	LCB	NSTE	WSB	SUP	SNSD	FL1	FL2	FL3	FL4	CSFL	DVSL	EXFL	LRCL
02CE2614	00000000	00000000	02CE256C	02CE292C	00000000	00	00	00	00	00	30	00	0000

DEVICE ENTRY

LOC	LCB	NSTE	WSB	SUP	SNSD	FL1	FL2	FL3	FL4	CSFL	DVSL	EXFL	LRCL
02CE26F4	00000000	00000000	02CE256C	02CE27F4	00000000	20	00	00	00	00	00	00	0000

DEVICE ENTRY

LOC	LCB	NSTE	WSB	SUP	SNSD	FL1	FL2	FL3	FL4	CSFL	DVSL	EXFL	LRCL
02CE2764	02D35F70	00000000	02CE256C	02CE27F4	00000000	80	00	00	00	20	00	00	0084

DEVICE ENTRY

LOC hhhhhhhh - is the address of this DVE.

LCB hhhhhhhh - is the address of the LCB if the device is active for a session.

NSTE hhhhhhhh - is the address of the next DVE.

WSB hhhhhhhh - is the address of the WSB entry associated with this DVE.

SUP hhhhhhhh - is the address of the SUPUNITS entry associated with this DVE.

SNSD hhhhhhhh - are the DVE sense bytes.

FL1 hh FL2 hh FL3 hh FL4 hh CSFL hh - are flag bytes, prefixed by DVE.

DVSL hh - is the media type and subaddress used in a BDS FMH.

EXFL hh - is the DVEEXFLG which indicates whether this device is an exchange device.

LRCL hh - is the logical record length for an inbound deblock record or an outbound block record.

LCB Entry

LCB ENTRY															
LOC	NAME	CHN	WSB	CID	CIDSL	OUTM	INCD	RDRS	TERM	RESET	FRCB	WSOPN			
02D35F70	L0000029	00000000	02CE256C	01000102	0275F450	00000000	00000000	00000000	00000000	00000000	00000000	00000000			
IST	OST	FRONT	REAR	FIRST	LAST	RUUSECT	FLCS1	CSFL1	CSFL2	CSFL3					
02CE2614	00000000	02D366DC	02D36748	02D366DC	02D367D8	00000003	10	28	00	80					
CSFL5	USCT	LUS	FL0	FL1	FL2	FL3	FL4	SRPL	RRPL	NIB	LRCL	PSST	FMWA	PSWA	TRTBL
00	0001	00	00	88	4A	00	08	02D3607C	02D360FC	02D362FC	0084	02D36344	02D36370	02D363BC	00000000

LCB ENTRY

LOC hhhhhhhh - is the address of this LCB.

NAME ccccccc - is the name of the logical unit.

CHN hhhhhhhh - is the address of the next LCB for this WSB.

WSB hhhhhhhh - is the address of the WSB associated with this LCB.

CID hhhhhhhh - is the communications ID for this session.

CIDSL hhhhhhhh - is the position of this LCB in the CID-to-LCB map table.

OUTM hhhhhhhh - a queue of console messages that the LCB is waiting to send

INCD hhhhhhhh - a queue of messages that the LCB is waiting to process

RDRS hhhhhhhh - a chain of LCBs that require a reader. The reader must be started before the LCB can be removed from the chain.

TERM hhhhhhhh - address of the LCBs whose destinations should be closed.

RESET hhhhhhhh - address of a chain of LCBs that require resetting

FRCB hhhhhhhh - address of a chain of LCBs. The control blocks that belong to the LCBs on the FRCB chain can be returned to storage.

WSOPN hhhhhhhh - address of a chain of LCBs that are waiting for a workstation open request.

IST hhhhhhhh - is a pointer to the inbound stack.

OST hhhhhhhh - is a pointer to the outbound stack.

FRONT hhhhhhhh - is the address of the front BFE. (Used for buffer allocation.)

REAR hhhhhhhh - is the address of the rear BFE. (Used for buffer allocation.)

FIRST hhhhhhhh - is the address of the first BFE.

LCB Entry (WSB)

LAST hhhhhhhh - is the address of the last BFE. RUUSECT hhhhhhhh - is the number of RUs currently in use.

FLCS1 hh - is a flag byte. See the following list of values to determine the meaning of the field.

Value Meaning

- X'80' indicates I/O is pending at the workstation
- X'40' indicates the LCB is on the purge chain
- X'20' indicates the LCB is waiting for a response from another workstation
- X'10' indicates the workstation received a cancel or end-of-chain request.
- X'08' indicates the workstation sent a positive response to a request
- X'04' indicates the workstation sent a negative response to a request
- X'02' indicates the workstation will not send a positive response to any request

CSFL1 hh - is a status indicator used to determine the beginning and end of a request sent to a workstation. The flag is also used to determine if the request is sent to or issued by the workstation.

CSFL2 hh - is a status indicator used to indicate the workstation should stop sending requests at the next end-of-chain.

CSFL3 hh - is a status indicator used to determine if the workstation received or sent a signal to another workstation.

CSFL5 hh - is a status indicator used during the workstation's termination processing. The following values can be used in the flag:

Value Meaning

- X'80' indicates the session is immediately quiescing
- X'40' indicates the session is quiescing
- X'20' indicates JES3 requested VTAM issue a close destination request.
- X'10' indicates JES3 processed the close destination request.
- X'08' indicates the LCB should be returned to storage when the use count reaches zero.

USCT hhhh - is the use count of the LCB

LUS hh - is the status flag for the logical unit (LU). The LU represents the line.

FL0 hh - is a status flag that indicates the data flow control. The following are values that can be found in this field.

Value Meaning

- X'80' indicates the indicator, the bracket, at the beginning of a RU that was rejected.
- X'40' indicates a cancel request was sent to terminate the flow of data.
- X'20' indicates a request to open the workstation's writer was issued.
- X'10' indicates a request to open the workstation's console was issued.

X'04' indicates VTAM indicated a session should be started.

FL1 dd - indicates the mode of the session. The mode of a session can be in one of the following states:

Value Meaning

X'40' indicates the workstation received an RU that was empty or the caller did not properly initialize.

X'08' indicates the session is in special mode

FL2 dd - is a status flag. The flag can have one of the following meanings:

Value Meaning

X'80' indicates the destination has not been selected

X'40' A SMF type 47 record was received by the workstation.

X'20' indicates the data stream can be sent

FL3 dd - is a status flag that indicates the status of the device currently being used.

FL4 dd - is a status flag that indicates the following:

Value Meaning

X'80' indicates a request to close the destination was received but the workstation has not processed the request.

X'40' indicates the request to close the destination was processed.

X'20' indicates an error occurred during the session

X'10' indicates the session should be terminated

X'08' indicates the destination is opened.

SRPL hhhhhhhh - is the address of the Send RPL.

RRPL hhhhhhhh - is the address of the Receive RPL.

NIB hhhhhhhh - is the address of the node initialization block (NIB) for this session.

LRCL hhhh - is the logical record length used for this session.

PSST hhhhhhhh - is the address of the beginning of the presentation services work area.

FMWA hhhhhhhh - is the address of the function management work area.

PSWA hhhhhhhh - is the address of the presentation services buffer area.

TRBL hhhhhhhh - is the address of the trace table.

NJE Resident Node Table (NJE)

NJE Resident node table

NJE RESIDENT NODE TABLE - contains information on each node that is defined to your installation. Each node is defined to your installation by the NJERMT initialization statement. The information for the table is obtained from mapping macro IATYNJY.

NJE RESIDENT NODE TABLE. HOMENODE = NODE1															
NJEFLAG1 DESCRIPTION															
NJECTC 80	NJEAUTO 40	NJEMULTI 20 NJEHOME 10		NJEWPENC 08 NJEPWLOC 04		NJEHOLD 02 NJETYPSN 01									
NJEFLAG2 DESCRIPTION															
NJEALIAS 80		NJENTHLD 40		NJEXNMNR 20		NJENODEF 10		NJETCPIP 08		NJESCSGN 04		NJEACTIV 02		NJETLS 01	
ADDRESS	NJENAME	NJEPATH	NJELINE	NJEBDTID	NJESACT	2	3	NJEBFSIZ	NJEFLAG1	NJEFLAG2	JT	OT	JR	OR	NJEFSOCK
04BC72AC	NODE1	NODE1	SYSA1	00000000	00000000	00000000	0190	10	00						
04BC7314	NODE2	NODE2		04BF4258	00000000	00000000	0780	A0	00						
04BC737C	NODE3	NODE3						A0	08		1	1	1	1	171C58A0
04BC73E4	NODE4	NODE4						A0	08		1	1	1	1	171C95E8
04BC744C	NODE5	NODE5		00000000	00000000	00000000	0780	A0	00						
04BC74B4	POKUTCJ8	POKUTCJ8		00000000	00000000	00000000	0190	01	00						
04BC751C	POKUTCJ9	POKUTCJ9		00000000	00000000	00000000	0190	01	00						
04BC7584	POKUTCJA	POKUTCJA		00000000	00000000	00000000	0190	01	00						
NJE ACTIVE BSC NODE DATA CSECTS/RECEIVER WORK AREA															
LMSTAT1				LMSTAT2				LMSTAT3				LMSTAT4			
NORCV	80	NAKRCVD	08	LMCTC	80	LMIOERR	08	CANXMIT	80	OPRCV	08	XMITSW	80	OPPRMRQD	08
LOGGING	40	CANCRQST	04	LMAUTO	40	RSETNRCV	04	TRANS	40	OPTRANS	04	PENDG	40	JBPRMRQD	04
DUMMYRD	20	LNSTRTD	02	LMMULTI	20	CANRQIM	02	JBRCV	20	NMRRCV	02	JBPENDG	20	PERMREFP	02
LNBSY	10	LNRSNG	01	LNTERM	10	LNIOTERM	01	JBTRANS	10	CANXMITJ	01	OPPENDG	10	NOTUSED	01
LMSTAT5															
NDTQUIES	80	NDTRSTLN	08												
NDTSSWT	40	NOTUSED	04												
NDTJBXAP	20	NOTUSED	02												
NDTOPXAP	10	NOTUSED	01												
GENERAL-JOB-SYSOUT SENDER FLAGS DESCRIPTION															
XMITRDY	80	XMITCMP	40	XMITEOF	20	RESCHED	10	ALLOCED	08	XMITCAN	04	XMITABRT	02	XABRTSNT	01
RCVEOF0K	80	RCVEOFRJ	40	NOTUSED	20	NOTUSED	10	NOTUSED	08	NOTUSED	04	NOTUSED	02	NOTUSED	01
ADDRESS	NAME	LINE	BUFSIZ	RDBFR	WRBFR	LASTCP	INFCS	OUTFCS	CALLCNID	FRSTCNSB					
04BF4258	NODE2	992	0780	04CC9738	04CBF4C8	04BF4378	8FCF	8FCF	0005	00000000					
LNIOB	LNSRB	RCVWRKPT	LMSTAT1	LMSTAT2	LMSTAT3	LMSTAT4	LMSTAT5	LMECF	LMECFS	LNECB					
01B18130	04BF49F4	0218B8A8	02	A0	08	80	00	00000000	00	00000000					
SNDRPRM			JBSNPRM			OPSNPRM									
00000000	00000000	00000000	00980009	04D92AA28	00000000	00990009	04DFFA31	00000000							

HOMENODE ccccccc - is the home node name.

NJECTC hh through NJETYPSN hh - are the entry flag bit names for the values displayed in the FLAG1 field.

ADDRESS hhhhhhhh - is the node table entry address.

NJE Resident Node Table (NJE)

NJENAME ccccccc - is the node name of the entry.

NJEPATH ccccccc - is the path name of the entry.

NJELINE cccc - is the BSC line name associated with the node entry.

NJEBDTID ccccccc - is the sysid of the MVS/BDT subsystem at the home node that processes SNA/NJE work.

NJECSACT hhhhhhhh - are the BSC line manager data csect pointers for the entry.

NJEBFSIZ hhhh - is the defined transmission buffer size for the entry.

NJEFLAG1 hh - are the entry flag settings.

NJEFLAG2 hh - are the second entry flag settings.

JT (NJEJTRN) h - is the number of job transmitters. This value applies to TCP/IP nodes only.

OT (NJEOTRN) h - is the number of output transmitters. This value applies to TCP/IP nodes only.

JR (NJEJRCV) h - is the number of job receivers. This value applies to TCP/IP nodes only.

OR (NJEORCV) h - is the number of output receivers. This value applies to TCP/IP nodes only.

NJEFSOCK hhhhhhhh - is the address of the first socket for this node. This value applies to TCP/IP nodes only.

NJE ACTIVE NODE DATA CSECTS

LMSTAT1 through LMSTAT5 ccccccc hh - are the line data area flag bit descriptions.

GENERAL-JOB-SYSOUT SENDER FLAGS DESCRIPTION

XMITRDY through XABRTSNT hh - are the bit descriptions for the first sender flag.

RCVEOFOK through NOTUSED hh - are the bit descriptions for the second sender flag.

ADDRESS hhhhhhhh - is the BSC line manager data csect pointer.

NAME ccccccc - is the node name.

LINE cccc - is the line name.

BUFSIZ hhhh - is the defined transmission buffer size.

RDBFR hhhhhhhh - is the address of the read buffer.

WRBFR hhhhhhhh - is the address of the write buffer.

NJE Resident Node Table (NJE)

LASTCP hhhhhhhh - is the address of the last channel program which was issued.

INFCS hhhh - are the received function control sequence (FCS) characters.

OUTFCS hhhh - are the FCS characters to be sent.

CALLCNID hhhh - is the calling console number.

FRSTCNSB hhhhhhhh - is the address of the first nodal message record (NMR) to be transmitted.

LNIOSB hhhhhhhh - is the address of the line input output supervisor block.

LNSRB hhhhhhhh - is the address of the line SRB.

JBRPLIST hhhhhhhh - is the address of the job parameter list for the network receiver.

OPRPLIST hhhhhhhh - is the address of the SYSOUT parameter list for the network receiver.

LMSTAT1 through LMSTAT5 hh - are the flag LMSTATn settings.

LMECF hhhhhhhh - is the line manager ECF setting.

LMECF5 hh - is the line manager ECF setting serialized for a multitasking environment.

LNECB hhhhhhhh - is the line ECB setting.

SNDRPRM hhhhhhhh hhhhhhhh hhhhhhhh - is the general sender flag and parameter list.

JBSNPRM hhhhhhhh hhhhhhhh hhhhhhhh - is the job sender flag and parameter list.

OPSNPRM hhhhhhhh hhhhhhhh hhhhhhhh - is the SYSOUT sender flag and parameter list.

Networking Console Pointers and Queues

NETWORKING CONSOLE POINTERS										
CONSOLE QUEUE										
040DD9D0										
NETWORKING CONSOLE QUEUE										
	RESPONSE	OCOMMAND	OMESSAGE	ICOMMAND	IMESSAGE	TSO	OSNANMR	REJECTED	PENDING	NJECNSFL
FIRST	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	03B6FFD8	10
LAST	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	03B6FFD8	

NETWORKING CONSOLE POINTERS

Networking Console Pointers and Queues (NJE)

CONSOLE QUEUE hhhhhhhh - is the address of the networking console queue (NCQ).

NETWORKING CONSOLE QUEUE

FIRST, LAST hhhhhhhh - are the address of the first and last NCQ entries.

NJECNSFL hhhhhhhh - is the NJE console flag.

NJE Active BSC Node Table

NJE ACTIVE BSC NODE DATA CSECTS/RECEIVER WORK AREA															
LMSTAT1			LMSTAT2			LMSTAT3			LMSTAT4						
NORCV	80	NAKRCVD	08	LMCTC	80	LMIOERR	08	CANXMIT	80	OPRCV	08	XMITSW	80	OPPRMRQD	08
LOGGING	40	CANCRQST	04	LMAUTO	40	RSETNRCV	04	TRANS	40	OPTRANS	04	PENDG	40	JBPRMRQD	04
DUMMYRD	20	LNSTRTD	02	LMMULTI	20	CANRQIM	02	JBRCV	20	NMRRCV	02	JBPENDG	20	PERMREFP	02
LNBUSY	10	LNRSTNG	01	LNTERM	10	LNIOTERM	01	JBTRANS	10	NOTUSED	01	OPPENDG	10	NOTUSED	01
LMSTAT5															
NDTQUIES	80	NDRSTLN	08												
NDTSSWT	40	NOTUSED	04												
NDTJXAP	20	NOTUSED	02												
NDTOPXAP	10	NOTUSED	01												
GENERAL-JOB-SYSOUT SENDER FLAG DESCRIPTION															
XMITRDY	80	XMITCMP	40	RCVDEOF	20	RESCHED	10	ALLOCED	08	XMITCAN	04	XMITABRT	02	XABRTSNT	01
RECEIVER WORK AREA POINTER INVALID															
ADDRESS	NAME	LINE	BUFSIZ	RDBFR	WRBFR	LASTCP	INFCS	OUTFCS	CALLCNID	FRSTCNSB					
04BF4258	NODE2	992	0780	04CC9738	04CBF4C8	04BF4378	8FCF	8FCF	0005	00000000					
LNIOSB	LNSRB	RCVWRKPT	LMSTAT1	LMSTAT2	LMSTAT3	LMSTAT4	LMSTAT5	LMECF	LNECB						
01B18130	04BF49F4		02	A0	08	00	00	00000000	00000000						
SNDPRM		JBSNPRM		OPSNPRM											
00000000	00000000	00980009	04D92A28	00990009	04DFFA31										

NJE ACTIVE BSC NODE DATA CSECTS/RECEIVER WORK AREA

LMSTAT1 through LMSTAT5 ccccccc hh - are the line data area flag bit descriptions.

GENERAL-JOB-SYSOUT SENDER FLAG DESCRIPTION

XMITRDY through NOTUSED hh - are the logical sender flag bit descriptions.

ADDRESS hhhhhhhh - is the BSC line manager data csect pointer.

NAME ccccccc - is the node name.

LINE cccc - is the line name.

BUFSIZ hhhh - is the defined transmission buffer size.

RDBFR hhhhhhhh - is the address of the read buffer.

WRBFR hhhhhhhh - is the address of the write buffer.

NJE Active BSC Node Table (NJE)

LASTCP hhhhhhhh - is the address of the last channel program which was issued.

INFCS hhhh - are the received function control sequence (FCS) characters.

OUTFCS hhhh - are the FCS control characters to be sent.

CALLCNID hhhh - is the calling console number.

FRSTCNSB hhhhhhhh - is the address of the first nodal message record (NMR) to be transmitted.

LNIOSB hhhhhhhh - is the address of the line input/output supervisor block.

LNSRB hhhhhhhh - is the address of the line SRB.

RCVWRKPT hhhhhhhh - is the address of the associated network receiver data area (NRD).

LMSTAT1 through LMSTAT5 hh - are the flag LMSTATn settings.

LMECF hhhhhhhh - is the line manager ECF setting.

LNECB hhhhhhhh - is the line ECB setting.

SNDRPRM hhhhhhhh hhhhhhhh - is the general sender parameter list.

JBSNPRM hhhhhhhh hhhhhhhh - is the job sender parameter list.

OPSNPRM hhhhhhhh hhhhhhhh - is the SYSOUT sender parameter list.

ADDRESS hhhhhhhh - is the address of the NRD.

NRDJPARM hhhhhhhh - is the address of the job reception parameter list.

NRDJRVF1 hh - is a flag in the NRDJPARM parameter list that indicates the status of the job being received.

NRDJRVF2 hh - is a NRDJPARM flag byte.

NRDOPARM hhhhhhhh - is the address of the SYSOUT reception parameter list.

NRDORVF1 hh - is a flag in the NRDOPARM parameter list that indicates the status of the SYSOUT data set being received.

NRDORVF2 hh - is a NRDOPARM flag byte.

NRDORVF3 hh - is a NRDOPARM flag byte.

NRDFLAG1 hh - is a flag byte for the receiver.

DJC JOBNET Control Blocks

DJC JOBNET CONTROL BLOCKS (JNCBs) contain the information reflecting the total network of jobs in DJC. There is one JNCB for each unique job network identified by NET control statements submitted with the jobs. The JNCB chain, resident in storage, is the major control block that allows DJC management.

LOC	NET-ID	NCBFDBADR	TOTAL	CURR	F1	F2	F3	NEXT	JSEBUFF	JSEALLOC	JSEFREE	NFTBUFF
01C71298	J3I180A	000600029214	00006	00001	00	00	00	01C73D68	02E99BA0	02E99C0C	02E99C24	02E99FA0
01C73D68	J3X AFC01	000300011665	00004	00000	00	00	00	01C73CF8	02E995E0	02E9964C	02E99664	02E99B40

TOTAL dddd - is the number of jobs currently entered in the network regardless of completion status.

CURR dddd - is the number of jobs in the network that have completed all processing.

F1 hh F2 hh F3 hh - are flag bytes obtained, consecutively, starting at JNFLAG1.

JSEBUFF hhhhhhhh - is formatted from the JNJSEBUF field of the JNCB. It is the address of the first job summary element (JSE) for this job net.

JSEALLOC hhhhhhhh - is formatted from the JNJSEALC field of the JNCB. It is the address of the first allocated JSE for this job net.

JSEFREE hhhhhhhh - is formatted from the JNJSEFRE field of the JNCB. It is the address of the first free JSE buffer.

NFTBUFF hhhhhhhh - is formatted from the JNNFTBUF field of the JNCB. It is the address of the first NCB FDB table (NFT) buffer.

Address Range (CSA)

Address range

```

**** ADDRESS RANGE 00B9EB68 TO 00B9EFF0 IS SSVT                IN  JES3/CSA SP=228 (DUPLICATE LINES SUPPRESSED) ****
00B9EB60                00000027 01020304      05060708 090A0B0C 0D0E000F 10111213      -----
00B9EB80 14151617 18191A1B 1C1D1E1F 20210000 00000025 00000000 00000000 00000000 -----
00B9EBA0 26000000 00000000 00270000 00000000 00000000 00000000 00000000 -----
00B9EBC0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 -----
***** 00B9EBE0 TO 00B9EC5F SUPPRESSED - SAME AS ABOVE *****
00B9EC60 00000000 00000000 00000000 822DE220 822D9720 822E00E0 822DD440 822DB6E0 -----S-----M-----
00B9EC80 822D44DC 822D4BF8 822DA5B0 822E0750 822E3350 822E04E0 822DCC2A 822DCDC0 -----8-----
00B9ECA0 822D9A50 822DEAD0 80BDEE04 80BDED28 822DEA14 822DD734 822DD6A8 822D5D28 -----P--0-----
00B9ECC0 822D6610 822D5EF8 822D62CA 822D6F6C 822D713A 822D9E38 822D9F20 822D9F80 -----8-----
00B9ECE0 822D9F84 822D95F8 822E0750 822DD8A8 822DD8A8 822DDCB0 822DD2A 822D7200 -----8-----
00B9ED00 822D7C60 822D5B30 00000000 00000000 00000000 00000000 00000000 -----
00B9ED20 00000000 00000000 00000000 82299730 80BE93A8 82295D00 80BE6FD8 8229AF8A -----Q-----
00B9ED40 82298EA0 80BE1E38 80BDF7E0 822E3DF8 822E6920 822E6A68 822E6B08 822E78A4 -----7---8-----
00B9ED60 82295000 822E99A0 0229FD18 8229C3C0 822DCC80 822DCE16 82297000 00000000 -----C-----
00B9ED80 00000000 00000000 00000000 C9C1E3E2 E2E5E340 C8D1E2F3 F3F1F140 F0F261F0 -----IATSSVT-HJS3311-02-0
00B9EDA0 F261F8F8 F2F14BF1 F0400000 00B9EFF0 011C0488 000007D1 80000000 D1C5E2F3 2-8821-10-----0-----J-----JES3
00B9EDC0 00000000 00F1F400 01CA6438 026B8BE0 023A7E70 0229A5A0 0229AA38 02299870 -----14-----
00B9EDE0 02296162 0229693E 00BE8C50 00BE7B5E 00BE7BAC 00000000 826D0C60 00B9EF7C -----
00B9EE00 00000000 00000000 01CA6A88 007FF190 026D0A20 02649BF0 0268B000 02690000 -----1-----0-----
00B9EE20 02395908 026D0720 023A85B8 807DD728 00000000 022D4EC8 822DF674 026B91E0 -----P-----H--6-----
00B9EE40 02691030 02701000 026B9000 02697338 00000000 00000000 026BACB8 026D09F8 -----8
00B9EE60 00000000 00000000 00000000 000000FF 000000FF 00000000 00000182 00000013 -----
00B9EE80 00000000 026F4698 023E1000 025DD000 001A0098 08000600 822A3C08 82297DA0 -----
00B9EEA0 00000000 00000000 IFACBC00 00000000 00000000 00000000 00000000 00000000 -----
00B9EEC0 00000000 000210EB 026D03C0 026D0420 026D0520 01CD5BD8 00000000 00000000 -----Q-----
00B9EEE0 00000000 01C02E20 026D0530 C0C00000 00000000 00000000 00000000 00000000 -----
00B9EF00 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 -----
00B9EF20 00000000 00000000 00000000 00000000 00000000 00000600 00000000 00000000 -----
00B9EF40 00000FF4 00000FC8 00007FFF 0000FFFF 00001000 00FFFFFF 11110000 00000000 ---4---H-----
00B9EF60 00000000 00000000 00000000 00000020 0006273C 00000701 00021F17 40000000 -----
00B9EF80 2AB12852 01480020 40404040 40404040 40000000 00000000 00D3013A 00000000 -----L-----
00B9EFA0 00000000 00000000 00000000 00000000 00000012 02000FCC 00010600 00C80BB8 -----
00B9EFC0 03010008 00000000 00000000 00000000 00000000 00000000 04000000 00000000 -----
00B9EFE0 00441880 00000000 00000000 00000000 -----

```

**** ADDRESS RANGE hhhhhhhh TO hhhhhhhh IS... This portion of the dump contains JES3 control blocks and data from the common service area (CSA), the system queue area (SQA), the JES3 address space private area, and the JES3 auxiliary address space private area. Each block is identified by address range and name.

Note: "JES3/CSA SP=228" will read "FSS/CSA SP=228" when running in an FSS address space. Data printed here is obtained from the storage trace table. This table, in CSA for the JES3 address space and in private for C/I FSS address spaces, reflects storage "logged in" or deliberately traced by the DSP managing the storage using the IATXSQE macro instruction.

SYSOUT Application Programming Interface Data

```

*****
***** SAPI FCT Work Area *****
*****
SFW: 04C9C300
+0000 SFWID.... SFW      SFWECF... 04801227 SFWMASK.. 04      SFWSDSOR. 00000000 SFWSDSEN. 7FFFF000 SFWSDSTK. 80002500
+0018      00000047 SFWCWSVA. 04D65000 SFWCWHT.. 04D69000 SFWCWHBK. 000003FD SFWCWPA.. 048005A8 SFWCWAL.. 0101001D
+0044 SFWCWSVD. 04D63000 SFWDSCWA. 00000000 SFWREGSV. 00000000 00000000 00000000 00000000 00000000 00000000
+0068      00000000
+009C SFWFLAG1. 00
      Bits set in flag SFWFLAG1
      -----
      None
+009D SFWFLAG2. 80      SFWXCOCP. 00000000 SFWXCOCA. 00000000 SFWXCRTN. 00000000 SFWXCRSN. 00000000 SFWXCTOK. ....
      Bits set in flag SFWFLAG2
      -----
      SFWSALOK - SAPI dataspace access OK
+00B8 SFWXCWSV. 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
+00E4      00000000 00000000 00000000
*****
***** SAPI DSP Entries *****
*****
***** Base SDE *****
*****
SDE: 04800630
+0000 SDEID.... SDEB      SDEFIRST. 04CC3008 SDELAST.. 04CC3008 SDEIDLEQ. 00000000 SDESFWAD. 04C9C300 SDESDWAD. 00000000
+0018 SDETRACE. 00000000 00000000 00000000 00000000      SDEFCTAD. 00000000 SDEDSPAD. 00000000 SDESTAR.. 00000000
+0034 SDERQADR. 00000000
+0050 SDEBFLAG. 80
      Bits set in flag SDEBFLAG
      -----
      SDEBASE - Indicate this is the base entry
+0051 SDEPOST.. 00
      Bits set in flag SDEPOST
      -----
      None
+0052 SDEFLAG1. 00
      Bits set in flag SDEFLAG1
      -----
      None

```

SYSOUT Application Programming Interface Data (SAPI)

```

*****
***** Active SDEs *****
*****
***** SAPI DSP Entry 0001 *****
*****

SDE: 04CC3008
+0000 SDEID... SDE      SDENEXT.. 00000000 SDEPREV.. 00000000 SDEPENSA. 00000000 SDELPNSA. 00000000 SDESDWAD. 04DDC020
+0018 SDETRACE. 00000000 00000000 00000000 00000000 SDEFCTAD. 04CA0E08 SDEDSPAD. 0483AEA0 SDESTAR.. 00000000
+0034 SDERQADR. 00000000
+0050 SDEBFLAG. 00
      Bits set in flag SDEBFLAG
      -----
      None
+0051 SDEPOST.. 00
      Bits set in flag SDEPOST
      -----
      None
+0052 SDEFLAG1. 00
      Bits set in flag SDEFLAG1
      -----
      None

SDW: 04DDC020
+0000 SDWID.... SDW      SDWSDEAD. 04CC3008 SDWWSPP... 04DDCAC0 SDWSECPT. 04DDC268 SDWSPCPT. 04DDCA30 SDWSTA... 00000000
+0018 SDWCOW... 04D66710 SDWSSOB.. 04D66BB8 SDWAPPRQ. 00000000 SDWSSAD. 00000000 SDWSPOTM. 00000000 00000000
+0038 SDWSYSRQ. 00000000 SDWCRJOB. 0000 SDWSTOKN. 00000000 00000000 SDWENTIT. 00000000 00000000 00000000
+0054 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00
+0080 SDWSSOB. 04864048 SDWSUBCB. 00000000 SDWSUBRT. 00000000 SDWSUBSV. 00000000 00000000 00000000 00000000 00000000
+00A0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 SDWDSVE.. 00000000
+00C8 SDWDSVE2. 00000000 SDWOSVE.. 00000000 SDWOSVE2. 00000000 SDWOSVE3. 00000000 SDWPRTAD. 00000000 SDWPRTRG. 00000000
+00E0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
+010C 00000000 00000000 SDWNRRTAD. 00000000 SDWNRTRG. 00000000 00000000 00000000 00000000 00000000
+012C 00000000 00000000 00000000 SDWNRTRG. 00000000 SDWNRTRG. 00000000 00000000 00000000 SDWJRET. 00000000
+0154 SDWJRET. 00000000 SDWFDBT.. 00000000 00000000 00000000 0000 SDWFDBSV. 00000000 00000000 00000000
+0174 SDWFDBL.. 00000000 00000000 00000000 SDWRQFDB. 00000000 00000000 00000000 0000 SDWSEID. ....
+0192 SDWNKFDB. 00000000 00000000 00000000 SDWNXFDB. 00000000 00000000 00000000 SDWSLINE. 00000000 SDWSPAGE. 00000000
+01C0 SDWSBYTE. 00000000 SDWSREC.. 00000000
+01E8 SDWSTYPE. 80
      Bits set in flag SDWSTYPE
      -----
      SDWGETRQ - SAPI Get request
+01E9 SDWDFLG1. 00
      Bits set in flag SDWDFLG1
      -----
      None
+01EA SDWDFLG1. 00
      Bits set in flag SDWDFLG1
      -----
      None
+01EB SDWDFLG2. 00
      Bits set in flag SDWDFLG2
      -----
      None
+01EC SDWDFLG3. 00
      Bits set in flag SDWDFLG3
      -----
      None
+01ED SDWOARV1. 40
      Bits set in flag SDWOARV1
      -----
      SDWSTGOB - COW storage obtained
+01F0 SDWCOWTR. 04D66710
+01F4 SDWDFLG4. 00
      Bits set in flag SDWDFLG4
      -----
      None
+01F5 SDWRTNIN. 00 SDWXCOCB. 00059000 SDWXCACA. 0101001D SDWXCRTN. 00000000 SDWXCRSN. 00000000 SDWXCSTK. ....
+0210 SDWXCWSV. 01E8C3E6 E2E54020 00A00000 04DDC228 00000000 04DDC218 04DDC21C 00000000 00000000 00000000 00000000
+023C 00000000 00000000 00000000

*****
***** Idle SDEs *****
*****
There are no SDEs on this queue

```


SYSOUT Application Programming Interface Data (SAPI)

```
*****  
***** SAPI Wait for Work Elements *****  
*****  
***** Base SWE *****  
*****  
SWE: 04876FD0  
+0000 SWEID... SWEB      SWEFIRST. 00000000 SWELAST.. 00000000 SWEECFAD. 00000000 SWEMASK.. 00      SWEHCNT. 00  
+0012 SWEPOST.. 00  
      Bits set in flag SWEPOST  
      -----  
      None  
+0013 SWEFLG1.. 80  
      Bits set in flag SWEFLG1  
      -----  
      SWEBASE - Indicate this is the base entry chained off of field  
                TVTSAPWQ  
  
*****  
***** SWE Queue *****  
*****  
There are no SWEs on the queue
```

Client Output Work (COW) area

COW - Client output work area

```
COW: 00052000
+0000 COWREQLN. 09B8      COWID.... COW      COWVER... 02
+0008 COWNEXT.. 00000000  COWPREV.. 00000000  COWAPJBN. TOMN
+0018 COWAPJBI. 00000015  COWTRDCT. 00000001  COWAASC. 00F4B600
+0024 COWAPTCB. 007F9B08  COWTCBTK. 00000068  00000002  0000000E
+0034      007F9B08  COWAPSTT. B2291398  5F8EC343
+0040 COWAPRQT. B2291398  92824584      COWPRIV.. 00000000
+004C      00000000  COWSLJBI. 00000000  COWSHJBI. 00000000
+0058 COWSDST.. 00000000  00000000  COWSZDST. 00000000
+0064      00000000  COWUDST.. 00000000  00000000
+0070 COWU2DST. 00000000  00000000  COWLEN... 00000570
+008C COWCKJBI. 00000000  COWOSEFB. 0000      COWVOFST. 0000
+0094 COWDOFST. 0000      COWOSEFB. 00000000  00000000  00000000  0000
+00A4 COWBRTKN. 006E      COWTKENT. 0007      COWTKPL1. 0004
+00AA COWTKID.. BTOK      COWTKPL2. 0002      COWTKTYP. 02
+00B1 COWTKVRS. 02      COWTKPL3. 0004      COWTKPTR. 7F6DF648
+00B8 COWTKPL4. 0004      COWTKPL5. 0002      COWTKPL6. 0008
+00CC COWTKPL7. 00FF
+00D0 COWFLAG1. 00      COWSWBST. 00000000  COWBUFAD. 00000000
      Bits set in flag COWFLAG1
      -----
      None
```

```
+0108 COWAUXAD. 00000000  COWKMERT. 00000000  COWKERAT. 00000000
+0114 COWADMPT. 00000000  COWADPPT. 00000000  COWADDPT. 00000000
+0120 COWGDBK.. 00000000  COWADMKT. 00000000
+0128 COWACCNT. 00      COWACTXT. 00000000  00000000  00000000
+0135      00000000  00000000  00000000  00000000  00000000
+0149      00000000  00000000  00000000  00000000  00000000
+015D      00000000  00000000  00000000  00000000  00000000
+0171      00000000  00000000  00000000  00000000  00000000
+0185      00000000  00000000  00000000  00000000  00000000
+0199      00000000  00000000  00000000  00000000  00000000
+01AD      00000000  00000000  000000      COWTRACE. 00000000
+01BC      00000000  00000000  00000000  00000000  00000000
+01D0      00000000  00000000  00000000  00000000  00000000
+01E4      00000000  00000000  00000000  00000000  00000000
+01F8      00000000  00000000  00000000  00000000  00000000
+020C      00000000  00000000  00000000  00000000  00000000
+0220      00000000  00000000  00000000  00000000  00000000
+0234      00000000  00000000  00000000  00000000  00000000
+0248      00000000  00000000  00000000  00000000  00000000
+025C      00000000  00000000  00000000  00000000  00000000
+0270      00000000  00000000  00000000  00000000  00000000
+0284      00000000  00000000  00000000  00000000  00000000
+0298      00000000  00010214  151E2829  2A96A0D7  D8DCDD3C
+02AC      46491063  COWJDSFB. 00000000  0000
+02B6 COWOTSWB. 00000000  0000      COWUCSID. ....
+02C0 COWFCBID. ....      COWCKPL.. 0000      COWCKPP.. 0000
+02C8 COWCKPS.. 0000      COWCTABN. ....      COWMRECD. 00000000
+02D8 COWFFDBV. 00000000  COWTOKEN. 50018053  55549555  55555555
+02E8      55555555  55555555  55555555  55555555  55555555
+02FC      55555555  55555555  55555555  55555555  86839694
+0310      8691A4A5  55555555  55555555  B6838180  15151515
+0324      91A2A015  15151515      COWCNTL. 00
+032D COWFLAG2. 00
      Bits set in flag COWFLAG2
      -----
      None
```

```
+032E COWFLAG3. 80      COWPENSA. 00000000  COWSAPTR. 0532D5E4
      Bits set in flag COWFLAG3
      -----
      COWCPOSE - Checkpoint OSE FDB used
+0338 COWTOD... 00000000
+0364 COWFLAG4. 40
```

```

Bits set in flag COWFLAG4
-----
COWSAPRO - S.A. being processed
+0368 COWCLPTR. 0532DCE2 COWSAVEA. 7F4BD32C 00000000 00000000
+0378 00000000 00000000 00000000 00000000 00000000
+038C 00000000 00000000 00000000 00000000 00000000
+03A0 00000000 00000000 00000000 00000000 00000000
+03B4 COWRETAD. 00000000 COWSBR13. 00000000 COWUSPLN. 00000000
+03C0 COWDATCC. 00000000 COWUPPTR. 00000000 COWUSWBP. 00000000
+03CC COWSWBC.. 00000000 COWSWBMA. 00000000 COWBUFLN. 0000
+03D6 COWUSBSZ. 0000 COWUSWBN. 0000 COWMDTLN. 0000
+03DC COWSWBMS. 0000 COWERTLN. 0000 COWUMSBZ. 0000
+0404 WCMXPRML. 00000000 WCJ3PRMA. 00000000 WCJ3PRML. 00000000
+0410 WCS2PRMA. 00000000 WCS2PRML. 00000000 WCRETCD.. 00000000
+041C ONECHAR.. ? ZRORMOR.. * WCWORK... 00000000
+0422 00000000 00000000 00000000 00000000 00000000
+0436 00000000 00000000 00000000 00000000 00000000
+044A 00000000 00000000 00000000 00000000 00000000
+045E 00000000 00000000 00000000 00000000 00000000
+0472 00000000 00000000 00000000 00000000 00000000
+0486 00000000 00000000 00000000 00000000 00000000
+049A 00000000 00000000 00000000 00000000 00000000
+04AE 00000000 00000000 00000000 00000000 00000000
+04C2 00000000 00000000 00000000 00000000 00000000
+04D6 00000000 00000000 00000000 00000000 00000000
+04EA 00000000 00000000 00000000 00000000 00000000
+04FE 00000000 00000000 00000000 00000000 00000000
+0512 00000000 00000000 00000000 COWCTOKN. 00000000
+0524 00000000 00000000 00000000 00000000 00000000
+0538 00000000 00000000 00000000 00000000 00000000
+054C 00000000 00000000 00000000 00000000 00000000
+0560 00000000 00000000 00000000 00000000 00000000
+0570 COWSSOB.. E2E2D6C2 001C004F 007FD2AC 00000004 05101AF0
+0584 00000000 00000000 00000000 00000000 00000000
+0590 COWSSS2.. 04280200 E2E2E2F2 00000000 00000000 00000000

```

```

+05A4 00000000 00000000 00000000 00000000 01000000
+05B8 00000000 00000000 00000000 00000004 00000000
+05CC 00000000 0000C4E4 D4D4E8D1 D6C20000 00000000
+05E0 00000000 00000000 00000000 00000000 00000000
+05F4 00000000 00000000 00000000 00000000 00000000
+0608 00000000 00000000 00000000 00000000 00000000
+061C 00000000 00000000 00000000 00000000 00000000
+0630 00000000 00000000 00000000 00000000 00000000
+0644 00000000 00000000 00000000 00000000 00000000
+0658 00000000 00000000 00000000 00000000 00000000
+066C 00000000 00000000 00000000 00000000 00000000
+0680 00000000 00000000 00000000 00000000 00000000
+0694 00000000 00000000 00000000 00000000 00000000
+06A8 00000000 00000000 00000000 00000000 00000000
+06BC 00000000 00000000 00000000 00000000 00000000
+06D0 00000000 00000000 00000000 00000000 00000000
+06E4 00000000 00000000 00000000 00000000 00000000
+06F8 00000000 00000000 00000000 00000000 00000000
+070C 00000000 00000000 00000000 00000000 00000000
+0720 00000000 00000000 00000000 00000000 00000000
+0734 00000000 00000000 00000000 00000000 00000000
+0748 00000000 00000000 00000000 00000000 00000000
+075C 00000000 00000000 00000000 00000000 00000000
+0770 00000000 00000000 00000000 00000000 00000000
+0784 00000000 00000000 00000000 00000000 00000000
+0798 00000000 00000000 00000000 00000000 00000000
+07AC 7F6DF648 00000001 00000000 00000000 00000000
+07C0 00000000 00000000 00000000 00000000 00000000
+07D4 00000000 00000000 00000000 00000000 00000000
+07E8 00000000 00000000 00000000 00000000 00000000
+07FC 00000000 00000000 00000000 00000000 00000000
+0810 00000000 00000000 00000000 00000000 00000000
+0824 00000000 00000000 00000000 00000000 00000000
+0838 00000000 00000000 00000000 00000000 00000000
+084C 00000000 00000000 00000000 00000000 00000000
+0860 00000000 00000000 00000000 00000000 00000000

```

```

+0874 00000000 00000000 00000000 00000000 00000000
+0888 00000000 00000000 00000000 00000000 00000000
+089C 00000000 00000000 00000000 00000000 00000000
+08B0 00000000 00000000 00000000 00000000 00000000
+08C4 00000000 00000000 00000000 00000000 00000000
+08D8 00000000 00000000 00000000 00000000 00000000
+08EC 00000000 00000000 00000000 00000000 00000000
+0900 00000000 00000000 00000000 00000000 00000000
+0914 00000000 00000000 00000000 00000000 00000000
+0928 00000000 00000000 00000000 00000000 00000000
+093C 00000000 00000000 40404040 40404040 40404040
+0950 40404040 00000000 00000040 00000000 D5D6C4C5
+0964 F1404040

```

JESMSG Queue Control Area Header

The JMQ header and entry(ies) are not formatted in the FSS dump. The JMQ header and entry(ies) represent messages originating in the JES3 global that are to be included in the job's JESMSG LG data set. The JESMSG Queue Control Area Header points to the JESMSG Queue Entries.

JESMSG QUEUE CONTROL AREA HEADER							
ADDRESS	AFL1	FIRST	MSCPB	RETRY			
056813F8	00	0570E00	05703D88	05509958			
JESMSG QUEUE ENTRIES							
ADDRESS	EJNAM	EJID	EJTIME	EMNAM	ELEN	EJNXT	EJPRV
0570E000	DYNAL0T2	JOB00010	16:24:58	SY1	00C0	00000000	00000000
IAT5110	JOB DYNAL0T2 (JOB00010)	USES		D D75902	KANIA.LINKLPA		
0570E0C0	DYNAL0T2	JOB00010	16:24:59	SY1	00C0	00000000	00000000
IAT5110	JOB DYNAL0T2 (JOB00010)	USES		D D75902	MARIO.LINKLPA		
0570E180	DYNAL0T2	JOB00010	16:32:53	SY1	00C0	00000000	00000000
IAT5110	JOB DYNAL0T2 (JOB00010)	USES		D D75902	JDESIGN.HJS7705.LI		

JESMSG QUEUE ENTRY

- ADDRESS hhhhhhhh - is the address of the JESMSG QUEUE ENTRY.
- EJNAM ccccccc - is the job name associated with this entry.
- EJID ccccccc - is the job id associated with this entry.
- EJTIME ccccccc - is the time of spin off for this entry.
- EMNAM ccccccc - is the name of the system doing the spin off for this entry.
- ELEN hhhh - is the length of this JESMSG QUEUE ENTRY.
- EJNXT hhhhhhhh - is the address of the next JESMSG QUEUE ENTRY.
- EJPRV hhhhhhhh - is the address of the previous JESMSG QUEUE ENTRY.

C/I

CIDRVR ECF identifier entries

The C/I Driver ECF Identifier Entry identifies the type of ECF / Event that an FCT is AWAITing on. It is mapped by the JES3 macro IATYEIE. It is not formatted in an FSS dump.

CIDRVR ECF IDENTIFIER ENTRIES		
ADDRESS	PARM	TYPE
05878CF8	05604BFC	01
05878D00	00000000	00
05878D08	00000000	00
05878D10	00000000	00
05878D18	00000000	00
05878D20	00000000	00
05878D28	00000000	00
05878D30	00000000	00
05878D38	00000000	00

ADDRESS hhhhhhhh - is the address of the ECF Identifier Entry (EIE).

PARM hhhhhhhh - is the type dependent parameter.
 TYPE hh - is the type of ECF for a particular EIE.
 X'01' indicates PARM is ECF address.
 X'02' indicates PARM is FSS table address.

CIDRVR ECF list control block

The C/I Driver ECF List Control Block shows the ECF list, required by the ECF list management routines. It is mapped by the JES3 macro IATYELB. It is not formatted in an FSS dump.

```

-----
                CIDRVR ECF LIST CONTROL BLOCK - 05878C88
                USE   RPN   ALOC  ALOW  EFLG
                0001  0000  0009  0009   80
-----
  
```

USE hhhh - is the in-use ECF count.

RPN hhhh - is the relative position number.

ALOC hhhh - is the pre allocated ECF count.

ALOW hhhh - is the allowed ECF count. For dynamic allocation, this field is checkpointed in DYNCKAL.

EFLG hh - is the flag byte of ECF List Control Block. The following bits can be set in this flag.

Value	Meaning
X'80'	ECF list is initialized.
X'40'	ECF is unavailable.
X'20'	AWAIT specified.
X'10'	Single entry check.

C/I FSS tables

The C/I FSS Table is used (in the JES3 Global) to keep track of the status and the work being processed by a C/I FSS. The C/I FSS PROCLIB status entries are used to keep track of PROCLIB orders, status etc. There is one PROCLIB status entry for each PROCLIB table entry. They are pointed to by, and located at the end of the C/I FSS Table. It is mapped by the macro IATYCFT. It is not formatted in an FSS dump.

```

-----
                C/I FSS TABLES
ADDRESS   NEXT     FSSPT     FSID     MPC     JOBCH     PRGST     SPE     BATUS  DSLUS  FORID     RSSEQ     FLAG1
05878D40 05878D98 05840168 00010000 00000000 00000000 05878D90 00000000 0000 0000 00000000 00000000 00
05878D98 05878DF0 05845600 00020000 00000000 00000000 05878DE8 00000000 0000 0000 00000000 00000000 0A
05878DF0 05878E48 05845460 00030000 00000000 00000000 05878E40 00000000 0000 0000 00000000 00000000 0A
05878E48 05878EA0 058451F0 00040000 00000000 00000000 05878E98 00000000 0000 0000 00000000 00000000 0A
05878EA0 05878EF8 05857358 00050000 00000000 00000000 05878EF0 00000000 0000 0000 00000000 00000000 0A
05878EF8 05878F50 058570E8 00060000 00000000 00000000 05878F48 00000000 0000 0000 00000000 00000000 0A
05878F50 05878FA8 05862A80 00070000 00000000 00000000 05878FA0 00000000 0000 0000 00000000 00000000 0A
05878FA8 00000000 05862810 00080000 00000000 00000000 05878FF8 00000000 0000 0000 00000000 00000000 0A
-----
  
```

ADDRESS hhhhhhhh - is the address of the C/I FSS entry.

NEXT hhhhhhhh - is the address of the next C/I FSS entry.

FSSPT hhhhhhhh - is the address of the FSS table.

FSID hhhhhhhh - is the ID of the functional subsystem.

MPC hhhhhhhh - is the address of MPC for the FSS set at FSS connect time or when FSS is found to be active over a JES3 restart.

JESMSG Queue Control Area Header

JOBCH hhhhhhhh - is the RQ chain for jobs being processed by the FSS.

PRCST hhhhhhhh - is the address of PROCLIB status entries, located at the end of the FSS table.

SPE hhhhhhhh - is the address of the RQ sub chain priority entries for jobs being processed by the FSS. This is used (by IATGRRQ) to maintain pointers to the RQs of different priorities within JOBCH.

BATUS hhhh - is the number of batch C/I DSPs in use.

DSLUS hhhh - is the number of demand select C/I DSPs in use.

FORID hhhhhhhh - is the FSS portion of order /order-response identifier number. It is set when FSS connects or is restarted during the current JES3 start.

RSSEQ hhhhhhhh - is the response sequence number of last modify count (TYPE=NORM) or process job (TYPE=NAVAIL) response.

FLAG1 hh - is the flag byte of C/I FSS table. The following bits can be set in this flag.

Value	Meaning
X'80'	FSS has completed PROCLIB initialization.
X'40'	FSS has completed Subtask initialization.
X'20'	FSS START command ECF is added to the ELB.
X'10'	FSS runs on global processor.
X'08'	Bypass FSS for C/I scheduling.
X'04'	FSS has a modify count response outstanding.
X'02'	Bypass FSS for C/I scheduling, if we are for a C/I FSS on a main processor that is eligible to run the job.

C/I parameter tables

The C/I Parameter Table contains the converter parameter list and region size for a particular PARMID. It is mapped by the macro IATYPAR. It is formatted in both JES3 and FSS dumps.

C/I PARAMETER TABLES

ADDRESS	ID	CHN	ACPN	PRTY	STTM	JSRG	CMDS	BLP	MCSA	JMSL	AMSL	MSGC	RGTP	RGSZ
058190B8	01	058190E4	4	00	003500	512	3	1	E000	1	1	A	K	0512
058190E4	I1	05819110	4	00	003500	512	3	1	E000	1	1	T	K	0512
05819110	S1	0581913C	4	00	003500	512	3	1	E000	1	1	D	K	0512
0581913C	T1	00000000	4	00	003500	512	3	1	E000	1	1	I	K	0512

ADDRESS hhhhhhhh - is the address of the C/I parameter table entry.

ID cc - is the C/I parameter identifier.

CHN hhhhhhhh - is the address of the next C/I parameter table entry.

ACPN c - is the parameter options:

'1' - Programmer name required.
'2' - Account number required.
'4' - User SWA above indicator.

PRTY cc - is the default job priority.

STTM ccccc - is the maximum step execution time.

JSRG ccc - is the job/step region size.

CMDS c - is the command disposition.

BLP c - is the label processor indicator.

'0' - BLP will be treated as NL.
'1' - BLP will be treated as bypass label.

MCSA cccc - is the MCS command authority.
 JMSL c - is the JCL MSGLEVEL default.
 AMSL c - is the allocation MSGLEVEL default.
 MSGC c - is the default system output class (MSGCLASS).
 RGTP c - is the unit of measure of the region size (K or M).
 RGSZ cccc - is the region size.

C/I related TVT information

The C/I Related TVT Information gives the data related to C/I control blocks in TVT. It is formatted in both JES3 and FSS dumps.

```
-----
C/I RELATED TVT INFORMATION - 05604000
IDAAD  IFCAD  XIWT  CISCH  DSSCH  PSSCH  CONVI  PSTSC  ENABL  DISBL  CITCB
0587D108 00000000 05904C28 0587B0D8 058791D8 058192B0 0564A508 0564A568 0564A688 0564A6E8 007CFE88

ICTCH  DSNT  HWST  PARMS  PROCT  CIECB  FSECB  MXDCI  ATDCI  CICNT  PSDMX  PSDUS
05908388 05819168 058191A4 058190B8 00044528 807D00E0 00000000 00000005 00000001 0006 00000007 00000000

CIECF  CDEC  JLFLG  TSOPM  STCPM  INTPM  TSOPR  STCPR  INTPR  ADSLM  SYCNT  JOBLM
80 00 00  T1  S1  I1  T1  S1  I1  00000000 00000000 00000000
-----
```

IDAAD hhhhhhhh - is the address of the interpreter data area.
 IFCAD hhhhhhhh - is the address of the C/I FSS data area.
 XIWT hhhhhhhh - is the address of the interpreter message routine.
 CISCH hhhhhhhh - is the address of the C/I scheduler entry point.
 DSSCH hhhhhhhh - is the address of the disable processing and scheduling entry point.
 PSSCH hhhhhhhh - is the address of the POSTSCAN scheduler entry point.
 CONVI hhhhhhhh - is the DSP dictionary entry for C/I.
 PSTSC hhhhhhhh - is the DSP dictionary entry for POSTSCAN.
 ENABL hhhhhhhh - is the DSP dictionary entry for ENABLE.
 DISBL hhhhhhhh - is the DSP dictionary entry for DISABLE.
 CITCB hhhhhhhh - is the address of the C/I subtask TCB.
 ICTCH hhhhhhhh - is the address of the interpreter control table chain.
 DSNT hhhhhhhh - is the address of the RESDSN table.
 HWST hhhhhhhh - is the address of the high watermark setup name table.
 PARMS hhhhhhhh - is the address of the C/I parameter table.
 PROCT hhhhhhhh - is the address of the C/I PROCLIB table.
 CIECB hhhhhhhh - is the address of the ECB for C/I subtask.
 FSECB hhhhhhhh - is the address of ECB for FSS main.
 MXDCI hhhhhhhh - is the maximum number of C/I DSPs for demand/select jobs in the address space.
 ATDCI hhhhhhhh - is the number of demand/select C/I subtasks attached.
 CICNT hhhh - is the number of C/I subtasks.
 PSDMX hhhhhhhh - is the maximum number of demand/select POSTSCAN DSPs.
 PSDUS hhhhhhhh - is the number of demand/select POSTSCAN DSPs in use.

JESMSG Queue Control Area Header

CIECF hh - is the ECF of C/I subtask.

CDECF hh - is the ECF of C/I driver.

JLFLG hh - is the JCL statement flag.
X'80' means JCL statement quiesce.

TSOPM cc - is the TSO PARM ID for C/I.

STCPM cc - is the STC PARM ID for C/I.

INTPM cc - is INT RDR PARM ID for C/I.

TSOPR cc - is the TSO PROC ID for C/I.

STCPR cc - is the STC PROC ID for C/I.

INTPR cc - is INT RDR PROC ID for C/I.

ADSLM hhhhhhhh - is the address space JCL limit.

SYCNT hhhhhhhh - is the JCL statement address space count.

JOBLM hhhhhhhh - is the job JCL statement limit.

Interpreter Data Area

The Interpreter Data Area contains data related to the C/I FSS's which is used by the C/I Driver and other functions. It is mapped by the JES3 macro IATYIDA. It is not formatted in an FSS dump.

INTERPRETER DATA AREA - 0587D108

ELBST	EIEST	CFTST	CDFACT	JORID	FORID	PRCDS	PRCEN	PRCUP	PSCDS	PSCBT	FSSRC	
05878C88	05878CF8	05878D40	058020A0	00000001	00000001	00000000	00000000	0000	00000000	00000000	058DF770	
XCIO	RETRY	CICLN	CAPST	PSSCH	FSTCK	FSSST	FSSDS	FSEN	PRCLL	FLG1	FLG2	FLG3
058E0870	058E0028	0585B07C	0585B37E	0585B6C8	0585B7F0	0585B898	585BCA6	0585BD86	0585BEFA	00	00	00

ELBST hhhhhhhh - is the address of ECF list control block.

EIEST hhhhhhhh - is the address of ECF identifier entries.

CFTST hhhhhhhh - is the address of the C/I FSS table.

CDFACT hhhhhhhh - is the address of the C/I driver FCT.

JORID hhhhhhhh - is the JES3 portion of order/response identification number.

FORID hhhhhhhh - is the last FSS order/response identification number assigned.
It is assigned when an FSS connects or is found to be active over a JES3 restart.

PRCDS hhhhhhhh - is the address of the PROCLIB disable chain.

PRCEN hhhhhhhh - is the address of the PROCLIB enable chain.

PRCUP hhhh - is the number of PROCLIBs being updated.

PSCDS hhhhhhhh - is the address of demand select POSTSCAN scheduling chain.

PSCBT hhhhhhhh - is the address of the batch POSTSCAN scheduling chain.

FSSRC hhhhhhhh - is the entry point of C/I driver 'FSS Receive' routine (IATIIFR).

XCIO hhhhhhhh - is the entry point of C/I issue order (IATXCIO) routine (IATIIOR).

RETRY hhhhhhhh - is the entry point of C/I driver JESTAE retry routine (IATIICJ).

CICLN hhhhhhhh - is the entry point of C/I job cleanup routine in IATIIFS.

CAPST hhhhhhhh - is the entry point of console appendage post routine in IATIIFS.

PSSCH hhhhhhhh - is the entry point of POSTSCAN scheduling routine in IATIIFS.

FSTCK hhhhhhhh - is the entry point of FSS start check routine in IATIIFS.

FSSST hhhhhhhh - is the entry point of FSS status change routine in IATIIFS.

FSSDS hhhhhhhh - is the entry point of FSS PROCLIB disable routine in IATIIFS.

FSSSE hhhhhhhh - is the entry point of FSS PROCLIB enable routine in IATIIFS.

PRCCL hhhhhhhh - is the entry point of PROCLIB cleanup routine in IATIIFS.

FLG1 hh - is the flag byte of Interpreter Data Area.

The following bits can be set in this flag.

Value Meaning

X'80' POSTSCAN scheduling routine processing batch jobs.

X'40' Current job being processed still in FSS address space.

X'20' Fail job with dump.

FLG2 hh - is the flag byte of Interpreter Data Area (JESTAE / Recovery flag)

The following bits can be set in this flag.

Value Meaning

X'80' IDACENT1 is console message buffer.

X'40' IDACENT1 is PROCLIB table.

X'20' Staging area being processed. STAUFLG=STACTIVE for the active staging area.

X'10' C/I driver initialization phase.

X'08' JESTAE retry routine in control.

X'04' Job cleanup routine is active.

X'02' PROCLIB use count has been decremented (Only if job cleanup routine is active).

FLG3 hh - is the flag byte of Interpreter Data Area (Job cleanup routine options flag).

The following bits can be set in this flag.

Value Meaning

X'80' Schedule job for POSTSCAN request.

X'40' Return the job to JSS for C/I rescheduling.

X'20' Return the job to JSS for specialized rescheduling.

X'10' Cleanup the job's control blocks.

X'08' Update JCT FDBs from RSQ FDBs.

Interpreter control tables

The Interpreter Control Table contains Converter/Interpreter work area and status information. JES3 macro IATYICT maps this control block. It is formatted in both JES3 and FSS dumps.

----- INTERPRETER CONTROL TABLES

ADDRESS	ACMOD	IIST	IDD	EXTPT	TCB	JSCB	TVT	JDE	PRCAD	ECB	RES	HDEC
05908388	IATIIST	8590A6C0	0001F580	00040C60	007CF0F0	007D0240	05604000	0569D3E8	00044528	807D0058	00000000	00000000
05907388	IATIIST	8590C6C0	00000000	0003F180	007CFAC0	007D0300	05604000	0569D320	00000000	807CF9A0	00000000	00000000
05906388	IATIIST	8590E6C0	00000000	0003F520	007CF808	007D03C0	05604000	0569D258	00000000	807CF6E8	00000000	00000000
058F42C8	IATIIST	859106C0	00000000	0003F8C0	007CF550	007D0480	05604000	0569D190	00000000	807CF430	00000000	00000000
058EF2C8	IATIIST	859126C0	00000000	0003FC60	007CF298	007D0540	05604000	0569D0C8	00000000	807CF178	00000000	00000000
058EA2C8	IATIIST	859146C0	0001F580	00044C08	007CEE88	007D0600	05604000	0569D000	00044718	807CF0F0	00000000	00000000
058E52C8	IATIIST	859166C0	00000000	00044188	007CEC58	007D06C0	05604000	0569CE74	00000000	807CF068	00000000	00000000

ADDRESS	INCNT	PARID	JCDSS	JCDSS	JEDSS	JEDEB	SYDSS	SYDEB	FLAG1	FLAG2	FLAG3	FLAG4
05908388	00000001	01	04FD93E8	04FD93E8	04FD9280	00013828	04FD9118	00013808	00	48	00	20
05907388	00000000		04F683D8	04F683D8	04F68270	000137C8	04F68108	000137A8	00	40	00	20
05906388	00000000		04F67E98	04F67E98	04F67D30	00013768	04F67BC8	00013748	00	40	00	20
058F42C8	00000000		04F67A60	04F67A60	04F678F8	00013708	04F67790	000136E8	00	40	00	20
058EF2C8	00000000		04F66E98	04F66E98	04F66D30	000136A8	04F66BC8	00013688	00	40	00	20
058EA2C8	00000005	S1	04F66A60	04F66A60	04F668F8	00013648	04F66790	00013628	00	48	20	40
058E52C8	00000000		04F65E98	04F65E98	04F65D30	000135E8	04F65BC8	000135C8	00	40	00	10

ADDRESS hhhhhhhh - is the address of the interpreter control table entry.

ACMOD cccccccc - is the name of the subtask active module.

IIST hhhhhhhh - is the address of subtask IATIIST using this interpreter control table.

This is used for trapping the right subtask.

IDD hhhhhhhh - is the address of the current interpreter DSP data area.

EXTPT hhhhhhhh - is the address of the ICT extension.

JESMSG Queue Control Area Header

TCB hhhhhhhh - is the TCB address of the subtask.

JSCB hhhhhhhh - is the JSCB address for subtask.

TVT hhhhhhhh - is the TVT address.

JDE hhhhhhhh - is the JDE address for the ICT.

PRCAD hhhhhhhh - is the address of the PROCLIB table.

ECB hhhhhhhh - is the ECB for subtask communication.

RES hhhhhhhh - is the ECB for subtask attach post.

HDECB hhhhhhhh - is the address space JCL limit quiesce ECB.

INCNT hhhhhhhh - is the subtask interpretation count.

PARID cc - is the current PARM ID.

JCDSS hhhhhhhh - is the JCLIN DSS pointer.

JEDSS hhhhhhhh - is the JESJCL DSS pointer.

JEDEB hhhhhhhh - is the JESJCL DEB pointer.

SYDSS hhhhhhhh - is the SYSMMSG DSS pointer.

SYDEB hhhhhhhh - is the SYSMMSG DEB pointer.

FLAG1 hh - is the flag byte of Interpreter Control Table.
The following bits can be set in this flag.

Value Meaning

X'80' Perform SJF termination processing.
X'20' Invoke SWA processing routine.
X'10' Free SWA subpool (when zero subpool has been freed).
X'08' IATIIST's ESTAE (STESTAEX) has been previously entered.
X'04' Subtask is detached.
X'02' Perform SWA spooling.
X'01' Close the current PROCLIB.

FLAG2 hh - is the flag byte of Interpreter Control Table.
The following bits can be set in this flag.

Value Meaning

X'80' C/I subtask abended.
X'40' Subtask is active.
X'20' Output SWB processing is required for a job.
X'10' Subtask active in MVS C/I . If it is set, ESTAE exit closes JCLIN, JESJCL, SYSMMSG
and JCBLOCK data sets.
X'08' Interpreter finished with job.
X'04' Conversion/Interpretation is required for a job.
X'02' Subtask is allocated (in use).
X'01' Force subtask abend. It is set to cause the subtask to return to the control program.

FLAG3 hh - is the flag byte of Interpreter Control Table.
The following bits can be set in this flag.

Value Meaning

X'40' User exit IATUX02 is a dummy JES3 exit.
X'20' User exit IATUX03 is a dummy JES3 exit.

FLAG4 hh - is the flag byte of Interpreter Control Table.
The following bits can be set in this flag.

Value Meaning

X'80' No SDUMP from ESTAE.
X'40' ICT for demand select job.
X'20' ICT for batch job.
X'10' ICT for subtask which is used to start a C/I FSS address space.
X'08' ACEE created during C/I subtask processing.

PROCLIB tables

The procedure library tables contains a header and an entry for every data set within the concatenation. It is mapped by the JES3 macro IATYPRO. It is formatted in both JES3 and FSS dumps.

```

-----
                          PROCLIB TABLES
-----
ADDRESS  NAME      CHN      EDCH    UUSE  SEQN   CUSE   DSCT  EDCT  FLG1  MBSI   MSID
00044528 IATPLBST 000445EC 00000000 0000 0001 00000000 0001 0000 00 0000 00000000
          DSN 000445B8 DSN=SYS1.PROCLIB
          UPJN=00000000
000445EC IATPLBI1 00044718 00000000 0000 0002 00000000 0003 0000 00 5B90 00000000
          DSN 0004467C DSN=SYS1.PROCLIB
          UPJN=00000000
          DSN 000446B0 DSN=C49FCT.PROCLIB
          UPJN=00000000
          DSN 000446E4 DSN=D75JES3.PROCLIB
          UPJN=00000000
00044718 IATPLBS1 00044844 00000000 0000 0003 00000000 0003 0000 00 5B90 00000000
          DSN 000447A8 DSN=SYS1.PROCLIB
          UPJN=00000000
          DSN 000447DC DSN=C49FCT.PROCLIB
          UPJN=00000000
          DSN 00044810 DSN=D75JES3.PROCLIB
          UPJN=00000000
00044844 IATPLBT1 00000000 00000000 0000 0004 00000000 0003 0000 00 5B90 00000000
          DSN 000448D4 DSN=SYS1.PROCLIB
          UPJN=00000000
          DSN 00044908 DSN=C49FCT.PROCLIB
          UPJN=00000000
          DSN 0004493C DSN=D75JES3.PROCLIB
          UPJN=00000000
-----

```

ADDRESS hhhhhhhh - is the address of the C/I procedure library table entry.

NAME cccccccc - is the name of the procedure library.

CHN hhhhhhhh - is the address of the next C/I procedure library table entry.

EDCH hhhhhhhh - is the address of the Enable/Disable chain.

UUSE hhhh - is the update use count. It gives the number of data sets being updated.

SEQN hhhh - is the procedure library sequence number.

CUSE hhhhhhhh - is the current C/I use count. It gives the number of jobs in C/I using that procedure library.

DSCT hhhh - is the number of data set name entries.

FLG1 hh - is the flag byte of PROCLIB table.

The following bits can be set in this flag.

Value Meaning

X'80' Update job hold on this PROC.

X'40' Procedure library is unallocated.

X'20' Procedure library disabled by all C/I FSS's. It is used by the DISABLE DSP.

X'10' Procedure library enabled by all C/I FSS's. It is used by the ENABLE DSP.

X'08' PROC disabled due to error.

X'04' Enable request is pending for the procedure library.

X'02' Disable request is pending for the procedure library.

X'01' Abort the Disable/Enable for the procedure library. It is set by the C/I driver if an abend occurs.

MBSI hhhh - is the maximum block size.

MSID hhhhhhhh - is the message ID to dequeue.

DSN ccc - is the procedure library data set name.

UPJN hhhhhhhh - is the update job number.

DFC-Device fence control blocks

The Device Fence Control Blocks contains information used to allocate or deallocate fenced devices for job class groups or DJC networks. It is mapped by the JES3 macro IATYDFC. It is not formatted in an FSS dump.

DEVICE FENCE CONTROL BLOCKS

ADDRESS	GNAME	CHAIN	ENUM	TSIZE	ALOPT	SEQN	CKIDX	RQM	ENMSK	MNSEQ	FLG1	FLG2	FLG3
057BF100	JES3TEST	057BF14C	01	004C	FF	01	0020	FF000000	00000000	00	92	10	00
DEV 057BF13C	DEVT=3800			DEVN=0001									
057BF14C	JES3HOLD	00000000	01	004C	00	02	0000	FF000000	00000000	00	94	00	00
DEV 057BF188	DEVT=TAPE			DEVN=000A									

ADDRESS hhhhhhhh - is the address of the device fence control block entry

GNAME cccccccc - is the Job class group name or DJC (Dependent Job Control) network ID.

CHAIN hhhhhhhh- is the address of the next device fence control block (DFCB) in the chain.

ENUM hh - is the number of device entries.

TSIZE hhhh - is the total size of the DFCB.

ALOPT hh - is the allocation option indicator.

X'00' indicates allocation ANY.

X'FF' indicates allocation GROUP/NET.

SEQN hh - is sequence number of the DFCB.

CKIDX hhhh - is the index to check point FDB.

RQM hhhhhhhh - is the main mask for allocation.

ENMSK hhhhhhhh - is the enabled main mask.

MNSEQ hh - is the main PROC sequence number.

FLG1 hh - is the flag byte of DFCB.

The following bits can be set in this flag.

Value Meaning

X'80' Device fence by group. It means DEVPOOL specified on the GROUP statement.

X'40' Device fence by main. It means device information specified in the EXRESC parameter of the GROUP statement.

X'20' Device fence for DJC network.

X'10' Allocation allowed outside fence.

X'08' Device fence is active.

X'04' Last DFCB in the chain.

X'02' Device dedication in progress.

X'01' Device dedication failed.

FLG2 hh - is the flag byte of DFCB.

The following bits can be set in this flag.

Value Meaning

X'80' Request device dedication.

X'40' Request device unallocation.

X'20' Request build JST.

X'10' JST built for the DFCB.

X'08' DFCB in use. It is used to synchronize GMS/MDS.

X'04' The fence associated with the DFCB was found in the device dedication checkpoint (DDC) record during a restart.

FLG3 hh - is the flag byte of DFCB.
The following bits can be set in this flag.

Value Meaning

X'80' During a hot start with refresh, the old JST for the device fence was discarded because the new device fence definition no longer matches the old one. A new JST will be built after MDS restart.
X'40' During a hot start with refresh, the spooled DFCB in the JST was updated with new information.

DEV hhhhhhhh - is the address of device.

DEVT cccccccc - is the name of device.

DEVN hhhh - is the number of devices fenced.

DLY-JQEX delay information for jobs in main service

The JQEX Delay Information for Jobs in Main gives the job delay information from the JQEX control block for jobs that are waiting to be scheduled for or active in main service. It is mapped by the JES3 macro IATYJQEX. It is not formatted in an FSS dump.

JQEX DELAY INFORMATION FOR JOBS IN MAIN SERVICE

ADDRESS	JOBNAME	JOBID	FUNCTION	TYPE	REASON	CLS	CONVD LY	RESCDLY	JESSCDLY	OPERDLY	CURDLYTM
05902000	WTPLOPA	JOB00039	MAINWAIT	OPER	NO AVAIL DSPS	01	00000001	00000000	00000000	00000000	B74C0B0A
05902030	J3TEST	JOB00042	MAINWAIT	OPER	NO AVAIL DSPS	01	00000000	00000000	00000000	00000000	B74C0B44

ADDRESS hhhhhhhh - is the address of the JQEX for the job.

JOBNAME cccccccc - is the name of the job.

JOBID cccccccc - is the job id based on the job number in JQE table.

FUNCTION cccccccc - is the function the job is in. If the job does not have a RQ, the displayed function would be "MAINWAIT". Other descriptions that are possible for this field are: *INVALID, FETCH (MDS Fetch), WAITVOL (MDS WaitVol), SYSSSEL (MDS system select), ALLOCATE (MDS allocate), VOLUNAV (MDS volume unavailable), VERIFY (MDS verify), SYSVER (MDS system verify), ERROR (MDS error), SELECT (GMS select), ON MAIN (Job is executing), BRKDOWN (MDS breakdown), RESTART (MDS restart), DONE (MDS/GMS done).

TYPE cccccccc - is the description of the delay type. The descriptions that could be possible for this field are: *INVALID, NO DELAY, RESOURCE (Resource delay), JESSCHED (JES Scheduling delay), OPER (Operational delay).

REASON cccccccccccccc - is the description of the delay reason.

CLS hh - is the GMS job class sequence number.

CONVDLY hhhhhhhh - is the total C/I delay for the job.

RESCDLY hhhhhhhh - is the total resource delay for the job.

JESSCDLY hhhhhhhh - is the total JES scheduling delay for the job.

OPERDLY hhhhhhhh - is the total operational delay for the job.

CURDLYTM hhhhhhhh - is the current delay time stamp.

DSP-DSP dictionary entries

The DSP Dictionary Entries give information about each dynamic support program entry. It is mapped by the JES3 macro IATYDSP. It is formatted in both JES3 and FSS dumps.

DSP DICTIONARY ENTRIES

ADDRESS	NAME	CSECT	DRVR	JBVAL	NO	PRTY	MXCT	USCT	JQEWQ	JQEAW
---------	------	-------	------	-------	----	------	------	------	-------	-------

JESMSG Queue Control Area Header

05649B48	RSVD1			01	001	00000001	00000000	00000000	00000000
05649BA8	CONSERV			02	254	00000001	00000000	00000000	00000000
05649C08	JSAM			03	250	00000001	00000000	00000000	00000000
05649C68	CONSDM			04	240	00000001	00000000	00000000	00000000
05649CC8	TRAKALOC		IATDMTA	05	040	00000001	00000000	00000000	00000000
05649D28	DYNAL			06	035	00000001	00000000	00000000	00000000
05649D88	OUTSERV		IATOSJV	07	030	000F423F	00000000	00000000	00000000
05649DE8	VERIFY			08	030	00000001	00000000	00000000	00000000
05649E48	SETUP		IATMDJV	09	030	00000001	00000000	00000000	00000000
05649EA8	BDT			0A	025	00000001	00000000	00000000	00000000
05649F08	MODDRVR			0B	015	00000001	00000000	00000000	00000000
05649F68	INQDRVR			0C	014	00000001	00000000	00000000	00000000
05649FC8	WTDDRVR			0D	012	00000001	00000000	00000000	00000000
0564A028	LOCATE			0E	005	00000001	00000000	00000000	00000000
0564A388	WTR		IATOSWC	17	004	000F423F	00000000	00000000	00000000
0564A3E8	CR	IATISRD	IATISCR	IATISJV	18	004	000F423F	00000000	00000000
0564A448	TR	IATISRD	IATISTR	IATISJV	19	004	000F423F	00000000	00000000
0564A4A8	DR	IATISRD	IATISDR	IATISJV	1A	004	00000001	00000000	00000000
0564A508	CI		IATIIDR	IATIIJV	1B	007	0000000A	00000000	00000000
0564A568	POSTSCAN		IATIIDR		1C	007	00000022	00000000	00000000

ADDRESS	NAME	SCCT	SCCTA	FLAGS	FLAG1	DEVREQ	NOREQ
05649B48	RSVD1	00000000	00000000	00	00	0564C1F0	00
05649BA8	CONSERV	00000000	00000000	00	08	0564C1F0	00
05649C08	JSAM	00000000	00000000	00	00	0564C1F0	00
05649C68	CONSDM	00000000	00000000	00	08	0564C1F0	00
05649CC8	TRAKALOC	00000000	00000000	08	00	0564C1F0	00
05649D28	DYNAL	00000000	00000000	00	00	0564C1F0	00
05649D88	OUTSERV	00000000	00000000	84	00	0564D3F6	01
05649DE8	VERIFY	00000000	00000000	00	00	0564C1F0	00
05649E48	SETUP	00000000	00000000	00	00	0564C1F0	00
05649EA8	BDT	00000000	00000000	00	00	0564C1F0	00
05649F08	MODDRVR	00000000	00000000	00	08	0564C1F0	00
05649F68	INQDRVR	00000000	00000000	00	08	0564C1F0	00
05649FC8	WTDDRVR	00000000	00000000	00	08	0564C1F0	00
0564A028	LOCATE	00000000	00000000	00	00	0564C1F0	00
0564A388	WTR	00000000	00000000	06	00	0564C1F0	01
0564A3E8	CR	00000000	00000000	46	00	0564FAB2	01
0564A448	TR	00000000	00000000	46	00	0564FAC2	01
0564A4A8	DR	00000000	00000000	8E	00	0564C1F0	01
0564A508	CI	00000000	00000000	84	20	0564C1F0	00
0564A568	POSTSCAN	00000000	00000000	04	00	0564C1F0	00

ADDRESS hhhhhhhh - is the address of DSP dictionary entry.

NAME cccccccc - is the DSP name.

CSECT cccccccc - is the CSECT name for re-entrant modules.

DRVR cccccccc - is the DSP driver module name.

JBVAL cccccccc - is the job validation module name.

NO hh - is the DSP number.

PRTY ddd - is the DSP priority.

MXCT hhhhhhhh - is the maximum allowable use count for the DSP.

USCT hhhhhhhh - is the current use count for the DSP.

JQEQW hhhhhhhh - is the anchor for DSP JQE wait queue.

JQEAW hhhhhhhh - is the anchor for alternate DSP JQE wait queue.

SCCT hhhhhhhh - is the number of backlogged JQEs.

SCCTA hhhhhhhh - is the alternate SCCT. It gives the number of CI/POSTSCAN DEMSEL JQEs moved to ready queue.

FLAGS hh - is the flag byte of DSP.
The following bits can be set in this flag.

Value Meaning
X'80' DSP is processable.
X'40' DSP rescheduled on GETUNIT not available.
X'20' JSS does INIT GETUNIT for this DSP.
X'10' An FCT for the DSP is available.
X'08' No MXCT change allowed through *F
X'04' DSP is reentrant.
X'02' DSP is callable from console.
X'01' Use count change for this DSP.

FLAG1 hh - is the flag byte of DSP.
The following bits can be set in this flag.

Value Meaning
X'80' Refresh driver module.
X'40' Refresh data CSECT.
X'20' DSP holdable through modify command.
X'10' DSP held by modify command.
X'08' Exempt for message/WTO.

DEVREQ hhhhhhhh - is the address of device requirements limit.

NOREQ hh - is the number of requirements.

ENQ

AENQ control data entries

The AENQ Control Data Entry contains information about exclusive or shared use of JES3 resource. It is mapped by the JES3 macro AENQ. It is formatted in both JES3 and FSS dumps.

```
-----
                        AENQ CONTROL DATA ENTRIES
```

ADDRESS	NAME	EXFCT	EXDSP	SHFCT	SHDSP	SHRCT	EXFLG
056555BC	RQ	00000000	00000000	00000000	00000000	0000	00
056555D4	DLQ	00000000	00000000	00000000	00000000	0000	00
056555EC	JNCBCTL	00000000	00000000	00000000	00000000	0000	00
05655604	SYSUNIT	0564D0E8	05649D88	00000000	00000000	0000	00
0565561C	CHKPNT	0564DD08	05649F08	00000000	00000000	0000	00
05655634	WTD	0564E2F8	05649FC8	00000000	00000000	0000	00
0565564C	FCT	05808370	0564A2C8	00000000	00000000	0000	00
05655664	PRO	00000000	00000000	00000000	00000000	0000	00
0565567C	SNARMVCB	00000000	00000000	00000000	00000000	0000	00
05655694	ICT	00000000	00000000	00000000	00000000	0000	00
056556AC	LCLJNEWS	00000000	00000000	00000000	00000000	0000	00
056556C4	RJPJNEWS	00000000	00000000	00000000	00000000	0000	00
056556DC	TSOJNEWS	00000000	00000000	00000000	00000000	0000	00
056556F4	FSSCKPT	058020A0	0564A628	00000000	00000000	0000	00
0565570C	GMSCKPT	056C7D00	0564A328	00000000	00000000	0000	00
05655724	JQEPTY0	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
0565573C	JQEPTY1	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
05655754	JQEPTY2	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
0565576C	JQEPTY3	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
05655784	JQEPTY4	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00

JESMSG Queue Control Area Header

0565579C	JQEPTY5	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
056557B4	JQEPTY6	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
056557CC	JQEPTY7	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
056557E4	JQEPTY8	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
056557FC	JQEPTY9	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
05655814	JQEPTY10	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
0565582C	JQEPTY11	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
05655844	JQEPTY12	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
0565585C	JQEPTY13	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00
05655874	JQEPTY14	0564E2F8	05649FC8	0564E2F8	05649FC8	0000	00

ADDRESS hhhhhhhh - is the address of the AENQ control data entry.

NAME cccccccc - is the resource name.

EXFCT hhhhhhhh - is the address of the FCT who has exclusive use of the resource.

EXDSP hhhhhhhh - is the address of the DSP dictionary for FCT who has exclusive use of the resource.

SHFCT hhhhhhhh - is the address of the first FCT who has shared use of resource.

SHDSP hhhhhhhh - is the address of the DSP dictionary for first FCT who has shared use of resource.

SHRCT hhhh - is the number of users who have shared use of the resource.

EXFLG hh - is the exclusive use flag. The value of X'FF' indicates that someone has exclusive use of the resource.

FCT AENQ elements

The FCT AENQ element contains information to map AENQ resource with the corresponding FCT. Each time an FCT issues an AENQ request and obtains access to a resource, an FCT AENQ element is initialized and chained from the FCT. It is mapped by the JES3 macro AENQ. It is formatted in both JES3 and FSS dumps.

----- FCT AENQ ELEMENTS

ADDRESS	NAME	FCTADDR	ID	NEXT	RSNM	RSNO	FLG1
057BF1B8	JSS	0574EBE0	FENQ	057BF198	FCT	0006	80
057BF198	JSS	0574EBE0	FENQ	00000000	FCT	0006	80

ADDRESS hhhhhhhh - is the address of the FCT AENQ element queue for the resource that were AENQ'd by the FCT.

NAME cccccccc - is the name of the resource.

FCTADDR hhhhhhhh - is the address of the FCT entry.

ID cccc - is the ID of the control block (FENQ).

NEXT hhhhhhhh - is the address of the next FCT AENQ element on the FCT queue.

RSNM cccccccc - is the name of the AENQ resource.

RSNO hhhh - is the AENQ resource number.

FLG1 hh - is the flag byte of FCT AENQ.
The following bits can be set in this flag.

Value Meaning

X'80' Resource was obtained exclusively. If off, resource was obtained shared.

FCT AENQ element free queue

It contains information about the resources in the FCT AENQ element free queue. When an FCT issues an ADEQ request to release control of the resource, the FCT AENQ element is removed from the FCT chain and put on FCT AENQ element free queue. It is mapped by the JES3 macro AENQ. It is not formatted in an FSS dump.

```
-----
                        FCT AENQ ELEMENT FREE QUEUE
-----
```

ADDRESS	ID	NEXT	RSNM	RSNO	FCT	DSP	FLG1
056BF198	FENQ	056BF1B8	JQEPTY0	000F	0564E2F8	05649FC8	00
056BF1B8	FENQ	056BF1D8		0000	00000000	00000000	00
056BF1D8	FENQ	056BF1F8		0000	00000000	00000000	00
056BF1F8	FENQ	056BF218		0000	00000000	00000000	00
056BF218	FENQ	056BF238		0000	00000000	00000000	00
056BF238	FENQ	056BF258		0000	00000000	00000000	00
056BF258	FENQ	056BF278		0000	00000000	00000000	00
056BF278	FENQ	056BF298		0000	00000000	00000000	00
056BF298	FENQ	056BF2B8		0000	00000000	00000000	00
056BF2B8	FENQ	056BF2D8		0000	00000000	00000000	00
056BF2D8	FENQ	056BF2F8		0000	00000000	00000000	00
056BF2F8	FENQ	056BF318		0000	00000000	00000000	00
056BF318	FENQ	056BF338		0000	00000000	00000000	00
056BF338	FENQ	056BF358		0000	00000000	00000000	00
056BF358	FENQ	056BF378		0000	00000000	00000000	00
056BF378	FENQ	056BF398		0000	00000000	00000000	00
056BF398	FENQ	056BF3B8		0000	00000000	00000000	00
056BF3B8	FENQ	056BF3D8		0000	00000000	00000000	00
056BF3D8	FENQ	056BF3F8		0000	00000000	00000000	00
056BF3F8	FENQ	056BF418		0000	00000000	00000000	00
056BF418	FENQ	056BF438		0000	00000000	00000000	00
056BF438	FENQ	056BF458		0000	00000000	00000000	00
056BF458	FENQ	056BF478		0000	00000000	00000000	00
056BF478	FENQ	056BF498		0000	00000000	00000000	00
056BF498	FENQ	056BF4B8		0000	00000000	00000000	00
056BF4B8	FENQ	056BF4D8		0000	00000000	00000000	00
056BF4D8	FENQ	056BF4F8		0000	00000000	00000000	00
056BF4F8	FENQ	056BF518		0000	00000000	00000000	00
056BF518	FENQ	056BF538		0000	00000000	00000000	00
056BF538	FENQ	00000000		0000	00000000	00000000	00

```
-----
```

ADDRESS hhhhhhhh - is the address of the FCT AENQ element free queue entry.

ID cccc - is the ID of the control block (FENQ).

NEXT hhhhhhhh - is the address of the next FCT AENQ element on the free queue.

RSNM cccccccc - is the name of the AENQ resource.

RSNO hhhh - is the number of the AENQ resource.

FCT hhhhhhhh - is the address of the FCT entry.

DSP hhhhhhhh - is the address of the DSP.

FLG1 hh - is the flag byte of FCT ENQ.
The following bits can be set in this flag.

Value Meaning

X'80' Resource was obtained exclusively. If off, resource was obtained shared.

GST

Generalized subtask global data area

The Generalized Subtask Global Data Area contains information used to manage the generalized subtasks and the work associated with those tasks. It is mapped by the JES3 macro IATYGSD. It is formatted in both JES3 and FSS dumps.

```

-----
GENERALIZED SUBTASK GLOBAL DATA AREA - 05635838
NSGSD   SAVAL   SAVCT   SDISP   SNOWK   TSKAT   NSMAX   FRSQD   SQDEX   FLAG1
05801410 05800E08 00000008 000008DF 00000075 0008   0008   0580F600 0001   80
-----
    
```

NSGSD hhhhhhhh - is the address of the first GSD on the queue.

SAVAL hhhhhhhh - is the address of the first GSD on the subtask available queue. The GSD is removed from this queue when a subtask is posted for work, and added to the queue when the subtask is finished.

SAVCT hhhhhhhh - is the number of available subtasks.

SDISP hhhhhhhh - is the number of times a subtask was dispatched.

SNOWK hhhhhhhh - is the number of times a subtask was dispatched and there was no work found.

TSKAT hhhh - is the number of subtasks attached.

NSMAX hhhh - is the maximum number of non-specific Generalized subtasks.

FRSQD hhhhhhhh - is the address of the first free subtask queue descriptor.

SQDEX hhhh - is the number of SQD extents.

FLAG1 hh - is the flag byte of GSD.
The following bits can be set in this flag.

Value Meaning
X'80' Subtask Queue Descriptors are available.

Non-specific subtask GSDS

This formatter gives the generalized subtask directories for the non-specific subtasks. It is mapped by the JES3 macro IATYGSD. It is formatted in both JES3 and FSS dumps.

```

-----
NON-SPECIFIC SUBTASK GSDS
ADDRESS  ID    ECB    AVNXT   SQDAD   TCB    FLG
05801410 GSD  807BFDA8 056B3E08 00000000 007E7B00 40
05800A18 GSD  807C3038 056AA670 00000000 007E7D90 50
05800E08 GSD  807B1108 05801410 00000000 007CE0E0 50
056C2410 GSD  807B8080 05800A18 00000000 007CE370 40
056B70A8 GSD  807B8198 056C2410 00000000 007CE600 50
056B3E08 GSD  807BF198 056B70A8 00000000 007CE890 50
056AA670 GSD  807F95D8 0580F048 00000000 007CEA28 40
0580F048 GSD  807F9180 00000000 00000000 007D8C58 50
-----
    
```

ADDRESS hhhhhhhh - is the address of the GSD entry on the queue.

ID cccc - is the directory ID (GSD)

ECB hhhhhhhh - is the subtask ECB.

AVNXT hhhhhhhh - is the address of the next GSD on the subtask available queue.

SQDAD hhhhhhhh - is the address of the subtask queue descriptor (SQD) being processed at the time of error.

TCB hhhhhhhh - is the address of the subtask TCB.

FLG1 hh - is the flag byte of GSD.
The following bits can be set in this flag.

Value Meaning
X'40' Subtask initialization complete.
X'20' Subtask is to terminate after this request.
X'10' Work was found after subtask was dispatched.

Specific subtask GSDS

This formatter gives the generalized subtask directories for the specific subtasks. It is mapped by the JES3 macro IATYGSD. It is formatted in both JES3 and FSS dumps.

```
-----
                SPECIFIC SUBTASK GSDS
-----
```

ADDRESS	ID	SBTID	ECB	SQDAD	USERP	TCB	FLG1
058195B0	GSD	05	807BF298	00000000	00000000	007B1E88	50
05815058	GSD	07	00000000	0580F240	00000000	007D8798	50

```
-----
```

ADDRESS hhhhhhhh - is the address of the GSD entry on the queue.

ID cccc - is the directory ID (GSD).

SBTID hh - is the subtask ID.

ECB hhhhhhhh - is the subtask ECB.

SQDAD hhhhhhhh - is the address of the subtask queue descriptor (SQD) being processed at the time of error.

USERP hhhhhhhh - is the user parameter area saved across subtask calls.

TCB hhhhhhhh - is the address of the subtask TCB.

FLG1 hh - is the flag byte of GSD.
The following bits can be set in this flag.

Value Meaning
X'40' Subtask initialization complete.
X'20' Subtask is to terminate after this request.
X'10' Work was found after subtask was dispatched.

SQDS in the free pool

The Subtask Queue Descriptor (SQD) contains information that is used by a generalized subtask to process an IATXCSF request. IATXCSF invoke the call subtask function service subroutines in IATGRGS. It is mapped by the JES3 macro IATYSQD. It is formatted in both JES3 and FSS dumps.

```
-----
SQD 0580F240 DESC=WLM SUBTASK      RTNAD=05693DF0 FCTAD=0564EBE0 REG10=058429A0 REG13=0001D7E8 FLAG1=80
-----
```

SQDS IN THE FREE POOL											
ADDRESS	DESC	RTNAD	FLAG1	FCTAD	REG2	REG3	REG4	REG5	REG6	REG7	REG8
0580F600	WTR-PURGE	05959EFA	40	0580B9A0	00000030	20000000	0001E000	0001DC68	0001DAE0	05260AA0	057FE540
0580F588	WTR-PURGE	05948EFA	40	05809CF0	00000030	20000000	0001E000	0001DC68	0001DAE0	05260AA0	057FE440
0580F420		056178D6	40	0564C1F8	000134B0	05617301	00000000	00000002	00000000	04F67000	7F3AC890

JESMSG Queue Control Area Header

0580F510	ALOAD-IATISDT	0564592A	40	05803A20	0592FF18	0564ABD0	00000000	0564ABD0	00FC673C	056C20C8	0569DA8C
0580F498	IXZXIXCN-END	058DF29E	40	058033C0	80000000	7F7578EE	0584D158	B7496330	C2F4DE0F	0564B108	7F757890
0580F6F0	IXZXIXIF	0583F9F2	40	0580C130	DFFFFFFF	00000000	04FD9098	00000000	0583EA88	00000000	056C2608
0580F2B8	IXZXIXIF	0583F9F2	40	058005E0	DFFFFFFF	00000000	04FD9098	00000000	0583EA88	00000000	056B3C10
0580F768	IXZXIXIF	0583F9F2	40	057F4CF0	DFFFFFFF	00000000	04FD9098	00000000	0583EA88	00000000	056AA478
0580F678	ALOAD-IATGRMN	0564592A	40	05802A30	05927AD0	0564A758	00000000	0564A758	00FC673C	056C20C8	0569D834
0580F3A8	IXZXIXIF	0583F9F2	40	057F4CF0	00000000	00000000	00000000	00000000	0583EA88	00000000	056AA478
0580F330	IXZXIXIF	0583F9F2	40	057BFCF0	00000000	00000000	00000000	00000000	0583EA88	00000000	056AA868
0580F7E0		00000000	00	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0580F858		00000000	00	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0580F8D0		00000000	00	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0580F948		00000000	00	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0580F9C0		00000000	00	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

ADDRESS	REG9	REG10	REG13	ECFAD	ECFMK	RTNRC	RREG0	RREG1	ABCC	ABPSW
0580F600	0594AA40	05959AB0	0594ED40	00000000	00	00000000	00FEDCA0	0001DC68	00000000	0000000000000000
0580F588	0593DA40	05948AB0	05944D40	00000000	00	00000000	00FEDCA0	0001DC68	00000000	0000000000000000
0580F420	7F3AC8EE	05617880	05606C38	00000000	00	00000000	00000000	00000000	7F3A8298	0000000000000000
0580F510	056982A0	056451EC	00000000	00000000	00	00000000	8592FF18	0000041D	00000000	0000000000000000
0580F498	04F67000	058DF000	0580E200	00000000	00	00000000	00000000	058DF2B0	00000000	0000000000000000
0580F6F0	04F64000	0583F998	00000000	00000000	00	00000000	00000000	056C26F0	00000000	0000000000000000
0580F2B8	04F65000	0583F998	00000000	00000000	00	00000000	00000000	056B3CF8	00000000	0000000000000000
0580F768	04F66000	0583F998	00000000	00000000	00	00000000	00000000	056AA560	00000000	0000000000000000
0580F678	05698240	056451EC	00000000	00000000	00	00000000	85927AD0	000004A6	00000000	0000000000000000
0580F3A8	04F66000	0583F998	00000000	00000000	00	00000000	00000000	056AA560	00000000	0000000000000000
0580F330	04F67000	0583F998	00000000	00000000	00	00000000	00000000	056AA950	00000000	0000000000000000
0580F7E0	00000000	00000000	00000000	00000000	00	00000000	00000000	00000000	00000000	0000000000000000
0580F858	00000000	00000000	00000000	00000000	00	00000000	00000000	00000000	00000000	0000000000000000
0580F8D0	00000000	00000000	00000000	00000000	00	00000000	00000000	00000000	00000000	0000000000000000
0580F948	00000000	00000000	00000000	00000000	00	00000000	00000000	00000000	00000000	0000000000000000
0580F9C0	00000000	00000000	00000000	00000000	00	00000000	00000000	00000000	00000000	0000000000000000

SQD hhhhhhhh - is the address of the active SQD under a generalized subtask.

DESC cccccccccccccc - is the function description of the subtask.

RTNAD hhhhhhhh - is the address of the routine to be subtasked.

FCTAD hhhhhhhh - is the address of the calling FCT.

ADDRESS hhhhhhhh - is the address of the free subtask queue descriptor entry.

FLAG1 hh - is the flag byte of SQD.
The following bits can be set in this flag.

Value Meaning

X'80' Asynchronous request.

X'40' Processing complete. This is the ECF mask used for synchronous subtask requests.

X'20' Don't issue DM146 abend if subtask abends.

X'10' Subtask should terminate after this request is complete.

X'08' JESTAE recursion indicator

X'04' Subtask should bypass processing this request because the requesting FCT is in recovery processing. This means that the data that needs to be referenced by the subtask may no longer be valid.

REG2 hhhhhhhh - is the Register 2 content used by the subtask.

REG3 hhhhhhhh - is the Register 3 content used by the subtask.

REG4 hhhhhhhh - is the Register 4 content used by the subtask.

REG5 hhhhhhhh - is the Register 5 content used by the subtask.

REG6 hhhhhhhh - is the Register 6 content used by the subtask.

REG7 hhhhhhhh - is the Register 7 content used by the subtask.

REG8 hhhhhhhh - is the Register 8 content used by the subtask.

REG9 hhhhhhhh - is the Register 9 content used by the subtask.

REG10 hhhhhhhh - is the Register 10 content used by the subtask.

REG13 hhhhhhhh - is the Register 13 content used by the subtask.

ECFAD hhhhhhhh - is the address of ECF to be posted when work is complete.
This field will only be non-zero for asynchronous requests where the caller specified an ECF address and mask.

ECFMK hh - is the ECF mask to be used to post the ECF when work is complete.

RTNRC hhhhhhhh - is the routine return code. It is the Register 15 content.

REG0 hhhhhhhh - is the routine return Register 0 content.

REG1 hhhhhhhh - is the routine return Register 1 content.

ABCC hhhhhhhh - is the abend completion code.

ABPSW hhhhhhhhhhhhhhh - is the PSW content at the time of error (abend).

LOC

Locate control tables

The Locate Control Table contains data used by each locate subtask. It is also used by the locate FCT to communicate with each locate subtask. It is mapped by the JES3 macro IATYLCT. It is formatted in both JES3 and FSS dumps.

```
-----
LOCATE CONTROL TABLES
-----
```

ADDRESS	NEXT	MODEP	LET	TCB	JSCB	SEL	SSOB	CSSSA	VSSSA	UVR	BLK	RAB
058F4F40	058EFF40	858F6440	00000000	007D7C58	007D1218	00000000	00000000	00000000	00000000	058F5D10	058F5B98	0504F038
058EFF40	058EAF40	858F1440	00000000	007D7E88	007D1748	00000000	00000000	00000000	00000000	058F0D10	058F0B98	00000000
058EAF40	058E5F40	858EC440	00000000	007D1598	007D1AF8	00000000	00000000	00000000	00000000	058EBD10	058EBB98	00000000
058E5F40	058E0F40	858E7440	00000000	007D1948	007D82D0	00000000	00000000	00000000	00000000	058E6D10	058E6B98	00000000
058E0F40	00000000	858E2440	00000000	007D8120	007D1058	00000000	00000000	00000000	00000000	058E1D10	058E1B98	00000000

ADDRESS	SCACB	JBACB	SCRPL	JBRPL	SCDSS	JBDSS	SCDEB	JBDEB	SCSDM	JBSDM	SPAFS	SPAFJ
058F4F40	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	058F5C30	00000000	00000000	00000000
058EFF40	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	058F0C30	00000000	00000000	00000000
058EAF40	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	058EBC30	00000000	00000000	00000000
058E5F40	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	058E6C30	00000000	00000000	00000000
058E0F40	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	058E1C30	00000000	00000000	00000000

ADDRESS	LRSWK	LRS	LRLSA	CRLRS	FRESP	LVS	LVCID	NXCAT	NXDSN	CRLVS
058F4F40	058F5398	00000000	00000000	058F591A	058F59A8	7F43AF34	7F43AF00	0000	0000	0000
058EFF40	058F0398	00000000	00000000	00000000	00000000	7F444F00	0000	0000	0000	
058EAF40	058EB398	00000000	00000000	00000000	00000000	7F44DF00	0000	0000	0000	
058E5F40	058E6398	00000000	00000000	00000000	00000000	7F456F00	0000	0000	0000	
058E0F40	058E1398	00000000	00000000	00000000	00000000	7F469F00	0000	0000	0000	

ADDRESS	CTGPL	CTGP2	CTGWA	CTGW2	PCTVL	PCTV2	GCTVL	GCTV2	CTGCV	CTGC2	CTGFL
058F4F40	058F5D58	00000000	058F5D78	00000000	058F5D88	00000000	00000000	00000000	058F5F88	00000000	058F5FE6
058EFF40	058F0D58	00000000	058F0D78	00000000	058F0D88	00000000	00000000	00000000	058F0F88	00000000	058F0FE6
058EAF40	058EBD58	00000000	058EBD78	00000000	058EBD88	00000000	00000000	00000000	058EBF88	00000000	058EBFE6
058E5F40	058E6D58	00000000	058E6D78	00000000	058E6D88	00000000	00000000	00000000	058E6F88	00000000	058E6FE6
058E0F40	058E1D58	00000000	058E1D78	00000000	058E1D88	00000000	00000000	00000000	058E1F88	00000000	058E1FE6

ADDRESS	ALLOC	UNALC	DVIDX	VTIDX	DDNAM	FRSAV	ECB	JOBNO	LOCNT	FLAG1	FLAG2	FLAG3
058F4F40	058F5CA8	058F5CDC	0000	0004		058F51B0	807D7B38	00000000	00000005	00	88	00
058EFF40	058F0CA8	058F0CDC	0000	0003		058F01B0	807D12F8	00000000	00000000	00	00	00
058EAF40	058EBCA8	058EBCDC	0000	0002		058EB1B0	807D1478	00000000	00000000	00	00	00
058E5F40	058E6CA8	058E6CDC	0000	0001		058E61B0	807D1828	00000000	00000000	00	00	00
058E0F40	058E1CA8	058E1CDC	0000	0000		058E11B0	807D1BD8	00000000	00000000	00	00	00

```
-----
```

ADDRESS hhhhhhhh - is the address of the locate control table entry.

NEXT hhhhhhhh - is the address of the next locate control table in chain.

MODEP hhhhhhhh - is the module (IATLVLC) entry point.

LET hhhhhhhh - is the address of the locate entrance table (LET) of the current request being processed.

TCB hhhhhhhh - is the address of the locate subtask TCB address.

JSCB hhhhhhhh - is the address of the locate subtask JSCB.

SEL hhhhhhhh - is the address of the service entrance list for SSISERV (local locate subtask only).

SSOB hhhhhhhh - is the address of the subsystem option block.

JESMSG Queue Control Area Header

CSSSA hhhhhhhh - is the address of the SSOB extension (SSSA) for SMS catalog services.

VSSSA hhhhhhhh - is the address of the SSOB extension (SSSA) for SMS VOLREF services.

UVR hhhhhhhh - is the address of the unit verification parameter list.

BLK hhhhhhhh - is the address of the block spooler parameter list.

RAB hhhhhhhh - is the address of the record allocation block of current request being processed.

SCACB hhhhhhhh - is the address of the access method control block (ACB) for the SMS scheduling information data set.

JBACB hhhhhhhh - is the address of the access method control block (ACB) for the SMS job information data set.

SCRPL hhhhhhhh - is the address of the request parameter list (RPL) for the SMS scheduling information data set.

JBRPL hhhhhhhh - is the address of the request parameter list (RPL) for the SMS job information data set.

SCDSS hhhhhhhh - is the address of the data set status block (DSS) for the SMS scheduling information data set.

JBDSO hhhhhhhh - is the address of the data set status block (DSS) for the SMS job information data set.

SCDEB hhhhhhhh - is the address of the data extent block (DEB) for the SMS scheduling information data set.

JBDEB hhhhhhhh - is the address of the data extent block (DEB) for the SMS job information data set.

SCSDM hhhhhhhh - is the address of the spool data management (SDM) parameter for the SMS scheduling information data set.

JBSDM hhhhhhhh - is the address of the spool data management (SDM) parameter for the SMS job information data set.

SPAFS hhhhhhhh - is the address of the JES3 spool access facility parameter list for the SMS scheduling information data set.

SPAFJ hhhhhhhh - is the address of the JES3 spool access facility parameter list for the SMS job information data set.

LRSWK hhhhhhhh - is the address of the locate response work area which is used to create LRSs.

LRS hhhhhhhh - is the address of the locate response. It is only for global locate subtask.

LRLSA hhhhhhhh - is the address of the last locate response in the chain of LRSs. It is only for global locate subtask.

CRLRS hhhhhhhh - is the address of the current LRS Fixed or Data entry in the current LRS buffer. It is set to zero when a new LRS buffer is initialized.

FRESP hhhhhhhh - is the address of the next free space in the LRS work area to allocate a new LRS Fixed or LRS Data entry in the current LRS buffer.

LVS hhhhhhhh - is the address of the locate request (LVS).

LVCID hhhhhhhh - is the LVS cellpool identifier. This cellpool is also used for the SMS job information data set.

NXCAT hhhh - is the relative LVS number of the next catalog LVS entry.

NXDSN hhhh - is the relative LVS number of the next data set LVS entry.

CRLVS hhhh - is the relative LVS number of the current LVS entry.

CTGPL hhhhhhhh - is the address of the catalog parameter list.

CTGP2 hhhhhhhh - is the address of the second catalog parameter list.

CTGWA hhhhhhhh - is the address of the catalog work area.

CTGW2 hhhhhhhh - is the address of the second catalog work area.

PCTVL hhhhhhhh - is the address of the preallocated catalog volume list.

PCTV2 hhhhhhhh - is the address of the second preallocated catalog volume list.

GCTVL hhhhhhhh - is the address of the GETMAIned catalog volume list.
 GCTV2 hhhhhhhh - is the address of the second GETMAIned catalog volume list.
 CTGCV hhhhhhhh - is the address of the catalog control volume list.
 CTGC2 hhhhhhhh - is the address of the second catalog control volume list.
 CTGFL hhhhhhhh - is the address of the catalog field parameter list.
 ALLOC hhhhhhhh - is the address of the catalog allocate parameter list.
 UNALC hhhhhhhh - is the address of the catalog unallocate parameter list.
 DVIDX hhhh - is the device index for the allocation of user catalogs.
 VTIDX hhhh - is the locate subtask vector table (LSVT) index.
 DDNAM cccccccc - is the DDNAME used to allocate user catalogs.
 FRSAV hhhhhhhh - is the address of the free save area.
 ECB hhhhhhhh - is the locate subtask ECB.
 JOBNO hhhhhhhh - is the job number of the job currently being processed.
 LOCNT hhhhhhhh - is the number of locate requests performed by that subtask.
 FLAG1 hh - is the flag byte of LCT.
 The following bits can be set in this flag.

Value Meaning
 X'80' Subtask is busy.
 X'40' Private catalog being allocated is an MSS catalog.
 X'20' GDG-all processing.
 X'10' Special unit count assignment needs to be done.
 X'08' The current data set is an SMS managed data set.
 X'04' Locate subtask termination complete - set by ETXR.
 X'02' Locate subtask abended.
 X'01' Subtask finished with current request. It is used by local locate FCT to determine which subtask completed.

FLAG2 hh - is the flag byte of LCT.
 The following bits can be set in this flag.

Value Meaning
 X'80' Last LRS buffer being sent.
 X'40' Locate request needs to be processed.
 X'20' Normal termination request.
 X'10' Don't take SDUMP in ESTAE.
 X'08' Last LRS entry created was a LRS Fixed entry (as opposed to an LRS Data entry).
 X'04' Single data set name locate request by a DSP.
 X'02' Catalog being processed is an OS CVOL. Do not open this catalog (used by the LCALLLOC routine).

FLAG3 hh - is the flag byte of LCT.
 NOTE: Currently this flag is not used.

Locate data area

The Locate Data Area contains information used by all locate modules under the locate FCT. It is mapped by the JES3 macro IATYLDA. It is formatted in both JES3 and FSS dumps.

```
-----
                LOCATE DATA AREA - 0584D158
-----
LCT      MLCT   LSVT   LVAT   LETQ   LCFCT   LCR      ATTT   DETT   RMAIN   LCPFD
058F4F40 0578A398 056C2000 0585C0F8 00000000 0564E5F0 00000000 B749632A B749632A FFFFFFFF 7F4A400C000004D000000000

ECF FLAG1 FLAG2 FLAG3  PARM  FUNC  TRACE  RCODE
00  00   02   00   00000000 00  00   00
-----
```

LCT hhhhhhhh - is the address of the first locate control table.

JESMSG Queue Control Area Header

MLCT hhhhhhhh - is the address of the master locate subtask LCT.

LSVT hhhhhhhh - is the address of the locate subtask vector table.

LVAT hhhhhhhh - is the address of locate subtask maintenance module (IATLVAT).

LETQ hhhhhhhh - is the address of the locate entrance table queue.

LCFCT hhhhhhhh - is the address of locate FCT.

LCR hhhhhhhh - is the address of locate restart record during main connect processing.

ATTT hhhhhhhh - is the first word of time of the last locate subtask attach (STCK value).

DETT hhhhhhhh - is the first word of time of the last locate subtask detach by LVINSDET (STCK value).

RMAIN hhhhhhhh - is the main mask representing mains that cannot be scheduled because of some problem. It is initialized to FFFFFFFF.

LCPFD - is the locate checkpoint (LCP) FDB.

ECF hh - is the ECF of locate FCT.
The following bits can be set in this flag.

Value Meaning

X'80' Locate request needs to be processed (a LET has been added to the LET queue).
X'40' Staging area has been added to the destination queue.
X'20' Locate subtask has completed processing.
X'10' Locate restart processing is required.
X'08' Locate subtask has abended.
X'04' Job has been cancelled.
X'02' Catalog being processed is an OS CVOL. Do not open this catalog (used by the LCALLOC routine).

FLAG1 hh - is the flag byte of LDA (Recursion flag).
The following bits can be set in this flag.

Value Meaning

X'80' General recursion indicator.
X'40' LDACANCL - Job cancel.
X'20' LDASTAR - Staging area.
X'10' LDASBTSK - Locate subtask completed.
X'08' LDALOCRQ - New locate request.
X'04' LDASABND - Locate subtask abend.
X'02' LDARESTR - Locate restart.
X'01' LVINRTRY - Retry processing.

FLAG2 hh - is the flag byte of LDA.
The following bits can be set in this flag.

Value Meaning

X'80' First CANCEL command.
X'40' Queued CANCEL command.
X'20' IATLVAT in control.
X'10' Disable the locate function.
X'08' Do not allow attaches.
X'04' At least one subtask attached.
X'02' Okay to schedule locates.

FLAG3 hh - is the flag byte of LDA.
NOTE: Currently this flag is not used.

PARM hhhhhhhh - is the specific function trace parameter. It defines information which qualified by LDATRACE requires recovery processing.

FUNC hh - is the function identifier. It defines the specific locate work post (function) that is under control. If it is zero, then IATLVIN is not processing any of the locate work posts.

TRACE hh - is the trace flag.
The following bits can be set in this flag.

Value Meaning

X'01' Staging area locate request.
X'02' Staging area locate response.
X'03' Staging area job cancel.
X'04' Staging area job cancel complete.
X'05' WRTCHAIN processing.
X'06' No LCP job entry processing.

RCODE hh - is the abend reason code.
The following bits can be set in this flag.

Code Meaning

- X'01' No LCT address when LET entry indicates scheduled
- X'02' Staging area specifies zero sequence number.
- X'03' Staging area specifies an existing sequence number.
- X'04' No LET entry on chain to dequeue.
- X'05' Invalid staging area found.
- X'06' WRTCHAIN error checkpointing the LCP.
- X'07' No LCP checkpoint data set.
- X'08' No LCP job entry existed for checkpoint.
- X'09' Locate subtask attached but no schedule occurred.
- X'0A' Invalid C/I FSS CANCEL command.
- X'0B' An available LSVT entry could not be found when attempting to initialize a locate subtask.
- X'0C' Master subtask attach failure.
- X'0D' No global MPC found.
- X'0E' Invalid LCT address.

Locate entrance tables

The Locate Entrance Table contains information used by the DSPs to request the services of the Locate FCT. It is mapped by the JES3 macro IATYLET. It is formatted in both JES3 and FSS dumps.

```
-----
                LOCATE ENTRANCE TABLES
-----
```

ADDRESS	CHAIN	JOBNO	MAINS	LRS	RAB	MPC	LCT	FLAG1	FLAG2
000247F0	00012AE8	00000037	01000000	00000000	050E3330	04FE3000	059F3F40	04	00
00012AE8	00000000	00000038	01000000	00000000	050CF208	00000000	00000000	00	00

```
-----
```

ADDRESS hhhhhhhh - is the address of the LET entry.

CHAIN hhhhhhhh - is the address of the next LET entry on queue.

JOBNO hhhhhhhh - is the job number.

MAINS hhhhhhhh - is the main processor eligibility mask.

LRS hhhhhhhh - is the address of the locate response.

RAB hhhhhhhh - is the address of the record allocation block.

MPC hhhhhhhh - is the address of the main processor where the locate request has been scheduled to.

LCT hhhhhhhh - is the address of the locate control table of the locate subtask that is processing the job.

FLAG1 hh - is the flag byte of LET.
The following bits can be set in this flag.

Value Meaning

- X'80' Locate processing complete. It is set by the Locate FCT to post the requester.
- X'40' Job was cancelled.
- X'20' Locate FCT failure.
- X'10' No eligible main.
- X'08' LET was GETMAINed. Otherwise the LET is an integral part of the IDD.
- X'04' LET serviced (scheduled).
- X'02' LET is residual over a global restart.
- X'01' LET will be marked complete at the end of locate restart processing. The job was in the global LCP but not the local's LCR, thus no match.

FLAG2 hh - is the flag byte of LET.
NOTE: Currently this flag is not used.

JESMSG Queue Control Area Header

Locate Restart Records

The Locate Restart Record contains information about jobs active in Locate on a local processor during Main connect processing. For Main processor flush (*START,MAINNAME,FLUSH), it contains information about the main that was flushed. It is mapped by the macro IATYLCR. It is formatted in both JES3 and FSS dumps.

LOCATE RESTART RECORDS

ADDRESS	SIZE	JBCNT	NEXT	MPC	MAIN	HFLG1
000247F0	001C	0000	00000000	04F96000	SY2	40

ADDRESS hhhhhhhh - is the address of the locate restart record (LCR) entry during main connect processing.

SIZE hhhh - is the total size of LCR including the job entries.

JBCNT hhhh - is the number of locate restart record job entries.

NEXT hhhhhhhh - is the address of the next locate restart record entry on chain.

MPC hhhhhhhh - is the address of main processor control table (in global processor only).

MAIN cccccccc - is the name of the main processor being restarted.

HFLG1 hh - is the flag byte of LCR.
The following bits can be set in this flag.

Value Meaning
X'80' Main Connect LCR.
X'40' Main Flush LCR.

Locate subtask vector table

The Locate Subtask Vector Table contains information to map Locate subtask control table with locate subtask TCB address. It is mapped by the JES3 macro IATYLSVT. It is formatted in both JES3 and FSS dumps.

LOCATE SUBTASK VECTOR TABLE

ADDRESS	LCT	TCB
056C2014	058E0F40	007D8120
056C201C	058E5F40	007D1948
056C2024	058EAF40	007D1598
056C202C	058EFF40	007D7E88
056C2034	058F4F40	007D7C58
056C203C	00000000	00000000
056C2044	00000000	00000000
056C204C	00000000	00000000
056C2054	00000000	00000000
056C205C	00000000	00000000

ADDRESS hhhhhhhh - is the address of the Locate Subtask Vector Table entry.

LCT hhhhhhhh - is the address of the Locate Subtask Control Table.

TCB hhhhhhhh - is the address of the Locate Subtask TCB.

Master Locate Control Table

The Master Locate Control Table contains information regarding the locate master task like master task ECB, LCT for the subtask that is being attached, parameter list, etc. It is mapped by the JES3 macro IATYLCT. It is formatted in both JES3 and FSS dumps.

 MASTER LOCATE CONTROL TABLE - 0578A398

MECB	MTCB	MTVT	ATLCT	AD4F4	AD4F5	MFLG1
807D8960	007D83B0	05604000	00000000	83E7D188	83E7D978	90

MECB hhhhhhhh - is the master task ECB.

MTCB hhhhhhhh - is the address of the locate master task TCB.

MTVT hhhhhhhh - is the address of the transfer vector table.

ATLCT hhhhhhhh - is the address of the LCT for the subtask that is being attached.

AD4F4 hhhhhhhh - is the address of the IEFAB4F4 entry point.

AD4F5 hhhhhhhh - is the address of the IEFAB4F5 entry point.

MFLG1 hh - is the flag byte of master locate control table.
 The following bits can be set in this flag.

Value Meaning

- X'80' Locate subtask attach complete.
- X'40' Locate subtask attach not successfully completed.
- X'20' Locate Master Task abend.
- X'10' Locate Master Task initialization complete.
- X'08' ESTAE entered. It is reset after a successful ATTACH has been performed.
- X'04' ETRX processing being performed.
- X'02' ATTACH processing being performed.

MOD-JES3 module information from the JDEs

It displays the information about the executable modules from the JES3 Directory Elements. It is mapped by the JES3 macro IATYJDE. It is formatted in both JES3 and FSS dumps.

 JES3 MODULE INFORMATION FROM THE JDES

ADDRESS	NAME	BUFAD	ADDR	PRVPEP	MSIZE	DATE	TIME	APAR	PTF	USE	ALDS	FCTP	FLAG	FLAG2
05699000	IATFSLG	056A0188	056A0188	00000000	00008E78	010502	0730		1.4.0	0001	0001	00000000	00	90
05699064	IATFSRC	0569FC28	0569FC28	00000000	00000268	113000	1613		1.2.0	0001	0001	00000000	00	90
056990C8	IATABN0	00014BF0	00014BF0	00000000	00002410	011002	2256		1.4.0	0001	0001	00000000	00	10
0569912C	IATGROP	0000D6B0	0000D6B0	00000000	000007D8	113000	1614		1.2.0	0001	0001	00000000	00	10
05699190	IATISCB	0000D5D8	0000D5D8	00000000	000000D8	113000	1626		1.2.0	0001	0001	00000000	00	10
056991F4	IATBDC	00017000	00017F90	00000000	00003B98	113000	1609		1.2.0	0001	0001	00000000	00	10
05699258	IATINDT	00000000	00000000	0001D7E8	00000000	092901	0946		1.4.0	0000	0001	00000000	00	10
056992BC	IATINRN	00000000	00000000	0001F0F0	00000000	010502	0731		1.4.0	0000	0001	00000000	00	10
05699320	IATMSSTA	056B1C40	056B1C40	00000000	000013C0	010502	0731		1.4.0	0001	0001	00000000	00	90
05699384	IATINMPC	00000000	00000000	056B3A90	00000000	010502	0730		1.4.0	0000	0001	00000000	00	90
056993E8	IATINM4	00000000	00000000	056AA780	00000000	111401	2040		1.4.0	0000	0001	00000000	00	90
0569944C	IATINIC	00000000	00000000	00023650	00000000	010502	0730		1.4.0	0000	0001	00000000	00	10
056994B0	IATGRUX	00000000	00000000	0569F0D8	00000000	113000	1614		1.2.0	0000	0001	00000000	00	90
05699514	IATUX03	0569AFC0	0569AFC0	00000000	00000040	113000	1638		1.2.0	0001	0001	00000000	00	90
05699578	IATUX04	0569BFC0	0569BFC0	00000000	00000040	113000	1638		1.2.0	0001	0001	00000000	00	90
056995DC	IATUX05	0569CFC0	0569CFC0	00000000	00000040	113000	1638		1.2.0	0001	0001	00000000	00	90
05699640	IATUX06	0569DFC0	0569DFC0	00000000	00000040	113000	1638		1.2.0	0001	0001	00000000	00	90
056996A4	IATUX07	0569EFC0	0569EFC0	00000000	00000040	113000	1638		1.2.0	0001	0001	00000000	00	90
05699708	IATUX08	0569F028	0569F028	00000000	00000040	113000	1638		1.2.0	0001	0001	00000000	00	90
05699708	IATUX08	0569F028	0569F028	00000000	00000040	113000	1638		1.2.0	0001	0001	00000000	00	90
0569976C	IATUX09	0569F4F0	0569F4F0	00000000	00000040	113000	1638		1.2.0	0001	0001	00000000	00	90
056997D0	IATUX10	0569FEC0	0569FEC0	00000000	00000040	113000	1638		1.2.0	0001	0001	00000000	00	90

JESMSG Queue Control Area Header

05699834	IATUX11	056A0148	056A0148	00000000	00000040	113000	1638	1.2.0	0001	0001	00000000	00	90
05699898	IATUX14	056A00C8	056A00C8	00000000	00000080	113000	1638	1.2.0	0001	0001	00000000	00	90
056998FC	IATUX15	00000000	00000000	056AA288	00000000				0000	0001	00000000	00	90
05699960	IATUX17	056A0048	056A0048	00000000	00000080	113000	1638	1.2.0	0001	0001	00000000	00	90
056999C4	IATUX18	056AA208	056AA208	00000000	00000080	021102	0815	1.4.0	0001	0001	00000000	00	90
05699A28	IATUX19	056A0008	056A0008	00000000	00000040	113000	1638	1.2.0	0001	0001	00000000	00	90
05699A8C	IATUX20	056B5220	056B5220	00000000	000000E0	113000	1638	1.2.0	0001	0001	00000000	00	90
05699AF0	IATUX21	056B12E8	056B12E8	00000000	00000958	121100	1927	1.2.0	0001	0001	00000000	00	90
05699B54	IATUX22	056AA1C8	056AA1C8	00000000	00000040	113000	1638	1.2.0	0001	0001	00000000	00	90
05699BB8	IATUX23	056B61B0	056B61B0	00000000	00000E50	113000	1638	1.2.0	0001	0001	00000000	00	90
05699C1C	IATUX24	056AA180	056AA180	00000000	00000048	113000	1638	1.2.0	0001	0001	00000000	00	90
05699C80	IATUX25	056AA100	056AA100	00000000	00000080	113000	1638	1.2.0	0001	0001	00000000	00	90
05699CE4	IATUX27	056AA080	056AA080	00000000	00000080	113000	1638	1.2.0	0001	0001	00000000	00	90
05699D48	IATUX28	056AA000	056AA000	00000000	00000080	113000	1638	1.2.0	0001	0001	00000000	00	90

ADDRESS hhhhhhhh - is the address of the JDE entry.

NAME ccccccc - is the name of the module.

BUFAD hhhhhhhh - is the buffer address of the module location.

ADDR hhhhhhhh - is the address of the module origin.

PRVEP hhhhhhhh - is the address of the previous entry point of module before it was deleted.

MSIZE hhhhhhhh - is the size of the module in bytes.

DATE ccccc - is the date on which the module was assembled.

TIME cccc - is the time at which the module was assembled.

APAR ccccc - is the most recent APAR applied.

PTF ccccc - is the most recent PTF applied.

USE hhhh - is the module use count.

ALDS hhhh - is the total number of ALOADs of the module.

FCTP hhhhhhhh - is the pointer to the owning FCT.

FLAG hh - is the flag byte of JDE.
The following bits can be set in this flag.

Value Meaning

X'80' Refresh on next ALOAD.
X'40' Caller waiting for a new module.
X'20' Caller needs zero use count.
X'10' Not frequently used. Delete module if ON regardless of threshold value.
X'08' Lock to serialize the use of JDE.
X'04' Element is reusable.
X'02' Element is a data CSECT.
X'01' Module not deletable.

FLAG2 hh - is the flag byte of JDE.
The following bits can be set in this flag.

Value Meaning

X'80' RMODE of module.
0 - RMODE = 24
1 - RMODE = ANY
X'40' BLDL subtask called.
X'20' LOAD subtask called.
X'10' AMODE of module.
0 - AMODE = 24
1 - AMODE = 31
X'08' RETRY indicator for IATGRDL.
X'04' JDE Cleanup is in progress (left ON if cleanup abends).
X'02' A *F,X,M=modname,REFRESH command is pending. Delete the module and reset the load count when the module is no longer being used.
X'01' The JDE represents a JES3 Nucleus module that was refreshed through a *F,X,M=modname,REFRESH command.

SCT-SYSOUT Class table

The SYSOUT Class Table contains the characteristics of SYSOUT classes. It is mapped by the JES3 macro IATYSCT. It is not formatted in the FSS dump.

```
-----
                SYSOUT CLASS TABLE
-----
```

ADDRESS	CLASS	TYPE	RSVT	FLAG1	FLAG2	FLAG3	COPY	DEST	DEVT	FORMS	CARR	TRAIN	CHARS	COPYS
05819FA8	A	80	00	00	10	00	FF	PRT002						0000000000000000
0581A01C	B	40	00	00	10	00	FF							0000000000000000
0581A090	C	80	00	00	10	C0	FF			1PRT		PN		0000000000000000
0581A104	D	80	00	00	10	00	FF	PRT003						0000000000000000
0581A178	E	80	00	00	10	00	FF	NODE5						0000000000000000
0581A1EC	F	80	00	00	10	00	FF	NODE6						0000000000000000
0581A260	G	80	00	00	00	00	00							0000000000000000
0581A2D4	H	80	00	00	00	00	00							0000000000000000
0581A348	I	80	00	00	10	00	FF							0000000000000000
0581A3BC	J	80	00	00	10	00	FF			2PRT				0000000000000000
0581A430	K	81	20	00	10	00	FF			2PRT				0000000000000000
0581A4A4	L	80	00	00	10	00	FF	LDEST		8PRT			GS18	0000000000000000
0581A518	M	80	00	00	10	00	FF	LOCAL						0000000000000000
0581A58C	N	80	00	00	10	00	FF	NODE4						0000000000000000
0581A600	O	80	00	00	00	00	00							0000000000000000
0581A674	P	80	00	00	00	00	00							0000000000000000
0581A6E8	Q	80	00	00	00	00	00							0000000000000000
0581A75C	R	80	00	00	10	00	FF	NODE3						0000000000000000
0581A7D0	S	80	00	00	00	00	00							0000000000000000
0581A844	T	81	80	00	10	00	FF							0000000000000000

ADDRESS	CLASS	FLASH	MODID	FLCNT	MODRC	STACK	TRKG1	TRKG2	THRES	CTABN	CHNSZ
05819FA8	A			00			00	00	00000000		0000
0581A01C	B			00			00	00	00000000		0000
0581A090	C			00			00	00	00000000		0000
0581A104	D			00			00	00	00000000		0000
0581A178	E			00			00	00	00000000		0000
0581A1EC	F			00			00	00	00000000		0000
0581A260	G			00			00	00	00000000		0000
0581A2D4	H			00			00	00	00000000		0000
0581A348	I			00			00	00	00000000		0000
0581A3BC	J			00			00	00	00000000		0000
0581A430	K			00			00	00	00000000		0000
0581A4A4	L			00			00	00	00000000		0000
0581A518	M			00			00	00	00000000		0000
0581A58C	N			00			00	00	00000000		0000
0581A600	O			00			00	00	00000000		0000
0581A674	P			00			00	00	00000000		0000
0581A6E8	Q			00			00	00	00000000		0000
0581A75C	R			00			00	00	00000000		0000
0581A7D0	S			00			00	00	00000000		0000
0581A844	T			00			00	00	00000000		0000

```
-----
```

ADDRESS hhhhhhhh - is the address of the SYSOUT Class Table entry.

CLASS c - is the SYSOUT Class (Valid values are A-Z, 0-9).

TYPE hh - is the SYSOUT Type flag.
The following bits can be set in this flag.

- Value Meaning
- X'80' PRINT Class (TYPE=PRINT).
 - X'40' PUNCH Class (TYPE=PUNCH).
 - X'10' The Class requires DS TAT (TYPE=DSISO).
 - X'08' Type reserved for user (TYPE=USER1).
 - X'04' Type reserved for user (TYPE=USER2).
 - X'02' Reserved SYSOUT Class (TYPE=RSVD).
 - X'01' HOLD for system output.

RSVT hh - is the reserved Type flag.
The following bits can be set in this flag.

- Value Meaning
- X'80' HOLD for MVS TSO output (HOLD=TSO).
 - X'40' HOLD for 3540 WTR (HOLD=3540).
 - X'20' HOLD for External WTR (HOLD=EXTWTR).

FLAG1 hh - is the flag byte of SCT.

JESMSG Queue Control Area Header

The following bits can be set in this flag.

Value Meaning

X'80' Overflow is OFF (OVFL=OFF)
X'40' Overflow is ON (OVFL=ON).
X'20' Interpret option for punched output is required (INT=YES).
X'10' Interpret option for punched output is not required (INT=NO).
X'08' Program control required (CONTROL=PROGRAM).
X'04' Single spacing required (CONTROL=SINGLE).
X'02' Double spacing required (CONTROL=DOUBLE).
X'01' COPIES field is valid.

FLAG2 hh - is the flag byte of SCT.

The following bits can be set in this flag.

Value Meaning

X'80' PRTY field is valid.
X'40' COPIES sublist is valid.
X'20' FLASH count field is valid.
X'10' SYSOUT INISH card defined.
X'08' THRESHLD field is valid..
X'04' Chain size is a data set.
X'02' Chain size was specified.
X'01' MODIFY count field is valid.

FLAG3 hh - is the flag byte of SCT.

The following bits can be set in this flag.

Value Meaning

X'80' Trailing blanks are to be truncated (TRUNC=YES).
X'40' Trailing blanks are not to be truncated (TRUNC=NO).

COPY hh - is the number of copies of each data set to be produced.

DEST ccccccc - is the data set destination name (name for the printer or punch).

DEVT ccccccc - is the device type.

FORMS ccccccc - is the printer forms required.

CARR ccccccc - is the carriage tape / FCB required.

TRAIN ccccccc - is the print train or band required to print.

CHARS cccc - is the name of the character image to be used.

COPYS hhhhhhhhhhhhhhh - is the copy subgroupings.

FLASH cccc - is the name of the forms flash cartridge.

MODID cccc - is the name of the copy modification module to be used.

FLCNT hh - is the number of consecutive copies the forms flash is to print.

MODRC c - is the table reference character to be used with the copy modification module.

STACK c - is the 3800 stacker required.

TRKG1 hh - is the number of primary track groups to be allocated.

TRKG2 hh - is the number of secondary track groups to be allocated.

THRES hhhhhhh - is the default maximum size for a SYSOUT data set.

CTABN ccccccc - is the name of the compaction table. The data sets which are sent to SNA work station is compacted using this compaction table.

CHNSZ hhhh - the size of the RU chain to be transmitted to SNA work stations.

SRS

MDSSRS Data Area

The MDSSRS Data Area contains information needed by the MDSSRS FCT. It is mapped by the JES3 macro IATYSRS. It is not formatted in FSS dump.

 MDSSRS DATA AREA - 05945458

FCT	SELQ	VFYQ	MMCT	MCTCH	SAR	CURRQ	MDAT	MDRL	ATMW1	DTMW1
059400A8	00000000	00000000	057C70A8	05965068	00000000	00000000	05957270	0595C2B0	B758AA78	B758AA78
ECF	FLG1	FLG2	FLG3	MFOOT						
00	10	00	00	00						

FCT hhhhhhhh - is the address of the MDSSRS FCT.

SELQ hhhhhhhh - is the address of the start of the MDS system select queue.

VFYQ hhhhhhhh - is the address of the start of the MDS system verify queue.

MMCT hhhhhhhh - is the address of the MDS control table for the master MDS subtask.

MCTCH hhhhhhhh - is the address of the start of the MDS control table. This chain does not include the master MDS control table.

SAR hhhhhhhh - is the address of the SMS available resource chain.

CURRQ hhhhhhhh - is the address of the current Resqueue.

MDAT hhhhhhhh - is the entry point of the module IATMDAT.

MDRL hhhhhhhh - is the entry point of the module IATMDRL.

ATMW1 hhhhhhhh - is the first word of time of the last MDS subtask attached (STCK value).

DTMW1 hhhhhhhh - is the first word of time the MCT chain was last scanned to determine whether any MDS subtasks needs to be detached.

ECF hh - is the MDSSRS FCT event completion flag (ECF).
 The following bits can be set in this flag.

Value Meaning

- X'80' A job has been placed on the MDS system select queue.
- X'40' A job has been placed on the MDS system verify queue.
- X'20' An MDS subtask has completed processing.
- X'10' An MDS subtask has abended.
- X'08' Operator command entered to cancel a job being processed by MDSSRS.

FLG1 hh - is the flag byte of MDSSRS data area.
 The following bits can be set in this flag.

Value Meaning

- X'80' The MDSSRS JESTAE retry routine has been entered.
- X'40' FAILDSP dump code was DM045 (RESQUEUE management error) - Do not issue the RQTAPUT macro
- X'20' Working with SARs.
- X'10' System Select/Verify Queue scanning.

FLG2 hh - is the flag byte of MDSSRS data area.
 The following bits can be set in this flag.

Value Meaning

- X'80' Dechained first SCHRE.
- X'40' Resource dechained.
- X'20' End of group found.
- X'10' Search is in group.
- X'08' RQ processing done.
- X'04' JESTAE entered before.
- X'02' Release all jobs.
- X'01' Post IATMDSR.

JESMSG Queue Control Area Header

FLG3 hh - is the flag byte of MDSSRS data area.
NOTE: Currently this flag is not used.

MFOOT hh - is the flag used to footprint IATMDRL.
The following bits can be set in this flag.

Value Meaning

X'80' In FREE_SAR routine.
X'40' In FREE_ALL routine.
X'20' In DO_SCHRL routine
X'10' In CHEK_SAR routine.
X'08' SCHRL pointer error.
X'04' SAR pointer error.

MDS Control Tables

The MDS Control Tables contain status information, addresses and work areas used by MDS subtasks, the MDS master task and MDSSRS FCT. It is mapped by the JES3 macro IATYMCT. It is not formatted in FSS dump.

MASTER MDS CONTROL TABLE - 057C70A8

MECB	MTCB	ATMCT	MFLG1
807D7868	007D72B8	00000000	A0

MDS CONTROL TABLES

ADDRESS	NEXT	CMTW1	MDST	ECB	CETXR	TCB	SSOB	SSSA	ACB	RPL	RAB
05965068	059655D8	00000000	8597E120	807D02E8	05979B60	007D06E8	059651D0	05965394	0001ADEC	0001ADA0	05965284
059655D8	05962210	00000000	8597D120	807D03A0	05979B60	007D04D0	05965740	05965904	0001AF1C	0001AED0	059657F4
05962210	05962780	00000000	8597C120	807D0668	05979B60	007D0788	05962378	0596253C	00014124	000140D8	0596242C
05962780	0594D140	00000000	8597B120	807D0CE0	05979B60	007D0E00	059628E8	05962AAC	0001429C	00014250	0596299C
0594D140	00000000	00000000	8597A120	807D0F98	05979B60	007D7120	0594D2A8	0594D46C	00014414	000143C8	0594D35C

ADDRESS	BLK	SDM	SPAF	RQ	BUFF	CPID	BFSZ	DSSAD	DEBAD	SPSCH
05965068	059651EC	059652F4	0596536C	00000000	00000000	7F3EDF00	00001000	0506C8B8	000137C8	000000000000
059655D8	0596575C	05965864	059658DC	00000000	00000000	7F3F9F00	00001000	0506CA98	000137E8	000000000000
05962210	05962394	0596249C	05962514	00000000	00000000	7F402F00	00001000	050CB0E0	00013808	000000000000
05962780	05962904	05962A0C	05962A84	00000000	00000000	7F40BF00	00001000	050CF098	00013828	000000000000
0594D140	0594D2C4	0594D3CC	0594D444	00000000	00000000	7F437F00	00001000	050E32C8	00013848	000000000000

ADDRESS	FLG1	FLG2	RCMND
05965068	00	00	00
059655D8	00	00	00
05962210	00	00	00
05962780	00	00	00
0594D140	00	00	00

MECB hhhhhhhh - is the MDS master task ECB.

MTCB hhhhhhhh - is the address of the MDS master task TCB.

ATMCT hhhhhhhh - is the address of the MCT of the MDS subtask to be attached.

MFLG1 hh - is the flag byte of master MCT.
The following bits can be set in this flag.

Value Meaning

X'80' MDS subtask attach is complete.
X'40' MDS master task has abended.
X'20' MDS master task has completed initialization.
X'10' The MDS master task's ESTAE exit has been entered.
X'08' ATTACH processing is being performed.
X'04' ETXR processing is being performed.

ADDRESS hhhhhhhh - is address of the MDS control table entry.

NEXT hhhhhhhh- is the address of the next MCT entry.

CMTW1 hhhhhhhh - is the first word of time the MDS subtask completed its work.

MDST hhhhhhhh - is the address of IATMDST using the MCT.

ECB hh - is the MDS subtask ECB.

CETXR hhhhhhhh - is the address of the common ETXR entry point (in IATMDMT).

TCB hhhhhhhh - is the MDS subtask TCB.

SSOB hhhhhhhh - is the address of the SSOB for MDS subtask's use.

SSSA hhhhhhhh - is the address of the SSOB extension for SMS.

ACB hhhhhhhh - is the address of the access method control block for MDS subtask's use.

RPL hhhhhhhh - is the address of the request parameter list for MDS subtask's use.

RAB hhhhhhhh - is the address of the USAM record allocation block for MDS subtask's use.

BLK hhhhhhhh - is the address of the block spooler parameter list for MDS subtask's use.

SDM hhhhhhhh - is the address of the spool data management parameter list for MDS subtask's use.

SPAF hhhhhhhh - is the address of the JES3 spool access facility parameter list for MDS subtask's use.

RQ hhhhhhhh - is the address of the Resqueue for job MDS subtask is processing.

BUFF hhhhhhhh - is the address of the buffer for block spooler's use.

CPID hhhhhhhh - is the cellpool identifier for block spooler.

BFSZ hhhhhhhh - is the size of buffer in cellpool.

DSSAD hhhhhhhh - is the address of the data set status block.

DEBAD hhhhhhhh - is the address of the data extent block.

SPSCH hhhhhhhhhhhh - is the spool address of the SMS scheduling information spool data set.

FLG1 hh - is the flag byte of MCT.

The following bits can be set in this flag.

Value Meaning

X'80' MDS subtask has abended.

X'40' The MDS subtask associated with the MCT is busy on behalf of a job.

X'20' MDS subtask has completed processing.

X'10' MDS subtask termination request.

X'08' MDS subtask termination processing is complete.

X'04' Invoke SMS request.

FLG2 hh - is the flag byte of MCT.

The following bits can be set in this flag.

Value Meaning

X'80' Operator command to cancel the job being processed by the MDS subtask has been entered.

X'40' Don't take SDUMP (in ESTAE).

RCMND hh - is the MDS subtask's recommendation to MDSSRS FCT as to the disposition of the job.

The following bits can be set in this flag.

Value Meaning

X'80' Put the job on the MDS allocate queue.

X'40' The job cannot execute. IATUX61 should be invoked to determine whether to put this job on the MDS error queue or to cancel the job

JESMSG Queue Control Area Header

X'20' Job to remain on MDS system select queue
X'10' Put this job on the MDS breakdown queue
X'08' Put this job on the GMS select queue
X'04' Give the job another try.

SMS available resource blocks

The SMS Available Resource Block contains information passed by SMS when SMS signals through ENF (Event Notification Facility) that the status of an SMS managed resource has changed. It is mapped by the JES3 macro IATYSAR. It is not formatted in the FSS dump.

SMS AVAILABLE RESOURCE BLOCKS

ADDRESS	NEXT	TYP	OSMST	NSMST	SYSNM	NMLNG	NAME
04FDCC98	00000000	02	04	E0	SY1	0007	GENERAL

ADDRESS hhhhhhhh - is the address of the SMS available resource block entry.

NEXT hhhhhhhh - is the address of the next SMS available resource block entry on chain.

TYP hh - is the type of SMS resource.

X'01' indicates that resource type is Volume.

X'02' indicates that resource type is Storage Group.

X'FF' used to indicate free all jobs..

OSMST hh - is the old SMS status.

NSMST hh - is the new SMS status.

SYSNM ccccccc - is the system name for status.

NMLNG hhhh - is the length of the name of the storage group.

NAME - is the name of the resource for which availability changed.

Chapter 5. JES3 Monitoring Facility

System programmers can use the JES3 Monitoring Facility (JMF) to obtain statistical data of the system.

JES3 tuning and performance diagnosis requires a great deal of JES3 knowledge. JMF can expand the information that is available to the person attempting either of these tasks. It can also provide a great deal of interesting information, some of which has value and some of which is merely information.

Characteristics of JMF

JMF runs on a local processor giving the installation the ability to monitor the activity of the JES3 local processor. While running on a local processor, JMF will produce SMF records. There is no interface to create spooled sysout in the local.

JMF creates SMF 84 records. The SMF records have the same information as the printed report. The information placed in the SMF records is dependent on what the call options are for JMF and where the JMF data is generated.

If you want to collect the SMF84 records, be certain to update SMFPRMxx (in SYS1.PARMLIB) for started tasks. Otherwise MVS discards the records.

```
SUBSYS(STC,EXITS(IEFUS1,IEFACTRT,IEFU29,IEFU83,IEFUJV),  
NOINTERVAL,TYPE=(0,6,26,30,57,70:79,84))
```

The format of the SMF84 records is described in *z/OS MVS System Management Facilities (SMF)*. If your installation decides to collect JMF data in the SMF84 record, re-evaluate the size of the SYS1.MANx data sets. No formatter is provided for the SMF data.

JMF creates reports or SMF records on the global processor. You can have either the JMF reports or SMF records created during the running of JMF. Information that is not available on a local processor but is available on the global processor includes:

- Job related information
- Initiator and group usage information
- JES3-managed device information
- MDS information

JMF does not run in either the C/I FSS or WTR FSS address space. If your installation creates both SMF and printed JMF reports, you should not expect 100% agreement in the reports. Some of the information that JMF produces is obtained at the time the report is generated from active control blocks. Between the time the printed report is created and the SMF record is generated, the contents of these control blocks may change. It is very likely that the SMF and written reports will have slightly different values for certain JES3 measurements.

Getting Started with JMF

You should run JMF regularly and when the system is running normally. When JES3 is running poorly you will have the “historical perspective” necessary to identify deviations from when JES3 is running normally. You must have a base from which you can assess changes, even if the base moves as the configuration and workload evolves over time.

There is workload and capacity information that can be derived from JMF reports:

- Estimates of the total number of jobs in the system and the distribution of this work (for example, CI, MAIN, and OUTSERV)
- Changes in workload (group and initiator use counts)
- Demand for JES3 managed resources (for example, tape drives and spool space)

JMF can be used to look into specific performance problems that the installation is experiencing. JES3 performance problems are rarely solved with only JMF data or only RMF data. At a minimum you will need the JES3 initialization stream. You may also need a dump of global JES3 and the SYSLOG from the interval at the time JMF was run. This still may leave you with incomplete or inconclusive information.

Starting JMF

Enter the *X JMF command from a console associated with the required processor, or use the ROUTE command to direct the *X JMF command to the appropriate processor.

If you are running JMF on a local processor and have to issue a dynamic system interchange (DSI) to that processor, then JMF will disappear on the new global. This is a result of DSI processing. After the new global is connected, you can call JMF. For more information about JES3 commands, see *z/OS JES3 Commands*.

What To Look For When Finding Problems

This list may help you in determining what to look for in the JMF reports.

1. Task Activity
 - Increase in task activity
 - Increase in non-standard WAIT time
2. Real Storage
 - Paging rate increase
 - Working set decrease
3. FCT activity
 - Look for problem FCTs
 - Increase in FCT posted / active time
 - Increase in non-standard AWAIT time
 - Check JSS
4. Spool Data Management
 - Increase in spool utilization
 - (I/O rate and space)
 - STT overflow
 - Device/path contention

- Buffer shortages
5. Miscellaneous
- Long job queues
 - Increase in CPU utilization by function
 - Increase in control block utilization

Finding problems is essentially an exercise in observation. When JES3 performance characteristics change, something in the environment has changed.

Therefore, you have a purported JES3 performance problem. At least all the normal signs are the following:

- Consoles aren't responsive
- Inquiry commands are not coming back promptly
- TSO/E logons are backed-up
- Output processing is slow

This has all the classic symptoms of a JES3 problem. The question is: how does one determine what change occurred in the operating environment and how does one associate the external change with changes in JES3 internal processing so that the observed "abnormal" JES3 behavior can be explained? What is the first thing that you should do? You need to collect several pieces of information. These should include:

- A crisp, clear description of the observed changes in behavior
- When the behavior changed
- Known changes that have occurred in the system before this time including:
 - Configuration changes (for example, DASD movement, Catalog movement)
 - Operational changes (for example, changes in message traffic to different consoles)
 - Known workload changes (for example, additional TSO/E users)
 - Maintenance or software changes

If you are fortunate, you will be able to find the change and then use your knowledge of JES3. Most likely, you will get into the situation where the change is not easily identified, or there were several changes that occurred at the time, or "we didn't change a thing". You are going to have to examine the behavior of the system to find the change that no one remembers.

You probably are not going to dive into JMF reports first; but after looking through the normal RMF data and other reports, you have to investigate the JMF data. The JMF data must be examined in relationship to what JMF has reported in the past when the system was healthy. Without reference points, diagnosing the problems is very difficult.

Always start with the easy items and then work into the more difficult ones. For instance:

- Paging
 - Has the JES3 working set size increase or decreased? Has paging increased or decreased? If so, why?
- Spool
 - Has I/O activity increased? Has spool space utilization increased? Has disconnect time increased? Has someone rearranged the spool packs? Are there a

JES3 Monitoring Facility

lot of allocations to the JCT or STT packs. If so, why? Look at the job report: are there more jobs in the queue and has the distribution of the workload changed? A great majority of JES3 performance problems will turn out to be spool related. Most of the time, the spool problems will be due to workload changes.

- Buffers

Has JES3's use of buffers changed? Are there shortages of JSAM buffers? If so why? Can you give JES3 more buffers?

- JES3 internal services

Did some FCTs get busy? Is JES3 spending a lot of time in "new" modules? Is some FCT out of capacity? If so, why? This is where you have to delve into the FCT and AWAIT analysis, look at the hot spots, check into the DESTQ backlog.

After you get a hunch, you may need to refine the JMF monitoring parameters to attempt to hone in on the FCTs that are causing the problem and the supporting code. The thing to remember is that problems have a cause. Finding the cause may be difficult, but it has to be done before corrective action can be formulated.

Running JMF

JMF should be run under normal conditions. A good sample size is 1000 samples in an interval. Sampling once a second for an hour should be sufficient for normal situations.

A normal situation would be:

CYCLE=

1 second

INTERVAL=

60 minutes

FCT= 250

AWAIT=

45 entries/FCT

JOB= 1

SPOT=

100

WIDTH=

100

The default number of FCTs is 250 which may not be sufficient in the following cases:

- If you have a great amount of BSC NJE activity
- When JMF is running with a long interval

The default value for JOB will let you track the first 50 jobs in the RESQUEUE and report scheduling information on them. Some reports are jobs in which you are interested. Because there are some jobs dependent on this option being in effect, have JMF track one job.

JMF sampling activity and output can be tailored to your needs by specifying the correct start-up options for your installation.

JMF Reports

After generating your JMF reports, there is a lot of data that is not self-explanatory. If you have a good basic knowledge of JES3, JMF can be a great aid in learning more about JES3 and how JES3 reacts under certain constraints and work loads. When you can find differences in JMF reports and explain them, you can identify JES3 performance problems when they occur.

Note: You will be able to discover problems using JMF, however it may not be a simple task.

There are seven major reports generated by JMF:

- System report
- FCT and AWAIT report
- Spool data management report
- JES3 control block utilization report
- Job analysis
- Hot spot analysis report
- JES3 function report

The **system** report contains information about IATNUC, IATAUX tasks, and CPU utilization. It also provides information about JES3 storage requirements and configuration data.

The **FCT and AWAIT** report contains information about the activity and location of each FCT at the time it is AWAITing.

The **spool data management** report contains information about the spool rate, space utilization, etc.

Note: You will find that this report does **not** match the resource management facility (RMF) reports. The spool data management report is the most accurate.

The **JES3 control block utilization** report contains information about the control block pools (for example, RQ's, JSAM buffers, staging areas, and JQE's) and performance information about the JCT data space.

The **job analysis** report contains information about job flow through the JES3 scheduler elements, JSS work-to-do queue, allocated JES3 managed devices, etc.

The **hot spot analysis** report contains information regarding the utilization of modules and the frequency of use in the JES3 address space.

The **JES3 function** report contains information about internal reader activity, Subsystem Interface (SSI) response time, and JES3 DESTQ lengths.

Only the system report and the JES3 control block report are created with every run of JMF. The remaining reports are optional and can be eliminated. The reports often have overlapping and complimentary information. You will normally have to use two or more of the reports to analyze what the system is doing.

System Report

To understand the system report one must know the terminology used throughout the report. A dispatchable unit of work in the JES3 address space is in one of six

JES3 Monitoring Facility

mutually exclusive states. This unit of work can be either a TCB task (IATNUC, IATAUX, or one of the other subtasks) or a SRB. There is little information available on SRB activity.

The following describes the meaning of each state:

POSTED - ACTIVE

The work unit is using the processor when JMF takes a sample. JMF uses this technique to report the CPU utilization of each work unit.

POSTED - NOT ACTIVE

The work unit is ready to use the processor; however, the work unit is not dispatched. This is an indication that higher priority work is running at the time JMF takes a sample. If this number is high, it indicates the work unit is not using the processor as much as requested. By increasing the priority of the unit of work, the work will be processed more quickly.

NOT POSTED

The work unit is waiting for a condition to be satisfied. If the work unit is an FCT, it is AWAITing. If the work unit is the IATNUC or the IATAUX task, it is the standard MVS WAIT in the WAIT FCT.

Note: The MVS WAIT state represents the function giving up control voluntarily.

IN OS WAIT (IN NONSTANDARD WAIT)

The work unit gives up control involuntarily by calling an MVS service, which results in an MVS WAIT.

Note: If the task takes a page fault, this condition will result.

SUSPENDED - LOCAL LOCK REQ

The work unit requests the local lock but is suspended because the lock is currently held by some other function (TASK or SRB).

SUSPENDED - OTHER

The work unit is suspended for some reason other than the local lock.

JES3 Busy

The IATNUC POSTED - ACTIVE number is a good approximation of the CPU utilization in the JES3 global address space. If your installation's workload produces large amounts of printed output, you may see a significant amount of CPU utilization for the IATAUX task also.

IATNUC POSTED - ACTIVE	13.69 %
IATNUC POSTED - NOT ACTIVE	7.37 %
IATNUC NOT POSTED	72.80 %
IATNUC IN NONSTANDARD WAIT	.04 %
IATNUC SUSPENDED - LOCAL LOCK REQ	5.67 %
IATNUC SUSPENDED - OTHER	.40 %

The example shows the IATNUC task is using the CPU 14% of the time. However, the task is considered to be 20% busy because 6% of the time the task is suspended because of unavailability of the local lock. The task busy time is the sum of the:

- ACTIVE,
- IN NONSTANDARD WAIT
- SUSPENDED - LOCAL LOCK REQ
- SUSPENDED - OTHER

A rule of thumb is to keep the IATNUC CPU utilization below 60%. Going any higher may lead to performance degradation. A few things can be done to reduce CPU utilization. If the global system has multiple engines, use the writer multi-tasking feature. Also, using C/I or writer FSS will off-load some of the CPU processing to other address spaces.

From a performance point of view, the starting and stopping of dynamic writers introduces additional CPU utilization for the IATNUC task. On the other hand, there is overhead associated with using a large number of idle hot writers. This overhead shows up in high multi-function monitor CPU consumption. There are performance and operational trade-offs to be made when making these decisions.

The SUSPENDED - LOCAL LOCK REQ is a popular commodity in the JES3 address space. JES3 attempts to avoid the use of services which would suspend IATNUC because of its unavailability. Some MVS services require the local lock. When the IATNUC or the IATAUX have nothing to do, the WAIT FCT issues an OS WAIT (SVC 1) which requires the local lock. (Even in busy JES3 globals, this does occasionally occur). If the WAIT FCT is the FCT suspended on the local lock there is no reason to be concerned. If other FCTs are often suspended waiting for the local lock, JES3 is being prevented from doing real work.

Note: FCTs which are frequently in OS WAIT to determine if this is something that the installation induced. Remember, if one FCT is OS WAITed, then all of IATNUC is OS WAITed.

Storage

Most of the work in the JES3 address space is done by the JES3 main task, and it is important to prevent JES3 from paging. You should monitor JES3's working storage size and paging rates. Changes in either one should be investigated. They typically indicate a configuration change, a workload change, or a code problem.

JES3 Monitoring Facility

```

JES3 WORKING SET
5800K +
|
6000K +*****
|
6200K +
6299K +
      +---+---+---+---+---+---+---+---+---+
      1 2 3 4 5 6 7 8 9 1
      0 0 0 0 0 0 0 0 0 0
      0

AVERAGE WORKING SET SIZE = 6076K
MINIMUM WORKING SET SIZE = 6076K
MAXIMUM WORKING SET SIZE = 6080K
NUMBER OF FIXED PAGES = 21 = 84K
AUXILIARY SLOT COUNT = 20 = 80K
THE ALLOCATED STORAGE FOR JMF IS 30K
JES3 PAGING COUNTS DURING JMF MONITORING
PAGE-IN'S = 0
PAGE-OUT'S = 0
PAGE-RECLAIM'S = 0
PAGING RATE = .00 PAGES/SECOND
SYSTEM PAGING RATE (NON-SWAP, NON VIO)
PAGING RATE = 1.50 PAGES/SECOND
JES3 SUBTASKS POSTED CONCURRENTLY
NUMBER OF SUBTASKS 1 2 3 4 OR MORE
CONCURRENTLY POSTED 100.00 % .00 % .00 % .00 %
JES3 SUBTASKS IN DISPATCHING SEQUENCE
SUBTASK % POSTED
1 IATNUC .00 %
2 IATGRMON .00 %
3 IATGRSS .00 %
4 IATGSC1 .00 %
5 IXZIXPE .00 %
6 IATGSC1 .00 %
7 IATAUX .00 %
8 IATLVMT .00 %
9 IATLVLC .00 %
10 IATLVLC .00 %
11 IATLVLC .00 %
12 IATLVLC .00 %
13 IATLVLC .00 %
14 IATIISB .00 %
15 IATIIST .00 %
16 IATIIST .00 %
17 IATIIST .00 %
18 IATIIST .00 %
19 IATIIST .00 %
20 IATIIST .00 %
21 IATIIST .00 %
22 IATGSC1 .00 %
23 IATGSC1 .00 %
24 IATGSC1 .00 %
25 IATGSC1 .00 %
26 IATGSC1 .00 %
27 IATGSC1 .00 %
28 IATGSC1 .00 %
29 IATGSC1 .00 %

```

```

IATNUC POSTED BUT NO FCT POSTED = .00 %
IATAUX POSTED BUT NO FCT POSTED = .00 %
JES3 GLOBAL PROCESSOR DESCRIPTION
CPU MODEL = 4381 REAL STORAGE SIZE = 63.5 MEGS
SYSTEM NAME: SY1
MVS RELEASE = SP7.0.5

JES3 RELEASE = z1.5.0
JES3 IS IN THE APG PRIORITY LEVEL
JES3 IS NON-SWAPPABLE

JES3 DISPATCHING PRIORITY = 254

```

Note:

The JES3 Monitoring Facility (JMF) histogram for the JES3 WORKING SET can map working set sizes in the range of 1000K to 999999K. Working set sizes larger than 999999K are included in the maximum value on the histogram.

To improve JES3 performance you should:

1. Make certain that JES3 is kept out of an APG group.
2. Look at JES3's dispatching priority and the percentage of time that IATNUC is posted but not active. If JES3's dispatching priority is not near the top of the chain and the wait time is long, determine which address space is interfering with JES3's being dispatchable and change the priorities of the address space.
3. Use storage isolation to ensure that JES3's working storage is not constrained to the point that it interferes with responsiveness. Use PPGRT or PPGRTR to keep JES3's paging rate to a maximum of 1 to 2 pages per second. If you use PWSS, use it only for a lower boundary and set the upper boundary to *. This will prevent JES3 from being a prime candidate for page steals if you set the upper boundary too low.

Overhead

The JMF monitoring task places itself as one of the highest priority task in the address space. During portions of JMF sampling, all the other tasks are stopped (including IATNUC). It is important to make certain that JMF does not overly interfere with JES3 and that the performance problems that you see are not due to JMF.

JMF gives two indicators of interference:

1. JMF overhead - This is the time that the JMF sampling task is active. It is reported as a percentage of the cycle time; however, it comes out of the interval instead of the cycle. This is why you will see a 60 minute interval have 59 minutes and some number of seconds or the number of samples is less than expected. Nevertheless, you should keep the percentage of JMF overhead relative to the cycle time low. Less than five percent is desirable.
2. MVS overhead - This is the time delay that the JMF sampling task is to be dispatched. It is indicative of higher priority work in the system. If this number becomes large, an adjustment of JES3's dispatching priority may be in order.

JMF OVERHEAD	
MINIMUM =	.000704 SEC.
MAXIMUM =	.105328 SEC.
AVERAGE =	.001472 SEC. .73 % OF JMF CYCLE TIME
MVS OVERHEAD	
MINIMUM =	.000256 SEC.
MAXIMUM =	.167264 SEC.
AVERAGE =	.000944 SEC. .47 % OF JMF CYCLE TIME

JMF will also report on the number of tasks simultaneously active in the JES3 address space. You will also get a chart showing the percent active for each task. The only tasks that you have control over are the C/I subtasks. JES3's performance is impacted by having a great number of subtasks (there is no TCB ready queue similar to the ASCB ready queue). You should control the number of these tasks. You should consider moving the C/I function to a C/I FSS address space. This will have the added benefit of reducing local lock contention in the JES3 address space.

FCT and AWAIT

```

*****
FCT AND AWAIT REPORT
IATNUC
  MULTI-FUNCTION MONITOR
    ACTIVE                .00 % OF SAMPLES    .00 %
    SUSPENDED             .00 % OF SAMPLES
    IN OS WAIT            .00 % OF SAMPLES
  JES3 IRB'S
    IRB NAME              ACTIVE          SUSPENDED          OS WAI
                          % OF SAMPLES  % OF SAMPLES      %OF SAMP

    NO IRB INFORMATION WAS FOUND.
IATAUX
  MULTI-FUNCTION MONITOR
    ACTIVE                .00 % OF SAMPLES    .00 %
    SUSPENDED             .00 % OF SAMPLES
    IN OS WAIT            .00 % OF SAMPLES
  JES3 IRB'S
    IRB NAME              ACTIVE          SUSPENDED          OS WAI
                          % OF SAMPLES  % OF SAMPLES      %OF SAMP

    NO IRB INFORMATION WAS FOUND.
AVERAGE AWAIT DURATION          6.93 SEC.
TOTAL AWAIT DURATION            20.80 SEC.
MAXIMUM AWAIT DURATION          14.40 SEC.

```

At the beginning of the FCT and AWAIT report is some information about the multi-function monitor (MFM). The interesting information is the percent of IATNUC that MFM is active. MFM activity is basically dependent on the number of FCTs on the dispatching chain. Installations that have a large BSC NJE work load are highly susceptible to this phenomenon. Having a large number of inactive hot writers also contributes to high MFM activity.

JMF also reports on IRB activity. There are several IRBs that JMF knows by name and they are labelled in the report. These include:

- ATIME
- Channel End Appendage
- Abnormal End Appendage

The IRBs that JMF doesn't know by name (for example, those used by VTAM) are represented by the IRB entry point address. The pertinent information is the percent of samples where the IRB is in an OS WAIT. If the IRB is in an OS WAIT, then none of the JES3 code running under the RB is being given a chance to run.

Function control table (FCT)

The FCT and AWAIT report provides information about where an FCT is active. If sufficient FCT entries are specified, JMF will report on each FCT that exists for some portion of the interval. The state of the FCT is categorized the same way as an IATNUC and IATAUX. Some FCTs can operate under IATAUX as well as IATNUC (for example, Writers) and subsequently have activity reported under both tasks. (Only the activity under IATNUC is shown).

The information that you should look at includes:

1. FCTs which have high "posted and active" as a percentage of IATNUC. The Hot Spot analysis report will assist you in this endeavor.
2. Is the FCT on the chain longer than it should be? Many times spool performance problems begin to manifest themselves as PURGE FCTs taking a long time to process. This requires knowledge of the JES3 DSPs. For more information about JES3 DSPs, see *z/OS JES3 Customization*.

3. FCTs which are frequently in OS WAIT to determine if this is something that the installation induced. Remember, if one FCT is OS WAITed, then all of IATNUC is OS WAITed.
4. FCTs that spend a large portion of their time in a particular AWAIT (other than the standard FCT AWAIT). For example, FCTs waiting for spool I/O or AENQ resources.

You seldom go through all of the FCTs looking at these indicators. There can be several hundred FCTs; go to the summary report to see all the FCTs that JMF tracked during the interval. You will see the percentage of samples that the FCT is on and the chain in NUC mode or AUX mode. For each mode, the percentage of samples that the FCT was in and which state the FCT was in is also reported. All of the suspended states are grouped together for reporting purposes.

Scan through the summary looking for anomalies. The following example shows a portion of the summary report to give an indication of the information presented. The example shows some of the FCTs and the activity under IATAUX.

```

71 DSP NAME IS DMJA          DEVICE NAME IS **NONE**    FCT PRTY IS 004
    FCT ON FCT CHAIN                100.00 % OF FCT
    FCT IN NUC MODE                  100.00 % OF FCT
    FCT IN AUX MODE                   .00 % OF FCT
I/O ACTIVITY
  SRF READ I/O'S =                   85
  SRF READ BUFFERS =                  85
  SRF WRITE I/O'S =                   87
  SRF WRITE BUFFERS =                  87
ACTIVITY UNDER IATNUC TASK
  FCT POSTED - ACTIVE                8.51 % OF IATNUC   .26 % OF FCT
  FCT POSTED - NOT ACTIVE              .20 % OF FCT
  FCT NOT POSTED                      99.46 % OF FCT
  FCT IN OS WAIT                      .00 % OF FCT
  FCT SUSPENDED-LOCAL LOCK REQ        .06 % OF FCT
  FCT SUSPENDED-OTHER                 .00 % OF FCT
AWAIT IS WAIT FOR WORK OR STANDARD FCT AWAIT
AWAIT IN USE                          89.71 % OF FCT
AWAIT POSTED - ACTIVE                 2.12 % OF IATNUC   .06 % OF FCT
AWAIT POSTED - NOT ACTIVE              .00 % OF FCT
AWAIT NOT POSTED                     89.65 % OF FCT
AVERAGE AWAIT DURATION                24.25 SEC.
TOTAL AWAIT DURATION                  4 MIN. 26.80 SEC.
MAXIMUM AWAIT DURATION                 3 MIN. .80 SEC.   IATDMJA + 00000082
AWAIT IS ...
AWAIT IN USE ...

```

JES3 Monitoring Facility

SEQ NUM	DSPNAME	DEVICE	FCT PRI	FCT ON CHAIN	NUC MODE	AUX MODE	POSTED ACTIVE	POSTED NOT ACT	NOT OR IN OS POSTED	WAIT	POSTED ACTIVE	POSTED NOT ACT	NOT OR IN OS POSTED	WAIT
1	CONCMD	**NONE**	254	100.00	100.00	.00	.11	.84	99.01	.02				
2	CONSERV	**NONE**	254	100.00	100.00	.00	.63	2.76	96.38	.21				
3	TIMER	**NONE**	254	100.00	100.00	.00	.00	.00	100.00	.00				
4	READYQ	**NONE**	254	100.00	100.00	.00	.00	11.30	88.69	.00				
5	JSAM	**NONE**	250	100.00	100.00	.00	.96	12.03	86.96	.04				
6	CONSDM	**NONE**	240	100.00	100.00	.00	1.07	4.69	94.01	.21				
7	RJPCONS	**NONE**	240	100.00	100.00	.00	.00	.00	100.00	.00				
8	MAINIO	C00	053	100.00	100.00	.00	.11	.02	99.85	.00				
9	MAINIO	C70	053	100.00	100.00	.00	.00	.00	100.00	.00				
10	MAINIO	A1	053	100.00	100.00	.00	.00	.00	100.00	.00				
11	MAINIO	C50	053	100.00	100.00	.00	.00	.00	100.00	.00				
12	MAINIO	CD0	053	100.00	100.00	.00	.00	.00	100.00	.00				
13	MAINIO	C20	053	100.00	100.00	.00	.00	.00	100.00	.00				
14	MAINIO	A5	053	100.00	100.00	.00	.00	.00	100.00	.00				
15	MAINIO	A3	053	100.00	100.00	.00	.00	.00	100.00	.00				
16	MAINIO	CA0	053	100.00	100.00	.00	.00	.00	100.00	.00				
17	MAINIO	C60	053	100.00	100.00	.00	.00	.00	100.00	.00				
18	MAINIO	A7	053	100.00	100.00	.00	.00	.00	100.00	.00				
19	MAINIO	A6	053	100.00	100.00	.00	.00	.00	100.00	.00				
20	MAINIO	A0	053	100.00	100.00	.00	.00	.00	100.00	.00				
21	MAINIO	C10	053	100.00	100.00	.00	.00	.00	100.00	.00				
22	MAINIO	CE0	053	100.00	100.00	.00	.00	.00	100.00	.00				
23	MAINIO	A4	053	100.00	100.00	.00	.00	.00	100.00	.00				
24	MAINIO	C30	053	100.00	100.00	.00	.00	.00	100.00	.00				
25	MAINIO	Z0	053	100.00	100.00	.00	.00	.00	100.00	.00				
26	MAINIO	A2	053	100.00	100.00	.00	.00	.00	100.00	.00				
27	MAINIO	C40	053	100.00	100.00	.00	.00	.00	100.00	.00				
28	MAINIO	CC0	053	100.00	100.00	.00	.00	.00	100.00	.00				
29	MAINIO	C80	053	100.00	100.00	.00	.00	.00	100.00	.00				
30	MAINIO	CF0	053	100.00	100.00	.00	.00	.00	100.00	.00				
31	MAINIO	CB0	053	100.00	100.00	.00	.00	.00	100.00	.00				
32	MAINIO	C90	053	100.00	100.00	.00	.00	.00	100.00	.00				
33	MAINIO	SA0	053	100.00	100.00	.00	.00	.00	100.00	.00				
34	MAINIO	SC0	053	100.00	100.00	.00	.00	.00	100.00	.00				
35	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
36	MAIN	**NONE**	051	100.00	100.00	.00	.00	.02	99.97	.00				
37	MAIN	**NONE**	051	100.00	100.00	.00	.00	.02	99.97	.00				
38	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
39	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
40	MAIN	**NONE**	051	100.00	100.00	.00	.00	.04	99.95	.00				
41	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
42	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
43	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
44	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
45	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
46	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
47	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
48	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
49	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
50	MAIN	**NONE**	051	100.00	100.00	.00	.00	.04	99.95	.00				
51	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
52	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
53	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
54	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
55	MAIN	**NONE**	051	100.00	100.00	.00	.00	.02	99.97	.00				
56	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
57	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
58	MAIN	**NONE**	051	100.00	100.00	.00	.00	.02	99.97	.00				
59	MAIN	**NONE**	051	100.00	100.00	.00	.00	.02	99.97	.00				
60	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
61	MAIN	**NONE**	051	100.00	100.00	.00	.39	3.04	96.45	.09				
62	DYNAL	DYN	035	100.00	100.00	.00	.30	1.24	98.38	.07				
63	ARMDRVR	**NONE**	034	100.00	100.00	.00	.00	.00	100.00	.00				
64	CIDRVR	**NONE**	032	100.00	100.00	.00	.04	.65	99.24	.04				
65	OUTSERV	AID	030	100.00	100.00	.00	.11	.42	99.43	.02				
66	VERIFY	**NONE**	030	100.00	100.00	.00	.00	.00	100.00	.00				
67	SETUP	S	030	100.00	100.00	.00	2.95	.96	96.03	.04				
68	OUTSERV	**NONE**	030	100.00	100.00	.00	.00	.02	99.97	.00				
69	OUTSERV	**NONE**	030	100.00	100.00	.00	.00	.02	99.97	.00				
70	OUTSERV	**NONE**	030	100.00	100.00	.00	.00	.00	100.00	.00				

SEQ	DSPNAME	DEVICE	FCT	FCT ON	NUC	AUX	POSTED	POSTED	NOT OR IN OS	POSTED	POSTED	NOT OR IN OS		
NUM			PRI	CHAIN	MODE	MODE	ACTIVE	NOT ACT	POSTED	WAIT	ACTIVE	NOT ACT	POSTED	WAIT
71	OUTSERV	**NONE**	030	100.00	100.00	.00	.00	.02	99.97	.00				
72	PURGE	**NONE**	030	5.83	5.83	.00	.30	.75	4.76	.02				
73	PURGE	**NONE**	030	.49	.49	.00	.00	.04	.42	.02				
74	BDT	**NONE**	025	100.00	100.00	.00	.00	.00	100.00	.00				
75	BDTCOMM	**NONE**	025	100.00	100.00	.00	.00	.04	99.95	.00				
76	MODDRVR	**NONE**	015	100.00	100.00	.00	.02	.02	99.95	.00				
77	INQDRVR	**NONE**	014	100.00	100.00	.00	.00	.00	100.00	.00				
78	WTDDRVR	**NONE**	012	100.00	100.00	.00	.35	.44	99.03	.16				
79	PSODRVR	**NONE**	012	100.00	100.00	.00	.02	.02	99.95	.00				
80	TSODRVR	**NONE**	012	100.00	100.00	.00	.00	.00	100.00	.00				
81	PSODSP	**NONE**	011	100.00	100.00	.00	.00	.04	99.92	.02				
82	PSODSP	**NONE**	011	100.00	100.00	.00	.00	.00	100.00	.00				
83	POSTSCAN	**NONE**	007	20.37	20.37	.00	.35	2.76	17.19	.07				
84	CI	**NONE**	007	6.40	6.40	.00	.09	.53	5.74	.02				
85	POSTSCAN	**NONE**	007	4.01	4.01	.00	.09	.37	3.47	.07				
86	CICLEUP	**NONE**	007	1.21	1.21	.00	.09	.09	1.03	.00				
87	POSTSCAN	**NONE**	007	1.31	1.31	.00	.00	.16	1.14	.00				
88	POSTSCAN	**NONE**	007	1.24	1.24	.00	.00	.14	1.10	.00				
89	CICLEUP	**NONE**	007	.04	.04	.00	.00	.00	.04	.00				
90	LOCATE	**NONE**	005	100.00	100.00	.00	.00	.00	100.00	.00				
91	MSGC	**NONE**	004	100.00	100.00	.00	.14	1.66	98.14	.04				
92	DMJA	**NONE**	004	100.00	100.00	.00	.44	3.42	95.94	.18				
93	DMJA	**NONE**	004	100.00	100.00	.00	.14	.79	99.01	.04				
94	DMJA	**NONE**	004	100.00	100.00	.00	.02	.28	99.69	.00				
95	DMJA	**NONE**	004	100.00	100.00	.00	.00	.04	99.90	.04				
96	DMJA	**NONE**	004	100.00	100.00	.00	.00	.00	100.00	.00				
97	DMJA	**NONE**	004	100.00	100.00	.00	.00	.00	100.00	.00				
98	DMJA	**NONE**	004	100.00	100.00	.00	.00	.00	100.00	.00				
99	INTRDR	**NONE**	004	4.33	4.33	.00	.02	.16	4.12	.02				
100	INTRDR	**NONE**	004	8.53	8.53	.00	.02	.18	8.32	.00				
101	INTRDR	**NONE**	004	5.48	5.48	.00	.02	.23	5.20	.02				
102	INTRDR	**NONE**	004	6.40	6.40	.00	.09	.32	5.98	.00				
103	ISDRVR	**NONE**	004	3.68	3.68	.00	.02	.14	3.49	.02				
104	INTRDR	**NONE**	004	10.60	10.60	.00	.09	.25	10.24	.00				
105	INTRDR	**NONE**	004	4.90	4.90	.00	.02	.04	4.83	.00				
106	INTRDR	**NONE**	004	9.87	9.87	.00	.14	.37	9.35	.00				
107	INTRDR	**NONE**	004	1.19	1.19	.00	.02	.00	1.17	.00				
108	INTRDR	**NONE**	004	9.35	9.35	.00	.11	.23	9.00	.00				
109	INTRDR	**NONE**	004	1.96	1.96	.00	.00	.02	1.94	.00				
110	INTRDR	**NONE**	004	.77	.77	.00	.00	.02	.75	.00				
111	INTRDR	**NONE**	004	37.19	37.19	.00	.21	.30	36.67	.00				
112	ISDRVR	**NONE**	004	.25	.25	.00	.00	.00	.25	.00				
113	INTRDR	**NONE**	004	6.42	6.42	.00	.16	.25	5.98	.02				
114	INTRDR	**NONE**	004	14.28	14.28	.00	.23	.39	13.60	.04				
115	INTRDR	**NONE**	004	4.43	4.43	.00	.02	.14	4.26	.00				
116	INTRDR	**NONE**	004	6.89	6.89	.00	.04	.30	6.54	.00				
117	INTRDR	**NONE**	004	1.78	1.78	.00	.00	.09	1.68	.00				
118	INTRDR	**NONE**	004	1.36	1.36	.00	.04	.02	1.28	.00				
119	INTRDR	**NONE**	004	2.79	2.79	.00	.02	.23	2.53	.00				
120	INTRDR	**NONE**	004	9.12	9.12	.00	.04	.14	8.93	.00				
121	INTRDR	**NONE**	004	1.47	1.47	.00	.00	.00	1.47	.00				
122	INTRDR	**NONE**	004	.42	.42	.00	.00	.00	.42	.00				
123	INTRDR	**NONE**	004	.32	.32	.00	.00	.02	.30	.00				
124	INTRDR	**NONE**	004	11.30	11.30	.00	.02	.32	10.92	.02				
125	INTRDR	**NONE**	004	10.10	10.10	.00	.09	.21	9.80	.00				
126	INTRDR	**NONE**	004	35.76	35.76	.00	.46	1.07	34.09	.11				
127	INTRDR	**NONE**	004	2.53	2.53	.00	.00	.04	2.48	.00				
128	INTRDR	**NONE**	004	.53	.53	.00	.00	.07	.46	.00				
129	INTRDR	**NONE**	004	.46	.46	.00	.00	.02	.44	.00				
130	INTRDR	**NONE**	004	5.18	5.18	.00	.07	.09	5.01	.00				
131	INTRDR	**NONE**	004	11.81	11.81	.00	.09	.37	11.25	.09				
132	INTRDR	**NONE**	004	2.29	2.29	.00	.02	.09	2.18	.00				
133	INTRDR	**NONE**	004	.14	.14	.00	.00	.00	.14	.00				
134	INTRDR	**NONE**	004	.11	.11	.00	.00	.00	.11	.00				
135	JSS	**NONE**	002	100.00	100.00	.00	.39	2.25	97.30	.04				
136	GENSERV	**NONE**	002	100.00	100.00	.00	.00	.00	100.00	.00				
137	FAILSOFT	**NONE**	001	100.00	100.00	.00	.00	.00	100.00	.00				
138	WAIT	**NONE**	000	100.00	100.00	.00	.96	98.21	.00	.82				
139	WAIT	**NONE**	000	100.00	.00	100.00	.00	100.00	.00	.00				

In the previous example, you will notice that on the summary report, DMJA (93) is seldom active (.26 % of the samples) and is AWAITing most of the time (99.46 % of the samples). The question you should ask is: Is the DSP AWAITing because there isn't any work to do or is the DSP AWAITing the completion of some other JES3

function before it can resume processing a request? To determine if the Awaiting is good or bad, you need to look at the Awaiting table.

At first glance you will notice that there are multiple Awaiting table entries for each FCT. The exact number is dependent on the activity of the FCT and the number of table entries that you specified. The number of table entries will vary from FCT to FCT that perform the same function. Most FCTs (even transient ones) do a few tasks many times during a JMF interval. The Awaiting table, if large enough, will provide you with a snapshot of the major events in the life of the FCT.

Many AwaitingTs have an Awaiting reason code associated with them. JMF groups these AwaitingTs together and displays some verbiage about the Awaiting. See Description of the DSP Analysis Report on page 338 for a description of the AwaitingTs.

Note: If you have enough Awaiting entries defined per FCT, then all of the times that an FCT is Awaiting or reacting to the posting of a previously issued await should be captured. In other words, if there are six Awaiting entries then the sum of the Awaiting in USE percentages of FCT should add up to 100.

Under the Awaiting IS..., you see four Awaiting items. Within each Awaiting entry, you can get the percentage of FCT activity that is related to that Awaiting. Either the FCT is waiting for a post, waiting to be dispatched after getting the post, or is active. JMF also tells you things about the Awaiting. These include the average, maximum and total duration for this Awaiting. If JMF finds the Awaiting in use (not posted) for at least two cycles in succession, it will attempt to tell the location of the Awaiting. For JES3 modules this is a load module name plus an offset into the module.

In the example, the DMJA FCT is spending most of the interval time at location X'000082' in module IATDMJA. If you assemble the module and look at location X'000082', you can see that this is the work to do Awaiting. Therefore, the answer to the question is that the DSP is doing Awaiting because there is no work to do, or the DSP is doing Awaiting for the completion of some other JES3 function (before it can resume processing a request).

The important thing is to look at the FCTs and determine if they are waiting for work to be passed through their way or if they are waiting for completion of some JES3 service. The amount of time that the FCT is doing Awaiting on its work to do ECF is an indication of the capacity remaining in that FCT. The FCT must wait at its standard Awaiting at least 25% of the time.

FCT Highlights

JMF summarizes the FCT and Awaiting analysis into four summary reports. For IATNUC and IATAUX, JMF will identify those FCTs that are the most active, posted but not active, and those most often detected in OS AwaitingTs. In addition JMF will point out the 10 biggest JES3 Awaiting bottlenecks by name. JMF will also report which tasks were impacted. If the installation requested Awaiting analysis, the Awaiting analysis report will follow the FCT and Awaiting highlights.

THE 5 MOST ACTIVE FCT'S IN IATNUC

SEQ NUM	DSP NAME	FCT POSTED - ACTIVE
71	DMJA	.26 % OF SAMPLES 8.51 % OF IATNUC
28	NJE	.20 % OF SAMPLES 6.38 % OF IATNUC
83	JSS	.20 % OF SAMPLES 6.38 % OF IATNUC
11	OUTSERV	.13 % OF SAMPLES 4.25 % OF IATNUC
14	OUTSERV	.13 % OF SAMPLES 4.25 % OF IATNUC

THE 5 MOST 'POSTED AND NOT ACTIVE' FCT'S IN IATNUC

SEQ NUM	DSP NAME	FCT POSTED - NOT ACTIVE
4	JSAM	4.65 % OF SAMPLES
3	READYQ	3.79 % OF SAMPLES
28	NJE	3.20 % OF SAMPLES
2	CONSERV	.53 % OF SAMPLES
83	JSS	.47 % OF SAMPLES

THE 5 MOST 'IN OS WAIT' FCT'S IN IATNUC

SEQ NUM	DSP NAME	FCT IN OS WAIT
28	NJE	.13 % OF SAMPLES
9	DYNAL	.06 % OF SAMPLES
29	NJESND	.06 % OF SAMPLES
83	JSS	.06 % OF SAMPLES

NO MORE FCTS WERE IN OS WAIT IN IATNUC

THE 10 BIGGEST JES3 AWAIT BOTTLENECKS

SEQ NUM	DSP NAME	TASK	TOTAL AWAIT DURATION	MAX AWAIT DURATION
50	POSTSCAN	IATNUC	27.40 SEC.	1.60 SEC.
			WAITING FOR A CATALOG LOCATE REQUEST TO COMPLETE	
51	POSTSCAN	IATNUC	25.60 SEC.	1.40 SEC.
			WAITING FOR A CATALOG LOCATE REQUEST TO COMPLETE	
63	ISDRVR	IATNUC	23.40 SEC.	3.00 SEC.
			WAITING FOR EXCLUSIVE USE OF AN AENQ RESOURCE - JNCBCTL	
66	ISDRVR	IATNUC	22.20 SEC.	2.60 SEC.
			WAITING FOR EXCLUSIVE USE OF AN AENQ RESOURCE - JNCBCTL	
62	ISDRVR	IATNUC	21.20 SEC.	3.40 SEC.
			WAITING FOR EXCLUSIVE USE OF AN AENQ RESOURCE - JNCBCTL	
65	ISDRVR	IATNUC	20.20 SEC.	2.60 SEC.
			WAITING FOR EXCLUSIVE USE OF AN AENQ RESOURCE - JNCBCTL	

NO MORE AWAIT BOTTLENECKS

JES3 WAIT ANALYSIS

DSP NAME IS CONSERV FCT SEQUENCE NUMBER = 2 TASK = IATNUC
 FCT IN OS WAIT .04 %
 SVC 35 (WTO/WTOR) AT 0220EB12 IATCNWO + 00000792 COUNT =3
 PAGE FAULT AT 02228754 IATGRSV + 0000006C COUNT = 8

These reports summarize the most active FCTs, those that have something to do but aren't able to be dispatched by MFM, and those FCTs in an OS WAIT (page fault, local lock or other). What do you look for? If you have been doing normal monitoring, you are looking for anomalies. For instance, the addition of a hundred or so logged on, active TSO users would most likely result in TSODRVR showing in the five most active list (since it handles TSO/E STATUS, CANCEL and

JES3 Monitoring Facility

VALIDATE requests). You might also see PSODRVR showing up on the five most posted but not active list. Changes in the list membership indicate:

- Changes in workload
- Operational changes
- Changes in the installation
- Provided “user extensions” to JES3.

Some of the more active FCTs include:

JSS - Active

Many installations with a large number of jobs in the queue will see JSS account for 20 - 25% of IATNUC activity.

TSODRVR - Active

This occurred with the split of the WTDDRVR FCT.

JSAM - Inactive

JSAM will show up as being ready most of the time if JES3 is doing anything, because most things JES3 does require I/O. JSAM is near the top of the dispatching queue and the only thing that prevents it from being dispatched are the high users of CPU, for example, TSODRVR and JSS. Again if JSAM's waiting is excessive, things will slow down and the operators should notice a degradation in performance.

Remember, there will always be five FCTs on each list regardless of what is going on in JES3. You must know enough about “your JES” to recognize whether something is amiss. An FCT can account for 25% IATNUC activity; if IATNUC CPU busy is 2%, there is not a problem.

The AWAIT bottlenecks are indications of serialization impacting the work flow through FCTs or of the unavailability of resources required by the FCT to continue processing.

SPOOL Information

The following is a list of items necessary to view to see how well JES3 Spool is performing.

- Buffer size and usage
- Spool data set and spool partition description
- Spool usage
- STT usage
- Spool I/O activity
- Buffer chaining

For JES3 to be responsive to TSO/E users and operators, good spool response is mandatory. JMF attempts to provide JES3's view of how well spool is performing.

SPOOL Parameters

```

SDM PARAMETERS
SPOOL BUFFER SIZE = 4084 BYTES
NUMBER OF BUFFERS PER 4K PAGE = 1
FILE DIRECTORY ENTRIES = 900
NUMBER OF SPOOL DATA SETS IN USE =    6
NUMBER OF JSAM BUFFERS = 1024
THRESHOLD FOR JSAM MINBUF CONDITION = 128 BUFFERS
NUMBER OF PROTECTED USAM BUFFERS =  0 IN CSA + 250 IN AUX
NUMBER OF UNPROTECTED USAM BUFFERS PER OPEN USAM DATA SET =  2
MAX DATA BYTES IN A USAM BUFFER = 4044

```

This section shows the information specified in the JES3 initialization stream that is relative to JES3 spool performance. A 4K spool buffer allows for more efficient use of spool space and the processor requirements necessary to retrieve information from spool. For example, a 2K spool buffer will hold four OSEs, while a 4K buffer will hold eleven OSEs. Making buffers larger reduces read or write chained spool records. Obviously, it doesn't help when accessing control blocks that reside in a single buffer (for example, JDAB, JMR). File directory entries are used in WRTCHAIN processing when dealing with OSEs, JSTs, and JDSs. If you run out of file directories, the function waits, regardless of the criticality of the function. There is no indication of how many of these entries are in use currently and there is no high water mark count.

Note: File directories are used primarily for multi-record files (MRFs). They are also used by WRTCHAIN requests for JDSs, OSEs, JSTs, and other chained single record files.

JMF reports the number of JSAM buffers defined. (In a later section, the number in use and the high water mark are reported.) You should try to avoid running out of JSAM buffers. If you do, the system tries a few recovery attempts and stops. JES3 allows 1024 buffers to be defined and they should be used.

JMF also reports the location of the protected USAM buffers. (In a later section, the usage is reported.)

```

SPOOL DATA SET DESCRIPTION
***** RANGE *****
DATA SET          PARTITION      DEVICE
NUMBER DDNAME NAME  STATUS  NUMBER VOLSER TYPE  CYL HEAD  CYL HEAD
2  SPOOL1 MAIN  IN USE  0982  SPOOL1 3390  0000009 0  000002B E
3  SPOOL2 MAIN  BT      0483  SPOOL2 3390  0000001 0  0000008 E
4  SPOOL3 MAIN  IN USE  0484  SPOOL3 3390  0000001 0  0000008 E
5  SPOOL4 INISH IN USE  0485  SPOOL4 3390  0000001 0  0000008 E
.
.
.
SPOOL PARTITION DESCRIPTION
PARTITION SPLIM  OVERFLOW
NAME      MIN  MARG PARTITION
MAIN      5%  10%          *** DEFAULT ***
INISH     0%  0%
SPOOL SPACE UTILIZATION SNAPSHOT
PARTITION          *** TRACK GROUPS ***
NAME      DDNAME  DEFINED  ALLOCATED
DRAINED
UNAVAIL
MAIN      SPOOL1   2300    1146  48%
          SPOOL2   2300    1144  48%
          SPOOL3   2300    1144  48%
          SPOOL5    45     45 100%
INISH     SPOOL4    45     4   8%

```

The first report is the spool data set description. JMF reports on where the spool data sets reside, their size and organization. This may be the most obvious report in the listing and is only partially shown here. The one interesting thing that JMF reported is that one of the active spool volumes has a bad track. If you see this in a real JMF report, you should obviously investigate it and have it corrected. Purging of track groups is adversely affected by bad tracks.

In the example, there are two partitions defined: MAIN (the default partition) and INISH. INISH consists of a small spool data set that contains the initialization stream. It is only there to illustrate the report. The spool partition report also reports the installation-defined spool minimum and marginal values. The question is: What should these values be in my installation?

One of the all-time great answers is: make certain that the minimum value is large enough to be able to do a restart of JES3. However, exactly how much space this requires is not known and at the very least will be installation dependent. The percentage that you set aside is also dependent on the total spool space in the default partition.

Setting the marginal value is easier to rationalize. Most installations know what normal spool utilization is during peak periods. Set the marginal value to this amount plus 10-20% of the peak percentage. At least the operators will be notified when spool space gets low and can take the appropriate action.

Finally, we get to the spool utilization report for each of the partitions. This report should be reviewed to be certain that spool utilization is within normal limits. As the spool fills, JES3 performance begins to deteriorate. This is particularly true for the default partition, which holds the majority of the spool control blocks for a jobs. Using spool partitioning, some installations find that they can run special purpose partitions at a higher utilization rate and not adversely affect JES3 performance.

Note: This report shows the SPOOL5 data set to be 100% used. The entire data set is dedicated to a single track table extent. It also leads into the discussion about the STT.

Single Track Table (STT)

The STT is used for various spool resident JES3 control blocks. The intent is to spread the I/O activity to the STT. Loss of a pre-allocated STT extent is no longer cause for a cold start. If the preallocated STT fills, JES3 gets a track group from the default partition and makes it an STT extent.

SINGLE TRACK TABLE SPACE ALLOCATION SNAPSHOT						
		***** RANGE *****				
DATA SET		LOW HIGH		RECORDS	RECORDS	
NUMBER	DDNAME	CYL	HEAD	CYL	HEAD	DEFINED ALLOCATED
2	SPOOL1	000001A	7	000001A	9	24 24 100%

In the previous example, there is only one STT extent. It was defined in the initialization stream. There has never been an overflow of the STT. If the STT expands it never voluntarily contracts. You should pre-allocate enough STT space and enough extents to insure that the STT never expands. Having the STT placed randomly in the default partition is detrimental to good spool performance. The number of STT extents should be in the two to four range, spread across as many paths as are available. Expansion of STT is indicative of spool performance or code problems.

The STT contains:

- DJC net control blocks
- Checkpoint records for:
 - MDS
 - GMS
 - Dynamic allocation
 - Volume unavailable table
 - Online devices
 - FSS status
 - Deadline control blocks
- JESNEWS
- Control blocks for called DSPs
- JOB0 control blocks (for example, JDS and OSE)

SPOOL I/O Activity

This report is a sample version of the I/O activity to the spool as seen by JES3 and reported by JMF. The I/O presented in this report arises from USAM I/O or JSAM I/O originating in JES3, an FSS or a user address space.

SPOOL I/O ACTIVITY - BUFFERS READ AND WRITTEN PER SECOND						
VOLSER	DDNAME	TOTAL	LO #	CYLS	2	HI #
SPOOLX	JES3JCT	2.72	2.72	.00	...	.00
SPOOL1	SPOOL1	3.86	1.44	2.41	...	.00
SPOOL2	SPOOL2	2.88	.00	.00	...	.00
SPOOL3	SPOOL3	3.52	.00	.00	...	.00
SPOOL4	SPOOL4	.00	.00	.00	...	.00
	SPOOL5	.00	.00	.00	...	.00

This example describes the number of buffers read/written per second on a spool data set and the relative location on the volume of the buffers. The volume

JES3 Monitoring Facility

containing the spool data set is divided into ten parts (not the spool data set). The report is based on volume not the data set. JES3 allocates spool space from the center of the data set out. To look at this report and infer anything about the activity on this volume, you must know where the spool data set resides. If the data set encompasses the entire volume and you see a great number of buffers read/written at the "ends", the disconnect time will be high (RMF will verify this) because of increased seek distances. Also, spool response time has increased and JES3 responsiveness has decreased. You will also see that the spool data set space utilization is high (see the previous chart).

Do not confuse number of buffers read/written to spool per second with the number of I/O operations to spool per second; they are not the same. JMF will only tell you about buffers. You must consult RMF for I/O operations per second, disconnect time, and esoteric names used.

BUFFER CHAINING BY SPOOL DATA SET						
DATA SET NUMBER	TOTAL BUFFERS	# OF CHAINED BUFFERS				
		1	2	3	...	11+
1	748	738	10	0	...	0
		98%	1%	0%	...	0%
2	1,058	775	150	102	...	0
		73%	14%	9%	...	0%
3	790	617	138	27	...	0
		78%	17%	3%	...	0%
4	965	586	228	114	...	0
		60%	23%	11%	...	0%
5	0	0	0	0	...	0
		0%	0%	0%	...	0%
6	0	0	0	0	...	0
		0%	0%	0%	...	0%
SDM EXCEPTIONAL CONDITIONS						
JSAM BUFFERS NOT AVAILABLE = 0%						
USAM BUFFERS NOT AVAILABLE = 0%						
MINIMAL/MARGINAL TRACK CONDITIONS DID NOT OCCUR IN ANY PARTITION						
AWAITS FOR BUFFERS DURING MONITORING 0 EVER = 00000000						

This example gives a distribution of the number of chained records per I/O operation on a spool data set basis. JES3 will chain multiple requests together (even order the requests to minimize the seek distances) on a spool extent basis if there are multiple requests outstanding at the termination/initiation of an I/O request. The above report is an example of what you should not see in a healthy spool environment. You should have at least 90% of the I/O requests show up in the first column. This indicates that JES3 is able to schedule the I/O on demand and that the spool is responsive to the point that the request is satisfied before JES3 can generate a subsequent request. You should see 99% of the requests being satisfied in chains of two or three. When you see a report like the one above, it is a good indication that spool is not performing well. JES3 is generating spool requests faster than the spool (for example, DASD, channels, and control units) can respond.

The spool data sets were living on VM mini-disks that were on the same physical volume. Sometimes you will notice quite a few requests to spool that were ten or more buffers. This could be an indication of spool contention. However, the writer FSS address spaces perform full track READs of the spool data sets. When 4K spool buffers are defined, a request of ten buffers will be generated each time the writer goes to the spool for data. Hence, seeing eleven or more buffers may merely reflect writer FSS activity. Therefore, you should use RMF to assess device and path contention.

Finally, JMF reports the percentage of time that the JSAM or USAM buffers were all in use and the number of times IATNUC was AWAITed for a JSAM buffer. If these numbers aren't zero, then your buffer definitions are too small, and you should increase the number.

Control Blocks

The Control Block Status report provides information about JES3 control blocks and their utilization. There are “knobs” that the installation can turn which will effect the performance of JES3. However, quite a lot of the information is merely information.

- Resqueue buffers
- FCTs
- Console buffers
- JSAM and USAM buffers
- Job Control Table (JCT) and Job Queue Element (JQE)
- Staging Areas

Control Block Statics

```

RESQUEUE CELL POOL STATISTICS
  TOTAL NUMBER OF CI SECONDARY EXTENTS IN POOL =    0
  TOTAL NUMBER OF CI RESQUEUES IN POOL =  112
  .
  .
  .
  NUMBER OF COMMON RESQUEUES IN PRIMARY EXTENT = 102
  NUMBER OF COMMON RESQUEUES FOR SECONDARY EXTENT =  51
    
```

JQE/JCT ACCESS METHOD REPORT

```

JCT DATA SET INFORMATION
  JCT SIZE (WITH SRF PREFIX) =    436 BYTES
  NUMBER OF JCT READ I/O'S =      0
  NUMBER OF JCT WRITE I/O's =  1057
  NUMBER OF JOBS ADDED =      185
  NUMBER OF JOBS DELETED =     200

JCT DATA SPACE INFORMATION
  JCT DATA SPACE SIZE =      3.10 MEGABYTES
  READ REQUESTS
    PAGE IN REAL STORAGE =  1092  99.72%
    PAGE NOT IN REAL STORAGE =    3   .27%
  WRITE REQUESTS
    PAGE IN REAL STORAGE =  1054  99.71%
    PAGE NOT IN REAL STORAGE =    3   .28%
  PAGE ALLOCATION
    MINIMUM =      316  19.43%
    AVERAGE =     316  20.09%
    MAXIMUM =     317  20.81%
  NUMBER OF PAGES RELEASED =      1

JQE INFORMATION
  JQE0 TABLE SIZE =      .35 KILOBYTES
  JQE1 TABLE SIZE =      .89 KILOBYTES
  JQE2 TABLE SIZE =     20.00 KILOBYTES
  JQE3 TABLE SIZE =     56.80 KILOBYTES
  JQE4 TABLE SIZE =    626.46 KILOBYTES
  JQE4 ALLOCATION
    MINIMUM =     2547  81.67%
    AVERAGE =     2568  82.35%
    MAXIMUM =     2590  83.05%
    
```

```
JES3 CONTROL BLOCK UTILIZATION
FCT ENTRY USAGE
  PREALLOCATED = 200 + 24 PERMANENT FCT'S
  MINIMUM = 37
  MAXIMUM = 45
  AVERAGE = 37

CONSOLE BUFFER USAGE
  PREALLOCATED = 500
  MINIMUM = 15
  MAXIMUM = 96
  AVERAGE = 18
  SIZE OF PRIMARY EXTENT = 500 BUFFERS
  SIZE OF SECONDARY EXTENT = 60 BUFFERS
  SECONDARY EXTENT LIMIT = 3
  NUMBER OF RESERVED BUFFERS = 76
  NUMBER OF SECONDARY EXTENTS CURRENTLY IN USE = 0
  MAXIMUM NUMBER OF SECONDARY EXTENTS EVER USED = 24
  MAXIMUM NUMBER OF RESERVED BUFFERS EVER USED = 0
  SECONDARY CONSOLE BUFFER EXTENTS EXCEEDED = 0%

JSAM BUFFER USAGE
  TOTAL DEFINED = 1024
  MINIMUM = 11
  MAXIMUM = 104
  AVERAGE = 25
  SIZE OF PRIMARY EXTENT = 500 BUFFERS
  SIZE OF SECONDARY EXTENT = 250 BUFFERS
  SECONDARY EXTENT LIMIT = 4

USAM (PROTECTED) BUFFER USAGE
  TOTAL DEFINED = 104
  MINIMUM = 0
  MAXIMUM = 103
  AVERAGE = 0

STAGING AREA USAGE
  ACTIVE STAGING AREA COUNT FROM SVT(SVTSACNT) = 14
  MAXIMUM STAGING AREAS EVER USED = 689
TOTAL ACTIVE STAGING AREAS
  MINIMUM = 11
  MAXIMUM = 50
  AVERAGE = 16
```

The RESQUEUE cell pool report cannot be changed and there are no “knobs” to influence the size or number of extents in each RQ cell pool.

The JQE/JCT access method reports provides information about the:

- Size of the JCT
- Number of JCT reads/writes
- JCT data space use

JES3 will disable the JCT and use only the disk resident JCT. If JMF says that the JCT is disabled, you need to figure out why. It takes a hotstart to recover the JCT data space.

All the JCT reads were done from the data space. Look at the number of JCT reads that were satisfied without I/O to the paging subsystem. In this instance, the system performed well. Having to take a trip through the paging subsystem for some critical information may not be preferable to doing I/O to a well tuned spool. To prevent delays in accessing the JCT, use storage isolation. JES3's data space is essentially an extension of the address space with respect to its real storage requirements.

JMF also reports on the storage reference patterns for the JCT data space. You will receive the number of allocated pages and an indication of how densely packed

the active JCTs are into the data space. The JCT utilization is the ratio of the space required by the in use JCTs relative to the space represented by the number of “in use pages” in the data space. Obviously, you would like this number to be close to 100. This is an interesting number, but there is no external mechanism to affect it. Only a hot start, which causes the data space to be rebuilt, will change the density of the JCTs.

The JQE information is there for informational purposes only. There is nothing you can do to influence the packing. The size of the tables is determined by the number of jobs allowed in the system and the range of defined job numbers. The JQE4 utilization numbers represent the density of the active JQE4s among those pages held in storage for JQE4s.

The control block utilization information describes the number of FCTs used and the number of pre-allocated FCTs. The number of FCTs that you specify in the initialization stream should be at least as many as, if not larger than, the average used. You have the choice of having FCT entries available for use or having IATNUC take the trip through GETMAIN each time one is required.

JMF reports on console buffers. JES3 makes all the decisions on console buffers.

Job Analysis

The job monitoring report is produced by JMF in response to specifying JOB=nn. JMF will also record MDS and GMS subqueue information for the ‘nn’ tracked jobs if requested. JSTAT=m requests JMF to keep ‘m’ of these MDS and GMS entries.

MDS and GMS Information

Main device scheduling (MDS) and generalized main scheduling (GMS) report on:

- “Tracked job's” time on SE
- Jobs in execution by processor
- Jobs in execution by job class
- Allocated JES3 devices by device class
- Allocated JES3 devices by SETNAME
- Length of each RESQUEUE index
- JSS work-to-do queue
- MDS and GMS scheduling analysis

When you run JMF with JOB=25 jobs to be tracked, you will notice that the jobs tracked are not the ones for which you have any interest. This is because JMF will track the first 25 (in this case) jobs that it finds on the resqueue chain. At the time the interval begins, chances are that none of the interesting jobs are in this set of RQs. The jobs of interest may not even have an RQ at the start of the interval.

There is some information of value which will only be produced if you invoke job monitoring. For this reason, specify JOB=1. This also reduces some of the JMF overhead.

JES3 Monitoring Facility

```

JOB ANALYSIS
JES3 (JOB00000), RQPRTY = 15
      JES3 DSP'S                                20.0
SYSLOG (JOB00001), RQPRTY = 15, CLASS = A      , GROUP = JES
      ON MAIN                                  20.0
DYNPARS (JOB00002), RQPRTY = 15
      OUTPUT WTR                                20.0
MOUNT (JOB00003), RQPRTY = 11
      OUTPUT WTR                                20.0
IRRDPTAB (JOB00004), RQPRTY = 15
      OUTPUT WTR                                20.0
INITJES3 (JOB00005), RQPRTY = 15, CLASS = A   , GROUP = JES
      ON MAIN                                  20.0
INITJES3 (JOB00006), RQPRTY = 15, CLASS = A   , GROUP = JES
      ON MAIN                                  20.0
JMF (JOB00010), RQPRTY = 15
      JES3 DSP'S                                20.0
      JMF                                        20.0

JES3 FUNCTION SUMMARY
FUNCTION          AVERAGE TIME JOBS          MINIMUM TIME JOB#
JES3 DSP'S       4 MIN. .00 SEC.    7      1 MIN. 34.00 SEC. (1370)
OUTSERV          4 MIN. 57.00 SEC.    1      4 MIN. 57.00 SEC. (0000)
PURGE            1.00 SEC.    1          1.00 SEC. (1370)
DC               4 MIN. 57.00 SEC.    1      4 MIN. 57.00 SEC. (1006)
IC               4 MIN. 57.00 SEC.    1      4 MIN. 57.00 SEC. (1005)
INTRDR          1 MIN. 37.00 SEC.    2          1 MIN. 33.00 SEC. (1370)
NJE             4 MIN. 57.00 SEC.    1      4 MIN. 57.00 SEC. (1414)
NJECONS         4 MIN. 57.00 SEC.    1      4 MIN. 57.00 SEC. (1008)
ALLOCATION        4 MIN. 57.00 SEC.    1      4 MIN. 57.00 SEC. (1254)
ON MAIN          4 MIN. 57.00 SEC.    6      4 MIN. 57.00 SEC. (1349)
OUTPUT WTR       4 MIN. 57.00 SEC.   36      4 MIN. 57.00 SEC. (1318)
COMPLETE         2.00 SEC.    2          2.00 SEC. (1370)

MDS AND GMS SCHEDULING ANALYSIS
TOTAL NUMBER OF ALLOCATION RETRIES DURING JMF INTERVAL:    51
NUMBER OF ALLOCATION ATTEMPTS REJECTED WITHOUT READING JST:  42
NUMBER OF ALLOCATION ATTEMPTS ALLOWED TO READ JST:          9
NUMBER OF ALLOCATION ATTEMPTS REJECTED AFTER READING JST:   1
NUMBER OF SUCCESSFUL ALLOCATIONS:                          7
ELIGIBLE MAIN NOT ONLINE OR IPLED
SY2              4 MIN. 57.00 SEC.    1      4 MIN. 57.00 SEC. (1254)
REQUIRED RESOURCE NOT AVAILABLE
SY1              4 MIN. 57.00 SEC.    1      4 MIN. 57.00 SEC. (1254)

```

Job analysis is included to exhibit the type of information that JMF will provide for the tracked jobs. JMF has included the MDS and GMS scheduling analysis for JOB01254. In this case, the job needed a tape drive that was offline to SY1. SY2 was not online forcing the job to wait. You can tell that this JMF run was from a 2.2.1 level system. The job number is four digits instead of five. You can also tell that this JMF has a problem.

The FCT function summary uses the 'nn' jobs tracked (in this case 50) to present the average time these jobs have spent in various phases along with the job that had the minimum and maximum (not shown) time at each point. Following this is the MDS and GMS scheduling analysis. The five lines of information about allocation retries are applicable to the entire allocation queue, not just the tracked jobs. What you are looking for, in this case, are very few allocation attempts rejected after reading the JST. If this is not the case, you should make certain that SETUP has not discontinued the use of the ARLs. This will occur if there has been some type of non-recoverable error. A message will be issued to the operator. SETUP is significantly less expensive if the ARLs are working. You should remember that this is for allocation retries only. Jobs that make it through allocation on their first attempt are not recorded.

Job Segment Scheduler (JSS) Queues

The JSS-READY queue is one that requires attention. If you observe the minimum queue length and the average queue length to be large, JSS is backlogged with work. JSS is not getting jobs from ending function on one DSP to the start of the next DSP. This is due to JSS not getting dispatched. Look at the FCT and AWAIT report to determine why.

JSS	WORK-TO-DO	QUEUE	REPORT
JSS	MINIMUM	MAXIMUM	AVERAGE
QUEUE	QUEUE	QUEUE	QUEUE
NAME	LENGTH	LENGTH	LENGTH
JSS-READY	0	93	0
CATALOG-WAIT	0	0	0
RSQ-WAIT	0	0	0
PROCLIB-WAIT	0	0	0
MAIN-WAIT	69	162	161
DSP-WAIT	9	11	9
MPLOC-WAIT	0	0	0
DUPNAME-WAIT	0	20	10
CI JSAM-WAIT	0	0	0

In this case, the maximum value looks quite high. This occurs when a priority is released (as so happened here) or the operator entered an *S JSS command while JES3 is processing. You should seldom see any entries on RSQ-WAIT or PROCLIB-WAIT.

A job will appear on MAIN-WAIT if it cannot be scheduled for main service. This occurs when the initiator class or group is not available on any of the eligible main processors.

CATALOG-WAIT indicates the number of jobs waiting for an SMS-managed catalog to become available to schedule the job for C/I.

DSP-WAIT indicated the number of jobs waiting for DSPs. These jobs are waiting for the DSP use count to be less than the maximum.

MPLOC-WAIT indicates the number of jobs waiting for a main processor to become available to perform LOCATE processing.

DUPNAME-WAIT indicates the number of jobs waiting for the main SE because a job of the same name is already active in main. Two batch jobs with the same name cannot be in main at the same time.

CI JSAM-WAIT queue contains jobs that are waiting for JSAM buffer usage by C/I to decrease below the allowable threshold.

JES3 Monitoring Facility

```

JOBS IN EXECUTION BY MAIN PROCESSOR
JOBS IN EXECUTION ON SY1      JES3 GLOBAL  STARTED INITIATORS = 13
.
.
.
ALLOCATED JES3 DEVICES BY SETNAME ON SY1
.
.
.
JOB QUEUE LENGTHS BY JES3 FUNCTION
JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: JES3 DSP'S
  4 +
  |
  8 +*****
  |****
 12 +***
  |**
 16 +
  |
 20 +
      +-----+-----+-----+-----+-----+
      1 2 3 4 5 6 7 8 9 1
      0 0 0 0 0 0 0 0 0 0
      AVERAGE= 9, MINIMUM= 8, MAXIMUM= 15
JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: CI IN AN FSS ADDRESS SPACE
      AVERAGE= 1, MINIMUM= 0, MAXIMUM= 3
JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: AWAITING POSTSCAN (BATCH)
JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: AWAITING POSTSCAN (DEMAND)
JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: FETCH
      AVERAGE= 1, MINIMUM= 0, MAXIMUM= 2
JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: VOLWAIT
.
.
.
JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: MAX RQNDX

```

The next report is quite long and yields information about activity in each main for all the initiator classes and groups that are defined in the initialization stream.

Sample reports are not included because they are fairly easy to understand. When looking at one of these reports, observe the number of started initiators and the number in use on a processor. If they differ radically, look through the groups to see if there are a lot of empty initiators. You may have experienced a workload change that requires adjustment of the GMS work load parameters.

The job queue lengths by JES3 function information provides you with a snapshot of where the jobs are located during the interval. Sometimes it is useful detecting bottlenecks in JES3 and for detecting changes in workload.

The jobs in the system are categorized by the RQINDEX function. First, you see jobs active on some JES3 DSPs including:

- Called DSPs
- NJESND DSPs
- INTRDR DSPs
- Jobs scheduled for C/I, PURGE, etc.

The remaining RQINDEX functions are those that one normally associates with normal jobs moving through the processes of being setup to run, executing, and sysout disposal and deletion from the system. You get the minimum, maximum, and average queue lengths.

Look at those phases of processing for which you have control. Is there a large backlog for CI or POSTSCAN? Is the VOLWAIT queue large and the ALLOCATION queue empty? Is there a large queue of jobs in GMS select? If you can detect the bottlenecks, you can improve the work load flow. Most of the time, this report is useful in showing the distribution of the work in the system.

High CPU Activity

JMF has the capability of detecting and recording modules that the IATNUC and IATAUX tasks are executing during JMF sampling. This report is optional, but is extremely useful when investigating where certain FCTs or JES3 functions are using CPU resources. This report compliments the FCT and AWAIT report.

```
JES3 HOT SPOT ANALYSIS
ENTRIES SORTED BY % BUSY
SPOT = 255  WIDTH = 100  NAME = ALL      HFCT = ALL
TYPE FIELD: C=CSA, J=JES3 PRIVATE, L=MLPA, M=MVS NUCLEUS, N=IATNUC, P=PLPA,
EC=EXTENDED CSA, EJ=EXTENDED JES3 PRIVATE, EL=EXTENDED MLPA, EP=EXTENDED PLPP
- % OF RUN ACTIVE  -% OF TASK ACTIVE
```

SECT	TYPE	START	END	OVERALL	IATNUC	IATAUX	IATNUC	IATAUX
IATGRCT	N	00000D00	00000DFF	1.20 %	1.20 %	.00 %	38.29 %	.00 %
MVS NUCL	M	000B8C00	000B8CFF	.33 %	.33 %	.00 %	10.63 %	.00 %
IATSSCM	EP	00000800	000008FF	.26 %	.26 %	.00 %	8.51 %	.00 %
IATGRSV	N	00000000	000000FF	.20 %	.20 %	.00 %	6.38 %	.00 %
IATDMNC	N	00000F00	00000FFF	.13 %	.13 %	.00 %	4.25 %	.00 %
IATGRTX	EC	00000000	000000FF	.13 %	.13 %	.00 %	4.25 %	.00 %
IATCNWO	N	00000700	000007FF	.06 %	.06 %	.00 %	2.12 %	.00 %
IATDMDS	EP	00000400	000004FF	.06 %	.06 %	.00 %	2.12 %	.00 %
IATDMNC	N	00000400	000004FF	.06 %	.06 %	.00 %	2.12 %	.00 %
		00002000	000020FF	.06 %	.06 %	.00 %	2.12 %	.00 %
IATGRCT	N	00000100	000001FF	.06 %	.06 %	.00 %	2.12 %	.00 %
IATGRPT	N	00001000	000010FF	.06 %	.06 %	.00 %	2.12 %	.00 %
		00002500	000025FF	.06 %	.06 %	.00 %	2.12 %	.00 %
IATSSCM	EP	00000000	000000FF	.06 %	.06 %	.00 %	2.12 %	.00 %
MVS NUCL	M	00044700	000447FF	.06 %	.06 %	.00 %	2.12 %	.00 %
		00130F00	00130FFF	.06 %	.06 %	.00 %	2.12 %	.00 %
FCT-CODE	EJ	N/A	N/A	.06 %	.06 %	.00 %	2.12 %	.00 %

```
JES3 HOT SPOT ANALYSIS
ENTRIES SORTED BY CSECT NAME
SPOT = 255  WIDTH = 100  NAME = ALL      HFCT = ALL
TYPE FIELD: C=CSA, J=JES3 PRIVATE, L=MLPA, M=MVS NUCLEUS, N=IATNUC, P=PLPA,
EC=EXTENDED CSA, EJ=EXTENDED JES3 PRIVATE, EL=EXTENDED MLPA, EP=EXTENDED PLPP
- % OF RUN ACTIVE  -% OF TASK ACTIVE
```

SECT	TYPE	START	END	OVERALL	IATNUC	IATAUX	IATNUC	IATAUX
IATCNWO	N	00000700	000007FF	.06 %	.06 %	.00 %	2.12 %	.00 %
IATDMDS	EP	00000400	000004FF	.06 %	.06 %	.00 %	2.12 %	.00 %
IATDMNC	N	00000400	000004FF	.06 %	.06 %	.00 %	2.12 %	.00 %
		00000F00	00000FFF	.13 %	.13 %	.00 %	4.25 %	.00 %
		00002000	000020FF	.06 %	.06 %	.00 %	2.12 %	.00 %
IATGRCT	N	00000100	000001FF	.06 %	.06 %	.00 %	2.12 %	.00 %
		00000D00	00000DFF	1.20 %	1.20 %	.00 %	38.29 %	.00 %
IATGRPT	N	00001000	000010FF	.06 %	.06 %	.00 %	2.12 %	.00 %
		00002500	000025FF	.06 %	.06 %	.00 %	2.12 %	.00 %
IATGRSV	N	00000000	000000FF	.20 %	.20 %	.00 %	6.38 %	.00 %
IATGRTX	EC	00000000	000000FF	.13 %	.13 %	.00 %	4.25 %	.00 %
IATSSCM	EP	00000000	000000FF	.06 %	.06 %	.00 %	2.12 %	.00 %
		00000800	000008FF	.26 %	.26 %	.00 %	8.51 %	.00 %
MVS NUCL	M	00044700	000447FF	.06 %	.06 %	.00 %	2.12 %	.00 %
		000B8C00	000B8CFF	.33 %	.33 %	.00 %	10.63 %	.00 %
		00130F00	00130FFF	.06 %	.06 %	.00 %	2.12 %	.00 %
FCT-CODE	EJ	N/A	N/A	.06 %	.06 %	.00 %	2.12 %	.00 %

This report has a good deal of useful information. The report shows the hot spots sorted by percent busy, name, and the location of the hot spot. You get the

JES3 Monitoring Facility

percentage of time that this portion of code was being “run” during the entire interval and as a percentage of IATNUC (or IATAUX) activity.

You can have JMF monitor hot spots on the entire module basis or sections of a module by specifying a WIDTH value. In this instance, we asked for the section to be 100 (in hexadecimal) bytes in length.

Hot spot analysis can be restricted from all modules (the default, taken here) to some subset of JES3 modules. For instance, you can specify NAMES=IATGR and restrict the report to those modules which start with this string. For example, IATGRLD, IATGRCT, IATGRSV, etc.. You can further restrict the analysis by specifying HFCT=name (for example, TSODRVR). In this case, only module activity invoked under the specified FCT will be tracked.

In the process of analyzing a potential or suspected JES3 performance problem, you may have to make several JMF runs. You will need to change the hot spot parameters to determine exactly where a hot FCT is spending time and CPU resources.

Looking at the first chart, we see that IATGRCT shows that 58% of the active IATNUC time was spent in the module between locations x'0000D00' and x'0000DFF'.

Internal Reader

The internal readers manage themselves within certain bounds. The installation has control over the maximum number of active internal readers through initialization stream parameters and operator commands. The number of internal readers will range from two to the maximum (20 in this case). When an internal reader finishes a job, it will end if the number of inactive readers would exceed the active readers or if there are internal readers waiting for the DSP use count to decrease. The installation may raise the number of internal readers if enough JSAM buffers exist and internal reader activity warrants. To ensure the readers are fed work, you must make certain that the DMJA FCTs have capacity (you may need more) ; therefore, check the FCT and AWAIT analysis reports. Installations having a lot of DJC activity may find that increasing the number of internal readers does not help because of AENQs on JNCBCTL or AWAITS for generalized subtasks. In either case, JMF will tell you.

```
JES3 INTERNAL READER DSP ANALYSIS REPORT
MAXIMUM ACTIVE INTERNAL READER DSPS ALLOWED      20
MINIMUM NUMBER OF ACTIVE INTRDRS                  2
MAXIMUM NUMBER OF ACTIVE INTRDRS                  5
AVERAGE NUMBER OF ACTIVE INTRDRS                  2
AVERAGE NUMBER OF IDLE INTERNAL READER DSPS      1
AVERAGE LENGTH OF INTERNAL READER QUEUE          0
% OF JMF SAMPLES ACTIVE INTRDRS COUNT AT MAXIMUM .00 %
% OF JMF SAMPLES ACTIVE INTRDRS COUNT AT ZERO    .00 %
```

SSI Response Time

SSOB FUNCTION CODE	NUMBER REQUESTS RECEIVED	NUMBER RESPONSES RECEIVED	MINIMUM RESPONSE TIME	MAXIMUM RESPONSE TIME ¹
WTO/WTOR	1	1	22.868	22.868
JOB TERM	0	0	.000	.000
MDS DYNAL	0	0	.000	.000
MDS UNALLOC	0	0	.000	.000
MDS CHGDD	0	0	.000	.000
MDS CHGNQ	0	0	.000	.000
JDS ACCESS	0	0	.000	.000
SPOOL ALLOC	0	0	.000	.000
ENDREQ	0	0	.000	.000
DYNAL DYN	0	0	.000	.000
DYNAL UNAL	0	0	.000	.000
DYNAL CHGDD	0	0	.000	.000

¹An asterisk character (*) indicates that the longest possible response time is displayed, because the total response time (current time minus start time) would have caused a register overflow during the calculation.

Figure 23. SSI RESPONSE REPORT

The SSI response report gives you an indication of how well JES3 is processing requests for JES3 global services. You get the number of requests that JES3 sees and the amount of time it takes to process the staging area. The number is in milliseconds and the information is only for requests originating on the global processor.

Outstanding Requests

```

DESTQ
-----
SSI DESTINATION QUEUE REPORT
  DESTINATION          FSS   FSA  MINIMUM  MAXIMUM  AVERAGE
  QUEUE                NAME   NAME  QUEUE    QUEUE    QUEUE
  NAME                 NAME   NAME  LENGTH   LENGTH   LENGTH
MAIN SERVICE          00    04    00      04      00
GENERALIZED MAIN SCHEDULING 05    05    00      05      05
VERIFY                00    01    00      01      00
LOCATE                00    01    00      01      00
JES DATA MANAGEMENT 00    00    00      00      00
USER TRACK ALLOCATION  00    02    00      02      00
SVC 34                00    21    00     21      00
WTO                   00    16    00     16      00
RESERVED              00    00    00      00      00
DYNAMIC ALLOCATION    00    00    00      00      00
COMMON ALLOCATION      00    00    00      00      00
COMMON UNALLOCATION    00    03    00      03      00
VERIFY RESPONSE       00    01    00      01      00
CHANGE DDNAME         00    00    00      00      00
WORK TO DO DRIVER     00    00    00      00      00
SSICS QUEUE 1         00    00    00      00      00
SSICS QUEUE 2         00    00    00      00      00
MODIFY DRIVER         00    00    00      00      00
INQUIRY DRIVER        00    00    00      00      00
CHANGE ENQUEUE USE ATTRIBUTE 00    01    00      01      00
PROCESS SYSOUT        00    03    00      03      00
TAPE DDR PROCESSING   00    00    00      00      00
RESERVED              00    00    00      00      00
RESERVED              00    00    00      00      00
DYNAL - ALLOCATION     00    03    00      03      00
DYNAL - UNALLOCATION   00    13    00     13      00
DYNAL - CHANGE DDNAME 00    01    00      01      00
DASD DDR PROCESSING   00    00    00      00      00
COMMUNICATION FROM AN FSS
                        GBLCIFSS 00    04    00      04      00
                        PR910    00    00    00      00      00
                        PR910    00    04    00      04      00

CI DRIVER             00    01    00      01      00
SPOOL WRITE ERROR    00    00    00      00      00
BDT SUBSYSTEM        01    01    01      01      01
BDT SHUTTLE STARS    01    01    01      01      01
ARM PJCL              00    00    00      00      00
SYSOUT APPL PROG INTERFACE 00    01    00      01      00
ENHANCED STATUS      00    00    00      00      00
    
```

JMF will report on the outstanding requests that JES3 must process that have arrived through staging areas. This report is useful when diagnosing problems where JES3 is "not responding". Without this information, you cannot determine if JES3 is not responding because it is hung somewhere or there is no work to do. For example, TSO/E logons may be slow because MSGC cannot process the outstanding requests or the logon request is does not get to the global for processing because of some other delay. To the TSO/E user, there is no difference in the symptoms. Without this report, you may not be able to determine where the problem lies.

This report should be used in conjunction with the FCT - AWAIT and hot spot reports to assist in determining where the bottleneck lies.

There is some misleading information in this report. The remaining queue values reflect real work that JES3 must do. It takes considerable JES3 knowledge to know

which FCT, which queue, or why a request is placed on one queue versus another. Start by looking at queues that seem to have a high residency and determine which FCT is not processing the requests and why.

Chapter 6. Reading a JMF hardcopy report

The job monitor facility (JMF) hardcopy report is divided into the following six major reports:

- **System Report** consists of the:
 - General Information Section
 - Working Set Section
 - JES3 Subtask Section
 - Global Processor Description Section

You can use these sections to obtain information on the CPU utilization of the nucleus and auxiliary task. It also describes JES3's real storage requirements and configuration information for your installation.

- **FCT and AWAIT Report** consists of the:
 - FCT and AWAIT Report Section
 - DSP Analysis Report
 - FCT and AWAIT Highlight Report Section
 - DMJA FCT Summary Section
 - JES3 WAIT Analysis Section

You can use these sections to obtain information on the workload distribution in your installation.

- **Spool Data Management Report** consists of the:
 - SDM Parameters Section
 - Spool Data Set Description Section
 - Spool Partition Description Section
 - Spool Space Utilization Snapshot Section
 - Single Track Table Space Allocation Section
 - Spool I/O Activity Section
 - Buffer Chaining by Spool Data Set Section
 - SDM Exceptional Conditions Section

You can use these sections to determine if JES3 is accessing your installation's spool environment efficiently.

- **Resqueue Cell Pool Usage Report** describes the utilization of your installation's resqueue cell pools.
- **JES3 Control Block Utilization Report** contains information on the status of your installation's buffer, staging area, and FCT usage.
- **JQE/JCT Access Method Report** contains information on the JCT data space and the JCT data set. You can use this section to tune the JCT access method.
- **Job Analysis Report** consists of the:
 - Job Analysis Section
 - JSS Work-to-Do Queue Report
 - JES3 Function Summary Section
 - Jobs in Execution by Main Processor Section
 - Jobs in Execution by Job Class Section
 - Allocated JES3 Devices by SETNAMEs Section

Reading a JMF Hard-Copy Report

- Job Queue Lengths Section

You can use these sections to determine the distribution of work in your installation.

- **SSI Report** consists of the:
 - SSI Response Report Section
 - SSI Destination Queue Report Section

You can use the SSI Report to determine if JES3 is handling requests from other address spaces efficiently.

- **Workload Manager Information** consists of the:
 - Service class information
 - SYSPLEX/SYSTEM level job eligibility information

You can use the SSI Report to determine if JES3 is handling requests from other address spaces efficiently.

Usage

To get the results you expect from JMF, you will need to determine:

- The number of reports and samples you need to ensure the results of your analysis are correct.
- The number of functional control tables (FCTs) you need to monitor to either obtain information for the appropriate FCT or give enough information for analysis.

Determining the Number of Reports

JMF generates one or more reports depending on the values specified in the INTERVAL and TIME parameters on the modify command. To determine the number of reports that will be generated, use the following formula:

$$\text{Number of reports} = \text{TIME}/\text{INTERVAL}$$

If a remainder exists, JMF will round up. For example, if a *X JMF,TIME=70,INTERVAL=15 command is entered, the number of reports that JMF generates equals 70 divided by 15; five reports will be generated. The final report is generated even though an entire interval has not been completed.

Determining the Number of Samples

JMF generates one or more samples for a report depending on the values specified in the INTERVAL and CYCLE parameters on the modify command. IBM suggests generating at least 1000 samples for each report. To determine values to specify on the INTERVAL and CYCLE parameters, use the following formula:

$$\text{Number of samples} = \text{INTERVAL} * 60 / \text{CYCLE}$$

For example, if 1000 samples and 4 reports should be generated in 60 minutes, the operator should enter a *CALL JMF,CYCLE=.9,TIME=60,INTERVAL=15 command to generate the results.

Note: The formula provides a method for estimating the number of samples. It is not an exact calculation and varies based upon your system overhead.

Determining the Number of FCTs

JMF can report on its use of FCTs and use an FCT report to identify how the work is distributed across JES3 functions. An FCT report contains information on the

first 250 FCTs in the FCT chain. If you require information for a specific FCT, you will need to determine the number of FCTS on the FCT chain that precede the required FCT. The last entry in the report will be the requested FCT. Use the following formula to approximate the number of FCTs in your installation.

Number of FCTs=

Number of permanently resident FCTs
+ 2 * the number of MAINPROC statements
+ the number of FCTs for every active device
+ the number of RJP lines that are started
+ the number of BSC NJE lines that are started

JMF obtains the SYSOUT class for a printed report from the
 DBGCLASS=parameter on the STANDARDS initialization statement.

Description of the JMF hardcopy report

```

                                DATE = 01/01/09    TIME = 112507

SAMPLING CYCLE = .20 SECONDS    SAMPLES TAKEN = 00008794

JMF CALL COMMAND: *X JMF,FCT=400,SPOT=999,TIME=120,INTER=30,WTR=Y,WIDTH=50,HFCT=ALL

IATNUC POSTED - ACTIVE          5.39 %          IATAUX POSTED - ACTIVE          .00 %
IATNUC POSTED - NOT ACTIVE      5.32 %          IATAUX POSTED - NOT ACTIVE      .00 %
IATNUC NOT POSTED              84.61 %          IATAUX NOT POSTED              100.00 %
IATNUC IS NONSTANDARD WAIT      .00 %           IATAUX IN NONSTANDARD WAIT      .00 %
IATNUC SUSPENDED - LOCAL LOCK REQ 4.67 %          IATAUX SUSPENDED - LOCAL LOCK REQ .00 %
IATNUC SUSPENDED - OTHER        .00 %           IATAUX SUSPENDED - OTHER        .00 %

```

The General Information Section provides you with a description of:

- The job monitor facility (JMF) command you issued to generate the report
- The nucleus (NUC) and auxiliary (AUX) task

It allows you to evaluate the activity in the nucleus and auxiliary task.

Notes for the General Information Section:

Work in the JES3 address space can be processed under the NUC or AUX task. The work processed under each task causes the task to be placed in one of six mutually exclusive states. The task can be one of the following:

- Posted and using the CPU
- Posted but not using the CPU
- In a normal MVS wait state
- In a nonstandard MVS wait
- In a suspended state because a local lock is required
- In a suspended state for some other reason

The nucleus or auxiliary task can be in only one of the states at a time. For the NUC and AUX task associated with JES3, JMF reports the percentage of sample time the task was in a state.

System Report

Description of the General Information Section:

DATE = mm/dd/yy - the date JMF generated the report.

TIME = hhmmss - the time of day that JMF generated the report.

SAMPLING CYCLE = nn.nn SECONDS - is the time that elapsed between samples.

SAMPLES TAKEN = nnnnnnnn - is the number of samples that JMF took before generating the report.

JMF CALL COMMAND: *CALL JMF ... - is the *CALL command that you issued to generate the report.

task POSTED - ACTIVE nn.nn% - is the percentage of time the NUC or AUX task was using the CPU during the JMF sampling period.

task POSTED - NOT ACTIVE nn.nn% - is the percentage of time the NUC or AUX task was posted but was not using the CPU during the JMF sampling period.

task NOT POSTED nn.nn% - is the percentage of time the NUC or AUX task spent in a normal MVS WAIT state during the sampling period. The nucleus or auxiliary task is not posted when none of the JES3 functions under the nucleus or auxiliary task are ready to use the CPU.

task IN NONSTANDARD WAIT nn.nn% - is the percentage of time the NUC or AUX task spent in a wait state other than the normal MVS WAIT state during the sampling period. Page faults is an example of a nonstandard wait.

task SUSPENDED - LOCAL LOCK REQUIRED nn.nn% - is the percentage of time the NUC or AUX task was suspended while waiting for a local lock during the sampling period.

task SUSPENDED - OTHER nn.nn% - is the percentage of time the task was suspended for a reason other than waiting for a local lock during the sampling period.

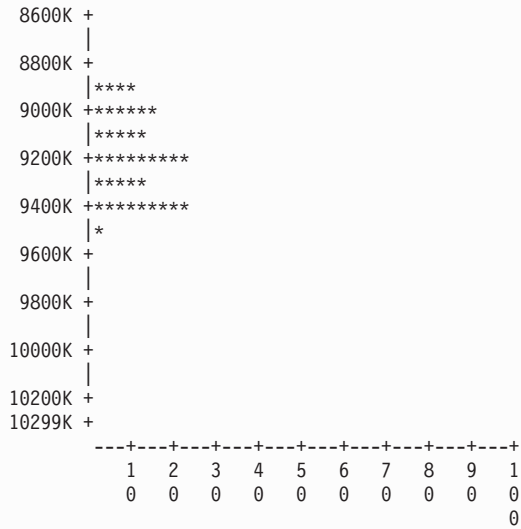
Tuning Information:

The task information allows you to determine how much JES3 is utilizing the CPU. Use the percentage provided in POSTED - ACTIVE to determine the CPU utilization for the task.

The amount of CPU utilization for the NUC task should not exceed 60%. The amount of CPU utilization for the AUX task should not exceed 75%. If the CPU utilization goes over the recommended percentages, it may lead to performance degradation. If your installation is over the recommended amount of CPU utilization, you can:

- Use multi-tasking to offload some of the responsibilities of the NUC task
- Offload CI processing to a CI FSS address space
- Reduce the number of jobs in the system
- Avoid using dynamic writers.

JES3 WORKING SET



AVERAGE WORKING SET SIZE = 9236K
 MINIMUM WORKING SET SIZE = 8888K
 MAXIMUM WORKING SET SIZE = 10028K
 NUMBER OF FIXED PAGES = 33 = 132K
 AUXILIARY SLOT COUNT = 0 = 0K
 THE ALLOCATED STORAGE FOR JMF IS 331K

JES3 PAGING COUNTS DURING JMF MONITORING

PAGE-IN'S = 0
 PAGE-OUT'S = 0
 PAGE-RECLAIM'S = 0
 PAGING RATE = .00 PAGES/SECOND

SYSTEM PAGING RATE (NON-SWAP, NON VIO)

PAGING RATE = .00 PAGES/SECOND

The Working Set Section provides you with information on the real storage requirements of the JES3 global address space. The Working Set Section gives you an approximation of JES3's real storage requirement.

Notes for the Working Set Section:

JMF illustrates how real storage is used in a histogram. Each asterisk in the histogram represents 2.5 % of the sampling time JMF found JES3 using the specified amount of real storage. The amount of time JES3 used real storage should total 100%. For example, for the graph shown above:

- 10% of the time JMF was taking samples, JES3 used 8900 kilobytes of real storage.

System Report

- 15% of the time JMF was taking samples, JES3 used 9000 kilobytes of real storage.
- 12.5% of the time JMF was taking samples, JES3 used 9100 kilobytes of real storage.
- 22.5% of the time JMF was taking samples, JES3 used 9200 kilobytes of real storage.
- 12.5% of the time JMF was taking samples, JES3 used 9300 kilobytes of real storage.
- 22.5% of the time JMF was taking samples, JES3 used 9400 kilobytes of real storage.
- 2.5% of the time JMF was taking samples, JES3 used 9500 kilobytes of real storage.

The JES3 Monitoring Facility (JMF) histogram for the JES3 WORKING SET can map working set sizes in the range of 1000K to 999999K. Working set sizes larger than 999999K are included in the maximum value on the histogram.

Description of the Working Set:

AVERAGE WORKING SET SIZE = nnnn K - is the average of amount of real storage JES3 used

MINIMUM WORKING SET SIZE = nnnn K - is the least amount of real storage JES3 used

MAXIMUM WORKING SET SIZE = nnnn K - is the largest amount of real storage JES3 used

NUMBER OF FIXED PAGES = nn = nn K - the number of fixed pages of real storage JES3 used.

AUXILIARY SLOT COUNT = nn = nn K FOR JMF - is the number of slots that JES3 used on your installation's auxiliary paging devices.

THE ALLOCATED STORAGE FOR JMF nnn K - indicates the amount of storage JMF used while monitoring JES3. This number is based on the amount of virtual storage used instead of the amount of real storage.

JES3 PAGING COUNTS DURING JMF MONITORING indicates the number of times JES3 pages were paged in and out of storage.

- PAGE-IN'S = nn - indicates the number of times the system brought a JES3 page from auxiliary storage into real storage.
- PAGE-OUT'S = nn - indicates the number of times the system moved a page of real storage to auxiliary storage.
- PAGE-RECLAIMS = nn - indicates the number of JES3 pages in real storage that were either marked to be release or released and later reclaimed by JES3.
- PAGING-RATE = .nn % PAGE/SECOND - indicates the number of JES3 pages that were paged in and out per second. See the tuning information for this section if the paging rate is above 5%.
- SYSTEM PAGING RATE = nn PAGES/SECOND - indicates the number of pages of storage the system paged per second.

Tuning Information:

If the paging rate is less than 5 pages/second, JES3 is able to obtain enough real storage. If the paging rate is above 5 pages/second, JES3 cannot obtain enough real storage and you may be experiencing a degradation in JES3's performance.

If you are experiencing a problem with the amount of real storage JES3 is able to use, use storage isolation to ensure JES3 has enough real storage for its operation. See *z/OS MVS Initialization and Tuning Guide* for additional information on storage isolation.

JES3 SUBTASKS POSTED CONCURRENTLY

NUMBER OF SUBTASKS	1	2	3	4 OR MORE
CONCURRENTLY POSTED	15.11 %	.68 %	.03 %	.00 %

JES3 SUBTASKS IN DISPATCHING SEQUENCE

SUBTASK	% POSTED
1 IATNUC	14.90 %
2 IATGSC1	.28 %
3 IATGSC1	.00 %
4 IATIISB	.00 %
5 IATIIST	.04 %
6 IATIIST	.00 %
7 IATAUX	.00 %
8 IATGSC1	.02 %
9 IATLVLC	1.23 %
10 IATGSC1	.00 %
11 IATGSC1	.00 %
12 IATGSC1	.00 %
13 IATGSC1	.03 %
14 IATIIST	.00 %
15 IATIIST	.02 %
16 IATIIST	.02 %
17 IATIIST	.00 %
18 IATIIST	.00 %

IATNUC POSTED BUT NO FCT POSTED = 30.67 %

IATAUX POSTED BUT NO FCT POSTED = .00 %

The JES3 Subtask Section contains information that describes the number of times JMF found a JES3 subtask posted during the JMF sampling period. The JES3 Subtask Section does not contain any information that you can use to diagnose or tune JES3, it provides only information.

Notes for the JES3 Subtask Section:

System Report

A subtask exists for each of the following JES3 functions:

- Processing that occurs under the JES3 main (Nuc) task
- Processing that occurs under the JES3 auxiliary (Aux) task
- Converter/Interpreter processing
- General routines for JES3 processing
- Locate processing used during C/I processing
- Main device scheduler (MDS) processing
- JESXCF communication
- SNA/RJP processing.

Description of the JES3 Subtask Section:

JES3 SUBTASKS POSTED CONCURRENTLY - indicates the number of JES3 subtasks that were found posted at the same time.

JES3 SUBTASKS IN DISPATCHING SEQUENCE - identifies the JES3 subtasks that run in the JES3 global address space. Each JES3 subtask is listed in the dispatching order with the percentage of time JMF found the subtask posted during the sampling time.

IATNUC POSTED BUT NO FCT POSTED = nn.nn% - provides the percentage of time JMF found the nucleus task posted but could not find an FCT posted that runs under the nucleus task.

IATAUX POSTED BUT NO FCT POSTED = nn.nn% - provides the percentage of time JMF found the auxiliary task posted but could not find an FCT posted that runs under the auxiliary task.

JES3 GLOBAL PROCESSOR DESCRIPTION

```

CPU MODEL = 3090                                REAL STORAGE SIZE = 63.5 MEGS
GLOBAL PROCESSOR CPU SERIAL NUMBER:  140410 (1)
                                       240410 (2)
JES3 CPU ID (FROM MAINPROC CARD):  JULLIET
MVS RELEASE = SP3.1.0
JES3 RELEASE = SP311
JES3 IS NOT IN THE APG PRIORITY LEVEL
JES3 IS NON-SWAPPABLE
JES3 DISPATCHING PRIORITY = 255

```

JMF OVERHEAD

```

MINIMUM = .001232 SEC.
MAXIMUM = .026496 SEC.
AVERAGE = .004736 SEC.   2.36 % OF JMF CYCLE TIME

```

MVS OVERHEAD

```

MINIMUM = .000224 SEC.
MAXIMUM = .012176 SEC.
AVERAGE = .000368 SEC.   .18 % OF JMF CYCLE TIME

```

The JES3 Global Processor Description section contains information for JES3 running on the global in your installation. It also describes the attributes of the JES3 global address space.

Notes for the JES3 Global Processor Section:

The amount of real storage available on the global is provided in this section. JMF describes the amount of real storage JES3 uses in the Working Set Section. The amount of real storage JES3 uses should not approach the amount of storage allocated to the global.

Description of the JES3 Global Processor Section:

CPU MODEL = modelno - identifies the model number of the central processing unit (CPU).

REAL STORAGE SIZE = nn.nn MEGS - is the amount of real storage for the CPU.

GLOBAL PROCESSOR CPU SERIAL NUMBER: sernum - identifies the serial number of the CPU.

JES3 CPU ID: sysname - provides the identifier your installation assigned to the global.

System Report

MVS RELEASE n.n - identifies the release level of MVS that is running on this main.

JES3 RELEASE SPnnn - identifies the release level of JES3 that is running on the main.

JES3 {IS NOT | IS } IN THE APG PRIORITY LEVEL - JES3 should be in the APG priority level. If it is not in the APG priority level, your installation may experience a performance degradation problem.

JES3 IS { SWAPPABLE | NON-SWAPPABLE } - indicates whether the JES3 address space is swappable.

JES3 DISPATCHING PRIORITY nnn - gives the dispatching priority MVS assigns to JES3.

JMF OVERHEAD provides the percentage of CPU time required by JMF to take samples.

- MINIMUM= .nnnn SEC - is the minimum amount of time JMF took to take a sample.
- MAXIMUM= .nnnn SEC - is the maximum amount of time JMF took to take a sample.
- AVERAGE= .nnnn SEC - is the average amount of time JMF took to take a sample.
- nn.nn% OF JMF INTERVAL TIME - is the percentage of time of the interval you specified on the *CALL JMF command.

MVS OVERHEAD gives the percentage of CPU time required by MVS to dispatch JMF. The amount of time required by MVS to dispatch JMF is from the time JMF is posted to the time MVS dispatches JMF.

- MINIMUM .nnnn SEC - is the minimum amount of time MVS took to dispatch JMF.
- MAXIMUM .nnnn SEC - is the maximum amount of time MVS took to dispatch JMF.
- AVERAGE .nnnn SEC - is the average amount of time MVS took to dispatch JMF.
- nn.nn% OF JMF CYCLE TIME - is the percentage of time MVS took to dispatch JMF. If the percentage of JMF cycle time is above 10%, you should adjust the cycle time and interval level on the *CALL JMF command so that it is within the acceptable range.

Tuning Information:

The amount of overhead for JMF and MVS should be less than 10%. If the amount of overhead for either MVS or JES3 is greater than 10%, you should adjust the INTERVAL and CYCLE parameter on the *CALL JMF command so that the amount of overhead is within the acceptable range.

```

FCT AND AWAIT REPORT
IATNUC
  MULTI-FUNCTION MONITOR
    ACTIVE                .28 % OF SAMPLES    1.13 % OF IATNUC
    SUSPENDED             .00 % OF SAMPLES
    IN OS WAIT            .00 % OF SAMPLES
  JES3 IRB'S
    IRB NAME              ACTIVE          SUSPENDED          OS WAIT
                          % OF SAMPLES  % OF SAMPLES      % OF SAMPLES
    ATIME                  .14 %          .00 %          .00 %
    TOTAL                  .14 %          .00 %          .00 %
IATAUX
  MULTI-FUNCTION MONITOR
    ACTIVE                .00 % OF SAMPLES    .00 % OF IATAUX
    SUSPENDED             .00 % OF SAMPLES
    IN OS WAIT            .00 % OF SAMPLES
  JES3 IRB'S
    IRB NAME              ACTIVE          SUSPENDED          OS WAIT
                          % OF SAMPLES  % OF SAMPLES      % OF SAMPLES
    NO IRB INFORMATION WAS FOUND.

```

The FCT and AWAIT Report provides information for CPU utilization of the IATNUC and IATAUX task. For each task, JMF reports on the multi-function monitor (MFM) and timer interrupt task (IRB) activity for each task.

Description of the FCT and AWAIT Report:

MULTI-FUNCTION MONITOR - provides information for JES3's dispatcher the multi-function monitor (MFM).

- ACTIVE nn.nn% of SAMPLES nn.nn% - provides the percentage of time during the JMF run that the MFM was active.
- nn.nn% of IATNUC - provides the amount of CPU time the MFM used.
- SUSPENDED nn.nn% OF SAMPLES - is the percentage of time during the JMF run that the MFM was suspended.
- IN OS WAIT nn.nn% OF SAMPLES - provides the percentage of time during the JMF run that the MFM was waiting to be posted.

JES3 IRB's - provides a table of information for the interrupt request blocks (IRB's) that JES3 uses.

IRB NAME - identifies the name of the IRB. JES3 uses the following IRBs:

- ATIME - is the ATIME service
- CE APG - is the channel-end appendage
- AE APG - is an abnormal appendage
- An address - indicates JMF was unable to identify the IRB

ACTIVE % OF SAMPLES - is the percentage of time the IRB was using the CPU during the JMF sampling period.

SUSPENDED % OF SAMPLES - is the percentage of time the IRB spent in a normal MVS WAIT state during the JMF sampling period.

System Report

OS WAIT % OF SAMPLES - is the percentage of time the IRB spent in a wait state other than a normal MVS WAIT period.

NO IRB INFORMATION WAS FOUND.			
1	DSP NAME IS CONCMD	DEVICE NAME IS **NONE**	FCT PRY IS 254
	FCT ON FCT CHAIN	100.00 % OF SAMPLES	
	FCT IN NUC MODE	100.00 % OF SAMPLES	
	FCT IN AUX MODE	.00 % OF SAMPLES	
	ACTIVITY UNDER IATNUC TASK		
	FCT POSTED - ACTIVE	.00 % OF SAMPLES	.00 %
	FCT POSTED - NOT ACTIVE	.00 % OF SAMPLES	
	FCT NOT POSTED	100.00 % OF SAMPLES	
	FCT IN OS WAIT	.00 % OF SAMPLES	
	FCT SUSPENDED-LOCAL LOCK REQ	.00 % OF SAMPLES	
	FCT SUSPENDED-OTHER	.00 % OF SAMPLES	
	AWAIT IS WAIT FOR WORK OR STANDARD FCT AWAIT		
	AWAIT IN USE	100.00 % OF SAMPLES	
	AWAIT POSTED - ACTIVE	.00 % OF SAMPLES	.00 %
	AWAIT POSTED - NOT ACTIVE	.00 % OF SAMPLES	
	AWAIT NOT POSTED	100.00 % OF SAMPLES	
	AVERAGE AWAIT DURATION	6.93 SEC.	
	TOTAL AWAIT DURATION	20.80 SEC.	
	MAXIMUM AWAIT DURATION	14.40 SEC.	

2	DSP NAME IS CONSERV	DEVICE NAME IS **NONE**	FCT PRY IS 254
	FCT ON FCT CHAIN	100.00 % OF SAMPLES	
	FCT IN NUC MODE	100.00 % OF SAMPLES	
	FCT IN AUX MODE	.00 % OF SAMPLES	
	ACTIVITY UNDER IATNUC TASK		
	FCT POSTED - ACTIVE	.05 % OF SAMPLES	1.05 % OF IATNUC .05 % OF FCT
	FCT POSTED - NOT ACTIVE	.50 % OF SAMPLES	.50 % OF FCT
	FCT NOT POSTED	99.40 % OF SAMPLES	99.40 % OF FCT
	FCT IN OS WAIT	.00 % OF SAMPLES	.00 % OF FCT
	FCT SUSPENDED- LOCAL LOCK REQ	.03 % OF SAMPLES	.03 % OF FCT
	FCT SUSPENDED- OTHER	.00 % OF SAMPLES	.00 % OF FCT
	AWAIT IS WAIT FOR WORK OR STANDARD FCT AWAIT		
	AWAIT IN USE	99.96 % OF SAMPLES	99.96 % OF FCT
	AWAIT POSTED - ACTIVE	.05 % OF SAMPLES	1.05 % OF IATNUC .05 % OF FCT
	AWAIT POSTED - NOT ACTIVE	.50 % OF SAMPLES	.50 % OF FCT
	AWAIT NOT POSTED	99.40 % OF SAMPLES	99.40 % OF FCT
	AVERAGE AWAIT DURATION	.25 SEC.	
	TOTAL AWAIT DURATION	29 MIN. 17.20 SEC.	
	MAXIMUM AWAIT DURATION	7.80 SEC.	

The DSP Analysis Report detailed CPU utilization information for each DSP that runs under control of the JES3 or auxiliary task.

Notes for the DSP Analysis Report:

The DSP Analysis Report provided information for resident and nonresident DSPs on the FCT chain. JMF reports on each DSP as it is found on the FCT chain. The activity for resident DSPs should be 100%. Because nonresident DSPs are not always on the FCT chain, JMF reports on a nonresident DSPs only while the DSP is on the FCT chain.

Description of the DSP Analysis Report:

seq number - is a number JMF assigns to the DSP.

DSP NAME IS dspname - is the name of the DSP.

DEVICE NAME IS devname - is the name of the device that the DSP controls. If ****NONE**** appears as the device name, the DSP is not used to control a device.

FCT PRTY IS nnn - specifies the priority number assigned to the FCT that the DSP runs under.

FCT ON FCT CHAIN nnn.nn% - identifies the amount of time JMF found the FCT on the FCT chain during the sampling time.

FCT IN NUC MODE nnn.nn% - identifies the amount of time JMF found the DSP executing under control of the nucleus task.

FCT IN AUX MODE nnn.nn% identifies the amount of time JMF found the DSP executing under control on the auxiliary task.

ACTIVITY UNDER IATNUC TASK provides information on the FCT that the DSP runs under.

- FCT POSTED - ACTIVE nn.nn% OF SAMPLES - identifies the amount of time JMF found the FCT posted and processing work.
- FCT POSTED - NOT ACTIVE nn.nn % OF SAMPLES - identifies the amount of time JMF found the FCT not processing any work. This represents the amount of time the FCT may have be waiting for a resource or it may be an indication the FCT is in an infinite loop.
- FCT NOT POSTED nn.nn% OF SAMPLES - is the amount of time JMF found the FCT not posted for work.
- FCT IN OS WAIT nn.nn% OF SAMPLES - identifies the amount of time JMF found the FCT to be waiting for the completion of a request. The FCT could have been for waiting for spool I/O to complete or for a resource to be obtained.
- FCT SUSPENDED-LOCAL LOCK REQ nn.nn% OF SAMPLES - is the percentage of time the FCT was suspended while waiting for a local lock during the JMF sampling period.

JMF provides an AWAIT description when a JES3 DSP enters a wait state. JMF identifies each wait state and provides the percentage of samples JMF found the DSP to be in that wait state. The following is a list of some of the AWAIT descriptions that can appear in a JMF report. Macro IATYAWR contains a complete list of AWAIT reason codes and their associated descriptions.

AWAIT IS WAIT FOR WORK OR STANDARD FCT AWAIT

This AWAIT indicates the FCT is waiting for work. An FCT is busy when a FCT issues an AWAIT macro that causes the FCT to enter a wait state and the MFM to scan the FCT chain for a posted FCT. If an FCT is waiting for some event to complete, such as I/O completion, the FCT is considered to be busy because the FCT cannot process other requests.

If you subtract this percentage from 100%, the resulting percentage is the amount of time the FCT was busy processing a request or job.

AWAIT IS WAITING FOR JESREAD I/O COMPLETION - blockid

AWAIT IS WAITING FOR AWRITE I/O COMPLETION - blockid

AWAIT IS WAITING FOR WRTCHAIN I/O COMPLETION - blockid

These AWAITS indicate that the FCT is waiting for I/O activity for a single record file (SRF) to complete. It is the result of a JESREAD, AWRITE, or WRTCHAIN request. The JESREAD macro is used to read an SRF; the AWRITE and WRTCHAIN macro are used to write SRF's. If a control block id was

specified on the JESREAD, AWRITE, or WRTCHAIN request, it will appear in the "blockid" portion of the description text.

AWAIT IS WAITING FOR MULTI-RECORD FILE (MRF) INPUT I/O TO COMPLETE
AWAIT IS WAITING FOR MULTI-RECORD FILE (MRF) OUTPUT I/O TO COMPLETE

These AWAITS indicate that the FCT is waiting for I/O activity for a multi-record file (MRF) to complete. It is the result of an AOPEN, ALOCATE, ABLOCK, ADEBLOCK, ACLOSE, or ABACKR request.

AWAIT IS WAITING FOR A JOBTAT READ TO COMPLETE (FDBCLOSE)
AWAIT IS WAITING FOR A JOBTAT WRITE TO COMPLETE (FDBCLOSE)

These AWAITS indicate that the FCT is waiting for the JOBTAT to be read or written because of a spool space allocation request.

AWAIT IS WAITING FOR SPOOL SPACE TO BECOME AVAILABLE

This AWAIT indicates that there is not enough spool space available to process a spool space allocation request. If the TOTAL AWAIT DURATION is high, you may need to make more spool space available. This can be accomplished as follows:

- Use the AGE parameter on the *MODIFY,U command to cancel jobs that have held output on the queue for a specified number of days.
- Use the *MODIFY,Q,DD= to assign another volume to the spool partition that does not have enough spool space available.
- Use the *MODIFY,Q,SP= to assign an overflow spool partition to the spool partition that does not have enough spool space available.
- Perform a warm start and add a new spool data set.

AWAIT IS WAITING FOR A GENERALIZED SUBTASK TO BECOME AVAILABLE OR TO FINISH PROCESSING A REQUEST - function

This AWAIT indicates that the FCT is waiting for a generalized subtask to become available or for it to finish processing a request. There are only a limited number of generalized subtasks available. When they are all busy, the FCT will have to wait for its request to be processed. An FCT uses the IATXCSF macro to perform a function under a generalized subtask. The DESC parameter on the IATXCSF macro specifies a description of the function being subtasked. If the DESC was specified on the IATXCSF macro, it will appear in the "function" portion of the description text.

The following are examples of some of the functions that may appear in the AWAIT description:

- ALOAD-modname - The FCT is waiting for the specified module to be ALOADed.
- IATXSEC-index - The FCT is waiting for an IATXSEC (security) request to complete. The index value that appears after "IATXSEC" is the hexadecimal SXXINDEX value (from macro IATYSSX) that was specified on the IATXSEC request. The index value helps to determine what type of security related request was being performed. See macro IATYSSX for the meanings of the different SXXINDEX values.
- SYNCH IATXSMF - The FCT is writing an SMF record through the IATXSMF macro. The request is synchronous. That is, control will not be returned to the FCT until the subtask has processed the request.

AWAIT IS WAITING FOR EXCLUSIVE USE OF AN AENQ RESOURCE - resource
AWAIT IS WAITING FOR SHARED USE OF AN AENQ RESOURCE - resource

These AWAITS indicate that the FCT has issued an AENQ macro and is waiting for shared or exclusive use of the specified resource. One of the following resources will appear in the description:

- RQ
- DLQ
- JNCBCTL
- SYSUNIT
- CHPNT
- WTD
- FCT
- PRO
- SNARMVCB
- ICT
- LCLJNEWS
- RJPJNEWS
- TSOJNEWS
- FSSCKPT

AWAIT IS WAITING FOR A CATALOG LOCATE REQUEST TO COMPLETE

This AWAIT indicates the FCT is waiting because JES3 is attempting to locate information in the catalog for a data set. If the AVERAGE AWAIT DURATION is high, you may have not set up your installation's catalogs efficiently. See *z/OS JES3 Initialization and Tuning Guide* for information on setting up catalogs for JES3-managed data sets.

AWAIT IS WAITING FOR JOB NUMBERS TO BECOME AVAILABLE FOR AN AJOBNUM REQUEST (TVTJNMSK)

This AWAIT indicates that the FCT has issued an AJOBNUM macro to allocate a job number and there are no job numbers available.

AWAIT IS WAITING FOR A JDS TO BECOME AVAILABLE FOR A JDS RELATED MACRO REQUEST (RQJDSFCT)

AWAIT IS WAITING FOR ANOTHER FCT TO RELEASE CONTROL OF A JDS ENTRY (JDSDSPH)

These AWAITS indicate that the FCT has issued a JDS related macro such as JDSGET, JDSHOLD, or JESMSG and another FCT has control of the JDS.

AWAIT IS WAITING FOR A CELL WITHIN A CELLPOL TO BECOME AVAILABLE

This AWAIT indicates that the FCT has issued an IATXGCL request to obtain a cell from a cellpool, but there are no cells available.

AWAIT IS WAITING FOR FILE DIRECTORY ENTRIES TO BECOME AVAILABLE

This AWAIT indicates that there are no file directory entries available for the FCT to perform a spool I/O request. A file directory entry is needed typically when an FCT issues an AOPEN or WRTCHAIN request. If the TOTAL AWAIT DURATION is high, you may need to increase the number of file directory entries on the FD parameter of the BUFFER statement.

AWAIT IS WAITING FOR JSAM BUFFERS TO BECOME AVAILABLE

This AWAIT indicates that there are no JSAM buffers available for the FCT to perform a spool I/O request. A JSAM buffer is needed anytime an FCT wants to read or write a Single Record File or Multi-Record File. If the TOTAL AWAIT DURATION is high, you may need to increase the number of JSAM buffers on the PAGES parameter of the BUFFER statement.

AWAIT IS WAITING FOR ANOTHER FCT TO FINISH USING THE JNC B FOR A JNCBHLDD REQUEST

This AWAIT indicates that a JNCBHLDD request was issued to hold the JNCB

for a DJC net, but another FCT has control of the JNCB. A JNCBHLD request is issued before accessing the information associated with the DJC net.

AWAIT IS FCT IS IN SPECIALIZED RESCHEDULE AND IS WAITING FOR DEVICES TO BECOME AVAILABLE OR TO BE CANCELLED

This AWAIT indicates that the DSP is waiting because it was put into a specialized rescheduling state. For example, if the operator issues a command to start an unavailable device as a writer, JES3 places the writer in a specialized rescheduling state.

AWAIT IS X'nn' AT address

This AWAIT indicates JMF could not identify why the FCT is AWAITing.

- X'nn' identifies the ECF mask for the AWAIT
- address provides the address of the AWAIT

For each AWAIT description, JMF provides the following:

- AWAIT IN USE nn.nn% OF SAMPLES nn.nn% OF FCT - is the percentage of time the DSP was in a JES3 wait state.
- AWAIT POSTED - ACTIVE nn.nn% OF SAMPLES nn.nn% of IATNUC nn.nn% OF FCT - is the percentage of time the DSP was using the CPU during the JMF sampling period.
- AWAIT POSTED - NOT ACTIVE nn.nn% OF SAMPLES nn.nn% OF FCT - is the percentage of time the DSP was posted by not using the CPU during the JMF sampling period.
- AWAIT NOT POSTED nn.nn% OF SAMPLES nn.nn% OF FCT - is the percentage of time the DSP spent in a JES3 wait state during the sampling period.
- AVERAGE AWAIT DURATION nn MIN. nn.nn SEC. - is the average amount of time the FCT waited for each JES3 wait state to end.
- TOTAL AWAIT DURATION nn MIN. nn.nn SEC. - is the total amount of time the FCT waited for all the JES3 wait states to complete.
- MAXIMUM AWAIT DURATION nn MIN. nn.nn SEC. - is the longest amount of time the FCT waited for a JES3 wait state to end.
- mod + adr ECF - identifies the module that issued the AWAIT macro and the displacement into the module to the AWAIT return address.

SEQ NUM	DSPNAME	DEVICE	ALL VALUES ARE % OF SAMPLES											
			FCT PRI	FCT ON CHAIN	NUC MODE	AUX MODE	POSTED ACTIVE	POSTED NOT ACT	NOT OR POSTED	IN OS WAIT	POSTED ACTIVE	POSTED NOT ACT	NOT OR POSTED	IN OS WAIT
1	CONCMD	**NONE**	254	100.00	100.00	.00	.11	.84	99.01	.02				
2	CONSERV	**NONE**	254	100.00	100.00	.00	.63	2.76	96.38	.21				
3	TIMER	**NONE**	254	100.00	100.00	.00	.00	.00	100.00	.00				
4	READYQ	**NONE**	254	100.00	100.00	.00	.00	11.30	88.69	.00				
5	JSAM	**NONE**	250	100.00	100.00	.00	.96	12.03	86.96	.04				
6	CONSDM	**NONE**	240	100.00	100.00	.00	1.07	4.69	94.01	.21				
7	RJPCONS	**NONE**	240	100.00	100.00	.00	.00	.00	100.00	.00				
8	MAINIO	C00	053	100.00	100.00	.00	.11	.02	99.85	.00				
9	MAINIO	C70	053	100.00	100.00	.00	.00	.00	100.00	.00				
10	MAINIO	A1	053	100.00	100.00	.00	.00	.00	100.00	.00				
11	MAINIO	C50	053	100.00	100.00	.00	.00	.00	100.00	.00				
12	MAINIO	CD0	053	100.00	100.00	.00	.00	.00	100.00	.00				
13	MAINIO	C20	053	100.00	100.00	.00	.00	.00	100.00	.00				
14	MAINIO	A5	053	100.00	100.00	.00	.00	.00	100.00	.00				
15	MAINIO	A3	053	100.00	100.00	.00	.00	.00	100.00	.00				
16	MAINIO	CA0	053	100.00	100.00	.00	.00	.00	100.00	.00				
17	MAINIO	C60	053	100.00	100.00	.00	.00	.00	100.00	.00				
18	MAINIO	A7	053	100.00	100.00	.00	.00	.00	100.00	.00				
19	MAINIO	A6	053	100.00	100.00	.00	.00	.00	100.00	.00				
20	MAINIO	A0	053	100.00	100.00	.00	.00	.00	100.00	.00				
21	MAINIO	C10	053	100.00	100.00	.00	.00	.00	100.00	.00				
22	MAINIO	CE0	053	100.00	100.00	.00	.00	.00	100.00	.00				
23	MAINIO	A4	053	100.00	100.00	.00	.00	.00	100.00	.00				
24	MAINIO	C30	053	100.00	100.00	.00	.00	.00	100.00	.00				
25	MAINIO	Z0	053	100.00	100.00	.00	.00	.00	100.00	.00				
26	MAINIO	A2	053	100.00	100.00	.00	.00	.00	100.00	.00				
27	MAINIO	C40	053	100.00	100.00	.00	.00	.00	100.00	.00				
28	MAINIO	CC0	053	100.00	100.00	.00	.00	.00	100.00	.00				
29	MAINIO	C80	053	100.00	100.00	.00	.00	.00	100.00	.00				
30	MAINIO	CF0	053	100.00	100.00	.00	.00	.00	100.00	.00				
31	MAINIO	CB0	053	100.00	100.00	.00	.00	.00	100.00	.00				
32	MAINIO	C90	053	100.00	100.00	.00	.00	.00	100.00	.00				
33	MAINIO	SA0	053	100.00	100.00	.00	.00	.00	100.00	.00				
34	MAINIO	SC0	053	100.00	100.00	.00	.00	.00	100.00	.00				
35	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
36	MAIN	**NONE**	051	100.00	100.00	.00	.00	.02	99.97	.00				
37	MAIN	**NONE**	051	100.00	100.00	.00	.00	.02	99.97	.00				
38	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
39	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
40	MAIN	**NONE**	051	100.00	100.00	.00	.00	.04	99.95	.00				
41	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
42	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
43	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
44	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
45	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
46	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
47	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
48	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
49	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
50	MAIN	**NONE**	051	100.00	100.00	.00	.00	.04	99.95	.00				
51	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
52	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
53	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
54	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
55	MAIN	**NONE**	051	100.00	100.00	.00	.00	.02	99.97	.00				
56	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
57	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
58	MAIN	**NONE**	051	100.00	100.00	.00	.00	.02	99.97	.00				
59	MAIN	**NONE**	051	100.00	100.00	.00	.00	.02	99.97	.00				
60	MAIN	**NONE**	051	100.00	100.00	.00	.00	.00	100.00	.00				
61	MAIN	**NONE**	051	100.00	100.00	.00	.39	3.04	96.45	.09				
62	DYNAL	DYN	035	100.00	100.00	.00	.30	1.24	98.38	.07				
63	ARMDRVR	**NONE**	034	100.00	100.00	.00	.00	.00	100.00	.00				
64	CIDRVR	**NONE**	032	100.00	100.00	.00	.04	.65	99.24	.04				
65	OUTSERV	AID	030	100.00	100.00	.00	.11	.42	99.43	.02				
66	VERIFY	**NONE**	030	100.00	100.00	.00	.00	.00	100.00	.00				
67	SETUP	S	030	100.00	100.00	.00	2.95	.96	96.03	.04				
68	OUTSERV	**NONE**	030	100.00	100.00	.00	.00	.02	99.97	.00				
69	OUTSERV	**NONE**	030	100.00	100.00	.00	.00	.02	99.97	.00				

System Report

70	OUTSERV	**NONE**	030	100.00	100.00	.00	.00	.00	100.00	.00
71	OUTSERV	**NONE**	030	100.00	100.00	.00	.00	.02	99.97	.00
72	PURGE	**NONE**	030	5.83	5.83	.00	.30	.75	4.76	.02
73	PURGE	**NONE**	030	.49	.49	.00	.00	.04	.42	.02
74	BDT	**NONE**	025	100.00	100.00	.00	.00	.00	100.00	.00
75	BDTCOMM	**NONE**	025	100.00	100.00	.00	.00	.04	99.95	.00
76	MODDRVR	**NONE**	015	100.00	100.00	.00	.02	.02	99.95	.00
77	INQDRVR	**NONE**	014	100.00	100.00	.00	.00	.00	100.00	.00
78	WTDDRVR	**NONE**	012	100.00	100.00	.00	.35	.44	99.03	.16
79	PSODRVR	**NONE**	012	100.00	100.00	.00	.02	.02	99.95	.00
80	TSODRVR	**NONE**	012	100.00	100.00	.00	.00	.00	100.00	.00
81	PSODSP	**NONE**	011	100.00	100.00	.00	.00	.04	99.92	.02
82	PSODSP	**NONE**	011	100.00	100.00	.00	.00	.00	100.00	.00
83	POSTSCAN	**NONE**	007	20.37	20.37	.00	.35	2.76	17.19	.07
84	CI	**NONE**	007	6.40	6.40	.00	.09	.53	5.74	.02
85	POSTSCAN	**NONE**	007	4.01	4.01	.00	.09	.37	3.47	.07
86	CICLENUM	**NONE**	007	1.21	1.21	.00	.09	.09	1.03	.00
87	POSTSCAN	**NONE**	007	1.31	1.31	.00	.00	.16	1.14	.00
88	POSTSCAN	**NONE**	007	1.24	1.24	.00	.00	.14	1.10	.00
89	CICLENUM	**NONE**	007	.04	.04	.00	.00	.00	.04	.00
90	LOCATE	**NONE**	005	100.00	100.00	.00	.00	.00	100.00	.00
91	MSGC	**NONE**	004	100.00	100.00	.00	.14	1.66	98.14	.04
92	DMJA	**NONE**	004	100.00	100.00	.00	.44	3.42	95.94	.18
93	DMJA	**NONE**	004	100.00	100.00	.00	.14	.79	99.01	.04
94	DMJA	**NONE**	004	100.00	100.00	.00	.02	.28	99.69	.00
95	DMJA	**NONE**	004	100.00	100.00	.00	.00	.04	99.90	.04
96	DMJA	**NONE**	004	100.00	100.00	.00	.00	.00	100.00	.00
97	DMJA	**NONE**	004	100.00	100.00	.00	.00	.00	100.00	.00
98	DMJA	**NONE**	004	100.00	100.00	.00	.00	.00	100.00	.00
99	INTRDR	**NONE**	004	4.33	4.33	.00	.02	.16	4.12	.02
100	INTRDR	**NONE**	004	8.53	8.53	.00	.02	.18	8.32	.00
101	INTRDR	**NONE**	004	5.48	5.48	.00	.02	.23	5.20	.02
102	INTRDR	**NONE**	004	6.40	6.40	.00	.09	.32	5.98	.00
103	ISDRVR	**NONE**	004	3.68	3.68	.00	.02	.14	3.49	.02
104	INTRDR	**NONE**	004	10.60	10.60	.00	.09	.25	10.24	.00
105	INTRDR	**NONE**	004	4.90	4.90	.00	.02	.04	4.83	.00
106	INTRDR	**NONE**	004	9.87	9.87	.00	.14	.37	9.35	.00
107	INTRDR	**NONE**	004	1.19	1.19	.00	.02	.00	1.17	.00
108	INTRDR	**NONE**	004	9.35	9.35	.00	.11	.23	9.00	.00
109	INTRDR	**NONE**	004	1.96	1.96	.00	.00	.02	1.94	.00
110	INTRDR	**NONE**	004	.77	.77	.00	.00	.02	.75	.00
111	INTRDR	**NONE**	004	37.19	37.19	.00	.21	.30	36.67	.00
112	ISDRVR	**NONE**	004	.25	.25	.00	.00	.00	.25	.00
113	INTRDR	**NONE**	004	6.42	6.42	.00	.16	.25	5.98	.02
114	INTRDR	**NONE**	004	14.28	14.28	.00	.23	.39	13.60	.04
115	INTRDR	**NONE**	004	4.43	4.43	.00	.02	.14	4.26	.00
116	INTRDR	**NONE**	004	6.89	6.89	.00	.04	.30	6.54	.00
117	INTRDR	**NONE**	004	1.78	1.78	.00	.00	.09	1.68	.00
118	INTRDR	**NONE**	004	1.36	1.36	.00	.04	.02	1.28	.00
119	INTRDR	**NONE**	004	2.79	2.79	.00	.02	.23	2.53	.00
120	INTRDR	**NONE**	004	9.12	9.12	.00	.04	.14	8.93	.00
121	INTRDR	**NONE**	004	1.47	1.47	.00	.00	.00	1.47	.00
122	INTRDR	**NONE**	004	.42	.42	.00	.00	.00	.42	.00
123	INTRDR	**NONE**	004	.32	.32	.00	.00	.02	.30	.00
124	INTRDR	**NONE**	004	11.30	11.30	.00	.02	.32	10.92	.02
125	INTRDR	**NONE**	004	10.10	10.10	.00	.09	.21	9.80	.00
126	INTRDR	**NONE**	004	35.76	35.76	.00	.46	1.07	34.09	.11
127	INTRDR	**NONE**	004	2.53	2.53	.00	.00	.04	2.48	.00
128	INTRDR	**NONE**	004	.53	.53	.00	.00	.07	.46	.00
129	INTRDR	**NONE**	004	.46	.46	.00	.00	.02	.44	.00
130	INTRDR	**NONE**	004	5.18	5.18	.00	.07	.09	5.01	.00
131	INTRDR	**NONE**	004	11.81	11.81	.00	.09	.37	11.25	.09
132	INTRDR	**NONE**	004	2.29	2.29	.00	.02	.09	2.18	.00
133	INTRDR	**NONE**	004	.14	.14	.00	.00	.00	.14	.00
134	INTRDR	**NONE**	004	.11	.11	.00	.00	.00	.11	.00
135	JSS	**NONE**	002	100.00	100.00	.00	.39	2.25	97.30	.04
136	GENSERV	**NONE**	002	100.00	100.00	.00	.00	.00	100.00	.00
137	FAILSOFT	**NONE**	001	100.00	100.00	.00	.00	.00	100.00	.00
138	WAIT	**NONE**	000	100.00	100.00	.00	.96	98.21	.00	.82
139	WAIT	**NONE**	000	100.00	.00	100.00	.00	100.00	.00	.00

The FCT Summary Report summarizes the information provided in DSP Analysis Report in a chart. You can use this chart to obtain an overview of the work distribution in your complex.

The FCT Summary Report contains information for your installation. It does not contain any information that you can use to tune or diagnose your system.

Notes for the FCT Summary Report:

You can use this report with the FCT and AWAIT Highlight Report to get a quick overview of the distribution of the JES3's work and potential problem areas in your installation. For more detailed information on each DSP, see to the DSP Analysis Report.

Description of the FCT Summary Report:

SEQ NUM nn - is the sequence number assigned by JMF to the FCT on the FCT chain. This sequence number matches the DSP sequence number in the DSP Analysis Report.

DSPNAME dspname - is the name of DSP that runs under the control of the FCT.

DEVICE dev - is the device or main associated with the FCT.

FCTPRI nnn - is the priority of the FCT on the FCT chain.

FCT ON CHAIN nnn.nnn - is the amount of time the FCT remained on the FCT chain. 100.00% should appear for all the permanently resident FCTs in your installation.

NUC MODE nnn.nn - is the percentage of time the FCT executed in the JES3 nucleus task.

AUX MODE nnn.nn - is the percentage of time the FCT executed in the auxiliary task.

IATNUC and IATAUX ACTIVITY nn.nn - provides detailed summary information of the processing in the nucleus (IATNUC) or auxiliary (IATAUX) task.

- POSTED ACTIVITY nnn.nn - is the percentage of time the FCT was using the CPU while executing in the nucleus or auxiliary task during the JMF sampling period.
- POSTED NOT ACT nnn.nn - is the percentage of time the FCT was posted by not using the CPU while running under the nucleus or auxiliary task during the JMF sampling period.
- NOT POSTED nnn.nn - is the percentage of time the FCT spent in a normal MVS wait while running under the nucleus or auxiliary task during the JMF sampling period.
- SUSPENDED OR IN OS WAIT nnn.nn is the percentage of time the FCT was spent in a wait state other than the normal MVS wait state while running under the nucleus or auxiliary task during the JMF sampling period.

System Report

FCT AND AWAIT HIGHLIGHTS

THE 5 MOST ACTIVE FCT'S IN IATNUC

SEQ NUM	DSP NAME	FCT POSTED - ACTIVE	
5	CONSDM	.60 % OF SAMPLES	11.18 % OF IATNUC
4	JSAM	.51 % OF SAMPLES	9.49 % OF IATNUC
2	CONSERV	.42 % OF SAMPLES	7.80 % OF IATNUC
19	MAIN	.29 % OF SAMPLES	5.48 % OF IATNUC
64	DMJA	.25 % OF SAMPLES	4.64 % OF IATNUC

THE 5 MOST ACTIVE FCT'S IN IATAUX

SEQ NUM DSP NAME FCT POSTED - ACTIVE
NO FCTS WERE EVER ACTIVE IN IATAUX

THE 5 MOST 'POSTED AND NOT ACTIVE' FCT'S IN IATNUC

SEQ NUM	DSP NAME	FCT POSTED - NOT ACTIVE	
3	READYQ	3.59 % OF SAMPLES	
4	JSAM	3.20 % OF SAMPLES	
5	CONSDM	1.41 % OF SAMPLES	
64	DMJA	1.19 % OF SAMPLES	
19	MAIN	1.09 % OF SAMPLES	

THE 5 MOST 'POSTED AND NOT ACTIVE' FCT'S IN IATAUX

SEQ NUM DSP NAME FCT POSTED - NOT ACTIVE
NO FCTS WERE EVER POSTED - NOT ACTIVE IN IATAUX

THE 5 MOST 'IN OS WAIT' FCT'S IN IATNUC

SEQ NUM DSP NAME FCT IN OS WAIT
NO FCTS WERE EVER IN OS WAIT IN IATNUC

THE 5 MOST 'IN OS WAIT' FCT'S IN IATAUX

SEQ NUM DSP NAME FCT IN OS WAIT
NO FCTS WERE EVER IN OS WAIT IN IATAUX

THE 10 BIGGEST JES3 AWAIT BOTTLENECKS

SEQ NUM	DSP NAME	TASK	TOTAL AWAIT DURATION	MAX AWAIT D
50	POSTSCAN	IATNUC	27.40 SEC.	1.60 SEC.
		WAITING FOR A CATALOG LOCATE REQUEST TO COMPLETE		
51	POSTSCAN	IATNUC	25.60 SEC.	1.40 SEC.
		WAITING FOR A CATALOG LOCATE REQUEST TO COMPLETE		
63	ISDRVR	IATNUC	23.40 SEC.	3.00 SEC.
		WAITING FOR EXCLUSIVE USE OF AN AENQ RESOURCE - JNCBCTL		
66	ISDRVR	IATNUC	22.20 SEC.	2.60 SEC.
		WAITING FOR EXCLUSIVE USE OF AN AENQ RESOURCE - JNCBCTL		
62	ISDRVR	IATNUC	21.20 SEC.	3.40 SEC.
		WAITING FOR EXCLUSIVE USE OF AN AENQ RESOURCE - JNCBCTL		
65	ISDRVR	IATNUC	20.20 SEC.	2.60 SEC.
		WAITING FOR EXCLUSIVE USE OF AN AENQ RESOURCE - JNCBCTL		

NO MORE AWAIT BOTTLENECKS

The FCT and AWAIT Highlight section quickly identifies for you the FCTs that potentially cause problems in your installation. JMF identifies at the most 5 FCTs that:

- Were the most active
- Were posted but were in a normal MVS wait state
- Were posted but in a state other than a normal MVS wait state

The FCT and AWAIT Highlight Report also identifies the ten areas that might be experiencing a backlog of jobs.

Notes for the FCT AWAIT Highlight Report:

You can use this report with the FCT and AWAIT Highlight Report to get a quick overview of the distribution of the JES3's work and potential problem areas in your installation. For more detailed information on each DSP, see the DSP Analysis Report.

Description of the FCT and AWAIT Highlight Report:

SEQ NUM nn - is the sequence number JMF assigned to the DSP. This is the same number that identifies the DSP in the DSP Analysis Report and the FCT Summary Report.

DSP NAME dspname - identifies the DSP by its name.

FCT POSTED - ACTIVE nn.nn % OF SAMPLES nn.nn% OF TASK - is the percentage of time the FCT used the CPU during the JMF sampling period. nn.nn% OF SAMPLES is the percentage of time the FCT was using the CPU while running under the nucleus or auxiliary task during the JMF sampling period. nn.nn% of TASK is the percentage of time the FCT was using the CPU while running under the nucleus or auxiliary task while the task was active.

FCT POSTED - NOT ACTIVE nn.nn % OF SAMPLES nn.nn% OF TASK - is the percentage of time the FCT spent in a normal MVS wait state during the JMF sampling period. nn.nn% OF SAMPLES is the percentage of time the FCT spent in a normal MVS wait state while running under the nucleus or auxiliary task during the JMF sampling period. nn.nn% of TASK is the percentage of time the FCT spent in a wait state while running under the nucleus or auxiliary task while the task was active.

Description for The 10 Biggest JES3 AWAIT Bottlenecks Section:

SEQ NUM nn - is the sequence number JMF assigned to the DSP. This is the same number that identifies the DSP in the DSP Analysis Report and the FCT Summary Report.

DSP NAME dspname - identifies the DSP by its name.

TASK taskname - identifies either the nucleus or auxiliary task as the task the FCT was running under.

REASON rsn - identifies the resource that caused the FCT to be in a normal MVS wait state.

TOTAL AWAIT DURATION nn.nn SECS - is the total amount of time the FCT spent in a normal MVS wait state before JES3 obtained the resource for the FCT.

System Report

MAX WAIT DURATION nn MIN. nn.nn SEC. - is the maximum amount of time the FCT spent in a normal MVS wait state before JES3 obtained the resource for the FCT.

DMJA FCT SUMMARY

MAXIMUM ACTIVE DMJA FCTS ALLOWED	10
MINIMUM NUMBER OF ACTIVE DMJA FCTS	10
MAXIMUM NUMBER OF ACTIVE DMJA FCTS	10
AVERAGE NUMBER OF ACTIVE DMJA FCTS	10

The DMJA FCT Summary provides information on the activity of the DMJA FCTs in your installation. The DMJA FCT receives control to process a job's SYSIN or SYSOUT data sets.

Description of the DMJA FCT Summary Report:

MAXIMUM ACTIVE DMJA FCTS ALLOWED nn - is the maximum number of DMJA FCTs that can be active concurrently in your system. The maximum number of FCTs allowed in your installation is defined in the DSP dictionary, IATGRPT. You can issue a *I,X,D=DMJA command to determine the maximum number of DMJA FCTs that can be active concurrently in your system.

If you need to increase the number of DMJA FCTs that can run concurrently in your system, you can use the *F,X,D=DMJA,MC=nn to increase the maximum count for the DMJA FCT.

MINIMUM NUMBER OF ACTIVE DMJA FCTS nn - is the least number of DMJA FCTs that were active concurrently in your system.

MAXIMUM NUMBER OF ACTIVE DMJA FCTS nn - is the most number of DMJA FCTs that were active concurrently in your system.

AVERAGE NUMBER OF ACTIVE DMJA FCTS nn - is the average number of DMJA FCTs that were active concurrently in your system.

Tuning Information:

If the average number of active DMJA FCTs is close to the maximum number of DMJA FCTs allowed in your installation, your installation may be experiencing a bottleneck processing the SYSIN and SYSOUT data sets created in your installation. You may want to:

- Locate any jobs that are creating large number of SYSOUT data sets and determine if the data sets are necessary.
- Consider altering the maximum number of DMJA FCTs allowed in your installation. You can alter the number of DMJA FCTs that can run concurrently in your system by entering an *F,X,D=DMJA,MC=nn command.

JES3 WAIT ANALYSIS

```

DSP NAME IS CONSERV      FCT SEQUENCE NUMBER = 2      TASK = IATNUC
FCT IN OS WAIT          .02 %
SVC 56 (ENQ            ) AT 00E56F34 UNKNOWN + 00E56F34 COUNT = 1

```

The JES3 WAIT Analysis Section identifies the reasons for a nonstandard MVS wait occurrences for each DSP within JES3. The DSP Analysis Report contains summary information for the DSP's wait occurrences. You may find a JES3 formatted dump useful when using this section of the JMF report.

Description of the JES3 Wait Analysis Section:

DSP NAME IS dspname - identifies the DSP that encountered a nonstandard MVS WAIT.

FCT SEQUENCE NUMBER = nn - identifies the FCT that the DSP was running under. The FCT sequence number matches the sequence number JMF assigned to the FCT in the DSP Analysis Report.

TASK = {IATNUC | IATAUX } - identifies the task the FCT was running under.

FCT IN OS WAIT nn% - provides the percentage of time the DSP caused the FCT to enter a nonstandard MVS wait state for a required resource.

PAGE FAULT AT adr1 module + adr2 - identifies the location in JES3 where the nonstandard MVS wait state occurred. adr1 is the base address of the module. module identifies the name of the module that was running under the FCT when the nonstandard MVS wait state occurred. If JMF is unable to identify where the module resides, it assigns a base address of X'00'. adr2 is the offset into the module.

COUNT= nn - indicates the number of times the DSP entered a nonstandard MVS wait state at that point in JES3 processing.

JES3 SPOOL DATA MANAGEMENT REPORT

SDM PARAMETERS

```

SPOOL BUFFER SIZE = 4084 BYTES
NUMBER OF BUFFERS PER 4K PAGE = 2
FILE DIRECTORY ENTRIES = 256
NUMBER OF SPOOL DATA SETS IN USE = 21

NUMBER OF JSAM BUFFERS = 768
THRESHOLD FOR JSAM MINBUF CONDITION = 24 BUFFERS

NUMBER OF PROTECTED USAM BUFFERS = 512 IN CSA + 1024 IN AUX
NUMBER OF UNPROTECTED USAM BUFFERS PER OPEN USAM DATA SET = 8
MAX DATA BYTES IN A USAM BUFFER = 4044

```

System Report

The SDM Parameters Section summarizes all the spool-related information that your installation specified in the JES3 initialization stream.

The SDM Parameters Section contains information for your installation. It does not contain any information you can use to tune or diagnose your system.

Description of the SDM Parameters Section:

SPOOL BUFFER SIZE = nnnn BYTES - is the size of the JSAM and USAM spool buffers. Your installation specifies the buffer size by using the BUFFER statement.

NUMBER OF BUFFERS PER 4K PAGE = n - is the number of buffers that can be contained in a page of memory. JES3 calculates this number. 2 or 1 are the only acceptable values.

FILE DIRECTORY ENTRIES = nnn - is the number of file directory entries that your installation has allocated. File directories are used to represent any open multi-record files (MRFs). Your installation specifies the number of file directory entries on the FD parameter of the BUFFER statement.

NUMBER OF SPOOL DATA SETS IN USE = n - is the number of spool data sets JES3 has opened to perform spool I/O. 0 and 1 are unacceptable values because JES3 always opens the JCT data set.

NUMBER OF JSAM BUFFERS = nnn - is the number of JSAM buffers allocated in your installation.

THRESHOLD FOR JSAM MINBUF CONDITION = nn BUFFERS - is the number of buffers your installation specified as the minimal buffer condition. Your installation specifies this number on the MINBUF initialization statement.

NUMBER OF PROTECTED USAM BUFFERS = nn IN CSA + nn IN AUX - specifies the number of buffers JES3 has allocated for the installation in CSA and the JES3 auxiliary address space. You used the PRTPAGE parameter on the MAINPROC statement to identify the number of protected USAM buffers to allocate in CSA and in the auxiliary address space.

NUMBER OF UNPROTECTED USAM BUFFERS PER OPEN USAM DATA SET = nn - is the number of unprotected USAM buffers that are opened for each SYSIN and SYSOUT data set.

MAX DATA BYTES IN A USAM BUFFER = nnnn - is the number of bytes of the user's data that can be placed in a USAM buffer. JES3 always reserves some space in a USAM buffer for single record file (SRF) prefix.

SPOOL DATA SET DESCRIPTION													
DATA SET NUMBER	DDNAME	PARTITION NAME	STATUS	DEVICE ADDRESS	VOLSER	DEVICE TYPE	***** RANGE *****				RECS PER TRACK	RECS PER TRK GROUP	BUFFER SIZE (BYTES)
							LOW CYL	HEAD	HIGH CYL	HEAD			
2	SP00L1	PART1	IN USE	0982	SP00L1	3390	0000009	0	000002B	E	12	12	40
3	SP00L2	PART2	IN USE	0483	SP00L2	3390	0000001	0	0000008	E	12	12	40
4	SP00L3	PART3	IN USE	0484	SP00L3	3390	0000001	0	0000008	E	12	12	40
5	SP00L4	PART1	IN USE	0485	SP00L4	3390	0000001	0	0000008	E	12	12	40
6	SP00L5	PART5	IN USE	0486	SP00L5	3390	0000001	0	0000008	E	12	12	40

The Spool Data Set Description Section provides information on all the open data sets in JES3 spool except for the JCT data set.

The Spool Data set Description Section contains information for your installation. It does not contain any information that you can use to tune or diagnose JES3.

Description of the Spool Data set Description Section:

DATA SET NUMBER nn - is the number JES3 assigned to identify the data set.

DDNAME ddname - is the name your installation assigned to the data set.

PARTITION NAME partname - is the name of the partition that contains the data set.

STATUS status - provides the status of the data set. Possible states for the data set are IN USE or UNAVAIL.

DEVICE ADDRESS adr - is the address assigned to DASD.

VOLSER volser - is the serial identifier of the spool data set.

DEVICE TYPE devtype - is the device type of the spool data set.

RANGE - identifies the valid range of CCHH addresses for the spool data set. JMF expresses the CCHH addresses in hex.

RECS PER TRACK nn - identifies the number of records that can be contained on a track on the spool volume.

RECS PER TRACK GROUP nn - identifies the number of records that can be contained in a track group.

BUFFER SIZE (BYTES) nnnn - identifies the size of the spool buffer. This number should be the same as the number specified in SPOOL BUFFER SIZE in the SDM Parameters section.

System Report

SPOOL PARTITION DESCRIPTION

PARTITION NAME	SPLIM MIN	MARG	OVERFLOW PARTITION
PART1	3%	5%	*** DEFAULT ***
PART2	3%	5%	PART3
PART3	3%	5%	PART1
PART5	3%	5%	PART1
PART6	3%	5%	PART1

Spool Partition Description Section provides information for each spool partition in the spool environment. Your installation defines the characteristics of each spool partition by using the SPART initialization statement.

The Spool Partition Description Section contains information for your installation. It does not contain any information you can use to tune or diagnose JES3.

Description of the Spool Partition Description Section:

PARTITION NAME ccccccc - specifies the name of the spool partition. You used the NAME= parameter on the SPART statement to assign a name to the spool partition.

SPLIM - specifies the minimal and marginal percentage of spool space. You used the SPLIM= parameter to assign the minimal and marginal percentages to the spool partition. JES3 uses these percentages to

- Alert the operator a spool partition is reaching the limits you set.
- Determine when data should be written to a overflow partition.

OVERFLOW PARTITION ccccccc - identifies the spool partition that data will be written to if the specified partition becomes full or reaches the marginal condition. You used the OVRFL= parameter to specify the overflow partition.

SPOOL SPACE UTILIZATION SNAPSHOT

PARTITION NAME	DDNAME	**** DEFINED	TRACK ALLOTTED	GROUPS**** ALLOTTED
DRAINED				
UNAVAIL				
PART1	SP00L1	525	61	11%
	SP00L4	525	0	0%
PART2	SP00L2	120	0	0%
PART3	SP00L3	120	0	0%
PART4	SP00L4	120	0	0%
PART5	SP00L5	120	0	0%
PART6				

The Spool Space Utilization Snapshot Section provides information on how the spool space is being used in each spool partition.

The Spool Space Utilization Snapshot Section contains information for your installation. It does not contain any information that you can use to tune or diagnose JES3.

Description of the Spool Space Utilization Snapshot Section:

PARTITION NAME cccccc - is the name of the spool partition. You used the NAME= parameter on the SPART initialization statement to name the spool partition.

DDNAME ddname - is the name of the spool data set associated with the spool partition.

TRACK GROUPS - indicates the:

- Amount of a amount of available spool space assigned to the spool data set.
- Amount of spool space allocated.
- Percentage of spool space allocated in the partition.

SINGLE TRACK TABLE SPACE ALLOCATION SNAPSHOT

***** RANGE *****									
DATA SET	LOW	HIGH	RECORDS	RECORDS					
NUMBER	DDNAME	CYL	HEAD	CYL	HEAD	DEFINED	ALLOCATED		
2	SPOOL1	000001A	7	000001A	9	24	24	100%	
2	SPOOL1	000001A	D	000001A	E	12	12	100%	*** EXPANSION ***
2	SPOOL1	000001A	1	000001A	2	12	12	100%	*** EXPANSION ***
2	SPOOL1	0000018	9	0000018	A	12	9	75%	*** EXPANSION ***

The Single Track Table Space Allocation Snapshot Section describes JES3's use of the single track allocation tables. The single track tables (STTs) maintain a record of the space allocated to single record files (SRF). An example of an SRF is a JES3 control block. Spool space for the STT is defined on the STT or STTL parameter of the TRACK or FORMAT statement.

The Single Track Table Space Allocation Snapshot Section contains information that you can use to tune JES3.

Description of the Single Track Table Space Allocation Snapshot Section:

DATA SET NUMBER nn - identifies the spool data set where the SST spool space is allocated.

DDNAME cccccc - is the name of the data set.

RANGE CCHH - is the spool address allocated for the STT.

RECORDS DEFINED nnnn - is the number of records allocated as STT records.

System Report

RECORDS ALLOCATED nnnn nn% - is the number of records already allocated and the percentage of allocated records.

SPOOL I/O ACTIVITY - BUFFERS READ AND WRITTEN PER SECOND

VOLSER	DDNAME	TOTAL	LO # CYLS	2	3	4	5	6	7	8	9	HI # CYLS
SPOOL1	JES3JCT	4.96	.00	.00	.00	.00	4.96	.00	.00	.00	.00	.00
	SPOOL1	11.02	.00	.00	.00	3.04	7.97	.00	.00	.00	.00	.00
SPOOL2	SPOOL2	9.90	.00	.00	.00	4.92	4.97	.00	.00	.00	.00	.00
SPOOL3	SPOOL3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
SPOOL4	SPOOL4	12.34	.00	.00	.00	6.82	5.51	.00	.00	.00	.00	.00
SPOOL5	SPOOL5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

The Spool I/O Activity Section contains information on how JES3 distributed the data across spool.

The Spool I/O Activity Section contains information for your installation. It does not contain any information you can use to tune or diagnose JES3.

Notes for the Spool I/O Activity Section:

The Spool I/O Activity Section describes the amount of spool I/O JES3 performs to the installation's spool data sets. JMF sections the available portion of the spool data set into ten sections. JMF reports the spool I/O activity for each section of the spool data set. Additional information is also provided for the data sets in the Buffers Chaining By Spool Data Set Section.

Description of the Spool I/O Activity Section:

VOLSER volser - is the serial name given to the spool volume.

DDNAME ddname - is the name of the data set.

TOTAL nn.nn - is the number of buffers read or written to the data set per second.

LO # CYLS nn.nn - is the amount of time JES3 spent writing to the data set on extents numbered 0-1.

2 - 9 nn.nn - is the amount of time JES3 spent writing to the data set on extents numbered 2, 3, 4,

HI # CYLS nn.nn - is the amount of time JES3 spent writing to the data set on extents numbered 10 or higher.

BUFFER CHAINING BY SPOOL DATA SET

DATA SET NUMBER	TOTAL BUFFERS	1	2	3	4	5	6	7	8	9	10	11 OR M
1	8,955	8,891 99%	54 0%	6 0%	4 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%
2	19,896	15,433 77%	2,866 14%	828 4%	356 1%	115 0%	72 0%	28 0%	16 0%	27 0%	10 0%	145 0%
3	17,878	13,521 75%	2,800 15%	798 4%	276 1%	110 0%	66 0%	35 0%	40 0%	18 0%	10 0%	204 1%
4	0	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%
5	22,275	17,638	2,766	912	440	130	84	42	0	36	10	217

The Buffers Chaining by Spool Data set Section provides the number of buffers that were written to a spool data set.

Description of the Buffers Chaining By Spool Data set Section:

DATA SET NUMBER nn - is the number JMF assigns to identify a spool data set.

TOTAL BUFFERS nn - is the number of buffers that were written to or read from the spool data set.

1 - 11 or M n and n% - each number indicates the number of buffers on the chain that were written to the spool data set.

SDM EXCEPTIONAL CONDITIONS

JSAM BUFFERS NOT AVAILABLE = 0%

USAM BUFFERS NOT AVAILABLE = 0%

MINIMAL/MARGINAL TRACK CONDITIONS DID NOT OCCUR IN ANY PARTITION

AWAITS FOR BUFFERS DURING MONITORING 0 EVER = 00000000

The SDM Exceptional Conditions Section identifies the percentages of times a resource required to perform spool I/O was not available.

The SDM Exceptional Conditions Section contains information for your installation. It does not contain any information that you can use to tune or diagnose JES3.

Description of the SDM Exceptional Conditions Section:

JSAM BUFFERS NOT AVAILABLE = nn% - is the percentage of time during a JMF interval that a JSAM buffer was not available for spool I/O.

USAM BUFFERS NOT AVAILABLE = nn% - is the percentage of time during a JMF interval that a USAM buffer was not available for spool I/O.

MINIMAL/MARGINAL CONDITION = nn% - is the percentage of time during a JMF interval that JES3 could not perform spool I/O because the spool partition

System Report

was in a minimal or marginal condition.

RESQUEUE CELL POOL STATISTICS

TOTAL NUMBER OF CI SECONDARY EXTENTS IN POOL	=	0
TOTAL NUMBER OF CI RESQUEUEES IN POOL	=	104
TOTAL NUMBER OF CI RESQUEUEES USED IN POOL	=	1
NUMBER OF CI RESQUEUEES IN PRIMARY EXTENT	=	104
NUMBER OF CI RESQUEUEES FOR SECONDARY EXTENT	=	52
TOTAL NUMBER OF MAIN SECONDARY EXTENTS IN POOL	=	0
TOTAL NUMBER OF MAIN RESQUEUEES IN POOL	=	309
TOTAL NUMBER OF MAIN RESQUEUEES USED IN POOL	=	150
NUMBER OF MAIN RESQUEUEES IN PRIMARY EXTENT	=	309
NUMBER OF MAIN RESQUEUEES FOR SECONDARY EXTENT	=	106
TOTAL NUMBER OF OUTSERV SECONDARY EXTENTS IN POOL	=	4
TOTAL NUMBER OF OUTSERV RESQUEUEES IN POOL	=	1049
TOTAL NUMBER OF OUTSERV RESQUEUEES USED IN POOL	=	732
NUMBER OF OUTSERV RESQUEUEES IN PRIMARY EXTENT	=	409
NUMBER OF OUTSERV RESQUEUEES FOR SECONDARY EXTENT	=	160
NUMBER OF OUTSERV RESQUEUEES FOR SECONDARY EXTENT	=	160
NUMBER OF OUTSERV RESQUEUEES FOR SECONDARY EXTENT	=	160
NUMBER OF OUTSERV RESQUEUEES FOR SECONDARY EXTENT	=	160
NUMBER OF OUTSERV RESQUEUEES FOR SECONDARY EXTENT	=	160
TOTAL NUMBER OF COMMON SECONDARY EXTENTS IN POOL	=	0
TOTAL NUMBER OF COMMON RESQUEUEES IN POOL	=	110
TOTAL NUMBER OF COMMON RESQUEUEES USED IN POOL	=	2
NUMBER OF COMMON RESQUEUEES IN PRIMARY EXTENT	=	110
NUMBER OF COMMON RESQUEUEES IN SECONDARY EXTENT	=	55

The RQ Cellpool Usage Section summarizes the status of JES3's resqueue cell pools.

Each scheduler element (SE) that processes jobs requires its own resqueuees to process a job. During initialization, JES3 builds the C/I resqueue, MAIN resqueue, OUTSERV resqueue, and the COMMON resqueue cell pools. To process a job an SE obtains a resqueue from one or more of the resqueue cell pools. For example, if a job is being processed by the C/I SE, a resqueue is obtained from the CI, OUTSERV, and COMMON resqueue cell pools. If JES3 uses all the available resqueuees in a resqueue cell pool, JES3 allocates another resqueue cell pool. JMF summarizes extending the cell pools in the secondary extents description.

The RQ Cellpool Usage Section provides your installation with information. You cannot use the information in the RQ Cellpool Usage Section to tune or diagnose JES3.

Description of the RQ Cellpool Usage Section:

TOTAL NUMBER OF name SECONDARY EXTENTS IN POOL = nn - identifies the number of times JES3 had to extend the cell pool so that additional RESQUEUE could be obtained.

TOTAL NUMBER OF name RESQUEUEES IN POOL = nn - specifies the total number of RESQUEUEES in the pool.

TOTAL NUMBER OF name RESQUEUEES USED IN POOL = nn - is the number of RESQUEUEES that have been allocated from the cell pool.

NUMBER OF name RESQUEUEs IN PRIMARY EXTENT = nn - is the number of RESQUEUEs in the primary extent.

NUMBER OF name RESQUEUEs FOR SECONDARY EXTENT = nn - is the number of RESQUEUEs in the secondary extent.

JQE/JCT ACCESS METHOD REPORT

JCT DATA SET INFORMATION

JCT SIZE (WITH SRF PREFIX) = 416 BYTES
 NUMBER OF JCT READ I/O'S = 0
 NUMBER OF JCT WRITE I/O'S = 8955
 NUMBER OF JOBS ADDED = 1544
 NUMBER OF JOBS DELETED = 1115

JCT DATA SPACE INFORMATION

JCT DATA SPACE SIZE = 13.64 MEGABYTES

READ REQUESTS	NUMBER	PERCENT
PAGE IN REAL STORAGE	= 7458	99.90%
PAGE NOT IN REAL STORAGE	= 7	.09%

WRITE REQUESTS	NUMBER	PERCENT
PAGE IN REAL STORAGE	= 8881	99.17%
PAGE NOT IN REAL STORAGE	= 74	.82%

PAGE ALLOCATION	NUMBER	PERCENT
MINIMUM	= 61	.04%
AVERAGE	= 101	76.08%
MAXIMUM	= 120	99.99%

NUMBER OF PAGES RELEASED = 3

JQE INFORMATION

JQE0 TABLE SIZE = 1.60 KILOBYTES
 JQE1 TABLE SIZE = 4.09 KILOBYTES
 JQE2 TABLE SIZE = 65.53 KILOBYTES
 JQE3 TABLE SIZE = 262.14 KILOBYTES
 JQE4 TABLE SIZE = 2886.08 KILOBYTES

JQE4 ALLOCATION	NUMBER	UTILIZATION
MINIMUM	= 496	63.29%
AVERAGE	= 901	87.69%
MAXIMUM	= 1178	98.39%

The JQE/JCT Access Method Report provides information for the storage used by the JQE/JCT access method and is divided into the following sections:

- JCT Data Set Information
- JCT Data Space Information
- JQE Information

The JQE/JCT provides you with information that you can use to tune your installation.

Notes for the JQE/JCT Access Method Report:

JES3 obtains information from the JCT data space if the data space is active. If JES3 is not using the JCT data space, **THE JCT DATA SPACE IS DISABLED** appears under the heading for JCT Data Space Information. If JES3 is using the JCT data

space, the number of read requests for the JCT data set is 0, and JCT data set write operations occur continually to synchronize the JCT data between the JCT data space and the JCT data set.

See the Spool I/O Activity Report for information on the amount of I/O activity JMF recorded for the JCT data set.

Description of the JQE/JCT Access Method Report:

JCT DATA SET INFORMATION - provides information for your installation's JCT data set.

- JCT SIZE (WITH SRF PREFIX) = nn BYTES - is the size of the fixed portion of a job control block (JCT) including the single record file (SRF) for the JCT.
- NUMBER OF JCT READ I/O'S = nn - is the number of times JES3 has read from the JCT data set during the JMF interval. If JES3 is using the JCT data space, the value should be 0 because JES3 should be reading JCTs from the JCT data space.
- NUMBER OF JCT WRITE I/O'S = nn - is the number of times JES3 has updated the JCT data set during the JMF sample interval.
- NUMBER OF JOBS ADDED = nnnnnn - is the number of jobs that JES3 accepted into the system during the sample interval. When JES3 accepts a job into the system it creates a JCT for the job by issuing an IATXJCT TYPE=ADD macro. The number of jobs added indicates the number of times JES3 issued an IATXJCT TYPE=ADD macro.
- NUMBER OF JOBS DELETED = nnnnnn - is the number of jobs that were removed from the system. When JES3 removes a job from the system issuing an IATXJCT TYPE=DEL macro. The number of jobs deleted indicates the number of times JES3 issued a IATXJCT TYPE=DEL macro.

JCT DATA SPACE INFORMATION - provides information on your installation's JCT data space. JMF provides information for the JCT data space only if the JCT data space is being used.

- JCT DATA SPACE SIZE = .nn MEGABYTES - is the size of the JCT data space. See *z/OS JES3 Initialization and Tuning Guide* for information on how JES3 calculates the size of the JCT data space.
- READ REQUESTS - summarizes the number and the percentage of times JES3 read a JCT from the JCT data space during the JMF sample time.
 - PAGE IN REAL STORAGE - is the number and percentage of times during a JMF sampling period that JES3 could obtain information from a page in real storage.
 - PAGE NOT IN REAL STORAGE - is the number and percentage of times during a JMF sampling period that JES3 could not obtain information from a page in real storage.
- WRITE REQUESTS - summarizes the number and the percentage JES3 wrote a JCT to the JCT data space during the JMF sample time.
 - PAGE IN REAL STORAGE - is the number and percentage of times during a JMF sampling period that JES3 was able to write information to a page in real storage.
 - PAGE NOT IN REAL STORAGE - is the number and percentage of times during a JMF sampling period that JES3 was unable to write information to a page in real storage.
- PAGE ALLOCATION - indicates, by a number and a percentage, how well JES3 utilizes the pages allocated for the JCT data space.

- MINIMUM - is the least number of pages JES3 allocated for the JCT data space.
- AVERAGE - is the average number of pages JES3 allocated for the JCT data space.
- MAXIMUM - is the greatest number of pages JES3 allocated for the JCT data space.
- NUMBER OF PAGES RELEASED = nn - is the number of pages of the JCT data space that were released from real storage.

JQE INFORMATION - describes the storage requirements for the job queue elements (JQE).

- JQEm TABLE SIZE = nnn.nn KILOBYTES - is the amount of real storage allocated for the JQE table. m is a number between 0 and 4 that identifies the JQE table.
- JQE4 ALLOCATION - is the amount of storage allocated for the JQE4. The JQE4 table contains summary information from each job's JCT.
 - MINIMUM - is the least amount of storage allocated for JQE4.
 - AVERAGE - is the average amount of storage allocated for JQE4.
 - MAXIMUM - is the most amount of storage allocated for JQE4.

JES3 CONTROL BLOCK UTILIZATION

FCT ENTRY USAGE

PREALLOCATED = 50 + 35 PERMANENT FCT'S
 MINIMUM = 55
 MAXIMUM = 87

AVERAGE = 58

CONSOLE BUFFER USAGE

PREALLOCATED = 100
 MINIMUM = 0
 MAXIMUM = 412
 AVERAGE = 80
 SIZE OF PRIMARY EXTENT = 100 BUFFERS
 SIZE OF SECONDARY EXTENT = 100 BUFFERS
 SECONDARY EXTENT LIMIT = 0
 NUMBER OF RESERVED BUFFERS = 20
 NUMBER OF SECONDARY EXTENTS CURRENTLY IN USE = 1, 0, 0
 MAXIMUM NUMBER OF SECONDARY EXTENTS EVER USED = 4
 MAXIMUM NUMBER OF RESERVED BUFFERS EVER USED = 0
 SECONDARY CONSOLE BUFFER EXTENTS EXCEEDED = 0%

JSAM BUFFER USAGE

TOTAL DEFINED = 768
 MINIMUM = 7
 MAXIMUM = 117
 AVERAGE = 14

USAM (PROTECTED) BUFFER USAGE

TOTAL DEFINED = 1536
 MINIMUM = 0
 MAXIMUM = 53
 AVERAGE = 3

The JES3 Control Block Utilization Section provides information for your installation's FCT, buffer, and staging area usage.

System Report

You can use the information in this section to tune your installation. It does not contain any information you can use to diagnose JES3.

Description of the JES3 Control Block Utilization Section:

FCT Entry Usage - provides information for your installation's FCT chain.

- PREALLOCATED = nn + nn PERMANENT FCT's - identifies the number of nonresident and resident FCT's that your installation uses.
- MINIMUM = nn - is the lowest number of resident and nonresident FCTs JMF found on the FCT chain during the JMF sampling period.
- MAXIMUM = nn - is the highest number of resident and nonresident FCTs JMF found on the FCT chain during the JMF sampling period.
- AVERAGE = nn - is the average number of resident and nonresident FCTs JMF found on the FCT chain during the JMF sampling period.

CONSOLE BUFFER USAGE - identifies the number of console buffers JES3 used during the JMF sampling period.

- MINIMUM = nn - is the lowest number of console buffers JMF was using during the JMF sampling period.
- MAXIMUM = nn - is the highest number of console buffers JMF was using during the JMF sampling period.
- AVERAGE = nn - is the average number of console buffers JMF used during the JMF sampling period.
- SIZE OF PRIMARY EXTENT = nnnn BUFFERS - is the number of buffers that are defined in the primary extent.
- SIZE OF SECONDARY EXTENT = nnnn BUFFERS - is the number of buffers that are defined in the secondary extent.
- SECONDARY EXTENT LIMIT = nn - is the number of times JES3 can expand the buffer pool.
- NUMBER OF RESERVED BUFFERS = nn - is the number of reserved console buffers in real storage.
- NUMBER OF SECONDARY EXTENTS CURRENTLY IN USE = nn, nn, nn - identifies the number of secondary extents JES3 had to use.
- MAXIMUM NUMBER OF SECONDARY EXTENTS EVER USED = nn - identifies the number of secondary extents JES3 had to use.
- MAXIMUM NUMBER OF RESERVED BUFFERS EVER USED = nn - identifies the number of reserved buffers JES3 had to use.

JSAM BUFFER USAGE - describes how your installation utilizes JSAM buffers.

- TOTAL DEFINED = nnn - is the total number of JSAM buffers that are defined to your installation.
- MINIMUM = nn - is the least number of JSAM buffers JES3 used during the JMF sampling period.
- MAXIMUM = nn - is the most number of JSAM buffers JES3 used during the JMF sampling period.
- AVERAGE = nn - is the average number of JSAM buffers JES3 used during the JMF sampling period.

USAM (PROTECTED) BUFFER USAGE - describes how your installation utilizes USAM buffers.

- TOTAL DEFINED = nnn - is the total number of USAM buffers that are defined to your installation.
- MINIMUM = nn - is the least number of USAM buffers JES3 used during the JMF sampling period.
- MAXIMUM = nn - is the most number of USAM buffers JES3 used during the JMF sampling period.
- AVERAGE = nn - is the average number of USAM buffers JES3 used during the JMF sampling period.

STAGING AREA USAGE

ACTIVE STAGING AREA COUNT FROM SVT(SVTSACNT) = 28

MAXIMUM STAGING AREAS EVER USED = 144

TOTAL ACTIVE STAGING AREAS

MINIMUM = 24

MAXIMUM = 62

AVERAGE = 33

STAGING AREA USAGE - describes the JES3's utilization of your installation's staging areas. Staging areas are used to send requests to other subsystems defined to your installation.

Description of the Staging Area Usage Section:

- ACTIVE STAGING AREA COUNT FROM SVT(SVTSACNT) = nnn - is the number of staging areas JES3 is currently using. The number is obtained from SVTSACNT in IATYSVT.
- MAXIMUM STAGING AREAS EVER USED = nnn - is the most staging areas JES3 used during the JMF sampling period.
- TOTAL ACTIVE STAGING AREAS - describes the number of staging areas JES3 used during the JMF sampling period.
 - MINIMUM = nn - is the least number of staging areas JES3 used during the JMF sampling period.
 - MAXIMUM = nn - is the most number of staging areas JES3 used during the JMF sampling period.
 - AVERAGE = nn - is the average number of staging areas JES3 used during the JMF sampling period.

System Report

JOB ANALYSIS

LOG90J1 (JOB01482), RQPRTY = 15 OUTPUT WTR	18 MIN. 46.00 SEC.
VTAM (JOB00163), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
LOG90J1 (JOB01481), RQPRTY = 15 OUTPUT WTR	18 MIN. 46.00 SEC.
LOG90J1 (JOB01497), RQPRTY = 15 OUTPUT WTR	18 MIN. 46.00 SEC.
SYSL0G (JOB00160), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00168), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00170), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00174), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00176), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00172), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00179), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00180), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00171), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00181), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
JES3CI (JOB00173), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00175), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00177), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
INITJES3(JOB00178), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
TCAS (JOB00203), RQPRTY = 15, CLASS = A ON MAIN	, GROUP = JES3TEST 29 MIN. 18.00 SEC.
RTXA (JOB00193), RQPRTY = 15, CLASS = A	, GROUP = JES3TEST

The Job Analysis Section identifies the jobs JES3 was processing during the JMF sampling period. The Job Analysis Section provides summary information on the amount of time each job spent in each scheduler element (SE) during the JMF sampling period.

The Job Analysis Sections provides you information for the jobs in your system. It does not contain information that you can use to tune or diagnose your system.

Notes for the Job Analysis Section:

JMF obtains the information for the Job Analysis Section from the resqueue. JMF reports on the first 50 jobs in the system if you did not change the default value for the JOB= parameter when you called JMF. Because the jobs at the top of the resqueue are the oldest jobs in the complex and are typically the longest running jobs, such as RMF and initiators, the Job Analysis Report provides information that you cannot use to tune JES3. To make the report more useful, you should specify a larger number of jobs on the JOB= parameter when you invoke JMF.

The Job Analysis Section uses the term JES3 DSP's throughout the JMF Job Report Section. When an operator issues a command to call a DSP, JES3 assigns a job number to the DSP. JMF identifies job's that are callable DSP's as JES3 DSP's.

Description of the Job Analysis Section:

jobname - is the name assigned to the job.

(JOBnnnn) - is the job identifier JES3 assigned to the job.

RQPRTY = nnnnn - is the resqueue priority which is obtained from the priority assigned to the job.

CLASS = c - is the class assigned to the job.

GROUP = c - is the group assigned to the job.

state nnn.nn SEC. - identifies the amount of time the job spent in a JES3 state during the JMF sampling period. state identifies the scheduler element (SE) that was processing the job when JMF took the sample. The term JES3 DSP's identifies the amount of time the callable DSP was active under the task. nn.nn SEC. identifies the amount of time JES3 spent in the state.

JSS WORK-TO-DO QUEUE REPORT

JSS QUEUE NAME	MINIMUM QUEUE LENGTH	MAXIMUM QUEUE LENGTH	AVERAGE QUEUE LENGTH
JSS-READY	0	10	0
CATALOG-WAIT	0	0	0
RSQ-WAIT	0	0	0
PROCLIB-WAIT	0	0	0
MAIN-WAIT	18	44	30
DSP-WAIT	18	41	22
MPLOC-WAIT	0	0	0
DUPNAME-WAIT	0	20	10

The JSS Work-to-do Queue Report provides information for the queues the job segment scheduler (JSS) uses to keep track of the jobs JES3 needs to process. If JES3 is not processing a job, JES3 places the job on one of several queues. JSS uses the following queues to keep track of the jobs JES3 needs to process:

- JSS-Ready queue contains jobs that are ready for JES3 to schedule them for their scheduler element (SE).
- Catalog-wait queue contains jobs that are waiting for an SMS-managed catalog to become available before JES3 can schedule the jobs for C/I.
- RSQ-Wait queue contains jobs that are waiting for a resqueue. These jobs require a resqueue or a DSP before JES3 can schedule them for additional processing.

System Report

- Proclib-Wait queue contains jobs that require access to a proclib but cannot gain access because another job is using the proclib.
- Main-Wait queue contains jobs that are waiting for a main, class or a group to become available.
- DSP-Wait queue contains the jobs that are waiting for a SE to become available.
- MPLOC-wait queue contains jobs that are waiting for a main processor to become available to perform LOCATE processing.
- Dupname-wait queue contains jobs that are waiting for a job with a duplicate name to end so that these jobs can be scheduled for main.

The JSS Work-To-Do Queue Report does not contain any tuning information but it can help you to diagnose a problem your installation may be experiencing scheduling jobs.

Description for the JSS Work-to-do Queue Report:

JSS QUEUE NAME ccccccc - identifies the name of the queue used by JSS.

MINIMUM QUEUE LENGTH nnn - is the minimum number of jobs JES3 placed on the queue during the JMF sampling period.

MAXIMUM QUEUE LENGTH nnn - is the maximum number of jobs JES3 placed on the queue during the JMF sampling period.

AVERAGE QUEUE LENGTH nnn - is the average of the minimum and maximum number of jobs JES3 placed on the queue during the JMF sampling period.

Diagnostic Information:

Examine the average queue length for each queue in the JSS Work-To-Do Queue Report. If there are a large number of jobs on the:

- CATALOG-WAIT queue, an SMS catalog volume might have been varied offline or its SMS storage group might have been disabled.
- RSQ-WAIT queue, your installation may be experiencing a problem obtaining a resqueue from a resqueue cell pool for the job. Your installation may not have enough available virtual storage. The Resqueue Cell Pool Statistics Section of the JMF report may provide you with more information on the availability of the resqueues in your installation.
- PROCLIB-WAIT queue, your installation may be experiencing accessing a proclib. Enter a *I,PROCLIB command to obtain additional information for the status of your installation's proclibs.
- MAIN-WAIT queue
 - A main has been varied offline or has disconnected
 - A group has been disabled (*F,G,main,G,group,OFF)
 - A class has been disabled (*F,G,main,C,class,OFF)
- DSP-WAIT queue, one or more of JES3's DSPs may have reached the maximum number of copies of the DSP that can run concurrently in your installation. Identify the DSP that has reached its maximum use count and issue a *F,X,D=dspname,MC=nn to increase the number of copies that your installation can run concurrently in your installation. Also the FCT Summary Report may provide you with additional helpful information.
- MPLOC-WAIT queue, a main might have been varied offline or disconnected.

- DUPNAME-WAIT queue, this might indicate a problem; for example a loop could cause jobs with the same name to be submitted. Use the *I J=jobname command to list all jobs of a specified name.

JES3 FUNCTION SUMMARY

FUNCTION	AVERAGE TIME	JOBS	MINIMUM TIME	JOBID	MAXIMUM TIME	JOBID
JES3 DSP'S	29 MIN. 18.00 SEC.	1	29 MIN. 18.00 SEC.	(JOB00307)	29 MIN. 18.00 SEC.	(JOB00307)
DEADLINE	29 MIN. 18.00 SEC.	1	29 MIN. 18.00 SEC.	(JOB00307)	29 MIN. 18.00 SEC.	(JOB00307)
ON MAIN	29 MIN. 18.00 SEC.	42	29 MIN. 18.00 SEC.	(JOB00163)	29 MIN. 18.00 SEC.	(JOB00163)
OUTPUT WTR	18 MIN. 46.00 SEC.	7	18 MIN. 46.00 SEC.	(JOB01482)	18 MIN. 46.00 SEC.	(JOB01482)

The JES3 Function Summary Section summarizes the information JMF provided in the Job Analysis Section. It provides a list of the jobs that were active during the JMF sampling period and the maximum, minimum, and average amount of time required by each job.

The JES3 Function Summary Section contains information for your installation. It does not contain any information that you can use to tune or diagnose your system.

Description of the JES3 Function Summary Section:

JES3 FUNCTION SUMMARY SECTION - provides summary information for each active job in your installation.

- FUNCTION ccccccc - identifies the state of the job.save This name matches the RQ index value. If the RQ index value is RQNOSUB then the DSP name is formatted and is displayed under "JES3 DSP's".
- AVERAGE TIME nnn.nn SEC. - is the least amount of time one of the jobs took to execute in the JES3 function during the JMF sampling period.
- JOBS nnnn - is the average number of jobs that the SE processed during the JMF sampling period.
- MINIMUM TIME nnn.nn SEC. - is the least amount of time one of the jobs took to execute in the JES3 function during the JMF sampling period.
- JOBID (JOBnnnn) - is the job identifier of the job that took the least amount of time to execute in the JES3 function.
- MAXIMUM TIME nnn.nn SEC. - is the most amount of time one of the jobs took to execute in the function during the JMF sampling period.
- JOBID (JOBnnnn) - is the job identifier of the job that took the most amount of time to execute in the JES3 function.

MDS AND GMS SCHEDULING ANALYSIS - Main device scheduling (MDS) is the JES3 function responsible for scheduling resources to a job. All the resources required by a job must be available in order for JES3 to schedule the job for execution. It may take MDS one or several attempts to allocate the required resources to a job. Resources required by a job are kept in a job summary table (JST). Any resources that MDS cannot allocate to a job are kept in a list called the allocation resource list (ARL). The ARL is provided in the in the MDS Allocate section of the JES3 formatted dump. See Chapter 4, "JES3 Formatted dump," on page 155 for additional information.

After the first attempt to allocate resources to a job, MDS must obtain the list of resources from the ARL and JST to ensure all the resources required by the job are

available. During subsequent attempts to schedule a job for execution, MDS reads the ARL that contains a list of resources it was previously unable to allocate from storage.

1. If resources that were previously unavailable are still unavailable, MDS fails the allocation attempt.
2. If all the previously unavailable resources are available, MDS reads the JST to determine if resources that were previously available can still be allocated to the job.
 - a. If the previously available resources are no longer available MDS fails the allocation attempt and later attempts to reschedule the job for execution.
 - b. If the previously available resources are still available, MDS allocates the resources to the job and allows JES3 to schedule the job for execution.

Description for the MDS and GMS Scheduling Analysis Report:

TOTAL NUMBER OF ALLOCATION RETRIES DURING JMF INTERVAL: nnn - is the total number of attempts MDS made to allocate the required resources to a job. See steps 1 and 2 for a description of the processing for this number.

NUMBER OF ALLOCATION ATTEMPTS REJECTED WITHOUT READING JST: nnn - is the number of times MDS attempted to allocation when previously unavailable resources were still unavailable. See step 1 for a description of the processing for this number.

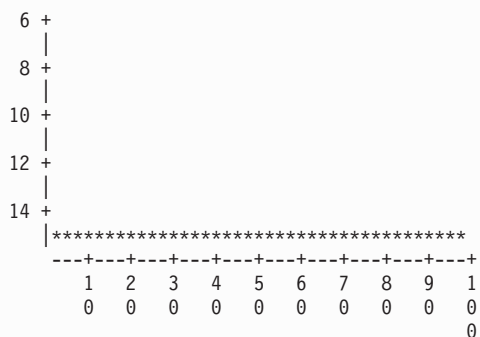
NUMBER OF ALLOCATION ATTEMPTS ALLOWED TO READ JST: nnn - is the number of times MDS found previously unavailable resources were available and MDS read the JST to determine if previously available resources were still available. See step 2 for a description of the processing for this number.

NUMBER OF ALLOCATION ATTEMPTS REJECTED AFTER READING JST: nnn - is the number of times MDS found a job could not be scheduled for execution because resources that were previously available were no longer available. See step 2a for a description of the processing for this number.

NUMBER OF SUCCESSFUL ALLOCATIONS: nnn - is the number of times MDS successfully allocated all the resources to a job so that JES3 could schedule the job for execution during the JMF sampling period. See step 2b for a description of the processing for this number.

JOBS IN EXECUTION BY MAIN PROCESSOR

JOBS IN EXECUTION ON JULLIET JES3 GLOBAL STARTED INITIATORS = 30



AVERAGE = 19, MINIMUM = 8, MAXIMUM = 22

JOBS IN EXECUTION ON ECHO JES3 LOCAL STARTED INITIATORS = 0

JOBS IN EXECUTION ON INDIA JES3 LOCAL STARTED INITIATORS = 0

JOBS IN EXECUTION ON LIMA JES3 LOCAL STARTED INITIATORS = 0

JOBS IN EXECUTION ON GOLF JES3 LOCAL STARTED INITIATORS = 0

JOBS IN EXECUTION ON CHARLIE JES3 LOCAL STARTED INITIATORS = 0

JOBS IN EXECUTION ON BRAVO JES3 LOCAL STARTED INITIATORS = 0

The Jobs in Execution Section By Main Processor Section identifies the number of initiators are active on each main in your complex. An initiator creates an environment so that the job can execute.

The Jobs in Execution Section By Main Processor can be used to help tune your installation.

Description of the Jobs in Execution Section:

JOBS IN EXECUTION on main - identifies the main JMF is describing.

{JES3 GLOBAL | JES3 LOCAL } - indicates whether the main is a JES3 global or local.

STARTED INITIATORS = nn - indicates the number of initiators JES3 has started.

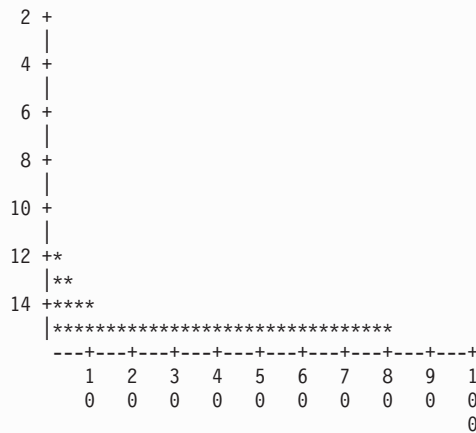
Tuning Information:

Use the Jobs In Execution By Main Processor Section to determine if the workload is correctly distributed across your installation. Compare the number of initiators JES3 has started on the global and each of the locals. The global typically has the largest number of started initiators, however, it can vary based on the configuration of your installation.

System Report

JOBS IN EXECUTION BY JOB CLASS GROUP ON JULLIET

JOBS IN EXECUTION ON JULLIET IN GROUP JES3TEST STARTED INITIATORS = 15



AVERAGE = 15, MINIMUM = 5, MAXIMUM = 15

JOBS IN EXECUTION ON JULLIET IN GROUP JES3HOLD STARTED INITIATORS = 0

The Jobs in Execution by Job Class Group on main Section identifies the number of initiators JES3 has started for each job class group for each main in your complex. in your complex. An initiator creates an environment so that the job can execute.

The Jobs in Execution Section By Main Processor can be used to help tune your installation.

Description of the Jobs in Execution by Job Class Group Section:

JOBS IN EXECUTION on main - identifies the main JMF is describing.

IN GROUP group - is the job class group. You assigned job class groups to the specified main by using GROUP statement in your JES3 initialization stream.

STARTED INITIATORS = nn - indicates the number of initiators JES3 has started.

Tuning Information:

Use the Jobs in Execution by Job Class Group Section with reports generated by the Resource Measurement Facility (RMF) to determine if the jobs are evenly distributed across the job classes defined to your installation.

ALLOCATED JES3 DEVICES BY SETNAME ON JULLIET

LEGEND FOR GLOBAL PROCESSOR DEVICE PLOTS:

J = SETUP DEVICES ALLOCATED BY JES3
 X = SETUP DEVICES IN EXECUTION ON MAIN (CLASS 1 DEVICES ONLY)
 M = SETUP DEVICES ALLOCATED BY MVS

ALLOCATED JES3 DEVICES ON JULLIET FOR SETNAME XTYPE: DISK4 TOTAL DEVICES = 516

AVERAGE = 1, MINIMUM = 0, MAXIMUM = 1 J

AVERAGE = 1, MINIMUM = 0, MAXIMUM = 1 M

ALLOCATED JES3 DEVICES ON JULLIET FOR SETNAME XTYPE: TAPE1 TOTAL DEVICES = 6

ALLOCATED JES3 DEVICES ON JULLIET FOR SETNAME XTYPE: TAPE2 TOTAL DEVICES = 16

ALLOCATED JES3 DEVICES ON JULLIET FOR SETNAME XTYPE: PRT002 TOTAL DEVICES = 1

The Allocated JES3 Devices by SETNAME on main describes the number of devices are currently allocated for each SETNAME group defined to the specified main. During initialization, you use the SETNAME initialization statement to group device types together.

The Allocated JES3 Devices by SETNAME Section contains information for your installation. It does not contain any information that you can use to tune or diagnose your system.

Description of the Allocated JES3 Devices by SETNAME Section:

ALLOCATED JES3 DEVICES ON main - identifies the main JMF is describing.

FOR SETNAME XTYPE: xtype - is the name for the group of devices with compatible characteristics. You assigned the name to the group by using the XTYPE parameter on the DEVICE statement.

TOTAL DEVICES = nnn - is the total number of devices assigned to the specified XTYPE.

AVERAGE = nn - is the average number of devices that JES3 has started in the specified group.

MINIMUM = nn - is the least number of devices JES3 started in the specified group.

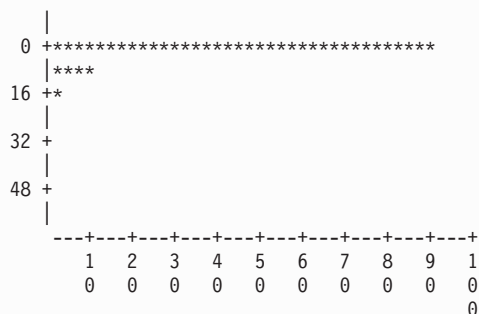
MAXIMUM = nn - is the most number of devices JES3 started in the specified group.

{ J | X | M } - indicates the device class.

System Report

JOB QUEUE LENGTHS BY JES3 FUNCTION

JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: JES3 DSP'S



AVERAGE = 6, MINIMUM = 3, MAXIMUM = 34

JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: CI IN AN FSS ADDRESS SPACE

AVERAGE = 1, MINIMUM = 0, MAXIMUM = 6

JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: AWAITING POSTSCAN (BATCH)

AVERAGE = 1, MINIMUM = 0, MAXIMUM = 4

JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: AWAITING POSTSCAN (DEMAND SELECT)

The Job Queue Lengths by JES3 Function Section summarizes the number of jobs found on each resqueue index.

The Job Queue Lengths by JES3 Function Section contains information for your installation. It does not contain any information that you can use to tune or diagnose your system.

Notes for the Job Queue Lengths by JES3 Function Section:

JMF produces a histogram when there are jobs on the queue. If the queue does not contain any jobs, JMF does not produce a histogram.

Description of the Job Queue Lengths by JES3 Function Section:

JOB QUEUE LENGTHS FOR RQINDEX FUNCTION: rqindex - identifies the name of the resqueue index.

histogram - is present only if JMF found jobs waiting on the resqueue index during the JMF sampling period.

AVERAGE = nn - is the average number of jobs JMF found on the resqueue index during the JMF sampling period.

MINIMUM = nn - is the lowest number of jobs JMF found on the resqueue index during the JMF sampling period.

MAXIMUM = nn - is the largest number of jobs JMF found on the resqueue index during the JMF sampling period.

JES3 HOT SPOT ANALYSIS

ENTRIES SORTED BY % BUSY

SPOT = 999 WIDTH = 50 NAME = ALL HFCT = ALL

TYPE FIELD: C=CSA, J=JES3 PRIVATE, L=MLPA, M=MVS NUCLEUS, N=IATNUC, P=PLPA, R=IATRJMN
EC=EXTENDED CSA, EJ=EXTENDED JES3 PRIVATE, EL=EXTENDED MLPA, EP=EXTENDED PLPA

CSECT	TYPE	START	END	----- % OF RUN ACTIVE -----			-- % OF TASK ACTIVE --	
				OVERALL	IN IATNUC	IN IATAUX	IATNUC	IATAUX
IATGRTX	EC	00000000	0000004F	.42 %	.42 %	.00 %	7.80 %	.00 %
MVS NUCL	M	00120930	0012097F	.38 %	.38 %	.00 %	7.17 %	.00 %
IATGRSV	N	00000050	0000009F	.28 %	.28 %	.00 %	5.27 %	.00 %
IATGRCT	N	00000D20	00000D6F	.20 %	.20 %	.00 %	3.79 %	.00 %
MVS NUCL	M	00074EF0	00074F3F	.20 %	.20 %	.00 %	3.79 %	.00 %
IATSSCM	EL	00000820	0000086F	.17 %	.17 %	.00 %	3.16 %	.00 %
IATCNWO	N	00000820	0000086F	.15 %	.15 %	.00 %	2.95 %	.00 %
IATGRCT	N	000000F0	0000013F	.14 %	.14 %	.00 %	2.74 %	.00 %
IATGRSV	N	000000A0	000000EF	.13 %	.13 %	.00 %	2.53 %	.00 %
MVS NUCL	M	0022B500	0022B54F	.13 %	.13 %	.00 %	2.53 %	.00 %
IATSSCM	EL	000000A0	000000EF	.10 %	.10 %	.00 %	1.89 %	.00 %
IATGRCT	N	000001E0	0000022F	.07 %	.07 %	.00 %	1.47 %	.00 %
IATDMNC	N	00000F50	00000F9F	.06 %	.06 %	.00 %	1.26 %	.00 %
IATGRQC	N	00000B90	00000BDF	.06 %	.06 %	.00 %	1.26 %	.00 %
IATGRSV	N	00000000	0000004F	.06 %	.06 %	.00 %	1.26 %	.00 %
IATGRSV	N	000000F0	0000013F	.05 %	.05 %	.00 %	1.05 %	.00 %
FCT-CODE	EJ	N/A	N/A	.04 %	.04 %	.00 %	.84 %	.00 %
IATDMDK	EL	000005A0	000005EF	.04 %	.04 %	.00 %	.84 %	.00 %
IATGRCT	N	000000A0	000000EF	.04 %	.04 %	.00 %	.84 %	.00 %
		00000230	0000027F	.04 %	.04 %	.00 %	.84 %	.00 %
		00000E60	00000EAF	.04 %	.04 %	.00 %	.84 %	.00 %
IATGRPT	N	00000000	0000004F	.04 %	.04 %	.00 %	.84 %	.00 %
IATSSCM	EL	00000A00	00000A4F	.04 %	.04 %	.00 %	.84 %	.00 %

The Hot Spot Analysis Report Section provides the percentage of CPU time JES3 spent in each csect while JMF was executing.

The Hot Spot Analysis Report Section contains information for your installation. It does not contain any information you can use to tune or diagnose JES3.

Notes for the Hot Spot Analysis Report Section:

Generally, the csect name refers to a JES3 module. JMF creates two hot spot reports. In the first report, JMF orders the entries by the csects where JMF reported csects that had the highest percentage of CPU time. In the second report, JMF

System Report

orders the entries by csect name. For each csect name, JMF may generate more than one entry. An entry under a csect name represents an instance where JMF found JES3 executing. The percentages reveal the number of occurrences for each instance.

The start and end addresses of FCT-code are not meaningful, because FCT-code entries indicate that JES3 is processing in MFM (Multi Function Monitor). MFM dispatches code that is resident in each FCT (IATYFCT) control block.

Description for the Hot Spot Analysis Report Section:

CSECT csect name - provides the name of the csect. The csect name generally refers to a JES3 module. FCT-code refers to code in any of the JES3 FCTs. MFM executes code in an FCT when the MFM dispatches an FCT. MVS NUCL refers to the number of instances JMF found the system executing in an MVS module. UNKNOWN refers to an instance where JMF could not categorize the location that had control when the sample was taken.

TYPE type - indicates where the csect resides. A type of:

- C indicates the csect resides in CSA.
- N indicates the csect resides in the JES3 nucleus (IATNUC).
- P indicates the csect resides in pageable link pack area (PLPA).
- L indicates the csect resides in the modified link pack area (MLPA).
- J indicates the csect resides in the JES3 private area.
- M indicates the csect resides in the MVS nucleus.
- R indicates the csect is a RJP load module.
- EC indicates the csect resides in extended CSA.
- EJ indicates the csect resides in extended JES3 Private.
- EP indicates the csect resides in the extended PLPA.
- EL indicates the csect resides in extended MLPA.

START adr - specifies the beginning address of the monitored section in the csect.

END adr - specifies the end of the monitored section in the csect.

% OF RUN ACTIVE -

- OVERALL nn.nn% - is the percentage of JMF samples that JMF found the csect active.
- IN IATNUC nn.nn% - is the percentage of JMF samples that JMF found the csect active in the nucleus.
- IN IATAUX nn.nn% - is the percentage of JMF samples that JMF found the csect active in the auxiliary address space.

% OF TASK ACTIVE -

- IATNUC nn.nn% - is the percentage of JMF samples that JMF found the csect active in the nucleus.
- IATAUX nn.nn% - is the percentage of JMF samples that JMF found the csect active in the auxiliary address space.

JES3 INTERNAL READER DSP ANALYSIS REPORT

MAXIMUM ACTIVE INTERNAL READER DSPS ALLOWED	20
MINIMUM NUMBER OF ACTIVE INTRDRS	18
MAXIMUM NUMBER OF ACTIVE INTRDRS	20
AVERAGE NUMBER OF ACTIVE INTRDRS	18
AVERAGE NUMBER OF IDLE INTERNAL READER DSPS	1
AVERAGE LENGTH OF INTERNAL READER QUEUE	24
% OF JMF SAMPLES ACTIVE INTRDRS COUNT AT MAXIMUM	38.20 %
5 OF JMF SAMPLES ACTIVE INTRDRS COUNT AT ZERO	38.20 %

The JES3 Internal Reader DSP Analysis Report provides information on the internal readers that are active in your system. JES3 automatically starts INTRDR DSPs to process data sets that contain job streams. After JES3 starts an internal reader, input service can process the data set as an input stream.

The JES3 Internal Reader DSP Analysis Report contains information for your installation. It does not contain any information that you can use to tune or diagnose your system.

Description of the JES3 Internal Reader DSP Analysis Report:

MINIMUM NUMBER OF ACTIVE INTRDRS nn - is the minimum number of INTRDR DSPs that JMF found active during the JMF sampling period.

MAXIMUM NUMBER OF ACTIVE INTRDRS nn - is the maximum number of INTRDR DSPs that JMF found active during the JMF sampling period.

AVERAGE NUMBER OF ACTIVE INTRDRS nn - is the average number of INTRDR DSPs that JMF found active during the JMF sampling period.

AVERAGE NUMBER OF IDLE INTERNAL READER DSPS nn - is the average number of INTRDR DSPs that were posted but were not processing any work during the JMF sampling period.

AVERAGE LENGTH OF INTERNAL READER QUEUE nn - is the average number of INTRDR DSPs that JMF found on the internal reader queue during the JMF sampling period.

% OF JMF SAMPLES ACTIVE INTRDRS COUNT AT ZERO n.nn% - is the percentage of times that the internal reader count was found to be at zero during the JMF sampling period.

System Report

SSOB FUNCTION CODE	NUMBER REQUESTS RECEIVED	NUMBER RESPONSES RECEIVED	MINIMUM RESPONSE TIME	MAXIMUM RESPONSE TIME ¹
WTO/WTOR	1	1	22.868	22.868
JOB TERM	0	0	.000	.000
MDS DYNAL	0	0	.000	.000
MDS UNALLOC	0	0	.000	.000
MDS CHGDD	0	0	.000	.000
MDS CHGNQ	0	0	.000	.000
JDS ACCESS	0	0	.000	.000
SPOOL ALLOC	0	0	.000	.000
ENDREQ	0	0	.000	.000
DYNAL DYN	0	0	.000	.000
DYNAL UNAL	0	0	.000	.000
DYNAL CHGDD	0	0	.000	.000

¹An asterisk character (*) indicates that the longest possible response time is displayed, because the total response time (current time minus start time) would have caused a register overflow during the calculation.
Figure 24. SSI RESPONSE TIME

The SSI Response Report identifies the number of requests for JES3 global services.

You can use the SSI Response Report diagnostic information to determine if your installation is efficiently processing messages and commands.

Notes for the SSI Response Report:

The SSI Response Report provides information on the amount of time it took JES3 to process a request for JES3 global service.

Description of the SSI Response Report:

SSOB FUNCTION CODE ccccccc - identifies the type of SSI request.

NUMBER REQUESTS RECEIVED nnnn - is the number of requests the main processed during the JMF sampling period.

NUMBER RESPONSES RECEIVED nnnn - is the number of responses the main sent to other mains during the sampling period.

MINIMUM RESPONSE TIME nnnn - is the least amount of time in milliseconds JES3 took to process the request during the JMF sampling period.

MAXIMUM RESPONSE TIME nnnn - is the greatest amount of time in milliseconds JES3 it took to process the request during the JMF sampling period.

AVERAGE RESPONSE TIME nnnn - is the average amount of time in milliseconds JES3 took to process the request during the JMF sampling period.

SSI DESTINATION QUEUE REPORT

DESTINATION QUEUE NAME	FSS NAME	FSA NAME	MINIMUM QUEUE LENGTH	MAXIMUM QUEUE LENGTH	AVERAGE QUEUE LENGTH
MAIN SERVICE			00	29	00
GENERALIZED MAIN SCHEDULING			07	07	07
VERIFY			00	00	00
LOCATE			00	01	00
JES DATA MANAGEMENT			00	00	00
USER TRACK ALLOCATION			00	03	00
SVC 34			00	01	00
WTO			00	14	00
RESERVED			00	00	00
DYNAMIC ALLOCATION			00	00	00
COMMON ALLOCATION			00	00	00
COMMON UNALLOCATION			00	01	00
VERIFY RESPONSE			00	00	00
CHANGE DDNAME			00	00	00
WORK TO DO DRIVER			00	01	00
SSICS QUEUE 1			00	00	00
SSICS QUEUE 2			00	00	00

The SSI Destination Queue Report identifies the number of staging areas JMF processed during the JMF sampling period. MVS uses a staging area to pass a request for information between address spaces in your system. JES3 on the global receives the staging area and places it on an SSI destination queue. JES3 has a destination queue for each type of request it processes.

The SSI Destination Queue Report provides information for the number of staging areas JMF processes during the JMF sampling period. It does not provide you with information you can use to diagnose or tune JES3.

Description of the SSI Destination Queue Report:

DESTINATION QUEUE NAME ccccccc - specifies the name of the destination queue.

FSSID nnnn - identifies the address space id of the FSS address space.

FSAID nnnn - identifies the FSAID of the FSA.

MINIMUM QUEUE LENGTH nnnn - is the lowest number of staging areas JMF found on the destination queue during the JMF sampling period.

MAXIMUM QUEUE LENGTH nnnn - is the greatest number of staging areas JMF found on the destination queue during the JMF sampling period.

System Report

AVERAGE QUEUE LENGTH nnnn - specifies the average number of staging areas JMF found on the destination queue during the JMF sampling period.

Description of the Workload Manager Information: When WLM information is requested, the following information will be reported for each service class that is detected during the sampling interval. Information will be reported only for those jobs in WLM managed groups.

The number of jobs waiting to be scheduled for main service.

The number of jobs is MDS processing.

The number of jobs waiting to be selected by an initiator (GMS Select).

The number of jobs that were eligible to execute somewhere in the SYSPLEX.

The number of jobs that were not eligible to execute anywhere in the SYSPLEX because of operator hold, resource delay, class/group unavailable etc.

The number of jobs that were not eligible to execute anywhere in SYSPLEX because of class limits (e.g. TDEPTH, TLIMIT, MDEPTH, MLIMIT).

The number of jobs in the SYSPLEX that are using the service class that are in execution and are in a WLM managed group.

For each system, the number of jobs that were eligible to execute on a particular system. For each system, the number of jobs that were not eligible to execute on a particular system.

For each system, the number of jobs in the service class that are in execution and are in a WLM managed group.

For each system, the number of jobs in the service class that are eligible only on this system when this system is constrained.

For each system, the percentage of time system is constrained. This is calculated by the following formula:

Constraint Count: Each time JMF sampling is done, if the system is found to be constrained, the count is incremented.

$(\text{Constraint Count} * 100) / (\text{No. of JMF Samples})$

Chapter 7. JES3 Recovery

Recovery procedures minimize system reinitialization time that may result from hardware and software failures. The following recovery procedures are discussed:

- JES3 and C/I Functional Subsystem Failsoft
- Alternate CPU Recovery
- Reconfiguring a Processor Complex
- Checkpoint/Restart
- Restarting JES3 After a Failure
- JES3 Checkpoint Data Sets
- Dynamic System Interchange
- BSC RJP Recovery
- Recovering from Output Writer Functional Subsystem Failures
- Recovering from SAPI Failures
- Recovering from Spool I/O Errors
- Recovering from C/I Functional Subsystem Address Space Failures

JES3 and C/I Functional Subsystem Failsoft

JES3 failsoft provides recovery facilities to avoid JES3 restarts whenever possible. JES3 failsoft in C/I functional subsystem (FSS) address spaces provides the same facilities to avoid C/I FSS abnormal ending whenever possible.

- For jobs, the process of restarting is determined by installation- and programmer-supplied restart parameters.
- For failing functions or DSPs, the system recovery facility and the JES3 JESTAE and failsoft facilities allow the function or DSP to recover, if possible, or be ended. The failure is recorded in the logrec data set. The values specified for the DUMP parameter and the WANTDUMP parameter on the OPTIONS initialization statement determine when and where JES3 takes a dump. When a critical function cannot recover, JES3 or the C/I FSS address space terminates.

JES3 retains the Failsoft Logout across a JES3 restart. You can retrieve the Failsoft Logout using the MVS D R command. This applies only to the JES3 address space (not for C/I or Output Service FSSs. JES3 retains only the most recent logout on subsequent failures.

Job Recovery

Jobs active on processors at the time of system failure are restarted according to installation- and programmer-supplied restart parameters. The action that JES3 takes for jobs affected by the failure depends upon the options specified on the FAILURE parameter. The user can specify the FAILURE parameter on the `/*MAIN` JES3 control statement. You (the system programmer) can specify it on the CLASS or STANDARDS initialization statements.

The order of overrides for the FAILURE parameter are: `/*MAIN` overrides CLASS or STANDARDS; CLASS overrides STANDARDS.

Valid options for the FAILURE parameter and the action JES3 takes for each affected job are:

- **CANCEL:** Print any job output that is in a SYSOUT class that is specified as TYPE=PRINT. After printing the output, JES3 cancels the job.
- **HOLD:** Place the job into the hold queue.
- **PRINT:** Print any job output that is in a SYSOUT class that is specified as TYPE=PRINT. Then place the job into the hold queue.
- **RESTART:** Restart the job from the first job step. The job will be restarted on the processor on which it was active.

Whenever a processor fails in an MVS system, the MVS checkpoint/restart facility (or warm start facility, if applicable) is invoked before the failure options are examined:

- The checkpoint/restart facility is used to record information about a job at programmer-designated checkpoints so that, if necessary, the job can be restarted at one of these checkpoints or at the beginning of a job step. Restarts can take place immediately (initiated by the console operator) or be deferred until the job is resubmitted.
- Any job with a journal data set will attempt warm start. The warm-start facility will ensure cleanup of any scratch VIO data sets for the job.

Job Journal Data Set Usage

The job journal is a sequential data set that resides on a spool volume of JES3. Unique to MVS, its function is to contain a set of selected job-related control blocks that are critical to automatic restart processing.

The job journal is necessary because MVS maintains its scheduler control blocks in the scheduler work area (SWA) in pageable storage, rather than on a job queue on external storage. When a job or the system fails, there is a resultant loss of the address space that contains the SWA and its job control blocks. Because it preserves up-to-date copies of certain critical control blocks, the job journal makes it possible to reconstruct the SWA. SWA control blocks will be reconstructed to their state just before the failing step for automatic step restart. For automatic checkpoint restart they will be reconstructed as they appeared at the most recently issued CHKPT macro in the job step. This capability is available for the following kinds of restart:

- Automatic step restart
- Automatic checkpoint restart
- System restart (including completion of job or step ending)

Therefore, if a job does not have job journaling, automatic restarts cannot be used.

Job journaling is provided to a job in JES3 in one of three ways:

1. The job class of the job has requested journaling (JOURNAL=YES on the CLASS initialization statement).
2. The job has a `//*MAIN` statement with JOURNAL=YES overriding the job class table.
3. The job's JCL has either RESTART= on the JOB statement or RD= on the JOB or EXEC statement.

After a system failure and JES3 restart of the failing main processor, those jobs in execution that had requested job journaling will be MVS system restarted (or warm started). If a job is eligible for MVS automatic restart, the system will issue message IEF225D asking if the job should restart. If the job is not eligible for restart, or the operator indicates that restart should not be attempted, any scratch or VIO data sets the job had allocated will be deleted and the job will be

terminated. Therefore it may be desirable for certain classes of jobs which make a significant use of scratch or VIO data sets to request job journaling.

Function or DSP Recovery

When JES3 or a C/I FSS address space abnormally terminates, the JES3 ESTAE recovery processing routines in the terminating address space are given control. These routines examine the function control table active at the time of termination to determine which function or DSP has failed.

JES3 uses two levels of ESTAE recovery processing. The lower level ESTAE receives control whenever JES3 abnormally terminates. The higher level ESTAE is entered only if ESTAE percolation occurs, either because of a failure in the lower level ESTAE or because the lower level ESTAE returned to the control program indicating that termination continue. When the higher level ESTAE is given control, JES3 will be ended.

The JES3 ESTAE retry routines pass control to the JESTAE exit routine of the failing function or DSP. JESTAE then diagnoses the error, starts end processing, and informs JES3 whether the failing function or DSP can recover or has to be ended (quiesced). All other functions or DSPs remain in execution.

If a function or DSP has to be terminated, system resources are returned, all units listed in the function control table for the failing function or DSP are returned, and the function or DSP is placed in a permanent (nondispatchable) AWAIT state.

There are certain functions that are critical to JES3 operation:

- Console service
- Spool space allocation (in a JES3 local address space or a C/I FSS address space)
- Initialization
- Job segment scheduler (in the JES3 global address space)
- FSSDRVR (in a C/I FSS address space)
- JES3 lower level ESTAE

If one of these functions fails, the ESTAE routine abnormally ends JES3. It is then the responsibility of the operator to restart JES3.

For a JES3 local address space or a C/I FSS address space, the spool space allocation function is critical. If that function fails, the address space terminates and the operator must restart it.

Alternate CPU Recovery

Alternate CPU recovery (ACR) provides a tightly-coupled multiprocessing system with the ability to recover system operation on the operational processor after one processor fails. ACR recovers as much work from the failing processor as possible, and ends work it cannot recover.

If JES3 was active on the failing processor, JES3 analyzes the function active at the time of the hardware failure (for example, the device path might be analyzed):

- If a critical JES3 function was active and cannot recover, JES3 is ended. The operator must restart JES3.
- If a noncritical JES3 function was active and cannot recover, the function is either ended or quiesced.

If the global processor is a tightly-coupled multiprocessor and a failure occurs on one of the processors, ACR attempts recovery on the other processor.

Reconfiguring a Processor Complex

Reconfiguring a processor complex without restarting JES3 is possible if you initially define your JES3 complex to permit partitioning. During initialization, MAINPROC statements should be included for all configurations of mains that your complex might choose to use. A processor complex can be reconfigured from a single-image main into two partitioned mains; or the reverse, two partitioned mains into a single-image main. A single-image main also can have one side partitioned off, while still maintaining its single image name. The partitioned side can then be IPLed as a separate main.

Reconfiguration requires careful planning of your hardware environment. For information about planning an I/O configuration that supports reconfiguring and for instructions on the reconfiguration process, see *z/OS JES3 Commands*.

With the appropriate main definitions, you can use partitioning and reconfiguration to:

- Remove a failed partition
- Perform scheduled preventive maintenance on a partition
- Reinststate a previously inactive partition
- Provide a backup main for another system in the JES3 complex or a system outside the JES3 complex

Adding or removing a JES3 main affects the job selection environment. When a processor complex is running in single-image mode, more processing power and storage resources are available than when running in partitioned mode. Consider the resources available for each main that will be active in the complex, and define your job selection modes appropriately. You may need to dynamically modify the selection modes for a main by using the *F,G,main,S,selectname command.

With the // *MAIN SYSTEM= facility, users can specify the mains on which they want their jobs to execute. Also, users can specify the job class or group (which may be associated with a certain main) in which they want their jobs to be processed. Jobs directed to a main that is removed will not execute. Similarly, jobs requiring resources only attached to a partitioned-off main will not run. If the main is not going to be returned to the complex, these jobs should be restarted in the SETUP phase.

Checkpoint/Restart

The checkpoint/restart technique provided under MVS/ESA is supported by JES3.

Checkpoint/restart is a technique for recording information about a job at programmer-designated checkpoints so that, if necessary, the job can be restarted at one of these checkpoints or at the beginning of a job step.

A checkpoint is taken when a user program issues the CHKPT macro instruction. For more information concerning the CHKPT macro, see *MVS/DFP Checkpoint/Restart*. This macro causes the contents of the program's virtual-storage area and certain system control information to be written as a series of records in a checkpoint data set. These records can then be retrieved from the data set if the job ends abnormally or produces erroneous output, and the job can be restarted.

Restart can take place immediately (initiated by the operator at the console) or be deferred until the job is resubmitted. In either case, the time-consuming alternative of rerunning an entire job is eliminated.

Restarting A Job

There are three types of restarts:

1. *Step restart*: from the beginning of a step.
2. *Checkpoint restart*: from a checkpoint within a job step. Checkpoints are established in a job step by coding the CHKPT macro for each checkpoint required. This macro writes the contents of the virtual storage area and specific system control information of the program, as a series of records, to a data set. These records can be retrieved from the data set if the job ends abnormally or produces erroneous output, and the job can be restarted. Restart can take place immediately (initiated by the operator) or be deferred until the job is resubmitted.
3. *System failure restart*: by specifying the FAILURE=RESTART parameter on the `//*MAIN` control statement. In the event that the job cannot complete execution because of a system failure and the job is not eligible for automatic restart, JES3 will automatically reschedule the job from the beginning. See *z/OS MVS JCL User's Guide* for more information on the `//*MAIN` statement.

Automatic Restart: To use automatic restart, code the RD (restart definition) parameter on the JOB or EXEC control statement. JES3 creates a job journal for any job specifying the RD parameter. A job journal is established to hold restart information for each program in execution.

When a system failure occurs or a job step abnormally ends and RD=R is specified on the JOB or EXEC statement, MVS attempts to restart the job. If checkpoints are taken, an automatic restart is attempted at the last checkpoint regardless of the RD parameter. When a job step abnormally ends or a system failure occurs while the job is executing, and the installation has not implemented job journaling, these jobs are ineligible for automatic restart.

You can also use automatic restart management to automatically restart batch jobs and started tasks. If the job is registered with automatic restart management, it will be restarted when either:

- The executing job unexpectedly ends.
- The system on which the job is executing unexpectedly ends or leaves the sysplex.

Any jobs registered with automatic restart management can be restarted only within a single complex (we recommend only one complex within a sysplex). See *z/OS MVS Setting Up a Sysplex* for information about setting up and using automatic restart management.

Deferred Restart: To use deferred restart, the RESTART parameter on the JOB statement must be specified. This parameter causes the job to restart at the beginning of the specified step of checkpoint. The SYSCHK DD statement is required when a job is submitted for deferred checkpoint restart. This statement must immediately follow the JOBLIB DD statement.

Operator Restart Considerations

A job may abnormally end as a result of a hardware, programming, or system error. Such an error can occur any time during execution and could cost the loss of

valuable machine time. The checkpoint/restart feature of the system is provided to allow a restart of an abnormally ended job either at the beginning of a job or at a checkpoint within a step. The programmer determines whether an automatic restart or a deferred restart is to be performed.

Automatic Restart

If the programmer provides for an automatic restart and the job abnormally ends, message IEF255D is issued asking if the indicated job should restart. The message may indicate the checkpoint id, thus allowing you to prevent repeated restarts at the same checkpoint or job step. When requested to authorize an automatic restart, the operator should reply YES, HOLD, or NO.

- Reply YES if the restart is to be performed at a specific checkpoint or job step for the first time. If a step restart is to occur and the step to be restarted used a card input data set that was not part of the SYSIN stream, you must return all cards read by the job step before it ended abnormally to the appropriate card readers. If a checkpoint restart is to occur, follow the programmer's instructions for replacing the input cards.
- Reply HOLD to defer the restart; for example, to permit another job to be run first. Enter the *MODIFY command with the release operand when you are ready to restart the job. Also, if desired, you may cancel the job. However, canceling the job may result in unrecoverable paging space or the failure of certain data sets to be deleted if virtual I/O is being used.
- Reply NO if no restart is to be performed. When you reply NO, and the programmer wants a restart to be performed, the job must be resubmitted for a deferred restart.

When V=R is specified, the restart may be delayed by the system waiting for the allocation of storage. If another job is using the required storage, you will not receive a message--only a delay. Enter a DISPLAY A command to see if a system task or other job is using the storage required by a job with a V=R region. You may stop or cancel the conflicting task or job. The system may ask you to mount data volumes other than those required at the beginning of the job. The job's I/O will be set up by JES3 for the first job step, not the step being restarted. Canceling a job in a dependent network will prevent successor jobs from running if they are dependent upon successful completion of the canceled job.

Note: Any operator commands in the input stream of the job step being restarted will not be executed.

Deferred Restart

If the programmer provides for a deferred restart and the job abnormally ends, the job must be resubmitted to have this restart performed. To restart the job, the programmer must provide a restart stream for submission to the system through the system input reader. The JCL statements to be included are described in detail in the publication *z/OS MVS JCL User's Guide*.

The device configuration of the system at the time of restart need not be the same as it was when the job abnormally ended. However, enough devices must be available to satisfy the needs of the job step being restarted. The system under which a step restart is run need not be the same as it was for the job's original execution. However, a checkpoint/restart should be run under the original system unless the alternate system can meet the following restrictions:

- The release number is the same.
- The link pack area modules in use at the checkpoint must reside in the same storage locations.

- Jobs specifying V=R require an area of storage identical to the original area.

If the required storage is not available, the system will cancel the restart and you will receive message IEF2091 which states that virtual storage is unavailable for the job.

If the required storage is not available, it is for one of the following reasons:

- The link pack area expands into the required storage. This may occur if an initial program loading (IPL) has been performed after the original execution of the job and before the restart. If this does occur, contact the system programmer for a respecification of the system parameters and repeat initial program loading using the new values.
- The system queue area expands into the required storage. When this occurs, contact the system programmer for a respecification parameter and repeat initial program loading using the new SQA value.

When a job restarts correctly, you will receive two messages: IHJ0061 and IHJ0081. If, for V=R jobs, these messages do not appear, enter the DISPLAY A command to see if a system task or other job is using the required storage. You can then stop or cancel the conflicting job.

The system may ask that you mount volumes other than those required at the beginning of the job. The job's I/O will be initially set up by JES3 for the first job step, not the step being restarted. In addition, any card input data sets that have been used by the failing job step must again be made available to the system.

Restart of JES3-controlled jobs may be accompanied by messages IAT2006, IAT2575, or both. See *z/OS JES3 Messages* for responses to the messages.

Restarting JES3 After a Failure

After an MVS failure or a JES3 failure, you must restart JES3. After an MVS failure, you must also perform an MVS IPL. When restarting JES3, use the type of JES3 start that causes the least amount of disruption to your system.

Restarting the Global Processor

After an MVS failure on the global processor, you must perform an MVS IPL before restarting JES3. For a JES3 failure including abnormal ending of the JES3 address space, you need not perform the IPL, just restart JES3.

To restart JES3, if you do not suspect problems with the job queue, perform a hot start. If, however, you suspect problems with the job queue, perform a hot start with analysis.

If either type of hot start fails, perform a warm start. If you suspect problems with the job queue, perform a warm start with analysis. You should also perform a warm start with analysis, after an equipment failure causes JES3 to terminate.

If a permanently damaged spool data set or spool device causes a JES3 failure, you can reallocate the spool data set on the same device or on a different device. After reallocating the spool data set, you must perform a warm start to replace a spool data set.

JES3 Recovery

If you also suspect problems with the JES3 job queue, perform a warm start with analysis to replace a spool data set. For an explanation of how to replace a spool data set, see “Recovering from Spool I/O Errors” on page 390.

If you cannot restart JES3 with any type of hot start or warm start, perform an MVS IPL and then a cold start.

After any type of warm start or a cold start, you must perform an MVS IPL and then a local start on each local processor.

For additional information about each type of start and to determine the disposition of jobs after a restart, see *z/OS JES3 Initialization and Tuning Reference*. For information about the sequence of commands you must specify to restart JES3, see *z/OS JES3 Commands*.

Assigning Global Processor Functions to a Local Processor

If you cannot restart the global processor, assign the functions of the global processor to a local processor. This local processor then becomes the global processor. For information on how to assign the global processor functions to a local processor, see “Dynamic System Interchange”.

Restarting a Local Processor

You must restart a local processor after an MVS failure or a JES3 failure on the local processor. You must restart all local processors after performing a cold start or any type of warm start on the global processor.

After an MVS failure on a local processor, perform an MVS IPL and then a local start. After a JES3 failure, you need not perform the IPL, just the local start.

After an IPL on a local processor, JES3 processes jobs that were previously running on the local processor according to their failure options.

If JES3 cannot be restarted on a local processor, logically remove the processor from the complex. To do this, the operator must enter the command `*S,main,FLUSH`.

JES3 Checkpoint Data Sets

The JES3 checkpoint data sets, allocated using the JES3 cataloged procedure, provide the capability to warm start or hot start the JES3 system with minimum or no loss of system information.

The JES3 checkpoint facility writes job-related control block information to the one or more JES3 checkpoint data sets at appropriate points in time during system processing; that is, as information changes in the system. This control block information is restored to the system after performing a hot or warm start. All other information is lost.

The JES3 checkpoint data set contains the information required to initialize either a global or local JES3 processor. This information consists of the following data areas:

- **JES3 complex status record (IATYCSR)**, containing the last known status of each processor in the JES3 complex.
- **Initialization dynamic allocation checkpoint record (IATYS99)**, identifying the data sets that must be dynamically allocated during JES3 initialization.

- **Spool volume checkpoint record (IATYVOL), spool partition checkpoint record (IATYSPR), BADTRACK checkpoint record (IATYBTR), partition track allocation table checkpoint record (IATYPTC)**, containing the initialization data required for accessing the JES3 spool.
- **Initialization checkpoint record (IATYICP)**, containing other initialization data and the spool record addresses of multirecord files that contain the remaining initialization data.
- **Checkpoint data area (IATYCKP)**, containing the spool record addresses of single record files and multirecord files that checkpoint the status of individual functions within JES3. These individual functions and the files related to them (whose addresses are contained in IATYCKP) are described below.
 - *Main Device Scheduler (MDS)*: the MDS volume unavailable table, which contains the volume serial numbers of volumes unavailable to MDS processing, and the data areas indicating the online/offline status of real devices eligible for setup.
 - *Output Service*: the job data accounting block (IATYJDA or JDAB), job data set control block (IATYJDS), and output scheduling element (IATYOSE) data areas, which contain the checkpoint data for the output service driver module.
 - *Deadline Scheduling*: the deadline scheduling queue data areas.
 - *JESNEWS*: the JESNEWS data set.
 - *TSONEWS*: the TSONEWS data set.
 - *RJPNEWS*: the RJPNEWS data set.
 - *Generalized Main Scheduling*: data areas containing information about GMS selection modes, execution resources and various GMS parameters.
 - *Device Fencing*: the device fencing data areas.
 - *Dependent Job Control (DJC)*: the checkpointed net control block (IATYNCK), which contain entries for each DJC network in the complex.
 - *Functional Subsystems*: the FSS/FSA table checkpoint (IATYFCK) data area, which checkpoints functional subsystem and functional subsystem applications information.
 - *JES3 Dump Suppression*: the JES3 dump suppression record (IATYDMP) that contains the list of JES3 failsoft codes whose dumps are suppressed automatically when the WANTDUMP=YES parameter is coded on the OPTIONS initialization statement.
 - *TCP/IP Checkpoint*: checkpointed TCP/IP information (IATYTCK) that contains information about Netservs, sockets, and nodes defined with TYPE=TCPIP.

IATYCKP also contains the range of job numbers assigned in the system and the JCT priority hold flags.

The JES3 checkpoint area is allocated to either one unique data set or two duplicate data sets. You can cause information to be checkpointed in the IATYCKP control block by issuing the JESCKPNT macro.

Recovering from Permanent Errors on the JES3 Checkpoint Data Sets

If a permanent I/O error occurs on one of the JES3 checkpoint data sets, your recovery options depend on whether you have allocated one or both checkpoint data sets. If you have allocated only one checkpoint data set and it develops a

permanent I/O error, you must perform a cold start. If you have allocated both checkpoint data sets, then you may replace the data set having the I/O error over a hot or warm start.

If you replace one checkpoint data set with a new checkpoint data set during a warm or hot start, JES3 copies the checkpoint records it finds on the older checkpoint data set over to the new checkpoint data set. When the hot or warm start is finished, JES3 has two complete checkpoint data sets once again.

When you replace a checkpoint data set, be sure that the checkpoint data set you are *not* replacing contains a complete copy of all active checkpoint records. If you are not sure whether that data set is complete, use the MVS display command to see if there are any messages indicating problems with it. If it has any problems, you may have to perform a cold start.

Recovering from a Checkpoint Data Set Out-of-Space Condition

If either checkpoint data set runs out of space, the data set must be replaced. Recalculate the amount of space the checkpoint data set needs and allocate a new checkpoint data set that is larger than the old one. See *z/OS JES3 Initialization and Tuning Reference* for the method to calculate checkpoint data set size.

Dynamic System Interchange

Dynamic system interchange (DSI) is a process by which the JES3 global function can be assigned to a JES3 local processor, which then becomes the new JES3 global processor. DSI can be used when:

- The global processor is not active.
- The installation wants a local processor to assume the role of the global processor.

If the global processor is not active, the operator can invoke DSI to keep the complex running. When DSI is complete, JES3 on the old global processor can be reinitialized as a local processor without an intervening IPL, when it becomes available for reinitialization.

If the global processor is active but the installation requires that another processor be assigned as the global processor, the operator can invoke DSI. This procedure could be used for such reasons as scheduled preventive maintenance or for alternate processor utilization.

Disabling the Old Global Processor

When your global is inactive and you need to perform a DSI, you should disable the global by performing a system reset. A system reset causes MVS and JES3 to terminate. All jobs that were executing on the global are lost; JES3 will reschedule them.

All FSS address spaces on the global are also lost. You must restart all FSS address spaces that were executing at the time of the system reset. (For instructions on how to restart FSS address spaces, see *z/OS JES3 Commands*.)

If your global is active but you want another main to become the global, you must disable the old global by entering a `*CALL,DSI` and `*START,DSI` command on the

MCS console attached to the old global. Before entering the *CALL,DSI command, you must complete all reconfiguration tasks that require JES3, such as stopping RJP to disable communication lines.

If you disable the global using a *CALL,DSI command, then any output writer FSSs that were active on the old global remain active when the new global attempts to connect to the old global. However, if the old global fails as a result of an IPL or system reset, all output writer FSSs that were active on the old global terminate.

When you complete the DSI, you can reinitialize the old global as a local main, without an intervening IPL.

Starting a Local Processor as a Global Processor

DSI is started by entering the *CALL,DSI command on the master console of the local main that you want to make the new global. All FSSs that were executing on local mains at the time of the DSI, including the local that is to become the new global, continue processing during and after the DSI.

If you disable the global using a *CALL,DSI command, then any output writer FSSs that were active on the old global remain active when the new global attempts to connect to the old global. However, if the old global fails as a result of an IPL or system reset, all output writer FSSs that were active on the old global end.

If a failure occurs during DSI, you must perform a warm start.

Defining Dynamic System Interchange Procedures

During DSI, messages are issued calling for review of the installation-defined local and global processor DSI procedures. When defining these procedures, you should take the following restrictions and recommendations into consideration:

- The old global processor must be disabled. If it is not, job spool damage may occur and a cold start may be required. Your procedures should indicate the way in which the global processor is to be disabled.
- DSPs that were called from a console on the old global processor and issue input commands to that console should be canceled if the calling console will not be valid on the new global processor.
- Those global devices (devices defined through the JUNIT parameter on the DEVICE statement) that the user requires on the new global processor must be switched from the old global to the new global processor (if they are not already shared). Your procedure should indicate the way in which devices are to be switched to the new global processor.
- Functions using devices that cannot be shared with all processors or switched to the new global processor cannot continue after DSI. For example, if the old global processor and the new global processor are different processor models, they may not support the same set of devices. These functions should be specified in your procedure as nontransferable.
- If the global has special MPF processing requirements, ensure that the MPF options on the new global are set up correctly. Use the SET MPF operator command to change the MPF options for a system.
- After a DSI, FSS address spaces continue operating on the same processor as before. FSS address spaces defined to operate on a specific processor depending on which processor is the global processor (that is, specifying paired system

JES3 Recovery

names on the SYSTEM parameter of the FSSDEF statement) change location, if necessary, the next time the FSS is restarted.

Changes to the definition of an FSS address space brought about by using the *MODIFY command before the DSI remain in effect across the DSI.

- Jobs queued as a result of the SYSTEM=JGLOBAL or SYSTEM=JLOCAL parameters on // *MAIN statements before DSI are not requeued to the new global or local processor after the DSI. The jobs remain queued on the processor on which they were previously queued. If that processor becomes available, the jobs can execute.
- If you do not expect to re-IPL JES3 on the old global processor immediately after a DSI, to ensure jobs registered with automatic restart management on the old global processor are restarted on either the new global processor or another active local processor, you must issue the *S,main,FLUSH command.
- When SNA RJP is active on the old global processor, you must perform the following VTAM operations before starting SNA RJP on the new global:
 1. Start VTAM
 2. Vary the application definition (which contains the JES3 application) online to VTAM.
 3. Vary the required network online to VTAM.
 4. Enter the *CALL,SNARJP command.

After DSI completes, determine the status of the writer output multitasking facility by issuing the command *INQUIRY,MT. Then:

- If the new global processor is a multiprocessor and the multitasking facility is off, turn it on by issuing the command *MODIFY,MT=ON.
- If the new global processor is a uniprocessor and the multitasking facility is on, turn it off by issuing the command *MODIFY,MT=OFF.

BSC RJP Recovery

The BSC remote job processing (RJP) facility attempts to automatically recover from errors and suspended operations that might normally require system restarts. If failures occur, BSC RJP permits analysis and selective termination of specific functions or lines rather than the entire BSC RJP function.

If a system failure occurs while the BSC RJP function is processing, the BSC RJP JESTAE exit routine initializes its retry registers and indicates to the abend function that BSC RJP is to be reinstated. The retry routine that is given control issues a message explaining the reason for the abend, and then attempts to recover from the error condition:

- If the error is associated with a line I/O event or timer event, the corresponding line is canceled immediately.
- If the error occurred during line starting, the line is varied offline and cannot be started until the operator varies the line online again.
- If the error occurred during line canceling, the line is lost to the JES3 system; BSC RJP continues to service the rest of the lines.
- If the error occurred while processing an operator message, the message is ignored.

If an error occurs during remote terminal access method (RTAM) processing, a message is issued explaining the reason for the abend, and the corresponding line is canceled immediately.

Recovering from output writer functional subsystem failures

JES3 tracks each data set sent to an output writer functional subsystem (FSS) until the FSS notifies JES3 that it has printed the data set. If an FSS fails, JES3 reschedules all data sets that were printing at the time of the failure.

An output writer FSS can fail under any of the following conditions:

- You perform an IPL.
- You cancel an FSS using operator commands.
- The last active writer in the JES3 global address space fails, in which case the output writer FSS associated with it also terminates.

If an FSS fails, JES3 also fails all of the writers in the JES3 global address space that send work to the FSS.

In all of the above cases, JES3 recovers the work the FSS was processing and reschedules it. You can, in effect, restart an FSS by using operator commands that start a writer dynamic support program (DSP) for a page mode device. The writer DSP restarts the output writer FSS.

If you define more than one device to run under the control of a single output writer FSS, and one of those devices fail, the FSS remains active and the remaining devices continue processing work. However, if the device that fails is the last active device running under control of an output writer FSS, then JES3 cancels the FSS.

If you perform a hot start, output writer FSSs continue running in their own address spaces unless you specified the TERM=YES keyword on the FSSDEF initialization statement or unless you IPL the main on which the FSSs were operating. (You use the TERM= keyword to specify whether you want JES3 to terminate an FSS when you terminate the global). If the output writer FSS runs out of work before the JES3 global address space restarts, the output writer FSS remains idle until the restart. After the hot start, JES3 restarts the writer DSPs, both hot writers and dynamic writers, that were associated with output writer FSSs active before the hot start. The writer DSPs reestablish contact with the output writer FSSs and work continues as before the hot start. For information about the effects of a dynamic system interchange on output writer FSSs see "Dynamic System Interchange" on page 386.

Recovering from SAPI Failures

JES3 tracks each data set scheduled to a SYSOUT Application Programming Interface (SAPI) thread (a 'thread' being a separate, independent 'session' between the SAPI application and JES3). Each SAPI thread indicates the disposition processing to occur for the data set (for example, delete, change class, and so on). See *z/OS MVS Using the Subsystem Interface* for details on using SSI 79.

If a SAPI thread fails, task termination processing in IATSIJS obtains control. The job's MEM (IATYMEM) entry is checked for a COW (Client Output Work area) chain. If one exists, the COW for the failing thread is found. The COW contains information about the OSE scheduled to the thread. Following the COW is the JES3 copy of the thread's SSOB/SSS2. IATSIJS sets the data set disposition section in the SSS2 to keep (SSS2DKPE). All three control blocks are passed in the SSISERV for IATOSSO use. IATOSSO uses this to unschedule the OSE. Upon return to IATSIJS, the COW is removed from the application's MEM COW chain.

If a SAPI application fails, IATMSJT receives control to process the failing job. IATMSJT invokes IATOSCWS to build a SAPI Application Termination Entry (SATE) on the SAPI JOBTERM queue, a single threaded queue pointed from the Output Service Resident Data area (OSDSAPTQ in IATYOSD). The SATE is updated with the job number and name of the failing job. This is done for each SAPI application going through job termination. When all are processed, IATOSSR is posted (flag TVTSAPTR is set) to process the OSEs that may be scheduled to each of the threads running in the application address space. IATOSSR obtains a SAPI DSP to perform the actual cleanup. IATOSSD gets control and finds each COW in the COW dataspace pertaining to the SATE. Storage is obtained for a COW/SSOB/SSS2. The dataspace COW/SSOB/SSS2 is copied into the obtained storage. IATOSSO sets the data set disposition section in the SSS2 to keep (SSS2DKPE). IATOSSO is given control to unschedule the OSE. This process continues for each COW in the dataspace pertaining to this SATE. Each COW in the dataspace is deleted. When all the COWs for the SATE are processed, storage for the SATE is returned. The next SATE is obtained and processing continues. When all of the SATEs are processed, storage obtained for our copy of the COW/SSOB/SSS2 is returned.

If a hotstart of JES3 is performed, IATOSDR checks each scheduled OSE to determine if it is scheduled to a SAPI application. If it does and the application no longer exists, the OSE is unscheduled. If the application exists, an Output Service Restart Records (OSRs) is created similar to current FSS processing. The OSR for SAPI contains the OSE variable section offset, the OSE data set section offset, the thread identifier (count), the application job number and the application's RQ address. This occurs for each OSE scheduled to a SAPI application. The SAPIFCT (IATOSSR) is given control after IATOSDR has completed this processing. When IATOSSR obtains control, its initialization routine determines if OSRs exist. If they do not, the COW dataspace is created with no COW entries. If OSRs do exist, the COW dataspace is created with a COW entry for each OSR. IATOSSR invokes IATOSRS to return the OSR storage.

If a warm start of JES3 is performed, current processing of unscheduling all scheduled OSEs remains in effect.

Recovering from Spool I/O Errors

It is possible to recover from many kinds of spool I/O errors without the need to perform a cold start. This includes, for example, errors caused by defective tracks on a spool volume or errors caused by a failing I/O device or control unit. The type of error indications you receive from JES3 can help you to determine the corrective action to take.

When an I/O error occurs on a spool data set, JES3 adds an entry to the BADTRACK table. Entries in the BADTRACK table prevent JES3 from allocating the track group containing the track with the I/O error. JES3 does not, however, create BADTRACK table entries for the following types of I/O errors:

- Read errors
- I/O error retry failures
- Write errors that can be attributed to some cause other than failure of the spool device (for example, channel errors and machine checks)
- temporary I/O errors

If the error caused JES3 to create a BADTRACK entry, use the *INQUIRY,Q,BT operator command to display:

- the location of the track having the error

- the exact time JES3 found the error, if JES3 found the error while performing I/O to the track
- whether the BADTRACK entry for the track having the error was added to the BADTRACK table during formatting of the spool data set or by a BADTRACK statement during initialization.

BADTRACK table entries that JES3 adds dynamically are lost during a warm start. To avoid further allocation of these tracks, operators must inform you of I/O errors. Operators should also save the track address information given in the message stating that JES3 has added an entry to the BADTRACK table. Then, before performing a warm or cold start, update the initialization stream with BADTRACK statements as appropriate.

Intermittent I/O Errors

If you receive one or a few I/O error messages and DM711 or DM725 abend codes and JES3 continues to execute, the error is probably intermittent. Such an error might be caused by a defective track on a spool volume.

If a defective track caused the error, JES3 dynamically adds an entry to the BADTRACK table identifying the defective track. JES3 also issues a message indicating the ddname, cylinder, and track described by the new entry. As stated above, the system operator should save the information in the message. (The operator can also get this information at a later time using the *I,Q,BT command, if JES3 is active.) Then you must update the initialization stream with a BADTRACK statement for each I/O error before the next warm or cold start. The operator should also keep track of the frequency of errors. Frequent I/O errors suggest that the spool data set needs replacing.

Permanent I/O Errors

If you receive DM711 or DM725 abend codes, several I/O error messages, and JES3 functions no longer execute, the I/O error is probably permanent. (You can tell when JES3 functions no longer execute because you will no longer receive any JES3 messages.) To try recovery, use the following procedure:

1. Enter the command *F,Q,DD=ddname,STOP. This command requests that JES3:
 - Suspend scheduling of jobs that have track groups allocated to the affected spool data set
 - Stop jobs that are executing and have track groups allocated to the affected spool data set
 - Stop all JES3 writers that are writing on the affected spool data set and reschedule them for later processing, beginning from the last checkpoint.
 - Stop allocating track groups to the affected spool data set
2. If JES3 accepts the command, you can try to correct the problem that caused the I/O error.
3. If you correct the problem, issue the *F,Q,DD=ddname,RELEASE command. This command requests that JES3:
 - Resume scheduling of jobs that have track groups allocated to the affected spool data set
 - Resume allocating track groups to the affected spool data set

JES3 uses the job failure options to determine how to process jobs that were executing at the time you issued the command *F,Q,DD=ddname,STOP.

4. If JES3 does not accept the *MODIFY,Q,DD=ddname,STOP command, or if you cannot quickly correct the problem that caused the I/O error, let JES3 continue execution without the affected spool data set.
 - If you used a DD statement in the JES3 cataloged procedure to allocate the affected spool data set, remove that DD statement from the procedure and perform a hot start.
 - If you used a DYNALLOC statement in the initialization stream to allocate the affected spool data set, issue the MVS VARY command on the global to vary offline the volume that contains the affected spool data set and perform a hot start.

Note: If you want to change the JES3 spool configuration, you must enter a special operator dialog to complete JES3 initialization. *z/OS JES3 Commands* describes the operator dialog to remove and reinstate a spool data set during a warm or hot start. If JES3 issues message IAT4102 during a hot start, the spool data set that you are attempting to remove contains the checkpointed initialization stream. You must perform a warm start to recreate the checkpointed initialization data.

If you continue having problems because of the data set on the local processors, issue the MVS VARY command on the local processors. Perform a local start for each processor.

If you need to restart JES3 before you can restore the spool data set, reissue the MVS VARY command on every processor to which you want the volume offline. If you cannot repair the volume quickly, you may want to remove the DYNALLOC statement for that spool data set from the initialization stream, perform a warm start on the global processor, and restart the local processors.

5. JES3 is now executing without the spool data set that caused the I/O errors. JES3 maintains information about the spool data set, including its size, its device characteristics, and the volume serial number of the volume on which it resides. However, JES3 considers the spool data set unavailable for use. Removing the spool data set in this manner does not release the spool space of jobs with data on the unavailable data set, unless the jobs have been canceled. You may now repair the spool data set.

To restore the repaired data set to the JES3 complex:

1. If you removed a DD statement from the JES3 cataloged procedure, reinsert it and perform a hot start.
2. If you entered the VARY command on one or more processors to take the volume offline, enter the VARY command on those processors to bring the volume online. Perform a hot start on the global processor and a local start on the appropriate local processors.
3. If you removed the DYNALLOC statement from the initialization stream, reinsert the statement and perform a warm start.
4. Enter command *F,Q,DD=ddname,RELEASE. This command requests that JES3 resume scheduling of jobs that have track groups allocated to the affected spool data set. JES3 will use the job failure options to determine how to handle the jobs that were executing on a processor when you issued the command *F,Q,DD=ddname,STOP.

Replacing a Spool Data Set

If a permanent I/O error occurs on a spool data set and you cannot recover the data (for example, there is a head crash on a direct access device), you can replace

the affected spool data set. To replace the data set, perform a warm start and follow the procedures outlined below. You may create the new data set on a volume or device type different from the one being replaced. You may also change the size of the data set and redefine the single track table (STT) range using the STT or STTL parameter on the TRACK or FORMAT initialization statement.

Be aware that when you replace a spool data set, JES3 cancels all jobs with data on the replaced spool data set. Other risks include the possible loss of JES3 control blocks, STT extents, checkpoint records, and the JESNEWS data set, which may have been on the damaged spool data set. If these losses occur, the system will issue messages giving you the opportunity to take appropriate actions.

If you cannot immediately perform a warm start (for example, if it takes some time for you to make the changes needed to replace the spool data set), you can cancel jobs that have track groups allocated on the spool data set being replaced. To cancel the jobs, issue the command *F,Q,DD=ddname,CANCEL. After you cancel the jobs, the user can resubmit them. You can then replace the spool data set at the time most convenient for your installation.

When you replace the spool data set, you must use the same ddname for the new spool data set as for the old.

To replace a spool data set, use the following procedure:

1. If you allocated the old spool data set by using a JES3 cataloged procedure, update the DD statement in the cataloged procedure to reflect information about the new data set. You may need to change the data set name, device number, device type, or volume serial number. Do not change the ddname.
If you allocated the old spool data set by including a DYNALLOC statement in the initialization stream, update the optional parameters as necessary. Do not change the ddname.
2. If the old spool data set is cataloged, replace its catalog entry with an entry for the new spool data set.
3. If the new spool data set is unformatted and your initialization stream currently includes a TRACK statement for the old spool data set, replace it with a FORMAT statement. Otherwise, leave your TRACK or FORMAT statement alone.
4. Perform a warm start. Specify WR or WAR as the restart mode. JES3 will prompt you to enter the ddnames of replaced spool data sets (message IAT4009 for unformatted spool data sets and message IAT4008 for formatted spool data sets). JES3 will then cancel all jobs that have track groups allocated to the spool data sets being replaced.

Moving a Spool Data Set to Another DASD Volume

If you must move the contents of a spool data set to another DASD volume, perform a hot start with the data set not allocated or the DD statement for the data set removed from the JES3 start procedure. During JES3 initialization, JES3 considers the spool data set unavailable. After moving the data to the new DASD volume, perform a hot start with the data set (on the new volume) allocated or with the DD statement for the data set included in the JES3 start procedure. JES3 now considers the data set available.

Recovering from C/I functional subsystem address space failures

Failure of a C/I functional subsystem (FSS) address space does not cause any JES3 address space or other C/I FSS address spaces to fail. If a C/I FSS address space encounters an error and is able to recover, no other address spaces, including JES3, even become aware of the problem. For recoverable errors, the system operator sees messages from the C/I FSS failsoft routines. The messages are similar to those the operator sees if a JES3 address space encounters an error.

If a C/I FSS address space does fail, there are two ways the JES3 global address space becomes aware of the failure:

- The C/I FSS address space disconnects through the functional subsystem interface (FSI).
- If the C/I FSS address space fails without ending communication with JES3, JES3 becomes aware of the failure when the job ends. (The C/I FSS runs as a demand select job.)

JES3 never automatically restarts a C/I FSS address space that ends. (When a C/I FSS address space abnormally ends, JES3 changes the START value, defined by the FSSDEF statement, to NO.) However, JES3 automatically reschedules all jobs that were active in the C/I FSS address space at the time of failure. Jobs restart at the beginning of C/I service.

To restart the address space, use the *F,F,FSS=fssname,ST=Y operator command.

If the JES3 global address space abnormally ends, all C/I FSS address spaces continue operating until they run out of work. Then they are idle until the JES3 global address space restarts. If the FSSDEF statement for the C/I FSS address space specifies TERM=YES, a JES3 global address space termination ends the C/I FSS address space.

If a C/I FSS address space ends during an IPL of a processor, JES3 will restart the C/I FSS provided:

- The processor is connected and online
- The DSPCNT is not zero
- The START option is specified as YES

If a C/I FSS hangs because of a minimal spool condition, and it is defined (or was modified with) TERM=YES, it will not be possible to automatically bring it down by ending the global address space. Therefore exercise care when restarting JES3 during a minimal spool condition.

Appendix. Accessibility

Accessible publications for this product are offered through the z/OS Information Center, which is available at www.ibm.com/systems/z/os/zos/bkserv/.

If you experience difficulty with the accessibility of any z/OS information, please send a detailed message to mhvrcfs@us.ibm.com or to the following mailing address:

IBM Corporation
Attention: MHVRCFS Reader Comments
Department H6MA, Building 707
2455 South Road
Poughkeepsie, NY 12601-5400
USA

Accessibility features

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in z/OS enable users to:

- Use assistive technologies such as screen readers and screen magnifier software
- Operate specific or equivalent features using only the keyboard
- Customize display attributes such as color, contrast, and font size.

Using assistive technologies

Assistive technology products, such as screen readers, function with the user interfaces found in z/OS. Consult the assistive technology documentation for specific information when using such products to access z/OS interfaces.

Keyboard navigation of the user interface

Users can access z/OS user interfaces using TSO/E or ISPF. Refer to *z/OS TSO/E Primer*, *z/OS TSO/E User's Guide*, and *z/OS ISPF User's Guide Vol I* for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

Dotted decimal syntax diagrams

Syntax diagrams are provided in dotted decimal format for users accessing the z/OS Information Center using a screen reader. In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always present together (or always absent together), they can appear on the same line, because they can be considered as a single compound syntax element.

Each line starts with a dotted decimal number; for example, 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that your screen reader is set to read out punctuation. All the syntax elements that have the same dotted decimal number (for example, all the syntax elements that have the number 3.1) are mutually

exclusive alternatives. If you hear the lines 3.1 USERID and 3.1 SYSTEMID, you know that your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with dotted decimal number 3 is followed by a series of syntax elements with dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, it is preceded by the backslash (\) character. The * symbol can be used next to a dotted decimal number to indicate that the syntax element repeats. For example, syntax element *FILE with dotted decimal number 3 is given the format 3 * FILE. Format 3* FILE indicates that syntax element FILE repeats. Format 3* * FILE indicates that syntax element * FILE repeats.

Characters such as commas, which are used to separate a string of syntax elements, are shown in the syntax just before the items they separate. These characters can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line can also show another symbol giving information about the syntax elements. For example, the lines 5.1*, 5.1 LASTRUN, and 5.1 DELETE mean that if you use more than one of the LASTRUN and DELETE syntax elements, the elements must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, this indicates a reference that is defined elsewhere. The string following the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 means that you should refer to separate syntax fragment OP1.

The following words and symbols are used next to the dotted decimal numbers:

- ? means an optional syntax element. A dotted decimal number followed by the ? symbol indicates that all the syntax elements with a corresponding dotted decimal number, and any subordinate syntax elements, are optional. If there is only one syntax element with a dotted decimal number, the ? symbol is displayed on the same line as the syntax element, (for example 5? NOTIFY). If there is more than one syntax element with a dotted decimal number, the ? symbol is displayed on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines 5 ?, 5 NOTIFY, and 5 UPDATE, you know that syntax elements NOTIFY and UPDATE are optional; that is, you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.
- ! means a default syntax element. A dotted decimal number followed by the ! symbol and a syntax element indicates that the syntax element is the default option for all syntax elements that share the same dotted decimal number. Only one of the syntax elements that share the same dotted decimal number can specify a ! symbol. For example, if you hear the lines 2? FILE, 2.1! (KEEP), and 2.1 (DELETE), you know that (KEEP) is the default option for the FILE keyword. In this example, if you include the FILE keyword but do not specify an option, default option KEEP will be applied. A default option also applies to the next higher dotted decimal number. In this example, if the FILE keyword is omitted, default FILE(KEEP) is used. However, if you hear the lines 2? FILE, 2.1, 2.1.1!

(KEEP), and 2.1.1 (DELETE), the default option KEEP only applies to the next higher dotted decimal number, 2.1 (which does not have an associated keyword), and does not apply to 2? FILE. Nothing is used if the keyword FILE is omitted.

- * means a syntax element that can be repeated 0 or more times. A dotted decimal number followed by the * symbol indicates that this syntax element can be used zero or more times; that is, it is optional and can be repeated. For example, if you hear the line 5.1* data area, you know that you can include one data area, more than one data area, or no data area. If you hear the lines 3*, 3 HOST, and 3 STATE, you know that you can include HOST, STATE, both together, or nothing.

Note:

1. If a dotted decimal number has an asterisk (*) next to it and there is only one item with that dotted decimal number, you can repeat that same item more than once.
 2. If a dotted decimal number has an asterisk next to it and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the previous example, you could write HOST STATE, but you could not write HOST HOST.
 3. The * symbol is equivalent to a loop-back line in a railroad syntax diagram.
- + means a syntax element that must be included one or more times. A dotted decimal number followed by the + symbol indicates that this syntax element must be included one or more times; that is, it must be included at least once and can be repeated. For example, if you hear the line 6.1+ data area, you must include at least one data area. If you hear the lines 2+, 2 HOST, and 2 STATE, you know that you must include HOST, STATE, or both. Similar to the * symbol, the + symbol can only repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the * symbol, is equivalent to a loop-back line in a railroad syntax diagram.

Notices

This information was developed for products and services offered in the U.S.A. or elsewhere.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing
Legal and Intellectual Property Law
IBM Japan, Ltd.
19-21, Nihonbashi-Hakozakicho, Chuo-ku
Tokyo 103-8510, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

Site Counsel
IBM Corporation
2455 South Road
Poughkeepsie, NY 12601-5400
USA

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this information and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement, or any equivalent agreement between us.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

COPYRIGHT LICENSE:

This information might contain sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Policy for unsupported hardware

Various z/OS elements, such as DFSMS, HCD, JES2, JES3, and MVS, contain code that supports specific hardware servers or devices. In some cases, this device-related element support remains in the product even after the hardware devices pass their announced End of Service date. z/OS may continue to service element code; however, it will not provide service related to unsupported hardware devices. Software problems related to these devices will not be accepted

for service, and current service activity will cease if a problem is determined to be associated with out-of-support devices. In such cases, fixes will not be issued.

Minimum supported hardware

The minimum supported hardware for z/OS releases identified in z/OS announcements can subsequently change when service for particular servers or devices is withdrawn. Likewise, the levels of other software products supported on a particular release of z/OS are subject to the service support lifecycle of those products. Therefore, z/OS and its product publications (for example, panels, samples, messages, and product documentation) can include references to hardware and software that is no longer supported.

- For information about software support lifecycle, see: IBM Lifecycle Support for z/OS (<http://www.ibm.com/software/support/systemsz/lifecycle/>)
- For information about currently-supported IBM hardware, contact your IBM representative.

Trademarks

IBM, the IBM logo, and [ibm.com](http://www.ibm.com) are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml (<http://www.ibm.com/legal/copytrade.shtml>).

Index

Special characters

//*MAIN JES3 control statement

FAILURE parameter 377

A

accessibility 395

contact IBM 395

features 395

ACR (alternate CPU recovery) 379

address

formatted dump 224

IATYTVT data management 224

space

JES3 236

address range

formatted dump 258

allocated OSS pool

formatted dump 176

SNA/NJE

formatted dump 178

TCP/IP

formatted dump 177

ASID (address space identifier)

locating for IPCS JES3 130

assistive technologies 395

ATCB (auxiliary task control block)

auxiliary task

control block 236

ATDE (auxiliary task dispatching

element)

formatted dump 240

AUX (auxiliary address space)

memory map 236

B

BSC RJP (binary synchronous

communication remote job processing)

recovery procedure 388

C

C/I FSS address space

failsoft 377

restarting 394

CBF

syntax for JES3 139

CBFORMAT

syntax for JES3 139

CBFORMAT subcommand 138

checkpoint data set

content 384

description 384

I/O error

recovery 385

out-of-space condition

recovery 386

recovery from permanent error 385

checkpoint data set (*continued*)

replacing 386

checkpoint/restart facility 378

checkpointed buffer

converter/interpreter debug

facility 24

CLASS initialization statement

FAILURE parameter 377

CLASS table 195

CLASS/S

formatted dump 195

Client output work (COW) area

formatted dump 262

common single track table

formatted dump 230

control block

DJC (dependent job control)

jobnet 257

obtain

converter/interpreter debug

facility 23

control block group 134

CIFSS address space 131

example 135

IBM-supplied 131

IPCS session 131

JES3 131

JOBASID (job address space

identifier) 131

WTRFSS address space 131

control block print 22

control table

function 237

main processor 184

converter/interpreter debug facility 23

message class 24

routing output 24

COW

formatted dump 262

create a model 132

critical JES3 function 379

CSA entry

formatted dump 258

D

data buffer

JSAM (JES3 spool access

method) 232

USAM (user spool access

method) 234

data management

common single track table 230

extent table 226

I/O parameter block 225

IOSB-SRB pair 228

JSAM data buffer 232

USAM data buffer 234

data management IATYTVT

fullword constant

formatted dump 224

data management IATYTVT (*continued*)

halfword constant

formatted dump 224

IATYTVT flag

formatted dump 225

DESTQ (destination routing table)

formatted dump 185

device entry

formatted dump 248

diagnostic mode

output service 112

DJC jobnet control block

formatted dump 257

DSI (dynamic system interchange)

consideration 387

defining procedures 387

description 386

effect on FSS address spaces 386, 387

effect on job 386

global processor

disabling 386

starting a local processor 387

JES3-initiated 386

local processor

starting as the global

processor 387

operator-initiated 386

restriction 387

DSS spool trace tables 61

RPL trace table 63

spool buffer summary table 61

spool trace event table 62

dump core 30

dump format

ABEND code

user 164

address range 258

allocated OSS pool 176

ATCB (auxiliary task control

block) 236

auxiliary address space memory

map 236

auxiliary task dispatching

element 240

CLASS table 195

CSA (common service area) 258

data management

common single track table 230

extent table 226

file directory 231

I/O parameter block 225

IATYTVT address 224

IATYTVT flag 225

IATYTVT fullword constant 224

IATYTVT halfword constant 224

IOSB-SRB pair 228

JCT single track table 231

JSAM data buffer 232

USAM data buffer 234

DESTQ (destination routing

table) 185

dump format (*continued*)
 device entries for a workstation 246
 device entry 248
 dump job 257
 ECF list 223
 EXRESC (execution resources table) 193
 FCT entry
 active 165
 FCT ready queue summary 236
 FSS table entry 182
 function control table 237
 GRPTBL address 192
 heading 164
 IOERR output 114
 JES3 memory usage 235
 JES3 nucleus
 map 165
 JESMSG Queue Control Area
 Header 264
 JESMSG Queue Entries 264
 JNCB (DJC jobnet control blocks) 257
 job queue element 197
 LCB entry 246, 249
 main processor control table 184
 map of JES3 nucleus 165
 master OSE table 171
 MDS RESQUEUE table 212
 multi-version data access master control areas 192
 networking console pointer 254
 networking console queue 254
 NJE active node data csect 252, 254, 255
 NJE resident node table 252, 255
 resident remote and line DCT entry 241, 242
 resident RJP line and terminal table 244
 resident SNA terminal entry 246
 RESQ (resident queue entry) 196
 RESQUEUE table 207
 SETDSN table 222
 SETNAMES table 216
 SETUNITS table 217
 SETVOL table 219
 SNA/NJE allocated OSS pool 178
 spool partition control block 229
 SQA (system queue area) 258
 SRT (resident SNA RJP table) 245
 SUPUNITS table 179
 SYSUNITS table 218
 table entry
 FSS (functional subsystem) 182
 TCP/IP allocated OSS pool 177
 WSB entry 246

E
 ECF list
 formatted dump 223

ESTAE routines
 JES3 379
 event trace
 format 58
 EXRESC (execution resources table) 193
 EXRESC (execution resources) 193
 extent table
 formatted dump 226

F
 failsoft
 C/I FSS (C/I functional subsystem) 377
 JES3 377
 FAILURE parameter
 on the // *MAIN JES3 control statement 377
 on the CLASS initialization statement 377
 on the STANDARDS initialization statement 377
 options, valid 377
 order of override 377
 FCT ready queue summary 236
 file directory
 formatted dump 231
 FIND subcommand 138
 flag byte CTCFLAGS
 formatted dump 184
 format dumped data
 IPCS data 127
 formatted dump 127
 MAINSCHD queue 187
 FSS (functional subsystem)
 table entries in dump 182
 FSS address space
 effect on DSI 386, 387
 FSS table entry
 formatted dump 182
 function
 critical 379
 JES3 379

G
 general system diagnosis 27
 GRPTBL (group table)
 formatted dump 192
 GTF (generalized trace facility)
 additional information 115
 eligible message 116
 using data collected by 115

H
 hardcopy report 327
 header page 164
 help
 IPCS panel 138

I
 I/O parameter block
 formatted dump 225

IATYFCT (function control table)
 formatted dump 237
 IATYTVT macro
 formatted dump 224
 in-stream data sets 32
 interactive problem control system 127
 intermediate job summary table
 converter/interpreter debug facility 24
 internal reader control block
 formatted dump
 IRA (internal reader anchor block) 205
 IRE (internal reader element chain) 205
 IOSB-SRB pair
 formatted dump 228
 IPCS (interactive problem control system)
 ASID (address space identifier) 130
 CBF 139
 CBFORMAT 139
 control block group 131
 control block prefix 129
 create a control block group 134
 example 135
 create a model 132
 enhancing session 132
 general information 127
 getting started 127
 hints for using 138
 JES3 option 127
 JES3's usage 127
 LIST 140
 message 138
 recommended subcommands for JES3
 CBFORMAT subcommand 138
 FIND subcommand 138
 LIST subcommand 138
 STACK subcommand 138
 SUMMARY JOBSUMMARY ALL subcommand 138
 VERBEXIT subcommand 138
 WHERE subcommand 138
 setting up a session 127
 VERBEXIT 139

J
 JCLTEST facility
 using 24
 JCT single track table
 formatted dump 231
 JES3
 dump format 155
 dump suppression 111
 JOB queue element
 formatted dump 197
 memory usage
 formatted dump 235
 trace event 44
 JES3 ESTAE routine 379
 JES3 failsoft 377
 JES3 function
 critical 379
 JES3 nucleus 165
 JES3 recovery overview 377
 JESJCLIN utility 32

JESMSG Queue Control Area Header
 formatted dump 264
 Queue Entries 264
 JESMSG Queue Entries 264
 JESTAE exit routine 379
 JMF (job monitor facility) 327
 format
 JQE/JCT access method 357
 job
 effect on DSI 386
 job journal data set 378
 recovery 377
 restarting with MVS
 checkpoint/restart 381
 job backlog
 job number shortage 17
 job bottleneck 17
 job journal data set 378
 job number
 relieving a shortage 17
 job queue element
 JES3 197
 job related diagnosis
 diagnosing JES3 19
 JSAM data buffer
 formatted dump 232
 JSQ (job select queue)
 description 197
 JSS work-to-do queue
 report 363
 JSS work-to-do queue report
 using the report 319
 JSS-ready queue
 JSS work-to-do queue report
 using for diagnosis 319
 JST (job summary table)
 converter/interpreter debug
 facility 24
 JSTTEST facility
 using 25
 JVT (job volume table)
 converter/interpreter debug
 facility 24

K

keyboard
 navigation 395
 PF keys 395
 shortcut keys 395

L

LCB (logical unit control block) 249
 LCB entry
 formatted dump 249
 line DCT entries 242
 LIST
 syntax for JES3 140
 LIST subcommand 138
 locate table
 converter/interpreter debug
 facility 24

M

MAINSCHD queue
 dump format 187
 master OSE table 171
 MDS (main device scheduler)
 dump format
 allocate 212
 breakdown 212
 dynamic 212
 error 212
 fetch 212
 restart 212
 unavailable 212
 verify 212
 waitvol 212
 MDS RESQUEUE table
 formatted dump 212
 MEMDATA address
 formatted dump 190
 memory usage
 JES3 235
 message
 traced by GTF 116
 message class
 data set 24
 monitor DSP 28
 MOSE (master OSE table)
 formatted dump 171
 MPC (main processor control tables)
 formatted dump 198
 multi-version data access master control
 areas 192
 multiprocessor
 recovery for one partition failure 380
 recovery for one processor
 failure 379
 MVS checkpoint/restart facility
 automatic restart 381
 operator consideration 382
 checkpoint restart 381
 deferred restart 381
 operator consideration 382
 description 380
 processor failure 378
 restarting a job 381
 step restart 381
 system failure restart 381
 types of restart 381
 MVS control block
 converter/interpreter debug
 facility 24

N

navigation
 keyboard 395
 network log
 format of TCP/IP/NJE trace
 records 104
 format of trace entry 102
 NJE (network job entry)
 dump format 252, 255
 dump formats 254
 Notices 399

O

OSE (output scheduling elements)
 displaying 38
 OSS pool
 formatted dump 176
 SNA/NJE
 formatted dump 178
 TCP/IP
 formatted dump 177
 output writer functional subsystem
 recovery from a failure 389
 recovery procedure 389

P

partition
 reconfiguring a processor
 complex 380
 pass/catalog control block
 converter/interpreter debug
 facility 24
 performance problem
 job bottleneck 17
 job number shortage 17
 prefix
 control block 129
 problem analysis
 SNA RJP 67
 processor
 ACR (alternate CPU recovery) 379
 DSI (dynamic system
 interchange) 386
 global processor
 assigning functions to a local
 processor 384
 disabling 386
 restarting 383
 starting a local processor 387
 local processor
 restarting 384
 starting as the global
 processor 387
 recovery 379
 DSI (dynamic system
 interchange) 386

R

reconfigure a processor complex 380
 recovery
 ACR (alternate CPU recovery) 379
 BSC RJP failure 388
 checkpoint data set 384
 from permanent error 385
 DSI (dynamic system
 interchange) 386
 DSP failure 379
 failsoft
 C/I FSS (C/I functional
 subsystem) 377
 JES3 377
 function failure 379
 global processor
 assigning functions to a local
 processor 384
 restarting 383

- recovery (*continued*)
 - IBM 3480 tape drive 390
 - JES3 ESTAE routine 379
 - JESTAE exit routine 379
 - job 377
 - job journal data set 378
 - local processor
 - restarting 384
 - multi-system assigned device 390
 - MVS checkpoint/restart facility 380
 - operator restart consideration 381
 - restarting a job 381
 - types of restart 381
 - output writer functional subsystem
 - failures 389
 - overview 377
 - reconfigure a processor complex 380
 - reconfiguring a processor complex 380
 - restarting JES3 after a failure 383
 - SAPI Failures 389
- remote job processing
 - dump format 241
- report
 - JSS work-to-do queue 363
- resident remote and line DCT entry
 - formatted dump 242
- resident RJP line and terminal table
 - formatted dump 244
- resident SNA RJP terminal entries
 - formatted dump 245
- resident SNA terminal entry
 - formatted dump 246
- resident WSB/LUCB entry
 - formatted dump 246
- RESQ (resident queue entry) 196
- RESQ/S formatted dump
 - formatted dump 196
- RESQUEUE table
 - formatted dump 207
 - MDS (main device scheduler)
 - formatted dump 212
- RJP (remote job processor)
 - dump and trace format 64
 - resident line and terminal table 245

S

- SADMP (stand-alone dump)
 - using an IBM 3480 tape drive 390
- SAPI
 - formatted dump 259
 - Recovering from SAPI Failures 389
- scheduler work area block
 - converter/interpreter debug facility 24
- sending comments to IBM xv
- SETDSN table
 - formatted dump 222
- SETNAMES table
 - formatted dump 216
- SETUNITS table
 - formatted dump 217
- SETVOL table 219
- shortcut keys 395
- single track table (STT)
 - displaying contents 41

- SNA RJP (systems network architecture remote job processing)
 - DSI consideration 388
 - exception response 103
 - problem analysis 103, 104
 - protocol sequence 93
 - recording environment 67
 - resident table 245
 - resident terminal entry 245
 - snapshot dump 101
 - trace data reduction 99
- spool partition control block
 - formatted dump 229
- spooled records
 - displaying contents 44
- SQA entry
 - formatted dump 258
- SRT (resident SNA RJP table)
 - formatted dump 245
- STACK subcommand 138
- STANDARDS initialization statement
 - FAILURE parameter 377
- starting JES3
 - after a JES3 failure 383
 - after an MVS failure 383
 - global processor
 - restarting 383
 - local processor
 - restarting 384
- statistics data area (SDA)
 - displaying JES3 statistics 32
- storage
 - dump 111
- STT (single track table)
 - displaying contents 41
- SUMMARY JOBSUMMARY ALL subcommand 138
- Summary of changes xvii
- SUMMARY subcommand 138
- SUPUNITS table
 - formatted dump 179
- SYSOUT application programming interface (SAPI) data
 - formatted dump 259
- SYSUNITS table
 - formatted dump 218

T

- table entry
 - FSS (functional subsystem) 182
- table list
 - EXRESC (execution resources) 193
 - main processor control 184
 - resident RJP line and terminal 245
 - RESQUEUE (resident job queue) 212
 - SETDSN table 222
 - SETNAMES table 216
 - SETUNITS 217
 - SETVOL table 219
 - SUPUNITS table 179
 - SYSUNITS table 218
- tables
 - function control 237
 - IATYFCT (function control) 237
- trace event
 - format 55, 58

- tracing
 - RJP hardcopy log 66
- trademarks 401

U

- USAM data buffer
 - formatted dump 234
- user interface
 - ISPF 395
 - TSO/E 395

V

- VERBEXIT
 - syntax for JES3 139
- VERBEXIT subcommand 138
- view a JES3 formatted dump 127

W

- WHERE subcommand 138
- WSB entry
 - formatted dump 246



Product Number: 5650-ZOS

Printed in USA

GA32-1002-00

