CA JARS® Resource Accounting

User Guide

Release 12.7

CA Technologies Product References

This document references the following CA Technologies products:

- CA MICS® Resource Management
- CA Service Desk
- CA Top Secret® for z/OS

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Documentation Changes

The following documentation updates have been made since the last release of this documentation:

Note: In PDF format, page references identify the first page of the topic in which a change was made. The actual change may appear on a later page.

Updated the following EXTDATA record types:

- EXTDATA Record Type - S06 (see page 248)
- EXTDATA Record Type - R70Y (see page 327)
- EXTDATA Record Types - S30, S30X, S30I (see page 257)
- EXTDATA Record Type - R71P (see page 332)
- EXTDATA Record Type - R72W (see page 350)

Contents

Chapter 3: User-Defined Reporting and the Report Writer 53

Chapter 4: Control Statements and Tables 67

Chapter 1: Introduction

CA JARS Resource Accounting contains an integrated reporting component capable of producing reports on data from many systems. This chapter presents the basic flow of this product. See the flowchart in the section File Structure and Terminology Overview for a graphic representation of the reporting component.

Three elements of CA JARS are discussed next:

- Input
- Processing
- Output

Input

The three basic input formats used by CA JARS are:

- SMF/RMF/CMF
- VSE
- history/account

The dumped SMF data sets provide this product with the capability to report on z/OS statistics for system analysis and detailed job accounting.

Data in history format is created by the various product interfaces, or can be reformatted SMF data previously generated by CA JARS. The currently supported interfaces are:

- ADABAS
- CICS (separate product also required)
- DB2
- IDMS (separate product also required)
- IMS
- Network Accounting
- CA Roscoe®
- Tape Volume Accounting
- VM
- Datacom/DB

Note: The Disk Space Accounting Interface (CA JARS DSA Option) provides direct EXTDATA input to JARS/OLF or CA PMA Chargeback. Debits/credits are not required, but are available.

Processing

The data provided as input to this product is formatted into an intermediate account file. From this account file, reports are generated based on control statements indicating the desired output.

A detailed explanation of the five processing phases in the reporting component are discussed in the *Systems Programmer Guide.*

Output

CA JARS generates these types of output:

- System use reports
- User-defined reports
- History files - CA JARS records
- History/account files - EXTDATA records
- Comma separated value (CSV) files
- XML report files with their corresponding schemas (note that file generation requires the installation of the IBM XML Toolkit for z/OS)

System Use Reports

System Use Reports present an overall picture of activity within the operating system. SMF records carry the operating system related data, so they are the only meaningful input to the System Use Reports.

There are two types of System Use Reports:

- Overall System Utilization
- Detail Job or Program Activity Analysis

There are five overall System Utilization Reports:

- CPU Activity Graphs
- Multiprogramming Activity Report
- Computer Utilization Summary
- Resource Utilization Graphs
- Disk and Tape Activity Graphs

The detail Job or Program Activity Analysis Reports highlight specific resource utilization statistics by job or program. Each report is ordered by one of the following resources:

- Number of times used
- CPU time
- EXCPs
- Service rate
- Paging
- I/O index
- CPU page rate

You can produce one or all of these System Use Reports in a single run of CA JARS.

Differences between System Use Reports and EXTDATA System Use Reports

The System Use Reports are based on SMF data, which is prorated into intervals. The EXTDATA System Use Reports are based on RMF data, which is already in intervals. For more information see the "EXTDATA Reporting" chapter.

User-Defined Reports

CA JARS allows you to design customized reports. These reports are called *user-defined reports.* Using control statements, reports are generated to meet your needs. This guide is designed to assist you in coding the control statements required for report generation.

Up to 15 user-defined reports can be generated in a single run of this product, in addition to any selected System Use Reports.

A set of **sample** report control statements is provided on the distribution tape. You can find them in CAJROPTN (WSETJARS). These precoded control statements produce a wide variety of reports on your SMF data and provide an example of how to use the control statements. Some minor modification is required to define installation dependent elements such as department names, shift hours, rates to be charged, and so forth. Sample reports for the interfaces also exist on the distribution tape.

User-Defined Reports on performance statistics can be generated to complement the System Use Reports. Performance and utilization statistics can be shown in more detail than System Use Reports. Samples of System Use Reports are provided in the sample working reports as well.

Billing, or chargeback, is a common use of CA JARS. Several charge-related reports are provided in the sample reports. There are detailed explanations of chargeback, rate calculations, and cost distribution in the sections that follow. Also, you should read the section on Accounting Standards/Conventions in the *CA JARS Systems Programmer Guide.* Once you are familiar with the CA JARS method of chargeback, data from any of the interfaces including CA JARS DSA Option (Disk Space Accounting) in combination with the SMF Extensions (SMF/E) can be implemented to provide a complete chargeback solution.

More advanced chargeback capabilities are available through the use of the JARS/OLF component. For further information see the JARS/OLF Component in the "System Description" chapter of the *Systems Programmer Guide.*

History Files

The history file output feature lets you build and maintain a *historical* performance, utilization, and chargeback data file: weekly, monthly, quarterly, and so forth. This important feature gives you a great deal of flexibility and control over this data management task. History files fall into one of two categories: detail-level or summary-level.

- A *detail-level history file* contains one record per job or job step depending upon the detail level chosen. Creating a detail history file in the first (and only) pass of the raw SMF data reduces the processing required to manage the raw SMF data on a long term basis.
- A *summary-level history file* can be created that contains records summarized to your custom specifications: hourly, daily or daily by account code.

You control history file selection by the proper coding of the SORT statement. Refer to the explanation of history files contained in the "Control Statements and Tables" chapter of this guide. Up to 15 history files can be produced in a single run of this product.

In addition, EXTDATA records can be produced and maintained on detail-level history files.

History/Account Files - EXTDATA Records

The difference between EXTDATA and account records is really the difference between a physical and a logical record. SMF data is read by the JSIMAIN program, and, in the case of EXTDATA, is simply reformatted for later use by generalized report programs, or for direct input to the JARS/OLF component. In the case of account records, the SMF data is logically combined into job or step records. These account records contain a synthesis of information from many different SMF records. The EXTDATA record (with certain exceptions) contains information from a single SMF record. Therefore, the content of a complete file of account records approximates that of a complete file of EXTDATA records; however, the number and composition of the individual records is very different.

EXTDATA Reporting

A number of system and task reports are provided which use EXTDATA as their input. In the following sections you will learn how to produce reports and become familiar with the features of this product.

File Structure and Terminology Overview

There is essentially one format for a CA JARS output record. It is shown in the back of this guide and is referred to as the basic accounting record or the history record.

The field relationship of this record layout is carried over from the intermediate *account* file to the *history* file. Also, a history file can be reduced into a *summary* file.

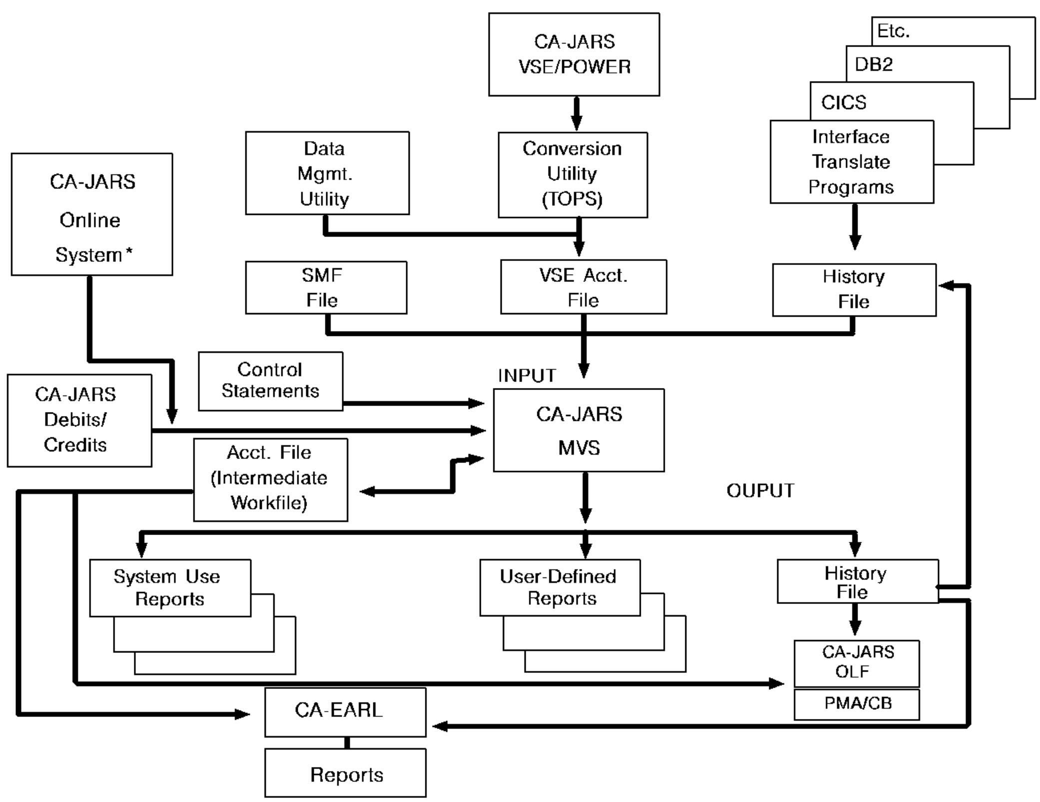
In all cases, the record format of these files is very similar. They differ primarily in their content and usage.

- An account file is normally a temporary data set that is not saved but is used in the process of generating reports and a history file.

  Note: If EXTDATA is the primary output of the system, we recommend using the account file as a permanent data set, not to produce history files.

- History files can in turn be kept at this level of detail for as long as you require or summarized at some selected sort level. When reduced in this manner, a history file is usually referred to as a *summary* file. The record format is the same. EXTDATA records are only maintained on detail-level history files.

CA JARS Information Flow



* See the *Online System User Guide* for a detailed description of this feature.

How to Proceed

This section acquaints the first-time CA JARS user with the report generation process using the Report Writer. Refer to the "User-Defined Reporting and the Report Writer" chapter for details on user-defined reporting using the Report Writer.

As previously stated, control statements are used to communicate to CA JARS what reports are to be produced. Coding these control statements can be a simple task. As your familiarity increases with the control statements, the reports you produce can become more customized and complex.

The SELECT statement is used to specify the input and desired report output to CA JARS. Only one SELECT statement is permitted in a single run. Read the explanation of the SELECT statement in the "Control Statements and Tables" chapter before proceeding.

CA JARS Control Reports

The following sections describe reports produced by the Report Writer.

When you produce reports, a Control Report is produced automatically. It can have up to four sections:

- System Control Statements
- SMF Record Type Summary (produced on when SMF data is used as input)
- Account Record Summary
- Record Control Statements

The Control Report tells you which control statements were used for report generation, actual SMF record types available for processing, and what input was processed. A sample Control Report follows.

System Control Statements:

```
CA JARS r12                         SYSTEM CONTROL CARDS                                                      PAGE    1
Resource Accounting SP0                                                                                 28 OCT 1998  13
DIAGNOSTIC                1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80  SEQ.

                           PARMS                                                        128              0001
                           SELECT     1                                /                                  0002
                           OPTION            9999999      1                                               0004
                          1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80

CAJS944I 6 INVALID SMF RECORDS DISCARDED.
```

SMF Record Type Summary:

```
CA JARS r12                     SMF RECORD TYPE SUMMARY                                                    PAGE    2
Resource Accounting SP0                                                                                     28 OCT 1998   13
TIME OF MEASUREMENT IS FROM 98/10/20 AT 10.00.02
                         TO 98/10/25 AT 10.36.26
                                        TYPE     DESCRIPTION                              COUNT
                                          2      DUMP HEADER                                  2
                                          3      DUMP TRAILER                                 1
                                          4      STEP TERMINATION                           515
                                          5      JOB TERMINATION                            214
                                          6      OUTPUT WRITER                              513
                                          9      VARY ONLINE                                  3
                                         11      VARY OFFLINE                                 2
                                         14      INPUT/RDBACK DATASET ACTIVITY            3,323
                                         15      OUTPUT, UPDATE, INOUT OR OUTIN           2,168
                                         16      SORT/MERGE STATS                            32
                                         17      SCRATCH DATA SET STATUS                    130
                                         18      RENAME DATA SET STATUS                       1
                                         20      JOB INITIATION                             281
                                         21      ERROR STATS BY VOLUME                       24
                                         23      SMF STATUS RECORD                            4
                                         26      JES JOB PURGE                            1,498
                                         30-1    JOB INITIATION                           1,775
                                         30-2    INTERVAL                                 1,052
                                         30-3    INTERVAL                                 3,516
                                         30-4    STEP TOTALS                              4,095
                                         30-5    JOB END/TSO LOGOFF                       1,523
                                         30-6    SASI                                        32
                                         32      TSO/E USER WORK ACCOUNTING                  55
                                         34      TS STEP TERMINATION                         59
                                         35      LOGOFF                                      59
                                         40      DYNAMIC DD                               2,815
                                         47      JES SIGN-ON                                  2
                                         48      JES SIGN-OFF                                 2
                                         50      ACF/VTAM TUNING STATS                       32
                                         55      NJE NETWORK SIGN-ON                          2
                                         57      NJE NETWORK SYSOUT TRANSMISSION            212
                                         58      NJE NETWORK SIGN-OFF                         2
                                         60      VSAM VOLUME DATA SET UPDATED             1,085
                                         61      ICF DEFINE                                 185
                                         62      VSAM CLUSTER/COMPONENT OPENED              170
                                         64      VSAM CLUSTER/COMPONENT STATUS              341
                                         65      ICF DELETE                                 118
                                         66      ICF ALTER                                    4
                                         70      CPU ACTIVITY                                22
                                         71      PAGING ACTIVITY                              7
                                         72      WORKLOAD ACTIVITY                          161
                                         73      CHANNEL ACTIVITY                             7
                                         74      DEVICE ACTIVITY                             28
                                         75      PAGE/SWAP DATA SET ACTIVITY                 28
                                         76      TRACE ACTIVITY                             721
                                         77      ENQUEUE ACTIVITY                             7
                                         78      MONITOR I ACTIVITY                          16
                                         80      RACF PROCESSING                              2
                                         90      SYSTEM STATUS RECORD                         1
                                        240      USER-DEFINED SMF RECORD                    182
                                                 SMF RECORD TYPE SUMMARY

                                                                     TOTAL        27,029
```

Note: The date and time appearing at the top of the page after TIME OF MEASUREMENT IS FROM... is the run date and time of the first record written to the SMF file.

The date and time appearing after TO is the run date and time of the last record written to the SMF file.

These records represent the first and last physical records on the SMF files.

The SMF Record type summary lists all of the SMF Record types found on this run.

Account Record Summary:

```
CA JARS r12                      ACCOUNT RECORD SUMMARY                                                      PAGE    4
Resource Accounting SP0                                                                                        28 OCT 1998  13

CAJS310I CAIJSSMF PROCESSING COMPLETED.     5,406 RECORDS WRITTEN.
CAJS900I CAIJSACT FILE COMPLETED.
                      757  JOB RECORDS WRITTEN
                       16  DISPATCH JOB RECORDS WRITTEN
                      147  ORPHAN TYPE 6 JOB RECORDS WRITTEN
                    3,317  STEP RECORDS WRITTEN
                      740  1-STEP JOB RECORDS WRITTEN
                      405  TSO RECORDS WRITTEN
                        2  RJE RECORDS WRITTEN
                       22  SYSTEM-RELATED RECORDS WRITTEN
                    5,406  TOTAL RECORDS WRITTEN
```

The Record type(s) written to the account file are listed below the CAJS900I message. The record types written vary depending on the input data. For example, if No Dispatch job records are present this item is not reflected. If the EXTDATA only option is selected, EXTDATA records are written along with the system related records.

If processing is requested for SMF and EXTDATA then the records written to the account file reflect both SMF and EXTDATA records.

User-Defined Report Control Statements:

```
CA JARS r12                      REPORT CONTROL CARDS                                                        PAGE    1
Resource Accounting SP0                                                                                             28 OCT 1998  13
DIAGNOSTIC                 1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80  SEQ.

                            PARMS                                                        128               0001
                            SELECT     1                                     /                             0002
                            EDIT    F0 T06D 08 H04 H38C F9 H16 H17 H                                       0003
                            OPTION            9999999      1                                               0004
                           /HEADER     TEST                                                                0015
                           /SORT    07716A1 01608A                          1 1                            0016
                           /DISPLAY   0080031041061121161171E11E21E31E41191E91541F9                        0017
                           /RATE     0000                                                                  0018
                           /FORMRATE          1000                                                         0019
                           /GROUP   0281  4441  2962 S                                                     0020
                           /GROUPC  1S       T       A                                                     0021
                           /GROUPC  1U               B                                                     0022
                           /GROUPC  22               B                                                     0023
                           /GROUPC  3A       AZ                                                            0024
                           /GROUPC  3BB                                                                    0025
                           1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
```

These control statements, listed in each report, include global control statements that apply to all user-defined reports, as well as the control statements specific to the report.

In the above example, the PARMS, SELECT, EDIT, and OPTION are global control statements. The remaining statements, which contain a '/' in position 1 are specific to the user-defined report.

If multiple user reports are requested, a group of report control cards follow for each included report.

System Use Report Generation

To generate System Use Reports, simply code the SELECT statement to indicate which reports are desired. SMF input or a history input file level 6 or 7 created from SMF input must be specified for System Use Reports to be meaningful. No other control statements, except SELECT, are required if System Use Reports are the only output desired, with the following exceptions:

- When a level-6 history file is used as input, the SYSUSE1 control statement must have a **J** in position 11.
- The processor count field on the OPTION control statement, positions 35-36, needs to reflect the number of processors.

At this time, you may want to run some System Use Reports against your SMF data. The JCL required to run CA JARS is documented in the "Operating Instructions" chapter. You should read the detailed explanation of System Use Reports in the "System Use Reporting" chapter, comparing the examples provided with the System Use Reports you generate to gain a full understanding of how these reports should be used.

Customization is optional but can be performed using two additional control statements: SYSUSE1 option and SYSUSE2 option.

Synchronize the writing of SMF interval records with the recording of RMF data to help ensure correspondence between RMF reports and system use reports.

In order to ensure accuracy of system use reports in a multiple LPAR environment, it is necessary to run separate reports for each LPAR. This is accomplished by including a SYSUSE1 statement and coding the first character of the LPAR name in column 10 of that statement.

SYSOUT Information Processing

This section explains the method used by CA JARS to handle information about print lines and/or punch statements. Use of this data in the Report Writer is also explained.

Before we discuss CA JARS processing, it is important to understand the way JES and SMF work together to record SYSOUT activity. For batch jobs, all SYSOUT with the same SYSOUT class and forms identification are collected together in the JES spool. There is no distinction as to which DDNAME produces which print lines. All like SYSOUT is grouped together. When JES finds a printer that it can use to print a specific SYSOUT class and forms ID, then it prints all of the lines for an entire job that are of that class and ID.

Once the SYSOUT has been printed, one SMF type 6 record is written to record statistics for the batch job that originally created this SYSOUT. This record shows the totals for all printing performed. For example, if a batch job has three steps, each with two DDNAMEs going to SYSOUT class A, then one SMF type 6 record is written containing the total print lines for all six DDNAMEs in the job.

```
Base portion of                Data for    Data for  Data for
the job record                 SYSOUT      SYSOUT    SYSOUT
(Bytes 1 through 608)          Class A     Class C   Class X
==============================|__________|__________|__________
```

The base record is created, then a Forms entry is added to the end of the record for each SMF type 6 record for this job. Since there may be multiple Forms entries for a single job, the records in the account file can be variable in length. In addition, some of the fields in the base portion of the record that are SYSOUT related, like Print Forms ID, are filled with blanks. Since there is more than one forms ID for the job, there is no way that all forms IDs could be carried in one field.

To illustrate the processing of records with forms entries, let's use a hypothetical job. This is the JCL for our job:

```
//JARSTEST JOB (B533,PRA,250),'JARS TEST',TIME=(1,31),
//         TYPRUN=HOLD
//STEP1    EXEC PGM=IEBGENER
//SYSPRINT  DD SYSOUT=A
//SYSIN     DD DUMMY
//SYSUT1    DD DSN=EDUC.JTF.CARDLIB(TESTMEM),
//             DISP=SHR
//SYSUT2    DD SYSOUT=X
//*******************************
```

```
//STEP2   EXEC PGM=JSIMAIN
//STEPLIB   DD DSN=CAI.CAJRLOAD,
//             DISP=SHR
//SYSOUT    DD SYSOUT=A
//CAIJSPRT  DD SYSOUT=A
//CAIJSNAP  DD SYSOUT=A
//CAIJSSMF  DD DSN=WEEKLY.SMF(0),
//             DISP=SHR
//CAIJSACT  DD DSN=&.&TEMP.,
//             UNIT=3350,
//             SPACE=(CYL,(5,1),RLSE)
//             DCB=(BLKSIZE=3000, BUFL=32760)
//SORTWK01  DD UNIT=3350,SPACE=(CYL,(2,1),RLSE)
//SORTWK02  DD UNIT=3350,SPACE=(CYL,(2,1),RLSE)
//SORTWK03  DD UNIT=3350,SPACE=(CYL,(2,1),RLSE)
//CAIJSCT1  DD UNIT=3350,SPACE=(TRK,5)
//CAIJSCT2  DD UNIT=3350,SPACE=(TRK,5)
//CAIJSPRT  DD SYSOUT=X
//CAIJSCIN  DD DSN=EDUC.JTF.CARDLIB(CNTLCARD),
//             DISP=SHR
//*****************************
//STEP3   EXEC PGM=IEHPROGM
//SYSPRINT  DD SYSOUT=A
//DISK1     DD DSN=EDUC.JARS.HISTORY(-1),
//             DISP=SHR
//SYSIN     DD DSN=EDUC.IEHPROGM.CNTLCARD,
//             DISP=SHR
```

All lines with SYSOUT=A are kept in one type 6 SMF record.

All lines with SYSOUT=X are kept in another type 6 SMF record.

The SMF data generated for this job includes three step termination records, one job termination record, and two type 6 records (SYSOUT). The account file records created by these SMF records look like this:

```
Step1 Record ==============================
Step2 Record ==============================
Step3 Record ==============================
                                            Class 'A'    Class 'X'
                                           Form Entry   Form Entry
Job Record   ==============================____________|____________
```

To illustrate the use of this data in reports, we will create a hypothetical report that includes only the print lines for SYSOUT class X. All other classes of SYSOUT are rejected. We do this by using the GROUP and GROUPC statements.

A person who does not understand how forms entries are handled by JES, SMF, and CA JARS, might code the grouping as follows:

```
1...+....1....+....2....+....3....+....4....+....5....+....6....+....7..
5GROUP   4431 S
5GROUPC  1X
```

However, this would select no records, because position 443 is blank. The base portion of the record cannot be filled because there is more than one SYSOUT class for the job. The real information for the SYSOUT is in the forms entries at the end of the job record. To be able to access this data, a special grouping dynamically generates *forms records.* A forms record has the same layout as a step record, but since one forms record is built from each forms entry, SYSOUT-related fields in the base portion actually contain usable data.

The following grouping causes the dynamic generation of the forms records, and then does the necessary selection for the sample report.

```
1...+....1....+....2....+....3....+....4....+....5....+....6....+....7..
5GROUP   0281  4434  2962 S
5GROUPC  1S       T       A
5GROUPC  1U               B
5GROUPC  2X               B
5GROUPC  3A      A9
5GROUPC  3BB
```

The key to understanding the processing technique for forms data is to understand the sequence of events caused by these grouping statements.

First, the records about the hypothetical job are in the account file in the order shown below.

```
Step1 Record ==============================
Step2 Record ==============================
Step3 Record ==============================
                                            Class 'A'    Class 'X'
                                           Form Entry   Form Entry
Job Record   ==============================____________|____________
```

CA JARS grouping takes one record at a time from the account file through grouping logic. Only if a record passes one group test can it then proceed to the next test.

The first step record is read from the account file and looks like the sample below. Position 28, processor ID, contains an S or a T. Positions 296 and 297, group codes 1 and 2 respectively, are blank. Position 443, SYSOUT class, should also be blank.

```
               Pos.        Pos.      Pos.
                28        296/297    443
Step1 Record ====S==========  ======== ====
                or
                 T
```

When this record has gone through the grouping, it looks like the sample below. The only changes are to position 296, group code 1, which is now an A.

```
               Pos.        Pos.      Pos.
                28        296/297    443
Step1 Record ====S==========A ======== ====
```

This record is selected for the report, as are the other two step records, because they all contain the same information in the fields tested as the step 1 record. The job record is next to be read from the account file. It is processed in a similar way to the step records, with one variation. If the job record passes through all the grouping tests, as the job record in our example did, then it is used to dynamically generate forms records from the data contained in the forms entries.

Job record before grouping: This is the job record before grouping. Position 28, the processing ID, contains S or T. Positions 296 and 297, group codes 1 and 2, are blank. The SYSOUT class field, position 443, is blank. The actual SYSOUT classes for this job are carried in the two forms entries.

```
               Pos.        Pos.      Pos.    Class 'A'    Class 'X'
                28        296/297    443    Form Entry   Form Entry
Job    Record ====S==========  ======== ====____________|____________
                or
                 T
```

Job record after grouping: This is the job record after grouping. The result is the same as with the step records; group code 1 is changed to an A. Note that the data in the forms entries has not yet been examined.

```
               Pos.        Pos.      Pos.    Class 'A'    Class 'X'
                28        296/297    443    Form Entry   Form Entry
Job    Record ====S==========A ======== ====____________|____________
```

It is at this point that CA JARS recognizes that forms records are to be created from the two forms entries at the end of this job record. One record is generated, and then that record is processed by the grouping logic. During this processing, the job record is kept by CA JARS so that it can be used to create the second forms record.

First forms record before grouping:

This is the first forms record before grouping. A record has been built from the data in the forms entry. Position 28, processing ID, contains a U. This indicates that this is a unit record, or a forms record. As with the job and step records, group codes 1 and 2 are blank. However, note that position 443, SYSOUT class, has been filled with data from the forms entry.

```
                Pos.        Pos.      Pos.
Forms Record     28         296/297    443
Class A       ====U==========B ========A====
```

This record contains line counts for SYSOUT class A, a class not included in the sample report. Therefore, the record should be rejected.

First forms record after grouping:

This is the first forms record after grouping, at which time it was rejected. Group code 1 is a B, because the processing ID is a U, and group code 2 is still a blank, because the SYSOUT class is not X.

```
                Pos.        Pos.      Pos.
Forms Record     28         296/297    443
Class A       ====U==========B ========A====
```

CA JARS goes back to the job record and uses it to generate the second forms record, the one for SYSOUT class X. This record is a full-sized record with the SYSOUT information in the base portion.

Second forms record before grouping:

This is the second forms record before grouping. Again the processing ID is U and group codes 1 and 2 are blank. The SYSOUT class of X is taken from the second forms entry.

```
                Pos.        Pos.      Pos.
Forms Record     28         296/297    443
Class X       ====U==========  ========X====
```

This record contains line counts for SYSOUT class X, the class to be included in the sample report. Therefore, the record should be selected.

Second forms record after grouping:

This is the second forms record after grouping, at which time it was selected. Group code 1 is set to B because processing ID is U, and group code 2 is also set to B because the SYSOUT class is equal to X.

```
                Pos.        Pos.      Pos.
Forms Record     28         296/297    443
Class X       ====U==========BB========X====
```

Now that all the forms entries have been turned into forms records, the job record is passed to the report. At this point, all grouping is complete for this job.

Records Read from Account File	**Records Read by Grouping**	**Records Selected for the Report**
Step1 Record	Step1 Record	Step1 Record
Step2 Record	Step2 Record	Step2 Record
Step3 Record	Step3 Record	Step3 Record
Job Record	Forms Record 1	Forms Record 2
Forms Record 2	Job Record	Job Record

User-Defined Reports

The following report sample shows the general format used for all User-Defined Reports.

Note: See the "User-Defined Reporting and the Report Writer" chapter to learn about the basics of generating reports using the JARS report writer. It shows you how to generate reports using three increasingly informative examples.

```
                                  M V S   P E R F O R M A N C E   G R O U P   S U M M A R Y
 BEGIN DATE - 02/02/98                                                                                  RUN DATE - 02/13/98
 END DATE   - 02/10/98                                                                                             PAGE    1


  PERFORM   NBR     NBR     SERVICE  SERV     SWAP      TCB       SRB       CPU      ACTIVE   RESIDENT  CPU  T-AROUND PERCENT
    GROUP  JOBS  SESSNS       UNITS  RATE    COUNT     TIME      TIME      TIME        TIME       TIME  IDX  TIME-AVG     CPU

0            14       0      83,007   178      114  00:01:21  00:00:01  00:01:22  00:07:46  00:07:31    2  15:31:49   1.289
1           144       0   3,348,104   364       17  00:29:56  00:02:13  00:32:09  02:33:29  02:33:14    7  00:06:31  30.291
2             0      51   1,343,566   149    4,612  00:14:10  00:01:42  00:15:53  02:29:52  02:26:20   11  00:00:00  14.968
.
.
.
```

Each user-defined report has two sections:

- standard report header
- report body

The first 8-10 lines of every report are the standard report header that cannot be suppressed. The elements of the standard header are introduced by the following control statements:

- Name - description:

  The report title is generated by the HEADER statement. The positioning of the title is also coded on the HEADER statement. The HEADER in the example provided above is: MVS PERFORMANCE GROUP SUMMARY

- Dates:

  The Begin Date, End Date, and Run Date are all determined by fields on the PARMS and CRITERIA statements or, by default, the data read into CA JARS. The example has:

  ```
  BEGIN DATE  - 02/02/98      ...      RUN DATE  - 02/13/98
  END DATE    - 02/10/98
  ```

- Operating Cost (Not shown on this report, but shown when used):

  The PARMS statement is used to introduce a cost figure that is distributed to all cost centers. This is one chargeback technique. The example provided does not reflect the use of this feature. However, when implemented, the OPERATING COST and amount display above the RUN DATE on the reports.

- Spacing:

  Two blank lines separate the heading from the body of each report.

- Column titles:

  All data element titles are determined by the Title Table coded on the DISPLAY statement. The column titles in the example are:

  ```
  PERFORM    NBR     NBR     SERVICE  SERV   . . .  PERCENT
    GROUP   JOBS  SESSNS       UNITS  RATE              CPU
  ```

The content of the body of each report is determined from the specification of certain fields on the SORT and DISPLAY statements. There are three types of lines that can be generated in every report:

- Detail lines
- Summary lines
- Grand total line

Detail lines

The detail line information may be optionally displayed for each accounting record at the job and job-step level. Check the Output Data Elements Table in the "Control Statements and Tables" chapter to ensure that an item(s) to be displayed is available at the detail or summary level.

- Job lines:

  You may elect to display the selected output data elements (DE IDs) for each job for a given report. The job information is a summary of pertinent data for all the steps within that job.

- Step lines:

  You may display the selected output data elements for each job-step for a given report. The pertinent data at each step level for a given job creates the step level information.

Summary lines

A summary line is optionally generated, based on the individual field specifications on the SORT statement. Five summarization levels are possible. The summary line displays information that can be logically accumulated for each change of data in the user-specified sort control field. Positioning of the summary line is determined by the Summary Print option on the SORT statement.

Grand total line

A Grand Total line is automatically produced on every report. All elements that can be logically accumulated display on the final summary line.

The maximum number of lines to be printed on a page is controlled by a field on the PARMS statement.

Figures are normally displayed with commas marking the thousands, millions and billions places. If a number does not fit the space available, the commas are dropped. Right-hand decimal places are the next characters dropped--two at a time. If the number is so large that even the rounded integer does not fit, the number is rounded further, the rightmost places dropped and the remaining numbers are followed by an asterisk and a number indicating the number of places dropped. Thus 386,957 (or 387,000) becomes 387*3. Sign values are always retained.

21st Century Support

The overall design of 21st century support in CA JARS is to treat years with values of 00 through 59 as being in the 21st century; for example, 2000-2059. Years with values of 60 through 99 are treated as being in the 20th century; for example, 1960-1999. The following text discusses in detail each of the areas of date processing affected by 21st century support.

For purposes of sorting, comparisons and calculations involving dates, the two-digit year is logically expanded to include the century. This ensures proper sort sequencing, correct comparisons and results from calculations involving dates.

However, externally the two-digit year is maintained. This includes all external files with the exception of EXTDATA files, reports, and input parameters. This implementation eliminates the need to change parameters or file layouts. In addition, the Wizard Report Writer has been modified in the same fashion to properly process two-digit years in date fields.

The following text discusses in detail each of the areas of date processing affected by 21st century support.

Sorting on Date Fields

When a date field is specified on the Sort Control Statement, CA JARS takes the century into account and makes an adjustment in setting up the Sort field. If the year is 59 or less, it is treated as being in the 21st century. If the year is 60 or higher, it is treated as being in the 20th century. Thus, when performing a sort in ascending sequence, this product sorts a YY/MM/DD field containing "99/12/31" (December 31, 1999) ahead of a field containing "00/01/01" (January 1, 2000).

Selection, Rejection, and Compares Involving Date Fields

When performing selection or rejection based on a date field via the CRITERIA statement, CA JARS takes the century into account. If the year portion of the date contains a value of 59 or less, it is treated as being in the 21st century. If the year is 60 or more, it is treated as being in the 20th century.

Thus, for selection, rejection, or comparison purposes, a date field containing "00/01/01" (January 1, 2000) compares high against a constant of "99/12/31" (December 31, 1999).

Grouping

When grouping on date fields, if the dates in the data span the millenium, it is necessary to modify the GROUP/GROUPC Control Statements. For the Group Control Statement, add another group definition referencing the original (Date) Group field. For the original GROUPC Control Statement, make the ending range the last day of the 20th century. Add a second GROUPC Control Statement for the beginning and ending date ranges to be selected in the 21st century. An example follows.

Before Year 2000 Support

```
ASORT    04306A2 03706A  01608A
AGROUP   0436                     -----> DATE FIELD
AGROUPC  1991201 991231  A        -----> 12/01/99 - 12/31/99
```

After Year 2000 Support

```
ASORT    04306A2 03706A  01608A
AGROUP   0436  0436               -----> DATE FIELDS
AGROUPC  1991201 991231  A        -----> 12/01/99 - 12/31/99
AGROUPC  2000101 000131  B        -----> 01/01/00 - 01/31/00
```

Calculations Involving Date Fields

CA JARS takes the century into account when deriving various fields such as Elapsed Time and Turnaround Time that involve dates in the calculation. This ensures that correct values will be obtained for jobs, steps and transactions spanning the turn of the century.

Likewise, this product takes century into account in resolving the weekday and day of week keywords. Again, if the year is 59 or less, it is treated as being in the 21st century. If the year is 60 or higher, it is treated as being in the the 20th century. So a YY/MM/DD date containing "97/01/01" generates a weekday value of Wednesday, while a date containing "00/01/01" generates a weekday value of Saturday, which is the correct day for January 1, 2000.

EXTDATA Files

CA JARS places a common header onto SMF records before they are written as EXTDATA records to the history file. The date field in the common header, defined by MRXTHDR for CA Earl EXTDATA File/Record definitions, and MZXTHDR for CA Easytrieve EXTDATA File/Record definitions contains a two-digit year field. CA Earl macros GTOJUL, RECTOJUL and GETDIFF have been modified to handle leap year and date calculations. CA Easytrieve macros GTOJULZ, RECTOJLZ and GETDIFFZ have been modified to handle leap year and date calculations. Date fields in the base EXTDATA records are generally in packed length four fields with the century indicator turned on. For example, the first day of year 2000 would be stored as 0100001F.

Chapter 2: System Use Reporting

The System Use Reports are a set of computer utilization time graphs and reports. They provide snapshots of system activity that can be augmented by User-Defined Reports. In general, these reports provide for the presentation of resource utilization information relative to dates and time and are laid out to aid the data processing manager in performing the following functions:

- identifying changing resource utilization trends early
- maintaining satisfactory customer service levels
- reducing resource contention through proper scheduling

The System Use Reports assist the data center manager in performing these and other functions. When used properly, these reports can be a powerful and efficient management tool.

This chapter contains an overview of System Use Report interpretation and then a detailed look at each of the categories of reports.

Note: The System Use Reports are based on combined SMF data. The EXTDATA System Use Reports, (SYSDAY1, SYSDAY2, SYSWEEK1, and TAPEMNT) use RMF records. Therefore, results cannot be compared. See the EXTDATA Reporting chapter in this guide for more information.

Interpreting Reports

System Use Report Interpretation

The majority of the System Use Reports display an estimate of the level of utilization of system resources during specific intervals of time. These time intervals are user-specified and may be as small as a minute or, in the case of a utilization summary, as long as a shift or day. Generally, these utilization levels are displayed as a percentage of the time interval length, or of some maximum value, user-defined or defaulted.

The utilization data contained in the step and/or job level account records when sorted into chronological sequence, provides the basic information from which the majority of the System Use Report statistics are derived. Since the time intervals over which this data was collected rarely coincides with the specified report time intervals, a *prorating* or apportioning technique is used to assign utilization estimates to each report time interval from the available step or job level data. By necessity, the technique used assumes that the rate of utilization of each resource, such as CPU time, or an I/O device, for example, was consistent during the duration of the step or job. Since this is occasionally not the case, the specification of a report time interval length which is not less than the average step or job elapsed time (from the Computer Utilization Summary Report) is recommended.

Care must be taken when attempting to compare statistics from one System Use Report to another. To provide the most information possible in the smallest series of reports, each report is designed to provide either different information or information from a slightly different point of view than other reports. What most often leads to an apparent contradiction is an attempt to compare statistics between two reports which base their utilization percentages on different interpretations of real time, primarily either measured time or defined time.

Defined time is the accumulation of the amounts of time in each specified report time interval, shift, or logical day. *Measured time* is the accumulation of periods of elapsed time commencing with the beginning of the earliest occurrence of recorded activity and terminating with the end of the latest recorded activity within each defined shift or day. A *recorded activity* is either a step or job execution or the accounting of a wait-time interval (type 70 SMF records). Only when a recorded activity crosses the beginning and end of a defined shift or day is measured time the same as defined time.

Because of the periodic recording of system wait or *idle* time in z/OS, differences between measured and defined time can normally be attributed to gaps between system shutdown and re-IPL, the loss of SMF data due to a system failure, or simply the absence of any SMF data for portions of a defined shift or day because of the times of day when the SMF collection data sets were dumped.

On each type of report, *Time of Measurement* identifies the beginning and ending of the measured time period for that report, *Total Includes* identifies the beginning and ending dates of the defined time period, and the body of the report defines the beginning and ending times of the defined time period. Note that when a report is a *summary* type covering more than one day, there may be gaps in measured time such that the accumulated measured time is less than the difference between the end of the last measured time period and the beginning of the first.

Note that the System Use Reports were originally designed for data covering a relatively short period of real time; that is, a day or a week. The internal accumulation of data may experience overflows when the amount of data processed exceeds design limits. In general, the accumulation for queue and turnaround times used in the production of the Computer Utilization Summary report are subject to overflows when the amount of time being accumulated exceeds approximately 65,000 hours. In addition, the accumulation of service units overflows if the amount being accumulated exceeds approximately 2,000,000,000.

Considerations

- The only meaningful inputs to System Use Reports are SMF/TSO records or a history file created from SMF/TSO input (level 6 or 7). When processing a level 6 history file, you **must** code a **J** in position 11 of the SYSUSE1 statement.
- All numeric data is handled as binary full words. The times are carried in hundredths of seconds. This could result in truncation of data if bringing a large amount of very active data. There is no checking for overflow and this can cause problems.
- Prorating is done by:
  - multiplying the number, for example CPU time, by the defined time interval
  - dividing the result by the total elapsed time of the job or step

  The assumption, due to using batch data, is that CPU usage was the same during the entire length of the job.
- Prorating is done only for steps or jobs that span more than one interval.
- The shift and day flags on the SYSUSE1 statement can be used to select any or all:
  - shift oriented reports for each day
  - 24-hour reports for each day
  - shift oriented reports for all days combined
  - 24-hour reports for all days combined
- Page numbers start at 1 for each report.
- When reports for each day and for all days combined are generated, most of the core requirements are doubled.
- Numbers are all rounded by half-adding.

- Time of measurement dates and times are taken from the SMF run dates, not reader start date, for the records used in the reports requested. This means that the dates and times may vary depending upon the reports requested because not all the system type records are necessary for all the reports. If an asterisk appears in the dates, check:
  - PARMS statement positions 11-34
  - CRITERIA statement date
  - use of a summary level history file (level 1-5)
- Shift start times must always be larger than the preceding shift time. You cannot define first shift as 0700, second as 1400 and the third as 0000.
- When using a criteria date, IPL idle, overhead and wait times are from the criteria date to the next IPL. If an IPL record contains data from the time period prior to the criteria date, we prorate the information. This is done by adding like data together and dividing by 2. This may cause too little or too much time to be accounted for.
- System use or system related records are created for IPL idle time, SMF data lost and wait time. These records are less than 160 bytes in length and are retained on an account file and job step and job level history files. The format of the records is given in your *Systems Programmer Guide.*

The following table is designed to assist you in understanding the graphs presented later in this chapter.

Number	**1**	**2**	**3**	**4**	**5**
Default Character	**B**	**T**	**O**	**0**	**-**
CPU Activity Graph	Batch CPU Time under TBC	TSO CPU Time under TCB	Batch CPU Time under SRB	TSO CPU Time under SRB	Overhead Time
Paging Activity Graph	Batch Total Pages	TSO Total Pages			
System Occupancy Graph	Batch Active Time	TSO Active Time	Batch Allocation Time	TSO Logon Delay Time	
Tape Occupancy Graph	Batch Tape Drive Occupancy Time	TSO Tape Drive Occupancy Time			

Report Headings

The header portion of each of these reports contains the following elements:

- The report title.
- The report run date.
- The page number (a four-digit, zero-suppressed value). The page number starts over at 1 for each selected report.
- The exact date/time range covered by the report. Note that for multiday recaps of shift oriented reports, the period covered includes only the appropriate shift on all days.
- These three items appear only on reports for which shift and date boundaries can vary:
  - The scope of the report. See the description of *scope* as it applies to each report.
  - The first logical date covered by the report.
  - The last logical date covered by the report. If it is blank, the report covers only one day.

Note: The *logical date* covered by the report is the date on which the 24-hour period starts.

System Use Report Samples

Multiprogramming Activity Report

This report depicts concurrent program or job activity during each defined interval for a maximum of 99 active programs or jobs. Management can easily identify production work that creates resource contention by noting peak activity periods which have unusually high paging and I/O activity.

- The shift 1 start time is taken from the SYSUSE1 statement, along with the date on which the day (24-hour period) begins.
- The data for the report is job level or step (program) level data, as indicated at the top of each column.
- The headings for the data elements being displayed for each program or job are also displayed at the top of each column. These are selected by placing MPA field ID entries on the SYSUSE2 statement.

- The headings for the totals shown on this report appear in the last column. The Multiprogramming Factor is always shown, along with the three data elements selected on the SYSUSE2 statement.
- The vertical time-of-day axis is displayed on the left of the report. The increment for each time interval is specified on the SYSUSE1 statement.

You can select this report at program or job level via the SYSUSE1 statement and may select three of the following elements for display (the first two elements selected are reported for all six report columns; the third element is reported in the TOTAL column only):

- CPU time
- Elapsed CPU rate (CPU/Elapsed)
- I/O index (Total EXCP Count/CPU)
- CPU page rate (Total Page Count/CPU)
- Elapsed page rate (Total Page Count/Elapsed)
- Total EXCP count
- Total page count
- CPU utilization rate (CPU/Interval Size)
- Service rate (Service Units/Active)
- Service units

Considerations

- Counts (EXCPs, pages, service units) are shown in these formats: nnnn, nnnk or nnnM.
- You can set the time interval down to one minute without increasing the core requirement.
- This report, if requested on the SELECT statement, is always done for each day and has no shift delimiters. It is not affected by the shift or day flags on the SYSUSE1 statement.
- Counts and times for programs or jobs that execute during two or more intervals are prorated among the intervals covered within the elapsed time for that job or program.

```
CA JARS                         MULTIPROGRAMMING ACTIVITY - PROGRAM LEVEL                        PAGE    1
Resource Accounting SP0                                                                                 09 FEB 1998  16


DAY BEGINS ON 98/01/04 AT 0000

     -----------------   -----------------   -----------------   -----------------   -----------------   ------ TOTAL ------
     PROGRAM   CPU  I/O ' PROGRAM   CPU  I/O ' PROGRAM   CPU  I/O ' PROGRAM   CPU  I/O ' PROGRAM   CPU  I/O '  MP   CPU  I/O SERV
     NAME     UTIL INDX ' NAME     UTIL INDX ' NAME     UTIL INDX ' NAME     UTIL INDX ' NAME     UTIL INDX ' FACT UTIL INDX RATE
     ----------------- ' ----------------- ' ----------------- ' ----------------- ' ----------------- ' ------------------
0000 QBEXPORT   .9  545 ' DFHSIP     .2  121 ' IKTCAS00   .0    0 ' IKJEFT01   .0  103 ' IKJEFT01   .1  193 '
     IEBEDIT    .0    0 ' IEBEDIT    .0    0 ' IEBEDIT    .0    0 ' VSCRY      .0  190 ' IKJEFT01   .2  423 '
     IDCAMS     .0    0 ' SMDJP      .0  158 ' IASXWR00   .0  190 ' DFSRRC00 12.2  426 ' IEBEDIT    .0   40 '
     IEBGENER   .0 1180 '                    '                    '                    '                    '  4.6 13.7  425  794
                        '                    '                    '                    '                    '
0030 DFHSIP     .2  121 ' IKTCAS00   .0    0 ' IKJEFT01   .0  103 ' DFSRRC00 14.0  426 ' IKJEFT01   .3  162 '  5.0 14.6  415  868
                        '                    '                    '                    '                    '
0100 DFHSIP     .2  121 ' IKTCAS00   .0    0 ' IKJEFT01   .0  103 ' DFSRRC00 14.0  426 ' IKJEFT01   .1  157 '
     IEBGENER   .0 1200 ' IKJEFT01   .1  165 '                    '                    '                    '  4.6 14.5  417  867
                        '                    '                    '                    '                    '
0130 DFHSIP     .2  121 ' IKTCAS00   .0    0 ' IKJEFT01   .0  103 ' DFSRRC00 14.0  426 '                    '  4.0 14.3  420  869
                        '                    '                    '                    '                    '
0200 DFHSIP     .2  121 ' IKTCAS00   .0   10 ' IKJEFT01   .0  105 ' DFSRRC00 14.0  426 '                    '  4.0 14.3  420  869
                        '                    '                    '                    '                    '
0230 DFHSIP     .2  121 ' IKTCAS00   .0    0 ' IKJEFT01   .0    0 ' DFSRRC00 14.0  426 '                    '  2.2 14.3  421  870
                        '                    '                    '                    '                    '
0300 DFHSIP     .2  121 ' DFSRRC00 10.5  426 ' IERRC000  1.8  163 ' EXPRT     1.8  191 ' EXPRT     2.4  151 '
     IEBGENER   .0   10 ' EXPRT     1.3  139 '                    '                    '                    '  2.1 18.1  314  887
                        '                    '                    '                    '                    '
0330 DFHSIP     .2  121 ' IEBGENER   .0   10 ' EXPRT     1.5  139 ' SORT       .0   20 ' TRK05A     .7   70 '
     IDCAMS     .0  457 ' IDCAMS     .0  210 ' IEBGENER   .0   10 ' SORT       .1   47 ' IEBGENER   .0   10 '
     IEBGENER   .0   40 ' EXPRT     1.2   35 ' IEBGENER   .0   10 ' IEBGENER   .1   24 ' IEBGENER   .2   64 '
     IEBGENER   .0   23 ' IEBGENER   .0   27 ' IEBGENER   .1  107 ' IEBGENER   .0   10 ' IEBGENER   .0   20 '
     IEBGENER   .0   10 ' IEBGENER   .0   10 ' IEBGENER   .0   10 ' IEBGENER   .0   10 ' IEBGENER   .0   30 '
     IEBGENER   .0   10 ' IEBGENER   .0   10 ' SORT       .6   47 '                    '                    '  1.3  4.8   83  259
                        '                    '                    '                    '                    '
0400 DFHSIP     .2  121 '                    '                    '                    '                    '  1.0   .2  121   23
                        '                    '                    '                    '                    '
0430 DFHSIP     .2  121 '                    '                    '                    '                    '  1.0   .2  121   23
                        '                    '                    '                    '                    '
0500 DFHSIP     .2  121 '                    '                    '                    '                    '  1.0   .2  121   23
                        '                    '                    '                    '                    '
0530 DFHSIP     .2  121 '                    '                    '                    '                    '  1.0   .2  121   23
                        '                    '                    '                    '                    '
0600 DFHSIP     .2  124 '                    '                    '                    '                    '  1.0   .2  124   23
                        '                    '                    '                    '                    '
0630 DFHSIP     .2  121 '                    '                    '                    '                    '  1.0   .2  121   23
                        '                    '                    '                    '                    '
0700 DFHSIP     .1  123 ' IEBGENER   .1 1153 ' IEBGENER   .0    0 ' IEHPROGM   .0    0 ' IEFBR14    .0    0 '   .3   .1  559   43
0730 TO 2330  -  NO DATA FOR THIS INTERVAL.
```

CPU Activity Graphs

This report enables management to identify peak periods of CPU activity and to easily correlate CPU utilization, multiprogramming, and paging activity.

- The scope of the report is displayed in the upper right corner of the report. This can be SHIFT n (n=1 through 3), DAILY, denoting a single day's data, or TOTAL, denoting multiple day's data summarized into one graph.
- Graph titles: the left-hand graph always shows CPU utilization. The right-hand graph defaults to system occupancy, showing the total active and allocation time of all jobs within each time interval. A switch on the SELECT statement causes this graph to show paging activity instead.

- The MP (multiprogramming factor), present on each graph, is an indicator of how busy the machine was during each interval.
- The percentages, that are graphed, represent the total length of the bar, are the total of all programs or jobs shown. FLD1 pertains to the left-hand graph and FLD2 pertains to the right-hand graph.
- The vertical time-of-day axis. The increment for each time interval is specified on the SYSUSE1 statement.
- The number of days on which data was found for each time interval is displayed on the right side of the report. This is shown only for multiday summary reports.
- The LEGEND provides a cross-reference between the percentage columns and the graphs, shows the symbols used on each graph, and gives the meaning of 100 percent for each graph. An entry on the SYSUSE2 statement is available to standardize the scale of the Paging Activity Graph. This scale defaults to the maximum paging activity observed in any time interval.

When the System Occupancy Graph is selected, this same entry on the SYSUSE2 statement may be used to indicate the number of initiators which, if all were active, would represent 100 percent system occupancy. The default assumption is 15 initiators.

Considerations

- CPU utilization shows CPU time broken down by TCB, SRB, batch, TSO, and overhead time. Overhead time is interval time minus total CPU time + wait/IPL/idle time.
- If any time is not graphed, it is included in the blank area on the graph. If overhead is graphed and there are no wait records in the data, the overhead time should fill the rest of the interval not represented by CPU time. If a user reports no wait time, check to see if type 70 records are generated.
- MP factor is the average number of initiators active during the interval. MP factor is the elapsed time in the interval divided by seconds in each interval.
- System occupancy, if selected, shows active and allocation time by batch and TSO.
- Paging activity, if selected, shows total pages broken down by batch and TSO.
- CPU denominator is seconds in each interval. FLD1 is graphed time divided by CPU denominator.
- Occupancy denominator is seconds in each interval times the number of initiators. The default for number of initiators is 15. Paging denominator is seconds in each interval times maximum pages per second. FLD2 is graphed data divided by occupancy denominator or paging denominator.
- The elapsed time can include more than active and allocation time; so FLD2 and MP factor may not be proportional.

- The dates at the top of the report include system records. If overhead is not being graphed, there could be intervals with no data even though the dates at the top look like there should have been data for the interval.
- For multiday reports, each interval is represented by data averaged over the number of days shown in the DAYS column.
- Shift and day flags on the SYSUSE1 statement affect production of 'SUMMARY - SHIFT n' and SUMMARY - ALL recap lines.
- This report always starts at Shift 1 Start time.
- Production of either CPU Activity or Disk and Tape Activity graphs, or both graphs require 72 bytes of storage for each interval, with a batch/TSO system.
  - Graph characters for CPU utilization are as follows:
  - ID 1 is batch CPU time under TCB (problem program). (B)
  - ID 2 is TSO CPU time under TCB (problem program). (T)
  - ID 3 is batch CPU time under SRB (System) z/OS only. (O)
  - ID 5 is overhead time. (-)
- Graph characters for System Occupancy are as follows:
  - ID 1 is batch active time. (B)
  - ID 2 is TSO active time. This shows up only if TSO option is on. (T)
  - ID 3 is batch allocation time. (O)
  - ID 4 is TSO logon delay time. This shows up only if TSO option is on. (0)
- Graph characters for Paging Activity are as follows:
  - ID 1 is batch total pages. (B)
  - ID 2 is TSO total pages. This shows up only if TSO option is on. (T)
- The default graph characters are 1=B, 2=T, 3=O, 4=0, 5=-. If any overrides are supplied, all of the defaults are dropped.

```
CA JARS                                    CPU ACTIVITY                                                PAGE    1
Resource Accounting SP0                                                                                       09 FEB 1998  16


TIME OF MEASUREMENT IS FROM 98/01/02 AT 20.37.36                                                   TOTAL
                                                                                                   TOTAL
                       TO   98/01/04 AT 07.14.07                                                   INCLUDES  98/01/02 THRU 98/01/04


                                  CPU UTILIZATION - FLD1                                  SYSTEM OCCUPANCY - FLD2

 FLD1  FLD2  FLD3       0        25        50        75       100    MP    0        25        50        75       100
 ( PERCENTAGES )        +---------+---------+---------+---------+  FACTOR  +---------+---------+---------+---------+  DAYS
100.0  10.1        0000 BBB-------------------------------------    3.3    BBBB                                         2
100.0  12.1        0030 BBB-------------------------------------    3.8    BBBBB                                        2
100.0  13.4        0100 BBBO------------------------------------    3.8    BBBBB                                        2
     .                                                               .
     .                                                               .
     .                                                               .
100.0  69.9        0900 BBBBBBBBBBBBBBBBBBTTTTTTTTTTTO0---------   41.3    BBBBBBBBBBBBBBBBBBTTTTTTTTTO                 1
100.0  60.8        0930 BBBBBBBBBBBBBBBBBBTTTTTTTTTO------------   43.6    BBBBBBBBBBBBBBBBTTTTTTTT                     1
 99.9  54.9        1000 BBBBBBBBBBBBTTTTTTTTTTO-----------------   46.8    BBBBBBBBBBBBBBTTTTTTTO                       1
100.0  60.5        1030 BBBBBBBBBBBBBBBBBBTTTTTTTO0-------------   51.7    BBBBBBBBBBBBBBBTTTTTTTTO                     1
100.0  66.2        1100 BBBBBBBBBBBBBTTTTTTTTT0-----------------   53.1    BBBBBBBBBBBBBBBBBTTTTTTTTT                   1
100.1  55.8        1130 BBBBBBBBTTTTTTTTO0----------------------   46.3    BBBBBBBBBBBBBBTTTTTTTO                       1
100.0  69.7        1200 BBBBBBBBBBTTTTTTTTTTTTTT0---------------   46.4    BBBBBBBBBBBBBBBBBTTTTTTTTTT0                 1
100.1  32.5        1230 BBBBBBBBBTTTTO--------------------------   13.0    BBBBBBBBBBBTT                                1
100.1  25.4        1300 BBBBBBBBBBBTTO--------------------------   12.7    BBBBBBBBBT                                   1
 99.9  57.3        1330 BBBBBBBBBBBBBBBBBBTTTTTTTTTT0-----------   41.5    BBBBBBBBBBBBBBBTTTTTTTO                      1
100.0  64.6        1400 BBBBBBBBBBBTTTTTTTTTTO0-----------------   52.1    BBBBBBBBBBBBBBBBBTTTTTTTT0                   1
100.1  41.7        1430 BBBBBBBBBTTTTTTTTO----------------------   45.8    BBBBBBBBBTTTTTTT0                            1
100.0  35.7        1500 BBBBTTTTTTTTT0--------------------------   45.9    BBBBBBTTTTTTO0                               1
100.0  47.2        1530 BBBBBBBBTTTTTTTTTT0---------------------   45.6    BBBBBBBBBBTTTTTTTT0                          1
100.1  63.9        1600 BBBBBBBBBBBBBBBBBBBBTTTTTTTO0-----------   41.8    BBBBBBBBBBBBBBBBBTTTTTTTT0                   1
100.1  57.6        1630 BBBBBBBBBBBBBBBBBBBTTTTTT0--------------   34.3    BBBBBBBBBBBBBBBBBBTTTTO                      1
100.0  44.7        1700 BBBBBBBBBBBBBBBBTTO---------------------   14.3    BBBBBBBBBBBBBBBBBT                           1
100.1  47.4        1730 BBBBBBBBBBBBBBBBTO----------------------   12.2    BBBBBBBBBBBBBBBBBBT                          1
 78.2  23.7        1800 BBBBBB-------------------------             4.3    BBBBBBBBB                                    1
  0.4   0.6        1830                                             0.1                                                 1
 81.3  23.1        1900 BBBBBO---------------------------           4.6    BBBBBBBBB                                    1
   .                                                               .
   .                                                               .
100.0   8.8        2300 BB--------------------------------------    3.3    BBBT                                         2
100.0  10.0        2330 BBB-------------------------------------    3.5    BBBB                                         2
SUMMARY - ALL                                                                                                           3
 47.6  11.2      DEFIND BBBT---------------                         6.0    BBBT
 99.1  23.4      MEASRD BBBBBBTTO-------------------------------   12.5    BBBBBBBTT
                        +---------+---------+---------+---------+          +---------+---------+---------+---------+
                        0        25        50        75       100          0        25        50        75       100


L E G E N D
FIELD   DESCRIPTION               SYMBOL           SCALE
FLD1    CPU UTILIZATION           BTO0-            100 PCT =   30 MINUTES
FLD2    SYSTEM OCCUPANCY          BTO0             100 PCT =  450 MINUTES (BASED ON  15 INITIATORS)
```

Disk and Tape Activity Graphs

The Tape Drive Occupancy Report identifies the percent of the available tape drives busy during any time interval. The Disk and Tape EXCP Rates Report requires CONFIG statements for generation. It correlates heavy tape and disk activity. While the occupancy report identifies what percentage of tape drives is allocated, the EXCP Rates Report indicates how much they are being used.

- The scope of the report can be SHIFT n (n=1 through 3), DAILY, denoting a single day data, or TOTAL, denoting multiple day data summarized into one graph.
- The graph titles are TAPE DRIVE OCCUPANCY and DISK AND TAPE EXCP RATES.
- The MP factor, present on each graph, is an indicator of how busy the machine was during each interval.
- A numerical representation of the percentages, which are being graphed, are listed on the left of the report. The numbers in the FLD1 column represent the total length of the TAPE DRIVE OCCUPANCY bar: the total of all programs/jobs. The numbers in the FLD2 and FLD3 columns represent the disk and tape EXCP rate, respectively. The total length of each bar on the DISK AND TAPE EXCP RATES graph is the total of FLD2 and FLD3.
- The vertical time-of-day axis. The increment for each time interval is specified on the SYSUSE1 statement.
- The number of days on which data was found for each time interval is displayed on the right of the report. This is shown only for multiday summary reports.
- The LEGEND provides a cross-reference between the percentage columns and the graphs, shows the symbols used on each graph, and gives the meaning of *100 percent* for each graph. An entry on the SYSUSE2 statement is available to standardize the DISK AND TAPE EXCP RATES graph scale. This scale defaults to the maximum disk and tape EXCP rate observed in any time interval.

Considerations

- TAPE DRIVE OCCUPANCY shows tape drive occupancy broken down by batch and TSO.
- The Tape Occupancy denominator is seconds in each interval times number of tapes in CONFIGs. FLD1 is tape occupancy time as measured by job or step elapsed time divided by tape occupancy denominator.
- The MP factor is the elapsed time in the interval divided by the seconds in each interval.
- The DISK AND TAPE EXCP RATES show EXCP rates broken down by disk and tape. I/O denominator is seconds in each interval times maximum EXCPs per second. FLD2 is disk EXCPs divided by I/O denominator. FLD3 is tape EXCPs divided by I/O denominator. Total length of bar is FLD2 + FLD3.

- Graph characters for tape drive occupancy are as follows:
  - ID 1 is batch elapsed time for jobs or steps using tape
  - ID 2 is TSO elapsed time for jobs or steps using tape. This shows up only if TSO option is on.
- Refer to the Considerations section under CPU Activity Graphs for information regarding core shifts and multiple day reporting.

```
CA JARS                                DISK AND TAPE ACTIVITY                                         PAGE    1
Resource Accounting SP0                                                                                    12 FEB 1998   09

TIME OF MEASUREMENT IS FROM 98/01/02 AT 20.37.36                                                 TOTAL
                                                                                                 TOTAL
                       TO   98/01/04 AT 07.14.07                                                 INCLUDES  98/01/02 THRU 98/01/04
                               TAPE DRIVE OCCUPANCY - FLD1                   DISK AND TAPE EXCP RATES - FLD2, FLD3
 FLD1  FLD2  FLD3       0         25        50        75       100    MP    0         25        50        75       100
 ( PERCENTAGES )        +---------+---------+---------+---------+  FACTOR  +---------+---------+---------+---------+  DAYS
 11.7  17.9   1.2   0000 BBTTT                                        3.3    *******-                                      2
 12.5  20.3   0.6   0030 BBBTT                                        3.8    ********                                      2
 12.5  21.1   0.6   0100 BBBTT                                        3.8    ********-                                     2
      .                                                                  .
      .                                                                  .
      .                                                                  .
 14.8  26.5  15.0   1000 BBBTTT                                      46.8    ***********------                             1
 15.1  26.9  17.8   1030 BBBBTT                                      51.7    ***********-------                            1
 18.6  65.8   8.1   1100 BBBBBTT                                     53.1    **************************----                1
 18.6  33.0  20.5   1130 BBBBTTT                                     46.3    *************--------                         1
 14.1  48.2   8.3   1200 BBBBTT                                      46.4    *******************----                       1
 11.1  11.7  24.1   1230 BTTT                                        13.0    *****---------                                1
 12.4  12.4  25.4   1300 BTTTT                                       12.7    *****----------                               1
 21.0  40.6  14.5   1330 BTTTTTTT                                    41.5    ****************------                        1
 14.7  45.4   9.4   1400 BBBBTT                                      52.1    ******************----                        1
 17.2  22.9   3.5   1430 BBTTTTT                                     45.8    *********--                                   1
  8.9  19.3   3.0   1500 BBTT                                        45.9    ********-                                     1
 10.2  32.1   3.3   1530 BBBT                                        45.6    *************-                                1
 14.8  48.8  14.7   1600 BBBBTT                                      41.8    ********************-----                     1
 12.6  47.3  11.0   1630 BBBTT                                       34.3    *******************----                       1
  8.3  79.8   0.4   1700 BBT                                         14.3    ********************************              1
  2.6  84.0  15.4   1730 B                                           12.2    **********************************------      1
  0.1  32.8   1.9   1800                                              4.3    *************-                                1
  0.0   0.8   0.0   1830                                              0.1                                                  1
  3.6  37.8   4.0   1900 B                                            4.6    ***************--                             1
 11.5  61.3   8.6   1930 BBBTT                                        7.9    *************************---                  1
  9.3  34.5  26.5   2000 BBBB                                         5.2    **************----------                      1
  4.5  10.2  12.6   2030 BT                                           2.1    ****-----                                     2
  6.3  14.3   3.4   2100 TTT                                          2.5    ******-                                       2
  4.8  14.3   3.4   2130 TT                                           2.4    ******-                                       2
  0.0  14.3   3.4   2200                                              2.0    ******-                                       2
  3.9  13.2   3.1   2230 TT                                           2.4    *****--                                       2
  9.9  10.5   1.7   2300 BTTT                                         3.3    ****-                                         2
 11.1  15.6   5.0   2330 BBTT                                         3.5    ******--                                      2
SUMMARY - ALL                                                                                                              3
  4.7  10.7   2.4 DEFIND BT                                           6.0    ****-
  9.8  22.2   4.9 MEASRD BBTT                                        12.5    *********--

                        +---------+---------+---------+---------+          +---------+---------+---------+---------+
                        0         25        50        75       100         0         25        50        75       100

L E G E N D

FIELD   DESCRIPTION                SYMBOL           SCALE

FLD1    TAPE DRIVE OCCUPANCY       BT               100 PCT =    8 DRIVES OCCUPIED
FLD2    DISK EXCP RATE             *                100 PCT =  154 EXCP / SEC (MAX OBSERVED)
FLD3    TAPE EXCP RATE             -
```

Resource Utilization Graphs

The Device Occupancy Report requires CONFIG/CONFIGX statements for report generation. This report effectively identifies which peripheral devices are being used by the system, and how much they are being used.

- The scope of the report can be SHIFT n (n = 1 through 3) or TOTAL, with the time boundaries of the shift or day (24-hour period) given in hh.mm.ss format.
- The numeric values corresponding to each resource are displayed in columns on the left of the graph. OCCUPANCY TIME is the amount of time that the resource was allocated. PCT UTIL (percent utilization) is the occupancy time shown as a percentage of the time the device was available. For I/O devices, the number of EXCPs is also shown.
- I/O devices are represented by their physical addresses, in the form *cuu.* Devices are reported on in the order that the CONFIG/CONFIGX statements were entered, so that presenting tape devices first, then disk, and so forth, is under user control.
- The 100 PCT (percent) on the graph is equal to the difference between the shift (or day) end and begin times, multiplied by the number of days for which data was found.

Considerations

- The options in the shift and day flags are all available to control the scope of this report.
- The graph bars represent the PCT UTIL numbers, which are occupancy time divided by time span covered by the report.
- Occupancy time shows the amount of time that at least one initiator was using the resource as measured by job or step elapsed time.
- The first line, for device CPU, shows the amount of time that at least one initiator was active. It is not the amount of CPU time in the interval.
- EXCP counts are shown numerically for each I/O device.
- The devices are graphed in the order of the CONFIGs/CONFIGXs.
- When you are collapsing the graphs, only devices with nonzero occupancy time are printed.

```
CA JARS                                  RESOURCE UTILIZATION                                             PAGE    1
Resource Accounting SP0                                                                                          13 FEB 1998  09

TIME OF MEASUREMENT IS FROM 98/02/02 AT 21.28.18                                                        TOTAL     00.00.00  TO  00.00.00
                                                                                                        TOTAL
                       TO   98/02/10 AT 23.02.08                                                        INCLUDES  98/02/02 THRU 98/02/10

            OCCUPANCY    PCT     0       10       20       30       40      50      60      70       80      90      100 PCT= 216.0 HOURS
     EXCPS       TIME    UTIL    +-------+-------+-------+-------+------+------+------+-------+------+------+


            133.15.51    61.7  CPU *************************************************
    10,829  111.29.07    51.60 448 *****************************************
     5,457  114.03.34    52.80 449 ******************************************
       932   95.13.16    44.10 44A ***********************************
         3    0.02.17     0.00 44B
       213   10.56.11     5.10 44C ****
       104    0.00.17     0.00 44D
     2,553    6.30.29     3.00 44E **
     8,417   27.04.44    12.50 44F **********
    18,328   87.52.12    40.70 540 *********************************
     9,515   28.11.16    13.00 541 **********
        85    3.23.26     1.60 542 *
     5,816   97.00.29    44.90 543 ************************************
     8,286   32.27.47    15.00 544 ************
     2,814    3.27.44     1.60 545 *
     2,228   18.31.10     8.60 546 *******
    12,301   14.38.43     6.80 547 *****
         0   78.51.25    36.50 378 *****************************

                                 +-------+-------+-------+-------+-------+------+------+------+------+------+
                                 0       10       20       30       40       50       60      70      80      90      100 PCT= 216.0 HOURS
```

Computer Utilization Summary

This report provides management with a comprehensive one page summary of overall computer utilization, plus basic measurements of operations performance for a user-defined time interval.

- The scope of the report can be SHIFT n (n = 1 through 3) or TOTAL, with the time boundaries of the shift or day (24-hour period) given in the format hh.mm.ss.
- Basic performance statistics are shown in the format hhhh.mm.ss.
- Each number that is used to calculate the performance parameters in the third section is defined by the algorithms provided on the report next to the numbers.

  Note that the total time measured is defined as the difference between A and B of Item D. For reports covering multiple days, the total time measured is the sum of the values (B - A) for each of the days for which data was found.
- The second portion of this report displays job and step statistics along with the number of IPLs performed. Rates per hour are shown in terms of the total time measured, from the first section of this report.
- The interval length for CPU utilization is the number of seconds in the interval times the number of processors in the system. The number of processors in the system is shown at the bottom of the report and can be computed from the RMF type 70 record, or it can come from the OPTION statement.

- Service unit information for z/OS systems is broken down between batch and TSO, both the number of units and the rate in service units per second of active time.
- System wait time comes from the RMF type-70 record. The number of type 70 records used in this report is shown as RMF INTERVALS. If the number of RMF records is less than what it should be (number of RMF records should be the time span of the report / RMF interval time) then the wait time, along with all the fields that use wait time in their calculation, are incorrect. The wait time is itemized by processor when the data for the report comes from a multiprocessor system. The *online intervals* field is the number of RMF intervals during which the processor was online. If the processor was varied offline, or reconfigured during an interval then the wait time for the interval cannot be used, and again the system wait time may be incorrect.
- Potential time is the total time the system is available *times* the number of processors in the system. This is the maximum amount of time that the system could be working. The number of processors is computed from the RMF type 70 record, but may be overridden by the number of processors field on the OPTION statement.

Considerations

- The options in the shift and day flags are all available to control the scope of this report.
- If SRB time is zero in the data, only total CPU time is shown. The non-z/OS format is used for the report. Also no service units are shown.
- If there are no wait records in the data, the Overall CPU Utilization Rate is very close to 100% (which might look nice but is incorrect).
- Multiprogramming factor is calculated using *active time* on this report; however, the other reports use elapsed time.

System Control Statements

```
        1    1    2    2    3    3     5    6   6     7    7    8
0....5....0....5....0....5....0....5.... 5....0...5.....0....5....0
   SELECT    1                  1
   CRITERIADATE 03/14/9803/20/98
```

A sample Computer Utilization Summary is provided on the next page, along with information to assist you in interpreting this report.

```
CA JARS                            COMPUTER UTILIZATION SUMMARY                                            PAGE   1
Resource Accounting SP0                                                                                           05 MAY 1998  08

TIME OF MEASUREMENT IS FROM 98/07/25 AT 05.04.07   (A)    <1>                                  TOTAL     00.00.00  TO  00.00.00
                                                                                               TOTAL
                       TO   98/08/01 AT 18.52.58   (B)    <2>                                  INCLUDES  98/07/25 THRU 98/08/01
                                                                                               REPRESENTS  192.0 HOURS      (C)
                                  ACTIVE TIME           TOTAL CPU TIME         TCB TIME        SRB TIME
                                  -----------           --------------         --------        --------
BATCH TIMES                        1833.04.45  (P)            3.30.15           3.16.13         0.14.02  (D)
TSO TIMES                             4.47.53  (Q)            0.25.03           0.23.54         0.01.09  (E)
TOTAL TIMES                        1837.52.38  (R) = P + Q    3.55.18           3.40.07         0.15.11  (F) = D + E
SYSTEM WAIT TIME    (RMF INTERVALS   143 )                   30.45.12                                    (G)
     PROCESSOR   1   WAIT TIME     30.45.12  ONLINE INTERVALS    143
IPL IDLE TIME                                                 0.28.18                                    (H)
SMF DATA LOST TIME                                            0.00.00                                    (J)
TOTAL TIME MEASURED                                         181.48.51                                    (K) = B - A
TOTAL TIME ACCOUNTED                                         34.40.30                                    (L) = F + G
SYSTEM UP TIME                                              181.20.33                                    (N) = K - (H + J)
POTENTIAL TIME                                              181.20.33                                    (W)
SYSTEM OVERHEAD TIME                                        146.40.03   <3>                              (M) = W - L
----------------------------------------------------------------------------------------------------------------------------------
AVERAGE STEP ALLOCATION TIME          0.00.04                           STEPS STARTED           657      (3.6 PER MEASURED HOUR)
AVERAGE STEP ACTIVE TIME              2.47.24
AVERAGE JOB ALLOCATION TIME           0.00.06                           JOBS STARTED            441      (2.4 PER MEASURED HOUR)
AVERAGE JOB ACTIVE TIME               4.09.23
AVERAGE READER QUEUE TIME             0.01.58                           JOBS SUBMITTED          442      (2.4 PER MEASURED HOUR)
AVERAGE WRITER QUEUE TIME             0.12.53
AVERAGE TURNAROUND TIME               5.31.02
AVERAGE TSO LOGON DELAY TIME          0.00.03                           TSO SESSIONS STARTED    169      (0.9 PER MEASURED HOUR)
AVERAGE TSO SESSION ACTIVE TIME       0.01.42
AVERAGE TSO SESSION CONNECT TIME      0.41.39                           IPLS PERFORMED            2
----------------------------------------------------------------------------------------------------------------------------------
                                                              T O T A L        TCB ONLY         SRB ONLY
                                                              ---------        --------         --------
BATCH CPU UTILIZATION RATE                                    1.932 PCT        1.803 PCT        0.129 PCT  (X) = D / W
TSO CPU UTILIZATION RATE                                      0.230 PCT        0.220 PCT        0.011 PCT  (Y) = E / W
SYSTEM OVERHEAD CPU UTILIZATION RATE                         80.879 PCT                                    (Z) = M / W
OVERALL CPU UTILIZATION RATE                                 83.041 PCT                                    X + Y + Z
BATCH MULTIPROGRAMMING FACTOR (DURING MEASURED INTERVAL)     10.1                                          P / K
                              (DURING DEFINED INTERVAL)       9.5                                          P / C
TSO MULTIPROGRAMMING FACTOR   (DURING MEASURED INTERVAL)      0.0                                          Q / K
                              (DURING DEFINED INTERVAL)       0.0                                          Q / C
----------------------------------------------------------------------------------------------------------------------------------
BATCH SERVICE UNITS              602,316,010  (S)                      BATCH SERVICE RATE              920  S / K
TSO SERVICE UNITS                 36,294,162  (T)                      TSO SERVICE RATE                 55  T / K
TOTAL SERVICE UNITS              638,610,172  (U) = S + T              TOTAL SERVICE RATE              976  U / K
```

1. Run date and *start* time of the earliest record that meets the READER START DATE indicated on the CRITERIA DATE statement, if present
2. Run date and *stop* time of the last record that meets the READER START DATE indicated on the CRITERIA DATE statement, if present
3. System Overhead Time represents the difference between time for the measured interval and the total time accounted. An excessively high System Overhead is the result of missing SMF data. This can be caused by long running steps that complete in the measured time interval, inflating the measured time value.

Program/Job Activity Analysis

This series of reports identifies the programs or jobs that consume the largest percentage of each type of resource on the system.

- In the upper right corner of the report, the number of program or job names included in the report is displayed. This number can be supplied on the SYSUSE2 statement; the default is 25.
- The total number of different program or job names found in the data is displayed also.
- The report is for jobs (using job level data) or for programs (using step level data), as indicated in the same portion of the report. This choice is made by setting the *required records indicator* on the SYSUSE1 statement.
- Statistics can be presented either as accumulated values or as averages based on a single execution (the accumulated values divided by the NBR USES entry). This option is specified on the SELECT statement.
- Totals are first presented for only the programs or jobs shown in the body of the report. After this, if the report shows averaged data, the average values of the grand totals are presented. The last line always shows the grand totals of the accumulated values for all programs or jobs found in the data.

Considerations

- These reports cover all data submitted, with no breakdown by shifts or by individual days.
- Numbers that are too large to display in the seven-digit fields (10 million or more) are displayed as nnn,nnnK.
- The user specifies on the SYSUSE2 statement how many program/job names are to be displayed on each report.
- The number of different program or job names it had core available for is shown in the heading of the report. If there wasn't enough core for at least 10 programs or jobs, no System Use Reports are produced and an error message is printed out. It gets all the core not used for the other reports because when it gets the core, it doesn't know how many different programs or jobs it will find.

```
CA JARS                          PROGRAM ACTIVITY ANALYSIS BY CPU TIME                                  PAGE    1
Resource Accounting SP0                                                                                        13 FEB 1998  09

TIME OF MEASUREMENT IS FROM 98/02/02 AT 21.28.18                                             TOP  25 OUT OF   54 PROGRAM NAMES
                       TO   98/02/10 AT 23.02.08

PROGRAM      NBR PCT        CPU PCT       DISK PCT      TAPE PCT  OTHER PCT      TOTAL PCT   I/O   TOTAL PCT   CPU   SERVICE PCT
NAME        USES        SECONDS            SIO           SIO        SIO           SIO      INDX   PAGES      PAGE     UNITS

MDASD         35   7   1,535.10  24     5,953   7        0   0      0   0     5,953   7     4      24   0     0 2,607,147  24
HASJES20       3   1   1,205.20  19       633   1        0   0      0   0       633   1     1     243   0     0 2,640,962  25
APXCTL        24   5     807.60  13     9,871  11        0   0      0   0     9,871  11    12  50,714  75    63 1,067,614  10
IKJEFT01      45   9     798.70  13    11,790  13        0   0    217  71    12,007  14    15   3,073   5     4 1,124,074  10
OMS            4   1     560.40   9       119   0        0   0      0   0       119   0     0   8,160  12    15   755,310   7
ISTINM01       4   1     556.90   9     2,604   3        0   0      0   0     2,604   3     5     421   1     1 1,049,722  10
CATMP         14   3     166.70   3     8,062   9        0   0     89  29     8,151   9    49   1,442   2     9   237,240   2
IFASMFDP       9   2      78.20   1    18,056  21        0   0      0   0    18,056  20   231      55   0     1   171,481   2
ERBMFMFC       3   1      77.60   1       144   0        0   0      0   0       144   0     2     139   0     2    78,464   1
CPXUPTSM       3   1      53.00   1     1,329   2        0   0      0   0     1,329   2    25      11   0     0    98,191   1
DSIMNT         4   1      53.50   1       536   1        0   0      0   0       536   1    10     491   1     9    63,799   1
AMDPRDMP       2   0      51.80   1     6,238   7        0   0      0   0     6,238   7   120      47   0     1   108,228   1
IEV90         17   3      47.20   1     2,373   3        0   0      0   0     2,373   3    50      21   0     0    89,404   1
IDCAMS         7   1      46.20   1         0   0        0   0      0   0         0   0     0      35   0     1    68,007   1
CAJUTIL0       4   1      42.60   1       190   0        0   0      0   0       190   0     4      10   0     0    78,871   1
IEWL          59  12      35.70   1     2,171   2        0   0      0   0     2,171   2    61      19   0     1    59,116   1
IFOX00         5   1      35.10   1     1,558   2        0   0      0   0     1,558   2    44       1   0     0    48,714   0
APEX           4   1      33.10   1     7,358   8        0   0      0   0     7,358   8   222       6   0     0    78,521   1
QUICKIE       17   3      22.70   0        25   0        0   0      0   0        25   0     1   2,151   3    95    44,941   0
   .
   .
   .
COSMOS         4   1      11.10   0       185   0        0   0      0   0       185   0    17     353   1    32    16,200   0
IASXWR00       8   2       9.40   0       137   0        0   0      0   0       137   0    15      73   0     8    15,111   0
RBDPROT        2   0       8.20   0        79   0        0   0      0   0        79   0    10       1   0     0    17,407   0

TOP  25      330  66   6,287.10  99    84,249  96        0   0    306 100    84,555  96    13  67,534  99    11    10,612K  99

-TOTALS-     502 100   6,362.70 100    87,882 100        0   0    306 100    88,188 100    14  68,010 100    11    10,737K 100
```

Chapter 3: User-Defined Reporting and the Report Writer

Control statements are used to tell CA JARS which reports you want generated, for what time period, and how you want them formatted. They are contained in a file of fixed-length 80-byte records. Each control statement is identified by an alphanumeric statement type of up to eight characters. The statement type is checked for syntax and discrepancies that might cause errors during the run. Should the report program encounter any erroneous data, the record is flagged and a message is printed indicating the problem area.

Control statements are divided into two groups. The first group consists of statements that govern the general aspects of the report program run; the second group controls the formatting of individual reports.

The following statement types belong to the first group--those that control the general aspects of your reports:

Required	**Optional**
	CONFIG statement
	CONFIGX statement
	CRITERIA statement
SELECT statement	PARMS statement
	OPTION statement
	STDFORM statement
	STDPRINT statement
	STDPUNCH statement
	EXTDATA statement

The statements on the next page are used to control the format of individual output reports. Since up to 15 reports can be requested for each run, this group can be composed of many sets of statements, with each set of statements used to define one particular report format. Each set can include a combination of any of the following statement types.

Statement types **required** for basic reporting are: HEADER, DISPLAY, and SORT.

The statements listed below are optional and are grouped by usage.

Computer Billing & Budget Control

- APPCRATE
- BUDGET
- CREDIT
- DEBIT
- FORMRATE
- PRIORITY
- RATE
- RJERATE
- SNARATE
- TITLE
- TSORATE
- VMRATE

Other Format Customization Features

- DESCRIPT
- EDIT
- EXITS

Selection/Rejection Of Records

- GROUP
- GROUPC

Each report is identified by a **set code.** This code ties together all control statements relating to a specific report. All the statements for a given set of reports **must** contain the same set code. The set code consists of any valid EBCIDIC character placed in the first position of all statement types, with the exception of the CONFIG, SELECT, CRITERIA, OPTION, and PARMS control statements which never require set codes due to their *global nature.*

Control statements with blank set codes are referred to as **global** control statements. The following statement types can have a blank set code that lets them be included in every report set. However, in the following list, those statements that can be overridden by a corresponding statement type containing a nonblank set code are indicated by an asterisk.

- BUDGET
- CREDIT
- DEBIT
- DESCRIPT
- EXITS
- TITLE

It is recommended that you include all sets of control statement when generating reports. Doing so ensures that the report program has access to all your user report formats, and relieves you of the necessity of combining the proper sets of control statements for the appropriate run. The SELECT statement is used to indicate which set(s) of statements are required to generate the desired report(s). For more information, see the section SELECT Statement in the "Control Statements and Tables" chapter.

User-Defined Report Examples

This section provides you with three report examples:

- Example 1 produces a detail-level report with summarization.
- Example 2 demonstrates a more complex report that includes detail lines, summary lines with personalized descriptions, the grouping feature, and rate application.
- Example 3 is a summary report, the same report as Example 2, but without the detail lines.

New customers will want to produce reports right away to gain familiarity with the output. Each step of designing a user-defined report is explained, with examples. The job control statements needed to execute the report writer are provided in the "Control Statements and Tables" chapter.

The control statements for each report have a unique identifier in position 1 called the *set code,* which ties all the statements together for each report. In order for you to generate a specific report, the respective set code must be specified on the SELECT statement.

Up to 15 user-defined reports can be generated in a single execution of CA JARS in addition to any System Use Reports selected.

Example 1: Creating a User-Defined Report

1. First, there are some required control statements in every user-defined report. They are:

   SELECT

   This statement defines the input and output to CA JARS.

   HEADER

   This statement places a report header on the top of each page of the report.

   SORT

   This statement defines the sort fields and summary options.

   DISPLAY

   This statement defines the elements on the report. That is, column by column, it describes the contents of the print line to CA JARS.

   Before proceeding, please read the individual explanations of these control statements in the "Control Statements and Tables" chapter of this guide.

2. Each report is identified by its set code. That is, all control statements for a report have the first position coded as the same character. This sample report uses a 1 for the set code.

3. The report must be sorted in some order to be useful, so we need to pick a field to sort on. To determine the beginning position of the field to be sorted, the format of the field being sorted, and the length of the field to be sorted, see the Basic Accounting Table in the "Control Statements and Tables" chapter.

4. The output report columns are determined by the DISPLAY statement.

   Note that these two tables:

   - Basic Accounting Table
   - Output Data Elements Table

   are the *keys* to using CA JARS. Data elements are identified for sorting and grouping using the Basic Accounting Table. The Output Data Elements Table is always used to tell the report writer which fields to print. Please review each of these tables.

This exercise creates a detail-level report, showing JOB NUMBER and CPU TIME by JOB NAME.

A SELECT statement is required to tell CA JARS what the input will be and which reports to create.

```
position  1       2       3       4       5          8
 1.........0.........0.........0.........0.........0....      ...0
  SELECT     1                                                  1
```

to indicate SMF data is input

indicates the set code of all the control statements for this report

A HEADER statement gives the report a heading, and is required.

```
position  1       2              8
 1.........0.........0...          ...0
 1HEADER      CPU TIME BY JOB NAME
```

A SORT statement orders the report.

a summary line will be generated every time JOB NAME changes in the control field

```
position  1       2       5       8
 1........0.........0...   ..0...     ...0
 1SORT    01608 2          1
```

Print JOB records

sort on JOB NAME from the Basic Accounting Table; it begins in position 16 of the record and is 8 positions long.

A DISPLAY statement indicates what information to display on the report.

```
position  1       2       3          8
 1.........0........0.........0...          ...0
 1DISPLAY    004214266
```

output data element numbers (DE ID) from the Sequenced Output Data Element Table: JOB NAME (DE ID 04), JOB NUMBER (DE ID 14), and CPU TIME (DE ID 66)

# of spaces to be printed before the displayed element (that is, 0 spaces before JOB NAME, 2 spaces before JOB NUMBER, and 2 spaces before CPU TIME

So our control statements are:

```
position  1       2       3       4       5          8
 1.........0.........0.........0.........0.........0....      ...0
  SELECT     1                                                  1
 1HEADER      CPU TIME BY JOB NAME
 1SORT     01608 2                                      1
 1DISPLAY    004214266
```

The JCL required to produce this report is provided in the "Operating Instructions" chapter. Be sure to update any installation-dependent parameters to your data center standard values.

The output report for Example 1 is:

```
      CPU TIME BY JOB NAME
BEGIN DATE - 02/05/98 RUN DATE - 02/27/98
END DATE   - 02/05/98           PAGE   1


JOB          JOB        CPU
NAME         NBR       TIME

APPDA52     8645    00:01:47
APPDA52     9072    00:00:06
APPDA52     9513    00:01:49

               3    00:03:42

ASMSCH      6262    00:00:06
ASMSCH      7564    00:00:06
ASMSCH      7595    00:00:05
ASMSCH      7608    00:00:05
ASMSCH      7852    00:00:05
ASMSCH      7855    00:00:06
ASMSCH      7857    00:00:05
ASMSCH      7918    00:00:05
ASMSCH      7919    00:00:06
ASMSCH      7923    00:00:05
ASMSCH      8170    00:00:06
ASMSCH      8825    00:00:05
ASMSCH      8863    00:00:05

              13    00:01:10

ASMSCHC     7574    00:00:05
ASMSCHC     7602    00:00:05
ASMSCHC     7858    00:00:05
ASMSCHC     7859    00:00:05
ASMSCHC     7926    00:00:05

               5    00:00:27

ASMS627     6271    00:00:05
ASMS627     6296    00:00:05
ASMS627     7975    00:00:05
ASMS627     8292    00:00:05
ASMS627     8906    00:00:05
ASMS627     8952    00:00:05
ASMS627     8966    00:00:05
ASMS627     9038    00:00:05

               8    00:00:40
   .
   .
   .
ZAP51       6529    00:00:00
ZAP51       7254    00:00:01
ZAP51       7282    00:00:01

               3    00:00:03

             686    03:23:04
```

The calculated length of the print line is less than 132; the header is centered as much as possible over the print lines on each page.

There is a summary line for each change in job name (that is, the SORT field for this report), and a grand total line at the end of the report.

The output data element, JOB NUMBER (DE ID 14), when displayed on a summary line, becomes NUMBER OF JOBS.

Example 2: A More Complex Report

In this example, the same data is used, but the following features of the report writer are implemented:

Rate Application

Charges are calculated for each job, based on CPU time used. Depending on how long a job awaited execution, different rates are applied.

Grouping

Using the grouping feature, this example assigns different charge rates for jobs based on reader queue time distribution.

Descriptions

A summary line is generated for each group of jobs with the same rate applied, and a special description prints on that summary line.

The additional control statements needed to perform this task are:

GROUP

This statement defines to CA JARS which field is to be grouped on. This is a conditional selection/rejection process equal to an IF-condition check in programming and works with the GROUPC statements to test the contents of a field. In this example, we reject all TSO records and test the reader queue time field of all other records.

GROUPC

GROUPC statements define conditions of records by setting a value limit on the field tested, specified in the GROUP statement and in this example, assigns a unique CPU ID to each record based on the condition met. The conditions are spans of reader queue time.

DESCRIPT

This statement is used to give a personalized description to the element sorted on.

RATE

A RATE statement causes a charge to be calculated for each job or job-step record based on the rates supplied. Each rate to be applied requires a separate RATE statement. The RATE statements are distinguished by unique CPU IDs, a field that is also carried in the job and job-step records. It is the CPU ID that causes the correct rate application to the proper records.

Before proceeding, please read about these control statements in Chapter 4.

The SORT statement is changed to add CPU ID as the major sort field, and to summarize on it. So the order of this report is job name within CPU ID.

```
                    ┌──────────── causes our descriptions to print as
                    │       headers for each control break
position  1     ▼  2      3
 1........0.........0.........0...
 2SORT    00101 2101608
            ▲   ▲           causes a summary line to be generated
            │   └──────────────────── every time CPU ID changes
            └───── the major sort is CPU ID - refer to the Basic
               Accounting Table for field positions
```

Additional output data elements are necessary to see the effects of these features on the report. The DISPLAY statement includes the following data elements:

Name	Output DE ID
Description Field	02
Job Name	04
Number of Jobs	14
CPU Time	66
Reader Queue Time	62
Processor Time	29
Processor Charge	44

```
position  1       2       3              8
 1........0.........0.........0......        .....0
 2DISPLAY   002204214266262529244
```

Refer to the Output Data Elements Table. Remember the format is ndd, where n is the number of leading spaces and dd is the Output Data Element ID (DE ID).

The GROUP statement tells CA JARS what field(s) to use when the program performs the conditional logic. In this example, jobs are charged different rates based on how long they have been in the reader queue, so the field to be grouped on is reader queue time. Additionally, all TSO records are rejected, so we must test the processing ID.

The GROUP statement should be coded as follows:

```
position  1       2       3       8
 1........0.........0.........0...   ...0
 2GROUP   0281 R1956
          ▲     ▲
          └─────┴────── here we are rejecting TSO records for this
                report and then performing grouping on reader
                queue time. Refer to the fields in the Basic
                Accounting Table to code this statement.
```

For this example, the groups are:

```
 0 seconds - 30 seconds
30 seconds -  2 minutes
     over -  2 minutes
```

Each group must be assigned a unique CPU ID. This actually places the specified CPU ID into each record that has a reader queue time within the specified range. This is necessary because we want to charge a different rate for each of these ranges in reader queue time. You will see that each rate is specified on a unique RATE statement, distinguished by CPU ID. For every record, a charge is calculated based on a RATE statement that contains a CPU ID that matches the CPU ID in the record.

To define each group, GROUPC statements are necessary:

```
position 1        2        3        4              8
 1........0........0........0........0...         ...0
 2GROUPC  1T
          ▲ ▲
          | └──────────────────── Records with a processing ID of T are rejected
          |                TSO records have a processing ID T.
          |
          └────────────────────── Match to the 1st field on the GROUP statement.

2GROUPC  2000000  000030  A
2GROUPC  2000031  000200  B
2GROUPC  2000201  999999  C
        ▲ ▲      ▲
        | └──────┴──────────── Because the field we are grouping on is
        |              in the format hhmmss and we are grouping
        |              on all 6 positions, the limit of the
        |              fields on the GROUPC statements must be
        |              in the same format.
        |
        └───────────────────── Match to the 2nd field on the GROUP statement.
```

A RATE statement should be set up for each of the CPU IDs specified in the grouping for this example. The actual rate that is used should not be interpreted as a practical amount to charge in any particular situation, but merely serves to demonstrate the use of a RATE statement.

The RATE statements should be coded as follows:

```
position 1        2        3        4        5        8
 1........0........0........0........0........0...     ...0
 2RATE   A1000         200
 2RATE   B1000         100
 2RATE   C0500         100
        ▲  ▲          ▲
        |  |          └──── TOTAL CPU factor, a percentage amount
        |  |            of the CPU time used to be charged for.
        |  |
        |  └───────── Basic Processor Rate to be used in calculating the
        |          charge. In this case CPU Time x CPU Factor x Basic
        |          Processor Rate = Processor Charge.
        |
        └──────────────────── CPU ID is to distinguish the different rates
                   to be applied to job and job-step records with
                   matching CPU IDs.
```

In this example, we want to print a special description on the summary line for each CPU ID that could be encountered. The DESCRIPT statement is used to substitute a description for the contents of the sort control field at each control break. The use of DESCRIPT statements can make a report easier to read, especially for people who may not be familiar with the sort fields used to generate the report. Descriptions are displayed on the summary line with DE ID 02 specified on the DISPLAY statement, and can be also displayed at the beginning of each change in sort control if descriptive headers were flagged on the SORT statement.

The DESCRIPT statements necessary to do this should be coded as follows:

```
position 1        2        3        4        5          8
 1........0.........0.........0.........0.........0...      ...0
 2DESCRIPT1A      LESS THAN 30 SEC.
 2DESCRIPT1B      30 SEC. - 2 MINUTES
 2DESCRIPT1C      GREATER THAN 2 MIN.
          ▲ ▲
          | └── this is the CPU ID for each group
          |
          └──── this 1 means the description specified is to be associated
             with the first sort field on the SORT statement
```

Starting in position 19, code the desired description, up to 20 characters in length.

The HEADER statement can be changed to indicate the actual report we will generate in this second example.

```
position 1        2        3        4        5          8
 1........0.........0.........0.........0.........0...      ...0
 2HEADER    CHARGES BASED ON READER QUEUE TIME
```

The last change necessary for this example, is to change the set code in the SELECT statement to a 2, since that is what we have coded in position 1 of all the report control statements for this example.

```
position 1        2        3        4        5          8
 1........0.........0.........0.........0.........0...      ...0
  SELECT    1                         2
```

The control statements for this example are:

```
position 1        2        3        4        5          8
 1........0.........0.........0.........0.........0...      ...0
  SELECT    1                         2
 2HEADER    CHARGES BASED ON READER QUEUE TIME
 2SORT    00101 2101608 2                     1
 2DISPLAY   0022042142662625292 44
 2GROUP   0281 R1956
 2GROUPC  1T
 2GROUPC  2000000  000030   A
 2GROUPC  2000031  000200   B
 2GROUPC  2000201  999999   C
 2RATE    A0500        100
 2RATE    B1000        100
 2RATE    C1000        200
 2DESCRIPT1A      LESS THAN 30 SEC.
 2DESCRIPT1B      30 SEC. - 2 MINUTES
 2DESCRIPT1C      GREATER THAN 2 MIN.
```

Use the same input data and the same JCL job stream as you used for Example 1.

The output report is shown on the following page.

```
                                    CHARGES BASED ON READER QUEUE TIME


BEGIN DATE - 02/05/98                                                          RUN DATE - 02/28/98
END DATE   - 02/05/98                                                                     PAGE   1


                      JOB          JOB         CPU    RDR QUE          PROCESS       PROCESS
DESCRIPTION           NAME         NBR        TIME   TIME-AVG             TIME        CHARGE

LESS THAN 30 SEC.
                      ASMSCH       6262   00:00:06   00:00:29           .00169          $.85
                      ASMSCH       7852   00:00:05   00:00:29           .00142          $.72
                      ASMSCH       7855   00:00:06   00:00:30           .00164          $.83
                      ASMSCH       7918   00:00:05   00:00:29           .00140          $.71
                      ASMSCH       7919   00:00:06   00:00:30           .00160          $.81
                      ASMSCH       7923   00:00:05   00:00:30           .00141          $.71
                      ASMSCH       8170   00:00:06   00:00:30           .00159          $.80
                      ASMSCH       8863   00:00:05   00:00:29           .00138          $.70

                                      8   00:00:44   00:00:30           .01213         $6.13
                         .
                         .
                         .
                      ZAP51        6529   00:00:00   00:00:29           .00013          $.07
                      ZAP51        7282   00:00:01   00:00:29           .00030          $.15

                                      2   00:00:02   00:00:29           .00043          $.22

LESS THAN 30 SEC.                   496   02:37:30   00:00:08          2.62492     $1,315.09

30 SEC. - 2 MINUTES

                      APPDA52      8645   00:01:47   00:00:35           .02980        $29.80

                                      1   00:01:47   00:00:35           .02980        $29.80

                      ASMS627      8292   00:00:05   00:00:33           .00140          $.71
                      ASMS627      8906   00:00:05   00:00:31           .00137          $.69
                         .
                         .
                         .
                      ZAP51        7254   00:00:01   00:00:31           .00030          $.30

                                      1   00:00:01   00:00:31           .00030          $.30

30 SEC. - 2 MINUTES                 187   00:45:00   00:00:42           .74996       $422.28

GREATER THAN 2 MIN.

                      RIZUPDT      8150   00:00:04   00:02:11           .00106          $.54

                                      1   00:00:04   00:02:11           .00106          $.54

                      R42LINK      1258   00:00:30   00:02:05           .00825         $4.43

                                      1   00:00:30   00:02:05           .00825         $4.43

GREATER THAN 2 MIN.                   2   00:00:34   00:02:08           .00931         $4.97

                                    686   03:23:04   00:02:58          3.38429     $1,742.34
```

Each group of data is labeled with a descriptive header, which also is displayed on the summary line for that group. This is a job-level detail report, and rates have been applied to each job.

Example 3: A Summary Report

To produce the same report as Example 2, but only display the summary lines, remove the 1 in position 51 of the SORT statement.

However, some data elements are not logically cumulative and therefore cannot be displayed on a summary line. For this reason, we will remove job name and CPU ID from the DISPLAY statement in this example.

Because this is a summary line-only report, we do not need descriptive headers displayed at the beginning of each change in the sort control. The descriptions are printed on each summary line because DE ID 02 is specified on the DISPLAY statement. So on the SORT statement in sort field one, remove the flag for descriptive headers.

The control statements for the third example are:

```
position  1         2         3         4         5             8
 1........0.........0.........0.........0.........0...       ...0
  SELECT     1                                     3
 3HEADER     CHARGES BASED ON READER QUEUE TIME
 3SORT    00101 2 01608
 3DISPLAY   002214266262529344
 3GROUP   0281 R1956
 3GROUPC  1T
 3GROUPC  2000000  000030   A
 3GROUPC  2000031  000200   B
 3GROUPC  2000201  999999   C
 3RATE    A0500          100
 3RATE    B1000          100
 3RATE    C1000          200
 3DESCRIPT1A       LESS THAN 30 SEC.
 3DESCRIPT1B       30 SEC. - 2 MINUTES
 3DESCRIPT1C       GREATER THAN 2 MIN.
```

The output report is:

```
                    CHARGES BASED ON READER QUEUE TIME
 BEGIN DATE - 02/05/98                            RUN DATE - 02/28/98
 END DATE   - 02/05/98                                       PAGE   1


                        JOB         CPU   RDR QUE   PROCESS     PROCESS
 DESCRIPTION            NBR        TIME  TIME-AVG      TIME      CHARGE

LESS THAN 30 SEC.     496    02:37:30  00:00:08   2.62492   $1,315.09
30 SEC. - 2 MINUTES   187    00:45:00  00:00:42    .74996     $422.28
GREATER THAN 2 MIN.     2    00:00:34  00:02:08    .00931       $4.97

                        686    03:23:04  00:02:58    3.38429   $1,742.34
```

Summarization of this type is often used for invoices, and management reports. If the input data is kept, you can always rerun this report as a detail report to illustrate how these totals are calculated.

The remaining chapters of this guide explain in detail all the functions of the various control statements and how to manage the input and output data files.

Chapter 4: Control Statements and Tables

The following table provides an overview of all the CA JARS control statements. An explanation of each control statement follows, in alphabetical order.

Control Statement	Description	System Use	User-Defined
APPCRATE	Sets rates and billing algorithms for APPC utilization	N/A	Optional
BUDGET	Introduces a budget figure for cost comparison reporting	N/A	Optional
CONFIG	Defines device configuration	Optional	Optional
CONFIGX	Specifies four-character device numbers	Optional	Optional
CREDIT	Introduces a credit amount to supplement the billing algorithm	N/A	Optional
CRITERIA	Selects records based on date or DOS partition ID	Optional	Optional
DEBIT	Introduces a debit amount to supplement the billing algorithm	N/A	Optional
DESCRIPT	Provides descriptions at sort control breaks	N/A	Optional
DEVADDR	Selects records based on device address	N/A	Optional
DEVNMBR	Selects records based on four-character device numbers.	N/A	Optional
DISPLAY	Defines elements to be displayed on output reports	N/A	Required
EDIT	Modifies data elements to be displayed on output	N/A	Optional
EXITS	Introduces user-supplied exit routines for exit 1, 2 or 3	N/A	Optional
EXTDATA	Controls production of EXTDATA records	N/A	Optional
FORMRATE	Sets rates and billing algorithms for forms records	N/A	Optional

Control Statement	Description	System Use	User-Defined
GROUP	Conditional selection/rejection process	N/A	Optional
GROUPC	Works with GROUP statement to define conditions for selection/rejection process	N/A	Optional
HEADER	Provides a heading for each report	N/A	Required
OPTION	Modifies the report writer with specific options you select	Optional	Optional
PARMS	Defines operational elements to CA JARS	N/A	Optional
PRIORITY	Adjusts the billing algorithm based on job class and priority	N/A	Optional
RATE	Sets rates and billing algorithms for batch records	N/A	Optional
RJERATE	Sets rates and billing algorithm for BSC records	N/A	Optional
SELECT	Defines input and selects output reports for generation	Required	Required
SNARATE	Sets rates and billing algorithms for SNA records	N/A	Optional
SORT	Orders records for output, defines history output and summarization	N/A	Required
STDFORM	Specifies what are considered to be standard form IDs	N/A	Optional
STDPRINT	Specifies what are considered to be standard print classes	N/A	Optional
STDPUNCH	Specifies what are considered to be punch classes	N/A	Optional
SYSUSE1	Customizes System Use Reports	Optional	N/A
SYSUSE2	Customizes System Use Reports	Optional	N/A
TITLE	Modifies Output Date Element titles (column titles)	N/A	Optional
TSORATE	Sets rates and billing algorithms for TSO records	N/A	Optional

CA JARS Control Statements

APPCRATE Statement

This optional statement lets you charge for APPC conversation and transaction utilization. The set code for the APPCRATE statement is optional. A blank in position 1 means the statement is used in all reports. The APPCRATE statement generates charges in four ways:

1. Against the APPC Task (from SMF Type 30)
2. Against the Outbound Conversation (from SMF Type 33-2)
3. Against the Inbound Conversation (from SMF Type 33-2)
4. Against the APPC Transaction (from SMF Type 33-1)

The APPC task records (type 30) use the same Basic Account and Output Data Element table entries as the job and step records.

The APPC conversation and task records (type 33) use the same Basic Account and Output Data Entry elements as defined for RJE records. APPC conversation and task records differ from RJE records in that the partition type field (BAT 299) contains an A and the storage indicator/APPC Type (BAT 266) contains a T.

APPC Task

If specified, applies to Account records whose job ID begins with A, signifying an APPC task. The charge is added to the RJE/Charge/APPC Charge in the Account record, and is calculated as follows:

```
RJE/APPC Charge = (Send Rate x Kilobytes Sent) +
                  (Receive Rate x Kilobytes Received)
```

Note: To use this APPCRATE statement feature, the APPC/TP Name must be blanks. APPC/TP Name only applies to the other three components (those based on the SMF 33 record). A Y in position 58 of the option statement causes the collection of APPC task statistics. If this option is not specified, the Kilobytes Sent and Received are not collected, and thus cannot be charged.

Outbound Conversation

If specified, applies to records created from the SMF 33, subtype 2 record with the outbound indicator set. These records are created with a processing ID of R. They are differentiated from other records with a processing ID of R by an O in byte 266 of the account record and an A in byte 299. The charge is calculated as follows and placed in the RJE Charge/APPC Charge field:

```
RJE/APPC Charge = (Send Rate x Kilobytes Sent) +
                  (Receive Rate x Kilobytes Received) +
                  (Call Rate x Number of Calls)
```

Note: If APPC/TP Name is specified, then the original APPC/TP Name must match that on the APPCRATE statement. Position 59 of the OPTION set to Y causes collection of SMF 33 information. Without this setting, no APPC transaction or conversation information is collected.

Inbound Conversation

If specified, applies to records created from the SMF 33, subtype 2 record with the inbound indicator set. These records are created with a processing ID of R. They are differentiated for other records with a processing ID of R by an I in byte 266 of the account record and an A in byte 299. The charge is calculated as follows and placed in the RJE Charge/APPC Charge field:

```
RJE/APPC Charge = (Send Rate x Kilobytes Sent) +
                  (Receive Rate x Kilobytes Received) +
                  (Call Rate x Number of Calls)
```

Note: If APPC/TP Name is specified, then the original APPC/TP Name must match that on the APPCRATE statement. Position 59 of the OPTION set to Y causes the collection of SMF 33 information. Without this setting, no APPC transaction of conversation information is collected.

APPC Transaction

If specified, applies to records created from the SMF 33, subtype 1 record. These records are created with a processing ID of R. They are differentiated from other records with a processing ID of R by a T in byte 266 of the account record and an A in byte 299. The charge is calculated as follows and placed in the RJE Charge/APPC Charge field:

```
RJE/APPC Charge = (Send Rate x Kilobytes Sent) +
                  (Receive Rate x Kilobytes Received) +
                  (Conversation Rate x Number of Conversations) +
                  (TCB Rate x TCB CPU Hours) +
                  (SRB Rate x SRB CPU Hours) +
                  (EXCP Rate x 1000 EXCPs) +
                  (Device Connect Rate x Seconds of Device Connect)
```

Note: If APPC/TP Name is specified, then the original APPC/TP Name must match that on the APPCRATE statement. Position 59 of the option causes the collection of SMF 33 information. Without this setting, no APPC transaction of conversation information is collected.

The following example shows typical usage of an APPCRATE statement:

```
position  1      2      3      6     7      8
 1.........0.........0.........0.........0........0.........0
 AAPPCRATE X        3500
 AAPPCRATE X TP1                    01000200   9750
                   22        63       75
```

On report A for CPUID = X, APPC task has a charge of $3.50 per 1000 Bytes Received; for TP name = TP1, APPC Transaction is charged $100 per hour for TCB time, $200 per hour for SRB time, and $9.75 per Second of Device Connect.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	APPCRATE	Statement Type
10	1	CPU Identification	
11-18	8	TP Name	
19-22	4	Send Rate	APPC Task 9v999 per 1000 bytes
23-26	4	Receive Rate	APPC Task 9v999 per 1000 bytes
27-30	4	Send Rate	APPC Outbound Conversation 9v999 per 1000 bytes
31-34	4	Receive Rate	APPC Outbound Conversation 9v999 per 1000 bytes

Position	Field Length	Field Name	Notes
35-38	4	Call Rate	APPC Outbound Conversation 9v999 per Call
39-42	4	Send Rate	APPC Inbound Conversation 9v999 per 1000 bytes
43-46	4	Receive Rate	APPC Inbound Conversation 9v999 per 1000 bytes
47-50	4	Call Rate	APPC Inbound Conversation 9v999 per Call
51-54	4	Send Rate	APPC Transaction 9v999 per 1000 bytes
55-58	4	Receive Rate	APPC Transaction 9v999 per 1000 bytes
59-62	4	Conversation Rate	APPC Transaction 9v999 per conversation
63-66	4	TCB CPU Rate	APPC Transaction 9999 per hour
67-70	4	SRB CPU Rate	APPC Transaction 9999 per hour
71-74	4	EXCP Rate	APPC Transaction 9v999 per 1000 EXCPs
75-78	4	Device Connect Rate	APPC Transaction 9v999 per second

BUDGET Statement

The BUDGET statement is optional. You use it to manually introduce budget figures to CA JARS and compare them to actual costs for a given period of time. Budget figures may be associated with a specific job or with any summarization level (account, department, project, and so forth).

Each BUDGET statement introduced is formatted into an accounting record that is sorted and reported on as any other input. All BUDGET statement fields are formatted to corresponding fields according to the Basic Accounting Table. For processing purposes, the record is treated as a one step job similar to those generated by CREDIT and DEBIT statements.

The *budget amount*, in dollars, is carried by CA JARS and made available for display as DE ID 81 in the Sequenced Output Data Elements Table. The difference between the budget amount and the *total charge* (DE ID 46) can be displayed at any level as the *over-under budget figure, DE ID 82. The percent budget spent, DE ID 83* can reflect what percent of the budget amount has been spent at any display level.

The following example shows a typical BUDGET statement setup:

```
position  1       2       3       4            7       8
 1........0.........0.........0.........0....    .......0.........0
 ABUDGET  6      AAA          9809                   125000
```

This BUDGET statement for Report A is to be applied against CPU identification 6. The account number AAA, is assumed to be in the first three characters of the accounting fields information. The current September budget control report is to reflect a $125,000 budget for account AAA. Note that the budget amount field on the BUDGET statement is in dollars format with no cents.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	BUDGET
10	1	CPU Identification	
11-18	8	User Identification	
19-34	16	User Info./Acct. Field	
35-40	6	Date	yymmdd
41-48	8	Job Name	
49-54	6	Time	hhmmss
55-74	20	Programmer	
75-80	6	Budget Amount	999999V; dollars

COMMENT Statement

This optional statement allows comments to be inserted in the control statement stream. COMMENT statements do not affect the execution in any way, and are provided to enable you to explain actions in the other control statements. The COMMENT statement is not reflected in either the System Control Cards Report or the Report Control Cards Report.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	Must be blank
10	71	Comment	

CONFIG Statement

Use this optional statement to define your peripheral device configuration to the report writer. CA JARS uses CONFIG statements, if present, rather than generic device addresses.

Note: The CONFIG statement does not support four-character device numbers. Use the CONFIGX statement.

On the CONFIG statement, each device must have a *unit address* and be associated with a *unit type* keyword. The valid unit type keywords are:

- READ for statement readers
- WRIT for line printers
- PUNC for statement punches
- TAPE for tape units
- DISK for disk units
- OTHE for other devices.

Each unit address must be a four-character code in the format **cuublank**

where:

cuu

is the device address or device number.

blank

is the last character of a unit address field which must be a blank.

Only devices defined on CONFIG statements are represented in your system use reports. If the OPTION statement was coded to use only CONFIG statements rather than picking the data up from the SMF records, a warning message is printed during the input phase identifying each device encountered in the accounting data that was not defined on the CONFIG statements. Processing continues but no utilization statistics are carried through CA JARS for these devices. This could have an adverse effect on computer billing reports charging for I/O device utilization.

If you wish to report on only a few isolated devices, such as system resident DASD units or one bank of tape drives, use CONFIG statements to screen out all devices not desired in the report.

You can use as many as 17 type/address fields on a CONFIG statement. The first blank field terminates the processing of the statement. All the unit addresses of the same unit type must be grouped together. Duplicate unit type keywords are **not** allowed but multiple statements can be used as needed.

The following is an example showing a typical CONFIG statement setup:

```
position  1       2       3       4       5              8
 1........0.........0.........0.........0.........0........      ...0
  CONFIG  READ00C 01C WRIT00E 00F PUNC00D
  CONFIG  TAPE280 281 282 283 284 285 286 287
  CONFIG  DISK130 131 132 133 134 135
  CONFIG  330 331 332 333 334 335
  CONFIG  OTHE00A 01F
```

The five statements specify that the installation has two statement readers: 00C and 01C; two line printers: 00E and 00F; one card punch: 00D; eight magnetic tape units: 280 through 287; 12 direct access storage devices: 130 through 135 and 330 through 335; and two other I/O devices: 00A and 01F.

Note: The DASD addresses are continued on the next CONFIG statement without repeating the keyword DISK.

The CONFIG statements can also dynamically perform channel equates. As indicated in the previous example, DASD units 130 through 135 can be switched over to channel 3.

To consolidate utilization statistics to correspond to the real device address, all I/O information for units 330 through 335 is added to the corresponding device address on channel 1 by using the channel equate feature as follows:

```
position  1       2       3       4       5              8
 1........0.........0.........0.........0.........0........      ...0
  CONFIG  DISK1=3 130 131 132 133 134 135
```

The four-character equate must be in the format c=nblank. Multiple equates may be used simultaneously, as needed, up to a maximum of three. Such equates pertain to device addresses following the equate(s) and are reset by a subsequent set of equates or unit type keyword.

All consecutive equates must be made to a single channel (for example, C=X C=Y C=Z) where all appropriate devices with channel X, Y, or Z are changed to channel C for reporting and billing purposes.

Equates may be changed within a unit type. For example, DASD units 130 through 135 can have secondary paths on channels 3 and 4 while units 250 through 257 have a secondary path on channel 5. All I/O information for units 330 through 337 and 430 through 437 is added to the corresponding device address on channel 1. Likewise, entries for 550 through 557 are converted to channel 2 addresses by using the channel equate feature as follows:

```
position  1       2       3       4       5               8
 1........0.........0.........0.........0.........0........      ...0
  CONFIG  DISK1=3 1=4 130 131 132 133 134 135 136 137
  CONFIG  2=5 250 251 252 253 254 255 256 257
```

If you wish to drop all references to any device on one or more channels in the SMF data, use the DROP keyword on a CONFIG statement. The format is DROPXYZ , where all X, Y, and Z channel device addresses are eliminated from the input data. The following examples show the use of the DROP keyword.

The example below shows the use of the DROP keyword to eliminate all channel 6 device addresses from the input data. Note the three blank positions following the number 6.

```
position  1       2                               8
 1........0.........0............                ....0
  CONFIG  DROP6
```

The following example shows the use of the DROP keyword to eliminate all device addresses in the input data since, in this example, the computer only uses channels 0 through 6. Note that many channels can be identified by using multiple four-character entries and terminating with a blank character.

```
position  1       2       3       4       5              8
 1........0.........0.........0.........0.........0........    .....0
  CONFIG  DROP012 345 6
```

Position	Field Length	Field Name	Notes
1	1	Reserved	Not used
2-9	8	Statement Type	CONFIG
10-77	4 . . . up to 16 additional occurrences . . .	Type/Address Table	If Unit Type use xxxx where: xxxx: READ for card readers WRIT for line printers PUNC for card punches TAPE for tape units DISK for disk units OTHE for other units If Unit Address use cuu where: cuu: device address or device number blank: blank If Channel Equate use c=n where: c: primary channel =: code as shown n: secondary channel blank: blank If drop, use DROP followed by ABC, where A, B, and C represent channels for which I/O device statistics are not wanted.
78-80	3	Reserved	Not used

CONFIGX Statement

The CONFIGX statement allows for the specification of four-character device numbers. The operation of the statement is similar to the CONFIG statement.

Use this optional statement to define your four-character peripheral device configuration to the report writer. Refer to the CONFIG/CONFIGX option of the OPTION statement. CA JARS relies on CONFIG/CONFIGX statements, if present, rather than generic device numbers.

On the CONFIGX statement, each device must have a *device number* and be associated with a *device type* keyword. The valid device type keywords are:

- READX for statement readers
- WRITX for line printers
- PUNCX for statement punches
- TAPEX for tape units
- DISKX for disk units
- OTHEX for other devices.

Each device number must be a five-character code in the format **xxxxblank**

where:

xxxx

is the device number.

blank

is the last character of a device number field which must be a blank.

Only devices defined on CONFIG/CONFIGX statements are represented in your System Use reports. If the OPTION statement was coded to use only CONFIG/CONFIGX statements, rather than picking the data up from the SMF records, a warning message is printed during the input phase. The message identifies each device encountered in the accounting data that was not defined on the CONFIG/CONFIGX statements. Processing continues but no utilization statistics are carried through CA JARS for these devices. This could have an adverse effect on computer billing reports charging for I/O device utilization.

If you wish to report on only a few isolated devices, such as system resident DASD units or one bank of tape drives, the CONFIG/CONFIGX statements are used to screen out all devices **not** desired in the report.

There can be as many as 14 type/number fields used on a CONFIGX statement. The first blank field terminates the processing of the statement. All the device numbers of the same device type must be grouped together. Duplicate device type keywords are **not** allowed but multiple statements can be used as needed.

The following is an example showing a typical CONFIGX statement setup:

```
position  1       2       3       4       5               8
 1........0.........0.........0.........0.........0........      ...0
  CONFIGX READX000C 001C WRITX000E 000F PUNCX000D
  CONFIGX TAPEX1280 1281 1282 1283 1284 1285 1286 1287
  CONFIGX DISKX1130 1131 1132 1133 1134 1135
  CONFIGX 1330 1331 1332 1333 1334 1335
  CONFIGX OTHEX500A 101F
```

The five statements specify that the installation has two statement readers: 000C and 001C; two line printers: 000E and 000F; one card punch: 000D; eight magnetic tape devices: 1280 through 1287; 12 direct access storage devices: 1130 through 1135 and 1330 through 1335; and two other I/O devices: 500A and 101F.

Note: The DASD numbers are continued on the next CONFIGX statement without repeating the keyword DISKX.

If you wish to drop all references to any device number in the SMF data, use the DROPX keyword on a CONFIGX statement. The format is DROPX xxxxblank, where xxxx is the device number to be eliminated from the input data. The following examples show the use of the DROPX keyword.

The following example shows how to use the DROPX keyword to eliminate the device number 1365 from the input data.

```
position  1       2                             8
 1........0.........0............              ....0
  CONFIGX DROPX 1365
```

This example shows how to use the DROPX keyword to eliminate the device numbers 1131 through 11351 in the input data.

```
position  1       2       3       4       5             8
 1........0.........0.........0.........0.........0........     .....0
  CONFIGX DROPX 1131 1132 1133 1134 1135
```

Position	Field Length	Field Name	Notes
1	1	Reserved	Not used
2-9	8	Statement Type	CONFIGX
10-79	5 . . . up to 13 additional occurrences . . .	Type/Address Table	If Unit Type use xxxxx where xxxxx equals: READX WRITX PUNCX TAPEX DISKX OTHEX If Unit Address use ccuu where: ccu: device number blank: blank If Channel Equate use cc=nn where: cc: primary channel =: code as shown nn: secondary channel If drop, use DROPX followed by AABB , where AA and BB represent channels for which I/O device statistics are not wanted.

CREDIT Statement

The CREDIT statement is optional. Use it to supplement the accounting algorithm defined on the RATE and PRIORITY statements. Credits may be manually introduced to CA JARS to be applied to a specific job or summarization level (account, department, project, and so forth). Some typical uses for the CREDIT statement are:

- negate job rerun costs
- adjust prior months billing
- provide volume processing discounts

Each CREDIT (and DEBIT) statement introduced to CA JARS is formatted into an accounting record to be sorted and reported on as any other input. All CREDIT statement fields are formatted to corresponding fields as referred to in the Basic Accounting Table. For processing purposes, the record is treated as a one-step job.

Note: The creation of CREDIT and DEBIT accounting records is performed during user-defined report processing and the accounting records created for each CREDIT (and DEBIT) statement are not present on the Account file, or made available to an Account exit. However, if output to a History file, and subsequently input into CA JARS, CREDIT and DEBIT history records are present on the Account file and available to an Account exit.

The following fields, if not present on the CREDIT statement, are filled with blanks in the formatted record:

- CPU identification
- User identification
- User information/accounting field
- Job name
- Programmer

The following fields (or any portion thereof) not present on the CREDIT statement are filled with *high values* (hex 'FF') in the formatted record:

- Date (yymmdd)
- Time (hhmmss)

For collating purposes, note that the date field is moved to the reader start date and run date fields. Also, the time field is moved to the reader start time and start time fields in the formatted record. (Refer to the Basic Accounting Table). The high values portion of these fields, if any, do not print when selected for display and, therefore, are used to reduce keypunch strokes when preparing CREDIT statements or to cause credits to collate last in a certain group of records.

The credit amount, in dollars, is carried by CA JARS and made available for display as DE ID 79 in the Sequenced Output Data Elements Table. The credit amount also affects the total charge (DE ID 46), distributed charge (DE ID 47), and percent totals (DE IDs 41 and 42) at any level of display. Examples of typical CREDIT statement setups are provided next.

```
position  1      2      3      4      5            8
 1........0.........0.........0.........0.........0........   .....0
 ACREDIT  6     AAA         9808                 150000
 ACREDIT  6     AAA         980915TESTDUMP153321       2447
```

The first CREDIT statement for Report A is to be applied against CPU identification 6. The account number is AAA, assumed to be the first three characters of the accounting fields information. The credit amount of $1500.00 is to be applied against current September billing for August adjustments.

The second CREDIT statement for Report A is to be applied against a specific job run on the system with CPU identification 6. TESTDUMP was run under account AAA at 15.33.21 on September 15, 1998. The rerun credit amount is $24.47.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	CREDIT
10	1	CPU Identification	
11-18	8	User Identification	
19-34	16	User Info./Acct. Field	
35-40	6	Date	yymmdd
41-48	8	Job Name	
49-54	6	Time	hhmmss
55-74	20	Programmer	
75-80	6	Credit Amount	9999V99; dollars

CRITERIA Statement

The CRITERIA statement is optional. It provides a mechanism for selecting or rejecting input accounting records during a CA JARS run. This is accomplished by coding appropriate values in one or both of two 22-character fields. Each field has the format **kifs ,** where:

k

is a four-character keyword, either DATE or PART. DATE implies comparison against the SMF reader start date, or DOS run date. PART is used only with DOS input data and implies comparison against the DOS partition ID.

i

is a one-character code specifying record selection ( ), or record rejection (1) when the record meets the specified criteria.

f

is an eight-character field defining the lowest date, or the DOS Partition-ID which meets the criteria.

s

is an eight-character field defining the highest date which meets the criteria.

Both fields cannot contain the same keyword. If both fields are specified, and DOS data is present, Partition-ID is evaluated first, and then if not rejected, start date is evaluated. Date information is coded in the format mm/dd/yy or dd/mm/yy, depending on the contents of the date format indicator. See the PARMS Statement section later in this chapter for more information.

The CRITERIA statement selects or rejects dates according to the READER start date(s). If you want to report on jobs processed by Run Date, the GROUP and GROUPC statements are required.

The following is an example of a typical CRITERIA statement setup:

```
position  1      2      3      4               8
 1........0.........0.........0.........0............       ...0
  CRITERIADATE 06/01/9806/30/98 PART1F1
```

This statement selects and rejects certain SMF and DOS job accounting records based on the defined criteria. Any input records containing a date other than June 1998, or processed under DOS in the Foreground 1 (F1) partition are rejected. All other records are selected.

If the CRITERIA statement is omitted, all input records are selected. When using the DATE keyword, the upper limiting criteria defaults to the lower limiting criteria value when omitted. The following is an example of a typical CRITERIA statement designed to select only one day (June 1, 1998) from all available input:

```
position  1       2       3       4                8
 1........0........0........0........0...........      ...0
  CRITERIADATE 06/01/98
```

An extension to the record selection/rejection capability at the report level is available through the use of the grouping feature. This function is controlled by the GROUP

SMF Type 30 records are selected based on their SMF recording stamp.

Criteria Statement Layout:

Position	Field Length	Field Name	Notes
1	1	Reserved	Not used
2-9	8	Statement Type	CRITERIA
10-53	22 . . . repeated once	Criteria Table*	kifs where: k: keyword (4 characters) i: indicator (1 character) f: first field (8 characters) s: second field (8 characters) blank: blank (1 character)
54-80	27	Reserved	Not used

Criteria Table:

First Keyword	Second Indicator	Field	Field	Action
DATE	blank	*xx/xx/xx	*yy/yy/yy	selects records with Run (Reader) Date > xx/xx/xx and < yy/yy/yy
DATE	1	*xx/xx/xx	*yy/yy/yy	rejects records with Run (Reader) Date > xx/xx/xx and < yy/yy/yy
PART	blank	'xx followed by 6 blanks'	not used	selects DOS records with Partition Identification of xx
PART	1	'xx followed by 6 blanks'	not used	rejects DOS records with Partition Identification of xx

* Dates must conform to Date Format Indicator on PARMS statement, either mm/dd/yy or dd/mm/yy.

DEBIT Statement

The DEBIT statement is optional and similar to the CREDIT statement. It supplements the accounting algorithm defined on the RATE and PRIORITY statements. Debits may be manually introduced to CA JARS to be applied to a specific job or summarization level (account, department, project, and so forth.). Some typical uses for the DEBIT statement are:

- charge for dedicated online devices
- introduce tape and disk rental costs
- bill specific accounts for other edp functions used

The DEBIT statement format and processing is identical to that of the CREDIT statement. The only difference is in the use of the amount field.

The *debit amount*, in dollars, is carried by CA JARS and made available for display as DE ID 80 in the Sequenced Output Data Elements Table. The debit amount also affects the *total charge* (DE ID 46), *distributed charge* (DE ID 47), and *percent totals* (DE ID 41 and 42) at any level of display. The following are examples of typical DEBIT statement setups:

```
position  1       2       3       4       5          8
 1........0.........0.........0.........0.........0..       ...0
 ADEBIT   6      AAA          9809  **DISK**           6000
 ADEBIT   6      AAA          9809  **TAPE**            5000
 ADEBIT   6      AAA          980915*BLOCK* 1330        22500
```

The first two DEBIT statements for Report A are to be applied against CPU identification 6. The account number AAA, is assumed to be in the first three characters of the Accounting fields information. The current September billing is to include the Debit Amounts of $60.00 and $50.00, to be charged against account AAA for the rental of disks and tapes, respectively.

The third DEBIT statement for Report A reflects a $225.00 charge against the same account for block time rental started at 13.30 on September 15, 1998.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	DEBIT
10	1	CPU Identification	
11-18	8	User Identification	
19-34	16	User Info./Acct. Field	
35-40	6	Date	yymmdd
41-48	8	Job Name	
49-54	6	Time	hhmmss
55-74	20	Programmer	
75-80	6	Debit Amount	9999V99; dollars

DESCRIPT Statement

The DESCRIPT statement is optional. When selected, it provides a description of summary line information. Refer to DE ID 02 in the Output Data Elements Table later in this section.

The *summarization level* defines which sort control break the DESCRIPT statement refers to. For example, you can select *job class as* the major sort control field. CA JARS summarizes the accounting data and prints a summary line for all processing in each job class and a final summary line for all classes combined. To clarify the report, you can define a *summarization description* for each control break or summary line. In this example, you might prepare the following set of DESCRIPT statements:

```
position  1        2        3        4        5        8
 1........0........0........0........0........0..    ...0
 ADESCRIPT1A      CLASS A JOBS
 ADESCRIPT1B      CLASS B JOBS
 ADESCRIPT1C      CLASS C JOBS
    .
    .
    .
 ADESCRIPT1       UNIDENTIFIED CLASS
```

The description control field and a sort control field must match character for character to associate the correct description with the corresponding sort control break. The sort control fields may be a maximum of 32 characters in length. Unused characters in the description control field are padded with trailing blanks. The description control field must be exactly the same as the first eight characters of the sort control field.

You may need the same DESCRIPT statements for different report formats, the only variation being the summarization level. In one report you might use job class as the level-1 sort control field, as in this example, and in another report use job class as a level-2 or -3 sort control field. The only difference in the two sets of DESCRIPT statements would be the set code and the summarization-level indicator.

You may, however, leave the set code blank and define the summarization level as 0, which makes the summarization description available to all reports and to any control break -- not just the level-1 break as in the example.

You must use the *any level* summarization level with caution. Certain reports, for example, are sorted by:

- level 1=department number
- level 2=group number
- level 3=employee number

In such cases, you must specify summarization level to make sure that the right description appears at the right level.

Note: If fewer than five sort levels are used in a report, you may identify them as 1, 2, and 3; 2, 3, and 4; or even 1, 4, and 5.

Level numbers indicate relative positions; the precise number selected is only important because the level number on the DESCRIPT statement must match that defined on the SORT statement.

Variable Description Feature

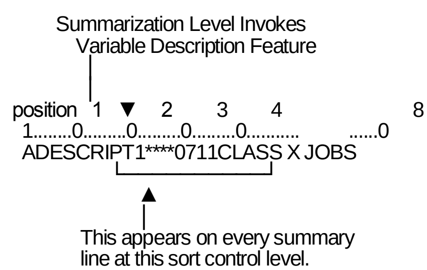
You may find that at a particular sort level, there are a number of fields whose descriptions are almost the same except for a small amount of variable information. For example, at level 1 a report might sort through Class A Jobs, Class B Jobs, and so on for 20 or 25 job classes. In this case, rather than code a separate DESCRIPT statement for each control break or summary line, you may prepare a single DESCRIPT statement and, by using the Variable Description feature, transfer the job class automatically from the sort control field into the description field.

You may invoke this feature by replacing the first four characters of the description control field with four asterisks. These indicate that the next four positions determine what will be transferred from the sort control field.

The four asterisks are followed by:

- 2 characters indicating where the transferred data is placed in the description field
- 1 character indicating how many characters of data to transfer and
- 1 character indicating from which position in the sort control field the transfer of the data is to begin

The following example illustrates a typical use of the Variable Description feature:



This statement defines the format for Report A. The summarization level is 1, followed by the four asterisks that invoke the Variable Description feature. The variable information (job class, in this case) located in the first position of the sort control field, is transferred to position 7 of the description field (overlaying the x appearing in the example).

Note that DESCRIPT statements using the Variable Description feature and those that contain blank description control fields share one characteristic: they terminate the DESCRIPT statement searching logic, and are used regardless of the current contents of the sort control field. DESCRIPT statements with blank description control fields are intended to be used for *catchall* or miscellaneous descriptions and should follow all DESCRIPT statements with nonblank description control fields.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	DESCRIPT
10	1	Summarization Level 0:	Any level 1: 1st sort level (most general level) 2: 2nd sort level 3: 3rd sort level 4: 4th sort level 5: 5th sort level (most detailed level)
11-18	8	Description Control Field	Matches Sort Control Field unless Variable Description feature is used. In that case: **Position Length Notes** 11-14 4 **** asterisks 15-16 2 TO location in DESCRIPT Field, relative to 1 17 1 Number of characters to be moved 18 1 FROM location in Control Field, relative to 1 (Refer to Variable Description feature)
19-38	20	Description Field	Refer to DE ID 02 in the Output Data Elements Table
39-80	41	Reserved	Not used

DEVADDR Statement

The DEVADDR statement is optional, unless DE ID G0 (I/O Counts by Device) is entered on the DISPLAY control statement. Then, because this statement specifies those device addresses for which I/O counts are to be displayed, it is required. A set code is also required for each DEVADDR statement. It must be the same as the set code on the DISPLAY statement.

Note: The DEVADDR statement does not support four-character device numbers. Use the DEVNMBR statement.

From 1 to 20 addresses of any device type may be specified on the DEVADDR statement without regard to the contents of the CONFIG statement. I/O counts for these devices appear on the report in the order in which they are entered. Each entry occupies 10 print positions. Addresses are written in the format **cuu,**

where:

cuu

= device address or device number

Selection Criteria: You may specify that all records be included, that only those records be included that have at least one of the addresses listed, or that only those records be included that have all the addresses listed, by coding blank, 1, or 2 respectively.

For example:

```
position  1       2       3       4       5          8
1.........0.........0.........0.........0.........0..       ...0
ADEVADDR 1130131132281282283284
```

On report A include all records that contain at least one of the following devices:

130, 131, 132, 281 282, 283, 284.

Position	Field Length	Field Name	Notes
1	1	Set Code	Required
2-9	8	Statement Type	DEVADDR
10	1	Selection Criteria	One of the following codes: 1: select only records with at least one of the devices listed 2: select only records with all devices listed blank: select all records

Position	Field Length	Field Name	Notes
11-13	3 . . . up to 19 additional occurrences . . .	Device Address Table	1 to 20 occurrences of cuu where: cuu: device address
71-80	10	Reserved	Not used

DEVNMBR Statement

The purpose of the DEVNMBR statement is the same as the DEVADDR statement. The difference is that the DEVNMBR statement supports four-character device members.

The DEVNMBR statement is optional, unless DE ID G0 (I/O Counts by Device) is entered on the DISPLAY control statement. Then, because this statement specifies the four-character device numbers for which I/O counts are to be displayed, it is required. A set code is also required for each DEVNMBR statement. It must be the same as the set code on the DISPLAY statement.

Note: DEVNMBR and DEVADDR are mutually exclusive within a set code.

From 1 to 15 four character number of any device type may be specified on the DEVNMBR statement without regard to the contents of the CONFIGX statement. I/O counts for these devices appear on the report in the order in which they are entered. Each entry occupies 10 print positions. Addresses are written in the format

xxxx,

where:

xxxx

= four character device number

Selection Criteria: You may specify that all records be included, that only those records be included that have at least one of the numbers listed, or that only those records be included that have all the numbers listed, by coding blank, 1, or 2 respectively.

For example:

```
position  1       2       3       4       5           8
 1........0.........0.........0.........0.........0..      ...0
 ADEVADDR 1113011311132128112821283128 4
```

On report A include all records that contain at least one of the following devices:

1130, 1131, 1132, 1281 1282, 1283, 1284.

Position	Field Length	Field Name	Notes
1	1	Set Code	Required
2-9	8	Statement Type	DEVNMBR
10	1	Selection Criteria	One of the following codes: 1: select only records with at least one of the devices listed 2: select only records with all devices listed blank: select all records
11-77	4 . . . up to 16 additional occurrences . . .	Device Address Table	1 to 17 occurrences of nnnn where: nnnn: device number
71-80	10	Reserved	Not used

DISPLAY Statement

The DISPLAY statement is required. Use it to select the desired data elements for display and define the print line format.

Positions 10-11 on the DISPLAY statement are reserved for the suffix of the desired Title Table module. CA JARS and each interface comes with a preassembled Title Table module, containing the TITLE control statements that explicitly define the data elements for that particular interface or product. The module name is JSIRTTxx, where xx is the suffix as shown below:

```
01=CA JARS
02=CA JARS/CICS Interface
03=CA JARS/APPC
MA=CA JARS Roscoe Interface
QA=CA JARS ADABAS Interface
VO=CA JARS VM Interface
MS=CA JARS IMS Interface
IS=CA JARS IDMS Interface (optional)
JV=CA JARS VAX Interface  (optional)
DC=CA JARS Datacom DB
```

The Output Data Elements Table allows you to select as many as 23 data elements from a pool of available elements to display in a given report. The table entries are in the format **lnn,** where:

l

is a one digit number of leading spaces.

nn

is a two-character code identifying the data element selected for display. This identification corresponds to the DE ID in the Sequenced Output Data Elements Table.

Each DISPLAY statement must have a set code. You can create your own Title Tables, as well (refer to your *Systems Programmer Guide).* If positions 10-11 are left blank, the report writer assumes suffix 01 and report all data elements with batch titles. The presence of a TITLE statement **always** overrides the title table entry for that particular data element.

The following example shows a typical DISPLAY statement:

```
position  1       2       3       4       5         8
 1........0.........0.........0.........0.........0..      ...0
 ADISPLAY   00210150410610751211312914214614 7
```

This DISPLAY statement defines the format for Report A as indicated by the set code in statement position 1. The data elements selected, in order, are:

1. Description Field	5. Job Class	9. Percent of Total Charge
2. Control Field	6. Start Time	10. Total Charge
3. Job Name	7. Stop Time	11. Distribute Charge
4. Run Date	8. Processor Time	

Each of the selected fields were preceded by the following number of spaces, respectively: 0,1,5,1,1,5,1,1,1,1,1. The total print line cannot exceed 132 print positions. By using the indicated output length in the Sequenced Output Data Elements Table, and the number of blanks preceding each selected data element, you can compute the total requested print line length.

In general, all numeric fields are to be right-justified and need not be padded with leading zeros since CA JARS performs this function as part of its routine numeric field editing. The input control statements are never sorted. Generally, the order of the statements is not important. However, in the case of certain statement types, order may have some effect on report results. This effect is noted in the detail description of each statement type.

Note: Figures are normally displayed with commas marking the thousands, millions, and billions places. If a number does not fit the space available, the commas is dropped. Righthand decimal places are the next characters dropped, two at a time. If the number is so large that even the rounded integer doesn't fit, the number is rounded further, the rightmost are places dropped and the remaining numbers are followed by an asterisk and a number indicating the number of places dropped. Thus 386,957 (or 387,000) becomes 387*3. Sign values are always retained.

Position	Field Length	Field Name	Notes
1	1	Set Code	Required
2-9	8	Statement Type	DISPLAY
10-11	2	Title Table	Code the suffix of Title Table to be used; default: 01
12-80	3 . . . up to 22 additional occurrences . . .	Output Data Element Selection Table	1 to 23 occurrences of lnn, where: l: Number of leading spaces (0-9) nn: Output Data Element ID (01-H3) Refer to Sequenced Output Data Elements Table

EDIT Statement

The EDIT statement is optional. It alters the way in which output data elements are edited for printing, and/or the logic applied at control breaks (summary lines).

Alternate edit and/or summary option codes may be specified for up to fifteen output data elements. The specification of an edit or summary option that is not applicable to a particular type of output data element is ignored, and the default options are be used. One EDIT statement can be used *globally*, (with a blank set code), and this statement may be overridden for any individual report by an EDIT statement with a nonblank set code. The relative order of the statements in the input stream has no effect on this logic.

Only one edit and summary option may be in effect for an output data Element even if it is specified more than once on either a DISPLAY statement or EDIT statement. If specified more than once on an EDIT statement, the last (rightmost) set of options applies. An exception to this is the use of the S (Sign) or E (Currency Symbol) which are *additive*, and may be specified in addition to a formatting-type edit option.

The calculation of utilization rate and index data elements is handled as a special case by CA JARS and the specification of alternate summary options for these types of output data elements is not recommended. If this is done, the summary option is applied to the calculated value which is contained in the basic account record. For example, if a summary option of T is specified for the DE ID 78 (I/O index), the result at each control break is the display of the total of all calculated I/O index values from each basic account record within that control break. It is unlikely that this particular number would be of much interest, but there may well be valid applications for the use of the minimum, maximum or average type summary options with these types of output data elements. Since the effect of several of the summary options is to significantly alter the interpretation of the displayed data elements, it is suggested that appropriate titles also be specified.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	EDIT
10-69	4 . . . repeated 14 times	Option Specification	nnes where: nn: Output Data Element ID (See Sequenced Output Data Elements Table) e: Data Element Edit Option Code s: Summary Option Code
70-80	11	Reserved	Not used

Data Element Edit Option Codes:

Option Code	Description
0	Edit numbers as integers (i.e., zero decimal positions)
1	Edit numbers with one decimal place
2	Edit numbers with two decimal places
3	Edit numbers with three decimal places
4	Edit numbers with four decimal places
5	Edit numbers with five decimal places
H	Edit time fields at hhhh.mm.ss or hhhhhhh.mm

Option Code	Description
D	Edit dates as dd/mm/yy
M	Edit dates as mm/dd/yy
Y	Edit dates as yy/mm/dd
C	Edit character data - normal default for most non-numeric data elements
S	Reserve low-order position for sign: : positive, -: negative*
E	Add currency symbol if space is available and not suppressed via PARMS statement
	Leave blank. This allows default option to remain in effect.

* May be used in combination with other option specifications for the same output data element.

Summary Option Codes:

Option Code	Note	Description
T		TOTAL: Normal default for most numeric output data
A	1	AVERAGE: Total divided by number of jobs
S	2	AVERAGE: Total divided by number of steps
H	3	HIGHEST value encountered since last control break
L	3	LOWEST value encountered since last control break
D	3	DISPLAY edited value from last account record before a control break
N	3	NO-OP: Do not display anything - default for character fields
B	4	BREAK-AVERAGE: Total divided by number of control field changes at next lower summary level
U	2	USER-AVERAGE: Total divided by accumulation of user-count-field
I	2	INDEX: Total divided by accumulation of CPU time (in seconds)
E	2	ELAPSED-INDEX: Total divided by accumulation of elapsed-time (in minutes)
		Leave blank. Allows default option to remain in effect

1. Interpreted as S if only step-records are selected.
2. Operative at job/step detail-level, as well as each summary level.
3. Only options allowable for non-numeric data-elements, which includes dates and times-of-day.
4. Example: Sort Field 1: Program Name, Sort Field 2: Run Date Result at second summary level is daily total, at first summary level is average per day, at grand total is average per different program name. See references to DE ID F7 (control break count).

EXITS Statement

The EXITS statement is optional. Its presence tells CA JARS that you will use at least one exit at various phases during processing. Three exits allow you to edit, modify, and delete accounting information in the reporting phase. Details regarding these exits are discussed in your *Systems Programmer Guide.*

The set code for the EXITS statement may be left blank; however, such a statement is overridden if CA JARS encounters an EXITS statement with a nonblank set code.

If an exit name field on the EXITS statement is omitted, no exit is taken. A nonblank field sets up the exit and must be the one to eight-character load module name of the user-coded exit routine to be accessed.

Position	Field Length	Field Name	Notes	
1	1	Set Code		
2-9	8	Statement Type	EXITS	
10-17	8	Exit Name #1	Before calculation of charges	Use blanks if there is no exit. Use xxxxxxxx for a member or alias name.
18-25	8	Exit Name #2	After calculation of charges	Use blanks if there is no exit. Use xxxxxxxx for a member or alias name.
26-33	8	Exit Name #3	Output Phase	Use blanks if there is no exit. Use xxxxxxxx for a member or alias name.
34-80	39	Reserved	Not used	

EXTDATA Statement

This optional statement controls the production of EXTDATA records. EXTDATA records are not used in any way by the Report Writer, but are produced for use in the JARS/OLF component for advanced chargeback, or by the CA Earl or CA Easytrieve component for advanced reporting. See the "EXTDATA Reporting" chapter for more information.

If the EXTDATA only flag is Yes, only the selected EXTDATA records types, specified starting at position 11 of this statement, are written to the CA JARS account file. If the EXTDATA only flag is No, then any selected EXTDATA record types, specified starting at position 11 of this statement, along with standard account file records are written to the account file.

If no EXTDATA statement is specified, then no EXTDATA records are produced.

The flags on the EXTDATA statement refer to groups of records.

Position	**Field Length**	**Field Name**	**Notes**
1	1	Set Code	not used
2-9	8	Statement Type	EXTDATA
10	1	EXTDATA Only	Y or N (default N) produce only EXTDATA records
11	1	System Info.	Y or N (default N) produce records from SMF 0, 7, 8, 9, 10, 11, 19
12	1	DB2	Y or N (default N) produce records from SMF 101
13	1	Address Space	Y or N (default N) produce records from SMF 30-5*
14	1	Address Space Step	Y or N (default N) produce records from SMF 30-4*
15	1	Address Space Interval	Y or N (default N) produce records from SMF 30-2/3*
16	1	Address Space Devices	Y or N (default N) Used in conjunction with other Address Space Options - for I/O stats. This field works in conjunction with the address space option columns 13-15. One of these fields must be specified.
17	1	Writer	Y or N (default N) produce records from SMF 6
18	1	TSO Command	Y or N (default N) produce records from SMF 32
19	1	Data in Virtual	Y or N (default N) produce records from SMF 41
20	1	RJE	Y or N (default N) produce records from SMF 48, 53
21	1	APPC	Y or N (default N) produce records from SMF 33

Position	Field Length	Field Name	Notes
24	1	Storage Class	Y or N (default N) produce records from SMF 42-5, 42-1
25	1	Cache	Y or N (default N) produce records from SMF 42-2
26	1	SMS Dataset	Y or N (default N) produce records from SMF 42-6
27	1	VTAM Stats	Y or N (default N) produce records from SMF 50
28	1	NJE	Y or N (default N) produce records from SMF 57
29	1	RMF70 CPU Activity	Y or N (default N) produce records from SMF 70
30	1	RMF71 Paging Activity	Y or N (default N) produce records from SMF 71
31	1	RMF72 Workload/Storage	Y or N (default N) produce records from SMF 72
32	1	RMF73 Channel Path Activity	Y or N (default N) produce records from SMF 73
33	1	RMF74 Device/XCF/CF/Cache	Y or N (default N) produce records from SMF 74
34	1	RMF75 Page/Swap DS	Y or N (default N) produce records from SMF 75
35	1	RMF77 Enqueued Activity	Y or N (default N) produce records from SMF 77
36	1	Measured usage	Y or N (default N) produce records from SMF 30, 89. This field works in conjunction with the address space option columns 13-15. One of these fields must be specified.
37	1	UNIX System Services	Y or N (default N) produce records from SMF 30, 92. This field works in conjunction with the address space option columns 13-15. One of these fields must be specified.
38	1	CMF (CICS)	Y or N (default N) produce records from SMF 110
39	1	TCP/IP	Y or N (default N) produce records from SMF 118
40	1	MQSERIES 115	Y or N (default N) produce records from SMF 115
41	1	MQSERIES 116	Y or N (default N) produce records from SMF 116
42	1	WebSphere 103	Y or N (default N) produce records from SMF 103
43	1	WebSphere 120	Y or N (default N) produce records from SMF 120
44	1	VTS	Y or N (default N) to produce records from SMF 94.
45	1	TCP/IP	Y or N (default N) to produce records from SMF 119. Some fields on SMF 119 duplicate fields on SMF 118. You must ensure usage of the intended fields to maintain accurate billing.
46	1	NetView 39	Y or N (default N) to produce records from SMF 39.

Position	Field Length	Field Name	Notes
47	1	System Logger 88	Y or N (default N) to produce records from SMF 88.
48	1	RMF78 I/O Queuing Activity	Y or N (default N) to produce records from SMF 78.

* SMF type 30 records contain statistics regarding jobs, TSO sessions, Started Tasks and APPC Tasks.

Note: See the "CMF Processing" chapter in the *Systems Programmer Guide* for procedures to build a dictionary and enable CMF Processing.

The following table lists the EXTDATA types and their source:

EXTDATA Option Name	EXTDATA Column	EXTDATA Types	Source (SMF #)
System	11	S00 S07 S08 S09 S10 S11 S19	IPL Date/Time Data Lost I/O Configuration Vary ONLINE Allocation Recovery Vary OFFLINE Direct Access Volume
DB2	12	S101	DB2 Accounting
Address Space	13	S30	General Address Space Task
Address Space Step	14	S30X	General Address Space Step (intervals summed)
Address Space Interval	15	S30I	AS Interval
Address Space Devices	16	SIO SIOI SIOX	Type 30 I/O by Device Type
Writer	17	S06	Writer (including all Segments)
TSO Command	18	S32	TSO Command Usage
Data in Virtual	19	S41	DIV Usage
RJE	20	SBSC SSNA	BSC RJE Records SNA RJE Records

EXTDATA Option Name	EXTDATA Column	EXTDATA Types	Source (SMF #)
APPC	21	S33I S33O S33T	APPC Inbound APPC Outbound APPC Transaction
Storage Class	24	S42B S42S	RMF stats (42-1) Storage Class stats (42-5)
Cache	25	S42C	Volume caching (42-2)
SMS Dataset	26	S42D S42I	Dataset Close (42-6) Interval Time (42-6)
VTAM	27	S50	VTAM stats (50)
Type 70 (CPU Activity)	29	R70A R70C R70P	Address Spaces (70) CPU Data (70) LPAR Data (70)
Type 71 (Paging Activity)	30	R71P R71S	Paging Data (71) Swap Reasons (71)
Type 72 (Workload Activity)	31	R72C R72G R72P R72W	WLM Class (72-4) PG Class (72-2) PG Service (72-1) WLM Service (72-3)
Type 73 (Channel Path Activity)	32	R73	Channel Paths (73)
Type 74 (Device Activity)	33	R74C R74D R74F R74L R74M R74P R74S R74X R74A R74B RSSR RSSL RSSX	Coupling Storage (74-4) Device Activity (74-1) Coupling Processor Usage (74-4) Local Coupling (74-4) XCF Member (74-2) XCF Path (74-2) XCF System (74-2) Combined Structure Storage (74-4) Cache Statistics (74-5) Cache Controller Statistics (74-5) ESS Rank Statistics (74-8) ESS Link Statistics (74-8) ESS Extent Pool Statistics (74-8)

EXTDATA Option Name	EXTDATA Column	EXTDATA Types	Source (SMF #)
Type 75 (Page/Swap Dataset)	34	R75	Datasets (75)
Type 77 (ENQ/Reserve)	35	R77	Contention due to ENQ/Reserve (77)
Measured Usage	36	U30 U30X U301 R89	Task Measured Usage (30-5) Step Measured Usage (30-4) Address Space Interval Measured Usage (30-2/3) System Measured Usage (89)
UNIX System Services	37	030 030X 030I 0HFS	Task UNIX System Services Usage (30-5) Step UNIX System Services Usage (30-4) UNIX System Services Interval Usage (30-2/3) HFS Usage (92)
IBM CMF	38	CMCC	CICS Task (110)
TCP/IP	39	STEL SAPI SFTP	Telnet C/S (118) Sockets C/S (118) FTP C/S (118)
MQSERIES	40	SMQL SMQM SMQD SMQB SMQ2 SMQC	Log Manager (115) Message Manager (115) Data Manager (115) Buffer Manager (115)
MQSERIES	41	SMQA SMQT SMQR SMQQ	Accounting Data (116)
WebSphere	42	SWCF SWPF	WebSphere 103 Subtype 01 WebSphere 103 Subtype 02

EXTDATA Option Name	EXTDATA Column	EXTDATA Types	Source (SMF #)
WebSphere	43	SWSA SWSI SWCI SWJA SWJI SWWA SWWI	WebSphere 120 Subtype 01 WebSphere 120 Subtype 03 WebSphere 120 Subtype 04 WebSphere 120 Subtype 05 WebSphere 120 Subtype 06 WebSphere 120 Subtype 07 WebSphere 120 Subtype 08
VTS	44	VTS1 VTS2	VTS 94 Subtype 1 VTS 94 Subtype 2
TCP/IP	45	STCT SCTC SSTP SUDP SSST STCC SFST	TCP/IP 119-2 Telnet Termination TCP/IP 119-3 FTP Client Completion TCP/IP 119-8 Stack Start/Stop TCP/IP 119-10 UPD Sockets TCP/IP 119-21 TN3270 Server SNA TCP/IP 119-23 TSO Telnet Termination TCP/IP 119-70 FTP Server Completion
NetView	46	SIEN	NetView 39
System Logger	47	LOGA LOGB	System Logger Activity (88-1) Structure Alter Event (88-11)
TYPE 78 (I/O Queuing Activity)	48	R78A R78B R78C	I/O Processor Usage (78-3) I/O Logical Control Unit Usage (78-3) I/O Channel Path Usage (78-3)

FORMRATE Statement

The FORMRATE statement is optional. It lets you bill for special print forms. Each FORMRATE statement controls charges for one print form and/or class. Note that at least one RATE or TSORATE statement must be present to invoke the use of FORMRATE statements.

A set code on the FORMRATE statement is optional. A blank in position 1 indicates that this statement is used in all reports.

CPU identification, SYSOUT class, and forms ID are interpreted as follows: if no match is found between the accounting record and FORMRATE statement information, this product does not charge for the form used. If you wish to charge for every form, include a final FORMRATE statement leaving these three fields blank and include a charge. CA JARS assumes a match when blanks are encountered in the FORMRATE statement, and applies the charge on this final statement when no other match is found.

Normally, a choice is made between billing per line or billing per page. However, if nonblank values in both fields are encountered, the charges are treated as cumulative: the dollar charge per 1000 lines are added to the dollar charge per page.

The setup charge is added for every SYSOUT table entry processed. Normally, each entry contains the accumulated statistics for the use of a single form from a job.

The calculated charges are added to the U/R charge, as follows:

```
U/R Charge = U/R Charge                    +
        (Lines Printed x Line Rate) / 1000 +
        (Pages Printed x Page Rate)        +
        Setup Charge
```

This process is repeated for each of the SYSOUT table entries appended to the job or TSO session account records. After all entries have been processed, U/R charge is added to total charge.

Since RJE users often pay for printer forms from their own budgets rather than use forms provided by the central installation, the *charge option* is used to suppress the computation of charges in these cases. Entering a 1 for the charge option suppresses the calculation of charges whenever the relevant output route code is nonzero.

The following example illustrates a typical use of the FORMRATE statement:

```
position  1        2        3        4        5          8
 1........0........0........0........0........0..     ...0
 AFORMRATEXA12340200   00501
```

On Report A, the CPU ID is X as determined by the grouping feature. SYSOUT class is A. The Forms ID is 1234. You are charging a one time setup charge of $2.00 and $.50 per page. The charge is suppressed for output routed to a remote terminal.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	FORMRATE
10	1	CPU Identification	If left blank, match is assumed
11	1	SYSOUT Class	If left blank, match is assumed
12-15	4	Forms ID	If left blank, match is assumed

Position	Field Length	Field Name	Notes
16-19	4	Setup Charge	99V99; dollars
20-23	4	Line Rate	99V99; dollars per 1000 lines/ statement
24-27	4	Page Rate	99V99; dollars per page
28	1	Charge Option	**1:** Don't apply charges if Output Route Code is nonzero **blank:** Apply charges regardless
29-80	52	Reserved	Not used

GROUP Statement

The GROUP statement is optional. It is used in conjunction with GROUPC statements to identify or qualify accounting records based on values in defined positions of the record. Once an accounting record has been qualified, the following functions may be employed at the user's option:

- select or reject the record for further processing
- assign the record a unique group code that can subsequently be used as a sort control field
- assign the record a unique CPU identification code in order that a specific billing algorithm can be applied

The Grouping feature can typically be used to:

- expand *criteria base* for record selection/rejection
- summarize records that do not have common characteristics
- apply different billing algorithms to selected accounts
- report on and charge users according to shift differentials

Six groups can be defined on the GROUP statement to describe six different levels of tests. Each group is defined in the format *ppplfi***,** where:

ppp

is a three digit number defining the starting position (character) in the Basic Accounting Table used to set up a qualifier for the grouping feature.

l

is a one digit number defining the number of characters (beginning with and including the starting position) in the Basic Accounting Table used to construct the length of the qualifier for the grouping feature.

f

is a one-character code specifying the data format of the field in the Basic Accounting Table being used as the qualifier for the grouping feature. Specify a blank in this position for EBCDIC, a P for packed decimal, or an X for binary or the hexadecimal portion of a packed decimal field.

i

is a one-character code specifying whether qualified records should be selected or rejected. Specify an **S** in this position to cause all identified record groups to be selected for further processing and all unidentified record groups to be automatically rejected. Specify an **R** to cause the reverse effect to allow you to reject identified record groups. If the position is left blank, no record rejection occurs and all record groups are selected for further processing. This is particularly useful when all records are to be grouped for display purposes without dropping any information, as in computer time shift reporting.

The process of identifying records starts with the *group one definition.* If the record is qualified and selected, the process continues to the group two definition and so on to the group six definition in a similar manner. If a record is selected based on all definitions, then the record is considered selected for further processing. If a record is rejected based on any single definition, then the record is considered rejected from further processing.

Position	Field Length	Field Name	Notes
1	1	Set Code	Required
2-9	8	Statement Type	GROUP
10-15	6	Group 1 Definition (*ppplfi*)	The value of *l* may not be greater than 4 if either P or X is specified as the value of *f*. Otherwise the maximum is 8.
16-21	6	Group 2 Definition (*ppplfi*)	
22-27	6	Group 3 Definition (*ppplfi*)	
28-33	6	Group 4 Definition (*ppplfi*)	
34-39	6	Group 5 Definition (*ppplfi*)	
40-45	6	Group 6 Definition (*ppplfi*)	
46-80	35	Reserved	Not used

GROUPC Statement

The GROUPC statement is optional. It is used in conjunction with the GROUP statement for a given report. Whereas the GROUP statement defines which fields in the accounting record are to be used in the grouping feature, the GROUPC statement supplies the range of values to be used in a compare instruction to qualify the record. Multiple GROUPC statements may be required for a given report in order to provide many value ranges to qualify each accounting record.

The *definition indicator* on the GROUPC statement specifies which definition of the GROUP statement is applicable. Therefore, the definition indicator may be 1 to 6, relating to the proper definition number on the GROUP statement.

The *lower* and *upper limiting criteria* on the GROUPC statement provide the actual range of values which are compared against the corresponding value in the accounting record to qualify the record.

The range values must be left-justified with trailing blanks when needed. If the upper limiting criteria is the same as the lower limiting criteria, it may be omitted.

The *group code* on the GROUPC statement is a one-character code that is placed in any accounting record that is selected according to the value ranges. The group code can subsequently be used as a sort control field via the SORT statement to provide totals for the different groups of accounting records selected by the grouping feature.

Note that positions 296 through 298 and positions 438 through 440 in the Basic Accounting Table correspond to the group codes for the six definitions as defined by the definition indicator on the GROUPC statement.

The CPU identification code on the GROUPC statement allows you to easily change the CPU identification of any accounting record for further processing. In this way, qualified records can be assigned different CPU identification codes corresponding to multiple RATE statements for a given report. Identified record groups may then use a different accounting algorithm than other accounting records.

A blank CPU identification code on the GROUPC statement indicates that no change in the record CPU Identification is desired.

The following examples illustrate some typical uses and combinations of the GROUP and GROUPC statements.

Grouping Feature Example 1

Request:

Report utilization by shifts where:

- shift A = 8 a.m. - 4 p.m.
- shift B = 4 p.m. - 12 p.m.
- shift C = 12 p.m. - 8 a.m.

1. Build GROUP and GROUPC statements as follows: point to hours position of Reader Start Time field (010) for a length of 2 bytes (as defined in the Basic Accounting Table): :lp.

```
position   1         2         3         4         5                  8
  1........0.........0.........0.........0.........0..            ...0
    select all records
           ▼
  AGROUP   0102               }
  AGROUPC  108      15      A  } Shift A
  AGROUPC  116      23      B  } Shift B
  AGROUPC  100      07      C  } Shift C
```

2. Build SORT statement to sort on Group #1 code field in accounting record.

3. DESCRIPT statements could then be used to associate group codes with literals as follows: :lp.

```
position   1         2         3         4         5                  8
  1........0.........0.........0.........0.........0..            ...0
  ADESCRIPT0A       FIRST SHIFT
  ADESCRIPT0B       SECOND SHIFT
  ADESCRIPT0C       THIRD SHIFT
```

Example 1 shows you how to use the grouping feature without employing the record selection/rejection option. All records are selected and assigned a group code according to the range in which their reader start time falls. The appropriate group code (A, B, or C) is placed in the Group #1 code field in each record and then used as a sort control field to produce totals for the three shifts.

Grouping Feature Example 2

Request:

A report of production work run between 8 a.m. and 12 noon on Mondays only, during the first quarter of 1998.

1. Build CRITERIA statement to select 01/01/98 through 03/31/98.

2. Build GROUP and GROUPC statements as follows:

```
      points to Reader Start Date
      in Basic Accounting Table

          points to Reader Start Time (HH)
          in Basic Accounting Table

                points to production
                run indicator within
                Job Name in Basic
                 Accounting Table

 BGROUP  0046 S0102 S0161 S
position  1     2     3     4     5          8
 1........0.........0.........0.........0.........0..        ...0
```

S in the line above is the selection indicator.

```
position  1     2     3     4     5          8
 1........0.........0.........0.........0.........0..        ...0
 BGROUPC  1930102   } (1st Monday in quarter)
 BGROUPC  1930109   } (2nd Monday in quarter)
      .        }        .
      .        }        .
      .        }        .
 BGROUPC  1930327   } (last Monday in quarter)

position  1     2     3     4     5          8
 1........0.........0.........0.........0.........0..        ...0
    8 a.m. through 12 noon
 BGROUPC  208     11
       production run indicator
 BGROUPC  3P
```

Example 2 shows you how to use the grouping feature to selectively retrieve only those accounting records that qualify for selection. By setting the selection/rejection indicator on the GROUP statement to **S**, a record must pass all three criteria to be selected for further processing. Group #1 definition requires the record to have a reader start date equal to that of an identified Monday in the first quarter.

If qualified, then Group #2 definition requires the record to have a reader start time between 8 a.m. and 12 noon. If qualified, then Group #3 definition requires the record to have a job name starting with the letter **P**. (This assumes that all job names beginning with **P** indicate production, **S** for systems, **C** for checkout, and so forth, as an example.)

Any record failing one of the criteria is automatically rejected from further processing. You could then define a SORT statement to sort on reader start date (major) and the hours position of reader start time (intermediate) to cause production statistics to come out hourly within date for each Monday in the first quarter.

Grouping Feature Example 3

Request:

A computer billing report with special rates for each of three account numbers:

```
AAA   }
BBB   }   different rates for each
CCC   }
```

Build GROUP and GROUPC statements as follows:

```
position   1         2         3         4         5                 8
  1........0.........0.........0.........0.........0..            ...0
       points to Accounting Field information
       in Basic Accounting Table

  CGROUP   0773                 <--- select all records

  CGROUPC  1AAA             X   <--- CPU ID for records
                                     with account #AAA

  CGROUPC  1BBB             Y   <--- CPU ID for records
                                     with account #BBB

  CGROUPC  1CCC             Z   <--- CPU ID for records
                                     with account #CCC
```

Example 3 shows you how to use the grouping feature to dynamically change the CPU identification code in specific accounting records based on their associated account number. This example assumes that the first three characters of the accounting fields information holds an account number.

The selection/rejection indicator is blank, causing all records to be selected since no grouping is required for this report. The CPU identification codes on all qualified records are changed as designated by the GROUPC statements. All unidentified record groups remain unchanged. You could then define separate accounting algorithms on different RATE statements to correspond to the newly created CPU identification codes in addition to other algorithms normally used.

Grouping Feature Example 4

Request:

Identify and report on only those programs using at least ten different I/O devices for more than one hour of elapsed time.

Build GROUP and GROUPC statements as follows:

```
position  1       2       3       4       5              8
 1........0........0........0........0........0..          ...0
        points to Elapsed Time
        in Basic Accounting Table

             points to # of Devices Used
             in Basic Accounting Table

                  compared field is in
                    packed decimal format

 DGROUP   1713XR3632PR

 compared field is      rejection indicator
 in hexadecimal format

     zeros in integer portion of Elapsed Time

 DGROUPC  1000000
 DGROUPC  2000    009
        ---   ---

        zero to nine devices
```

Example 4 shows you how to employ the *format indicator* while using the Grouping feature. The first definition on the GROUP statement points to the elapsed time field in the Basic Accounting Table. The test is to be made against the first three bytes of this field in hexadecimal format represented by six digits. Therefore, the GROUPC statement which corresponds to the first definition must contain an upper limit consisting of six EBCDIC characters. CA JARS automatically converts the six characters into the necessary hexadecimal format for the compare. Any records matching the compare (000000 hours) are rejected as requested per the rejection indicator.

Selected records pass to the next test as defined by the second definition on the GROUP statement. This test is against the field containing the number of I/O devices used. The two-byte integer value is in packed decimal format. Therefore, the GROUPC statement which corresponds to the second definition must contain a lower limit consisting of three EBCDIC numbers, left-justified (000 followed by 5 blanks) and an upper limit of 009 followed by 5 blanks.

CA JARS automatically converts the three-digit numbers to two-byte packed decimal fields for the comparison. Any records within the range (from 0 to 9 I/O devices) are rejected as requested by the rejection indicator (value R). All unidentified records (no match on either test) are selected for reporting.

In the case of packed decimal compares, note that a logical comparison is made, eliminating the possibility of a data exception (S0C7). Also, the sign portions of the converted fields are adjusted so that the sign of the data field (usually positive) has no effect on the result of the comparison; that is, the compare is, in effect, against the absolute value of the data field. If it is desired to specifically identify positive or negative packed fields, the hexadecimal format, which is converted exactly as specified, should be used.

Grouping Feature Example 5

Request:

Process records with a specific Run Date.

Build GROUP and GROUPC statements as follows:

```
position   1         2         3         4         5                 8
  1........0.........0.........0.........0.........0..            ...0
   GROUP    04306 S
   GROUPC   1880919
```

Grouping Feature Example 6

Request:

Process records with specific Run Date(s) within a specified range.

Build GROUP and GROUPC statements as follows:

```
position   1         2         3         4         5                 8
  1........0.........0.........0.........0.........0..            ...0
   GROUP    04306 S
   GROUPC   1880905  880909
```

Position	Field Length	Field Name	Notes
1	1	Set Code	Required
2-9	8	Statement Type	GROUPC
10	1	Definition Indicator	1 to 6; refers to a Group Definition on the GROUP statement
11-18	8	Lower Limiting Criteria *	
19-26	8	Upper Limiting Criteria *	Optional if same as lower limit
27	1	Group Code	Any character: to be placed in appropriate Group Code field in accounting record

Position	Field Length	Field Name	Notes
28	1	CPU Identification	blank: no change in CPU ID Any character: replace CPU ID in accounting record with this character
29-80	52	Reserved	Not used

* Each Criteria Field is converted to packed-decimal or hexadecimal (binary) or left as is depending on the contents of the appropriate Format Indicator in the GROUP statements.

Refer to the following table to determine the number of characters to code in the Criteria fields (always left-justified) for format indicators P and X:

GROUP Statement Field Length	Number of Characters for:	
	P	X
1	1	2
2	3	4
3	5	6
4	7	8

HEADER Statement

The HEADER statement is required. The *title column* defines the starting print position (column) of the report title on the first header line for a given report. If omitted, the report title is automatically centered. the report title is a 68-character alphanumeric field available for the title of the report associated with the set code in position 1. You can use up to three HEADER statements per report.

Position	Field Length	Field Name	Notes
1	1	Set Code	Required
2-9	8	Statement Type	HEADER
10-12	3	Title Column	999; must be blank or numeric. If blank, defaults to automatic centering.
13-80	68	Report Title	

OPTION Statement

The OPTION statement is used to invoke specific CA JARS options and features. Its use is optional. Customers outside of the United States can choose to use a currency symbol other than $, or to report times and dates with delimiters other than : and /. The OPTION statement is the mechanism for defining the additional features desired. This is a global statement; that is, the set code must be blank, as this statement applies to the entire job (all reports in the run).

The OPTION parameters are:

- The *Snap Limit* option allows the user to alter the limit of records to be snapped. Input SMF data rejected as invalid is displayed on the SNAPDUMP output file by means of the SNAP macro instruction. A limit of 10 is placed on the number of SNAPs that are issued in a single run. In position 10 code a decimal number that is one greater than the number of SNAPs desired. The default is 0011, which permits 10 SNAPs in a single run. Zero (0) removes the limit of the number of records that will be SNAPed.

- The *CONFIG/CONFIGX* option causes CA JARS to determine I/O device type from the information available in the SMF data in the absence of a CONFIG/CONFIGX Table entry for a given device address/device number. This capability may be of value to users for a variety of reasons, such as data from more than one system where the same device addresses are not the same device type, or when there are more devices than the maximum allowed by this product.

  0

  Causes CA JARS to rely on the CONFIG/CONFIGX Table alone.

  1

  Causes CA JARS to search the CONFIG/CONFIGX Table first, then if no entry is found, to rely on the generic SMF device information. This is the default.

  There are several reasons why CONFIG/CONFIGX statements may need to be used:

  - The *channel equate* feature should still be used to identify those devices which may be accessed through more than one address.
  - The logic of the System Use Disk And Tape Activity Report and the Resource Utilization Graph depend on the presence of CONFIG/CONFIGX Table entries.

- The SMF record option is supplied to support users who do not produce SMF type 30 Interval records. Setting this switch to 1 will cause CA JARS to ignore SMF type 30 records, and process SMF type 4/5 records instead. By default, the SMF type 30 records are processed, and the SMF type 4/5 records are ignored.

- The *Program Bucket* option increases the name limit for the Program Activity Analysis Report. Depending on main memory availability, up to 3,000 different program/job names can be processed successfully in generating this report. To increase this capability, code the desired new limit value here. The maximum is 9999.

- The *Service Limit Scale Factor* permits the user to adjust the service units reported by a factor in order to avoid a data element overflow. Installations whose SRM factors are specified in such a way that service units accumulate numbers that are too large, may encounter data element overflow problems in several areas when processing large amounts of data. Possible occurrences of these kinds of problems may be prevented by activating logic which divides service units at the step level by a user-specified scaling factor. To set a value for this scaling factor, code the 7 digit decimal number desired. For example: 0001000 equals 1,000. The default value is 0000000.

- The *Turnaround Calculation* option provides for selecting alternative methods for calculating turnaround time, which some installations may find preferable. Zero (0) is the default. Code one of the following:

```
0  TURNAROUND TIME = JOB PURGE TIME - READER START TIME(default)

1  TURNAROUND TIME = JOB TERMINATION TIME - READER START TIME(method 1)

2  TURNAROUND TIME = LAST WRITER END TIME - JOB START TIME(method 2)
```

- The *Comma* Option and the *PERIOD* option, together, cause the reversal of the use of commas and periods in numeric fields on User-Defined Reports. The number 8,234.00 becomes 8.234,00 following European conventions. Any character may replace a comma or a period in numeric fields, by coding the desired character(s) here.

- The *Time* option allows the format of time fields to be changed. Hours-minutes-seconds are normally edited as HHHH.MM.SS. It is possible to replace the period (.) as a separator by coding the desired character. The default is a period.

- The *Date* option permits the user to replace the / in dates on User-Defined Reports with any delimiter. For example, some users may prefer to have dates edited as YY.MM.DD instead of YY/MM/DD (the default).

- The *Currency $* option provides customers with report currencies other than dollars. CA JARS assumes the use of hexadecimal 5B for a currency symbol (usually a dollar sign). Installations electing to use a different character may code the desired character here. The default is a dollar sign ($).

- The SMF format changed with MVS/XA (release 2.1.2). An option allows CA JARS to process SMF records before MVS/XA 2.1.2 (default) or, if coded 1, process MVS/XA 2.1.2 or above.

- The *DSA Extract* option, if coded Y (yes), permits the user to execute the extract routine of the CA JARS/DSA Option Interface. N is the default that *prohibits* the execution of the extract routine.

- The *Processor Count* option is used to override the dynamic calculation of the number of processors in the system. It only affects the Computer Utilization Summary Report and the CPU Activity Report.

- The *DB2 Extract* option, if coded Y (yes), permits the user to execute the extract routine of the DB2 Interface. N is the default; it *prohibits* the execution of the extract routine.

  Note: This option should not be confused with the EXTDATA control statement DB2 option which produces EXTDATA records.

- The *Suspense* option invokes the suspense file feature and controls its logic. In general, once invoked, this feature causes all jobs that are missing certain types of SMF records to be written to a suspense file and reprocessed in a subsequent execution. If a suspense option of 1 is specified, all jobs (and TSO sessions) missing the *job purge* record (SMF type 26), are suspended. If a suspense option of 2 is specified, all jobs (and TSO sessions) missing the *job termination* record (SMF type 30-5) are suspended, unless the job consists of only *output writer* records (SMF type 6), in which case it is processed as though the job termination record is present. EXTDATA records are also processed through the suspend logic and can therefore be written to the suspense file.

  Note: In order to read the suspense file, it must be concatenated to the CAIJSSMF dd statement which must contain at least one SMF record. See the section Using the Suspense File Feature in the "Operating Instructions" chapter for additional details and background information.

- The *Suspend Limit* is used to force the processing of jobs after a specified number of days, regardless of what types of records are present or absent. This value is relevant only if a 1 or 2 has been specified for the suspense option, and it defaults to 9 days. The difference between a job's reader start date and the current date is calculated and compared to the suspend limit. If the difference is greater than the suspend limit, the job/session is processed and not suspended.

- The *IBM NETVIEW Extract* option, if coded Y (yes) lets you capture session monitor records, SMF type 39, for later CA JARS Wizard processing. N (No), the default, stops the production of records that can be used by CA JARS Wizard, but does not preclude the production of EXTDATA records based on the SMF Type 39 records. For more information on generating EXTDATA from the NetView Interface, see the EXTDATA Statement section.

- The *CPU Position* option can be a number from 1 through 4. This indicates where the CPUID should be picked up from within the SYSID field in SMF records. A specification of 1 indicates the first character, 4 the fourth character.

- The *Flushed Step* option allows the user to select whether flushed steps, identified by SMF30STI having low-order bit set on, should be processed or not. If the option is set to **Y** then flushed steps are retained.

- The *Print Line Length* option can be set up to 255 to allow for printers with that carriage width, or for laser printers with lengths up to 255. The default print line length is 132. When setting this option to a value other than 132, the CAIJSPRT, or other print DD statement must have the LRECL specified to the DCB parameter. For example:

  ```
  CAIJSPRT  DD  SYSOUT=*,DCB=(LRECL=255,BLKSIZE=2550,RECRM=FB)
  ```

- The *Ignore SMF30 Intervals* option causes any SMF30 Subtype 2 or 3 records to be completely ignored in the building of either EXTDATA or Account records. Default processing uses interval records in preference to Step End (Subtype 4) records. By setting the option to **Y**, only information from SMF30 Subtype 4 records is utilized.
- The *% of Total Charge* option allows the user to specify whether the field '% of Total Charge,' which is ODE 42, should be calculated at either Detail or Summary levels. The default is Detail.
- The *Summarize Display I/O* option is used in cases where many Display Devices are allocated. This option causes all Display Devices to be consolidated, thus taking up only one I/O Table entry, giving more space for the other devices, and eliminating the table overflows.
- The *Device Connect* option collects and totals Device Connect Time (in 1/1000ths of a second) instead of EXCPs, thus giving the user the ability to report and charge on Device Connect Time. Please note that this option affects any chargeback algorithms you now have in place that use Device EXCP counts. If you want to charge or report on EXCPs *and* Device Connect, both fields are maintained on EXTDATA records.

  Note: This option is not available for FACOM Input SMF data. If the FACOM Input SMF option (position 67) is specified, then the Device Connect option is forced to **N** (no).
- The *Initiator CPU* option causes the fields TCB, CPU Time, and SRB CPU Time to contain not only the base CPU Time, but also the initiator timings.
- The *Vector CPU* option causes accumulation of the Vector CPU fields from SMF30 records. These are the:
  - Vector CPU Time
  - Initiator Vector CPU Time
  - Vector Affinity
  - Initiator Vector Affinity

  These times are accumulated and added to the field Total CPU Time.
- The *I/O Interrupt CPU* option causes the accumulation of I/O interrupt time from SMF30 records. This field is added to the Total CPU Time field.
- The *RCT CPU* option accumulates the Region Control Task CPU time, and adds it into the Total CPU Time field.

- The *Hiperspace CPU* option causes the Hiperspace CPU Time from the SMF30 record to be accumulated into the Total CPU Time field.

  Note: This option is not available for FACOM Input SMF data. If the FACOM Input SMF Option (position 67) is specified then the Device Connect Option is forced to be **N** (no).

  Note: The CPU options specified in OPTION statement positions 53 through 57 can cause differences in charges if turned on. If all options were turned on, the following would be the calculations for the CPU Time fields.

  ```
  CPU Time (SRB) = SRB CPU Time + SRB Initiator CPU Time
  CPU Time (TCB) = TCB CPU Time + TCB Initiator CPU Time
  Total CPU Time = SRB CPU Time + SRB Initiator CPU Time +
                   TCB CPU Time + TCB Initiator CPU Time +
                   Vector CPU Time + Initiator Vector CPU Time +
                   Vector Affinity Time + Initiator Vector Affinity Time +
                   I/O Interrupt Time + Region Control Time +
                   Hiperspace Time.
  ```

- The *SMF30 APPC* option takes information for APPC tasks from SMF30 records and places the Send and Receive counts in the TPUT and TGET fields.

  Note: This only applies to APPC tasks. To charge for these fields the APPCRATE must be used.

- The *SMF33 APPC* option takes information from SMF33 records. These new records have a processing ID of **R** and are identified by Byte 266 of the Account record set to:

  I

  Inbound

  O

  Outbound

  T

  Transaction

- The CA JARS Resource Management for CICS option 6.2 allows this product to create EXTDATA records for CA JARS Resource Management for CICS Option without preprocessing through the Translate program. See the *CA JARS Resource Management for CICS 6.2 User Guide* for more information on this option.

- The CA JARS Resource Management for CICS options (positions 63 thru 66) are used in conjunction with the SMF Processor (CAUXEXT) to produce EXTDATA records from CA JARS Resource Management for CICS data.

- The *FACOM Input SMF* option must be set to **Y** (yes) for users processing FACOM input SMF data.

- The *TCP/IP Connect* option allows users to determine whether they receive TCP/IP Connect time for Socket API records. If the TCP/IP option is specified, the records are sorted, which uses more processing time.
- The *Service Desk* option tells CA JARS to try to open a CA Service Desk request if a product failure occurs. CA JARS will attempt to open the request if the abend code is not 0C7, 0C9, or any completion code ending in 22 or 37 (such as an ABEND722 or ABENDB37). The values for the setting are as follows:

  N

  Service Desk requests will not be opened. (This is the default.)

  Y

  CA JARS will attempt to open Service Desk requests.

- The Unnormalized CPU option only affects customers with processors that utilize the Static Power Saving or Cycle Steering features. When the Static Power Saving feature is present, you can reduce processor power consumption, which also reduces processor speed. The values for the setting are as follows:

  N

  CA JARS will “normalize” or adjust Account File/History File and EXTDATA CPU times to their nominal values, reflecting the amount of CPU time that would have been consumed in full power mode. Normalized or adjusted CPU time is recommended in order to produce repeatable CPU time values for a given unit of work, as well as to provide equitable billing if CPU times are used in Chargeback processing. (This is the default.)

  Y

  CPU times will reflect the raw CPU times collected by SMF.

When the default is taken for Unnormalized CPU (or N is specified) the following CPU time fields will be adjusted:

BAT Field	BAT Location
CPU Time	177 to 182
CPU Time (SRB)	397 to 402
CPU Time (TCB)	403 to 408

The EXTDATA fields are as follows:

- EXT30_CPT
- EXT30_CPS
- EXT30_ICU
- EXT30_ISB
- EXT30_JVU
- EXT30_IVU
- EXT30_IIP
- EXT30_RCT
- EXT30_HPT
- EXT30_ASR
- EXT30_ENC
- EXT30_DET
- EXT30_CEP
- EXT30_IFAT
- EXT30_IFAE
- EXT30_IFAD
- EXT30_ICPT
- EXT30_ICPE
- EXT30_ICPS
- EXT30_CEPI
- EXT30_TM_ON_ZIIP
- EXT30_ENCL_TM_ON_ZIIP
- EXT30_DEPN_TM_ON_ZIIP
- EXT30_TM_ZIIP_ON_CP
- EXT30_ENCL_TM_ZIIP_ON_CP
- EXT30_DEPN_TM_ZIIP_ON_CP
- EXT30_ENCL_TX_ZIIP_QUAL
- EXT30_DEPN_TX_ZIIP_QUAL
- EXT30_CRP
- EXT30_ICU_T
- EXT30_ICU_I
- EXT30_ISB_T

- EXT30_ISB_I
- EXT89_UCT
- EXT89_USR

Position	Field Length	Field Name	Notes
1	1	Set Code	Must be blank (global)
2	8	Statement Type	OPTION
10-13	4	Snap Limit Option	0011 sets limit to 10 (default) 0000 sets no limit
14	1	CONFIG/CONFIGX Option	0 CONFIG/CONFIGX only 1 CONFIG/CONFIGX generic (default)
15	1	SMF Record Option	0 process SMF type 30 records 1 process 4/5 SMF records
16	4	Program Bucket Option	3000 (default)
20-26	7	Service Limit Scale Factor	0000000 (default)
27	1	Turnaround Calculation Option	0 normal (default) 1 method 1 2 method 2
28	1	Comma Option	, (default)
29	1	Period Option	. (default)
30	1	Time : Option	: (default)
31	1	Date / Option	/ (default)
32	1	Currency $ Option	$ (default)
33	1	MVS/XA Release	blank before release 2.1.2 (default) 1 Release 2.1.2 or above
34	1	DSA Extract Option	N: no (default) Y: yes If Y is specified, add CAIJDB2X and CAIJDB2P DDs to JCL
35-36	2	Processor Count Field	Number of processors available to this copy of z/OS
37	1	DB2 Extract Option	N: no (default) Y: yes

Position	Field Length	Field Name	Notes
38	1	Suspense Option	**blank**: no suspense file (default) **1:** suspend if no Job Purge (type 26) **2:** suspend if no Job Termination (type 30-5) If 1 or 2 is specified, add DDNAME CAIJSSPN to JCL
39-40	2	Suspend Limit	09 (default) process all jobs more than 9 days old
41	1	IBM NETVIEW Extract Option	N: no (default) Y: yes
43	1	CPU Position Option	1 through 4 default = 1
44	1	Flushed Step Option	N: no Y: yes (default)
46-48	3	Print Line Length Option	Numeric default = 132
49	1	Ignore SMF30 Intervals Option	N: no (default) Y: yes
50	1	% of Total Charge Option	D: detail (default) S: summary
51	1	Summarize Display I/Os Option	N: no (default) Y: yes
52	1	Device Connect Option (replaces EXCPs)	N: no (default) Y: yes
53	1	Initiator CPU Option	N: no (default) Y: yes
54	1	Vector CPU Option	N: no (default) Y: yes
55	1	I/O Interrupt CPU Option	N: no (default) Y: yes
56	1	RCT CPU Option	N: no (default) Y: yes
57	1	Hiperspace CPU Option	N: no (default) Y: yes
58	1	SMF30 APPC Option	N: no (default) Y: yes

Position	Field Length	Field Name	Notes
59	1	SMF33 APPC Option	N: no (default) Y: yes
60-62	3	JARS/CICS Option	Default = 000 (None)
63	1	JARS/CICS Root Option	N: no (default) Y: yes
64	1	JARS/CICS Terminal	N: no (default) Y: yes
65	1	JARS/CICS Program	N: no (default) Y: yes
66	1	JARS/CICS File	N: no (default) Y: yes
67	1	FACOM Input SMF	N: no (default) Y: yes
68	1	TCP/IP Connect	N: no (default) Y: yes
69	1	Service Desk	N: no (default) Y: yes
70	1	Unnormalized CPU	N: no (default) Y: yes

PARMS Statement

The PARMS statement is optional. It lets you specify optional parameters to CA JARS during execution.

The *date format indicator* defines the date format on all report control statements and VSE job accounting records. If VSE data is to be processed, this must be the same as the supervisor date option specified at system generation time, either month/day/year or day/month/year.

The three date fields on the PARMS statement are used as the header dates for all reports generated in a given run. The date fields are alphanumeric and are not edited by CA JARS. They have no relationship to the selection or rejection of input accounting records. This function is controlled by the CRITERIA statement.

If omitted, the report begin date defaults to the lower limit date criteria as defined on the CRITERIA statement (if present). Similarly, the report end date assumes the upper limit date criteria value on the CRITERIA statement. In the absence of a CRITERIA statement, the begin and end dates are filled by the earliest and latest input record dates encountered. If omitted, the report run date is filled with the current system date.

Nonblank date fields on the PARMS statement override the defaults and are moved to their respective positions in the heading information for each report generated in a given run.

The *operating cost field* may be used to introduce the total EDP cost for an installation for a given time period. This value computes the distributed charge amount available for display. For example, if the total EDP cost for an installation is $60,000 for a given period of time, then all computer users for that period should theoretically account for this amount on a pro rata basis. If a certain customer or inhouse department used 10 percent of the total computer effort, then they should account for $6,000 toward the EDP budget.

Note: This is the distributed charge based on resources used versus the EDP cost, not the total charge based on resources used versus a billing algorithm.

The *input exit name* is an eight-character field identifying an exit routine to be given control each time an SMF record is read by CA JARS.

The *account exit name* is an eight-character field identifying an exit routine to be given control each time a record is about to be written to the account file.

The *max line count field* adjusts the maximum number of lines to be printed per page of output. A two digit numeric value overrides the default value of 60 lines per page.

The *control statement print flag* suppresses the printing of report-level control statements. This feature is provided so that production runs which use many user-supplied statements do not have to list the control statements.

The *dollar sign print flag* provides the option of producing financial reports with or without the dollar sign ($) appearing in charge related output data elements. This is particularly useful for installations using a print chain with a limited number of dollar sign characters. The print rate can be increased considerably by avoiding the printing of special characters. The default is to force the use of dollar signs where appropriate.

The *sort core size field* defines the amount of main storage to be used for sorting. A three-digit numeric value represents the amount of storage in 1K byte increments which overrides the default value of 960K. This default was established so large amounts of data, for example an entire month of data, could be processed efficiently. A daily run may not require as much storage. Be sure that the region size on the EXEC statement (JCL) accommodates the value coded here for SORT CORE SIZE AND 512K for CA JARS itself.

The *sort message indicator* causes the sort/merge program to display messages to the printer via the parameter MSG=AP. The default for this parameter is MSG=CP, specifying that only critical messages are to be printed.

Position	Field Length	Field Name	Notes
1	1	Reserved	Not used
2-9	8	Statement Type	PARMS
10	1	Date Format Indicator	blank: mm/dd/yy indicates date 1: dd/mm/yy option used
11-18	8	Report Begin Date	Defaults to dates on CRITERIA statement
19-26	8	Report End Date	
27-34	8	Report Run Date	Defaults to current date in system
35-42	8	Operating Cost	Must be blank or numeric; 99999999V (dollars). If operating cost is used, you should have RATE statement for calculating cost.
43-50	8	Input Exit Name	blanks: no exit requested xxxxxxxx: member or alias name
51-58	8	Account Exit Name	
59-60	2	Max Line Count	Maximum lines per output report page; default is 60
61	1	Control Statement Print Flag	blank: print control statements 1: suppress printing user-defined control statements JARS system control statement always prints
62	1	Dollar Sign Print Flag	blank: print dollar signs 1: suppress printing dollar signs
63	1	Reserved	Not used
64-66	3	Sort Core Size	Core size for sort in K bytes; default is 960K
67	1	Reserved	Not used
68	1	Sort Message Indicator	blank: print CRITICAL messages only 1: print ALL messages
69-80	12	Reserved	Not used

PRIORITY Statement

This statement is optional. It serves as a mechanism for adjusting the accounting algorithm defined on the corresponding RATE statement. The PRIORITY statement factors the various dollar charge fields for a given report according to a requested job class and priority. The PRIORITY statement can be omitted when no factoring of charges is desired for a given report.

The *CPU identification code* on the PRIORITY statement performs the same function as it does on the RATE statement. The two statements act as a set and should have the same CPU identification to be associated with the appropriate input accounting record. Multiple PRIORITY statements may be required (matching the corresponding multiple RATE statements) for a given report so that data collected by different computers may be processed simultaneously, each using a different accounting algorithm.

The CPU identification on the PRIORITY statement must match the corresponding CPU identification on the accounting records for the charge factors to apply. If an accounting record is encountered that contains a CPU identification other than the one found on any PRIORITY statement for a given report, then the parameters default to the values on the first PRIORITY statement defined for that report. (Unless it has been altered by use of the grouping feature, the CPU identification is the first character of the system identification field in the SMF record for z/OS; and the CPU identification of the VSE record as placed there by the $JOBACCT data collection routine.

The *charge flags* on the PRIORITY statement indicate which of the computed charges based on the accounting algorithm defined on the corresponding RATE statement are to be factored by job class and priority. A blank flag suppresses any further factoring and a nonblank character (1) indicates that the corresponding charge is to be adjusted accordingly.

The *priority factors* on the PRIORITY statement enable you to define a factor for each priority level (0 through 9) which is used to weigh the individual charges in accordance with the charge flags. The priority factors are percentages; that is, 125 = 125%. Any blank entry in the Priority Factor Table defaults to the straight or unweighted factor of 100 (100%).

The *class/partition factors* on a PRIORITY statement enable you to define a factor for as many as seven different job classes for z/OS data, or partition IDs for VSE data. Each entry in the Class/Partition Factor Table is in the format **xxnnn** where:

xx

is the literal identifying the Job Class or Partition, F1, F2, A , B , and so forth.

nnn

is the Class/Partition Factor for xx

The *class/partition factors* are percentages; that is, 090 = 90%. If an accounting record is encountered with a job class or partition ID that does not match one of the entries in the Class/Partition Factor Table, the factor defaults to the straight or unweighted value of 100 (100%).

If a combination of class and priority factors are used, then they both factor the dollar charges simultaneously in accordance with the charge flags. The following is an example of a typical PRIORITY statement setup:

```
position   1         2         3         4         5                8
  1........0.........0.........0.........0.........0....          ...0
  APRIORITY6111 070075080085090095   110120130J 050M 200
```

This PRIORITY statement defines the job class and priority factors for Report A to be used against all input records with the CPU identification 6.

The priority factors in this example are as follows:

Priority	**Factor**
0	.70
1	.75
2	.80
3	.85
4	.90
5	.95
6	1.00 (default)
7	1.10
8	1.20
9	1.30
all others	1.00 (default)

The job class factors in this example are as follows:

Class	**Factor**
J	.50
M	2.00
all others	1.00 (default)

For example, the net factor for a class J job with a priority 9 would be .65 to be multiplied against the following computed dollar charges as per the corresponding RATE statement at the job and step level:

- Processor Charge
- I/O Charge
- U/R Charge

The setup charge flag has not been *turned on*; therefore, the setup charge is not adjusted further.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	PRIORITY
10	1	CPU Identification	
11	1	Processor Charge Flag	See note below.
12	1	I/O Charge Flag	See note below.
13	1	U/R Charge Flag	See note below.
14	1	Setup Charge Flag	See note below.
15-44	3 . . . up to 9 additional occurrences . . .	Priority Factor Table	For priorities 0-9 (blank entry defaults to 100%)
45-79	5 . . . up to 6 additional occurrences . . .	Class/Partition Factor Table	xxnnn where: xx: BG, F1, A , B , etc. nnn: percentage (unidentified Class/Partition defaults to 100%)
80	1	Reserved	Not used

Note: Use a blank in the flag fields to suppress factoring charges. Use a 1 to factor charges according to priority and class factors.

RATE Statement

The RATE statement is optional. It introduces an accounting algorithm to CA JARS for computer billing or cost distribution purposes.

The RATE statement affects the weighting of computer resources in calculating the dollar charges or relative utilization percentages for a given report. The RATE statement may be omitted when no data elements involving charges or percentages are selected for a given report.

The *CPU identification code* associates each RATE statement with the appropriate input accounting data. Multiple RATE statements may be required for a given report, so data collected by different sources may be processed simultaneously, each using a different accounting algorithm.

The CPU identification on the RATE statement must match the corresponding CPU on the accounting records for the algorithm to apply. If an accounting record is encountered that contains a CPU other than one found on any RATE statement for a given report, the accounting algorithm parameters default to the values on the first RATE statement defined for that report. (Unless altered by use of the grouping feature, the CPU identification is the first character of the system identification field in the SMF record for z/OS; and the CPU identification of a VSE record placed there by the $JOBACCT data collection routine.)

The *core factor* on the RATE statement enables you to charge for the utilization of core storage for the duration of use. This is a dollar amount charged per 1K block of core allocated at the job step level.

The *basic processor rate* is the dollar amount per hour to be used in calculating the adjusted rate for each job step as follows:

```
Adjusted Rate = Basic Processor Rate +
                (Core Allocated x Core Factor)
```

The *core indicator* (position 80 on the RATE statement) can be set, changing the above calculation to take core used *instead* of core allocated.

The *basic I/O rate* is the dollar amount per hour to be used in calculating the I/O charge for each job step.

The *time factors* on the RATE statement enables you to weight or delete the various recorded times in calculating the processor time in hours as follows:

```
Processor Time    = Elapsed Time x Elapsed Time Factor     +
                    Total CPU Time x Total CPU Time Factor +
                    SRB CPU Time x SRB CPU Time Factor     +
                    TCB CPU Time x TCB CPU Time Factor
```

The OPTION statement, positions 53 through 57, can affect the contents of the TCB, SRB, and Total CPU fields and can therefore affect the calculated charge.

For non-z/OS records, SRB CPU time always equals zero and TCB CPU time equals total CPU time. For VSE records, *overhead time* is used instead of SRB CPU time and *wait time* is used instead of TCB CPU time. The time factors are percentages: 080 = 80%. Thus, it is possible to delete recorded times from the processor time calculation by setting the appropriate time factor to 000 (0%), or leaving the factor blank. Likewise, it is possible to calculate the processor time using the straight or unweighted times by setting the appropriate time factor to 100 (100%).

The user-defined processor time and adjusted rate calculate the processor charge for each job step as follows:

```
Processor Charge = Processor Time x Adjusted Rate
```

The I/O factors on the RATE statement weight or delete the various recorded I/O counts for different unit types in the calculation of I/O time in hours as follows:

```
                   (Reader I/O Count
I/O Time =         —————————————————            +
                   Reader I/O Factor

                   Printer I/O Count
                   —————————————————            +
                   Printer I/O Factor

                   Punch I/O Count
                   —————————————————            +
                   Punch I/O Factor

                   Tape I/O Count
                   —————————————————            +
                   Tape I/O Factor

                   Disk I/O Count
                   —————————————————            +
                   Disk I/O Factor

                   Other I/O Count
                   —————————————————             / 3600
                  Other I/O Factor)
```

The I/O factors define the number of counts recorded by the corresponding unit type to be equated to one second of I/O time. In this way, the counts for peripheral devices can be converted to chargeable time. You may charge for utilization of the various I/O devices according to how they are defined on the CONFIG statements. This gives you the flexibility of grouping the devices to conform to a desired accounting algorithm. Similarly, a unit type can be omitted from the calculation of I/O time by setting the corresponding I/O factor to 000 (0%), or leaving the factor blank.

In calculating I/O time, CA JARS automatically *rounds up* to the nearest integer after the division operation for each term in the equation. The last division operation which converts the time from seconds to hours follows standard rounding procedures. For example, if the reader I/O count is 21 and the reader I/O factor is 10, then the first term of the equation is calculated as three (21/10 = 2.1 = 3). Hence, the smaller the factor, the less rounding occurs which yields a more accurate result.

User-defined I/O time and basic I/O rate calculate the I/O charge for each job step as follows:

```
I/O Charge = I/O Time x Basic I/O Rate
```

An alternate method of computing I/O charge may be specified by omitting a basic I/O rate. In this case, each I/O factor is interpreted as a rate per thousands of EXCPs and I/O charge is calculated as follows:

```
I/O Charge =  (Reader I/O Count x  Reader I/O Factor  +
               Printer I/O Count x  Printer I/O Factor +
               Punch I/O Count   x  Punch I/O Factor   +
               Tape I/O Count    x  Tape I/O Factor    +
               Disk I/O Count    x  Disk I/O Factor    +
               Other I/O Count   x  Other I/O Factor)  /1000
```

Note that each 3-position I/O factor is interpreted as 9V99 and that the data element I/O time contains zero.

Note: In the above discussion of I/O charges, it is assumed that the OPTION statement, position 52, 'Device Connect instead of EXCPs,' was *not* set. If it were, then all references to EXCPs would refer to Device Connect Time. The Device Connect Time is stored in 1/1000ths of a second. Thus, in the above example, the I/O factors without a Basic I/O rate would be 9V99 dollars per Device Connect second.

The *Unit Record (U/R) rates* on the RATE statement let you charge for the utilization of unit record devices. The U/R rates are used to calculate the U/R charge as follows:

```
U/R Charge =  Statements Read x Reader Rate    +
              Lines Printed x Printer Rate     +
              Statements Punched x Punch Rate  +
              Special Lines Printed x Special
              Print Rate)                      /1000
```

Note that when processing account records, only the *reader rate* is used. Other calculated charges which are accumulated into the U/R charge are controlled by FORMRATE statements.

The tape allocation charge field on the RATE statement allows you to affix a dollar charge to the private allocation of tape units. Since the allocation of a data set to a tape drive prohibits any other job in the computer from using that drive, it is customary to bill a customer for that allocation regardless of the amount of usage.

The setup charge for a job is based on the highest number of devices allocated in a given job; (that is, a device used between several steps within a job is counted as one allocation):

```
Setup Charge = # of Tape Mounts x Tape Allocation Charge
```

The total job step charge is the summation of all various step charges:

```
Step Charge #1 = Processor Charge + I/O Charge
```

The job charge is the sum of the accumulated step charges, the setup charge, and the U/R charge. Note that the setup and U/R charges are only calculated for the job, and that these data elements in step records contain zeros.

The minimum job charge on the RATE statement applies it is greater than the computed job charge as per the previous discussion.

The maximum step charge field on the rate statement lets you define a maximum hourly rate for which a job step will be charged. Under a standard accounting algorithm, a job may be charged a greater amount than if it had run on a dedicated computer under block time rates. Of course, this is only important if the job step ran a considerable length of time. For short jobs, the higher rate demanded by the accounting algorithm is the *penalty* for the convenience of paying only for what is used.

If a job step has a computed processor time greater than the step time criteria indicated on the RATE statement, then the step is subject to the following additional calculation:

```
Step Charge #2  =  Step Elapsed Time x Maximum
                   Step Rate.
```

The step charge used in calculating the final job charge is the lesser of the two; step charge #1 or step charge #2.

The following is an example of a typical RATE statement setup:

```
position 1         2         3 4         5         6         7         8
1........0.........0.........0 0.........0.........0.........0.........0
ARATE    6 720243 540   100         50 50  100000000000100200 150 500 5
```

The RATE statement defines an accounting algorithm for Report A to be used against all accounting records with the CPU identification 6. The basic processor rate is set at $720 per hour, and the core factor is $5.40 per 1K block allocated per hour of processor time. Only the CPU time is included in the calculation of the processor time, so the processor charge is based on a combination of CPU time and the amount of core allocated for each job step.

The basic I/O rate is $243 per hour of I/O time which is comprised only of tape and disk utilization. Fifty EXCPs have been equated to an I/O second (180,000 tape and disk EXCPs equals an hour of I/O time). Using the following relationship, you may wish to compute the equivalent dollar rate per 1000 EXCPs:

```
R1000 =  RATE divided by 3.6 x FACT
```

```
where:
```

```
R1000 is the dollar rate per 1000 EXCPs
RATE is the Basic I/O Rate
FACT is the I/O Factor
```

In the previous example, this would be:

```
R1000 =   243 divided by 3.6 x 50 or 243 divided by 180, which equals $1.35 per 1000
tape and disk EXCPs
```

The RATE statement example further defines that the reader rate is $1.00 per 1000 statements read. Each private tape and disk allocation is charged $1.00 and $2.00 respectively, as defined on the CONFIG statements.

Any job step with a processor time (CPU time in this example) greater than five minutes is charged a straight $500 per hour of elapsed time if the result is less than the computed step charge using the defined accounting algorithm.

Calculating Relative Utilization Percentages

Based on the rate parameters supplied through the various rate type control statements, charges are computed for each job-step and each job. Job-step charges are accumulated to job-step total charge which is accumulated to the job level total charge.

Charges calculated only at the job level are added to the job level total charge, and the total charges from all jobs accumulated to a grand total. This accumulated total charge is used during the generation of a report to calculate percentages of total (DE IDs 41 and 42) for each job step, job, and summary level.

These data elements are calculated at the step level (if step records are specified for sorting or job records are not displayed) or at the job level and then accumulated to each summary level. Because these percentages are rounded to three decimal positions when computed and accumulated, it is not unusual for the total to vary slightly from 100%.

Calculating Distributed Charge

The *distributed charge* (DE ID 47) is calculated for every step, job, and summarization level reported on. The distributed charge calculation is based on the operating cost input via the PARMS statement and the percent of total charge previously discussed in this section as follows:

$$\text{Distributed Charge} = \frac{\text{Operating Cost * Percent of Total Charge}}{100}$$

This method of calculating a dollar cost for each display level allows the data processing manager to distribute his operating cost back to users based on their relative utilization of all the computer resources. Another use for the distributed charge might be to compare it against the corresponding total charge for a given display level. Since the total charge is based on RATE statement parameters, one could determine how equitable an accounting algorithm is for users and at the same time determine if it derives the necessary revenue to cover operating costs.

Cost Distribution Feature with Summary File Input

Normally, the calculation of percent of total charge, total charge, and distributed charge data elements is dependent on the presence of at least one RATE (or TSORATE) statement. However, if summary files are used for input, the cost data in them, derived from the previous application of RATE parameters, is used to calculate a *new* percent of total charge and distributed charge elements. Remember, though, that if account records are also processed for the same report, in the absence of new RATE parameters, these data elements display zero values for all account record detail lines.

Note: See the *JARS/OLF User Guide* for a discussion on Cost Recovery and Overheard Allocation if more advanced features are required by your specific circumstances.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional.
2-9	8	Statement Type	RATE.
10	1	CPU Identification	
11-14	4	Basic Processor Rate	Must be blank or numeric; 9999 (dollars per hour).

Position	Field Length	Field Name	Notes
15-17	3	Basic I/O Rate	Must be blank or numeric; 999 (dollars per hour).
18-21	4	Core Factor	Must be blank or numeric; 99V99 (dollars per 1K block).
			Basic Processor Rate
22-24	3	Elapsed Time Factor	Must be blank or numeric; 999 (percentage).
25-27	3	Total CPU Time Factor	
28-30	3	SRB CPU Time Factor	
31-33	3	TCB CPU Time Factor	
			Basic I/O Rate
34-36	3	Reader I/O Factor	One of these values must be specified if Basic I/O is coded (pos. 15 -17).
37-39	3	Printer I/O Factor	
40-42	3	Punch I/O Factor	
43-45	3	Tape I/O Factor	Must be blank or numeric:
46-48	3	Disk I/O Factor	999 (EXCP count per second) or
49-51	3	Other I/O Factor	9V99 (dollars per 1000 EXCPs).
52-54	3	Reader Rate	Affects VSE input only (1 in pos. 10 of SORT statement). Must be blank or numeric; 9V99 (dollars per 1000 U/R count).
55-57	3	Printer Rate	
58-60	3	Special Print Rate	
61-63	3	Punch Rate	
64-66	3	Tape Allocation Charge	Must be blank or numeric; 9V99 (dollars per private allocation)
67-69	3	Reserved	
70-73	4	Minimum Job Charge	Must be blank or numeric; 99V99 (dollars).
74-77	4	Maximum Step Rate	Must be blank or numeric; 9999 (dollars per elapsed hour).
78-79	2	Step Time Criteria	Must be blank or numeric; 99 (minutes of processor time).
80	1	Core Indicator	blank: use Core Allocated 1: use Core Used

Note: For VSE, TCB CPU Time Factor and SRB CPU Time Factor are Overhead Time and Wait Time, respectively.

For ADABAS, Reader I/O Factor, Printer I/O Factor, and Other I/O Factor associate I/O, Work I/O, and Data I/O respectively. (Punch, Tape & Disk I/O factors are not used.)

Printer Rate, Special Print Rate, and Punch Rate are used only for VSE data.

RJERATE Statement

This optional statement lets you charge for remote (RJE) line utilization (BSC lines only). Refer to the SNARATE control statement for RJE SNA lines.

The set codes are optional. A blank in position 1 means the statement is used on all reports.

The RJERATE statement generates charges in either (or both) of two ways: as *surcharges saved* for remote line utilization, added to the other charges for all batch jobs which were submitted from and/or routed to an RJE terminal; as *RJE session charges* based on the statistics in RJE line utilization account records.

Job surcharges are calculated using the time and record rates as follows:

```
RJE Charge   =   (Time Rate x (Reader Duration   +
                               Printer Duration    +
                               Punch Duration))    +
                 (Record Rate x (Statements Read +
                  Lines Printed                  +
                  Statements Punched))  /1000
```

RJE session charges are calculated using the connect and transmission rates as follows:

```
RJE Charge =   (RJE Connect Time x Connect Rate)  +
               (RJE Transmission Count           x
                Transmission Rate)          / 1000
```

If a minimum session charge is specified, it is used if it is greater than the computed RJE charge. If job name and user information data are provided, they are placed in the job name and user information account record fields, respectively.

The following example illustrates a typical use of the RJERATE statement:

```
position   1         2         3         4         5              8
  1........0.........0.........0.........0.........0....       ...0
  ARJERATE XRJELINEA          00050001500750
```

On Report A, the CPU ID is X. The remote line name is RJELINEA. Users are charged $5.00/hour of connect time, plus $1.50/1000 records transferred. Minimum charge is $7.50. There are no rates for job surcharges.

Note: For the job surcharges, SNARATE and RJERATE are handled identically.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional.
2-9	8	Statement Type	RJERATE.
10	1	CPU Identification	
11-18	8	Line Name	Remote line ID.
19-24	6	Time Rate	9999V99; dollars per hour of input/output duration.
25-28	4	Record Rate	99V99; dollars per 1000 u/r counts.
29-34	6	Connect Rate	9999V99; dollars per hour of connect time.
35-38	4	Transmission Rate	99V99; dollars per 1000 records transferred.
39-42	4	Minimum Session Charge	99V99; dollars.
43-50	8	Job Name	The contents (if not spaces) is moved to the corresponding account record fields in RJE line utilization account records.
51-66	16	User Information	The contents (if not spaces) is moved to the corresponding account record fields in RJE line utilization account records.
67-80	14	Reserved	Not used

Note: Time Rate and Record Rate are applied to batch job records for jobs submitted from and/or routed to an RJE terminal.

Connect Rate, Transmission Rate, and Minimum Session Charge are applied to RJE line utilization account records.

SELECT Statement

The SELECT statement is required. You use its parameters to define the source of input accounting data and select reports to be output by CA JARS.

The **input indicators** tell CA JARS whether or not to open the corresponding data sets to process input accounting data. This allows you to introduce SMF and summary data simultaneously, or independently.

The **no-input indicator** specifies that no input files are to be processed, but that processing begins with an existing *working* account file. The use of this feature is intended for specific applications and is not meant as a substitute for account input. When used, the logic implied by a CRITERIA statement and the invocation of an account exit are bypassed. This capability is provided primarily to allow multiple executions of this product to produce more than fifteen reports and/or alternate sets of System Use Reports, without having to recreate the working account file.

The **edit-only indicator** specifies that no input data is to be processed but that all requested sets of report control statements and any global control statements are to be edited for errors. The use of this feature is recommended when global control statements are present since an error in one of these statements causes the rejection of all requested reports.

The **System Use Reports Selection indicators** specify which System Use Reports are produced for a given run. This allows you to request any or all of the Computer Utilization Summary, Resource Utilization graphs, Disk and Tape Activity graphs, Multiprogramming Activity reports, and CPU Activity graphs. Additionally, users can request the display of Paging Activity in place of System Occupancy on the CPU Activity graphs.

Note: CONFIG statements are required for Resource Utilization and Tape Activity graphs.

You can also request up to 24 different Program/Job Activity Analysis reports. Data can be displayed on each of these reports either as accumulated totals for the program or job, or as averages based on a single execution of the program or job.

As many as 12 data elements, as accumulated totals or as averages, can be used as the basis for ordering and selecting the programs or jobs for these reports. For a discussion of additional options for the System Use Reports, refer to SYSUSE1 And SYSUSE2 statements.

The **set code table** allows you to select as many as 15 report formats to be generated in a given run of CA JARS. Each set code table entry is a one-character code specifying the report format selected for output, followed by a blank.

Duplicate record checking occurs only when processing SMF input. For further information, see the "Special Usage Considerations" and "System Description" chapters of your *Systems Programmer Guide.*

Position	Field Length	Field Name	Notes
1	1	Reserved	Not used
2-9	8	Statement Type	SELECT
			Input Indicators:

Position	Field Length	Field Name	Notes
10	1	DMU Input	Use blank if no input is required or 1 if input is required.
11-12	2	Reserved	
13	1	SMF Input	Use blank if no input is required or 1 if input is required.
14	1	Account Input	Use blank if no input is required or 1 if input is required.
15	1	History Input	Use blank if no input is required or 1 if input is required.
16	1	No Input Indicator	1: process from an existing account file
17	1	Edit Only	1: edit all control statements but do not process any input
18-31	14	Reserved	Not used
			System Use Reports Selection Indicators:
32	1	Computer Util. Summary	Use blank to suppress report or 1 to produce report.
33	1	Resource Util.	Use blank to suppress report or 1 to produce report.
34	1	Disk and Tape Acivity	Use blank to suppress report or 1 to produce report.
35	1	Multiprog. Activity	Use blank to suppress report, 1 to produce System Occupancy Report, or 2 to produce Paging Activity Report.
36	1	CPU Activity	Use blank to suppress report, 1 to produce System Occupancy Report, or 2 to produce Paging Activity Report.
			System Use Reports Program/Job Activity Analysis By:
37	1	Number of Times Used	See note below.
38	1	CPU Time	See note below.
39	1	Number of Disk EXCPs	See note below.
40	1	Number of Tape EXCPs	See note below.
41	1	Number of Other EXCPs	See note below.
42	1	Number of Total EXCPs	See note below.
43	1	Number of Service Units	See note below.

Position	Field Length	Field Name	Notes
44	1	Number of Pages	See note below.
45	1	I/O Index (High)	See note below.
46	1	I/O Index (Low)	See note below.
47	1	CPU Page Rate (High)	See note below.
48	1	CPU Page Rate (Low)	See note below.
49-50	2	Reserved	Not used
			User-Defined Reports Selection Indicators:
51-80	2 to up to 14 additional occurrences	Set Code Table	sblank where: s: set code for each selected report blank: blank

Note: Use blank to suppress report, 1 to product reports for accumulated data, 2 to product reports for averaged data, or 3 to produce both.

SNARATE Statement

This optional statement lets you charge for remote line utilization (SNA lines only).

The SNARATE utilizes the same Basic Account and output Data Elements as indicated for RJE records.

The set codes are optional. A blank in position 1 means the statement is used on all reports.

The SNARATE statement generates charges in either (or both) of two ways: as **surcharges saved** for remote line utilization, added to the other charges for all batch jobs which were submitted from and/or routed to an SNA terminal; as **SNA session charges** based on the statistics in SNA line utilization account records.

Job surcharges are calculated using the time and record rates as follows:

```
RJE Charge/APPC Charge  =   (Time Rate x (Reader Duration   +
                                          Printer Duration  +
                                          Punch Duration))  +
                            (Record Rate x (Statements Read +
                             Lines Printed                  +
                             Statements Punched))  /1000
```

SNA session charges are calculated using the connect and transmission rates as follows:

```
RJE Charge/APPC Charge =   (RJE Connect Time x Connect Rate)  +
                           (RJE Transmission Count            x
                           Transmission Rate)          / 1000
```

If a minimum session charge is specified, it is used if it is greater than the computed SNA charge. If job name and user information data are provided, they are placed in the job name and user information account record fields, respectively.

The following example illustrates a typical use of the SNARATE statement:

```
position   1         2         3         4         5                 8
  1........0.........0.........0.........0.........0....          ...0
  ASNARATE XSNALINEA          00050001500750
```

On Report A, the CPU ID is X. The remote line name is SNALINEA. Users are charged $5.00/hour of connect time, plus $1.50/1000 records transferred. Minimum charge is $7.50. There are no rates for job surcharges.

Note: For JES3 users, the SNARATE now allows charging for SNA lines. For the job surcharges, SNARATE and RJERATE are handled identically.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	SNARATE
10	1	CPU Identification	
11-18	8	Line Name	Remote line ID
19-24	6	Time Rate#	9999V99; dollars per hour of input/output duration
25-28	4	Record Rate#	99V99; dollars per 1000 u/r counts
29-34	6	Connect Rate*	9999V99; dollars per hour of connect time
35-38	4	Transmission Rate*	99V99; dollars per 1000 records transferred
39-42	4	Minimum Session Charge*	99V99; dollars
43-50	8	Job Name	The contents (if not spaces) will be moved to the corresponding account record fields in RJE line utilization account records.
51-66	16	User Information	The contents (if not spaces) will be moved to the corresponding account record fields in RJE line utilization account records.
67-80	14	Reserved	Not used

These rates are applied to batch job records for jobs submitted from and/or routed to an RJE terminal.

* These rates are applied to RJE line utilization account records.

SORT Statement

The SORT statement is required. It allows the input accounting data to be sorted on up to five different fields. Each field or **sort level** is defined by the format **pppllosd**.

where:

ppp

is a three digit number specifying the sort field's starting position. Refer to the Basic Accounting Table.

ll

is a two digit number between 01 and 32 defining the length of the sort field in the Basic Accounting Table.

o

indicates the sort order:

A

ascending

D

descending

s

is the summary print option that tells CA JARS whether or not you want a summary line printed for this level and is defined as follows:

N or blank

no summary line is printed at this level.

1, 2, or 3

single, double, or triple spacing before printing the summary line.

e

eject to a new page after printing summary.

p

eject to a new page and reset page number to 1 after printing. (If either e or p is specified for the first [major] summary level, grand totals print on a page by themselves.)

d

specifies whether a descriptive header appears at this level.

The creation of any user sort control field may be omitted. If no sort control field is specified, the accounting data is arranged in the following default order:

- Reader Start Date
- Reader Start Time

The maximum length for displaying "control field" (DEID=01) is eight (8) characters even though the sort control field may be greater than eight characters. Sort field definitions of less than eight characters are padded with trailing blanks. In addition to a summary line at each of the five levels, CA JARS automatically produces a final totals line at the conclusion of a report.

Print record flags allow you to specify which type of detail record are printed: job, step, forms, or RJE. A 1 indicates print. A blank specifies that this type record should not be printed.

For a detailed description, see the section Special Forms Utilization by Month in the "Using the Sample Reports" chapter.

The *required records indicator* specifies the type of records needed for a given report when no detail records are to be printed. For example, if you want a report to determine the degree of utilization of the various compilers at the summary level, sort on the program name of each job step record. The presence of job records is detrimental as well as unnecessary to this report. In this example, to prevent the use of job records, and to specify that only step records are to be sorted for this report, an **S** is coded in the required records indicator.

The sorting and/or printing of forms records (SYSOUT data) is treated differently than for other types of records. When the *forms detail flag* (position 52) is set to 1 or the required records indicator is set to **F**, account records are constructed dynamically with forms-related data placed in the fields described in the Basic Accounting Table. See the Basic Accounting Table later in this chapter.

Each SORT statement **must** have a set code.

The following example illustrates a typical SORT statement:

```
position  1       2       3       4     6       7       8
 1........0.........0.........0.........0..   0.........0     ...0
         First      Second                  1
       Sort Level   Sort Level
           |      |
           -      -
       --------------
 ASORT    04902AE113101A21
```

Report A is sorted on two levels. The more general level will be job class (begins at position 49 in the Basic Accounting Table), a two-character field, sorted in ascending order. Eject to new page after printing summary lines, and include descriptive headers.

The second sort level is job priority (position 131 in the Basic Accounting Table), a two digit field sorted in ascending order. Skip two lines before printing summary lines, and include descriptive headers.

The CAIJS DDNAME suffix (1 in position 64) tells CA JARS to use different print file DD statements for each report. When this position is nonblank, the character is appended to CAIJS and used as the DDNAME for the print file for this report. For example, CAIJS1 when the suffix character is a 1.

History Files

The *history file* name specifies that you want to build an output file with the report. There are two kinds of history files:

The first is the *detail-level history file*. It is an archive or database of all job accounting information (not just the information output on the report being created.) The detail-level history file is created either at the job or job step level and serves much the same purpose as the raw data, except that a detail-level history file is already formatted and merged with data collected by other systems, and all calculations are already performed. A lot of time and resources are saved when the detail-level history file rather than the raw data is used as input in subsequent executions. Any EXTDATA record created will be copied to a detail-level history file.

The second type of history file is the *summary-level history file* which creates an output file of summary line information. It is useful for creating subsequent periodic or year-to-date reports with little effort. The summary-level history file can be created at any sort level from 1 to 5. Note that a level 3 summary file, for example, also contains information which may be summarized mathematically for sort levels 1 and 2. EXTDATA will not be copied to summary-level history files.

The *history-level flag* defines the kind of history file to be created and at which level. A level 1-5 flag refers to the corresponding sort control level for a summary-level history file. A level-6 or -7 flag indicates that detail level history data is to be created at the job (6) or the job step (7) level.

Detail-Level History File Example

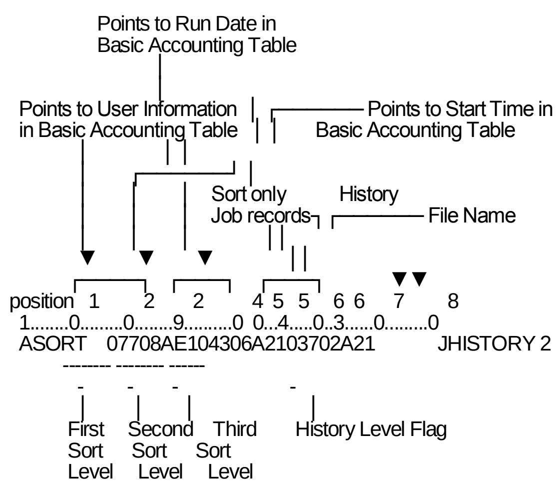
```
History File Name:      'HIST002blank'
History Level Flag:     '6'
```

A history file (DDNAME HIST002) is generated during the formatting of this report. Regardless of the user-defined sort definitions, a record is output to HIST002 for each job. This file contains job-related utilization statistics and cost accounting information which can be used later as input to produce periodic and year-to-date reports without having to process the *raw* job accounting data. This file serves as a good backup for other history files.

Of course, even job-level history data may not contain enough detail for some backup reporting purposes. New reporting requirements or billing algorithms may arise at year-end for which a history file has not been properly structured. In this case, the *summary flag* may be set to 7 to cause each job and job step record to be written to the summary file. By having information at the job-step level, a new history file is easily created according to new specifications without having to reprocess quantities of raw accounting data. Again, the level of detail may warrant the additional records and still provide data that can be processed later in a fraction of the time normally required for raw data.

Summary-Level History File Example

The following example illustrates how to create a summary-level history file:



In this example, you may request that history records be generated for each change in the second sort control field as indicated by the history-level flag: 2. Each time this sort control field (run date) changes, a record is written to the history file defined by the file name HISTORY. In the job setup for this run, supply a DD statement with the DDNAME HISTORY defining the history file created for Report A.

Report A is sorted on three levels. The most general level is user information (beginning at position 77 in the Basic Accounting Table), sorted in ascending order on the first eight positions. Eject to new page after printing summary lines, and include descriptive headers.

The second sort level is run date (beginning position 43), a six-character field sorted in ascending order. Double space before printing summary lines and include descriptive header.

The third sort level is start time (beginning position 37 in the Basic Accounting Table). It is two-characters long (the *hours* portion), sorted in ascending order. Double space before printing summary lines. Include descriptive header. Note that reports designed to use the history file as input do not provide information to any level of detail greater than that specified at the time the history file was created. The following examples explain this statement:

Summary-Level History Flag Example #1

```
Sort Definitions:   Level 1:  account number
                    Level 2:  run date
History File Name:            'HIST001blank'
History Level Flag:           '1'
```

A history file (DDNAME HIST001) is generated during the formatting of this report. Each time the first level sort control field changes (each new account number), a record is output to HIST001, summarizing information for the previous account. Assuming there are 50 different account numbers to be reported on, there will be 50 records generated and written to HIST001. Only those data elements which can be logically added up for totals will contain values. The data element corresponding to the sort control field will also have a value. In this case, each history record contains an account number in the appropriate field since it was used as the sort control field definition.

Summary Level History Flag Example #2

```
Same parameters as in Example #1 with the following exception:
History Level Flag:  '2'
```

This example shows the importance of choosing sort definitions and a corresponding history-level flag wisely when creating a history file. In the previous example, each record generated contained an account number because the history-level flag caused history records to be generated at the first level. However, in that example, since run date is not logically additive and is a subordinate sort definition to that specified by the history flag, no output records contain a run date. Obviously, this could be a problem in subsequent reporting if it becomes necessary to identify or report on run date.

In the new example, the history flag is set so that a record is generated and written to HIST001 each time the second level sort control field changes (each new run date). Since run date is subordinate to account number, each record generated also contains the appropriate account number. More records are written to HIST001 (each run date within each account as opposed to each account), but the future flexibility is worth it. If HIST001 is input to CA JARS you can sort on account number and/or run date (or any other field that contains valid data) and still maintain integrity in the data by run date.

The CSV (comma separated value) member name field, when entered, will cause CA JARS to invoke the JSICSVJ exit in order to create an output CSV member in a PDS data set with this name. A CSV member name must start with a character and have no embedded blanks. Specifying this field requires the presence of the CAIJSCSV and CAIJSIDX DD statements during execution.

If you generate a CSV file, you can also generate an XML profile that describes the CSV file. This XML profile can be used by the iCan Service Management Suite to process the output CSV file from CA JARS. To generate the profile, place a "2" in column 73 of the SORT statement.

With the use of XML Profiles for the CSV files, CA JARS can be integrated with the iCan Service Management Suite. By automating the collection and aggregation of data from multiple data sources, the iCan Service Management Suite provides enterprises with a new level of visibility into IT resource utilization and service levels. The combination of CA JARS and the iCan Service Management Suite provides enterprises with:

- Service level management reports concerning IT resource ulilization and services from a management or client perspective.
- Usage based billing that accounts for IT resource ulilization and services throughout the enterprise.
- Cost allocation and chargeback that allocates the cost of IT services based on actual usage through usage based billing.
- Budgeting that forecasts future IT budget requirements, based on historical IT resource usage.
- Fully customizable Web based reports that are complete with access control settings and rapid distribution methods through portal dashboards.

For more information, see the *iCan Service Management Suite Administrator Guide*.

Notes:

- A single run of CA JARS can produce 15 history files of either kind, one per report. Since a detail (job or job/step) history file contains all job accounting data, not only the output on the report, there is no need to produce more than one file of either type per run. Summary level historical information varies depending on the sort fields selected, and is different for each report.

- Data elements in the history record relative to computer billing are not filled with valid data unless rate parameters are present during creation of the history file using *raw* data. Rate parameters are input using the RATE, TSORATE, FORMRATE, SNARATE, APPCRATE, RJERATE, and PRIORITY statements. When history file input is used, the rate parameters do not apply or override existing computer billing-related data elements. These fields can be changed only by recreating the history file using *raw* data with new rate parameters present. The exception to this rule is that a history file created at the job step level is subject to rate calculations in the same manner as raw data input to CA JARS.
- While history files of either type can be used as input to the CA JARS Report Writer, a job step (level 7) history file is often the most useful. For applications related to the Combined Billing Facility using CA JARS Wizard and files of records defined by the CA JARS Wizard JR70CBF glossary, a job step history file is mandatory.
- When processing history data, no duplicate record checking occurs. Duplicate record checking only occurs on SMF data.

Position	Field Length	Field Name	Notes
1	1	Set Code	Must be supplied
2-9	8	Statement Type	SORT
10-17 18-25 26-33 34-41 42-49	8 8 8 8 8	1st Sort Level 2nd Sort Level 3rd Sort Level 4th Sort Level 5th Sort Level	pppllosd must be blank or numeric where: ppp: position of sort field from Basic Accounting Table ll: length of sort field (max 32) o: order of sort field, where the default A is ascending and D is descending s: summary line print option (see table below) d: description header flag, where blank prints at sort break and 1 prints description headers for this level (prints at beginning and end of sort break)
50 51 52 53	1 1 1 1	Job Flag Step Flag Forms Flag RJE Flag	Relates to elements available for display/printing (refer to Output Data Elements Table), where blank suppresses printing (if 50-53 are blank, defaults to contents of position 54 and prints summary report) and 1 prints detail records.

Position	Field Length	Field Name	Notes
54	1	Required Records Indicator	Specifies types of records to include in sorting operation: A: Batch, TSO, RJE records J: batch, TSO job records default S: step records R: RJE records F: forms records
55-62	8	History File DDNAME	blanks : No history file xxxxxxxx: History file DDNAME
63	1	History-Level Flag	1-5: summary-level history file 6: job-level history file 7: job-step level history file
64	1	Print DDNAME Suffix	If non-blank, append to DDNAME of CAIJS(x) and use that DDNAME for the report output

If the value of position 73 is not equal to 3, these are the definitions for columns 65-72:

Position	Field Length	Field Name	Notes
65-72	8	CSV Member Name	

If the value of position 73 is equal to 3, these are the definitions for columns 65-72:

Position	Field Length	Field Name	Notes
65-66	2	DDNAME Suffix for XML Output	Two non-blank alphanumeric characters. (Required if position 73 is set to 3.)
67-68	2	DDNAME Suffix for XML Schema for Output	Optional field, which can contain two alphanumeric characters. The default value used is the value set in positions 65-66.
69-70	2	Optional XML Code Page	Two numeric characters. As of now, the only supported code pages are: 00 - EBCDIC (Default) 01 - UTF-8
71-72	2	Ignored	

Position	Field Length	Field Name	Notes
73	1	XML Indicator	1. Indicates that no XML profile or XML data should be generated when the CSV report is produced. This is the default. 2. Indicates that an XML profile for the iCan Service Management Suite should be produced in the CSV library with member name PRFxxxxx, where xxxxx matches the five characters of the member name in columns 68-72. If the profile is not needed, this field should be left blank. 3. Produces an XML report in addition to the regular report.
74-80	7	Reserved	Not used

Summary Line Print Option Table

blank or N - No summary print for this level

1, 2, or 3 - Single, double, or triple space before printing summary

E* - Eject to new page after printing summary

P* - Eject to new page and reset page number after printing summary

* If either E or P is specified for the first level summary line, grand totals print on a page by themselves.

SPECIAL Statement

Note: If you do not use special fixes, you can skip this section.

SPECIAL lets you turn fixes into regular features of CA JARS so you no longer need to refit and reapply them after each maintenance. These fixes are described below.

Print Charges as Integers

This option causes all charge output data elements (44, 45, 46, 54, 55, B3, and H2) to be displayed on reports as integer values.

Use Job Account Data

Normally CA JARS uses the user account fields from STEP records. With this fix, the account field from the JOB record overrides the account fields from STEP records.

Allow 364-Day Timeout

This fix overrides the 50-day limit on the time difference between the reader start date and the job start date. It changes the timeout to 364 days and prevents error message CAJS941I with reason code P. This is useful if you have very long running server programs that are only refreshed at IPL time.

Report Devices with Zero EXCPs

Normally CA JARS ignores non-DASD devices that have zero EXCP counts. This fix restores reporting as it was done in Unicenter CA-JARS Release 6.0, reporting on tape data sets that are allocated but not used.

Count Logical Pages Printed

This fix lets you use the logical page count instead of the physical count so that pages that are printed 2-up, 4-up, or duplex may be charged at a more favorable rate than less dense printing.

Allow Rates Smaller than .01

The FORMRATE statement allows a printed page rate to be specified as low as $0.01 per page. To allow for a rate less than that, you can set this field to 1, 2, or 3. Setting it to 1 divides FORMRATE by 10, 2 by 100, and 3 by 1000.

Display Page Seconds in 1000s

If you have very large memory occupancy, you can prevent error message CAJS944I with REASON=K because the page-seconds field (output data element D3) is overflowing.

Example

Here is the SPECIAL statement with all fixes turned on:

```
         1    1    2         3
1........0....5....0..........0
 SPECIAL YYYYY3YY
*        ||||||||
*        |||||||+-Display page-seconds in 1000s
*        ||||||+-Reserved for future use
*        |||||+-Allow rates smaller than .01
*        ||||+-Count logical pages printed
*        |||+-Report devices with zero EXCPs
*        ||+-Allow 364-day timeout
*        |+-Use job account data
*        +-Print charges as integers
```

Position	Field Length	Special Name	Notes
1	1	Set Code	Not Used

Position	Field Length	Special Name	Notes
2-8	7	Statement Type	SPECIAL
9	1	Blank	Must be blank
10	1	Print charges as integers	Y or N Default is N
11	1	Use job account data	Y or N Default is N
12	1	Allow 364-day timeout	Y or N Default is N
13	1	Report devices with zero EXCPs	Y or N Default is N
14	1	Count logical pages printed	Y or N Default is N
15	1	Allow rates smaller than .01	N, 1, 2, or 3 Default is N
17	1	Display page-seconds in 1000s	Y or N Default is N

STDFORM/STDPRINT/STDPUNCH Statements

When examining sysout information in SMF6 records, CA JARS makes certain assumptions regarding what represents *standard* print as opposed to *special* print or punch output. The following illustrates default behavior:

```
Class = A and Form # = 'STD' or 'STD.' or blanks is a
        'Standard' Print

Class = B is a Punch

Everything else in 'Special' Print
```

By using the STDFORM, STDPRINT, and STDPUNCH statements, this default behavior can be changed. The following example represents the default behavior:

```
position  1         2         3 4         5         6         7         8
 1........0.........0.........0 0.........0.........0.........0.........0
  STDFORM ........STD     STD.
  STDPRINTA
  STDPUNCHB
```

Note that each STDFORM entry is 8 characters long. If you need to have a Form # of spaces, use the special case of eight '.' characters, which represents 8 spaces.

The fields affected are Standard/Special Lines, Standard/Special Pages, and Cards Punched.

STDFORM Statement

Position	Field Length	Field Name	Notes
1	1	Reserved	
2-9	8	Statement Type	STDFORM
10-17	8	Form Number	repeated 8 times

Note: Up to 2 STDFORM Statements, for a total of 16 Form Numbers, may be specified.

STDPRINT Statement

Position	Field Length	Field Name	Notes
1	1	Reserved	
2-9	8	Statement Type	STDPRINT
10	1	Class	repeated 16 times

Note: Only 1 allowed.

STDPUNCH Statement

Position	Field Length	Field Name	Notes
1	1	Reserved	
2-9	8	Statement Type	STDPUNCH
10	1	Class	repeated 16 times

Note: Only 1 allowed. If duplicated classes are specified on the STDPRINT and STDPUNCH, then STDPUNCH takes priority.

SYSUSE1 and SYSUSE2 Statements

These two statements are optional. They provide parameters for tailoring the System Use Reports to meet your specific reporting requirements. The SYSUSE1 statement contains parameters which affect multiple reports. The SYSUSE2 statement contains parameters which address a specific report. All parameters have logical and consistent default values which make it necessary to use these statements only if you desire a specific report format or content alteration.

The System Use Reports are requested by the *System Use Reports selection indicators* on the SELECT statement. Refer to the SELECT Statement. For a discussion of each report, refer to System Use Reports.

The following fields appear on the SYSUSE1 statement:

The CPU identification field ensures that data for only one CPU is processed for a given run of CA JARS to produce the System Use Reports. These reports are designed to illustrate the performance of a single CPU. If it is necessary to restrict these reports to a blank (X'40') CPU identification, place a question mark (?) in this field.

The *required records indicator* can force the use of job level data instead of step (program) level data. While job level data causes some loss of precision in prorated statistics on some System Use Reports, it generates the Job Activity Analysis Reports showing the exceptional users of system resources by job name instead of by program (phase) name. Job names also replace program names on the Multiprogramming Activity Report when this indicator is set to select job level data.

The legend for the CPU Utilization graph can replace the default values or change the order of occurrence of the symbols on the graphs. The default values, in order, are:

```
CPU under TCB:  Batch, B and TSO, T.
CPU under SRB:  Batch, O and TSO, 0.
Overhead Time:  '-'.
```

If any overrides are supplied, all of the defaults are dropped. The characters used for CPU under TCB also represent batch and TSO on the System Occupancy, Paging Activity and Tape Drive Occupancy Graphs. The characters used for CPU under SRB also represent Batch Allocation and TSO Logon Delay Time on the System Occupancy Graph.

Shift identifiers allow you to define shift time boundaries appropriate to your installation. Reports covering 24-hour periods can be made more meaningful by setting the shift start time for the first shift to a time other than midnight. When shift oriented reports are produced, it may be convenient to eliminate a shift that is known to have no activity or irrelevant data. To do this, use the *shift suppression* indicator after the start time of each shift to be suppressed. Enter the start time (hhmm) for each shift. Each shift is assumed to end at the start of the next defined shift, with the last shift ending at the beginning of the first shift on the next day. If omitted, the shift identifiers field defaults to one 24-hour shift starting at midnight.

The *shift* and *day flags* determine how much data is to be presented in each System Use Report. The *shift flag* requests shift oriented reports at the daily level, or for all days combined, or both. Shift-oriented reports can be suppressed by coding an **S** in the shift flag.

The *day flag* can request 24-hour reports at the daily level or for all days combined, or both. Each 24-hour report includes all data for the period, even if a shift has been suppressed. 24-hour reports can be suppressed by coding an **S** in the day flag.

The *time interval* can be supplied to get more or less resolution in the data on all time graphs and Multiprogramming Activity Reports. The time interval is specified in minutes and must divide evenly into 1440. Possible values are 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 16, 18, 20, 24, 30, 32, 36, 40, 45, 48, 60, 72, 80, and 90 minutes.

The *graph collapse flag* produces a uniform vertical time scale on graphs and Multiprogramming Activity Reports that cover long periods of down time. If this flag is not used, these periods of low activity are represented on appropriate reports by a message giving the duration of down time. A minimum of five consecutive low activity time intervals must be present before such collapsing occurs.

The *page control flag* forces page headings on each page of all the graphs and Multiprogramming Activity Reports. In the absence of this flag, page headings will only appear at the beginning of each 24-hour period, producing reports that may extend past page boundaries in the interest of preserving continuity from one time interval to the next without page breaks.

Graph Characters

Number and Default Character	**1** **'B'**	**2** **'T'**	**3** **'O'**	**4** **0**	**5** **'-'**
CPU Activity Graph	Batch CPU Time under TCB	TSO CPU Time under TCB	Batch CPU Time under SRB	TSO CPU Time under SRB	Overhead Time
Paging Activity Graph	Batch Total Pages	TSO Total Pages			
System Occupancy Graph	Batch Active Time	TSO Active Time	Batch Allocation Time	TSO Logon Delay Time	
Tape Occupancy Graph	Batch Tape Drive Occupancy Time	TSO Tape Drive Occupancy Time			

Note: OPTION Statement settings can affect the contents of certain CPU and I/O files.

Position	Field Length	Field Name	Notes
1	1	Reserved	Not used
2-9	8	Statement Type	SYSUSE1
10	1	CPU Identification	blank: accept all CPU IDs nonblank: accept only this CPU ID
11	1	Required Records Indicator	S: use step records (default) J: use job records
12-21	2 . . . up to 4 additional occurrences	Legend for graphs	nc where: n: identifying number (1, 2, 3, 4, 5) c: any character Refer to the Basic Accounting Table; default is 1B2T3O405-
22-47	26	Reserved	Not used
48-62	5 . . . up to 2 additional occurrences	Shift Identifiers	hhmmi where: hhmm: shift start time (hr/min) i: shift suppression indicator (use 1 to suppress shift) Default is 0000 followed by a blank
63	1	Shift Flag	**1:** produce shift oriented reports for each day **2:** produce shift oriented reports for all days combined (default) **3:** produce both types of reports **S:** suppress shift oriented reports

Position	Field Length	Field Name	Notes
64	1	Day Flag	**1:** produce 24-hour reports for each day **2:** produce 24-hour reports for all days combined (default) **3:** produce both types of reports **S:** suppress 24-hour reports
65-66	2	Time Interval	Time interval for graphs in minutes; default is 30
67	1	Graph Collapse Flag	**blank:** collapse graphs where possible **1:** print all lines on graphs
68	1	Page Control Flag	**blank:** print continuous graphs **1:** print page headers on each page
69-80	12	Reserved	Not used

The following fields appear on the SYSUSE2 statement:

The *paging rate* (or number of initiators for the Occupancy Graph) and the Disk/Tape EXCP Rate Scale Factors fix the degree of resolution for the Paging Activity/System Occupancy and the Disk and Tape EXCP Rates time graphs, respectively.

Once determined, the scale factors can standardize the horizontal scale of the graphs from one execution of CA JARS to another. If no scale factors are supplied, the horizontal scales are determined dynamically at run time based on the data present for the Paging Activity and the Disk and Tape EXCP Rates graphs.

The scale for the System Occupancy graph defaults to 15 initiators. Dynamically determined, the scales automatically adjust so that resolution is maximized without allowing any interval to exceed the 100% activity level. This enables you to select standard scale factors for subsequent runs so that sets of graphs can be compared visually without mentally adjusting utilization percentages to compensate for varying scales.

Device type suppression flags are available so certain classes of I/O devices can be easily excluded from the Device Occupancy Graph. These flags relate to information on the CONFIG/CONFIGX statements regarding which I/O devices should be displayed on the report.

The *program/job limit indicator* sets the maximum number of detail lines to be displayed on any Program/Job Activity Analysis Report. This is the number of different job or program names that are shown as exceptional users of the resource being analyzed by each report.

The *highlight flag* suppresses the overprinting of the numbers depicting the utilization of the resource being analyzed by each Program/Job Activity Report. Overprinting usually produces a visually enhanced report, but it slows down the printer.

MPA field IDs #1, #2, and #3 allow you to select the data elements to be displayed on the Multiprogramming Activity Report. Selected MPA field IDs #1 and #2 are displayed for each program and again for the totals. MPA field ID #3 is displayed only for the totals.

Data elements available for display include raw data (CPU time, total EXCP count, total page count, and service units); utilization rates relative to the amount of CPU time used in each interval (I/O index and CPU page rate); utilization rates relative to total elapsed time used in each interval (CPU rate and elapsed page rate); service units relative to active time (service rate); and CPU utilization as a percentage of the defined interval.

Position	Field Length	Field Name	Notes
1	1	Reserved	Not used
2-9	8	Statement Type	SYSUSE2
10	1	Reserved	Not used
11-13	3	Paging Rate/ Occupancy Scale Factor	Max pages per second for Paging Activity Graph, or max initiators for System Occupancy Graph; default is max observed in Paging Activity Graph, 15 for System Occupancy Graph
14-16	3	Disk/Tape EXCP Rate Scale Factor	Max disk/tape EXCPs per second for Disk And Tape EXCP Rates graph; default is max observed in data
			Device Type Suppression Flags
17	1	Readers	blank: map this device class on Device Occupancy Graph 1: suppress mapping of this device class
18	1	Printers	
19	1	Punches	
20	1	Tapes	
21	1	Disks	
22	1	Others	

Position	Field Length	Field Name	Notes
23-25	3	Program/Job Limit Indicator	Maximum number of prog./job names to be reported on for Program/Job Activity Analysis Reports. Default is 25.
26	1	Highlight Flag	blank: overprint selected columns on Program/Job Activity Analysis reports 1: suppress overprinting
27	1	MPA Field ID #1	Select desired fields to appear
28	1	MPA Field ID #2	on Multiprogramming Activity
29	1	MPA Field ID #3	graph from table below; default is 839
30-80	51	Reserved	Not used

MPA Field ID	Field Name	MPA Field ID	Field Name
1	CPU Time	6	Total EXCP Count
2	Elapsed CPU Rate	7	Total Page Count
3	I/O Index	8	CPU Utilization Percent
4	CPU Page Rate	9	Service Rate
5	Elapsed Page Rate	A	Service Units

TITLE Statement

The TITLE statement is optional. It serves as a mechanism for overriding predefined titles of output data elements available for display (predefined titles are delivered with the this product as JSIRTTMS). Each title has a Data Element Identification (DE ID) code associated with it. Refer to the Sequenced Output Data Elements Table. The DE ID determines which field in the table is to be changed.

The *top line title* is a 20-character field that overrides the top line of data element titles. The *bottom line title* field overrides the bottom line of titles. The user-defined titles may not exceed the output length of the corresponding data element as defined in the table.

Each TITLE statement overrides one specific set of output data element titles. Multiple statements may be used as required. The following example illustrates a typical TITLE statement setup:

```
position   1         2         3         4         5                  8
  1........0.........0.........0.........0.........0...            ...0
   TITLE   08DEPT./PROJECT       IDENTIFICATION
```

This TITLE statement would override the existing 16-character title for DE ID 08, user information, as follows:

```
Before          After
USER            DEPT./PROJECT
INFO            IDENTIFICATION
```

If position 1 of the TITLE statement is blank, all reports are produced with the user-specified title. If position 1 contains a report set code, only the report corresponding to that set code uses the user-specified title.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	TITLE
10-11	2	Data Element ID	
12-31	20	Top Line Title	Refer to the Sequenced Output Data Elements Table
32-51	20	Bottom Line Title	Refer to the Sequenced Ouput Data Elements Table
52-80	29	Reserved	Not used

TSORATE Statement

The TSORATE statement is optional. Use it to introduce an accounting algorithm for chargeback to TSO users.

Similar to the RATE statement for batch jobs, this statement enables the distribution of computer costs associated with TSO sessions as recorded by SMF record types 34, 35, and 40. The TSORATE statement is only applicable to TSO sessions and may be omitted when no data elements involving TSO charges or percentages are selected for a given report.

The CPU identification code associates each TSORATE statement with the appropriate input accounting record. Multiple statements may be required for a given report when processing TSO records from multiple sources. The CPU identification code must match the corresponding CPU identification on the SMF input record for the algorithm to apply. If an accounting record is found that contains a CPU identification other than one found on any TSORATE statement for a given report, the accounting algorithm parameters default to the values on the first TSORATE statement defined for that report. Unless it is altered by use of the grouping feature, the CPU identification is the first character of system identification field in SMF record.

The *core factor* on the TSORATE statement allows charging for utilization of core storage for the duration of each TSO session. This is a dollar amount charged per 1K block of core used per hour of use during the TSO session.

The *basic processor rate* is the dollar amount per hour used to calculate the adjusted rate for each TSO session as follows:

```
Adjusted Rate = Basic Processor Rate + (Core Used x Core Factor)
```

The *connect time rate* is the dollar amount per hour used to calculate the connect charge for each TSO session as follows:

```
Connect Charge = Connect Time x Connect Time Rate
```

The *time factors* on the TSORATE statement enable you to weight or delete the various recorded times in calculating the processor time in hours for each TSO session:

```
Processor Time =Active Time x Active Time Factor +
                Total CPU Time x Total CPU Time Factor
```

Note: Total CPU time is the sum of SRB CPU time and TCB CPU time unless the OPTION statement, positions 53 through 57, has overridden the default behavior. For non-z/OS data, SRB CPU time is always zero.

The time factors are percentages: 080 = 80%. Thus, it is possible to delete recorded times from the processor time calculation by setting the appropriate time factor to 000 (0%), or leaving the factor blank. Likewise, you can calculate the processor time using the straight or unweighted times by setting the appropriate time factor to 100 (100%).

The user-defined processor time and adjusted rate calculate the processor charge for each TSO session as follows:

```
Processor Charge = Processor Time x Adjusted Rate
```

The basic I/O rate is the dollar amount per hour used to calculate the I/O charge for each TSO session.

The I/O factors on the TSORATE statement weight or delete the various recorded I/O counts (EXCPs) for the different unit types in the calculation of I/O time in hours as follows:

```
                (Reader I/O Count
I/O Time =      ─────────────────          +
                Reader I/O Factor
                Printer I/O Count
                ─────────────────          +
                Printer I/O Factor
                Punch I/O Count
                ─────────────────          +
                Punch I/O Factor
                Tape I/O Count
                ─────────────────          +
                Tape I/O Factor
                Disk I/O Count
                ─────────────────          +
                Disk I/O Factor
                Other I/O Count
                ─────────────────          / 3600
                Other I/O Factor)
```

The I/O factors define the number of counts recorded for the corresponding unit type that are to be equated to one second of I/O time. In this way, the counts for peripheral devices can be converted to chargeable time. Similarly, a unit type can be omitted from the calculation of I/O time by setting the corresponding I/O factor to 000 (0%), or leaving the factor blank.

In calculating I/O time, CA JARS automatically *rounds up* to the nearest integer after the division operation for each term in the equation. The last division operation which converts the time from seconds to hours follows standard rounding procedures. For example, if the reader I/O count is 21 and the reader I/O factor is 10, then the first term of the equation would be calculated as three (21/10 = 2.1 = 3). Hence the smaller the factor, the less rounding occurs, providing a more accurate result.

The user-defined I/O time and basic I/O rate calculate the I/O charge for each TSO session as follows:

```
I/O Charge = I/O Time x Basic I/O Rate
```

An alternate method of computing I/O charge may be specified by omitting a basic I/O rate. In this case, each I/O factor is interpreted as a rate per thousands of EXCPs and I/O charge is calculated as follows:

```
I/O Charge = (Reader I/O Count     x Reader I/O Factor       +
              Printer I/O Count    x Printer I/O Factor      +
              Punch I/O Count      x Punch I/O Factor        +
              Tape I/O Count       x Tape I/O Factor         +
              Disk I/O Count       x Disk I/O Factor         +
              Other I/O Count      x Other I/O Factor )      /1000
```

Note that each 3-position I/O factor is interpreted as 9V99 and that the data element I/O time contains zero.

Note: In the above discussion of I/O charges, it is assumed that the OPTION statement, position 52, 'Device Connect instead of EXCPs,' was **not** set. If it were, then all references to EXCPs would refer to Device Connect Time. The Device Connect Time is stored in 1/1000ths of a second. Thus, in the above example, the I/O factors without a Basic I/O rate would be 9V99 dollars per Device Connect second.

The unit record rates on the TSORATE statement allows charging for utilization of unit record devices and TSO terminal activity. The U/R rates are used to calculate the U/R charge for each TSO session as follows:

```
U/R Charge =  (TPUTS Issued x TPUT Rate      +
               TGETS Satisfied x TGET Rate)   / 1000
```

Other calculated charges which are accumulated into U/R charge are controlled by FORMRATE statements.

The *tape allocation charge* field on the TSORATE statement allows you to affix a dollar charge to the private allocation of tape and disk units. The setup charge for each TSO session is calculated as follows:

```
Setup Charge = # of Tapes x Tape Allocation Charge
```

The total session charge is the summation of all the various charges as follows:

```
Total Charge =  Connect Charge + Processor Charge +
                I/O Charge + U/R Charge + Setup Charge
```

The *minimum session charge* on the TSORATE statement applies if it is greater than the computed total charge as per the previous discussion.

Position	Field Length	Field Name	Notes
1	1	Set Code	Optional
2-9	8	Statement Type	TSORATE

Position	Field Length	Field Name	Notes
10	1	CPU Identification	
11-14	4	Basic Processor Rate	9999; dollars per hour
15-17	3	Basic I/O Rate	999; dollars per hour
18-21	4	Core Factor	99V99; dollars per 1K block per hour
22-25	4	Connect Time Rate	99V99; dollars per hour
26-28	3	Active Time Factor	999; percentage
29-31	3	Total CPU Time Factor	999; percentage
32-34	3	Reader I/O Factor	999; EXCP count per second
35-37	3	Printer I/O Factor	999; EXCP count per second
38-40	3	Punch I/O Factor	999; EXCP count per second
41-43	3	Tape I/O Factor	999; EXCP count per second
44-46	3	Disk I/O Factor	999; EXCP count per second
47-49	3	Other I/O Factor	999; EXCP count per second
50-61	12	Reserved	Not used
62-64	3	TPUT Rate	9V99; dollars per 1000
65-67	3	TGET Rate	9V99; dollars per 1000
68-70	3	Tape Allocation Charge	9V99; dollars per private allocation
71-73	3	Reserved	9V99; dollars per private allocation
74-77	4	Minimum Session Charge	99V99; dollars
78-80	3	Reserved	Not used

CA JARS Tables

Basic Accounting Table (BAT)

The Basic Accounting Table is a layout of the job and job-step records contained in the account file (CAIJSACT). The input SMF, VSE and HISTORY data has been processed and stored in this format by the report program. The fields described in this table are used in these control statements:

- SORT
- GROUP
- GROUPC
- Some elements of this table are not used unless rates are defined on one of these control statements:
  - RATE
  - TSORATE
  - RJERATE
  - SNARATE
  - APPCRATE
  - FORMRATE
  - CREDIT
  - DEBIT
  - BUDGET

In the following tables, all fields are in EBCDIC character format unless otherwise specified (PKD=packed decimal; BIN=binary).

The following layouts do not apply to EXTDATA records, which maintain different formats. These formats are defined in the CA Earl macros prefixed with MRXT. They reside in CAJREARL. See the "EXTDATA Reporting" chapter for more detail.

Basic Accounting Table (1 of 5)

Field Name	Position	Field Length	Format	Notes
CPU Identification	1	1		
Reserved	2	1		File Level
Reserved	3	1	PKD	Record Indicator

Field Name	Position	Field Length	Format	Notes
Reader Start Date	4-9	6		yymmdd
Reader Start Time	10-15	6		hhmmss
Job Name/RJE Line Name	16-23	8		
Job Step Indicator	24-25	2		1 followed by blank: Step Blank followed by 1: Job 11: One step job
Step Number	26-27	2	BIN	Number of steps at Job, Summary Levels
Processing ID	28	1		D=DOS; S=SMF; T=TSO; -=credit; +=debit; *=budget; H=Level 1-5 Summary Record; R=RJE or APPC; U=Unit Record (Forms Record created during reports)
User Identification	29-36	8		Blank unless filled by SMF user exit
Start Time	37-42	6		hhmmss
Run Date	43-48	6		yymmdd
Class/Partition ID/ APPC Class	49-50	2		Ablank, Bblank, BG, F1, F2, etc.
Stop Time	51-56	6		hhmmss
Programmer Name/ APPC Conversation ID	57-76	20		From JOB statement
User Info./Acct. Flds.	77-92	16		
Completion/Cancel Code	93-96	4		
Termination Indicator	97-98	2		00: Normal; 01: Flushed 02: Abend; 08, 10, 20 and 40: canceled by SMF exit
Step Name/RJE Remote Name	99-106	8		
Program/Phase Name/RJE Password/APPC TP Name	107-114	8		
Core Allocated	115-118	4	PKD	1K increments
Core Used	119-122	4	PKD	1K increments
Percent of Unused Core	123-125	3	PKD	99999C; percent
Job Number	126-130	5		Account, Level 6, 7 history records
Reserved	126	1		

Basic Accounting Table (2 of 5)

Field Name	Position	Field Length	Format	Notes
Number of TSO sessions	127-128	2	BIN	Level 1-5 Summary Records
Number of Jobs	129-130	2	BIN	Level 1-5 Summary Records
Priority Level	131-132	2		
Cards Read	133-138	6	PKD	
Lines Printed (Standard)	139-144	6	PKD	
Lines Printed (Special)	145-150	6	PKD	
Cards Punched	151-156	6	PKD	
Print Forms ID	157-160	4		
Punch Forms ID	161-164	4		
Setup/Idle Time	165-170	6	PKD	999999V99999C; hours
Elapsed Time	171-176	6	PKD	999999V99999C; hours
CPU Time	177-182	6	PKD	999999V99999C; hours
Overhead Time/RJE Active Time/ APPC TCB Time	183-188	6	PKD	999999V99999C; hours
Wait Time/RJE Connect Time/APPC SRB Time	189-194	6	PKD	999999V99999C; hours
Reader Queue Time	195-200	6		hhmmss
Writer Queue Time	201-206	6		hhmmss
Turnaround Time	207-212	6		hhmmss
Reader I/O Count/RJE Trans. (EXCP) Count/APPC Bytes Sent	213-219	7	PKD	
Printer I/O Count/RJE Not Acknowledged (NAK) Count/APPC Bytes Received	220-226	7	PKD	
Punch I/O Count/RJE Data Check Count/APPC # Calls	227-233	7	PKD	
Tape I/O Count/RJE Invalid Logon Count/ APPC # Conversations	234-240	7	PKD	
Disk I/O Count/RJE Line Error Count/APPC EXCP Count	241-247	7	PKD	

Field Name	Position	Field Length	Format	Notes
Other I/O Count/RJE Time Out Count/APPC Device Connect Time (1/1000th of a second)	248-254	7	PKD	
Total I/O Count	255-261	7	PKD	
I/O Index	262-265	4	PKD	

Basic Accounting Table (3 of 5)

Field Name	Position	Field Length	Format	Notes
Storage Indicator/APPC Type	266	1		I: Inbound O: Outbound T: Transaction
Page-in Count	267-273	7	PKD	
Page-out Count	274-280	7	PKD	
Total Paging Count	281-287	7	PKD	
CPU Paging Rate	288-291	4	PKD	
Elapsed Paging Rate	292-295	4	PKD	
Group Code #1	296	1		Blank unless filled by grouping feature
Group Code #2	297	1		Blank unless filled by grouping feature
Group Code #3	298	1		Blank unless filled by grouping feature
Partition Type	299-300	2		BG, F1, F2, 00, 01, 00, etc.
Job Type/RJE Type/APPC Local LU Name	299	1		S=STC, T=TSU, A=APPC, J=Job, S=SNA, B=BSC
Input Device Name	301-308	8		
Reader Duration	309-314	6	PKD	999999V99999C; hours
Writer Duration	315-320	6	PKD	999999V99999C; hours
Total Swaps	321-327	7	PKD	
Swap Pages-in	328-334	7	PKD	
Swap Pages-out	335-341	7	PKD	
Total Swap Pages	342-348	7	PKD	
# of Readers Used	349-350	2	PKD	
# of Printers Used	351-352	2	PKD	

Field Name	Position	Field Length	Format	Notes
# of Punches Used	353-354	2	PKD	
# of Tapes Used	355-356	2	PKD	
# of Disks Used	357-358	2	PKD	
# of Others Used	359-360	2	PKD	
# of Disks-Private	361-362	2	PKD	
# of Devices Used	363-364	2	PKD	Number of device segments
TPUTs Issued	365-368	4	PKD	TSO only
TGETs Satisfied	369-372	4	PKD	TSO only
Bytes Sent	365-368	4	PRD	APPC Tasks only
Bytes Received	369-372	4	PRC	APPC Tasks only
Active Time	373-378	6	PKD	999999V99999C; hours
Connect Time	379-384	6	PKD	999999V99999C; hours
Allocation Delay Time	385-390	6	PKD	999999V99999C; hours
Resident Time	391-396	6	PKD	999999V99999; hours
CPU Time (SRB)	397-402	6	PKD	999999V99999; hours
CPU Time (TCB)	403-408	6	PKD	999999V99999; hours

Basic Accounting Table (4 of 5)

Field Name	Position	Field Length	Format	Notes
Service Units	409-414	6	PKD	z/OS only
Service Rate	415-417	3	PKD	z/OS only
CPU Index	418-419	2	PKD	z/OS only
Page Seconds	420-425	6	PKD	z/OS only
Performance Group	426-428	3		z/OS only
Input Route Code	429-431	3		z/OS only
Print Route Code	432-434	3		z/OS only
Job Requeued Ind.	435-436	2		
Day of Week Ind.	437	1		1: Monday; 7: Sunday
GROUP-Code #4	438	1		Blank unless filled by grouping feature

Field Name	Position	Field Length	Format	Notes
GROUP-Code #5	439	1		Blank unless filled by grouping feature
GROUP-Code #6	440	1		Blank unless filled by grouping feature
Forms-entries	441-442	2	PKD	Number of SYSOUT segments
SYSOUT Class	443	1		Contains valid data only when printing or sorting forms data
SYSOUT Type	444	1		Contains valid data only when printing or sorting forms data
SYSOUT INTV. Code	445	1		Contains valid data only when printing or sorting forms data
Output Device Name	446-453	8		APPC Partner LU Name
Lines Printed (Total)	454-459	6	PKD	
STD Pages Printed	460-464	5	PKD	z/OS only
SPCL Pages Printed	465-469	5	PKD	z/OS only
Pages Printed (Total)	470-474	5	PKD	z/OS only
No. of Tape Mounts	475-478	4	PKD	
Job Number	479-482	4	PKD	Expanded Jobid
Absorption Rate	483-486	4	PKD	
Account Field 2	487-502	16		
Account Field 3	503-518	16		Byte 16 may contain an "*" for CA Disptach or a "$" for Orphan type 6 processing
User Character Field/ APPC User Data Field	519-534	16		
User Count Field	535-539	5	PKD	
User Time Field	540-544	5	PKD	9999V99999; hours
Reserved	545-550	6		SMF Audit Flags
Field locations beyond this point may not be referenced for grouping or sorting. The following positions are found only in history/summary records.				
Processor Time	551-556	6	PKD	999999V99999C; hours
Processor Charge	557-562	6	PKD	999999999V99C; dollars
I/O Time	563-568	6	PKD	999999V99999C; hours
I/O Charge	569-574	6	PKD	999999999V99C; dollars

Field Name	Position	Field Length	Format	Notes
U/R Charge	575-579	5	PKD	9999999V99C; dollars
Setup Charge	580-584	5	PKD	9999999V99C; dollars

Basic Accounting Table (5 of 5)

Field Name	Position	Field Length	Format	Notes
Total Charge	585-590	6	PKD	999999999V99C; dollars
Charge Suffix	591	1		
Adjusted Rate	592-597	6	PKD	999999999V99C; dollars
Connect Charge	598-602	5	PKD	9999999V99C; dollars
RJE Charge including APPC	603-607	5	PKD	9999999V99C; dollars
Reserved	608	1		

The following SYSOUT (forms) Table starts at field position 551 in job-level account records, and at field position 609 in job-level history records. This table is not present in step-level records or in summary records (levels 1-5). The SYSOUT Table consists of up to 100 50-byte entries in the following format:

Field Name	Position	Field Length	Format	Notes
SYSOUT Start Date	0-5	6		yymmdd
SYSOUT Start Time	6-8	3	PKD	In seconds, from Midnight
SYSOUT Stop Time	9-11	3	PKD	In seconds, from Midnight
SYSOUT Duration	12-15	4	PKD	99v99999 hours
SYSOUT Class	16	1		
SYSOUT Type	17	1		1: std; 2: spcl; 3: punch
Oper. Intervention Code	18	1		
Output Device Name	19-26	8		
Number of LinesPrinted	27-32	6	PKD	
Estimated Numberof Pages Printed	33-37	5	PKD	z/OS only
SYSOUT Forms-ID	38-41	4		

Field Name	Position	Field Length	Format	Notes
Output Route Code	42-44	3		
Calculated Charge	45-49	5	PKD	9999999v99

The data element forms entries at position 441 indicates how many SYSOUT table entries are present, and may be zero. Normally, each entry contains the accumulation of statistics for all SYSOUT output from a job with the same class, forms-ID, destination (output device name), and Operator Intervention Code. Start and stop times are the earliest and latest times, respectively, from each typeè6 record, and therefore may not correlate with the accumulated duration.

The following I/O device table occurs beginning at field position 551 in the step-level account records, and at field position 609 in step-level History records and immediately after the last SYSOUT table entry in a job-level account or history record. For summary records, no device table is present. The I/O Device Table consists of up to 256 8-byte entries in the format shown in the following table. Device information is collected for every device used by a CONFIG/CONFIGX statement entry.

Field Name	Position	Field Length	Format	Notes
Device Type	0	1	PKD	1: rdr 2: prt 3: pun 4: tape 5: disk 6: other 7: private disk
Device Address	1-3	3		
I/O Count	4-7	4	PKD	

SYSOUT Processing for Orphan Type 6 and CA Dispatch 6 Records

When a SMF type 6 record is not accompanied by either job or step level record, a zero step job record is created. The CA Dispatch compatibility code for CA Dispatch 6 records also generates a zero step job record, since accounting fields are at the job level. This is the way to split the charge based on the recipient, if multiple copies of a report are generated through CA Dispatch. This also means that there will not be any job resource utilization statistics accumulated in the zero step job, only SYSOUT data for that job. To record the accounting information from the CA Dispatch 6 record the first 31 bytes of the minor charge code, SM6MINOR, is present in the CA JARS Batch Accounting table as ACCOUNT FIELD 2 and ACCOUNT FIELD 3.

Byte 32 of the SM6MINOR field is overlaid in position 16 of ACCOUNT FIELD 3 with a value of * indicating that the record has been created as a result of processing a CA Dispatch 6 record. A value of $ in this position indicates that an *Orphan SMF type 6* was processed to create the job record. On the *Account Record Summary* both Orphan type 6 and CA Dispatch records are shown. In addition these zero step job records are not used in the totals for number of jobs (DE ID 14) and on the summary line for step number (DE ID 56).

SYSOUT Overlay Fields

The following table shows which field was overlayed by the SYSOUT information:

Field Name	Basic ACCT Table Name	Position	DE ID
SYSOUT Start Date	Run Date	043-048	06
SYSOUT Start Time	Start Time	037-042	12
SYSOUT Stop Time	Stop Time	051-056	13
SYSOUT Duration	Writer Duration	315-320	89
SYSOUT Class	SYSOUT Class	443	E1
SYSOUT Type	SYSOUT Type	444	E2
OPER. Intervention Code	SYSOUT Interv. Code	445	E3
OUTOUT Device Name	Output Device Name	446-453	E4
No. Of Lines Printed	Lines Printed (Total)	454-459	19
Estimated No. of Pages Printed	Pages Printed	470-474	E9
SYSOUT Forms ID	Print Forms ID	157-160	16
Output Route code	Print Route Code	432-434	B7
Calculated Charge	U/R Charge	575-579	54

Output Data Elements Table

The Output Data Elements Table defines the formatted data elements as they are available for display (User-Defined Reports only). This is an internal table which only exists as print lines are generated. It cannot be directly accessed or saved although it is available for processing in user exits 1 and 2. The elements described in this table are used by these control statements:

- DISPLAY
- EDIT
- TITLE

This table has been categorized by data element purpose.

Interpreting the Table

- *Data Element Name:* This column contains the name of each data element as it is commonly described.
- *DE ID:* This column contains the actual data element identification code as it is referred to in control statements.
- *Len:* The number of print positions that are allocated for each data element is in this column.
- *Tbl Dsp:* This column contains the offset in the Output Data Elements Table where each element is located. This data is useful if you want to write an exit (Exit 3). Exit writing is discussed in your *Systems Programmer Guide.*
- *MVS, TSO,* and *DOS* indicate if the data element is available with that input type.
- *Sum, Job,* and *Step* indicate if the data element is available for printing at the summary level, job level, or step level of detail output.

  Note: The type of report produced depends on the values specified on the SORT statement positions 50-54.
- *Forms* and *RJE* indicate if the data element is available for printing at this level.

Note: RJE in this context includes not only RJE Line Utilization records, but also APPC Conversation Transaction records. APPC Tasks are not the same as APPC Transactions. APPC Tasks are produced from SMF30 records, and have a JobID starting with A. APPC Transactions are produced from SMF33-1 records and are treated by the report program as RJE records.

Output Data Elements Table (1 of 7)

Data Element Name	DE ID	Len	Tbl Dsp	MVS	TSO	DOS	Sum	Job	Step	Forms	RJE	Notes
Control Fields												
Blank Spaces	99	10	714	x	x	x	x	x	x	x	x	Used to adjust print line
Control Break Count	F7	6	1175	x	x	x	x					Number of changes in Sort Control Field in next lower Sort Level
Control Field	01	8	0	x	x	x	x					Contents of Sort Control Field at control break
Description Field	02	20	8	x	x	x	x					Based on DESCRIPT statements
Group Code #1	84	1	659	x	x	x		x	x	x	x	|
Group Code #2	85	1	660	x	x	x		x	x	x	x	| Blank unless
Group Code #3	86	1	661	x	x	x		x	x	x	x	| filled by
Group Code #4	D7	1	1025	x	x	x		x	x	x	x	| grouping
Group Code #5	D8	1	1026	x	x	x		x	x	x	x	| feature
Group Code #6	D9	1	1027	x	x	x		x	x	x	x	|
Identifying Fields												
Accounting Field/ User Information	08	16	55	x	x	x		x	x		x	
2nd Accounting Field	F2	16	1107	x	x	x		x	x		x	
3rd Accounting Field	F3	16	1123	x	x	x		x	x		x	
CPU Identification	57	1	430	x	x	x		x	x		x	
Input Device Name/ APPC Local LU Name	A0	8	724	x	x			x			x	
Output Device Name/ APPC Partner LU Name	E4	8	1037	x	x			x		x	x	
Job Class	07	2	53	x	x	x		x	x		x	Partition-ID for VSE or APPC
Job Name	04	8	29	x	x	x		x	x	x	x	
Job Number	14	6	107	x			x	x	x	x		999999 (number of jobs at summary levels) Forms shows CPU ID of the job

Output Data Elements Table (2 of 7)

Data Element Name	DE ID	Len	Tbl Dsp	MVS	TSO	DOS	Sum	Job	Step	Forms	RJE	Notes
TSU Number	B4	6	857		x		x	x	x			999999 (number of TSO sessions at summary levels)
Partition-ID/ Job Type	87	2	662			x	x	x	x			BG, F1, F2, 01, 02 J=Job, S=STC, A=APPC, T=TSU
Performance Group Number	D4	3	1011	x	x			x	x			999
Priority Level	15	2	113	x	x			x	x			From MVS JOB statement
Program/Phase Name	05	8	37	x	x	x			x			
Programmer Name	58	20	431	x	x			x	x			From MVS JOB statement
Print Forms ID	16	4	115	x	x			x		x		
Punch Forms ID	17	4	119	x	x			x		x		
SYSOUT Class	E1	1	1034	x	x			x		x		
RJE Line Name	H1	8	1469	x				x			x	
RJE Line Password/ APPC TP Name	G9	8	1453	x				x			x	
RJE Line Remote Name	H0	8	1461	x				x			x	
Step Name	11	8	83	x	x				x			From MVS EXEC statement
Step Number	56	6	424	x	x	x	x	x	x			999999 (number of steps at job and summary levels)
User Character Field/ APPC User Data Field	F4	16	1139	x	x	x		x	x		x	Blank unless filled by an exit
User Identification	10	8	75	x	x			x	x			Blank unless filled by user SMF exit
RJE Connection Type	H4	2	1494								x	B=BSC S=SNA A=APPC

Event Date And Time Fields												
Reader Start Date	60	8	453	x	x	x		x	x	x	x	yy/mm/dd
Reader Start Time	61	8	461	x	x	x		x	x	x	x	hh:mm:ss
Start (Run) Date	06	8	45	x	x	x		x	x	x	x	yy/mm/dd
Start Time	12	8	91	x	x	x		x	x	x	x	hh.mm.ss
Stop Time	13	8	99	x	x	x		x	x	x	x	hh.mm.ss

Output Data Elements Table (3 of 7)

Data Element Name	**DE** ID	**Len**	**Tbl** Dsp	**M** VS	**T** SO	**D** OS	**S** um	**J** ob	**S** tep	**F** orms	**R** JE	**Notes**
Computer Resource Utilization Fields												
Core Allocated	22	4	155	x	x	x	x	x	x			* Maximum
Core Used	21	4	151	x	x	x	x	x	x			1024 Step Value
Percent of Unused Core	23	3	159	x	x	x	x	x	x			999 at Job and Summary
CPU Time-In Hours	26	10	182	x	x	x	x	x	x			9999.99999 TCB + SRB
CPU Time	66	10	503	x	x	x	x	x	x			hhhh.mm.ss for MVS
CPU Time-averaged	91	8	692	x	x	x	x	x	x			hh.mm.ss
CPU Time (SRB)-In Hours	C4	10	927	x	x		x	x	x			9999.99999
CPU Time (SRB)	C5	10	937	x	x		x	x	x			hhhh.mm.ss
CPU Time (SRB)-Averaged	C6	8	947	x	x		x	x	x			hh.mm.ss
CPU Time (TCB)-In Hours	C7	10	955	x	x	x	x	x	x			9999.99999 same
CPU Time (TCB)	C8	10	965	x	x	x	x	x	x			hhhh.mm.ss as CPU
CPU Time (TCB)-Averaged	C9	8	975	x	x	x	x	x	x			hh.mm.ss time for non-MVS
Overhead Time-In Hours	27	10	192			x	x	x	x			9999.99999
Overhead Time	67	10	513			x	x	x	x			hhhh.mm.ss
Pages-in	73	10	564	x	x	x	x	x	x			
Pages-out	74	10	574	x	x	x	x	x	x			
Total pages	75	10	584	x	x	x	x	x	x			
Page Seconds	D3	10	1001	x			x	x	x			
Number of Swaps	A1	10	732	x	x		x	x	x			99,999,999
Swap Pages-in	A2	10	742	x	x		x	x	x			
Swap Pages-out	A3	10	752	x	x		x	x	x			
Total Swap Pages	A4	10	762	x	x		x	x	x			
Service Units	D1	10	986	x	x		x	x	x			

Wait Time - In Hours	28	10	202			x	x	x	x			9999.99999
Wait Time	68	10	523			x	x	x	x			hhhh.mm.ss
RJE Session Count	H3	6	1488	x							x	99,999
User Count Field	F5	10	1155	x	x	x	x	x	x		x	99,999,999

Output Data Elements Table (4 of 7)

Data Element Name	**DE** ID	**Len**	**Tbl** Dsp	**M** V S	**T** S O	**D** O S	**S** u m	**J** o b	**S** t e p	**F** o r m s	**R** J E	**Notes**
I/O Device Utilization Fields												
Cards Read	18	9	123	x	x	x	x	x				┌ 99999,999
Cards Punched	20	9	142	x	x	x	x	x		x		└
Forms Count	E0	6	1028	x	x			x				# SYSOUT entries
Lines Printed (Standard)	E5	10	1045	x	x		x	x		x		┌ 999999.999
Lines Printed (Special)	E6	10	1055	x	x		x	x		x		└
Lines Printed (Total)	19	10	132	x	x	x	x	x		x		999999,999 STD + SPCL
Pages Printed (Standard)	E7	10	1065	x	x		x	x		x		┌ 999999,999
Pages Printed (Special)	E8	10	1075	x	x		x	x		x		└
Pages Printed (Total)	E9	10	1085	x	x		x	x		x		999999,999; STD + SPCL
I/O Count by Device	G0	9	1197	x	x	x	x	x	x			99999,999 based on DEVADDR/DEVNMBR statements
# of Readers Used	92	2	700	x	x	x		x	x			99
Reader I/O Usage	33	10	244	x	x	x	x	x	x			999999,999
# of Printers Used	93	2	702	x	x	x		x	x			99
Printer I/O Usage	34	10	254	x	x	x	x	x	x			999999,999
# of Punches Used	94	2	704	x	x	x		x	x			99

Punch I/O Usage	35	10	264	x	x	x	x	x	x			999999,999
U/R I/O Usage	36	10	274	x	x	x	x	x	x			
# of Tapes Used	95	2	706	x	x	x		x	x			99
# Tape Mounts	F0	6	1095	x	x	x		x	x			99,999
Tape I/O Usage	37	10	284	x	x	x	x	x	x			999999,999
# Disks Used	96	2	708	x	x	x		x	x			99
# Private Disks Used	97	2	710	x	x	x		x	x			
Job Number	F1	6	1101	x	x			x	x			999999
Disk I/O Usage	38	10	294	x	x	x	x	x	x			999999,999
# Other Devices Used	98	2	712	x	x	x		x	x			99
Other I/O Usage	39	10	304	x	x	x	x	x	x			999999,999
Total # of Devices Used	32	2	242	x	x	x		x	x			99
Total I/O Usage	40	10	314	x	x	x	x	x	x			
RJE Transmission Count/ APPC Bytes Sent	G2	10	1387	x			x				x	999999,999
RJE Line Errors/ APPC Excp Count	G3	10	1397	x			x				x	

Output Data Elements Table (5 of 7)

Data Element Name	**DE** ID	**Len**	**Tbl** Dsp	**M** VS	**T** SO	**D** OS	**S** um	**J** ob	**S** tep	**F** orms	**R** JE	**Notes**
RJE Not Acknowledged (NAK) Count/APPC Bytes Received	G4	10	1407	x			x				x	
RJE Time-Out Count APPC Device Connect Time 1/100ths of sec.	G5	10	1417	x			x				x	999999,999
RJE Data Checks /APPC # Calls	G6	10	1427	x			x				x	
RJE Invalid Log-On Count APPC # Conversations	G8	6	1447	x			x				x	99,999
TPUTs Issued/APPC Sent	A5	9	772		x		x	x	x			99999,999
TGETs Satisfied/APPC Received	A6	9	781		x		x	x	x			

Interval Or Accumulated Time Fields

Active Time-In Hours	A7	10	790	x	x		x	x	x			
Active Time	A8	10	800	x	x		x	x	x			
Active Time-Averaged	A9	8	810	x	x		x	x	x			
Allocation Time-In Hours	B8	10	871	x	x		x	x	x			
Allocation Time	B9	10	881	x	x		x	x	x			
Allocation Time-Averaged	C0	8	891	x	x		x	x	x			
Connect Time-In Hours	B0	10	818		x		x	x	x			9999.99999 (hrs)
Connect Time	B1	10	828		x		x	x	x			hhhh.mm.ss
Connect Time-Averaged	B2	8	838		x		x	x	x			hh.mm.ss (avg)
Elapsed Time-In Hours	25	10	172	x	x	x	x	x	x	x		
Elapsed Time	65	10	493	x	x	x	x	x	x	x		
Elapsed Time-Averaged	90	8	684	x	x	x	x	x	x	x		
												summary level
Resident Time-In Hours	C1	10	899	x			x	x	x			
Resident Time	C2	10	909	x			x	x	x			
Resident Time-Averaged	C3	8	919	x			x	x	x			
RJE Active Time/ APPC TCB Time	G7	10	1437	x			x				x	9999.99999 hours
RJE Connect Time/ APPC SRB Time	G1	10	1377	x			x				x	
Setup/Idle Time	24	10	162			x	x	x	x			hhhh.mm.ss
Reader Duration	88	10	664	x	x		x	x				
Reader Queue Time	62	8	469	x			x	x				hh.mm.ss AVG at summary level
Writer Duration	89	10	674	x	x		x	x		x		hhhh.mm.ss
Writer Queue Time	63	8	477	x			x	x		x		hh.mm.ss AVG at summary level
Turnaround Time	64	8	485	x		x	x	x		x		
User Time Field	F6	10	1165	x	x	x	x	x	x		x	9999.99999 hours zero unless filled by an exit

Output Data Elements Table (6 of 7)

Data Element Name	DE ID	Len	Tbl Dsp	M V S	T S O	D O S	S u m	J o b	S t e p	F o r m s	R J E	Notes

Code/Indicator Fields												
Completion/Cancel Code	09	4	71	x	x	x		x	x			
Job Requeued Indicator	B5	2	863	x				x				
Input Device Route Code	B6	3	865	x				x	x			┌ 999
Print Device Route Code	B7	3	868	x				x		x		└
Processing ID	03	1	28	x	x	x		x	x	x	x	S: MVS; T: TSO; D: DOS; R: RJE; -: Credit; +: Debit *: Budget
Run Day of Week Indicator	D5	1	1014	x	x	x		x	x	x	x	1: Monday; 7: Sunday
Run Day-Spelled Out	D6	10	1015	x	x	x		x	x	x	x	
Storage Indicator	72	1	563	x	x	x		x	x		x	V: Virtual; R: real APPC Type I=Inbound O=Outbound T=Transactions
SYSOUT Type Code	E2	1	1035	x	x					x		1/2: print (STD/SPCL) 3: punch
SYSOUT Intervention Code	E3	1	1036	x						x		
Termination Indicator	59	2	451	x	x			x	x			02: abnormal termination; other nonzero values = flush by SMF exit
Calculated Utilization Rates Fields												
Absorption Rate	F8	6	1181	x	x		x	x	x			999999 Service Units/Resident Seconds
CPU Index	D0	3	983	x	x		x	x	x			999 (SRB/(SRB+TCB))*100
CPU Paging Rate	77	4	598	x	x	x	x	x	x			9999 Total Pages/ CPU seconds
Elapsed Paging Rate	76	4	594	x	x	x	x	x	x			9999 Total Pages/ elapsed minutes
I/O Index	78	4	602	x	x	x	x	x	x			9999 Total EXCPs/ CPU seconds
Service Rate	D2	5	996	x	x		x	x	x			99999 Service Units/seconds of Active Time

Output Data Elements Table (7 of 7)

Data Element Name	DE ID	Len	Tbl Dsp	MVS	TSO	DOS	Sum	Job	Step	Forms	RJE	Notes
Calculated Charge Data Fields												
(Based on Rate / FORMRATE / TSORATE / RJERATE / SNARATE / APPCRATE Parameters)												
I/O Time-In Hours	30	10	222	x	x	x	x	x	x			
I/O Time	70	10	543	x	x	x	x	x	x			
Processor Time-In Hours	29	10	212	x	x	x	x	x	x			9999.99999-hours
Processor Time	69	10	533	x	x	x	x	x	x			hhhh.mm.ss
Total Time-In Hours	31	10	232	x	x	x	x	x	x			
Total Time	71	10	553	x	x	x	x	x	x			
Adjusted Rate	43	9	340	x	x	x			x			$9,999.99
Connect Charge	B3	11	846		x		x	x	x			
I/O Charge	45	11	360	x	x	x	x	x	x			$999,999.99
Processor Charge	44	11	349	x	x	x	x	x	x			
RJE Charge/ APPC Charge	H2	11	1477	x	x		x	x			x	
Setup Charge	55	10	414	x	x	x	x	x				$99,999.99
U/R Charge	54	11	403	x	x	x	x	x				
Total Charge	46	13	371	x	x	x	x	x	x	x	x	$9999,999.99S
% Total Charge	42	8	332	x	x	x	x	x	x	x	x	999.999S
% Total Charge (within Job Class)	41	8	324	x	x	x	x	x	x			
Distributed Charge	47	10	384	x	x	x	x	x	x			$9,999,999S
Credit Amount	79	12	606	x	x	x	x	x	x	x		$ 9999,999.99*
Debit Amount	80	12	618	x	x	x	x	x	x	x		
Budget Amount	81	10	630	x	x	x	x	x	x	x		$9,999,999*
Over/Under Budget	82	13	640	x	x	x	x			x		$9999,999.99S*
% Budget Spent	83	6	653	x	x	x	x			x		9999.9*

* Based on CREDIT, DEBIT, BUDGET

The following Output Data Elements Table is sequenced by data element identification. Column headings are the same for this table as the preceding Output Data Elements Table.

Sequenced Output Data Elements Table (1 of 6)

Data Element Name	DE ID	Len	Tbl Dsp	MVS	TSO	DOS	Sum	Job	Step	Forms	RJE	Notes
Control Field	01	8	0	x	x	x	x					Contents of SORT Control field
Description Field	02	20	8	x	x	x	x					Based on DESCRIPT statements
Processing ID	03	1	28	x	x	x		x	x	x	x	S: MVS: TSO D: DOS; R: RJE
Job Name	04	8	29	x	x	x		x	x	x		
Program/Phase Name	05	8	37	x	x	x			x			
Start (Run) Date	06	8	45	x	x	x		x	x	x	x	yy/mm/dd
Job Class	07	2	53	x	x	x		x	x		x	Partition-ID for DOS or Class for APPC
Accounting Field/User Info. for VSE	08	16	55	x	x	x		x	x		x	
Completion/Cancel Code	09	4	71	x	x	x		x	x			
User Identification	10	8	75	x	x			x	x			Blank unless filled by SMF exits
Step Name	11	8	83	x	x				x			From MVS EXEC
Start Time	12	8	91	x	x	x		x	x	x		hh.mm.ss
Stop Time	13	8	99	x	x	x		x	x	x		hh.mm.ss
Job Number	14	6	107	x			x	x	x	x		Number of jobs at summary levels
Priority Level	15	2	113	x	x			x	x			00-14 from MVS JOB
Print Forms ID	16	4	115	x	x			x		x		
Punch Forms ID	17	4	119	x	x			x		x		
Cards Read	18	9	123	x	x	x	x	x				
Lines Printed (Total)	19	10	132	x	x	x	x	x		x		
Cards Punched	20	9	142	x	x	x	x	x		x		
Core Used	21	4	151	x	x	x	x	x	x			1K increments maximums at Job/summary levels
Core Allocated	22	4	155	x	x	x	x	x	x			
Percent of Unused Core	23	3	159	x	x	x	x	x	x			

Sequenced Output Data Elements Table (2 of 6)

Data Element Name	DE ID	Len	Tbl Dsp	MVS	TSO	DOS	Sum	Job	Step	Forms	RJE	Notes
Setup/Idle Time	24	10	162			x	x	x	x			hhhh.mm.ss
Elapsed Time-In Hours	25	10	172	x	x	x	x	x	x	x		┌
CPU Time-In Hours	26	10	182	x	x	x	x	x	x			|
Overhead Time-In Hours	27	10	192			x	x	x	x			|
Wait Time-In Hours	28	10	202			x	x	x	x			| 9999.99999
Processor Time-In Hours	29	10	212	x	x	x	x	x	x			| hours
I/O Time-In Hours	30	10	222	x	x	x	x	x	x			|
Total Time-In Hours	31	10	232	x	x	x	x	x	x			└
Total # of Devices Used	32	2	242	x	x	x		x	x			
Reader I/O Usage	33	10	244	x	x	x	x	x	x			
Printer I/O Usage	34	10	254	x	x	x	x	x	x			
Punch I/O Usage	35	10	264	x	x	x	x	x	x			
U/R I/O Usage	36	10	274	x	x	x	x	x	x			
Tape I/O Usage	37	10	284	x	x	x	x	x	x			
Disk I/O Usage	38	10	294	x	x	x	x	x	x			
Other I/O Usage	39	10	304	x	x	x	x	x	x			
Total I/O Usage	40	10	314	x	x	x	x	x	x			
% Total Charge	41	8	324	x	x	x	x	x	x			┌ 999.999S
% Total Charge	42	8	332	x	x	x	x	x	x	x	x	└
Adjusted Rate	43	9	340	x	x	x			x			$9,999.99
Processor Charge	44	11	349	x	x	x	x	x	x			┌ $999,999.99
I/O Charge	45	11	360	x	x	x	x	x	x			└
Total Charge	46	13	371	x	x	x	x	x	x	x	x	$9999,999.99S
Distributed Charge	47	10	384	x	x	x	x	x	x	x	x	$9,999,999S
U/R Charge	54	11	403	x	x	x	x	x		x		$999,999.99
Setup Charge	55	10	414	x	x	x	x	x		x		$99,999.99
Step Number	56	6	424	x	x	x	x	x	x			Number of steps at job/summary levels
CPU Identification	57	1	430	x	x	x		x	x	x		
Programmer Name	58	20	431	x	x			x	x			From MVS JOB
Termination Indicator	59	2	451	x	x			x	x			02 = abnormal termination
Reader Start Date	60	8	453	x	x	x		x	x	x	x	yy/mm/dd
Reader Start Time	61	8	461	x	x	x		x	x	x	x	hh.mm.ss
Reader Queue Time	62	8	469	x			x	x				┌ hh.mm.ss
Writer Queue Time	63	8	477	x			x	x		x		| average at
Turnaround Time	64	8	485	x		x	x	x		x		| summary levels
Elapsed Time	65	10	493	x	x	x	x	x	x	x		|
CPU Time	66	10	503	x	x	x	x	x	x			└

Sequenced Output Data Elements Table (3 of 6)

Data Element Name	DE ID	Len	Tbl Dsp	MVS	TSO	DOS	Sum	Job	Step	Forms	RJE	Notes
Overhead Time	67	10	513			x	x	x	x			┌
Wait Time	68	10	523			x	x	x	x			│
Processor Time	69	10	533	x	x	x	x	x	x			│ hhhh.mm.ss
I/O Time	70	10	543	x	x	x	x	x	x			│
Total Time	71	10	553	x	x	x	x	x	x			└
Storage Indicator/ APPC Type	72	1	563	x	x	x		x	x	x		V: virtual;R: real I=Inb., O=Outb, T=Trans.
Pages-in	73	10	564	x	x	x	x	x	x			
Pages-out	74	10	574	x	x	x	x	x	x			
Total pages	75	10	584	x	x	x	x	x	x			
Elapsed Paging Rate	76	4	594	x	x	x	x	x	x			9999 Total Pages/ elapsed minutes
CPU Paging Rate	77	4	598	x	x	x	x	x	x			9999 Total Pages/ CPU seconds
I/O Index	78	4	602	x	x	x	x	x	x			9999 Total EXCPs/ CPU seconds
Credit Amount	79	12	606	x	x	x	x	x	x	x	x	┌ $9999,999.99
Debit Amount	80	12	618	x	x	x	x	x	x	x	x	└
Budget Amount	81	10	630	x	x	x	x	x	x	x	x	$9,999,999
Over/Under Budget	82	13	640	x	x	x	x			x	x	$9999,999.99S
% Budget Spent	83	6	653	x	x	x				x	x	9999.9 * Based on CREDIT, DEBIT, BUDGET
Group Code #1	84	1	659	x	x	x		x	x	x	x	┌ Blank unless
Group Code #2	85	1	660	x	x	x		x	x	x	x	│ filled by
Group Code #3	86	1	661	x	x	x		x	x	x	x	└ grouping feature
Partition-ID/Job Type	87	2	662	x		x		x	x			BG, F1, F2, 01, 02
	H4										x	J=Job, S=STC, A=APPC, T=TSU

Reader Duration	88	10	664	x	x		x	x				hhhh.mm.ss
Writer Duration	89	10	674	x	x		x	x		x		
Elapsed Time-Averaged	90	8	684	x	x	x	x	x	x	x		hh.mm.ss
CPU Time-Averaged	91	8	692	x	x	x	x	x	x			
# of Readers Used	92	2	700	x	x	x		x	x			
# of Printers Used	93	2	702	x	x	x		x	x			
# of Punches Used	94	2	704	x	x	x		x	x			
# of Tapes Used	95	2	706	x	x	x		x	x			
# Disks Used	96	2	708	x	x	x		x	x			
# Private Disks Used	97	2	710	x	x	x		x	x			
# Other Devices Used	98	2	712	x	x	x		x	x			
Blank Spaces	99	10	714	x	x	x	x	x	x	x	x	Used to adjust print line spacing

Sequenced Output Data Elements Table (4 of 6)

Data Element Name	**DE** ID	**Len**	**Tbl** Dsp	**M** VS	**T** SO	**D** OS	**S** um	**J** ob	**S** tep	**F** orms	**R** JE	**Notes**
Input Device Name/ APPC Local LU Name	A0	8	724	x	x			x		x		
Number of Swaps	A1	10	732	x	x		x	x	x			
Swap Pages-in	A2	10	742	x	x		x	x	x			
Swap Pages-out	A3	10	752	x	x		x	x	x			
Total Swap Pages	A4	10	762	x	x		x	x	x			
TPUTs Issued/ APPC Bytes Sent	A5	9	772	x	x		x	x	x			
TGETs Satisfied/ APPC Bytes Recd	A6	9	781	x	x		x	x	x			
Active Time-In Hours	A7	10	790	x	x		x	x	x			
Active Time	A8	10	800	x	x		x	x	x			9999.99999 (hrs)
Active Time-Averaged	A9	8	810	x	x		x	x	x			hhhh.mm.ss
Connect Time-In Hours	B0	10	818		x		x	x	x			hh.mm.ss (avg)
Connect Time	B1	10	828		x		x	x	x			
Connect Time-Averaged	B2	8	838		x		x	x	x			
Connect Charge	B3	11	846		x		x	x	x			$999,999.99
TSU Number	B4	6	857		x		x	x	x			Number of sessions at summary levels

Job Requeued Indicator	B5	2	863	x				x				
Input Device Route Code	B6	3	865	x	x			x	x			
Print Device Route Code	B7	3	868	x	x			x		x		
Allocation Time-In Hours	B8	10	871	x	x		x	x	x			┌
Allocation Time	B9	10	881	x	x		x	x	x			│
Allocation Time-Averaged	C0	8	891	x	x		x	x	x			│
Resident Time-In Hours	C1	10	899	x	x		x	x	x			│
Resident Time	C2	10	909	x	x		x	x	x			│
Resident Time-Averaged	C3	8	919	x	x		x	x	x			│ 9999.99999-hrs
CPU Time (SRB)-In Hours	C4	10	927	x	x		x	x	x			│ hhhh.mm.ss
CPU Time (SRB)	C5	10	937	x	x		x	x	x			│ hh.mm.ss-aver
CPU Time (SRB)-Averaged	C6	8	947	x	x		x	x	x			│
CPU Time (TCB)-In Hours	C7	10	955	x	x	x	x	x	x			│
CPU Time (TCB)	C8	10	965	x	x	x	x	x	x			│
CPU Time (TCB)-Averaged	C9	8	975	x	x	x	x	x	x			└
CPU Index	D0	3	983	x	x		x	x	x			999(SRB/(SRB+TCB)) * 100
Service Units	D1	10	986	x	x		x	x	x			
Service Rate	D2	5	996	x	x		x	x	x			Service Units/ CPU seconds
Page Seconds	D3	10	1001	x	x		x	x	x			
Performance Group Number	D4	3	1011	x	x			x	x			

Sequenced Output Data Elements Table (5 of 6)

Data Element Name	**DE** ID	**Len**	**Tbl** Dsp	**M** VS	**T** SO	**D** OS	**S** um	**J** ob	**S** tep	**F** orms	**R** JE	**Notes**
Day of Week Indicator	D5	1	1014	x	x	x		x	x	x	x	1: Monday 7: Sunday
Day of Week	D6	10	1015	x	x	x		x	x	x	x	Spelled out
Group Code #4	D7	1	1025	x	x	x		x	x	x	x	
Group Code #5	D8	1	1026	x	x	x		x	x	x	x	
Group Code #6	D9	1	1027	x	x	x		x	x	x	x	
Forms Count	E0	6	1028	x	x			x				Number of forms (SYSOUT) entries
SYSOUT Class	E1	1	1034	x	x			x		x		
SYSOUT Type Code	E2	1	1035	x	x					x		1/2: print (STD/SPCL) 3: punch

SYSOUT Intervention Code	E3	1	1036	x						x		
Output Device Name/ APPC Partner LU Name	E4	8	1037	x	x			x		x	x	
Lines Printed (Standard)	E5	10	1045	x	x		x	x		x		
Lines Printed (Special)	E6	10	1055	x	x		x	x		x		
Pages Printed (Standard)	E7	10	1065	x	x		x	x		x		
Pages Printed (Special)	E8	10	1075	x	x		x	x		x		
Pages Printed (Total)	E9	10	1085	x	x		x	x		x		Form Rec Total is for that SYSOUT entry only
# Tape Mounts	F0	6	1095	x	x	x		x	x			
Job Number	F1	6	1101	x	x			x	x			999999
2nd Accounting Field	F2	16	1107	x	x	x		x	x		x	
3rd Accounting Field	F3	16	1123	x	x	x		x	x			
User Character Field/ APPC User Data Field	F4	16	1139	x	x	x		x	x		x	
User Count Field	F5	10	1155	x	x	x	x	x	x		x	99,999,999
User Time Field	F6	10	1165	x	x	x	x	x	x		x	9999.99999 hours
Control Break Count	F7	6	1175	x	x	x	x					Number of changes in control fields
Absorption Rate	F8	6	1181	x	x		x	x	x			99,999 Service Units/Resident seconds
Reserved Field	F9	10	1187									
I/O Count by Device	G0	9	1197	x	x	x	x	x	x			99999,999 based on DEVADDR statement
RJE Connect Time/ APPC SRB Time	G1	10	1377	x			x	x			x	9999.99999 hours
RJE Transmission Count/ APPC Bytes Sent	G2	10	1387	x			x	x			x	

Sequenced Output Data Elements Table (6 of 6)

Data Element Name	DE ID	Len	Tbl Dsp	MVS	TSO	DOS	Sum	Job	Step	Forms	RJE	Notes
RJE Line Errors/ APPC EXCP Count	G3	10	1397	x			x	x			x	
RJE Not Acknowledged/ APPC Bytes Rec	G4	10	1407	x			x	x			x	
RJE Time-Out Count/ APPC Device Connect Time (1/1000ths sec)	G5	10	1417	x			x	x			x	

RJE Data Checks/ APPC # Calls	G6	10	1427	x		x	x	x	
RJE Active Time/ APPC TCB Time	G7	10	1437	x		x	x	x	9999.99999 hours
RJE Invalid Log-On Count/ APPC # Conversations	G8	6	1447	x		x	x	x	99,999
RJE Line Password/ APPC TP Name	G9	8	1453	x			x	x	
RJE Line Remote Name/ APPC Step Name	H0	8	1461	x			x	x	
RJE Line Name/ APPC Jobname	H1	8	1469	x			x	x	
RJE Charge/ APPC Charge	H2	11	1477	x	x	x	x	x	$999,999.99
RJE Session Count	H3	6	1488	x		x		x	
RJE Connection Type	H4	2	1494					x	B=BSC S=SNA A=APPC

Data Element Definitions

01

CONTROL FIELD: Data element indicating the contents of an eight-byte sort control field based at each control break.

02

DESCRIPTION FIELD: Data element identifying totals on summary line or a DESCRIPT header as defined through the use of DESCRIPT statements.

03

PROCESSING ID: Data element indicating record type:

C = CA JARS for CICS, IMS, IDMS and ADABAS Interfaces
D = DOS
H = History
R = RJE/APPC
S = MVS
T = TSO and the VM and Roscoe Interfaces
U = Unit record (forms)
* = Budget
- = Credit
+ = Debit

04

JOB NAME: Job or session name taken from the JOB statement.

05

PROGRAM/PHASE NAME: Program name from the PGM= parameter on the EXEC statement. Phase name from DOS record.

06

RUN START DATE: The date that the initiator selected the step. First step start date equals job start date.

07

JOB CLASS: Job input class from the JOB statement. Blank for TSO or started task. For RJE/APPC this is the APPC class.

08

ACCOUNTING FIELDS: The first 16 positions of accounting information taken from the JOB statement. Excludes periods and spaces.

09

COMPLETION/CANCEL CODE: Step completion code from SMF record. If all steps completed normally then the job record is assigned a completion code of 0000.

10

USER IDENTIFICATION: An eight-character field present on the SMF records which is available to users for accounting purposes. An SMF exit routine would be able to place information into this field so that all SMF records for any job would be identified. This field contains the CA Top Secret or RACF userid unless otherwise filled by the user in an SMF exit routine. This data element is not applicable for data collected under VSE.

11

STEP NAME: Step name taken from the name on the EXEC statement. When executing PROC, the PROC name displays as the step name.

12

START TIME: The time that the initiator selected the step. First step start time equals job start time.

13

STOP TIME: The time that the SMF type 30-4 record was moved to the SMF buffer, indicating step termination. The last step stop time is moved to the job record as job stop time.

14

JOB NUMBER: The JES assigned job number. At the summary line, this element displays as the total number of jobs, which does not include zero step job records.

15

PRIORITY LEVEL: JES job selection priority at the time the job was submitted.

16

PRINT FORMS ID: Forms number, based on SYSOUT class not 'B', or the specifications in the STDPUNCH statement.

17

PUNCH FORMS ID: Forms number, based on SYSOUT class = 'B', or the specifications in the STDPUNCH statement.

18

CARDS READ: Number of card image records read by the reader for each step (input by DD DATA or DD * statements in JCL).

19

LINES PRINTED (TOTAL): Total of standard and special lines printed.

20

CARDS PUNCHED: Class = B SYSOUT is considered cards punched, unless overridden by the STDPUNCH statement.

21

CORE USED: The amount of storage used by a job step. The value displayed at the job level is the largest of step values. The value displayed at summary levels is the largest encountered since the last control break.

22

CORE ALLOCATED: Partition/region size in 1K-Byte increments. For MVS, this data element contains the sum of core used from the top of the private area and core used from the bottom of the private area.

23

PERCENT OF UNUSED CORE: The percent of core allocated but not used for any job step. When displayed in a report, the largest value encountered is displayed at the summary levels. This data element is not applicable for data collected under DOS.

24

SETUP/IDLE TIME: The amount of time which a DOS partition is inactive between jobs. The difference between the stop time of one job and the start time of the succeeding job. This data element is not applicable for data collected under SMF.

25

ELAPSED TIME: The duration of a job or job step as the difference between the start and stop time.

26

CPU TIME: Actual time used by the executing job or job step in the Central Processing Unit excluding wait, interference, intervention and overhead time. For MVS users, the sum of CPU Time under TCB and CPU time under SRB.

Note: Be aware that the Option statement, cols 53-57, can modify this.

27

OVERHEAD TIME: Actual time spent executing instructions within the DOS Supervisor area (exclusive of those instructions executing within DOS partition boundaries) in support of the executing problem program.

28

WAIT TIME: Accumulation of the time the CPU was idle, either because the system was not active or was waiting for the completion of an event such as an I/O operation. VSE only.

29

PROCESSOR TIME: Processor utilization based on user-defined parameters entered through the RATE statement.

30

I/O TIME: A value, in hours, used in computing I/O charges. Calculated by dividing EXCP counts for each of the six classes of I/O devices (reader, printer, etc.) by the appropriate EXCPs per second factors from a RATE or TSORATE statement, then dividing the sum of the results by 3600 to convert to hours. Value is calculated for each step record and accumulated to the job record.

Note: The Option statement, position 52, can cause Device Connect Time as opposed to EXCPs to be collected.

31

TOTAL TIME: The combined Processor Time plus I/O Time.

32

TOTAL # OF DEVICES USED: The number of different peripheral I/O devices allocated at the job and step levels.

33 *

READER I/O USAGE: The number of EXCPs recorded for reader devices at the detail and summarization levels. Only those reader devices defined on CONFIG statements contribute to this count.

34 *

PRINTER I/O USAGE: The number of EXCPs recorded for printer devices at the detail and summarization levels. Only those printer devices defined on CONFIG statements contribute to this count.

Note: Is only present for nonspooled print.

35 *

PUNCH I/O USAGE: The number of EXCPs recorded for punch devices at the detail and summarization levels. Only those punch devices defined on CONFIG statements contribute to this count.

Note: Is only present for nonspooled punch.

36 *

UNIT RECORD I/O USAGE: The sum of reader I/O, printer I/O and punch I/O counts in MVS.

37 *

TAPE I/O USAGE: The number of EXCPs recorded for tape devices at the detail and summarization levels. Only those tape devices defined on CONFIG statements contribute to this count.

38 *

DISK I/O USAGE: Data element indicating the number of EXCPs recorded for disk devices at the detail and summarization levels. Only those disk devices defined on CONFIG statements contribute to this count.

39 *

OTHER I/O USAGE: The number of EXCPs recorded for other devices at the detail and summarization levels. Only those other devices defined on CONFIG statements contribute to this count.

40 *

TOTAL I/O USAGE: Sum of all I/O counts.

Note: *Data Elements 33 through 40 can be affected by Option statement, position 52, which could cause CA JARS to use Device Connect Time instead of EXCP count.

41

PERCENT OF TOTAL CHARGE WITHIN JOB CLASS: Total charge for this job or session as a percentage of the total charges for all jobs and sessions with the same job class, if it belongs to one of the seven possible job classes specified on the PRIORITY statement. Otherwise, it is the percent of the total charges for all jobs and sessions not in any of the specified job classes.

42

PERCENT OF TOTAL CHARGE: The total charge for a job or session as defined by rate type control statements, as a percentage of the combined total charges of all jobs.

43

ADJUSTED RATE: A dollar value used in calculating processor charge. Computed as the sum of the Basic Rate and (Core Factor times either Core Allocated or Core Used). Basic Rate and Core Factor are taken from a RATE or TSORATE statement.

44

PROCESSOR CHARGE: A component of the total charge for a job or step computed by multiplying Processor Time by Adjusted Rate. Value is calculated for each step record and accumulated to the job record. Note that value may be affected by Class and/or Priority Factors from a PRIORITY statement.

45

I/O CHARGE: A dollar amount computed by multiplying the calculated I/O time by the Basic I/O Rate taken from the appropriate (based on CPU ID) RATE or TSORATE statement. Note that the value may be affected by the Priority and/or Class factors taken from a PRIORITY statement. Value is calculated for each step record and accumulated to the job record.

46

TOTAL CHARGE: A dollar amount computed for step records as the sum of Processor and I/O Charges. Job Record Total Charge is the accumulation of Step Record Total Charges plus Setup and U/R Charges.

47

DISTRIBUTED CHARGE: Data element calculated when operating cost is specified on the PARMS statement and based on % of Total Charge. This is referred to as the Cost Distribution feature.

54

U/R CHARGE: A component of Total Charge computed as the sum of the products of unit record I/O Counts (Cards Read, Lines Printed, etc.) and the unit record factors from a RATE, TSORATE or FORMRATE statement, then dividing by 1000. Value is calculated for Job Records only.

55

SETUP CHARGE: A component of Total Charge computed as the product of the Tape Allocation Charge and the Tape Device Count plus the product of the Disk Allocation Charge and the Private Disk Device Count. Tape and Disk Allocation Charges are taken from a RATE or TSORATE statement. Value is computed only for job records.

56

STEP NUMBER: Step number (first step = 1, second step = 2, etc.). This data element reflects the number of steps when displayed at job and summary levels, which does not include zero step job records.

57

CPU IDENTIFICATION: A one-character code identifying the source of data collection. For SMF records, this is the first character of the four-byte System Identification field unless overridden by the Option statement, position 43. For DOS records, this is the code as placed there by the $JOBACCT Interface routine. The RATE and PRIORITY statements have these codes in order to associate the proper accounting algorithm with each input record.

58

PROGRAMMER NAME: Taken from the OS JOB statement parameter carried in the SMF records.

59

TERMINATION INDICATOR: A two-character data element indicating how a step or job terminated, as follows: 00 - normal termination; 02 - abnormal termination; 08, 10, 20, 40 - canceled by SMF exits IEFACTRT, IEFUSI, IEFUJI IEFUJV, respectively; 01 (in a step record) - step was flushed (not executed). Not applicable to VSE data.

60

READER START DATE: Date the reader recognized the JOB card for this job.

61

READER START TIME: The time the reader recognized the JOB card for this job.

62

READER QUEUE TIME: The amount of time a job spends in the reader queue prior to the initiation time of the first job step. When displayed in a report, this data element is averaged at the summary levels, based on the number of jobs processed in the reporting period. This data element is not applicable for data collected under VSE.

63

WRITER QUEUE TIME: The amount of time elapsed after the termination of a job until the last output writer record (last SYSOUT data set has been purged) is written on the SMF file.

When displayed in a report, this data element is averaged at the summary levels, based on the number of jobs processed in the reporting period. This data element is not applicable for data collected under DOS.

64

TURNAROUND TIME: As defined for the Report Writer, this includes the Reader Queue Time, Elapsed Time of the job, and Writer Queue Time, combined. It is the time starting with the reading of a job into the reader queue through to the time when the last output writer record is written following the purging of the last SYSOUT data set for a given job. This can be changed based on a selection on the OPTION statement.

When displayed in a report, this data element is averaged at the summary levels, based on the number of jobs processed in the reporting period. This data element is not applicable for data collected under VSE.

65

ELAPSED TIME: See 25.

66

CPU TIME: See 26.

67

OVERHEAD TIME: See 27.

68

WAIT TIME: Accumulation of time periods when the CPU is idle, for example, not executing instructions because the system is inactive or waiting for the completion of some event such as an I/O operation.

69

PROCESSOR TIME: See 29.

70

I/O TIME: See 30.

71

TOTAL TIME: See 31. For non-RJE records.

72

STORAGE INDICATOR/APPC TYPE: For non-RJE records, indicates type of storage allocated: R=real, V=virtual. For RJE records with the APPC type it signifies what types of APPC record: I=Inbound, O=Outbound, T=Transaction.

73

PAGE-IN COUNT: The sum of pages-in, VIO pages-in and common area pages-in from type 30 SMF records for MVS.

74

PAGE-OUT COUNT: The sum of page-out(s) and VIO page-out(s) from type 4, 30 or 34 SMF records for MVS. For VS1, the page-out count from the type 4 SMF record is used.

75

TOTAL PAGES: Total of page in and page out counts.

76

ELAPSED PAGING RATE: Data element indicating relative paging activity in a virtual (VS) environment at the detail and summarization levels. This value is calculated by dividing the Total Paging Count by Elapsed Time in minutes. This provides an index to the number of pages per elapsed minute recorded for a particular job, program, time period, etc.

77

CPU PAGING RATE: Data element indicating relative paging activity in a virtual (VS) environment at the detail and summarization levels. This value is calculated by dividing the Total Paging Count by CPU Time in seconds. This provides an index to the number of pages per CPU second recorded for a particular job, program, time period, etc.

Note: This field is influenced by the Option statement, positions 53-57.

78

I/O INDEX: Data element indicating I/O or CPU-boundness at the detail and summarization levels. This value is calculated by dividing the Total I/O count by CPU time in seconds. This provides an index to the number of EXCPs per CPU second for a job, program, time period, etc.

Note: This field is influenced by the Option statement, positions 52-57.

79

CREDIT AMOUNT: The amount to be credited to a particular account code or user/cost center based on a CREDIT statement.

80

DEBIT AMOUNT: The amount to be debited to a particular account/user/cost center based on a DEBIT statement.

81

BUDGET AMOUNT: A dollar amount specified on BUDGET statements which is accumulated to each summary level at which time data elements for percent of budget spent and amount over/under budget may be computed and displayed.

Ideally, BUDGET statements should be coded in such a way that at least one is present within every control break for a particular report. This assures that there is a nonzero budget amount at each summary level for the calculation of percent of budget spent and amount over/under budget data elements.

82

OVER/UNDER BUDGET: Calculated based on the budget amount specified on a BUDGET statement.

83

% BUDGET SPENT: Calculated based on the total charge and the budget amount specified on the BUDGET statement.

84

GROUP CODE #1: Blank unless specified on a GROUPC statement (grouping feature).

85

GROUP CODE #2: Blank unless specified on a GROUPC statement (grouping feature).

86

GROUP CODE #3: Blank unless specified on a GROUPC statement (grouping feature).

87

PARTITION-ID/RJE TYPE/TASK TYPE: For VSE data, the partition in which the job was executed. For RJE records, A=APPC, B=BSC, S=SNA. For non-RJE records, S=STC, J=JOB, T=TSU, A=APPC.

88

READER DURATION: The amount of time elapsed between Reader Start time and Reader Stop time as recorded by SMF. This is the actual time spent reading the job into the system.

89

WRITER DURATION: The amount of time elapsed between Output Processor Start time and Output Processor Stop time as recorded by SMF. This is the actual time spent purging all SYSOUT data sets for a job, inclusive of intervention time.

90

ELAPSED TIME - AVERAGED: Duration of jobs or job steps divided by the number of jobs or job steps (TSO session time).

91

CPU TIME - AVERAGED: The sum of Step CPU time under TCB and Step CPU time under SRB divided by the number of steps.

Note: This field is influenced by the Option statement, positions 53-57.

92

NUMBER OF READERS USED: The number of different reader devices allocated at the job and step levels. Only those reader devices defined on CONFIG statements are included in this count.

93

NUMBER OF PRINTERS USED: The number of different printer devices allocated at the job and step levels. Only those printer devices defined on CONFIG statements are included in this count.

94

NUMBER OF PUNCHES USED: The number of different punch devices allocated at the job and step levels. Only those punch devices defined on CONFIG statements are included in this count.

95

NUMBER OF TAPE DRIVES USED: The number of different tape devices allocated at the job and step levels. UNIT=(TAPE,DEFER): defers mounting of device until data set is opened. However, allocation of the device does occur. Thus, the number of tape mounts indicated by will not match the total number of physical tape mounts.

96

NUMBER OF DISKS USED: The number of different disk devices allocated at the job and step levels. Only those disk devices defined on CONFIG statements are included in this count.

97

NUMBER OF PRIVATE DISKS USED: The number of different disk (private) devices allocated at the job and step levels. Only those disk devices defined on CONFIG statements (as private) are included in this count.

98

NUMBER OF OTHERS USED: The number of different other devices allocated at the job and step levels. Only those other devices defined on CONFIG statements are included in this count.

99

BLANK SPACE: Used to adjust print line spacing.

A0

INPUT DEVICE NAME/APPC LOCAL LU NAME: Logical input device name from the SMF type-26 record, or the local LU name for APPC records.

A1

NUMBER OF SWAPS: Number of address space swap sequences, swap-out and swap-in.

A2

SWAP PAGES-IN: Number of pages swapped in including LSQA, fixed pages, and pages active when address space was swapped in.

A3

SWAP PAGES-OUT: Number of pages swapped out including LSQA, private area fixed pages, and private area nonfixed changed pages.

A4

TOTAL SWAP PAGES: Sum of swap page-in(s) and swap page-out(s).

A5

TPUTS ISSUED/APPC BYTES SENT: Number of TPUTs for a TSO session. For an APPC task, number of Bytes Sent, otherwise zero.

A6

TGETS SATISFIED/APPC BYTES RECEIVED: Number of TGETs for a TSO session. For an APPC task, number of Bytes Received, otherwise zero.

A7

ACTIVE TIME: Under MVS, swapped-in time plus swapped-out (but ready) time.

A8

ACTIVE TIME: See A7.

A9

ACTIVE TIME: See A7.

B0

CONNECT TIME: The duration of a TSO session as the difference between the LOGON and LOGOFF time.

B1

CONNECT TIME: See B0.

B2

CONNECT TIME: See B0.

B3

CONNECT CHARGE: A dollar amount computed by multiplying Connect Time by the Connect Time Rate from the appropriate (based on CPU-ID) TSORATE statement.

B4

TSO NUMBER: TSO User Identification number from the type 26 (Job Purge) SMF Record.

B5

JOB REQUEUED INDICATOR: A two-character code identifying jobs which meet either of the following criteria:

- An SMF type 30-5 (Job Termination) record has the same job log number as one previously encountered.
- An SMF type 30-4 (Step Termination) record contains a step number which is equal to or less than that of the most recent type 4 with the same job log number.

The first character of the code is set to 1 for a job that appears to have been restarted. The second character is set to 1 for a job that is apparently a restart of a previous job. For example, if a job was submitted, and then restarted twice, the three resultant job records would contain the codes, 1 , 11, 1, respectively.

To assist the user in identifying and reporting on these types of jobs, the Reader Start Times of each restarted job are incremented by one second. Because they are written before an occurrence of the conditions described above is detected, step account records may not contain the same values in this field as their corresponding job account record.

B6

INPUT DEVICE ROUTE CODE: A number identifying the RJE station from which a job was submitted.

B7

PRINT DEVICE ROUTE CODE: A number identifying the RJE station to which output for a SYSOUT dataset was directed.

B8

ALLOCATION TIME: The difference between step-initiation time and program load time. This is the period of time used by the initiator to allocate I/O devices and main storage. Allocation time and active time (for non-MVS users) should very closely approximate step elapsed time.

B9

ALLOCATION TIME: See B8.

C0

ALLOCATION TIME: See B8.

C1

RESIDENT TIME: Under MVS, swapped-in time.

C2

RESIDENT TIME: See C1.

C3

RESIDENT TIME: See C1.

C4

CPU TIME (SRB): Under MVS, certain functions, such as I/O operations, are performed in support of a transaction under the control of an SRB. CPU resources used for these functions are accumulated as CPU Time under SRB.

Note: This field is influenced by the Option statement, position 53.

C5

CPU TIME (SRB): See C4.

C6

CPU TIME (SRB): See C4.

C7

CPU TIME (TCB): Under MVS, when a transaction is executing instructions, it is under the control of its TCB, and its CPU utilization is accumulated as CPU time under TCB. In a non-MVS environment, this is the only component of CPU utilization that can be allocated directly to a problem program.

Note: This field is influenced by the Option statement, position 53.

C8

CPU TIME (TCB): See C7.

C9

C9 CPU TIME (TCB): See C7.

D0

CPU INDEX: Under MVS, this index is defined as CPU Time under SRB * 100 / Total CPU Time. As with I/O Index, a high value implies a step/job is I/O bound while a low value implies a step/job is CPU bound.

Note: This field is influenced by the Option statement, positions 53-57.

D1

SERVICE UNITS: Measure of service used by the MVS System Resource Manager to adjust the allocation of resources. Service units are made up of CPU, I/O, and storage components. These components are weighted by Service Definition Coefficients supplied to MVS in the Installation Performance Specification.

D2

SERVICE RATE: Service units per second of Active Time.

D3

PAGE SECONDS: Under MVS, main storage demand is monitored by the System Resource Manager. With each change in the number of pages held by a transaction, the number of pages previously held is multiplied by the number of milliseconds since the last change, and the result is accumulated over the life of the transaction. (This data element is carried in units of page-seconds, rather than page-milliseconds, by the Report Writer.)

D4

PERFORMANCE GROUP NUMBER: Under MVS, each batch job step and TSO session can be assigned a different Performance Group Number. This is used by the System Resource Manager to determine the rate at which each transaction is entitled to service.

D5

DAY OF WEEK INDICATOR: Number between 0 and 7 indicating the day of the week on which a job or step's run (start) date falls. 0 implies an invalid run date. 1 is Monday and 7 is Sunday.

D6

DAY OF WEEK: A character field which spells out the day of the week (Monday, Tuesday, etc.) is available for display at the detail level.

D7

GROUP CODE #4: Blank unless specified on a GROUPC statement (grouping feature).

D8

GROUP CODE #5: Blank unless specified on a GROUPC statement (grouping feature).

D9

GROUP CODE #6: Blank unless specified on a GROUPC statement (grouping feature).

E0

FORMS COUNT: The number of SYSOUT table entries appended to a job level account or history record. Generally, this is the number of different forms used by a job, but may be higher if, for instance, two print datasets specifying the same Forms-ID were routed to different destinations.

E1

SYSOUT CLASS: Available for display only when forms records are sorted on.

E2

SYSOUT TYPE CODE: Available for display only when printing or sorting forms data. A one-byte code: 1 = standard print, 2 = special print, 3 = punch output. The allocation of the code is based on the STDFORM/STDPRINT/STDPUNCH statements.

E3

SYSOUT INTERVENTION CODE: Under MVS, a one-byte code available for display when Forms Records are selected for printing which indicates what form of operator intervention may have occurred during the printing or punching of a SYSOUT data set. The code is interpreted as follows:

```
space   no intervention of any type
   1    continuation of an interrupted data set
   2    printing or punching was restarted
   4    printing or punching was interrupted
   8    printing or punching was terminated
```

Note that under certain circumstances these codes may logically be added; for example, a code of A would indicate that a restarted data set had been terminated.

E4

OUTPUT DEVICE NAME/APPC PARTNER LU NAME: Logical output device name available only when printing or sorting forms data; or the APPC Partner Logical Unit name for APPC-type RJE records.

E5 *

LINES PRINTED (STANDARD): Number of logical records written by the writer by form number and class (includes JOBLOG and copies).

E6 *

LINES PRINTED (SPECIAL): Number of special lines printed, denoted by a SYSOUT class other than A or B and a forms ID other than l.

E7 *

PAGES PRINTED (STANDARD): Number of pages printed for SYSOUT = A, forms ID =STD or blank.

E8 *

PAGES PRINTED (SPECIAL): Number of pages printed for SYSOUT other than A or B and forms ID other than STD or blank.

Note: *For Data Elements E5 through E8, the differentiation between STANDARD and SPECIAL can be altered by using the STDFORM/STDPRNT/STPPUNCH statements.

E9

PAGES PRINTED (TOTAL): Total of standard and special pages printed.

F0

NUMBER OF TAPE MOUNTS: Number of tape mounts from type 30 SMF records when available. Otherwise, this data element contains the same value as Number of Tapes.

F1

JOB NUMBER: The JES assigned job number. At the summary line, this element displays as the total number of jobs, which does not include zero step job records. This field should be used instead of the DE ID 14, if displaying of six digit job numbers is required.

F2

2ND ACCOUNTING FIELD: Bytes 17-32 of the accounting information from the job. Bytes 1-16 of the CA DISPATCH accounting information.

F3

3RD ACCOUNTING FIELD: Bytes 33-48 of the accounting information from the job. Bytes 17-31 of the CA DISPATCH accounting information. Byte 16, "*" indicates CA DISPATCH zero step job, and "$" indicates an orphan type 6 zero step job.

F4

USER FIELDS/APPC USER DATE FIELD: Three fields in the basic accounting record which are available for sorting and display that have been reserved for the use of user exit routines. The User Character field contains user data for APPC-type RJE records.

F5

USER FIELDS: See F4.

F6

USER FIELDS: See F4.

F7

CONTROL BREAK COUNT: Output Data Element available for display at all summary levels. At the lowest summary level, it is the count of the number of account records from which data was accumulated. At each higher summary level, it is the count of the number of control breaks at the next lower level. The count, at each summary level, is reset to zero following a control break at that or any higher summary level.

F8

ABSORPTION RATE: Service Units divided by seconds of Resident Time (that is, the average rate at which service units are accumulated while a task is resident). This data element is of value primarily when attempting to compare levels of service between different performance groups, or between several executions of the same job or program at different times of the day or week.

F9

SMF AUDIT FLAG: Indicates which SMF records were used to create this print line.

G0

I/O COUNT BY DEVICE: I/O count based on device specification on DEVADDR/DEVNMBR statement.

G1

RJE CONNECT TIME/APPC SRB TIME: The amount of time elapsed between the successful logon of an RJE session (identified by a type 47 or 52 SMF record) and the first subsequent logoff (identified by a type 48 or 53 SMF record) for the same line; for SNA and BSC types. For APPC bytes it is the SRB Time used.

G2

RJE TRANSMISSION COUNT/APPC BYTES SENT: EXCP count from SMF 48 or SMF 53 record. For APPC, the number of bytes sent.

G3

RJE TIMEOUT COUNT/JES2 SNA LUSTAT/APPC EXCP COUNT: Number of timeouts from SMF 48 record. For JES2 SNA, the number of LUSTATS. For APPC, the number of EXCPs.

G4

RJE NAK COUNT/APPC BYTES RECEIVED: Number of negative acknowledgements from SMF 48 or 53. For APPC, the number of bytes received.

G5

RJE LINE ERROR COUNT/SNA TEMP ERRORS/APPC DEVICE CONNECT: The number of RJE line errors from the SMF 48 record. For JES3, this also includes the sum of the following: command rejects, interventions required, out checks, equipment checks, data checks, data overruns and lost data errors. For JES2 SNA it is the number of temporary errors. For APPC, the Device Connect time in 1/1000ths of a second.

G6

RJE DATA CHECK COUNT/SNA EXCEPTION RESPONSES/APPC # CALLS: The number of line data checks taken from the SMF 48 record. For JES3 environments it contains zero. For JES2 SNA it is the number of exception responses. For APPC, it is the number of APPC calls.

G7

RJE ACTIVE TIME/APPC TCB TIME: An estimate of the amount of time an RJE line is in the process of transmitting data to or from a remote terminal. The estimate is based on the assumption that each time out is a period of approximately three seconds duration during which there was no data transmission activity, and that the count of time outs times three seconds subtracted from the session's connect or elapsed time results in active time. For APPC records, it is the TCB time used in 1/100th of a second.

G8

RJE INVALID LOGON COUNT/APPC # of CONVERSATIONS: A count of the number of attempts to logon a RJE line which failed because an invalid password was entered. This count is essentially the number of type 49 SMF records encountered between a logoff and the next subsequent logon of a remote line. For APPC, the number of conversations.

G9

RJE LINE PASSWORD/APPC TP NAME: Password from RJE signon. For APPC it is the TP Name.

H0

RJE LINE REMOTE NAME/APPC STEP NAME: Remote terminal name from RJE signon. For APPC it is the Step Name.

H1

RJE LINE NAME/APPC JOB NAME: Remote line name from RJE signon. For APPC it is the Job Name.

H2

RJE CHARGE/APPC CHARGE: For records sourced by the SMF 30 record (i.e., Batch Jobs, Started tasks), RJE charge contains a charge based on the RJERATE/SNARATE Statement if the input route code is set. It will contain a charge based on the APPCRATE statement if the JobID indicates the task as APPC. When associated with an RJE session record, it is a charge based on the RJERATE/SNARATE; when associated with an SMF 33 record, it contains a charge based on the APPCRATE statement.

H3

RJE SESSION COUNT: Number of RJE sessions.

H4

RJE CONNECTION TYPE: Value is either S - SNA or B - BSC

Chapter 5: Using the Sample Reports

This chapter explains the report control statements required to produce the Working Set Reports distributed with CA JARS. This chapter:

- Demonstrates the concepts, facilities, and features employed in producing the Working Set Reports.
- Illustrates the reports and the report control statements.
- Describes the use of the report control statements in each report.

The comprehensive Working Set Reports allow you to quickly and easily provide information for management and technical personnel responsible for data center functions. It is possible that your reporting needs will extend beyond the reports presented here. These additional requirements can be readily satisfied using the CA JARS reporting component.

Therefore, in addition to explaining how the working set is produced, this is a teaching aid which helps you learn how to produce custom reports using CA JARS. In fact, several reports in the working set will almost certainly have to be customized to be meaningful in most installations. These are reports which are keyed to the job name and accounting data in the job accounting records. Since job naming conventions and job accounting standards vary, use of that data for the SORT control statements, for example, must be tailored for each installation. The same is true of GROUP, GROUPC, DESCRIPT, CREDIT, DEBIT, and BUDGET control statements. Similarly, the RATE, TSORATE, FORMRATE, and RJERATE control statements must be tailored to meet the needs of each installation. By observing and understanding how working set report control statements function, you can modify them or construct new ones.

The control statements which define all of the Working Set Reports, CAJROPTN (WSETJARS), are on the distribution tape and used by the Installation Verification Procedure executed when the product was installed. All control statements with the same character in position 1 apply to the same report. This character is called the *set code* and is used to identify each report and its corresponding control statements.

```
//CAIJSCIN  DD DSN=CAI.CAJROPTN(WSETJARS)
//        DD *

      1   1       5
....5....0....5....    0....
 SELECT    1         #
           ▲
           └───────Set code of report control statement
              found in CAJROPTN(WSETJARS)
```

The sample report layouts included with each report description are meant only to illustrate the appearance of a report based on the formatting and line spacing specifications contained within the control statements. Each report layout is a representative sample of a page selected from a series of reports generated using the control statements in the working set. The majority of the samples were from an artificially created account file which simulates several months of activity with a relatively small amount of data. The remaining reports were created using SMF and/or account files containing data with characteristics appropriate for each report.

All the control statements for the Working Set Reports were installed with this product. Reports generated during the Installation Verification Procedure were from this working set. The following table provides a complete list of all reports included in the working set, the set code that identifies each report and its associated control statements, a brief description of each report, and if the report is covered in detail later in this chapter, 'Yes' is indicated in the * column.

Report Title	Set Code	Description	*
Performance Group Summary	,	A summary of CPU resources used by batch jobs and TSO sessions within performance group.	Yes
Performance Group Profile	)	Profiles job/session activity within each performance group.	
Service Units Distribution	-	Shows the distribution of resource consumption within each performance group.	
Performance Objective Summary	;	Associates performance objectives to each performance group and shows resource usage.	
Performance Group/Priority/Class Profile	<	Shows priority and job class attributes by performance group.	
Absorption Rate Distribution	'	Shows service level and absorption rate to aid in establishing performance objectives.	
Resource Requirements Analysis	?	Shows the relationship between the CPU and I/O requirements of the workload.	
Throughput by Hour	%	Shows jobs per hour, TSO sessions per hour and resource consumption per hour.	
Service Requirements by Jobname	(	Shows the distribution of resources used by the installation.	
Data Processing Invoice	0	Provides a complete, itemized statement for each cost center (user, department, etc.)	Yes
Weekday Workload Profile	Q	A summary of utilization which can aid in redistributing workload to improve throughput.	
Remote Usage Summary	$	A summary of machine usage by remote location.	Yes

Report Title	Set Code	Description	*
I/O Index Distribution	>	A summary of overall I/O activity.	
CPU Time Distribution	S	Provides CPU utilization by the entire workload.	
Active Time Distribution	T	A profile of the entire workload by active time, useful in determining the effects of configuration changes on system throughput.	
Weekday Workload Profile by Hour	B	A detailed profile of daily workload to aid in scheduling work.	
Remote Input Log	|	Identifies which jobs ran and when.	
Job Resource Utilization	D	Quantifies the resource requirements of each job and provides an audit trail for scheduling.	Yes
Tape Allocations by Job Name	E	Provides tape drive utilization for job.	
Abnormal Terminations by Cancel Code	F	Identifies the type of ABENDs that terminated steps.	Yes
Class/Priority Turnaround Analysis	N	Shows turnaround statistics by priority and job class.	
Job Turnaround Analysis	O	A detailed look at each job from the time it entered the system until the last output data set was purged.	
Computer Utilization Log	P	A chronological listing of all jobs to aid in pinpointing bottlenecks.	
Peak Tape Drive Utilization Periods	U	Analyzes, by hour and shift, tape drive utilization and allocation.	
Tape EXCP Summary by by Day	V	Depicts usage of tape subsystem by the entire workload.	
Data Processing Invoice	0	Provides sample invoices.	*
Invoice Ledger	1	Provides a concise report on the distribution of operating costs to cost centers.	Yes
Monthly Utilization Summary by Cost Center	2	Tracks key cost and utilization measures by cost center.	
Data Center Cost Recovery	3	Compares charges computed by the billing algorithm to operating costs. Allows management to tune the billing algorithm for cost recovery.	
Job Charge Summary	4	Shows cost and individual job executions by job name for each user; provides supporting details for user billing.	
Detail Charge Audit	5	Details resource utilization by job.	Yes

Report Title	Set Code	Description	*
Cost Recovery by Job Class	6	A summary by job class of job charges and utilization.	
Abnormal End Cost Analysis	7	Summarizes computer activity which results in abnormal terminations.	
TSO User Charge Summary	8	A detailed report of TSO charges by user.	
TSO Session Analysis	*	A detailed report of every TSO session by user.	Yes
Hourly Turnaround Analysis	C	Highlights peak loads by showing the relative amount of work processed by hour.	Yes
CPU Page Rate Distribution	A	An analysis of paging activity based on program performance.	
Peak Paging Periods	M	An overview of system paging activity.	
Resource Consumption Summary by Day	K	A comprehensive summary combining utilization measures for major resources.	Yes
Class Structure Analysis	L	An analysis of resource utilization by Job Class.	Yes
Requeued Jobs Log	R	A listing of all jobs that were restarted.	
Disk EXCP Summary by Day	W	Depicts usage of the disk family.	
Utilization Summary by Job	G	Shows jobs with highest accumulated activity (percent CPU) for analyzing efficiency.	
Utilization Summary by Program	H	A summary of resources used by each program.	
Program Paging Profile	I	Isolates programs that cause high system paging rates.	
Abnormal Terminations by Program Name	J	Identifies programs which terminate abnormally and the frequency and cause of termination.	
Abnormal End Profile (Programmer Name)	.	Abnormal terminations by specific user.	
Calendar of Computer Utilization	X	Provides overall system utilization and performance each month.	
Workload Trend Analysis	Y	Shows monthly and year-to-date utilization and performance figures.	
Application Trend Analysis	Z	Helps identify workload increases, new applications, by user and/or cost center.	
Printer Device Utilization by Day	:	Standard and special lines printed by device.	Yes
Special Forms Utilization by Month	#	Forms utilization and charges.	Yes

Report Title	Set Code	Description	*
RJE Impact Summary by User Department and Remote Line	+	Shows resource consumption by remote line number/user.	
RJE Session Analysis	@	Shows usage statistics for each line.	

Performance Group Summary

This report provides a summary of the CPU resources used by the batch jobs and TSO sessions within each performance group. The system can be analyzed in terms of service levels provided to each performance group.

```
                                MVS  P E R F O R M A N C E   G R O U P   S U M M A R Y
BEGIN DATE - 02/02/98                                                                                 RUN DATE - 02/13/98
END DATE   - 02/10/98                                                                                            PAGE    1

 PERFORM   NBR    NBR    SERVICE  SERV     SWAP      TCB       SRB       CPU     ACTIVE    RESIDENT  CPU  T-AROUND PERCENT
   GROUP  JOBS  SESSNS     UNITS  RATE    COUNT     TIME      TIME      TIME       TIME        TIME  IDX  TIME-AVG     CPU


  0         14      0     83,007   178      114  00:01:21  00:00:01  00:01:22   00:07:46   00:07:31    2  15:31:49   1.289

  1        144      0  3,348,104   364       17  00:29:56  00:02:13  00:32:09   02:33:29   02:33:14    7  00:06:31  30.291

  2          0     51  1,343,566   149    4,612  00:14:10  00:01:42  00:15:53   02:29:52   02:26:20   11  00:00:00  14.968

  3         93      0    246,031    42      409  00:01:53  00:00:17  00:02:09   01:38:27   01:17:02   13  03:18:56   2.032

  4          5      0     58,039   572        0  00:00:37  00:00:01  00:00:39   00:01:41   00:01:41    4  00:01:27    .610

  5         34      0     65,022   223        3  00:00:39  00:00:04  00:00:43   00:04:52   00:04:14   10  00:01:01    .671

  6         28      0  1,822,924    35   14,349  00:21:03  00:01:45  00:22:48   14:31:18   14:29:37    8  35:58:49  21.493

  9          3      0  2,640,962    13        3  00:17:02  00:03:03  00:20:05   55:27:42   55:27:42   15  18:29:18  18.931

 12          9      0     12,590   391        0  00:00:05  00:00:01  00:00:06   00:00:32   00:00:32   11  00:00:06    .091

 16          2      0      2,216   340        0  00:00:01  00:00:00  00:00:01   00:00:07   00:00:07   17  00:04:26    .020

 29          4      0  1,049,722     4        4  00:07:06  00:02:11  00:09:17   78:51:14   78:51:14   24  19:42:55   8.749

 30          7      0     65,064    18      297  00:00:39  00:00:16  00:00:54   01:01:26   00:39:05   29  12:26:43    .856

           343     51 10,737,247    19   19,808  01:34:31  00:11:36  01:46:07  156:48:24  155:58:19   11  05:09:50 100.001
```

Performance Group Summary: Report

```
     1   1   2   2   3   3   4   4   5   5   6   6   7   7
0....5....0....5....0....5....0....5....0....5....0....5....0....5
|,HEADER 035M V S  P E R F O R M A N C E  G R O U P  S U M M A R Y
1|,SORT    42603A3
2|,DISPLAY   0010142B42D11D20A10C80C50661A81C22D0264242
3|,RATE     1000        100
4|,TSORATE  1000          100
5|,TITLE  B4  NBR            SESSNS
|,TITLE  01 PERFORM            GROUP
|,TITLE  14  NBR             JOBS
|,TITLE  42PERCENT              CPU
```

Notes:

1. SORT:
   FIRST SORT LEVEL - PERFORMANCE GROUP
   Print summary
2. DISPLAY:
   Fields Printed: CONTROL, JOB NUMBER, TSU NUMBER, SERVICE UNITS, SERVICE RATE, SWAP COUNT, TCB TIME, SRB TIME, CPU TIME, ACTIVE TIME, RESIDENT TIME, CPU INDEX, TURNAROUND TIME, PERCENT OF TOTAL CHARGE
3. RATE:
   $1000 per CPU Hour (So that PERCENT OF TOTAL CHARGE represents PERCENT OF CPU TIME)
4. TSORATE: $1000 per CPU Hour (See Rate statement)
5. TITLE: Rename TSU NUMBER to NBR (Top) SESSNS (Bottom) Rename CONTROL to PERFORM (Top) GROUP (Bottom) Rename JOB NUMBER to NBR (Top) JOBS (Bottom) Rename PERCENT OF TOTAL CHARGE to PERCENT (Top) CPU (Bottom)

Data Processing Invoice

The bill to the users for their use of the total data processing resources. It details for the user the type of cost and gives the total charge.

```
         D A T A   P R O C E S S I N G   I N V O I C E

BEGIN DATE - 02/02/98                      RUN DATE - 02/13/98
END DATE   - 02/10/98                                 PAGE   1

COST CENTER                                            TOTAL
  RESOURCE                    DEBIT        CREDIT      CHARGE

ACCOUNTING DEPT.

  RERUNS                       $.00        $48.24      $48.24-
  PROGRAMMING TIME          $431.00          $.00     $431.00
  DATA ENTRY                $116.00          $.00     $116.00
  DATA CONTROL               $57.00          $.00      $57.00
  OFF-LINE CHARGES          $120.00          $.00     $120.00
  SUPPLIES                   $36.50          $.00      $36.50
  TELCOM COSTS              $120.00          $.00     $120.00
  SYSTEMS SUPPORT            $18.00          $.00      $18.00
  PRODUCTION                   $.00          $.00     $237.43

ACCOUNTING DEPT.            $898.50        $48.24   $1,087.69
          .
          .
          .
SALES AUDIT DEPT.

  PRODUCTION                   $.00          $.00      $81.20

SALES AUDIT DEPT.              $.00          $.00      $81.20

                            $898.50        $48.24   $2,642.99
```

Data Processing Invoice: Report 0

```
      1   1   2   2   3   3   4   4   5   5   6   6   7   7
0....5....0....5....0....5....0....5....0....5....0....5....0....5....0....5
 |0HEADER  010D A T A   P R O C E S S I N G   I N V O I C E
1|0SORT    01601AE100101A2
2|0DISPLAY   002280279246
3|0RATE     1000        100                    200       050050
4|0TSORATE  1000            100                            050050
5|0FORMRATE B       0200
 |0FORMRATE        0100
6|0TITLE   02COST CENTER        RESOURCE
7|0CREDIT  A                         A                    004824
8|0DEBIT   B                        A                    043100
 |0DEBIT   C                       A                    011600
 |0DEBIT   D                       A                    005700
 |0DEBIT   E                       A                    012000
 |0DEBIT   F                       A                    003650
 |0DEBIT   G                       A                    012000
 |0DEBIT   H                       A                    001800
9|0DESCRIPT1A     ACCOUNTING DEPT.
 |0DESCRIPT1B     SALES AUDIT DEPT.
 |0DESCRIPT2A      RERUNS
 |0DESCRIPT2B      PROGRAMMING TIME
```

Notes:

1. SORT:
   FIRST SORT LEVEL - 1st character of JOB NAME (Cost Center)
      Print summary
      Print heading
   SECOND SORT LEVEL - CPU ID (Resources)
      Print summary

2. DISPLAY:
   Fields Printed: DESCRIPTION, DEBIT AMOUNT, CREDIT AMOUNT, TOTAL CHARGE

3. RATE:
   $1000 per CPU Hour
   $2.00 per 1000 Cards Read
   $0.50 per Tape Drive Allocation
   $0.50 per Private Disk Drive Allocation

4. TSORATE:
   $1000 per CPU Hour
   $0.50 per Tape Drive Allocation
   $0.50 per Private Disk Drive Allocation

5. FORMRATE:
   FORMRATE CARD for Punch
   $2.00 per 2,000 cards punched
   FORMRATE CARD for Print
   $1.00 per 2,000 lines printed

6. TITLE:
   Rename DESCRIPTION to COST CENTER (Top) RESOURCE (Bottom)

7. CREDIT: (optional)
   Credits for each resource to each Cost Center
   For example:
   $48.24 for Cost Center A using CPUID A (IBM 145 Reruns)

8. DEBIT: (optional)
   Debits for each resource to each Cost Center
   For example:
   $43l.00 for Cost Center A using CPUID B (Programming Time)

9. DESCRIPT:
   Appropriate names for each Cost Center in FIRST SORT FIELD.
   Statements provided are for sample cost centers.
   For example:
   A is ACCOUNTING DEPT.
   Appropriate names for each resource identified by CPUID in SECOND SORT FIELD
   For example:
   A is IBM 158 RERUNS

Invoice Ledger

This report is a summarization by user of the charges for resource use. It is a record of the invoices sent and shows management utilization of the resources by user.

```
                              I N V O I C E   L E D G E R

BEGIN DATE - 02/02/98                                                    RUN DATE - 02/13/98
END DATE   - 02/10/98                                                             PAGE    1

                                               TOTAL                   OVER-UNDER   PERCNT
COST CENTER              DEBIT       CREDIT     CHARGE       BUDGET        BUDGET   BUDGET

ACCOUNTING DEPT.       $898.50         $.00  $1,135.93       $6,000     $4,864.07     18.9

SALES AUDIT DEPT.      $431.00         $.00    $512.20      $10,000     $9,487.80      5.1

                       $116.00      $123.69     $23.27      $16,000    $15,976.73       .1

INVENTORY CONTROL       $57.00      $610.70    $512.10-     $10,000    $10,512.10      5.1

                       $120.00         $.00    $120.00      $20,000    $19,880.00       .6

                        $36.50       $96.18     $59.68-      $8,000     $8,059.68       .7

                       $120.00         $.00    $120.00      $30,000    $29,880.00       .4

                        $18.00       $21.20      $3.20-     $17,000    $17,003.20       .0

                        $17.50       $11.45      $6.42      $30,000    $29,993.58       .0

ADMINISTRATION       $2,016.30         $.00  $2,375.94      $15,000    $12,624.06     15.8

                          $.00         $.00     $11.42           $0       $11.42-       .0

CUSTOMER SUPPORT          $.00         $.00     $35.54           $0       $35.54-       .0

ENGINEERING SUPPORT       $.00         $.00    $190.77           $0      $190.77-       .0

                          $.00         $.00      $3.08           $0        $3.08-       .0

                          $.00         $.00    $429.65           $0      $429.65-       .0

                          $.00         $.00      $6.57           $0        $6.57-       .0

PERSONNEL DEPT.           $.00         $.00     $75.59           $0       $75.59-       .0

PRODUCTION DEPT.          $.00         $.00    $196.13           $0      $196.13-       .0

LIBRARIAN                 $.00         $.00     $90.24           $0       $90.24-       .0

                          $.00         $.00       $.01           $0         $.01-       .0

                          $.00         $.00      $2.53           $0        $2.53-       .0


                     $3,830.80      $863.22  $4,760.31     $162,000   $157,239.69      2.9
```

Invoice Ledger: Report 1

```
          1    1    2    2    3    3    4    4    5    5    6    6    7    7
 0....5....0....5....0....5....0....5....0....5....0....5....0....5....0....5
  |1HEADER  037I N V O I C E   L E D G E R
1 |1SORT    01601A2
2 |1DISPLAY   00228027924628138238 3
3 |1RATE     1000        100                   200        050050
4 |1TSORATE  1000            100                             050050
5 |1FORMRATE B        0200
  |1FORMRATE        0100
6 |1TITLE   02                  COST CENTER
7 |1DESCRIPT1A      ACCOUNTING DEPT.
 |1DESCRIPT1B      SALES AUDIT DEPT.
8 |1CREDIT                         C                     012369
  |1CREDIT                        D                     061070
9 |1DEBIT                        A                     089850
  |1DEBIT                       B                     043100
10|1BUDGET                           A                     006000
  |1BUDGET                        B                     010000
```

Notes:

1. SORT:
   FIRST SORT LEVEL - 1st character of JOB NAME (Cost Center)
   Print summary
2. DISPLAY:
   Fields Printed: DESCRIPTION, DEBIT AMOUNT, CREDIT AMOUNT, TOTAL CHARGE, BUDGET AMOUNT, OVER-UNDER BUDGET AMOUNT, PER CENT BUDGET SPENT
3. RATE:
   $1000 per CPU Hour
   $2.00 per 1000 Cards Read
   $0.50 per Tape Drive Allocation
   $0.50 per Private Disk Drive Allocation
4. TSORATE:
   $1000 per CPU Hour
   $0.50 per Tape Drive Allocation
   $0.50 per Private Disk Drive Allocation
5. FORMRATE:
   FORMRATE CARD for Punch
   $2.00 per 2,000 cards punched
   FORMRATE CARD for Print
   $1.00 per 2,000 lines printed
6. TITLE:
   Rename DESCRIPTION to COST CENTER (Bottom)
7. DESCRIPT:
   Appropriate names for each Cost Center in FIRST SORT FIELD
   For example:
   A is ACCOUNTING DEPT.

8. CREDIT:
   Credits to each Cost Center
   For example:
   $123.69 to Cost Center C
9. DEBIT:
   Debits to each Cost Center
   For example:
   $898.50 to Cost Center A
10. BUDGET:
    Budget amount to each Cost Center
    For example:
    $6000.00 for Cost Center A

Note: DESCRIPT statements are included for sample cost centers. CREDIT, DEBIT, and BUDGET statements are included as examples.

Detail Charge Audit

This is a detail report of job and step execution charges with measures of resource utilization. Besides validating job charges, the report provides a starting point for a program improvement effort.

```
                                          D E T A I L   C H A R G E   A U D I T

BEGIN DATE - 02/02/98                                                                                       RUN DATE - 02/13/98
END DATE   - 02/10/98                                                                                           PAGE    1

JOB       RDR STRT  RDR STRT  PROGRAM   C  P       CPU      TAPE      DISK   #  #     LINES   CARDS    CARDS      TOTAL PERCENT
NAME          DATE      TIME  NAME      L  R      TIME I/O USAGE I/O USAGE  TP DU   PRINTED    READ  PUNCHED     CHARGE   TOTAL

ADPTINIT  98/02/07  09:08:00  CASAINTB  A 00  00:00:01         0        23  0  0         0       0        0       $.34    .019

ADPTINIT  98/02/08  18:29:44  CASAINTB  A 00  00:00:01         0        24  0  0         0       0        0       $.36    .020

ADPTSHUT  98/02/07  09:06:31  CASAINTB  A 00  00:00:00         0         3  0  0         0       0        0       $.08    .004

ANDYJOB   98/02/07  17:47:39            B 00  00:00:01         0        29  0  0         0       1        0       $.40    .022

ANDYJOB   98/02/07  17:47:39  IFOX00    B 00  00:00:01         0        28  0  0         0                0        $.29   .016

ANDYJOB   98/02/07  17:47:39  IEWL      B 00  00:00:00         0         1  0  0         0                0        $.11   .006

APXCTLOC  98/02/04  11:47:51  APXCTL    H 15  00:00:55         0       529  0  0         0        2       0      $15.39   .858

APXCTLOC  98/02/04  12:52:09  APXCTL    H 15  00:00:24         0       254  0  0         0        2       0       $6.62   .369

APXCTLOC  98/02/04  14:53:41  APXCTL    H 15  00:00:01         0        29  0  0         0        2       0        $.33   .018

APXCTLOC  98/02/04  16:46:23  APXCTL      00  00:00:04         0        51  0  0         0        0       0       $1.19   .066

APXCTLOC  98/02/04  17:38:49  APXCTL      00  00:00:02         0        51  0  0         0        0       0        $.59   .033
   .                                                                   248  0  0         0        0       0       $5.53   .308
   .                                                                    66  0  0         0        2       0       $1.12   .062
   .                                                                    73  0  0         0        2       0       $1.35   .075
APXCTLOC  98/02/06  11:10:06  APXCTL    H 15  00:00:08         0       133  0  0         0        2       0       $2.12   .118

APXCTL41  98/02/04  14:54:31  APXCTL    H 15  00:00:01         0        30  0  0         0        2       0        $.37   .021

APXCTL41  98/02/04  14:55:31  APXCTL      00  00:01:41         0       892  0  0         0        0       0      $28.13  1.569

APXCTL41  98/02/07  13:58:48  APXCTL    H 15  00:00:51         0     2,769  0  0         0        2       0      $14.14   .789
```

Detail Charge Audit: Report 5

```
     1   1   2   2   3   3   4   4   5   5   6   6   7   7
0....5....0....5....0....5....0....5....0....5....0....5....0....5
 |5HEADER  048D E T A I L   C H A R G E   A U D I T
1|5SORT    01601A  01608A                    11
2|5DISPLAY   0042602612052070150661371382951970190180200460 42
3|5FORMRATE B       0200
 |5FORMRATE         0100
4|5RATE     1000         100              200        050050
5|5TSORATE  1000          100                          050050
```

Notes:

1. SORT:
   FIRST SORT LEVEL - 1st Character of JOB NAME (Cost Center)
   SECOND SORT LEVEL - JOB NAME
   Print JOB and STEP Detail
2. DISPLAY:
   Fields Printed: JOB NAME, READER START DATE, READER START TIME, PROGRAM NAME, JOBCLASS, PRIORITY, CPU TIME, TAPE I/O USAGE, DISK I/O USAGE, # TAPES, # PRIVATE DISKS, LINES PRINTED, CARDS READ, CARD PUNCHED, TOTAL CHARGE, PERCENT OF TOTAL CHARGE
3. FORMRATE:
   FORMRATE CARD for Punch
   $2.00 per 2,000 cards punched
   FORMRATE CARD for Print
   $1.00 per 2,000 lines printed
4. RATE:
   $1000 Per CPU Hour
   $2.00 per 1000 Cards Read
   $0.50 per Tape Drive Allocation
   $0.50 per Private Disk Drive Allocation
5. TSORATE:
   $1000 per CPU Hour
   $0.50 per Tape Drive Allocation
   $0.50 per Private Disk Drive Allocation

TSO Session Analysis

This is a detail report of every TSO session by user. It provides information about when the session occurred and the resources used, and can be used to identify the heavy users.

```
                                         T S O   S E S S I O N   A N A L Y S I S

BEGIN DATE - 02/04/98                                                                                RUN DATE - 02/13/98
END DATE   - 02/08/98                                                                                           PAGE   1

            LOGON     LOGON   LOGOFF   TSU    CONNECT  CONNECT     ACTIVE   ACTIVE        CPU      CPU     TSO     TSO PERCENT
USERID       DATE      TIME     TIME   NBR       TIME TIME-AVG       TIME TIME-AVG       TIME TIME-AVG   TPUTS   TGETS   TOTAL

BILL     98/02/04  17:32:48 18:13:36        00:40:48  00:40:48   00:03:01  00:03:01   00:01:00  00:01:00     247      82   6.253
                                        1   00:40:48  00:40:48   00:03:01  00:03:01   00:01:00  00:01:00     247      82   6.253

BOBG     98/02/04  09:55:57 10:49:43  612   00:53:46  00:53:46   00:00:29  00:00:29   00:00:08  00:00:08      22       5    .869
BOBG     98/02/05  09:54:55 10:19:01 1351   00:24:06  00:24:06   00:00:43  00:00:43   00:00:07  00:00:07      55      36    .729
BOBG     98/02/05  10:19:50 15:35:56 1367   05:16:06  05:16:06   00:00:52  00:00:52   00:00:10  00:00:10     216     195   1.001
  .                                                                     37  00:01:37   00:00:24  00:00:24      88      73   2.494
  .                                                                     19  00:00:19   00:00:03  00:00:03      21       5    .336
  .                                                                     23  00:00:23   00:00:05  00:00:05      59      41    .495
BOBG     98/02/08  16:12:35 17:15:31  153   01:02:56  01:02:56   00:00:22  00:00:22   00:00:03  00:00:03      19       3    .363
                                       14   29:48:02  02:07:43   00:19:31  00:01:24   00:02:53  00:00:12   1,734   1,159  18.112

BRUCEN   98/02/05  09:28:39 09:29:22 1328   00:00:43  00:00:43   00:00:21  00:00:21   00:00:08  00:00:08      12       2    .816
BRUCEN   98/02/06  12:53:52 12:54:45 2027   00:00:53  00:00:53   00:00:30  00:00:30   00:00:11  00:00:11      14       2   1.133
                                        2   00:01:36  00:00:48   00:00:51  00:00:26   00:00:19  00:00:09      26       4   1.949

CHRISS   98/02/04  16:22:48 16:22:53  982   00:00:05  00:00:05   00:00:01  00:00:01   00:00:00  00:00:00       2       0    .011
                                        1   00:00:05  00:00:05   00:00:01  00:00:01   00:00:00  00:00:00       2       0    .011

CHUCKP   98/02/06  18:23:14 18:25:31 2305   00:02:17  00:02:17   00:00:29  00:00:29   00:00:10  00:00:10      39      16   1.054
                                        1   00:02:17  00:02:17   00:00:29  00:00:29   00:00:10  00:00:10      39      16   1.054

KARENI   98/02/04  11:45:37 14:16:46  777   02:31:09  02:31:09   01:10:00  01:10:00   00:00:13  00:00:13     102      88   1.368
KARENI   98/02/04  14:51:51 18:01:53  930   03:10:02  03:10:02   00:02:34  00:02:34   00:00:22  00:00:22     391     359   2.327
KARENI   98/02/05  15:35:06 15:36:07 1581   00:01:01  00:01:01   00:00:15  00:00:15   00:00:06  00:00:06      20      10    .620
                                        3   05:42:12  01:54:04   01:12:49  00:24:16   00:00:41  00:00:14     513     457   4.315

MOHAMED  98/02/07  09:03:33 14:00:07 2471   04:56:34  04:56:34   00:11:59  00:11:59   00:01:58  00:01:58     565     385  12.339
                                        1   04:56:34  04:56:34   00:11:59  00:11:59   00:01:58  00:01:58     565     385  12.339

NANCY    98/02/04  16:43:16 17:58:14  989   01:14:58  01:14:58   00:05:20  00:05:20   00:00:58  00:00:58     266     184   6.102
NANCY    98/02/04  17:58:20 18:03:40 1027   00:05:20  00:05:20   00:00:41  00:00:41   00:00:11  00:00:11      73      29   1.160
                                        2   01:20:18  00:40:09   00:06:01  00:03:00   00:01:09  00:00:35     339     213   7.262

RICHD    98/02/08  13:41:05 15:26:56   35   01:45:51  01:45:51   00:08:18  00:08:18   00:02:11  00:02:11   1,303     489  13.703
                                        1   01:45:51  01:45:51   00:08:18  00:08:18   00:02:11  00:02:11   1,303     489  13.703

STEVEA   98/02/08  12:31:38 12:32:05 2994   00:00:27  00:00:27   00:00:13  00:00:13   00:00:06  00:00:06      10       1    .593
                                        1   00:00:27  00:00:27   00:00:13  00:00:13   00:00:06  00:00:06      10       1    .593

SYSPROG  98/02/04  21:02:29 21:27:10 1059   00:24:41  00:24:41   00:00:28  00:00:28   00:00:09  00:00:09      44      27    .907
SYSPROG  98/02/08  21:47:30 23:27:13  321   01:39:43  01:39:43   00:00:48  00:00:48   00:00:10  00:00:10      62      33   1.016
                                        2   02:04:24  01:02:12   00:01:16  00:00:38   00:00:18  00:00:09     106      60   1.923

TDAVIS   98/02/05  13:26:59 13:39:55 1515   00:12:56  00:12:56   00:00:29  00:00:29   00:00:08  00:00:08      29       3    .873
```

TSO Session Analysis: Report *

```
       1   1   2   2   3   3   4   4   5   5   6   6   7   7
0....5....0....5....0....5....0....5....0....5....0....5....0....5
 |*HEADER  047T S O   S E S S I O N   A N A L Y S I S
1|*SORT    01608A1                         1
2|*DISPLAY   0041062121130B41B12B21A82A91662910A50A6142
3|*TSORATE  1000            100
4|*TITLE   04               USERID
 |*TITLE   06   LOGON           DATE
 |*TITLE   12   LOGON           TIME
 |*TITLE   13  LOGOFF           TIME
5|*GROUP   0281 S
6|*GROUPC  1T
```

Notes:

1. SORT:
   FIRST SORT LEVEL - JOB NAME
   Print summary
   Print JOB DETAIL
2. DISPLAY:
   Fields Printed: JOB NAME, RUN DATE, START TIME, STOP TIME, TSU NUMBER, CONNECT TIME, CONNECT TIME AVERAGED, ACTIVE TIME, ACTIVE TIME AVERAGED, CPU TIME, CPU TIME AVERAGED, TPUTS, TGETS, PERCENT OF TOTAL CHARGE.
3. TSORATE:
   $1000 per CPU Hour (So that PERCENT OF TOTAL CHARGE represents PERCENT OF CPU TIME)
4. TITLE:
   Rename JOB NAME to USERID (Bottom)
   Rename RUN DATE to LOGON (Top) DATE (Bottom)
   Rename START TIME to LOGON (Top) TIME (Bottom)
   Rename STOP TIME to LOGOFF (Top) TIME (Bottom)
5. GROUP: (Definition)
   Group Test 1 - PROCESSING ID with Selection
6. GROUPC: (Criteria)
   For Test 1 - Select T PROCESSING ID (TSO)

Hourly Turnaround Analysis

This report provides a snapshot of turnaround statistics which highlights peak loads by showing the relative amount of work processed by hour and shift. The components of turnaround are separated and can be evaluated.

```
                                    H O U R L Y   T U R N A R O U N D   A N A L Y S I S

BEGIN DATE - 02/02/98                                                                                          RUN DATE - 02/13/98
END DATE   - 02/10/98                                                                                                     PAGE   1

                       NBR   RDR QUE   ALLOCATE    ACTIVE   ELAPSED       CPU   WTR QUE  T-AROUND    SERV  PERCENT
TIME INTERVAL         JOBS  TIME-AVG  TIME-AVG  TIME-AVG  TIME-AVG  TIME-AVG  TIME-AVG  TIME-AVG    RATE     JOBS

FIRST SHIFT

  00 - 01 AM            35  00:00:00  00:00:01  00:00:05  00:00:17  00:00:01  00:00:02  00:00:19     154   10.220

  02 - 03 AM             3  00:00:01  00:00:00  00:00:02  00:00:13  00:00:00  00:00:01  00:00:15     224     .876

  03 - 04 AM             1  00:00:00  00:00:02  00:00:03  00:00:05  00:00:01  00:00:00  00:00:05     441     .292

  05 - 06 AM            13  00:41:50  00:00:02  00:02:56  00:03:00  00:00:41  00:00:00  00:44:50     395    3.796

  06 - 07 AM            21  00:00:11  00:00:02  00:02:12  00:02:17  00:00:30  00:00:01  00:02:29     389    6.132

  07 - 08 AM             1  00:00:34  00:00:06  00:00:29  00:00:36  00:00:09  00:00:00  00:01:11     485     .292

FIRST SHIFT             74  00:07:25  00:00:01  00:01:11  00:01:19  00:00:16  00:00:01  00:08:46     384   21.608

SECOND SHIFT

  08 - 09 AM             1  00:00:28  00:00:04  00:00:26  00:00:32  00:00:11  00:00:00  00:01:00     579     .292
     .                                                              00:00:03  00:00:00  00:08:57      37    1.752
     .                                                              00:00:28  33:56:13  34:11:37      97    2.920

  03 - 04 PM            29  00:00:16  00:00:18  00:02:28  00:07:17  00:00:10  00:00:12  00:07:45      98    8.468

SECOND SHIFT           142  00:00:21  00:00:07  00:09:18  00:21:08  00:00:15  05:30:09  05:51:22      42   41.464

THIRD SHIFT

  04 - 05 PM            21  00:00:08  00:00:03  00:00:10  00:00:24  00:00:01  00:00:00  00:00:33     246    6.132
     .                                                              00:00:04  08:20:00  08:21:20     207    7.008
     .                                                              00:02:33  00:00:46  40:47:42       9    2.336

  11 - 12 PM            18  00:00:01  00:00:01  01:40:47  06:54:02  00:00:16  08:59:43  15:53:46       5    5.256

THIRD SHIFT            127  00:01:24  00:00:01  01:01:48  04:19:29  00:00:16  02:57:57  07:18:49       9   37.084
```

Hourly Turnaround Analysis: Report C

```
        1   1   2   2   3   3   4   4   5   5   6   6   7   7
0....5....0....5....0....5....0....5....0....5....0....5....0....5
 |CHEADER  036H O U R L Y   T U R N A R O U N D   A N A L Y S I S
1|CSORT    29701A2103702A2
2|CDISPLAY   0020143623C03A93903913633643D2342
3|CRATE                                             1000
4|CTITLE   02               TIME INTERVAL
 |CTITLE   14  NBR              JOBS
 |CTITLE   42PERCENT                JOBS
5|CGROUP   0281 R0372
6|CGROUPC  1T
 |CGROUPC  200     07     1
 |CGROUPC  208     15     2
 |CGROUPC  216     23     3
 |CGROUPC  224     31     1
7|CDESCRIPT11      FIRST SHIFT
 |CDESCRIPT12      SECOND SHIFT
 |CDESCRIPT13      THIRD SHIFT
 |CDESCRIPT1      UNIDENTIFIED
 |CDESCRIPT200      00 - 01 AM
 |CDESCRIPT201      01 - 02 AM
```

Notes:

1. SORT:
   FIRST SORT LEVEL - GROUP CODE 2 (See GROUPC statements)
      Print summary
      Print header
   SECOND SORT LEVEL - Hour of START TIME
      Print summary
2. DISPLAY:
   Fields Printed: DESCRIPTION, JOB NUMBER, READER QUEUE TIME, ALLOCATE TIME AVERAGED, ACTIVE TIME AVERAGED, ELAPSED TIME AVERAGED, CPU TIME AVERAGED, WRITER QUEUE TIME, TURNAROUND TIME, SERVICE RATE, PER CENT OF TOTAL CHARGE

   (For Non-z/OS data, SERVICE RATE may be replaced with I/O INDEX.)
3. RATE:
   $10.00 Minimum Job Charge (So that PERCENT OF TOTAL CHARGE represent PERCENT OF JOB EXECUTIONS)
4. TITLE:
   Rename DESCRIPTION to TIME INTERVAL (Bottom)
   Rename JOB NUMBER to NBR (Top) JOBS (Bottom)
   Rename PERCENT OF TOTAL CHARGE to PERCENT (Top) JOBS (Bottom)
5. GROUP: (Definition)
   Group Test 1 - PROCESSING ID with Rejection
   Group Test 2 - Hour of START TIME

6. GROUPC: (Criteria)
   Group Test 1 - Reject T PROCESSING ID (TSO)
   For Test 2 assign Group Codes to 8 hour intervals
   For example:
   00 to 07 hours assigned a Group of Code 1

7. DESCRIPT:
   Appropriate names for shifts identified by Group Code 1 in FIRST SORT FIELD
   For example:
   1 is First Shift
   Appropriate names for Hour Intervals in SECOND SORT FIELD
   For example:
   00 is 00 - 01 AM

Resource Consumption Summary by Day

This report provides a comprehensive management summary that combines utilization measures for the major resources on a single report. The report is a recap of the resources consumed by the work going through the system each day.

```
                              R E S O U R C E   C O N S U M P T I O N   S U M M A R Y
                                                      B Y  D A Y

BEGIN DATE - 02/02/98                                                                                     RUN DATE - 02/13/98
END DATE   - 02/10/98                                                                                         PAGE    1

                         NBR    NBR       DISK        TAPE       OTHER       LINES     SERVICE        CPU   RESIDENT      ACTIVE
RUN DATE    WEEKDAY     JOBS SESSNS  I/O USAGE   I/O USAGE   I/O USAGE     PRINTED       UNITS       TIME       TIME        TIME

98/02/02    SATURDAY       8      0        924           0           0           0   2,537,277   00:20:23   82:39:29    82:40:29
98/02/03    SUNDAY         1      0      1,407           0           0           0      14,030   00:00:07   00:00:39    00:00:39
98/02/04    MONDAY        63     12     13,908           0          20           0   1,713,014   00:17:44   40:18:56    41:02:58
98/02/05    TUESDAY       51     13     14,975           0          48           0   1,471,905   00:16:12   02:40:16    02:41:09
98/02/06    WEDNESDAY     30     10     10,062           0         113           0     330,898   00:03:29   00:25:40    00:26:07
98/02/07    THURSDAY      51      7     19,849           0          38           0   2,333,437   00:26:29   12:37:24    12:39:45
98/02/08    FRIDAY       110      9     20,455           0          87           0   1,847,978   00:17:04   16:54:20    16:55:40
98/02/09    SATURDAY      24      0      6,278           0           0           0     485,253   00:04:38   00:21:10    00:21:11
98/02/10    SUNDAY         5      0         24           0           0           0       3,455   00:00:02   00:00:25    00:00:25
                         343     51     87,882           0         306           0  10,737,247   01:46:07  155:58:19   156:48:24
```

Resource Consumption Summary by Day: Report K

```
       1   1   2   2   3   3   4   4   5   5   6   6   7   7
 0....5....0....5....0....5....0....5....0....5....0....5....0....5
 |KHEADER  048RESOURCE CONSUMPTION SUMMARY BY DAY
1|KSORT    04306A1
2|KDISPLAY   0013990141B42382372392192D12662C22A8
3|KTITLE  B4   NBR            SESSNS
 |KTITLE  01               RUN DATE
 |KTITLE  14  NBR             JOBS
 |KTITLE  99               WEEKDAY
4|KEXITS               JSIRPGXB
```

Notes:

1. SORT:

   FIRST SORT LEVEL - RUN DATE

   Print summary

2. DISPLAY:
   Fields Printed: CONTROL, BLANK SPACES, JOB NUMBER, TSU NUMBER, DISK I/O USAGE, TAPE I/O USAGE, OTHER I/O USAGE, LINES PRINTED, SERVICE UNITS, CPU TIME, RESIDENT TIME, ACTIVE TIME

3. TITLE:

   Rename TSU NUMBER to NBR (Top) SESSNS (Bottom)

   Rename CONTROL to RUN DATE (Bottom)

   Rename JOB NUMBER to NBR (Top) JOBS (Bottom)

   Rename BLANK SPACES to WEEKDAY (Bottom)

4. EXITS:
   Call EXIT3 JSIRPGXB to match each RUN DATE to the appropriate Day of the Week and move that into the BLANK SPACES field.

Class Structure Analysis

An analysis of resource utilization by Job Class. When changes are made in class assignments, this report shows the effects and helps to maximize throughput and the use of computer resources.

```
                                 C L A S S   S T R U C T U R E   A N A L Y S I S

 BEGIN DATE - 02/02/98                                                                                RUN DATE - 02/13/98
 END DATE   - 02/10/98                                                                                         PAGE    1

                        NBR  ALLOCATE    ACTIVE       CPU   ELAPSED       CPU   SERV  T-AROUND      TAPE     LINES  CPU  PERCENT
 JOB CLASS             JOBS  TIME-AVG  TIME-AVG  TIME-AVG      TIME      TIME   RATE  TIME-AVG I/O USAGE   PRINTED  IDX     JOBS

0CLASS    JOBS           45  00:00:04  00:38:06  00:00:27 272:24:42  00:43:00     21  04:21:41         0         0   12   24.384
0CLASS A  JOBS          144  00:00:05  00:01:04  00:00:13  03:09:39  00:32:09    364  00:06:31         0         0    7   36.576
0CLASS B  JOBS            5  00:00:34  00:00:20  00:00:08  00:04:46  00:00:39    572  00:01:27         0         0    4    1.270
0CLASS H  JOBS          109  00:00:01  00:45:44  00:00:11 368:48:51  00:20:15      6  13:59:58         0         0   16   27.686
0CLASS K  JOBS            2  00:00:01  00:00:03  00:00:01  00:00:11  00:00:01    340  00:04:26         0         0   17     .508
0CLASS Q  JOBS           34  00:00:04  00:00:09  00:00:01  00:07:47  00:00:43    223  00:01:01         0         0   10    8.636
0CLASS 0  JOBS            4  00:00:03  02:31:28  00:02:20  32:27:12  00:09:20     21  08:07:18         0         0    7    1.016

                        343  00:00:04  00:23:53  00:00:16 677:03:09  01:46:07     19  05:09:50         0         0   11  100.076
```

Class Structure Analysis: Report L

```
       1   1   2   2   3   3   4   4   5   5   6   6   7   7
0....5....0....5....0....5....0....5....0....5....0....5....0....5
 |LHEADER  041C L A S S   S T R U C T U R E   A N A L Y S I S
1|LSORT    04902A2
2|LDISPLAY   0020142C02A92910650662D22640370192D0242
3|LRATE                                           1000
4|LTSORATE                                              1000
5|LTITLE   02              JOB CLASS
 |LTITLE   14   NBR            JOBS
 |LTITLE   42PERCENT             JOBS
6|LDESCRIPT1****0711CLASS X JOBS
```

Notes:

1. SORT:

   FIRST SORT LEVEL - JOB CLASS

   Print summary

2. DISPLAY:
   Fields Printed: DESCRIPTION, JOB NUMBER, ALLOCATE TIME AVERAGED, ACTIVE TIME AVERAGED, CPU TIME, CPU TIME AVERAGED, ELAPSED TIME, CPU TIME, SERVICE RATE, TURNAROUND TIME, TAPE I/O USAGE, DISK I/O USAGE, LINES PRINTED, CPU INDEX, PERCENT OF TOTAL CHARGE

3. RATE:
   $10.00 Minimum Job Charge (So that PERCENT OF TOTAL CHARGE represents PERCENT OF JOB EXECUTIONS)

4. TSORATE:
   $10.00 Minimum Session Charge (See RATE statement)

5. TITLE:

   Rename DESCRIPTION to JOB CLASS (Bottom)

   Rename JOB NUMBER to NBR (Top) JOBS (Bottom)

   Rename PERCENT OF TOTAL CHARGE to PERCENT (Top) JOBS (Bottom)

6. DESCRIPT
   Variable Description feature used to print appropriate headings for JOB CLASS in FIRST SORT FIELD

Note: Non-z/OS users may wish to replace SERVICE RATE and CPU INDEX with CORE ALLOCATED, CORE USED, and I/O INDEX.

Remote Usage Summary

This report provides a summary of machine usage by remote location. Management can evaluate the relative use of the system by each location and possibly distribute the use differently.

R E M O T E   U S A G E   S U M M A R Y

BEGIN DATE - 02/01/98 RUN DATE - 02/10/98
END DATE - 02/04/98 PAGE 1

REMOTE LOCATION	NBR JOBS	NBR SESSNS	CARDS READ	RDR QUE TIME-AVG	LINES PRINTED	WTR QUE TIME-AVG	T-AROUND TIME-AVG	ELAPSED TIME-AVG	CPU TIME	CPU TIME-AVG	PERCENT EXECS
1	240	0	59,912	02.02.37	830,821	00.06.36	02.11.29	00.02.16	00.17.22	00.00.04	22.560
2	53	0	19,338	00.23.17	184,184	00.03.14	00.29.26	00.09.31	00.57.11	00.01.05	4.982
3	147	0	12,585	00.08.59	0	00.00.10	00.10.13	00.03.56	01.26.56	00.00.35	13.818
4	223	0	22,431	00.15.40	0	00.01.15	00.26.38	00.15.01	04.31.58	00.01.13	20.962
5	205	0	18,335	00.44.48	0	00.00.46	05.10.32	87.22.31	01.22.16	00.00.24	19.270
6	71	0	1,992	00.50.02	11,054	00.00.04	13.32.02	105:10	01.00.41	00.00.51	6.674
13	29	0	6,122	00.03.24	0	00.00.39	00.07.08	00.05.02	00.18.58	00.00.39	2.726
16	4	0	2,815	00.10.01	164	00.30.09	00.42.20	00.05.32	00.01.42	00.00.26	.376
18	4	0	215	00.00.00	0	00.00.00	00.00.00	00.00.02	00.00.01	00.00.00	.376
20	86	0	6,371	00.01.06	0	00.00.10	00.01.17	00.00.50	00.02.40	00.00.02	8.084
21	1	0	112	00.00.00	0	00.00.00	00.00.00	00.00.02	00.00.00	00.00.00	.094
35	5	0	877	00.12.38	0	00.00.15	00.17.44	00.08.08	00.03.13	00.00.39	.470
	1,068	0	151,105	00.45.25	1,026,223	00.02.13	02.32.06	23.50.41	10.02.58	00.00.34	100.392

Remote Usage Summary: Report $

```
     1    1    2    2    3    3    4    4    5    5    6    6    7    7
0....5....0....5....0....5....0....5....0....5....0....5....0....5....0....5
 |$HEADER  036R E M O T E   U S A G E   S U M M A R Y
1|$SORT    42903A1
2|$DISPLAY  0011142B4218362119363364390166191242
3|$RATE                                   1000
4|$TSORATE                                      1000
5|$GROUP   4293 R
6|$GROUPC  1  0           REJECT LOCAL JOBS
7|$TITLE   B4   NBR        SESSNS
 |$TITLE   01REMOTE          LOCATION
 |$TITLE   14  NBR         JOBS
 |$TITLE   42PERCENT          EXECS
```

Notes:

1. SORT:

   FIRST SORT LEVEL - INPUT ROUTE CODE

   Print summary

2. DISPLAY:
   Fields Printed: CONTROL, JOB NUMBER, TSU NUMBER, CARDS READ, READER QUEUE TIME, LINES PRINTED, WRITER QUEUE TIME, TURNAROUND TIME, ELAPSED TIME AVERAGED, CPU TIME, CPU TIME AVERAGED, PERCENT OF TOTAL CHARGE

3. RATE:
   $10.00 Minimum Job Charge (So that PERCENT OF TOTAL CHARGE represents PERCENT OF JOB EXECUTIONS)

4. TSORATE: $10.00 Minimum Session Charge (See RATE statement)

5. GROUP:
   Group test 1 - INPUT ROUTE CODE with rejection

6. GROUPC
   For test 1, reject jobs with no (zero) INPUT ROUTE CODE.

7. TITLE:

   Rename TSU NUMBER to NBR (Top) SESSNS (Bottom)

   Rename CONTROL to REMOTE (Top) LOCATION (Bottom)

   Rename JOB NUMBER to NBR (Top) JOBS (Bottom)

   Rename PERCENT OF TOTAL CHARGE to PERCENT (Top)EXECS (Bottom)

Job Resource Utilization

A detail report by job that shows when it executed, for how long, and some of the resources the job used. Different executions of the same job can be examined for variations.

```
                                   J O B   R E S O U R C E   U T I L I Z A T I O N

BEGIN DATE - 02/02/98                                                                                   RUN DATE - 02/13/98
END DATE   - 02/10/98                                                                                        PAGE    1

JOB       PER C              START  ALLOCATE    ACTIVE       CPU CPU    SERVICE    SERV CORE     LINES   #     DISK  #     TAPE
NAME      GRP L  RUN DATE     TIME      TIME      TIME      TIME IDX      UNITS    RATE USED   PRINTED  DK I/O USAGE TP I/O USAGE

JES2        9    98/02/02 21:28:18  00:00:03  40:55:33  00:14:11  15  1,903,377      13 3284         0   3       297  0         0
INIT        0 H  98/02/02 21:30:04  00:00:00  00:00:07  00:00:00   0         43       6    4         0   0         0  0         0
NET        29 H  98/02/02 21:30:14  00:00:02  40:46:32  00:04:44  24    543,015       4 1140         0   2       376  0         0
RMF         0    98/02/02 21:30:23  00:00:00  00:01:24  00:01:00   0     59,620     712 1132         0   1        48  0         0
OMS         3    98/02/02 21:30:25  00:00:04  00:35:04  00:00:04  17      5,621       3  216         0   3        52  0         0
JRDR        3 H  98/02/02 21:30:31  00:00:02  00:00:03  00:00:00  10        476     181   36         0   1         3  0         0
TSO         0 H  98/02/02 21:30:51  00:00:01  00:01:18  00:00:01  27      1,126      15   56         0   1        11  0         0
NCCF       30 H  98/02/02 21:31:00  00:00:01  00:20:31  00:00:22  34     23,999      20  368         0   1       137  0         0

                                    00:00:13  82:40:29  00:20:23  17  2,537,277       9 3284         0             924            0

SMFDMP      3 H  98/02/03 23:59:06  00:00:01  00:00:39  00:00:07  14     14,030     363  152         0   1     1,407  0         0

                                    00:00:01  00:00:39  00:00:07  14     14,030     363  152         0           1,407            0

JRDR        3 H  98/02/04 00:00:05  00:00:01  00:00:03  00:00:00   8        635     232   36         0   2         4  0         0
JRDR        3 H  98/02/04 00:00:06  00:00:01  00:00:02  00:00:00   8        631     278   36         0   2         4  0         0
DATE        3    98/02/04 00:00:12  00:00:00  00:00:01  00:00:00   0        173     320    8         0   0         0  0         0
SLOG        3 H  98/02/04 00:00:16  00:00:01  00:00:11  00:00:01   9      1,233     110  112         0   1        10  0         0
JRDR        3 H  98/02/04 00:00:18  00:00:01  00:00:02  00:00:01   7        622     384   36         0   2         4  0         0
PLANNER     1 A  98/02/04 05:20:48  00:00:03  00:03:08  00:00:45   6     75,784     402  516         0   2        27  0         0
PLANNER     1 A  98/02/04 05:24:02  00:00:02  00:03:09  00:00:46   6     75,783     401  516         0   2        27  0         0
PLANNER     1 A  98/02/04 05:27:16  00:00:02  00:03:13  00:00:45   6     75,617     392  516         0   2        28  0         0
TSOGLV      2    98/02/04 09:39:00  00:00:04  00:01:19  00:00:26   8     37,731     476  196         0   3       222  0         0
BOBG        2    98/02/04 09:55:57  00:00:03  00:00:29  00:00:08   5     10,365     361  100         0   3        14  0         0
IKJEFT01    5 Q  98/02/04 11:25:57  00:00:00  00:00:14  00:00:01   4      1,018      72   44         0   0         0  0         0
TSODST      2    98/02/04 11:37:55  00:00:03  00:00:34  00:00:11   7     13,318     395  132         0   4       228  0         0
   .                                                                     15,584       4  140         0   4       113  0         0
   .                                                                     34,482     284  556         0   6       243  0         0
   .                                                                     76,074      74  328         0   2       529  0         0
JRDR        3 H  98/02/04 14:07:58  00:00:01  00:00:02  00:00:00   8        615     371   36         0   2         4  0         0
DSB        12    98/02/04 14:29:03  00:00:02  00:00:04  00:00:01  11      1,421     376  112         0   2       111  0         0
JES2        9    98/02/04 14:29:05  00:00:04  06:35:03  00:02:45  15    309,905      13 3284         0   3       202  0         0
YIPLINIT    3 H  98/02/04 14:29:40  00:00:01  00:00:10  00:00:02   7      2,202     226   92         0   3        30  0         0
JRDR        3 H  98/02/04 14:29:58  00:00:01  00:00:11  00:00:00   8        572      51   36         0   2         4  0         0
JRDR        3 H  98/02/04 14:29:59  00:00:01  00:00:04  00:00:00   9        589     147   36         0   2         4  0         0
JRDR        3 H  98/02/04 14:30:04  00:00:00  00:00:04  00:00:00   0         77      21    8         0   0         0  0         0
JRDR        3 H  98/02/04 14:30:06  00:00:01  00:00:10  00:00:00   8        588      61   36         0   2         4  0         0
NCCF       30 H  98/02/04 14:30:40  00:00:00  00:00:01  00:00:00   0        221     227    8         0   0         0  0         0
KARENI      2    98/02/04 14:51:51  00:00:03  00:02:34  00:00:22  19     23,476     152  144         0   5       162  0         0
APXCTLOC    6 H  98/02/04 14:53:44  00:00:04  00:00:14  00:00:01   6      1,685     119  176         0   2        29  0         0
APXCTL41    6 H  98/02/04 14:54:33  00:00:05  00:00:11  00:00:01   8      1,840     173  176         0   2        30  0         0
APXCTL41    6    98/02/04 14:55:35  00:00:05  00:35:07  00:01:41   8    128,873      61  288         0   2       892  0         0
COBOL2      1 A  98/02/04 15:16:25  00:00:10  00:00:12  00:00:03  16      4,569     373 1024         0   4       130  0         0
TSODST      2    98/02/04 15:16:59  00:00:05  00:00:59  00:00:11   9     14,961     255  140         0   5       231  0         0
JTZAP       1 A  98/02/04 15:22:53  00:00:01  00:00:08  00:00:01  17      1,584     190   36         0   1       119  0         0
```

Job Resource Utilization: Report D

```
         1    1    2    2    3    3    4    4    5    5    6    6    7    7
0....5....0....5....0....5....0....5....0....5....0....5....0....5....0....5
|DHEADER  043J O B   R E S O U R C E   U T I L I Z A T I O N
1|DSORT    04306A2 03706A                 1
2|DDISPLAY  0041D41072062120B90A80661D01D12D2121019296038295037
```

Notes:

1. SORT:

   FIRST SORT LEVEL - RUN DATE

   Print summary

   SECOND SORT LEVEL - START TIME

   Print JOB DETAIL

2. DISPLAY:
   Fields Printed: JOB NAME, PERFORMANCE GROUP, JOB CLASS, RUN DATE, START TIME, ALLOCATE TIME, ACTIVE TIME, CPU TIME, CPU INDEX, SERVICE UNITS, SERVICE RATE, CORE USED, LINES PRINTED, #DISKS, DISK I/O USAGE, #TAPES, TAPE I/O USAGE TURNAROUND TIME

   For Non-z/OS data: replace CPU INDEX, SERVICE UNITS, and SERVICE RATE WITH CORE ALLOCATED, TOTAL I/O COUNT and SPECIAL LINES PRINTED.

Abnormal Terminations by Cancel Code

A detail report that identifies the terminated steps by type of ABEND. Management can determine why most ABENDS are occurring and if the number can be reduced by different procedures, replacement hardware, or other corrective measures.

```
                                   A B N O R M A L  T E R M I N A T I O N S
                                           B Y  C A N C E L  C O D E

BEGIN DATE - 02/02/98                                                                        RUN DATE - 02/13/98
END DATE   - 02/08/98                                                                                   PAGE   1

TYPE OF                    PROGRAM   JOB       STEP               START                       ELAPSED         CPU
ABNORMAL END            CC NAME      NAME       NBR   RUN DATE     TIME  USER INFO               TIME        TIME

MISCELLANEOUS
                      2048  HASJES20  JES2         1   98/02/04  14:29:05                      06:35:07    00:02:45

MISCELLANEOUS                                      1                                           06:35:07    00:02:45

PROGRAM INTERRUPTION

                      S0C1  APEX      BOBGA        1   98/02/07  14:51:48  CAIRSG              00:03:36    00:00:12
                      S0C1  APEX      BOBGA        1   98/02/07  15:11:56  CAIRSG              00:03:52    00:00:13
                      S0C1  CACNUTIL  CACNUTIL     1   98/02/08  13:49:58  CAI416              00:00:04    00:00:01
                      S0C1  CACNUTIL  CACNUTIL     1   98/02/08  13:53:44  CAI416              00:00:21    00:00:02
                      S0C1  PGM=*.DD  COBOL2       4   98/02/05  10:52:22  CAIMAD225           00:00:05    00:00:02
                      S0C1  PGM=*.DD  COBOL2       4   98/02/06  15:37:26  CAIMAD225           00:00:06    00:00:03
                      S0C4  IKJEFT01  CHRISS           98/02/04  16:22:48  C.SHAFER            00:00:05    00:00:00
                      S0C4  QUICKIE   QUICKTST     1   98/02/08  15:57:23  CAI426              00:00:02    00:00:00
                      S0C4  QUICKIE   QUICKTST     1   98/02/08  16:01:05  CAI426              00:00:04    00:00:00
                      S0C4  QUICKIE   QUICKTST     1   98/02/08  16:02:00  CAI426              00:00:06    00:00:02
                      S0C4  QUICKIE   QUICKTST     1   98/02/08  16:13:20  CAI426              00:00:05    00:00:02
                      S0C4  QUICKIE   QUICKTST     1   98/02/08  16:15:25  CAI426              00:00:06    00:00:02
                      S0C4  QUICKIE2  QUICK2       1   98/02/08  17:34:58  CAI426              00:00:04    00:00:01

PROGRAM INTERRUPTION                              12                                           00:08:36    00:00:40

CORE MANAGEMENT

                      S80A  QUICKIE   QUICKTST     1   98/02/08  16:53:14  CAI426              00:00:37    00:00:06
                      S80A  QUICKIE   QUICKTST     1   98/02/08  17:14:05  CAI426              00:00:37    00:00:06
                      S80A  QUICKIE   QUICKTST     1   98/02/08  17:32:58  CAI426              00:04:37    00:00:00

CORE MANAGEMENT                                    3                                           00:05:51    00:00:12

DATA SET MANAGEMENT

                      SE37  CPXUPTSM  RIZTST       1   98/02/05  11:21:40  CAI228              00:03:22    00:00:29

DATA SET MANAGEMENT                                1                                           00:03:22    00:00:29

OPERATOR/SYSTEM

                      S122  APXCTL    APXCTLOC     1   98/02/04  11:47:54                      00:26:22    00:00:55
                      S122  QUICKIE   QUICKTST     1   98/02/08  16:09:10  CAI426              00:00:23    00:00:00
```

Abnormal Terminations by Cancel Code: Report F

```
         1    1    2    2    3    3    4    4    5    5    6    6    7    7
 0....5....0....5....0....5....0....5....0....5....0....5....0....5....0....5
 |FHEADER  039ABNORMAL TERMINATIONS BY CANCEL CODE
1|FSORT    29701A2109304A  10708A              1
2|FDISPLAY  0021092052040563062122080653 66
3|FTITLE   02TYPE OF          ABNORMAL END
4|FGROUP   0972 S0934
5|FGROUPC  102
 |FGROUPC  2SA0A          E          CORE MANAGEMENT
 |FGROUPC  2SA03          D          I/O CONTROL BLOCK
 |FGROUPC  2SA04   SA05   E          CORE MANAGEMENT
 |FGROUPC  2S0CA   S0C9   C          PROGRAM INTERRUPTION
 |FGROUPC  2S813   S817   F          DATA SET MANAGEMENT
6|FDESCRIPT1C      PROGRAM INTERRUPTION
 |FDESCRIPT1D      I/O CONTROL BLOCK
 |FDESCRIPT1E      CORE MANAGEMENT
 |FDESCRIPT1F      DATA SET MANAGEMENT
```

Notes:

1. SORT:

   FIRST SORT LEVEL - GROUP CODE 2 (See GROUPC statements)

   Print summary

   Print heading

   SECOND SORT LEVEL - COMPLETION CODE

   THIRD SORT LEVEL - PROGRAM NAME

   Print STEP DETAIL

2. DISPLAY:
   Fields Printed: DESCRIPTION, COMPLETION CODE, PROGRAM NAME, JOB NAME, STEP NUMBER, RUN DATE, START TIME, USER INFORMATION, ELAPSED TIME, CPU TIME

3. TITLE: Rename DESCRIPTION to TYPE OF (Top) ABNORMAL END (Bottom)

4. GROUP: (Definition) Group Test 1 - TERMINATION INDICATOR with Selection Group Test 2 - COMPLETION CODE

5. GROUPC: (Criteria) For Test 1 select 02 TERMINATION INDICATOR For Test 2 assign Group Codes to similar ABEND COMPLETION CODES For example: COMPLETION CODES SOCA - SOC9 assigned a Group Code of C COMPLETION CODES S813 - S817 assigned a Group Code of F

6. DESCRIPT
   Appropriate names for groups of ABENDs identified by Group Code 2 in MAJOR SORT FIELD

   For example:

   C is Program Interruption

   F is Data Set Management

Printer Device Utilization by Day

This report summarizes the utilization of each printer for each day. This can be used to profile the work load and project configuration changes.

```
                 P R I N T E R   D E V I C E   U T I L I Z A T I O N

                                     B Y   D A Y

BEGIN DATE - 12/28/97                                        RUN DATE - 02/09/98
END DATE   - 01/04/98                                                   PAGE   1

            OUTPUT     STD LINES  SPCL LINES   STD PAGES  SPCL PAGES     WRITER
DATE        DEVICE       PRINTED     PRINTED     PRINTED     PRINTED   DURATION

            PRINTER1      14,874     701,237         326      55,327   21:39:05

            PRINTER2       7,098     653,140         251     163,493   20:08:48

            PRINTER3      61,375   1,023,471       2,014     118,703   26:12:32

            PRINTER4           0     548,624          24      18,377   10:34:34

850103                    83,347   2,926,472       2,615     355,900   78:34:58

            PRINTER1          65      16,169           4         345   00:17:54

            PRINTER4           0      71,390           0       2,396   01:52:49

850104                        65      87,559           4       2,741   02:10:43

            PRINTER4           0         966           0          37   00:01:25

850105                         0         966           0          37   00:01:25


                          83,412   3,014,997       2,619     358,678   80:47:07
```

Printer Device Utilization by Day: Report :

```
     1    1    2    2    3    3    4    4    5    5    6    6    7    7
0....5....0....5....0....5....0....5....0....5....0....5....0....5....0....5
 |:HEADER   P R I N T E R  D E V I C E  U T I L I Z A T I O N
 |:HEADER
 |:HEADER   B Y  D A Y
1|:SORT    04306A2 44608A2                 F
2|:DISPLAY  0022E52E62E72E8289
3|:TITLE  02        OUTPUT  DATE        DEVICE
4|:DESCRIPT1****0161
 |:DESCRIPT2****1381
```

Notes:

1. SORT:

   FIRST SORT LEVEL - RUN DATE

   Print summary

   SECOND SORT LEVEL - OUTPUT DEVICE NAME

   Print summary

   Sort FORMS records only

2. DISPLAY:
   Fields Printed: DESCRIPTION FIELD, STANDARD LINES PRINTED, SPECIAL LINES PRINTED, TOTAL LINES PRINTED, STANDARD PAGES PRINTED, SPECIAL PAGES PRINTED, TOTAL PAGES PRINTED, WRITER DURATION.

3. TITLE:
   Rename DESCRIPTION to OUTPUT (Top) DATE DEVICE (Bottom)

4. DESCRIPT:
   Variable description feature used to print RUN DATE in the FIRST SORT LEVEL, and to print OUTPUT DEVICE NAME in the SECOND SORT LEVEL.

Special Forms Utilization by Month

This report summarizes the utilization of special forms (print) for each month. It also indicates how much was charged for the use of each form. It can be used to predict the quantity of special forms which must be on hand and to determine whether the rates used are adequate to cover form costs.

```
              S P E C I A L   F O R M S   U T I L I Z A T I O N

                               B Y   M O N T H

BEGIN DATE - 12/28/97                                        RUN DATE - 02/09/98
END DATE   - 01/04/98                                                   PAGE   1


              FORMS   SPCL PAGES  SPCL LINES     WRITER        FORMS   PERCENT
MONTH            ID      PRINTED     PRINTED   DURATION       CHARGE     TOTAL


                          50,047   1,378,641   26:34:14    $2,051.34    45.523
               AZLA          123       5,833   00:06:15        $8.75      .194
               AZMA       12,416      59,804   01:11:40       $89.71     1.991
               CDFU        2,116       2,125   00:04:04        $3.19      .071
               CDRE        1,143       1,152   00:02:31        $1.73      .038
               CRCH        1,131       1,138   00:03:27        $1.71      .038
               CRRA        1,084       2,693   00:05:03        $4.04      .090
               MBBL          726       1,960   00:03:23        $2.94      .065
               QBBL      129,495     310,515   05:47:01      $465.79    10.337
               QBDO        8,181      32,525   00:27:58       $48.78     1.083
               QBIA        1,594       9,263   00:11:29       $13.89      .308
               QBLA        4,827      27,248   00:30:07       $40.88      .907
               QBMO       14,929     144,263   02:22:23      $216.40     4.803
               QBMR       46,090     205,276   03:40:45      $307.91     6.833
               QBND        4,301      10,873   00:15:31       $16.31      .362
               QBPS       22,322      32,027   08:35:28       $48.04     1.066
               QBRE       38,090      68,436   01:29:10      $102.66     2.278
               STRE        4,484       6,755   00:10:05       $10.14      .225
               STTE          273         434   00:03:24         $.65      .015
               WPLA            4         176   00:01:04         $.26      .006
               111A       13,972     703,695   26:57:56    $1,055.56    23.427
               111S        1,019       2,118   00:03:19        $3.18      .071
               2222          311       8,047   00:11:29       $12.08      .268


                         358,678   3,014,997   78:57:45    $4,505.94    99.999
```

Special Forms Utilization by Month: Report #

```
         1    1    2    2    3    3    4    4    5    5    6    6    7    7
0....5....0....5....0....5....0....5....0....5....0....5....0....5....0....5
 |#HEADER    S P E C I A L   F O R M S   U T I L I Z A T I O N
 |#HEADER
 |#HEADER    B Y   M O N T H
1|#SORT    04304AE115704A1                      F
2|#DISPLAY   0022E82E6289246242
3|#RATE
4|#FORMRATE         150
5|#TITLE   02          FORMS MONTH          ID
 |#TITLE   46      FORMS             CHARGE
6|#EDIT    E8 D
7|#GROUP   0281  4441  2962 S
8|#GROUPC  1S      T      A SET GROUP CODE FOR JOB/STEP RECORDS
 |#GROUPC  1U             B SET GROUP CODE FOR FORMS RECORDS
 |#GROUPC  22             B SET GROUP CODE FOR SPECIAL PRINT
 |#GROUPC  3A      AZ        SELECT JOB/STEP RECORDS
 |#GROUPC  3BB               SELECT SPECIAL PRINT FORMS RECORDS
9|#DESCRIPT19801   JANUARY  1998
 |#DESCRIPT19802   FEBRUARY  1998
 |#DESCRIPT19803   MARCH    1998
 |#DESCRIPT19804   APRIL    1998
 |#DESCRIPT19805   MAY      1998
 |#DESCRIPT19806   JUNE     1998
```

Notes:

1. SORT:

   FIRST SORT LEVEL - Year and Month portion of RUN DATE

   Print summary

   Print heading

   SECOND SORT LEVEL - Forms-ID

   Print summary

   Sort FORMS records only

2. DISPLAY:
   Fields Printed: DESCRIPTION, FORMS-ID, SPECIAL PAGES PRINTED, SPECIAL LINES PRINTED, WRITER DURATION, TOTAL CHARGE, PERCENT OF TOTAL CHARGE

3. RATE: A RATE statement is required to force use of FORMRATE statements.

4. FORMRATE: $1.50 per 1,000 lines printed

5. TITLE: Rename DESCRIPTION to FORMS (Top) MONTH ID (Bottom) Rename TOTAL CHARGE to FORMS (Top) CHARGE (Bottom)

6. EDIT CARD: Forces the display of the forms ID at the summary level.

7. GROUP (Definition) Group Test 1 - PROCESSING ID Group Test 2 - SYSOUT TYPE CODE Group Test 3 - GROUP CODES # 1 and #2 with selection

8. GROUPC: (Criteria) Test 1 - set group codes for job/step and forms records Test 2 - set group code for special print Test 3 - select job/step records and special print forms records
9. DESCRIPT: Headings for Month and Year in FIRST SORT LEVEL e.g., 9801 is January 1998

Variable Description feature used to display Forms-IDs in SECOND SORT LEVEL

See the "Introduction" chapter for a detailed discussion of SYSOUT information processing.

Chapter 6: EXTDATA Reporting

The previous chapters explained how to produce reports using IBM's SMF records and/or CA JARS Account/History records as input to the Report Writer. The Account/History records are by nature, of a fixed length. Therefore, when IBM expands the information contained on existing SMF record types and/or adds new SMF record types, a methodology must be provided which enables CA JARS to report on these new metrics. The methodology which supports this process is referred to as the EXTDATA (EXTended DATA) process and is described next.

The EXTDATA Process

The EXTDATA process is the processing of SMF data with expanded information and/or new SMF record types into the Report Writer, JSIMAIN, using the EXTDATA control statement. This control statement indicates which SMF records are to be processed. The result of this process is that the requested SMF record type(s) specified on the EXTDATA control statement will be contained on the Account (CAIJSACT DD statement) and/or History (user-defined DD statement) file as EXTDATA records. However, even though these records are contained on the Account and/or History file the Report Writer, JSIMAIN, does **not** recognize these data types.

Reporting on the new EXTDATA records is accomplished by either processing the CA JARS Account and/or History file into either CA Earl or CA Easytrieve. Numerous pre-defined reports are provided with this product.

Billing of EXTDATA records requires the use of either the advanced charging component referred to as the JARS/OLF component, or CA PMA Chargeback. A chargeback system can also be created using either the CA Earl or CA Easytrieve Report Writers.

What are EXTDATA records?

EXTDATA records, with certain exceptions, contain information from a single SMF record which has been reformatted for later use by the generalized report programs, CA Earl and CA Easytrieve, or for direct input into the JARS/OLF component or the CA PMA Chargeback product. SMF records, which may contain multiple subtypes and repeating segments, are flattened out into EXTDATA records that may be processed by tabular generalized report programs. For instance, the RMF type 72 record has four subtypes, two recording data on compatability mode metrics, and two recording data on GOAL mode metrics. If CA JARS is requested to create EXTDATA records from RMF type 72 data (specified on the EXTDATA control statement), it will create the following four types of EXTDATA records:

- R72P
- R72G
- R72W
- R72C

These EXTDATA records correspond to the four subtypes of the RMF type 72 record. There are many examples of SMF and RMF records that have repeating segments. In these instances, CA JARS creates one EXTDATA record for each repeating segment, to allow tabular report writers to process this data correctly. Another example is that an SMF type 30 record may have 10 repeating I/O segments that track I/O information for each device used by a job. If the user wishes to report on this type of information, CA JARS will create 10 SIO EXTDATA records containing the device information for each repeating segment.

Note: EXTDATA records are not used by the JSIMAIN reporting component. The JSIMAIN program is simply the mechanism used for producing and storing EXTDATA records. Even though EXTDATA records are stored on the Account and History files, the JSIMAIN reporting component does not recognize this data.

Why Use EXTDATA Records?

The major reasons for creating EXTDATA records are to attain access to new metrics in SMF data for reporting and chargeback purposes, and for access to RMF data made available only through EXTDATA records.

EXTDATA Implementation

An overview of the steps necessary to complete implementation of EXTDATA is as follows:

1. Determine which EXTDATA records are to be produced
2. Determine which archival method to use
3. Report on EXTDATA records

Determine Which EXTDATA Records Are to be Produced - Step 1

The first step in implementing an EXTDATA reporting environment is to decide which EXTDATA records will be required to satisfy your reporting requirements. This product can create EXTDATA records from most of the SMF and RMF record types available including the DB2, CICS, and MQSeries subsystems. If CA JARS is directed to create EXTDATA from all available data sources, the Account/History files can become quite large. It is therefore recommended that users choose to create only those EXTDATA records necessary for their reporting requirements. Under the heading EXTDATA Record Types, later in this chapter, is a table that lists all EXTDATA record types and the associated SMF/RMF record types that were used to generate them. After examining this table and determining which EXTDATA record types are appropriate for your environment, you may instruct this product to create these EXTDATA records during batch executions through specifications on the EXTDATA control statement. See the "Control Statements and Tables" chapter in this guide for details. Once you have reviewed your reporting requirements and added the EXTDATA control statement to your batch execution JCL, you have completed the first step in implementing EXTDATA reporting.

Determine Archival Method - Step 2

After determining the EXTDATA records that need to be generated to satisfy your reporting requirements, and creating them through options on the EXTDATA control statement, a decision must be made about the method used to store archival data. A working Account file is created during each execution. This file is a concise and manageable collection of computer utilization statistics at the job and step levels, and can be defined as a temporary sequential file. This file may or may not contain EXTDATA, depending on options selected on the EXTDATA control statement during execution. The user can elect to keep this file for further processing by defining a permanent DDNAME CAIJSACT in the JCL. This product can also produce History files, if requested, which are usually on tape and used for archival purposes. The decision to use permanent Account files or History files as your means of storing archival data will depend on the type of processing you are doing. If the EXTDATA only option of the EXTDATA control statement is set to "Y" (meaning EXTDATA records will be the only output of the execution), then the most efficient method of storing data is to retain the account file permanently. If the EXTDATA only option is set to "N", then the use of History files as the method of data archival should be used. For mixed use files, files that will contain both Account/History records and EXTDATA records, level 7 History files (the most detail level available) should be used to maintain archival data.

Reporting on EXTDATA Records - Step 3

After determining which EXTDATA records are required and the method of data archival to be used, you can start producing actual reports from EXTDATA. The first thing to determine is the CA Earl or CA Easytrieve record definition macro(s) to use for your report. Having completed Step 1, you already know you are creating SMF data for certain SMF record types and subtypes. To match the record definition macros that define the EXTDATA to its SMF source record, see the "EXTDATA Record Types" table later in this chapter. Now that you have the name of the CA Earl or CA Easytrieve record definition macro, you will need to know the content and meaning of the individual data fields defined in the macro. To accomplish this, you will need to refer to the CA Earl and CA Easytrieve SMF data dictionary, which is documented later in this chapter. For each record definition macro supplied with this product, there is an SMF data dictionary table that cross references each field name within that particular record definition macro with its original data source. By using the SMF data dictionary, you may refer back to the documentation of the originating data source for information regarding the content and meaning of each data field. Refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630).

At this point you are ready to start coding your EXTDATA report. For each record definition macro supplied there is a sample report, both in the CA Earl and CA Easytrieve format. For a quick start, refer to "Using the Sample EXTDATA Reports" later in this chapter. The EXT report table shows the CA Earl and CA Easytrieve report names along with the SMF/RMF record type and corresponding CA Earl and CA Easytrieve record definition macro names. These predefined reports may be used as a starting point in the creation of your own EXTDATA reports. The sample EXTDATA reports section of this chapter shows the output produced by the supplied example reports. Generation of EXTDATA reports requires the execution of CA JARS to create an output file containing the desired EXTDATA records, and an execution (or multiple executions) of CA Earl or CA Easytrieve, which will require the Account file to be allocated as a permanent file. In using the sample EXTDATA reports section of this chapter, you will notice references made to sample JCL members. Use these sample JCL members to begin creating EXTDATA files and reports.

Charging for EXTDATA Records

All EXTDATA record types that are derived from SMF type data that may be useful for accounting and chargeback purposes, can be processed by JARS/OLF, the advanced chargeback component of CA JARS, and CA PMA Chargeback, directly. EXTDATA records created from RMF record types are not processed by JARS/OLF or CA PMA Chargeback, since they contain performance data in time interval format which is not useful for accounting and chargeback. EXTDATA records are processed by JARS/OLF and CA PMA Chargeback through the use of IRD's (input record definitions). For each accounting type EXTDATA record created by CA JARS, there is a corresponding IRD supplied with the JARS/OLF and CA PMA Chargeback product, to allow these products to process data produced by CA JARS into these advanced chargeback components. To cross reference EXTDATA record types to their IRD counterparts, see "Appendix C" in the *JARS/OLF User Guide*, or "Appendix B" in the *CA PMA Chargeback User Guide*.

EXTDATA Record Types

The following table lists the available EXTDATA record types and their corresponding record definition members. Sample reports are provided for CA Earl and CA Easytrieve. The record definition members for CA Easytrieve are located in CAJREZTR and CA Earl are located in CAJREARL and have a prefix of MZXT and MRXT respectively.

Note: A number in the last column (SMF or Other Source Record) indicates an SMF record type.

Record Type	CA Easytrieve Record Definition Member	CA Earl Record Definition Member	SMF or Other Source Record
CMCC	MZXT110	MRXT110	110
LOGA	MZXTLOGA	MRXTLOGA	88-1
LOGB	MZXTLOGB	MRXTLOGB	88-11
OHFS	MZXT92	MRXT92	92
O30	MZXT30OE	MRXT30OE	30
O30I	MZXT30OE	MRXT30OE	30-2/3
O30X	MZXT30OE	MRXT30OE	30-4
R70A	MZXT70A	MRXT70A	70-1
R70C	MZXT70C	MRXT70C	70-1
R70P	MZXT70P	MRXT70P	70-1
R70Y	MZXT70Y	MRXT70Y	70-2
R70Z	MZXT70Z	MRXT70Z	70-2
R71P	MZXT71P	MRXT71P	71
R71S	MZXT71S	MRXT71S	71
R72C	MZXT72C	MRXT72C	72-4
R72G	MZXT72G	MRXT72G	72-2
R72P	MZXT72P	MRXT72P	72-1
R72W	MZXT72W	MRXT72W	72-3
R73	MZXT73	MRXT73	73
R74C	MZXT74C	MRXT74C	74-4
R74D	MZXT74D	MRXT74D	74-1
R74F	MZXT74F	MRXT74F	74-4

Record Type	CA Easytrieve Record Definition Member	CA Earl Record Definition Member	SMF or Other Source Record
R74L	MZXT74L	MRXT74L	74-4
R74M	MZXT74M	MRXT74M	74-2
R74P	MZXT74P	MRXT74P	74-2
R74S	MZXT74S	MRXT74S	74-2
R74X	MZXT74X	MRXT74X	74-4
R74A	MZXT74A	MRXT74A	74-5
R74B	MZXT74B	MRXT74B	74-5
R75	MZXT75	MRXT75	75
R77	MZXT77	MRXT77	77
R89	MZXT89	MRXT89	89-1
R89S	MZXT89S	MRXT89S	89-2
RSSL	MZXTRSSL	MRXTRSSL	74-8
RSSR	MZXTRSSR	MRXTRSSR	74-8
RSSX	MZXTRSSX	MRXTRSSX	74-8
S00	MZXT00	MRXT00	0
S06	MZXT06	MRXT06	6
S07	MZXT07	MRXT07	7
S08	MZXT08	MRXT08	8
S09	MZXT09	MRXT09	9
S10	MZXT10	MRXT10	10
S11	MZXT11	MRXT11	11
S19	MZXT19	MRXT19	19
S30	MZXT30	MRXT30	30-5
S30X	MZXT30	MRXT30	30-4
S30I	MZXT30	MRXT30	30-2/3
S32	MZXT32	MRXT32	32
S33I	MZXT33C	MRXT33C	33-2
S33C	MZXT33C	MRXT33C	33-2
S33T	MZXT33T	MRXT33T	33-1

Record Type	CA Easytrieve Record Definition Member	CA Earl Record Definition Member	SMF or Other Source Record
S41	MZXT41	MRXT41	41-2
S41V	MZXT41V	MRXT41V	41-3
S42B	MZXT42B	MRXT42B	42-1
S42C	MZXT42C	MRXT42C	42-2
S42D	MZXT42D	MRXT42D	42-6
S42I	MZXT42I	MRXT42I	42-6
S42S	MZXT42S	MRXT42S	42-5
S50	MZXT50	MRXT50	50
S572	MZXT572	MRXT572	57
S573	MZXT573	MRXT573	57
S101	MZXT101	MRXT101	101
SAPI	MZXTAPI	MRXTAPI	118
SBSC	MZXTRJE	MRXTRJE	47-49
SFTP	MZXTFTP	MRXTFTP	118
SIEA	MZXTSIEA	MRXTSIEA	ADABAS command log
SIED	MZXTSIED	MRXTSIED	CA Datacom accounting table
SIEI	MZXTSIEI	MRXTSIEI	IMS log records
SIEN	MZXTSIEN	MRXTSIEN	39
SIER	MZXTSIER	MRXTSIER	CA Roscoe accounting records
SIET	MZXTSIET	MRXTSIET	CA 1 or CA TLMS tape catalog
SIEX	MZXTSIEX	MRXTSIEX	VM accounting record type C
SIEZ	MZXTSIEZ	MRXTSIEZ	VM accounting record types 1, 2, 3
SIO	MZXT30IO	MRXT30IO	30-5
SIOI	MZXT30IO	MRXT30IO	30-2/3
SIOX	MZXT30IO	MRXT30IO	30-4
SSNA	MZXTRJE	MRXTRJE	52-54
STEL	MZXTTEL	MRXTTEL	118
U30	MZXT30MU	MRXT30MU	30-5
U30X	MZXT30MU	MRXT30MU	30-4

Record Type	CA Easytrieve Record Definition Member	CA Earl Record Definition Member	SMF or Other Source Record
U30I	MZXT30MU	MRXT30MU	30-2/3
SMQA	MZXT116A	MRXT116A	116-0
SMQB	MZXT115B	MRXT115B	115-2
SMQC	MZXT115C	MRXT115C	115-2
SMQD	MZXT115D	MRXT115D	115-2
SMQL	MZXT115L	MRXT115L	115-1
SMQM	MZXT115M	MRXT115M	115-2
SMQQ	MZXT116Q	MRXT116Q	116-1 & -2
SMQR	MZXT116R	MRXT116R	116-1
SMQ2	MZXT1152	MRXT1152	115-2
SWCF	MZXT1031	MRXT1031	103-1
SWPF	MZXT1032	MRXT1032	103-2
SWSA	MZXT120A	MRXT120A	120-1
SWSI	MZXT120B	MRXT120B	120-3
SWCI	MZXT120C	MRXT120C	120-4
SWJA	MZXT120L	MRXT120L	120-5
SWJI	MZXT120D	MRXT120D	120-6
STCT	MZXT119A	MRXT119A	119-2
SCTC	MZXT119B	MRXT119B	119-3
SSTP	MZXT119C	MRXT119C	119-8
SUDP	MZXT119D	MRXT119D	119-10
SSST	MZXT119E	MRXT119E	119-21
STCC	MZXT119F	MRXT119F	119-23
SFST	MZXT119G	MRXT119G	119-70
SWWA	MZXT120G	MRXT120G	120-7
SWWI	MZXT120H	MRXT120H	120-8
VTS1	MZXT094A	MRXT094A	94-1
VTS2	MZXT094B	MRXT094B	94-2

CA Earl and CA Easytrieve SMF Data Dictionary

The following tables list the CA Earl and CA Easytrieve data fields along with their corresponding SMF data fields. For a complete description of the SMF data fields, refer to the appropriate IBM documentation for that particular record type.

You will see one or two asterisks next to an SMF data field when that field has a different format than the source SMF data field. In most instances this involves time fields in SMF data that are in 1024 or 128 micro-second format, and are normally converted to hundredths of a second or thousandths of a second.

Preceding each table is information regarding the CA Earl and CA Easytrieve record type, and the source SMF record and subtype. Where necessary, references are made to the IBM documentation that contains descriptions of the SMF data fields.

EXTDATA Record Type - S00

For a complete description of each SMF data field listed in the third column, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630).

The MRXT00 and MZXT00 record definitions define the EXTDATA records created by CA JARS from SMF record 0, IPL.

CA Earl MRXT00	CA Easytrieve MZXT00	SMF Data Field
EXT00_VST	EXT00_VST	SMF0VST
EXT00_RST	EXT00_RST	SMF0RST
EXT00_TZ	EXT00_TZ	SMF0TZ

EXTDATA Record Type - S06

The MRXT06 and MZXT06 record definitions define the EXTDATA records created by CA JARS from SMF record 6, External Writer.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 6 (06) External Writer" gives a detailed description of each field.

Additional information on the contents of RMF Type 06 records can be found by assembling the RMF mapping macro SYS1.MACLIB(IFASMFR), as in this example:

```
RECMAP   DSECT
         IFASMFR (6)
         END
```

SMF Type 06 records are mapped by expanding the macro IFASMFR (6). Unlike more recently defined records, the segments for various SYSOUT types are not segregated into DSECTs. Rather the mapping macro uses the ORG statement to create overlays. The table below identifies the EXTDATA variables with the segment name from which they are taken in the expansion of IFASMFR (6).

There are five segment formats for SMF Type 06:

- External Writer
- JES2 Output Writer
- JES3 Output Writer
- Print Services Facility (PSF)
- IP PrintWay

Each format has a header/self defining segment, and an I/O data segment. Variable names are not necessarily unique in a segment. The center column below identifies the source used by CA JARS.

This EXTDATA record can be used for accounting and chargeback. Its associated IRD/ORD is S06. The IRD/ORD field names are in the table below.

CA JARS EXTDATA Variable Name	IBM Segment Name	IBM Variable Name	IRD/ORD Field Name
EXT06_JBN	Header/Self Define	SMF6JBN	JOB NAME
EXT06_AC1	SMF30ACS	SMF30ACT	ACCOUNT CODES
EXT06_AC2	SMF30ACS	SMF30ACT	ACCOUNT CODES
EXT06_AC3	SMF30ACS	SMF30ACT	ACCOUNT CODES
EXT06_SBS	Header/Self Define	SMF6SBS	SUBSYSTEM ID
EXT06_PAD	Header/Self Define	SMF6PAD1	SEC IND
EXT06_UIF	Header/Self Define	SMF6UIF	USER ID
EXT06_OWC	Header/Self Define	SMF6OWC	OUTPUT CLASS
EXT06_WST	Header/Self Define	SMF6WST	START TIME
EXT06_WSD	Header/Self Define	SMF6WSD	START DATE

CA JARS EXTDATA Variable Name	IBM Segment Name	IBM Variable Name	IRD/ORD Field Name
EXT06_NLR	Header/Self Define	SMF6NLR	NO LOGICAL RECS
EXT06_IOE	Header/Self Define	SMF6IOE	IO STATUS
EXT06_NDS	Header/Self Define	SMF6NDS	NO DATASETS
EXT06_FMN	Header/Self Define	SMF6FMN	FORM NUMBER
EXT06_PD1	Header/Self Define	SMF6PAD1	SEC IND
EXT06_SB1	Header/Self Define	SMF6SBS (see note 1)	SUBSYSTEM ID
I/O Data	EXT06_LN1	SMF6LN1	
EXT06_DCI	I/O Data	SMF6DCI	DS CONTROL
EXT06_INDC	I/O Data	SMF6INDC	RECORD IND
EXT06_JNM	I/O Data	SMF6JNM	OLD JOBID
EXT06_OUT	I/O Data	SMF6OUT	OUTPUT DEVICE
EXT06_FCB	I/O Data	SMF6FCB	FCB IMAGE ID
EXT06_UCS	I/O Data	SMF6UCS	UCS IMAGE ID
EXT06_PGE	I/O Data	SMF6PGE	PAGE COUNT
EXT06_RTE	I/O Data JES2 OutptWtr	SMF6RTE	JES2 OUTPUT RTE
EXT06_DFE	I/O Data JES3 OutptWtr	SMF6DFE	
EXT06_OPR	I/O Data JES3 OutptWtr	SMF6OPR	JES3 OUTPUT PTY
EXT06_GRP	I/O Data JES3 OutptWtr	SMF6GRP	JES3 OUTPUT GRP
EXT06_LN3	Common Section	SMF6LNE	
EXT06_ROUT	Common Section	SMF6ROUT	
EXT06_EFMN	Common Section	SMF6EFMN	EXT FORM NO
EXT06_JBID	Common Section	SMF6JBID	JOB ID
EXT06_STNM	Common Section	SMF6STNM	STEP NAME
EXT06_PRNM	Common Section	SMF6PRNM	PROC STEP
EXT06_DDNM	Common Section	SMF6DDNM	DDNAME
EXT06_USID	Common Section	SMF6USID	JOB USERID
EXT06_SECS	Common Section	SMF6SECS	SEC LABEL
EXT06_PRMD	Common Section	SMF6PRMD	PROC MODE
EXT06_DSNM	Common Section	SMF6DSNM	DS NAME

CA JARS EXTDATA Variable Name	IBM Segment Name	IBM Variable Name	IRD/ORD Field Name
EXT06_OTOK	Common Section	SMF6OTOK	USER SEC TOKEN
EXT06_LN2	Non-impact Prt Subsys JES2, JES3, PSF	SMF6LN2	
EXT06_CPS	Non-impact Prt Subsys JES2, JES3, PSF	SMF6CPS	NI COPY GRP n
EXT06_CHR	Non-impact Prt Subsys JES2, JES3, PSF	SMF6CHR	NI CHAR ARR n
EXT06_MID	Non-impact Prt Subsys JES2, JES3, PSF	SMF6MID	NI COPY MOD MOD
EXT06_FLI	Non-impact Prt Subsys JES2, JES3, PSF	SMF6FLI	NI FORM OLAY
EXT06_FLC	Non-impact Prt Subsys JES2, JES3, PSF	SMF6FLC	NI OLAY COPIES
EXT06_BID	Non-impact Prt Subsys JES2, JES3, PSF	SMF6BID	OPT IND
EXT06_LN4	All-Points-Addr PSF	SMF6LN4	
EXT06_FONT	All-Points-Addr PSF	SMF6FONT	APA MCF FONTS
EXT06_LFNT	All-Points-Addr PSF	SMF6LFNT	APA FONTS LOADED
EXT06_OVLY	All-Points-Addr PSF	SMF6OVLY	APA MMO OLAYS
EXT06_LOLY	All-Points-Addr PSF	SMF6LOLY	APA OLAYS LOADED
EXT06_PGSG	All-Points-Addr PSF	SMF6PGSG	APA MPS PSEGS
EXT06_LPSG	All-Points-Addr PSF	SMF6LPSG	APA PSEGS LOADED
EXT06_IMPS	All-Points-Addr PSF	SMF6IMPS	APA SHEETS PRINT
EXT06_FEET	All-Points-Addr PSF	SMF6FEET	APA FEET PRINTED
EXT06_PGDF	All-Points-Addr PSF	SMF6PGDF	APA PGDEFS USED
EXT06_FMDF	All-Points-Addr PSF	SMF6FMDF	
EXT06_BIN	All-Points-Addr PSF	SMF6BIN	APA BIN INDS
EXT06_PGOP	All-Points-Addr PSF	SMF6PGOP	APA DUPLEX INDS
EXT06_FLG3	All-Points-Addr PSF	SMF6FLG3	APA FLAGS
EXT06_NSOL	All-Points-Addr PSF	SMF6NSOL	APA SEC OLAYS
EXT06_NSFO	All-Points-Addr PSF	SMF6NSFO	APA SEC FONTS
EXT06_NPS	All-Points-Addr PSF	SMF6NPS	APA SEC PSEGS

CA JARS EXTDATA Variable Name	IBM Segment Name	IBM Variable Name	IRD/ORD Field Name
EXT06_FDNM	All-Points-Addr PSF	SMFFDNM	APA FORMDEF
EXT06_PDNM	All-Points-Addr PSF	SMFPDNM	APA PAGEDEF
EXT06_PTDV	All-Points-Addr PSF	SMFPTDV	APA PRINTDEV
EXT06_RDRD	SMF30ID	SMF30RST (see note 3)	
EXT06_RDRT	SMF30ID	SMF30RSD	
EXT06_RDRT_HH	SMF30ID	SMF30RSD	
EXT06_RDRT_MM	SMF30ID	SMF30RSD	
EXT06_RDRT_SS	SMF30ID	SMF30RSD	
EXT06_LN6	File Xfer PSF, IP Prwy	SMF6LN6	
EXT06_BYTD	File Xfer IP Prwy	Reserved	
EXT06_BYTE	File Xfer PSF, IP Prwy	SMF6BYTE/BYTD (see note 2)	BYTES SENT
EXT06_IP	Concatenates next 4 fields		
EXT06_IP1	File Xfer PSF, IP Prwy	SMF6IP1	
EXT06_IP2	File Xfer PSF, IP Prwy	SMF6IP2	
EXT06_IP3	File Xfer PSF, IP Prwy	SMF6IP3	
EXT06_IP4	File Xfer PSF, IP Prwy	SMF6IP4	
EXT06_FTL	File Xfer IP Prwy	SMF6FTL	
EXT06_PQLN	File Xfer PSF, IP Prwy	SMF6PQLN	
EXT06_PRTQ	File Xfer PSF, IP Prwy	SMF6PRTQ	QUEUE NAME
EXT06_URIL	File Xfer IP Prwy	SMF6URIL	
EXT06_URI	File Xfer IP Prwy	SMF6URI	FILETRANS URI
EXT06_IPV6	File XFER PSF, IP Prwy	SMF6IPV6	TARGET IPV6

Notes:

1. SMF6SBS fills the role of the subtype in other SMF records. This helps interpret the meaning of EXTDATA S06 records. The possible values are:

```
0  External Writer
2  JES2 Output Writer
5  JES3 Output Writer
7  Print Services Facility (PSF)
9  IP PrintWay
```

   You can use EXT06_SBS to interpret S06 records. Values from each subtype are present in all S06 records; but the only valid values are those that are common and those that belong to the particular setting of EXT06_SBS. Invalid values are set to zero or blank as appropriate.

2. EXT06_BYTE uses SMF6BYTD for IP Printway extended mode and SMF6BYTE otherwise. EXT06_BYTD is an expansion of EXT06_BYTE.

3. SMF Reader Start Time is the unit-of-work identifier CA JARS uses to transfer accounting fields into S06 EXTDATA records. At a minimum, an SMF Type 06 must match a SMF Type 26 Job Purge record in order to be processed by CA JARS.

EXTDATA Record Type - S07

The MRXT07 and MZXT07 record definitions define the EXTDATA records created by CA JARS from SMF record 7, Data Lost.

CA Earl MRXT07	CA Easytrieve MZXT07	SMF Data Field
EXT07_NRO	EXT07_NRO	SMF7NRO
EXT07_STM	EXT07_STM	SMF7STM
EXT07_STD	EXT07_STD	SMF7STD
EXT07_FL1	EXT07_FL1	SMF7FL1
EXT07_RS1	EXT07_RS1	SMF7RS1
EXT07_DTYP	EXT07_DTYP	SMF7DTYP
EXT07_NROX	EXT07_NROX	SMF7NROX
EXT07_LSN	EXT07_LSN	SMF7LSN

EXTDATA Record Type - S08

The MRXT08 and MZXT08 record definitions define the EXTDATA records created by CA JARS from SMF record 8, I/O Configuration.

CA Earl MRXT08	**CA Easytrieve MZXT08**	**SMF Data Field**
EXT08_CLS	EXT08_CLS	SMF8IODV
EXT08_TYP	EXT08_TYP	SMF8DUT
EXT08_NUM	EXT08_NUM	SMF8CHA

EXTDATA Record Type - S09

The MRXT09 and MZXT09 record definitions define the EXTDATA records created by CA JARS from SMF record 9, VARY device ONLINE.

CA Earl MRXT09	**CA Easytrieve MZXT09**	**SMF Data Field**
EXT09_CLS	EXT09_CLS	SMF9DVAD
EXT09_TYP	EXT09_TYP	SMF9DUT
EXT09_NUM	EXT09_NUM	SMF9CUA
EXT09_VPC	EXT09_VPC	SMF9VPC

EXTDATA Record Type - S10

The MRXT10 and MZXT10 record definitions define the EXTDATA records created by CA JARS from SMF record 10, Allocation Recovery.

CA Earl MRXT10	**CA Easytrieve MZXT10**	**SMF Data Field**
EXT10_JBN	EXT10_JBN	SMF10JBN
EXT10_CLS	EXT10_CLS	SMF10DEV
EXT10_TYP	EXT10_TYP	SMF10DUT
EXT10_NUM	EXT10_NUM	SMF10CUA

EXTDATA Record Type - S11

The MRXT11 and MZXT11 record definitions define the EXTDATA records created by CA JARS from SMF record 11, VARY Device OFFLINE.

CA Earl MRXT11	CA Easytrieve MZXT11	SMF Data Field
EXT11_CLS	EXT11_CLS	SMF11DEV
EXT11_TYP	EXT11_TYP	SMF11DUT
EXT11_NUM	EXT11_NUM	SMF11CUA
EXT11_VPC	EXT11_VPC	SMF11VPC

EXTDATA Record Type - S19

The MRXT19 and MZXT19 record definitions define the EXTDATA records created by CA JARS from SMF record 19, Direct Access Volume.

CA Earl MRXT19	CA Easytrieve MZXT19	SMF Data Field
EXT19_VOL	EXT19_VOL	SMF19VOL
EXT19_OID	EXT19_OID	SMF19OID
EXT19_DEV	EXT19_DEV	SMF19DEV
EXT19_VTC	EXT19_VTC	SMF19VTC
EXT19_VTI	EXT19_VTI	SMF19VTI
EXT19_NDS	EXT19_NDS	SMF19NDS
EXT19_DSR	EXT19_DSR	SMF19DSR
EXT19_NAT	EXT19_NAT	SMF19NAT
EXT19_SPC	EXT19_SPC	SMF19SPC
EXT19_SPT	EXT19_SPT	SMF19SPCT2
EXT19_LEX	EXT19_LEX	SMF19LEX
EXT19_LTX	EXT19_LTX	SMF19LEXT2
EXT19_NUE	EXT19_NUE	SMF19NUE
EXT19_FL1	EXT19_FL1	SMF19FL1
EXT19_FL2	EXT19_FL2	SMF19FL2

CA Earl MRXT19	CA Easytrieve MZXT19	SMF Data Field
EXT19_CUU	EXT19_CUU	SMF19CUU
EXT19_IND	EXT19_IND	SMF19IND
EXT19_RV3	EXT19_RV3	SMF19RV3
EXT19_SDS	EXT19_SDS	SMF19SDS
EXT19_SL0	EXT19_SL0	SMF19SL0
EXT19_RV4	EXT19_RV4	SMF19RV4
EXT19_SUC	EXT19_SUC	SMF19SUC
EXT19_SUT	EXT19_SUT	SMF19SUT
EXT19_SNC	EXT19_SNC	SMF19SNC
EXT19_SNT	EXT19_SNT	SMF19SNT
EXT19_SNE	EXT19_SNE	SMF19SNE
EXT19_BUC	EXT19_BUC	SMF19BUC
EXT19_BUT	EXT19_BUT	SMF19BUT
EXT19_BNC	EXT19_BNC	SMF19BNC
EXT19_BNT	EXT19_BNT	SMF19BNT
EXT19_BNE	EXT19_BNE	SMF19BNE
EXT19_TRK	EXT19_TRK	SMF19TRK
EXT19_TRM	EXT19_TRM	SMF19TRM
EXT19_CYM	EXT19_CYM	C'Y' – Volume has cylinder managed space C'N' – Volume does not have cylinder managed space

EXTDATA Record Types - S30, S30X, S30I

The MRXT30 and MZXT30 record definitions define the EXTDATA records created by CA JARS from the following Common Address Space Work SMF records:

S30

SMF record 30, subtype 5 Job End

S30X

SMF record 30, subtype 4 Step End

S30I

SMF record 30, subtype 2/3 Interval

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 30 (1E) Common Address Space Work" gives a detailed description of each field.

Additional information on the contents of RMF Type 30 records can be found by assembling the RMF mapping macro SYS1.MACLIB(IFASMFR), as in this example:

```
RECMAP   DSECT
         IFASMFR (30)
         END
```

All of the fields listed below are found in the macro IFASMFR and its subordinate macros. The DSECT name comes from IBM. The IBM variable name is identical in IFASMFR and in the IBM guide, *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630).

This EXTDATA record can be used for accounting and chargeback. Its associated IRD/ORD is J30. The IRD/ORD field names are in the table below.

Note: The fields EXT30_INR and EXT30_IND are taken from the SMF Type 26 (Job Purge) record.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name	IRD/ORD Field Name
EXT30_WID	SMFRCD30	SMF30WID	SUBSYSTEM ID
EXT30_JBN	SMF30ID	SMF30JBN	JOBNAME
EXT30_PGM	SMF30ID	SMF30PGM	PROGRAM NAME
EXT30_STM	SMF30ID	SMF30STM	STEPNAME
EXT30_UIF	SMF30ID	SMF30UIF	USERID
EXT30_JNM	SMF30ID	SMF30JNM	JOBID

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name	IRD/ORD Field Name
EXT30_STN	SMF30ID	SMF30STN	STEP NUMBER
EXT30_CLS	SMF30ID	SMF30CLS	JOB CLASS
EXT30_PGN	SMF30ID	SMF30PGN	PERFORMANCE GRP
EXT30_JPT	SMF30ID	SMF30JPT	INPUT PRIORITY
EXT30_AST	SMF30ID	SMF30AST	ALLOC START TIME
EXT30_PPS	SMF30ID	SMF30PPS	PROGRAM START T
EXT30_SIT	SMF30ID	SMF30SIT	INITIATOR TIME
EXT30_STD	SMF30ID	SMF30STD	INITIATOR DATE
EXT30_RST	SMF30ID	SMF30RST	RDR START TIME
EXT30_RSD	SMF30ID	SMF30RSD	RDR START DATE
EXT30_RET	SMF30ID	SMF30RET	RDR END TIME
EXT30_RED	SMF30ID	SMF30RED	RDR END DATE
EXT30_USR	SMF30ID	SMF30USR	PROGRAMMER NME
EXT30_GRP	SMF30ID	SMF30GRP	RACF GROUP ID
EXT30_RUD	SMF30ID	SMF30RUD	RACF USER ID
EXT30_TID	SMF30ID	SMF30TID	RACF TERMINAL
EXT30_TSN	SMF30ID	SMF30TSN	TERM SYMBOLIC
EXT30_PSN	SMF30ID	SMF30PSN	PROC STEP
EXT30_CL8	SMF30ID	SMF30CL8	FULL JOB CLASS
EXT30_ISST	SMF30ID	SMF30ISS	INTVL START T
EXT30_ISSD	SMF30ID	SMF30ISS	INTVL START D
EXT30_IETT	SMF30ID	SMF30IET	INTVL END T
EXT30_IETD	SMF30ID	SMF30IET	INTVL END D
EXT30_INP	SMF30URA	SMF30INP	CARDS READ
EXT30_TEP	SMF30URA	SMF30TEP	TOTAL EXCPS
EXT30_TPT	SMF30URA	SMF30TPT	TPUTS
EXT30_TGT	SMF30URA	SMF30TGT	TGETS
EXT30_RDR	SMF30URA	SMF30RDR	RDR DEV CLASS
EXT30_RDT	SMF30URA	SMF30RDT	RDR DEV TYPE

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name	IRD/ORD Field Name
EXT30_TCN	SMF30URA	SMF30TCN	TOT DEV CONNECT
EXT30_DCF	SMF30URA	SMF30DCF	FLAG WORD
EXT30_TRR	SMF30URA	SMF30TRR	TOTAL REREAD CNT
EXT30_SCC	SMF30CMP	SMF30SCC	COMPLETION CODE
EXT30_STI	SMF30CMP	SMF30STI	TERMINATION IND
EXT30_ARC	SMF30CMP	SMF30ARC	ABEND CODE
EXT30_PTY	SMF30CAS	SMF30PTY	DISPATCH PRTY
EXT30_TFL	SMF30CAS	SMF30TFL	TIME FLAGS
EXT30_CPT	SMF30CAS	SMF30CPT	TCB CPU
EXT30_CPS	SMF30CAS	SMF30CPS	SRB CPU
EXT30_ICU	SMF30CAS	SMF30ICU	INIT TCB
EXT30_ISB	SMF30CAS	SMF30ISB	INIT SRB
EXT30_JVU	SMF30CAS	SMF30JVU	VECTOR CPU
EXT30_IVU	SMF30CAS	SMF30IVU	INIT VECTOR
EXT30_JVA	SMF30CAS	SMF30JVA	VECTOR AFF CPU
EXT30_IVA	SMF30CAS	SMF30IVA	INIT VECT AFF
EXT30_IST	SMF30CAS	SMF30IST	INTVL STRT T
EXT30_IDT	SMF30CAS	SMF30IDT	INTVL STRT D
EXT30_IIP	SMF30CAS	SMF30IIP	IO INTER CPU
EXT30_RCT	SMF30CAS	SMF30RCT	REGION CTL CPU
EXT30_HPT	SMF30CAS	SMF30HPT	HIPERSPACE CPU
EXT30_CSC	SMF30CAS	SMF30CSC	ICFS COUNT
EXT30_ACT	SMF30CAS	SMF30ACT	ACCOUNT CODES
EXT30_SFL	SMF30ACS	SMF30SFL	STORAGE FLAGS
EXT30_SPK	SMF30SAP	SMF30SPK	STORAGE PROT KEY
EXT30_PRV	SMF30SAP	SMF30PRV	K FROM BOTTOM
EXT30_SYS	SMF30SAP	SMF30SYS	K FROM TOP
EXT30_PGI	SMF30SAP	SMF30PGI	AUX PAGE IN
EXT30_PGO	SMF30SAP	SMF30PGO	AUX PAGES OUT

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name	IRD/ORD Field Name
EXT30_CPM	SMF30SAP	SMF30CPM	HIPER READ FAILS
EXT30_NSW	SMF30SAP	SMF30NSW	SWAP SEQUENCES
EXT30_PSI	SMF30SAP	SMF30PSI	SWAP PAGES IN
EXT30_PSO	SMF30SAP	SMF30PSO	SWAP PAGES OUT
EXT30_VPI	SMF30SAP	SMF30VPI	VIO PAGES IN
EXT30_VPO	SMF30SAP	SMF30VPO	VIO PAGES OUT
EXT30_VPR	SMF30SAP	SMF30VPR	VIO RECLAIMS
EXT30_CPI	SMF30SAP	SMF30CPI	CA PAGES IN
EXT30_HPI	SMF30SAP	SMF30HPI	HIPER PAGES IN
EXT30_LPI	SMF30SAP	SMF30LPI	LPA PAGES IN
EXT30_HPO	SMF30SAP	SMF30HPO	HIPER PAGES OUT
EXT30_PST	SMF30SAP	SMF30PST	PAGES STOLEN
EXT30_PSC	SMF30SAP	SMF30PSC	PAGE SECONDS
EXT30_RGB	SMF30SAP	SMF30RGB	PRIV SIZE BELOW
EXT30_ERG	SMF30SAP	SMF30ERG	PRIV SIZE ABOVE
EXT30_ARB	SMF30SAP	SMF30ARB	SYS SIZE BELOW
EXT30_EAR	SMF30SAP	SMF30EAR	SYS SIZE ABOVE
EXT30_URB	SMF30SAP	SMF30URB	USER SIZE BELOW
EXT30_EUR	SMF30SAP	SMF30EUR	USER SIZE ABOVE
EXT30_RGN	SMF30SAP	SMF30RGN	REGION SIZE
EXT30_DSV	SMF30SAP	SMF30DSV	DATA SPACE MEG
EXT30_PIE	SMF30SAP	SMF30PIE	EXP UPAGES IN
EXT30_POE	SMF30SAP	SMF30POE	EXP UPAGES OUT
EXT30_BIA	SMF30SAP	SMF30BIA	AUX BPAGES IN
EXT30_BOA	SMF30SAP	SMF30BOA	AUZ BPAGES OUT
EXT30_BIE	SMF30SAP	SMF30BIE	EXP BPAGES IN
EXT30_BOE	SMF30SAP	SMF30BOE	EXP BPAGES OUT
EXT30_KIA	SMF30SAP	SMF30KIA	AUX BLOCKS IN
EXT30_KOA	SMF30SAP	SMF30KOA	AUX BLOCKS OUT

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name	IRD/ORD Field Name
EXT30_KIE	SMF30SAP	SMF30KIE	EXP BLOCKS IN
EXT30_KOE	SMF30SAP	SMF30KOE	EXP BLOCKS OUT
EXT30_SRV	SMF30PRF	SMF30SRV	SERVICE UNITS
EXT30_CSU	SMF30PRF	SMF30CSU	CPU SERV UNITS
EXT30_SRB	SMF30PRF	SMF30SRB	SRB SERV UNITS
EXT30_IO	SMF30PRF	SMF30IO	IO SERV UNITS
EXT30_MSO	SMF30PRF	SMF30MSO	MSO SERV UNITS
EXT30_TAT	SMF30PRF	SMF30TAT	SRM ACTIVE TIME
EXT30_RES	SMF30PRF	SMF30RES	SRM RES TIME
EXT30_TRS	SMF30PRF	SMF30TRS	SRM TRANS
EXT30_PDM	SMF30OPS	SMF30PDM	DASD MOUNTS - NS
EXT30_PRD	SMF30OPS	SMF30PRD	DASD MOUNTS - S
EXT30_PTM	SMF30OPS	SMF30PTM	TAPE MOUNTS - NS
EXT30_TPR	SMF30OPS	SMF30TPR	TAPE MOUNTS - S
EXT30_MTM	SMF30OPS	SMF30MTM	MSS MOUNTS - NS
EXT30_MSR	SMF30OPS	SMF30MSR	MSS MOUNTS - S
EXT30_CN	SMF30AR	SMF30CN	TOTAL CONVS
EXT30_CNA	SMF30AR	SMF30CNA	TOTAL ALL CONVS
EXT30_SEN	SMF30AR	SMF30SEN	TP SENDS
EXT30_DAT	SMF30AR	SMF30DAT	APPC DATA SENT
EXT30_REC	SMF30AR	SMF30REC	TP RECEIVES
EXT30_DAR	SMF30AR	SMF30DAR	APPC DATA RECD
EXT30_TAC	SMF30AR	SMF30TAC	APPC ACT CONVS
EXT30_ATR	SMF30AR	SMF30ATR	ASCH TPS
EXT30_XXX	SMFRCD30	SMF30WID	JOB TYPE
EXT30_INR	TYP26	SMF26INR	INPUT ROUTE CODE
EXT30_IND	TYP26	SMF26IND	INPUT DEVICE NME
EXT30_SSN	SMF30ID	SMF30SSN	SUBSTEP NUMBER
EXT30_EXN	SMF30ID	SMF30EXN	PROGRAM NAME OE

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name	IRD/ORD Field Name
EXT30_WLM	SMF30PRF	SMF30WLM	WORKLOAD NAME
EXT30_SCN	SMF30PRF	SMF30SCN	SERVICE CLASS
EXT30_GRN	SMF30PRF	SMF30GRN	RESOURCE GROUP
EXT30_RCN	SMF30PRF	SMF30RCN	REPORT CLASS
EXT30_AIC	SMF30URA	SMF30AIC	IO CONN DEPEND
EXT30_AID	SMF30URA	SMF30AID	IO DISCON DEPEND
EXT30_AIW	SMF30URA	SMF30AIW	IO PEND DEPEND
EXT30_AIS	SMF30URA	SMF30AIS	SSCH IO DEPEND
EXT30_EIC	SMF30URA	SMF30EIC	IO CONN IND
EXT30_EID	SMF30URA	SMF30EID	IO DISCON IND
EXT30_EIW	SMF30URA	SMF30EIW	IO PEND IND
EXT30_EIS	SMF30URA	SMF30EIS	SSCH IO IND
EXT30_TEX	SMF30URA	SMF30TEX	TOTAL-BLKS-XFERD
EXT30_DMI	SMF30CAS	SMF30DMI	PG MVED ADMF WR
EXT30_DMO	SMF30CAS	SMF30DMO	PG MVED ADMF RD
EXT30_ASR	SMF30CAS	SMF30ASR	PRE-EMPT CPU
EXT30_ENC	SMF30CAS	SMF30ENC	ENCLAVE CPU
EXT30_DET	SMF30CAS	SMF30DET	DEP ENCLAVE CPU
EXT30_PSF	SMF30SAP	SMF30PSF	IARSERVE CPU PG
EXT30_PAI	SMF30SAP	SMF30PAI	IARSERVE PG INS
EXT30_PEI	SMF30SAP	SMF30PEI	IARSERVE PGIN EXD
EXT30_ERS	SMF30SAP	SMF30ERS	EXP PG RESIDENCY
EXT30_ETA	SMF30PRF	SMF30ETA	IND ENCLAVE CPU
EXT30_ESU	SMF30PRF	SMF30ESU	IND ENCLAVE SRV
EXT30_ETC	SMF30PRF	SMF30ETC	IND ENCLAVE TRN
EXT30_PFL	SMF30PRF	SMF30PFL	SCHED ENV NAME
EXT30_JQT	SMF30PRF	SMF30JQT	JOB PREP TIME
EXT30_RQT	SMF30PRF	SMF30RQT	INELGIBLE TIME
EXT30_HQT	SMF30PRF	SMF30HQT	JOB HOLD TIME

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name	IRD/ORD Field Name
EXT30_SQT	SMF30PRF	SMF30SQT	JOB ELG TIME
EXT30_PF1	SMF30PRF	SMF30PF1	PERFORM FLAG
EXT30_RS4	SMF30PRF	SMF30RS4	RESERVED4
EXT30_CEP	SMF30CAS	SMF30CEP	
EXT30_MEM	SMF30SAP	SMF30MEM	
EXT30_MLS	SMF30SAP	SMF30MLS	
EXT30_RS5	Reserved		
EXT30_JPN	SMF30PRF	SMF30JPN	
EXT30TF2	SMF30CAS	SMF30TF2	FAILURE FLAGS
EXT30_RS6	SMF30CAS	SMF30T32_SMF30T33	RESERVED6
EXT30_IFAT	SMF30CAS	SMF30_TIME_ON_IFA	TIME ON IFA
EXT30_IFAE	SMF30CAS	SMF30_ENCLAVE_TIME_ON_IFA	ENCL TIME ON IFA
EXT30_IFAD	SMF30CAS	SMF30_DEP_ENCLAVE_TIME_ON_IF A	DEP ENCL TME IFA
EXT30_ICPT	SMF30CAS	SMF30_TIME_IFA_ON_CP	TIME IFA ON CP
EXT30_ICPE	SMF30CAS	SMF30_ENCLAVE_TIME_IFA_ON_CP	ENCL TME IFA CP
EXT30_ICPS	SMF30CAS	SMF30_DEP_ENCLAVE_TIME_IFA_O N_CP	DEPENCLTMEIFA CP
EXT30_CEPI	SMF30CAS	SMF30CEPI	ENQ PROMO CPU TM
EXT30_MSC	SMF30PRF	SMF30MSC	
EXT30_CPC	SMF30PRF	SMF30CPC	
EXT30_LOC	SMF30PRF	SMF30LOC	
EXT30_SRC	SMF30PRF	SMF30SRC	
EXT30_ZNF	SMF30PRF	SMF30ZNF	
EXT30_SNF	SMF30PRF	SMF30SNF	
EXT30_TM_ON_zIIP	SMF30CAS	SMF30_TIME_ON_zIIP	TM-ON-ZIIP
EXT30_ENCL_TM_ON_zIIP	SMF30CAS	SMF30_ENCLAVE_TIME_ON_zIIP	ENCL-TM-ON-ZIIP
EXT30_DEPN_TM_ON_zIIP	SMF30CAS	SMF30_DEPENC_TIME_ON_zIIP	DEPN-TM-ON-ZIIP
EXT30_TM_zIIP_ON_CP	SMF30CAS	SMF30_TIME_zIIP_ON_CP	TM-ZIIP-ON-CP
EXT30_ENCL_TM_zIIP_ON_CP	SMF30CAS	SMF30_ENCLAVE_TIME_zIIP_ON_CP	ENCLTMZIIPONCP

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name	IRD/ORD Field Name
EXT30_DEPN_TM_zIIP_ON_CP	SMF30CAS	SMF30_DEPENC_TIME_zIIP_ON_CP	DEPNTMZIIPONCP
EXT30_ENCL_TM_zIIP_QUAL	SMF30CAS	SMF30_ENCLAVE _TIME_zIIP_QUAL	ENCLTMZIIPQUAL
EXT30_DEPN_ TM_zIIP_QUAL	SMF30CAS	SMF30_DEPENC _TIME_zIIP_QUAL	DEPNCTMZIIPQUAL
EXT30_MRS	N/A	SMF30MRS	
EXT30_CRP	SMF30CAS	SMF30CRP	
EXT30_ASI	SMF30ID	SMF30ASI	
EXT30_HVR	SMF30SAP	SMF30HVR	
EXT30_HVA	SMF30SAP	SMF30HVA	
EXT30_HVO	SMF30SAP	SMF30HVO	
EXT30_HVH	SMF30SAP	SMF30HVH	
EXT30_HSO	SMF30SAP	SMF30HSO	
EXT30_HSH	SMF30SAP	SMF30HSH	
EXT30_SRV_L	SMF30PRF	SMF30SRV_L	
EXT30_CSU_L	SMF30PRF	SMF30CSU_L	
EXT30_SRB_L	SMF30PRF	SMF30SRB_L	
EXT30_IO_L	SMF30PRF	SMF30IO_L	
EXT30_MSO_L	SMF30PRF	SMF30MSO_L	
EXT30_ESU_L	SMF30PRF	SMF30ESU_L	
EXT30_DAS	SMF30URA	SMF30DAS	
EXT30_ICU_T	SMF30CAS	SMF30ICU_Step_Term	
EXT30_ICU_I	SMF30CAS	SMF30ICU_Step_Init	
EXT30_ISB_T	SMF30CAS	SMF30ISB_Step_Term	
EXT30_ISB_I	SMF30CAS	SMF30ISB_Step_Init	
EXT30_ACB	SMF30PRF	SMF30ACB	
EXT30_CR	SMF30PRF	SMF30CR	
EXT30_CAP_CC	SMF30PRF	SMF30_Capacity_Change_Cnt	
EXT30_RCT_AA	SMF30PRF	SMF30_RCTPCPUA_Actual	
EXT30_RCT_NA	SMF30PRF	SMF30_RCTPCPUA_Actual	

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name	IRD/ORD Field Name
EXT30_RCT_SF	SMF30PRF	SMF30_RCTPCPUA_Scaling_Factor	
EXT30_CAP_AI	SMF30PRF	SMF30_Capacity_Adjustment_Ind	
EXT30_CAP_CR	SMF30PRF	SMF30_Capacity_Change_Rsn	
EXT30_CAP_FL	SMF30PRF	SMF30_Capacity_Flags	
EXT30_MS_BLK	SMF30CAS	SMF30_MISSED_SMF30BLK	
EXT30_MS_DCT	SMF30CAS	SMF30_MISSED_SMF30DCT	
EXT70Y_3MET	EXT70Y_3MET	R7023MET	
EXT70Y_3MEC	EXT70Y_3MEC	R7023MEC	
EXT70Y_3CRT	EXT70Y_3CRT	R7023CRT	
EXT70Y_3CRC	EXT70Y_3CRC	R7023CRC	
EXT71P_LFA	SMF71PAG	SMF71LFA	
EXT71P_L7M	SMF71PAG	SMF71L7M	
EXT71P_L7X	SMF71PAG	SMF71L7X	
EXT71P_L7A	SMF71PAG	SMF71L7A	
EXT71P_TLS	SMF71PAG	SMF71TLS	

EXTDATA Record Types - SIEA

The SIEA Record maps the EXTDATA record that summarizes ADABAS command resource utilization and performance. The origin of the records is the ADABAS Command Log (CLOG).

CA Earl MRXTSIEA	CA Easytrieve MZXTSIEA	Description
EXTSIEA_REC_COUNT	EXTSIEA_REC_COUNT	Commands in this summary
EXTSIEA_SORT_KEY	EXTSIEA_SORT_KEY	Key used to sort the records as indicated in the environment table described in the CA JARS ADABAS interface documentation.
EXTSIEA_JOB_NAME	EXTSIEA_JOB_NAME	ADABAS Job Name
EXTSIEA_USER_ID	EXTSIEA_USER_ID	Client User ID

CA Earl MRXTSIEA	CA Easytrieve MZXTSIEA	Description
EXTSIEA_COMMAND	EXTSIEA_COMMAND	ADABAS Command Code
EXTSIEA_FILE_NUMBER	EXTSIEA_FILE_NUMBER	File Number
EXTSIEA_DURATION	EXTSIEA_DURATION	Duration of all commands in 0.000016 seconds
EXTSIEA_EST_CPU	EXTSIEA_EST_CPU	Estimated CPU time for all commands
EXTSIEA_ECBS_POSTED	EXTSIEA_ECBS_POSTED	ECBs posted by all command
EXTSIEA_DESC_UPDATE	EXTSIEA_DESC_UPDATE	Number of Descriptors updated
EXTSIEA_ASSO_IOS	EXTSIEA_ASSO_IOS	Associator IOs
EXTSIEA_DATA_IOS	EXTSIEA_DATA_IOS	Data IOs
EXTSIEA_WORK_IOS	EXTSIEA_WORK_IOS	Work IOs
EXTSIEA_TOTAL_IOS	EXTSIEA_TOTAL_IOS	Total IOs
EXTSIEA_MIN_START	EXTSIEA_MIN_START	Earliest start time for all commands in seconds since 1960-01-01 at midnight.
EXTSIEA_MAX_END	EXTSIEA_MAX_END	Latest end time for all commands in seconds since 1960-01-01 at midnight.
EXTSIEA_ELAPSED	EXTSIEA_ELAPSED	Elapsed time in 0.00001 hours for all commands
EXTSIEA_CPU_TIME	EXTSIEA_CPU_TIME	Total CPU Time
EXTSIEA_ACCOUNTING	EXTSIEA_ACCOUNTING	Accounting information as set in the Account Code.

EXTDATA Record Types - SIED

The SIED Record reports on commands processed by an CA Datacom/DB databse. The origin of the data is the Datacom Accounting Table.

CA Earl MRXTSIED	CA Easytrieve MZXTSIED	Description
EXTSIED_REC_COUNT	EXTSIED_REC_COUNT	Command count in this record
EXTSIED_DC_JOBNAME	EXTSIED_DC_JOBNAME	Datacom Job Name

CA Earl **MRXTSIED**	**CA Easytrieve** **MZXTSIED**	**Description**
EXTSIED_PRIORITY	EXTSIED_PRIORITY	Command Priority
EXTSIED_MAX_STOPTIME	EXTSIED_MAX_STOPTIME	Maximum End Time for Command
EXTSIED_CALLER_JOB	EXTSIED_CALLER_JOB	Calling Job Name
EXTSIED_RUN_UNIT	EXTSIED_RUN_UNIT	Run Unit
EXTSIED_OPERATOR_ID	EXTSIED_OPERATOR_ID	Operator ID
EXTSIED_USER_INFO	EXTSIED_USER_INFO	User Information
EXTSIED_ELAPSED_TIME	EXTSIED_ELAPSED_TIME	Elapsed time for commands in 0.00001 minutes
EXTSIED_RUNNING_TIME	EXTSIED_RUNNING_TIME	Running time for commands in 0.00001 minutes
EXTSIED_WAIT_TIME	EXTSIED_WAIT_TIME	Waiting time for commands in 0.00001 minutes
EXTSIED_DATA_EXCPS	EXTSIED_DATA_EXCPS	Data EXCPs
EXTSIED_INDEX_EXCPS	EXTSIED_INDEX_EXCPS	Index EXCPs
EXTSIED_DATA_LOGIOS	EXTSIED_DATA_LOGIOS	Data Logical IDs
EXTSIED_INDEX_LOGIOS	EXTSIED_INDEX_LOGIOS	Index Logical IOs
EXTSIED_OTHER_EXCPS	EXTSIED_OTHER_EXCPS	Other EXCPs
EXTSIED_OTHER_LOGIOS	EXTSIED_OTHER_LOGIOS	Other Logical IOs
EXTSIED_TOTAL_IOS	EXTSIED_TOTAL_IOS	Total IOs
EXTSIED_DAY_OF_WEEK	EXTSIED_DAY_OF_WEEK	Day of week indicator
EXTSIED_ACCOUNTING	EXTSIED_ACCOUNTING	Accounting information as defined in the User Accounting Table.

EXTDATA Record Types - SIEI

The MRXTSIEI and MZXTSIEI record definitions define the EXTDATA records created by CA JARS from the IMS Interface program. IMS log records are input to the process. This produces a CA JARS history file, which may be used with the Report Writer, as well as an EXTDATA file.

CA Earl MRXTSIEI	CA Easytrieve MZXTSIEI	SMF Data Field
EXTSIEI_JOBNAME	EXTSIEI_JOBNAME	N/A
EXTSIEI_STEPNAME	EXTSIEI_STEPNAME	N/A
EXTSIEI_PSBNAME	EXTSIEI_PSBNAME	N/A
EXTSIEI_USERID	EXTSIEI_USERID	N/A
EXTSIEI_USERINFO	EXTSIEI_USERINFO	N/A
EXTSIEI_TRANCOUNT	EXTSIEI_TRANCOUNT	N/A
EXTSIEI_RSV01	EXTSIEI_RSV01	N/A
EXTSIEI_TRANID	EXTSIEI_TRANID	N/A
EXTSIEI_TRANTYPE	EXTSIEI_TRANTYPE	N/A
EXTSIEI_TRANDATE	EXTSIEI_TRANDATE	N/A
EXTSIEI_TRANTIME	EXTSIEI_TRANTIME	N/A
EXTSIEI_ELAPSED	EXTSIEI_ELAPSED	N/A
EXTSIEI_CPU	EXTSIEI_CPU	N/A
EXTSIEI_ABENDCODE	EXTSIEI_ABENDCODE	N/A
EXTSIEI_TOTALGET	EXTSIEI_TOTALGET	N/A
EXTSIEI_TOTALIO	EXTSIEI_TOTALIO	N/A
EXTSIEI_TOTALINS	EXTSIEI_TOTALINS	N/A
EXTSIEI_TOTTERMS	EXTSIEI_TOTTERMS	N/A
EXTSIEI_GETU	EXTSIEI_GETU	N/A
EXTSIEI_GETN	EXTSIEI_GETN	N/A
EXTSIEI_GETP	EXTSIEI_GETP	N/A
EXTSIEI_GETS	EXTSIEI_GETS	N/A
EXTSIEI_GROUP1	EXTSIEI_GROUP1	N/A
EXTSIEI_GROUP2	EXTSIEI_GROUP2	N/A

CA Earl MRXTSIEI	CA Easytrieve MZXTSIEI	SMF Data Field
EXTSIEI_GROUP3	EXTSIEI_GROUP3	N/A
EXTSIEI_TERMID	EXTSIEI_TERMID	N/A
EXTSIEI_DLIINS	EXTSIEI_DLIINS	N/A
EXTSIEI_DLIDEL	EXTSIEI_DLIDEL	N/A
EXTSIEI_DLIREP	EXTSIEI_DLIREP	N/A
EXTSIEI_PRIORITY	EXTSIEI_PRIORITY	N/A
EXTSIEI_PROTKEY	EXTSIEI_PROTKEY	N/A

EXTDATA Record Types - SIEN

The SIEN record reports on statistics from a single NetView session. The data is based upon the SMF Type 39 records, but the fields themselves are derivied from the record and are not necessarily based upon a given field in the Type 39 record.

CA Earl MRXTSIEN	CA Easytrieve MZXTSIEN	Description
EXTSIEN_REC_TYPE	EXTSIEN_REC_TYPE	Record Type
EXTSIEN_REC_SUB	EXTSIEN_REC_SUB	Record Subtype
EXTSIEN_START_JDATE	EXTSIEN_START_JDATE	Starting Date of Session in YY.DDD format
EXTSIEN_START_TIME	EXTSIEN_START_TIME	Starting Time of Session in HH:MM:SS format
EXTSIEN_START_DATE	EXTSIEN_START_DATE	Starting Date of Session in YYMMDD format
EXTSIEN_TERM_ID	EXTSIEN_TERM_ID	Terminal ID
EXTSIEN_END_JDATE	EXTSIEN_END_JDATE	Ending Date of Session in YY.DDD format
EXTSIEN_END_TIME	EXTSIEN_END_TIME	Ending Time of Session in HH:MM:SS format
EXTSIEN_LINEUSE_TIME	EXTSIEN_LINEUSE_TIME	Line Use Time in 0.00001 hours
EXTSIEN_APPL_CODE	EXTSIEN_APPL_CODE	Application ID
EXTSIEN_BYTES_IN	EXTSIEN_BYTES_IN	Bytes sent inbound
EXTSIEN_BYTES_OUT	EXTSIEN_BYTES_OUT	Bytes Send Outbound
EXTSIEN_RETRAN_IN	EXTSIEN_RETRAN_IN	Retransmitted bytes inbound
EXTSIEN_RETRAN_OUT	EXTSIEN_RETRAN_OUT	Retransmitted bytes outbound

CA Earl MRXTSIEN	CA Easytrieve MZXTSIEN	Description
EXTSIEN_MSG_IN	EXTSIEN_MSG_IN	Messages sent inbound
EXTSIEN_MSG_OUT	EXTSIEN_MSG_OUT	Messages sent outbound
EXTSIEN_ACCOUNTING	EXTSIEN_ACCOUNTING	Accounting information

EXTDATA Record Types - SIER

The SIER record reports on the resource utilization by a single CA Roscoe session.

CA Earl MRXTSIER	CA Easytrieve MZXTSIER	Description
EXTSIER_SON_DATE	EXTSIER_SON_DATE	Signon Date YYMMDD
EXTSIER_SON_TIME	EXTSIER_SON_TIME	Signon Time HHMMSS
EXTSIER_KEY_1_8	EXTSIER_KEY_1_8	First 8 Bytes of the User Key
EXTSIER_ROS_TIME	EXTSIER_ROS_TIME	Time CA Roscoe was Started HHMMSS
EXTSIER_ROS_DATE	EXTSIER_ROS_DATE	Date CA Roscoe was Started YYMMDD
EXTSIER_ROS_JOBCL	EXTSIER_ROS_JOBCL	CA Roscoe Job Class
EXTSIER_SOFF_TIME	EXTSIER_SOFF_TIME	Signoff Time HHMMSS
EXTSIER_KEY_FULL	EXTSIER_KEY_FULL	Full 20-byte User Key
EXTSIER_VTAM_TERM	EXTSIER_VTAM_TERM	VTAM Terminal ID
EXTSIER_ROS_JOBNAME	EXTSIER_ROS_JOBNAME	CA Roscoe Job Name
EXTSIER_SESS_ID	EXTSIER_SESS_ID	Session ID
EXTSIER_ELAP_TIME	EXTSIER_ELAP_TIME	Elapsed Time of Session in 0.00001 hours
EXTSIER_CPU_TIME	EXTSIER_CPU_TIME	CPU Time in 0.01 seconds
EXTSIER_DISK_IOS	EXTSIER_DISK_IOS	Disk IOs
EXTSIER_TERM_IOS	EXTSIER_TERM_IOS	Terminal IOs
EXTSIER_TOT_IOS	EXTSIER_TOT_IOS	Total IOs
EXTSIER_IO_INDEX	EXTSIER_IO_INDEX	I/O Index

CA Earl MRXTSIER	CA Easytrieve MZXTSIER	Description
EXTSIER_ROS_TERM	EXTSIER_ROS_TERM	CA Roscoe Terminal Name
EXTSIER_JOBS_SUB	EXTSIER_JOBS_SUB	Number of Jobs Submitted
EXTSIER_ACT_TIME	EXTSIER_ACT_TIME	Time Session was Active in 0.00001 Hours
EXTSIER_CON_TIME	EXTSIER_CON_TIME	Time Session was Connected in 0.00001 Hours
EXTSIER_RES_TIME	EXTSIER_RES_TIME	Time Session was Resident in 0.00001 Hours
EXTSIER_TCB_TIME	EXTSIER_TCB_TIME	TCB Time in Timer Units (16 microseconds)
EXTSIER_UCB_ID	EXTSIER_UCB_ID	UCB Numer of Attached Terminal (field is empty if VTAM is used)
EXTSIER_TERM_TYPE	EXTSIER_TERM_TYPE	Terminal Type of Attached Terminal (field is empty if VTAM is used)
EXTSIER_DAY_OF_WEEK	EXTSIER_DAY_OF_WEEK	Day of Week
EXTSIER_ROS_SESSION	EXTSIER_ROS_SESSION	CA Roscoe Session Number
EXTSIER_FORM_KEY	EXTSIER_FORM_KEY	Formal Key
EXTSIER_ACCOUNT	EXTSIER_ACCOUNT	Accounting information
EXTSIER_USER_COUNT	EXTSIER_USER_COUNT	User Count

EXTDATA Record Types - SIET

The SIET record reports on the use of each volume in the tape catalog by slot, account, and other information. Each record has in it a creation date for a tape, as well as the billing date. The tape interface is designed to compute the amount of time a volume was used over an interval. In most cases the creation date will be before the billing date. Only if a tape was created during the interval being analyzed will the billing date not be the starting date of the interval. In all cases, the billing interval starts at midnight on the billing date.

CA Earl MRXTSIET	**CA Easytrieve MZXTSIET**	**Description**
EXTSIET_REC_TYPE	EXTSIET_REC_TYPE	Record Type
EXTSIET_REC_SUB	EXTSIET_REC_SUB	Record Subtype
EXTSIET_RELEASE	EXTSIET_RELEASE	Release level
EXTSIET_ELAPSED	EXTSIET_ELAPSED	Elapsed time for this volume covered in this report (seconds)
EXTSIET_DAYS	EXTSIET_DAYS	Elapsed time for this volume covered in this report (days)
EXTSIET_CRE_TIME	EXTSIET_CRE_TIME	Tape Creation Time
EXTSIET_CRE_DATE	EXTSIET_CRE_DATE	Tape Creation Date
EXTSIET_BIL_TIME	EXTSIET_BIL_TIME	Start of Billing Time for this Volume HHMMSS
EXTSIET_BIL_DATE	EXTSIET_BIL_DATE	Start of Billing Date for this Volume YY.DDD
EXTSIET_SCR_DATE	EXTSIET_SCR_DATE	Volume expiration date (if any) YY.DDD
EXTSIET_VOLSER	EXTSIET_VOLSER	Volume Serial
EXTSIET_RT_CODE	EXTSIET_RT_CODE	Recording Technique Code
EXTSIET_REC_TECH	EXTSIET_REC_TECH	Recording Technique
EXTSIET_DEN_CODE	EXTSIET_DEN_CODE	Density Code
EXTSIET_DENSITY	EXTSIET_DENSITY	Density
EXTSIET_LBL_CODE	EXTSIET_LBL_CODE	Label Code
EXTSIET_LBL_TYPE	EXTSIET_LBL_TYPE	Label Type
EXTSIET_VOL_LOC	EXTSIET_VOL_LOC	Volume Location
EXTSIET_MOVE_DATE	EXTSIET_MOVE_DATE	Volume Move Date if Moved from Original Location

CA Earl MRXTSIET	CA Easytrieve MZXTSIET	Description
EXTSIET_DATA_ORIGIN	EXTSIET_DATA_ORIGIN	Originating Source of the Tape Accounting Data: CA 1 CA TLMS
EXTSIET_DSN	EXTSIET_DSN	First DSN on the Tape
EXTSIET_ACCOUNTING	EXTSIET_ACCOUNTING	Accounting information
EXTSIET_RECREATE	EXTSIET_RECREATE	Tape Recreation Flag

EXTDATA Record Types - SIEX

The SIEX record reports on VM external communications via TCP/IP, CTCA, or IUCV/APPC.

CA Earl MRXTSIEX	CA Easytrieve MZXTSIEX	Description
EXTSIEX_USER_ID	EXTSIEX_USER_ID	Virtual Machine User ID
EXTSIEX_ACCT1	EXTSIEX_ACCT1	Accounting Information Part 1
EXTSIEX_ACCT2	EXTSIEX_ACCT2	Accounting Information Part 2
EXTSIEX_PARTNER_ID	EXTSIEX_PARTNER_ID	Partner Virtual Machine User ID
EXTSIEX_SENT_BYTES	EXTSIEX_SENT_BYTES	Bytes Sent (64-bit signed)
EXTSIEX_RECD_BYTES	EXTSIEX_RECD_BYTES	Bytes Received (64-bit signed)
EXTSIEX_TRANS_TYPE	EXTSIEX_TRANS_TYPE	Transmission Type: 0 Virtual NIC (TCP/IP) 1 CTCA 2 IUCV/APPC
EXTSIEX_LOC_DEVADDR	EXTSIEX_LOC_DEVADDR	Local Device Address (Transmission Types 0 or 1)
EXTSIEX_RMT_DEVADDR	EXTSIEX_RMT_DEVADDR	Remote Device Address (Transmission Type 1 only)
EXTSIEX_IPADDR	EXTSIEX_IPADDR	IP Address (Transmission Type 0 only)
EXTSIEX_LAN_NAME	EXTSIEX_LAN_NAME	LAN Name (Transmission Type 0 only)

CA Earl MRXTSIEX	CA Easytrieve MZXTSIEX	Description
EXTSIEX_TRANS_SUB	EXTSIEX_TRANS_SUB	Transmission Subtype (Transmission Type 0 only)
EXTSIEX_SENT_PACK	EXTSIEX_SENT_PACK	Bytes Sent in Packed Decimals Rounded to 10 significant digits
EXTSIEX_SP_UNIT	EXTSIEX_SP_UNIT	One-byte character that indicates the order of magnitude for the SENT_PACK field. **blank** value is exact **K** value is kilobytes **M** value is megabytes **G** value is gigabytes **T** value is terabytes **P** value is petabytes **E** value is exabytes

CA Earl MRXTSIEX	CA Easytrieve MZXTSIEX	Description
EXTSIEX_RECD_PACK	EXTSIEX_RECD_PACK	Bytes Received in Packed Decimals Rounded to 10 significant digits
EXTSIEX_RP_UNIT	EXTSIEX_RP_UNIT	One-byte character that indicates the order of magnitude for the RECD_PACK field. **blank** value is exact **K** value is kilobytes **M** value is megabytes **G** value is gigabytes **T** value is terabytes **P** value is petabytes **E** value is exabytes

EXTDATA Record Types - SIEZ

The SIEZ record reports statistics from a zVM session. A zVM session is identified as all the accounting records that match these four fields:

- User ID
- Account Number
- Logoff Date
- Logoff Time

Each zVM session can generate multiple accounting records of types 1, 2, and 3. zVM 5.3 type 1 "continuation" records offer a detailed view of each special processor attached to the virtual machine: zIIP, zAAP, IFL, and CF. (The continuation records contain CPU use fields only. The other resource use fields are blank.)

CA JARS summarizes these accounting records into a single SIEZ EXTDATA record. Each numeric field in the SIEZ record, with the exception of the CP matrix, is the sum of all the measures from each of the accounting records generated by the session. A CPU-by-CPU breakdown of CP use is included in the SIEZ record as a matrix of values identified by real CP addresses. See sample report EZXTZ002 in the Reports *Guide* for an example of how to format the matrix.

This table contains the record layout. For more information, see "The VM Interface" in the *Interfaces Guide.* To help you identify the accounting record fields, see the information on the columns in the virtual accounting records in the chapter entitled, "Accounting Record Formats" in *z/VM CP Planning and Administration version 5 release 3* (SC24-6083). You can also review the information on the Virtual Machine Definition Block (VMDBK), which does not map the accounting records but describes the source of many VM accounting record fields.

EXTDATA Variable Name	Acct. Rec. Type	Columns	Description
EXTSIEZ_USERID	1	1-8	User ID
EXTSIEZ_ACCNT1	1	9-16	Account number
EXTSIEZ_ACCNT2			Accounting field from User Accounting Table (see Chapter 8 of the *Interfaces Guide* for more information)
EXTSIEZ_DATE	1	17-28	Date and time of accounting (mmddyyhhmmss). This is the logoff date.
EXTSIEZ_TIME			Logoff time (hhmmss)
EXTSIEZ_CONTO	1	29-32	Number of seconds connected to CP. This is the sum of connect times in each type 1 accounting record associated with this session. =SUM(EXTSIEZ_CONTM(n))
EXTSIEZ_CONMX			The longest connect time for any CP attached to the session. This is the best estimate of session length. =MAX(EXTSIEZ_CONTM(n))
EXTSIEZ_CPUTN	1	33-36	Milliseconds of processor time used, including time for supervisor functions =SUM(EXTSIEZ_CPTN(n))
EXTSIEZ_CPUVT	1	37-40	Milliseconds of virtual CPU time used. This is "user" time, or the CPU doing the work of the virtual machine rather than overhead functions. =SUM(EXTSIEZ_CPVC(n))
EXTSIEZ_VIPRT	1	41-44	Number of page reads
EXTSIEZ_VIPUN	1	45-48	Number of page writes

EXTDATA Variable Name	Acct. Rec. Type	Columns	Description
EXTSIEZ_PGRD	1	49-52	Number of requested virtual I/O starts for non-spooled I/O
EXTSIEZ_PGWRT	1	53-56	Number of virtual punch cards sent to a virtual punch
EXTSIEZ_VIOST	1	57-60	Number of virtual print lines sent to a virtual printer (this includes one line for each carriage control command)
EXTSIEZ_VIPRD	1	61-64	Number of virtual punch cards received from a virtual reader
EXTSIEZ_TOTVT	1		Milliseconds of total vector time (obsolete)
EXTSIEZ_VIRVT	1		Milliseconds of virtual vector time (obsolete)
EXTSIEZ_VIONS	1	73-76	Number of completed virtual I/O starts for non-spooled I/O (except DIAGNOSE X'58' and DIAGNOSE X'98')
EXTSIEZ_DSKNM			Count type 2 DEVCLAS=Disk. Device class (defined below) has the X'04' bit set on.
EXTSIEZ_DSKTM	2	29-32	Number of seconds since the virtual disk was created or the number of seconds since the last accounting record was cut for this virtual disk. Summed over all type 2s with DEVCLAS=DISK.
EXTSIEZ_TAPCT			Count type 2 DEVCLAS=Tape. Device class (defined below) has the X'08' bit set on.
EXTSIEZ_TAPTM	2	29-32	Number of seconds since the virtual tape was created or the number of seconds since the last accounting record was cut for this virtual tape. Summed over all type 2s with DEVCLAS=Tape.
	2	33	Device class (see note 1 below)
	2	34	Device type (see note 1 below)
	2	35	Device model, if any (see note 1 below)
	2	36	Device features, if any (see note 1 below)
EXTSIEZ_TDKNE			Count of CKD type 3s. DEVCLAS=x'04' and DEVTYPE is not an FBA device.
EXTSIEZ_TDKCY	3	37-38	Number of cylinders of temporary disk space used (only present for CKD or ECKD architected device types)
EXTSIEZ_TDKNF			Count of FBA type 3s. DEVCLAS=x'04' and DEVTYPE=x'21', x'22', x'24', or x'28'.
EXTSIEZ_FBABL	3	37-40	Number of FBA blocks used (only present for FBA-architected device types)

EXTDATA Variable Name	Acct. Rec. Type	Columns	Description
EXTSIEZ_PAGES	3	41-44	Number of 4K pages used (present for all device types)
EXTSIEZ_CPCNT			Count of type 1s. This is the number of entries in the following CPU array. It is possible for this count to be zero if "orphan" type 2 or 3 records were encountered.
EXTSIEZ_CP_ARRAY			This scalar variable covers the entire CPU array. There is one array entry for each CP, zIIP, zAAP, IFL, or CF attached to the session. It is a workaround for limitations in CA Easytrieve.
EXTSIEZ_CPARR			This is a group variable for one instance of the CPU array structure. It is a workaround for limitations in CA Easytrieve.
EXTSIEZ_CONTM	1	29-32	Number of seconds connected to CP
EXTSIEZ_CPTN	1	33-36	Milliseconds of processor time used, including time for supervisor functions
EXTSIEZ_CPVC	1	37-40	Milliseconds of virtual CPU time used.
EXTSIEZ_VCPTP	1	65	Virtual CPU type code (see note 2 below)
EXTSIEZ_RCPTP	1	66	Real CPU type code (see note 2 below)
EXTSIEZ_CPUAD	1	77-78	CPU address (if the user ID is SYSTEM, this is the real processor address)
EXTSIEZ_RSRVD			Reserved

Notes:

1. For more information on device class, device type, device model and device features, see Appendix F, "Device Class and Type Codes" in *z/VM CP Planning and Administration, Version 5, Release 3* (SC24-6083).
2. For zIIP and zAAP processors, these fields can be exploited to determine the actual and potential use of special processors. See sample report EZXTV002 for more information.

EXTDATA Record Types - SIO, SIOI, SIOX

The MRXT30IO and MZXT30IO record definitions define the EXTDATA records created by CA JARS from the following Common Address Space Work SMF records:

SIO

SMF record 30, subtype 5

SIOI

SMF record 30, subtype 2/3

SIOX

SMF record 30, subtype 4

This EXTDATA record can be used for accounting and chargeback. Its associated IRD/ORD is JIO. The IRD/ORD field names are in the table below.

CA Earl MRXT30IO	CA Easytrieve MZXT30IO	SMF Data Field	IRD/ORD Field Name
EXT30I_WID	EXT30I_WID	SMF30WID	SUBSYSTEM ID
EXT30I_JBN	EXT30I_JBN	SMF30JBN	JOBNAME
EXT30I_PGM	EXT30I_PGM	SMF30PMG	PROGRAM NAME
EXT30I_STM	EXT30I_STM	SMF30STM	STEPNAME
EXT30I_UIF	EXT30I_UIF	SMF30UIF	USERID
EXT30I_JNM	EXT30I_JNM	SMF30JNM	JOBID
EXT30I_STN	EXT30I_STN	SMF30STN	STEP NUMBER
EXT30I_CLS	EXT30I_CLS	SMF30CLS	JOB CLASS
EXT30I_PGN	EXT30I_PGN	SMF30PGN	PERFORMANCE GRP
EXT30I_JPT	EXT30I_JPT	SMF30JPT	INPUT PRIORITY
EXT30I_AST	EXT30I_AST	SMF30AST	ALLOC START TIME
EXT30I_PPS	EXT30I_PPS	SMF30PPS	PROGRAM START T
EXT30I_SIT	EXT30I_SIT	SMF30SIT	INITIATOR TIME
EXT30I_STD	EXT30I_STD	SMF30STD	INITIATOR DATE
EXT30I_RST	EXT30I_RST	SMF30RST	RDR START TIME
EXT30I_RSD	EXT30I_RSD	SMF30RSD	RDR START DATE
EXT30I_RET	EXT30I_RET	SMF30RET	
EXT30I_RED	EXT30I_RED	SMF30RED	
EXT30I_USR	EXT30I_USR	SMF30USR	PROGRAMMER NAME

CA Earl MRXT30IO	CA Easytrieve MZXT30IO	SMF Data Field	IRD/ORD Field Name
EXT30I_GRP	EXT30I_GRP	SMF30GRP	RACF GROUP ID
EXT30I_RUD	EXT30I_RUD	SMF30RUD	RACF USER ID
EXT30I_TID	EXT30I_TID	SMF30TID	RACF TERMINAL
EXT30I_TSN	EXT30I_TSN	SMF30TSN	TERM SYMBOLIC
EXT30I_PSN	EXT30I_PSN	SMF30PSN	PROC STEP
EXT30I_CL8	EXT30I_CL8	SMF30CL8	FULL JOB CLASS
EXT30I_ISST	EXT30I_ISST	SMF30ISS	INTVL START T
EXT30I_ISSD	EXT30I_ISSD	SMF30ISS	INTVL START D
EXT30I_IETT	EXT30I_IETT	SMF30IET	INTVL END T
EXT30I_IETD	EXT30I_IETD	SMF30IET	INTVL END D
EXT30I_DEV	EXT30I_DEV	SMF30DEV	DEVICE CLASS
EXT30I_UTP	EXT30I_UTP	SMF30UTP	UNIT TYPE
EXT30I_BLK	EXT30I_BLK	SMF30BLK	BLOCK COUNT
EXT30I_DCT	EXT30I_DCT	SMF30DCT	DEVICE CONNECT
EXT30I_XXX	EXT30I_XXX	SMF30WID	
EXT30I_ACC	EXT30I_ACC	SMF30ACT	ACCT CODES
EXT30I_SSN	EXT30I_SSN	SMF30SSN	
EXT30I_EXN	EXT30I_EXN	SMF30EXN	
EXT30I_ASI	EXT30I_ASI	SMF30ASI	

EXTDATA Record Type - SWCF

The MRXT1031 and MZXT1031 record definitions define the EXTDATA records created by CA JARS from SMF record 103, subtype 1, Websphere Configuration record.

CA Earl MRXT1031	CA Easytrieve MZXT1031	SMF Data Field
EXT1031_SSI	EXT1031_SSI	SMF103SSI
EXT1031_ENTNAME	EXT1031_ENTNAME	ENTITYNAME
EXT1031_ENTADDR	EXT1031_ENTADDR	ENTITYADDRESS

CA Earl MRXT1031	CA Easytrieve MZXT1031	SMF Data Field
EXT1031_ENTPORT	EXT1031_ENTPORT	ENTITYPORT
EXT1031_SRVRTYPE	EXT1031_SRVRTYPE	SERVERTYPE
EXT1031_SRVRVRSN	EXT1031_SRVRVRSN	APPLVERSION
EXT1031_SRVRROOT	EXT1031_SRVRROOT	SERVERROOT
EXT1031_DNSLKUP	EXT1031_DNSLKUP	DODNSLOOKUP
EXT1031_MXBUFSZ	EXT1031_MXBUFSZ	MAXCONTENTBUF
EXT1031_THDMIN	EXT1031_THDMIN	THREADSMIN
EXT1031_THDMAX	EXT1031_THDMAX	THREADSMAX
EXT1031_THDTMOUT	EXT1031_THDTMOUT	IDLETHREADTO
EXT1031_ACLSET	EXT1031_ACLSET	ACLSETTINGS
EXT1031_METAFLG	EXT1031_METAFLG	USEMETAFILES
EXT1031_DRCTYFLG	EXT1031_DRCTYFLG	DIRACCESS
EXT1031_INPUTTO	EXT1031_INPUTTO	INPUTTO
EXT1031_OUTPUTTO	EXT1031_OUTPUTTO	OUTPUTTO
EXT1031_SCRPTTO	EXT1031_SCRPTTO	SCRIPTTO
EXT1031_GMTFLG	EXT1031_GMTFLG	USEGMT
EXT1031_HTMLFLG	EXT1031_HTMLFLG	SERVERIMBEDSHTML
EXT1031_SECUTYP	EXT1031_SECUTYP	SECURETYPE
EXT1031_SSLPORT	EXT1031_SSLPORT	SSLPORT
EXT1031_NMLMDFL	EXT1031_NMLMDFL	NORMALMODE
EXT1031_CACHEFL	EXT1031_CACHEFL	CACHEOFF
EXT1031_MAXCACHE	EXT1031_MAXCACHE	CACHE_MAX_K
EXT1031_CACHEMXF	EXT1031_CACHEMXF	CACHE_MAX_F
EXT1031_CACHELMT 1	EXT1031_CACHELMT 2	CACHE_LIMIT_1
EXT1031_CACHELMT 1	EXT1031_CACHELMT 2	CACHE_LIMIT_2
EXT1031_MARGNLEN	EXT1031_MARGNLEN	CACHETIMEMARGINL
EXT1031_CACTMMRG	EXT1031_CACTMMRG	CACHETIMEMARGINEN
EXT1031_LOKTOLEN	EXT1031_LOKTOLEN	CACHELOCKTOLEN
EXT1031_LOKTMOUT	EXT1031_LOKTMOUT	CACHELOCKTO

CA Earl MRXT1031	CA Easytrieve MZXT1031	SMF Data Field
EXT1031_KPEXPFLG	EXT1031_KPEXPFLG	KEEPEXPIRED
EXT1031_CACONFLG	EXT1031_CACONFLG	CACHENOCONNECT
EXT1031_GBGCLFLG	EXT1031_GBGCLFLG	GCDISABLED
EXT1031_CLINTLEN	EXT1031_CLINTLEN	GCDAILYGCLEN
EXT1031_GCINTV	EXT1031_GCINTV	GCDAILYGC
EXT1031_GCMEMUSG	EXT1031_GCMEMUSG	GCMEMUSAGE
EXT1031_PRXSMTHG	EXT1031_PRXSMTHG	PROXYSOMETHING

EXTDATA Record Type - SWCI

The MRXT120C and MZXT120C record definitions define the EXTDATA records created by CA JARS from SMF record 120, subtype 4, Websphere Container Interval record.

CA Earl MRXT120C	CA Easytrieve MZXT120C	SMF Data Field
EXT120C_SSI	EXT120C_SSI	SM120SSI
EXT120C_HNM	EXT120C_HNM	SM120HNM
EXT120C_SNM	EXT120C_SNM	SM120SNM
EXT120C_SIN	EXT120C_SIN	SM120SIN
EXT120C_CNM	EXT120C_CNM	SM120CNM
EXT120C_CTP	EXT120C_CTP	SM120CTP
EXT120C_CSP	EXT120C_CSP	SM120CSP
EXT120C_STRTTM	EXT120C_STRTTM	SM120SST
EXT120C_STRTDT	EXT120C_STRTDT	SM120SST
EXT120C_STPTM	EXT120C_STPTM	SM120SET
EXT120C_STPDT	EXT120C_STPDT	SM120SET
EXT120C_CLN	EXT120C_CLN	SM120CLN
EXT120C_NIC	EXT120C_NIC	SM120NIC
EXT120C_NIA	EXT120C_NIA	SM120NIA
EXT120C_NIR	EXT120C_NIR	SM120NIR

CA Earl MRXT120C	CA Easytrieve MZXT120C	SMF Data Field
EXT120C_NIP	EXT120C_NIP	SM120NIP
EXT120C_MNM	EXT120C_MNM	SM120MNM
EXT120C_NMI	EXT120C_NMI	SM120NMI
EXT120C_NEX	EXT120C_NEX	SM120NEX
EXT120C_ART	EXT120C_ART	SM120ART
EXT120C_MRT	EXT120C_MRT	SM120MRT

EXTDATA Record Type - SWJA

The MRXT120L and MZXT120L record definitions define the EXTDATA records created by CA JARS from SMF record 120, subtype 5, Websphere J2EE Container Activity record.

For a description of the SMF data fields listed in the following tables, see the IBM WebSphere documents at this website:

http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp

Open the document "Websphere Application Server (z/OS) Version 6.0." The SMF Type 120 record is documented in detail in the chapter entitled "Reference." A site search for the keyword "SMF" will also find relevant chapters.

Additional information on the contents of SMF Type 120 records can be found by assembling the SMF mapping macro &WebspherePrefix.SBBOMAC(BBOOS120) as in this example:

```
RECMAP   DSECT
         BBOOS120 ,
         END
```

Note: Certain WebSphere 6.0 fields are 64-bit binary format. Sixty-four bit binary is fully supported in CA JARS, but not in CA Easytrieve or CA Earl. The CA Easytrieve mapping macro MZXT120L, supplied with CA JARS, maps only the last 32 bits of 64-bit fields. This will be corrected when CA Easytrieve is changed to support 64-bit binary fields.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT120L_SSI	RECORDHEADER	SM120SSI
EXT120L_JA4	J2EECONTAINERACTIVITYSECTION	SM120JA4

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT120L_JA5	J2EECONTAINERACTIVITYSECTION	SM120JA5
EXT120L_JA6	J2EECONTAINERACTIVITYSECTION	SM120JA6
EXT120L_JA7	J2EECONTAINERACTIVITYSECTION	SM120JA7
EXT120L_JA8	J2EECONTAINERACTIVITYSECTION	SM120JA8
EXT120L_JA9	J2EECONTAINERACTIVITYSECTION	SM120JA9
EXT120L_JAB	J2EECONTAINERACTIVITYSECTION	SM120JAB
EXT120L_JB1	BEANSECTION	SM120JB1
EXT120L_JB2	BEANSECTION	SM120JB2
EXT120L_JB3	BEANSECTION	SM120JB3
EXT120L_JB7	BEANSECTION	SM120JB7
EXT120L_JM1	BEANMETHODSECTION	SM120JM1
EXT120L_JM2	BEANMETHODSECTION	SM120JM2
EXT120L_JM3	BEANMETHODSECTION	SM120JM3
EXT120L_JM4	BEANMETHODSECTION	SM120JM4
EXT120L_JM5	BEANMETHODSECTION	SM120JM5
EXT120L_JMA	BEANMETHODSECTION	SM120JMA
EXT120L_JME	BEANMETHODSECTION	SM120JME
EXT120L_JMF	BEANMETHODSECTION	SM120JMF
EXT120L_JMF	BEANMETHODSECTION	SM120JMG
EXT120L_JMG	BEANMETHODSECTION	SM120JMG
EXT120L_JMH	BEANMETHODSECTION	SM120JMH
EXT120L_JMI	BEANMETHODSECTION	SM120JMI
EXT120L_JMJ	BEANMETHODSECTION	SM120JMJ
EXT120L_JMK	BEANMETHODSECTION	SM120JMK
EXT120L_JML	BEANMETHODSECTION	SM120JML
EXT120L_JMM	BEANMETHODSECTION	SM120JMM
EXT120L_JMN	BEANMETHODSECTION	SM120JMN
EXT120L_JMO	BEANMETHODSECTION	SM120JMO
EXT120L_JMP	BEANMETHODSECTION	SM120JMP

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT120L_CL2	J2EECONTAINERACTIVITYSECTION	SM120CL2
EXT120L_ND2	J2EECONTAINERACTIVITYSECTION	SM120ND2
EXT120L_JMQ	BEANMETHODSECTION	SM120JMQ
EXT120L_JMR	BEANMETHODSECTION	SM120JMR
EXT120L_JMS	BEANMETHODSECTION	SM120JMS

EXTDATA Record Type - SWJI

The MRXT120D and MZXT120D record definitions define the EXTDATA records created by CA JARS from SMF record 120, subtype 6, Websphere J2EE Container Interval record.

For a description of the SMF data fields listed in the following tables, see the IBM WebSphere documents at this website:

http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp

Note: Certain WebSphere 6.0 fields are 64-bit binary format. 64-bit binary is fully supported in CA JARS, but is not supported in CA Easytrieve or CA Earl. The CA Easytrieve mapping macro MZXT120A supplied with CA JARS maps only the last 32 bits of 64-bit fields. This will be corrected when CA Easytrieve is changed to support 64-bit binary fields.

CA Earl MRXT120D	CA Easytrieve MZXT120D	SMF Data Field
EXT120D_SSI	EXT120D_SSI	SM120SSI
EXT120D_JI4	EXT120D_JI4	SM120JI4
EXT120D_JI5	EXT120D_JI5	SM120JI5
EXT120D_JI6	EXT120D_JI6	SM120JI6
EXT120D_JI7	EXT120D_JI7	SM120JI7
EXT120D_STRTTM	EXT120D_STRTTM	SM120JI8
EXT120D_STRTDT	EXT120D_STRTDT	SM120JI8
EXT120D_STPTM	EXT120D_STPTM	SM120JI9
EXT120D_STPDT	EXT120D_STPDT	SM120JI9
EXT120D_JB1	EXT120D_JB1	SM120JB1

CA Earl MRXT120D	CA Easytrieve MZXT120D	SMF Data Field
EXT120D_JB2	EXT120D_JB2	SM120JB2
EXT120D_JB3	EXT120D_JB3	SM120JB3
EXT120D_JB7	EXT120D_JB7	SM120JB7
EXT120D_JM1	EXT120D_JM1	SM120JM1
EXT120D_JM2	EXT120D_JM2	SM120JM2
EXT120D_JM3	EXT120D_JM3	SM120JM3
EXT120D_JM4	EXT120D_JM4	SM120JM4
EXT120D_JM5	EXT120D_JM5	SM120JM5
EXT120D_JMA	EXT120D_JMA	SM120JMA
EXT120D_JME	EXT120D_JME	SM120JME
EXT120D_JMF	EXT120D_JMF	SM120JMF
EXT120D_JMG	EXT120D_JMG	SM120JMG
EXT120D_JMH	EXT120D_JMH	SM120JMH
EXT120D_JMI	EXT120D_JMI	SM120JMI
EXT120D_JMJ	EXT120D_JMJ	SM120JMJ
EXT120D_JMK	EXT120D_JMK	SM120JMK
EXT120D_JML	EXT120D_JML	SM120JML
EXT120D_JMM	EXT120D_JMM	SM120JMM
EXT120D_JMN	EXT120D_JMN	SM120JMN
EXT120D_JMO	EXT120D_JMO	SM120JMO
EXT120D_JMP	EXT120D_JMP	SM120JMP
EXT120D_CL3	EXT120D_CL3	SM120CL3
EXT120D_ND3	EXT120D_ND3	SM120ND3
EXT120D_JMQ	EXT120D_JMQ	SM120JMQ
EXT120D_JMR	EXT120D_JMR	SM120JMR
EXT120D_JMS	EXT120D_JMS	SM120JMS

EXTDATA Record Type - SWPF

The MRXT1032 and MZXT1032 record definitions define the EXTDATA records created by CA JARS from SMF record 103, subtype 2, Websphere Performance record.

CA Earl MRXT1032	CA Easytrieve MZXT1032	SMF Data Field
EXT1032_SSI	EXT1032_SSI	SMF103SSI
EXT1032_ENTAME	EXT1032_ENTNAME	ENTITYNAME
EXT1032_ENTADDR	EXT1032_ENTADDR	ENTITYADDRESS
EXT1032_ENTPORT	EXT1032_ENTPORT	ENTITYPORT
EXT1032_SRVRTYPE	EXT1032_SRVRTYPE	SERVERTYPE
EXT1032_SRVRVRSN	EXT1032_SRVRVRSN	APPLVERSION
EXT1032_TCURTHD	EXT1032_TCURTHD	TOTALCURRENTTHREADS
EXT1032_MXTHDDEF	EXT1032_MXTHDDEF	MAXTHREAD
EXT1032_CMRQRCV	EXT1032_CMRQRCV	REQUEST
EXT1032_CMRQERR	EXT1032_CMRQERR	REQUESTERRORS
EXT1032_CMRQDIS	EXT1032_CMRQDIS	REQUESTDISCARDS
EXT1032_CMRSPOUT	EXT1032_CMRSPOUT	RESPONSES
EXT1032_CMRSPDIS	EXT1032_CMRSPDIS	RESPONSEDISCARD
EXT1032_CMBYTIN	EXT1032_CMBYTIN	INBYTES
EXT1032_CMBYTOUT	EXT1032_CMBYTOUT	OUTBYTES
EXT1032_CMBYTUNK	EXT1032_CMBYTUNK	INUNKNOWNS
EXT1032_TOTTMOUT	EXT1032_TOTTMOUT	TOTALTIMEOUTS
EXT1032_KBRDCACH	EXT1032_KBRDCACH	KBYTESREADFROMCACHE
EXT1032_BRDCACH	EXT1032_BRDCACH	BYTESREADFROMCACHE
EXT1032_CACHHITS	EXT1032_CACHHITS	CACHEHITS
EXT1032_CURPRXSZ	EXT1032_CURPRXSZ	BYTESCACHERAMINUSE
EXT1032_CACHEDFL	EXT1032_CACHEDFL	CACHEDFILES
EXT1032_TOTGETS	EXT1032_TOTGETS	GETREQUESTS
EXT1032_TOTHEAD	EXT1032_TOTHEAD	HEADREQUESTS
EXT1032_TOTPOST	EXT1032_TOTPOST	POSTREQUESTS
EXT1032_TOTCGI	EXT1032_TOTCGI	CGIREQUESTS

CA Earl MRXT1032	CA Easytrieve MZXT1032	SMF Data Field
EXT1032_TOTGWAPI	EXT1032_TOTGWAPI	GWAPIREQUESTS
EXT1032_EL200RSP	EXT1032_EL200RSP	LEVEL200RESPONSES
EXT1032_EL300RSP	EXT1032_EL300RSP	LEVEL300RESPONSES
EXT1032_EL400RSP	EXT1032_EL400RSP	LEVEL400RESPONSES
EXT1032_EL500RSP	EXT1032_EL500RSP	LEVEL500RESPONSES
EXT1032_E200RSP	EXT1032_E200RSP	200RESPONSES
EXT1032_E302RSP	EXT1032_E302RSP	302RESPONSES
EXT1032_E401RSP	EXT1032_E401RSP	401RESPONSES
EXT1032_E403RSP	EXT1032_E403RSP	403RESPONSES
EXT1032_E404RSP	EXT1032_E404RSP	404RESPONSES
EXT1032_E407RSP	EXT1032_E407RSP	407RESPONSES
EXT1032_E500RSP	EXT1032_E500RSP	500RESPONSES
EXT1032_WRTINTV	EXT1032_WRTINTV	SMFRECORDINTERVAL
EXT1032_CONNCT	EXT1032_CONNCT	SMFCONNECTCNT
EXT1032_DNSMAX	EXT1032_DNSMAX	DNSMAX
EXT1032_DNSMIN	EXT1032_DNSMIN	DNSMIN
EXT1032_DNSAVG	EXT1032_DNSAVG	DNSAVG
EXT1032_SPIMAX	EXT1032_SPIMAX	SERVICEPLUGINSMAX
EXT1032_SPIMIN	EXT1032_SPIMIN	SERVICEPLUGINSMIN
EXT1032_SPIAVG	EXT1032_SPIAVG	SERVICEPLUGINSAVG
EXT1032_CGIMAX	EXT1032_CGIMAX	CGIMAX
EXT1032_CGIMIN	EXT1032_CGIMIN	CGIMIN
EXT1032_CGIAVG	EXT1032_CGIAVG	CGIAVG
EXT1032_SSLHSMX	EXT1032_SSLHSMX	SSLHANDSHAKEMAX
EXT1032_SSLHSMN	EXT1032_SSLHSMN	SSLHANDSHAKEMIN
EXT1032_SSLHSAV	EXT1032_SSLHSAV	SSLHANDSHAKEAVG
EXT1032_PRXYMAX	EXT1032_PRXYMAX	PROXYRESPONSEMAX
EXT1032_PRXYMIN	EXT1032_PRXYMIN	PROXYRESPONSEMIN
EXT1032_PRXYAVG	EXT1032_PRXYAVG	PROXYRESPONSEAVG

EXTDATA Record Type - SWSA

The MRXT120A and MZXT120A record definitions define the EXTDATA records created by CA JARS from SMF record 120, subtype 1, Websphere Server Activity record.

For a description of the SMF data fields listed in the following tables, see the IBM WebSphere documents at this website:

http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp

Note: Certain WebSphere 6.0 fields are 64-bit binary format. 64-bit binary is fully supported in CA JARS, but is not supported in CA Easytrieve or CA Earl. The CA Easytrieve mapping macro MZXT120A supplied with CA JARS maps only the last 32 bits of 64-bit fields. This will be corrected when CA Easytrieve is changed to support 64-bit binary fields.

CA Earl **MRXT120A**	**CA Easytrieve** **MZXT120A**	**SMF Data Field**
EXT120A_SSI	EXT120A_SSI	SM120SSI
EXT120A_HNM	EXT120A_HNM	SM120HNM
EXT120A_SNM	EXT120A_SNM	SM120SNM
EXT120A_SIN	EXT120A_SIN	SM120SIN
EXT120A_SCT	EXT120A_SCT	SM120SNM
EXT120A_SR1	EXT120A_SR1	SM120SR1
EXT120A_SR2	EXT120A_SR2	SM120SR2
EXT120A_SR3	EXT120A_SR3	SM120SR3
EXT120A_SR4	EXT120A_SR4	SM120SR4
EXT120A_SR5	EXT120A_SR5	SM120SR5
EXT120A_CRE	EXT120A_CRE	SM120CRE
EXT120A_ATY	EXT120A_ATY	SM120ATY
EXT120A_AID	EXT120A_AID	SM120AID
EXT120A_WLM	EXT120A_WLM	SM120WLM
EXT120A_STRTTM	EXT120A_STRTTM	SM120AST
EXT120A_STRTDT	EXT120A_STRTDT	SM120AST
EXT120A_STPTM	EXT120A_STPTM	SM120AET
EXT120A_STPDT	EXT120A_STPDT	SM120AET
EXT120A_NIM	EXT120A_NIM	SM120NIM

CA Earl MRXT120A	CA Easytrieve MZXT120A	SMF Data Field
EXT120A_NGT	EXT120A_NGT	SM120NGT
EXT120A_NLT	EXT120A_NLT	SM120NLT
EXT120A_STY	EXT120A_STY	SM120STY
EXT120A_CSH	EXT120A_CSH	SM120CSH
EXT120A_CSA	EXT120A_CSA	SM120CSA
EXT120A_CSO	EXT120A_CSO	SM120CSO
EXT120A_SDR	EXT120A_SDR	SM120SDR
EXT120A_SDT	EXT120A_SDT	SM120SDT
EXT120A_CDR	EXT120A_CDR	SM120CDR
EXT120A_CDT	EXT120A_CDT	SM120CDT
EXT120A_J2E	EXT120A_J2E	SM120J2E
EXT120A_CEL	EXT120A_CEL	SM120CEL
EXT120A_NOD	EXT120A_NOD	SM120NOD
EXT120A_WCP	EXT120A_WCP	SM120WCP

EXTDATA Record Type - SWSI

The MRXT120B and MZXT120B record definitions define the EXTDATA records created by CA JARS from SMF record 120, subtype 3, Websphere Server Interval record.

For a description of the SMF data fields listed in the following tables, see the IBM WebSphere documents at this website:

http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp

Note: Certain WebSphere 6.0 fields are 64-bit binary format. 64-bit binary is fully supported in CA JARS, but is not supported in CA Easytrieve or CA Earl. The CA Easytrieve mapping macro MZXT120A supplied with CA JARS maps only the last 32 bits of 64-bit fields. This will be corrected when CA Easytrieve is changed to support 64-bit binary fields.

CA Earl MRXT120B	CA Easytrieve MZXT120B	SMF Data Field
EXT120B_SSI	EXT120B_SSI	SM120SSI
EXT120B_HNM	EXT120B_HNM	SM120HNM
EXT120B_SNM	EXT120B_SNM	SM120SNM
EXT120B_SIN	EXT120B_SIN	SM120SIN
EXT120B_STRTTM	EXT120B_STRTTM	SM120SST
EXT120B_STRTDT	EXT120B_STRTDT	SM120SST
EXT120B_STPTM	EXT120B_STPTM	SM120SET
EXT120B_STPDT	EXT120B_STPDT	SM120SET
EXT120B_NGT	EXT120B_NGT	SM120NGT
EXT120B_NLT	EXT120B_NLT	SM120NLT
EXT120B_NCS	EXT120B_NCS	SM120NCS
EXT120B_NCA	EXT120B_NCA	SM120NCA
EXT120B_NLS	EXT120B_NLS	SM120NLS
EXT120B_NLA	EXT120B_NLA	SM120NLA
EXT120B_NRS	EXT120B_NRS	SM120NRS
EXT120B_NRA	EXT120B_NRA	SM120NRA
EXT120B_BTS	EXT120B_BTS	SM120BTS
EXT120B_BFS	EXT120B_BFS	SM120BFS
EXT120B_BTL	EXT120B_BTL	SM120BTL

CA Earl MRXT120B	CA Easytrieve MZXT120B	SMF Data Field
EXT120B_BFL	EXT120B_BFL	SM120BFL
EXT120B_BTR	EXT120B_BTR	SM120BTR
EXT120B_BFR	EXT120B_BFR	SM120BFR
EXT120B_STY	EXT120B_STY	SM120STY
EXT120B_J2	EXT120B_J2	SM120J2
EXT120B_CL1	EXT120B_CL1	SM120CL1
EXT120B_ND1	EXT120B_ND1	SM120ND1
EXT120B_NHS	EXT120B_NHS	SM120NHS
EXT120B_NHA	EXT120B_NHA	SM120NHA
EXT120B_BTH	EXT120B_BTH	SM120BTH
EXT120B_BFH	EXT120B_BFH	SM120BFH
EXT120B_TEC	EXT120B_TEC	SM120TEC
EXT120B_ITS	EXT120B_ITS	SM120ITS
EXT120B_IFS	EXT120B_IFS	SM120IFS
EXT120B_ITL	EXT120B_ITL	SM120ITL
EXT120B_IFL	EXT120B_IFL	SM120IFL
EXT120B_ITR	EXT120B_ITR	SM120ITR
EXT120B_IFR	EXT120B_IFR	SM120IFR
EXT120B_ITH	EXT120B_ITH	SM120ITH
EXT120B_IFH	EXT120B_IFH	SM120IFH
EXT120B_IR1	EXT120B_IR1	SM120IR1

EXTDATA Record Types - O30, O30I, O30X

The MRXT30OE and MZXT30OE record definitions define the EXTDATA records created by CA JARS from the following Common Address Work Space SMF records:

O30

SMF record 30

O30I

SMF record 30, subtype 2/3

O30X

SMF record 30, subtype 4

CA Earl MRXT30OE	CA Easytrieve MZXT30OE	SMF Data Field
EXT30O_WID	EXT30O_WID	SMF30WID
EXT30O_JBN	EXT30O_JBN	SMF30JBN
EXT30O_PGM	EXT30O_PGM	SMF30PMG
EXT30O_STM	EXT30O_STM	SMF30STM
EXT30O_UIF	EXT30O_UIF	SMF30UIF
EXT30O_JNM	EXT30O_JNM	SMF30JNM
EXT30O_STN	EXT30O_STN	SMF30STN
EXT30O_CLS	EXT30O_CLS	SMF30CLS
EXT30O_PGN	EXT30O_PGN	SMF30PGN
EXT30O_JPT	EXT30O_JPT	SMF30JPT
EXT30O_AST	EXT30O_AST	SMF30AST
EXT30O_PPS	EXT30O_PPS	SMF30PPS
EXT30O_SIT	EXT30O_SIT	SMF30SIT
EXT30O_STD	EXT30O_STD	SMF30STD
EXT30O_RST	EXT30O_RST	SMF30RST
EXT30O_RSD	EXT30O_RSD	SMF30RSD
EXT30O_RET	EXT30O_RET	SMF30RET
EXT30O_RED	EXT30O_RED	SMF30RED
EXT30O_USR	EXT30O_USR	SMF30USR
EXT30O_GRP	EXT30O_GRP	SMF30GRP

CA Earl MRXT30OE	CA Easytrieve MZXT30OE	SMF Data Field
EXT30O_RUD	EXT30O_RUD	SMF30RUD
EXT30O_TID	EXT30O_TID	SMF30TID
EXT30O_TSN	EXT30O_TSN	SMF30TSN
EXT30O_PSN	EXT30O_PSN	SMF30PSN
EXT30O_CL8	EXT30O_CL8	SMF30CL8
EXT30O_ISST	EXT30O_ISST	SMF30ISS
EXT30O_ISSD	EXT30O_ISSD	SMF30ISS
EXT30O_IETT	EXT30O_IETT	SMF30IET
EXT30O_IETD	EXT30O_IETD	SMF30IET
EXT30O_OPI	EXT30O_OPI	SMF30OPI
EXT30O_OPG	EXT30O_OPG	SMF30OPG
EXT30O_OUI	EXT30O_OUI	SMF30OUI
EXT30O_OUG	EXT30O_OUG	SMF30OUG
EXT30O_OSI	EXT30O_OSI	SMF30OSI
EXT30O_OSC	EXT30O_OSC	SMF30OSC
EXT30O_OST	EXT30O_OST	SMF30OST
EXT30O_ODR	EXT30O_ODR	SMF30ODR
EXT30O_OFR	EXT30O_OFR	SMF30OFR
EXT30O_OFW	EXT30O_OFW	SMF30OFW
EXT30O_OPR	EXT30O_OPR	SMF30OPR
EXT30O_OPW	EXT30O_OPW	SMF30OPW
EXT30O_OSR	EXT30O_OSR	SMF30OSR
EXT30O_OSW	EXT30O_OSW	SMF30OSW
EXT30O_OLL	EXT30O_OLL	SMF30OLL
EXT30O_OLP	EXT30O_OLP	SMF30OLP
EXT30O_OGL	EXT30O_OGL	SMF30OGL
EXT30O_OGP	EXT30O_OGP	SMF30OGP
EXT30O_OPP	EXT30O_OPP	SMF30OPP
EXT30O_OKR	EXT30O_OKR	SMF30OKR

CA Earl MRXT30OE	CA Easytrieve MZXT30OE	SMF Data Field
EXT30O_OKW	EXT30O_OKW	SMF30OKW
EXT30O_TYP	EXT30O_TYP	SMF30TYP
EXT30O_ACT	EXT30O_ACT	SMF30ACT
EXT30O_SSN	EXT30O_SSN	SMF30SSN
EXT30O_EXN	EXT30O_EXN	SMF30EXN
EXT30O_OMS	EXT30O_OMS	SMF30OMS
EXT30O_OMR	EXT30O_OMR	SMF30OMR
EXT30O_OSY	EXT30O_OSY	SMF30OSY
EXT30O_ASI	EXT30O_ASI	SMF30ASI

EXTDATA Record Types - U30, U30I, U30X

The MRXT30MU and MZXT30MU record definitions define the EXTDATA records created by CA JARS from the following Common Address Space Work SMF records:

U30

SMF record 30, subtype 5

U30I

SMF record 30, subtype 2/3

U30X

SMF record 30, subtype 4

CA Earl MRXT30MU	CA Easytrieve MZXT30MU	SMF Data Field
EXT30M_WID	EXT30M_WID	SMF30WID
EXT30M_JBN	EXT30M_JBN	SMF30JBN
EXT30M_PGM	EXT30M_PGM	SMF30PMG
EXT30M_STM	EXT30M_STM	SMF30STM
EXT30M_UIF	EXT30M_UIF	SMF30UIF
EXT30M_JNM	EXT30M_JNM	SMF30JNM
EXT30M_STN	EXT30M_STN	SMF30STN
EXT30M_CLS	EXT30M_CLS	SMF30CLS

CA Earl MRXT30MU	CA Easytrieve MZXT30MU	SMF Data Field
EXT30M_PGN	EXT30M_PGN	SMF30PGN
EXT30M_JPT	EXT30M_JPT	SMF30JPT
EXT30M_AST	EXT30M_AST	SMF30AST
EXT30M_PPS	EXT30M_PPS	SMF30PPS
EXT30M_SIT	EXT30M_SIT	SMF30SIT
EXT30M_STD	EXT30M_STD	SMF30STD
EXT30M_RST	EXT30M_RST	SMF30RST
EXT30M_RSD	EXT30M_RSD	SMF30RSD
EXT30M_RET	EXT30M_RET	SMF30RET
EXT30M_RED	EXT30M_RED	SMF30RED
EXT30M_USR	EXT30M_USR	SMF30USR
EXT30M_GRP	EXT30M_GRP	SMF30GRP
EXT30M_RUD	EXT30M_RUD	SMF30RUD
EXT30M_TID	EXT30M_TID	SMF30TID
EXT30M_TSN	EXT30M_TSN	SMF30TSN
EXT30M_PSN	EXT30M_PSN	SMF30PSN
EXT30M_CL8	EXT30M_CL8	SMF30CL8
EXT30M_ISST	EXT30M_ISST	SMF30ISS
EXT30M_ISSD	EXT30M_ISSD	SMF30ISS
EXT30M_IETT	EXT30M_IETT	SMF30IET
EXT30M_IETD	EXT30M_IETD	SMF30IET
EXT30M_UPO	EXT30M_UPO	SMF30UPO
EXT30M_UPN	EXT30M_UPN	SMF30UPN
EXT30M_UPV	EXT30M_UPV	SMF30UPV
EXT30M_UPQ	EXT30M_UPQ	SMF30UPQ
EXT30M_UPI	EXT30M_UPI	SMF30UPI
EXT30M_UCT	EXT30M_UCT	SMF30UCT
EXT30M_UCS	EXT30M_UCS	SMF30UCS
EXT30M_URD	EXT30M_URD	SMF30URD

CA Earl MRXT30MU	CA Easytrieve MZXT30MU	SMF Data Field
EXT30M_UDF	EXT30M_UDF	SMF30UDF
EXT30M_UFG	EXT30M_UFG	SMF30UFG
EXT30M_TYP	EXT30M_TYP	SMF30TYP
EXT30M_ACT	EXT30M_ACT	SMF30ACT
EXT30M_SSN	EXT30M_SSN	SMF30SSN
EXT30M_EXN	EXT30M_EXN	SMF30EXN
EXT30M_ASI	EXT30M_ASI	SMF30ASI

EXTDATA Record Type - S32

The MRXT32 and MZXT32 record definitions define the EXTDATA records created by CA JARS from SMF record 32, TSO/E User Work Accounting.

This EXTDATA record can be used for accounting and chargeback. Its associated IRD/ORD is S32. The IRD/ORD field names are in the table below.

CA Earl MRXT32	CA Easytrieve MZXT32	SMF Data Field	IRD/ORD Field Name
EXT32_JOB	EXT32_JOB	SMF32JBN	JOB NAME
EXT32_PGM	EXT32_PGM	SMF32PMG	PROGRAM NAME
EXT32_STM	EXT32_STM	SMF32STM	STEP NAME
EXT32_UIF	EXT32_UIF	SMF32UIF	USER ID
EXT32_JNM	EXT32_JNM	SMF32JNM	JOB ID
EXT32_STN	EXT32_STN	SMF32STN	STEP NUMBER
EXT32_PGN	EXT32_PGN	SMF32PGN	PERF GROUP
EXT32_JPT	EXT32_JPT	SMF32JPT	INPUT PRIORITY
EXT32_AST	EXT32_AST	SMF32AST	ALLOC START TIME
EXT32_PPS	EXT32_PPS	SMF32PPS	PROGRAM START T
EXT32_SIT	EXT32_SIT	SMF32SIT	INITIATION TIME
EXT32_STD	EXT32_STD	SMF32STD	INITIATION DATE
EXT32_RST	EXT32_RST	SMF32RST	READER START T
EXT32_RSD	EXT32_RSD	SMF32RSD	READER START D

CA Earl MRXT32	CA Easytrieve MZXT32	SMF Data Field	IRD/ORD Field Name
EXT32_RET	EXT32_RET	SMF32RET	READER END T
EXT32_RED	EXT32_RED	SMF32RED	READER END D
EXT32_USR	EXT32_USR	SMF32USR	PROGRAMMER NAME
EXT32_GRP	EXT32_GRP	SMF32GRP	RACF GROUP
EXT32_RUD	EXT32_RUD	SMF32RUD	RACF USERID
EXT32_TID	EXT32_TID	SMF32TID	RACF TERMINAL
EXT32_CMD	EXT32_CMD	SMF32CMD	TSO/E COMMND
EXT32_CNT	EXT32_CNT	SMF32CNT	COMMAND USAGE
EXT32_TCB	EXT32_TCB	SMF32TCB	CPU - TCB
EXT32_SRB	EXT32_SRB	SMF32SRB	CPU - SRB
EXT32_TGT	EXT32_TGT	SMF32TGT	TGETS
EXT32_TPT	EXT32_TPT	SMF32TPT	TPUTS
EXT32_TRN	EXT32_TRN	SMF32TRN	XACTION COUNT
EXT32_EXP	EXT32_EXP	SMF32EXP	EXCP COUNT
EXT32_TCT	EXT32_TCT	SMF32TCT	DEVICE CONNECT
EXT32_ACC	EXT32_ACC	SMF30ACT	ACCOUNT CODES
EXT32_RDRD	EXT32_RDRD	SMF32RSD	
EXT32_RDRT	EXT32_RDRT	SMF32RST	

EXTDATA Record Types - S33I, S30O

The MRXT33C and MZXT33C record definitions define the EXTDATA records created by CA JARS from the following APPC SMF Accounting records:

S33I

SMF record 33, subtype 2

S30O

SMF record 33, subtype 2

CA Earl MRXT33C	CA Easytrieve MZXT33C	SMF Data Field
EXT33C_RDRD	EXT33C_RDRD	SMF33RSD
EXT33C_RDRT	EXT33C_RDRT	SMF33RST
EXT33C_JID	EXT33C_JID	SMF33JID
EXT33C_CID	EXT33C_CID	SMF33CID
EXT33C_CLL	EXT33C_CLL	SMF33CLL
EXT33C_CPL	EXT33C_CPL	SMF33CPL
EXT33C_CST	EXT33C_CST	SMF33CST
EXT33C_CSD	EXT33C_CSD	SMF33CST
EXT33C_CET	EXT33C_CET	SMF33CET
EXT33C_CED	EXT33C_CED	SMF33CET
EXT33C_CDS	EXT33C_CDS	SMF33CDS
EXT33C_CDR	EXT33C_CDR	SMF33CDR
EXT33C_CVB	EXT33C_CVB	SMF33CVB
EXT33C_PTP	EXT33C_PTP	SMF33TPN
EXT33C_LTP	EXT33C_LTP	SMF33TPN
EXT33C_UDF	EXT33C_UDF	SMF33UDF
EXT33C_ACCT	EXT33C_ACCT	SMF33ACT

EXTDATA Record Type - S33T

The MRXT33T and MZXT33T record definitions define the EXTDATA records created by CA JARS from SMF record 33, subtype 1, APPC Accounting.

This EXTDATA record can be used for accounting and chargeback. Its associated IRD/ORD is T33. The IRD/ORD field names are in the table below.

CA Earl MRXT33T	CA Easytrieve MZXT33T	SMF Data Field	IRD/ORD Field Name
EXT33T_RDRD	EXT33T_RDRD	SMF33RSD	READER DATE
EXT33T_RDRT	EXT33T_RDRT	SMF33RST	READER TIME
EXT33T_JID	EXT33T_JID	SMF33JID	JOB CLASS
EXT33T_TPC	EXT33T_TPC	SMF33TPC	TP CLASS
EXT33T_TPN	EXT33T_TPN	SMF33TPN	TP NAME
EXT33T_UID	EXT33T_UID	SMF33UID	RACF USER ID
EXT33T_GRP	EXT33T_GRP	SMF33GRP	RACF GROUP
EXT33T_ACCT	EXT33T_ACCT	SMF33ACT	ACCOUNT CODES
EXT33T_CN	EXT33T_CN	SMF33CN	NUMBER CONVERSE
EXT33T_DAS	EXT33T_DAS	SMF33DAS	BYTES SENT
EXT33T_DAR	EXT33T_DAR	SMF33DAR	BYTES RECEIVED
EXT33T_TCB	EXT33T_TCB	SMF33TCB	CPU - TCB
EXT33T_SRB	EXT33T_SRB	SMF33SRB	CPU - SRB
EXT33T_EXP	EXT33T_EXP	SMF33EXP	EXCPS
EXT33T_DCT	EXT33T_DCT	SMF33DCT	DEVICE CONNECT
EXT33T_LLU	EXT33T_LLU	SMF33LLU	LOCAL LU
EXT33T_PLU	EXT33T_PLU	SMF33PLU	PARTNER LU
EXT33T_TST	EXT33T_TST	SMF33TST	START TIME
EXT33T_TSD	EXT33T_TSD	SMF33TSD	START DATE
EXT33T_TET	EXT33T_TET	SMF33TET	END TIME
EXT33T_TED	EXT33T_TED	SMF33TED	END DATE

EXTDATA Record Type - S41

The MRXT41 and MZXT41 record definitions define the EXTDATA records created by CA JARS from SMF record 41, subtype 2, UNACCESS Record.

This EXTDATA record can be used for accounting and chargeback. Its associated IRD/ORD is S41. The IRD/ORD field names are in the table below.

CA Earl MRXT41	CA Easytrieve MZXT41	SMF Data Field	IRD/ORD Field Name
EXT41_DDA	EXT41_DDA	SMF41DDA	OBJECT TYPE
EXT41_AZA	EXT41_AZA	SMF41AZA	START SIZE
EXT41_TYA	EXT41_TYA	SMF41TYA	OBJECT TYPE
EXT41_AMA	EXT41_AMA	SMF41AMA	ACCESS MODE
EXT41_JBN	EXT41_JBN	SMF41JBN	JOB NAME
EXT41_UZU	EXT41_UZU	SMF41UZU	END SIZE
EXT41_UTU	EXT41_UTU	SMF41UTU	ELPSED TIME
EXT41_BRD	EXT41_BRD	SMF41BRD	TOTAL READS
EXT41_BWR	EXT41_BWR	SMF41BWR	TOTAL WRITES
EXT41_BRR	EXT41_BRR	SMF41BRR	TOTAL RE-READS
EXT41_NC	EXT41_NC	SMF41NC	TOTAL READIO
EXT41_OUC	EXT41_OUC	SMF41OUC	TOTAL WRITEIO

EXTDATA Record Type - S41V

The MRXT41V and MZXT41V record definitions define the EXTDATA records created by CA JARS from SMF record 41, subtype 3, VLF Statistics.

CA Earl MRXT41V	CA Easytrieve MZXT41V	SMF Data Field
EXT41V_CLS	EXT41V_CLS	SMF41CLS
EXT41V_MVT	EXT41V_MVT	SMF41MVT
EXT41V_USD	EXT41V_USD	SMF41USD
EXT41V_SRC	EXT41V_SRC	SMF41SRC
EXT41V_FND	EXT41V_FND	SMF41FND

CA Earl MRXT41V	CA Easytrieve MZXT41V	SMF Data Field
EXT41V_ADD	EXT41V_ADD	SMF41ADD
EXT41V_DEL	EXT41V_DEL	SMF41DEL
EXT41V_TRM	EXT41V_TRM	SMF41TRM
EXT41V_LRG	EXT41V_LRG	SMF41LRG

EXTDATA Record Type - S42B

The MRXT42B and MZXT42B record definitions define the EXTDATA records created by CA JARS from SMF record 42, subtype 1, DFSMS Statistics and Configuration.

CA Earl MRXT42B	CA Easytrieve MZXT42B	SMF Data Field
EXT42B_TMT	EXT42B_TMT	SMF42TMT
EXT42B_PNN	EXT42B_PNN	SMF42PNN
EXT42B_SRT	EXT42B_SRT	SMF42SRT
EXT42B_SRH	EXT42B_SRH	SMF42SRH
EXT42B_SDT	EXT42B_SDT	SMF42SDT
EXT42B_SDH	EXT42B_SDH	SMF42SDH

EXTDATA Record Type - S42C

The MRXT42C and MZXT42C record definitions define the EXTDATA records created by CA JARS from SMF record 42, subtype 2, DFSMS Statistics and Configuration.

CA Earl MRXT42C	CA Easytrieve MZXT42C	SMF Data Field
EXT42C_SCS	EXT42C_SCS	SMF42SCS
EXT42C_NCS	EXT42C_NCS	SMF42NCS
EXT42C_CID	EXT42C_CID	SMF42CID
EXT42C_CSS	EXT42C_CSS	SMF42CSS
EXT42C_SSA	EXT42C_SSA	SMF42SSA

CA Earl MRXT42C	CA Easytrieve MZXT42C	SMF Data Field
EXT42C_SAP	EXT42C_SAP	SMF42SAP
EXT42C_SSU	EXT42C_SSU	SMF42SSU
EXT42C_NSZ	EXT42C_NSZ	SMF42NSZ
EXT42C_SPR	EXT42C_SPR	SMF42SPR
EXT42C_LCT	EXT42C_LCT	SMF42LCT
EXT42C_LFW	EXT42C_LFW	SMF42LFW
EXT42C_LRH	EXT42C_LRH	SMF42LRH
EXT42C_LWM	EXT42C_LWM	SMF42LWM
EXT42C_LYY	EXT42C_LYY	SMF42LYY
EXT42C_LDD	EXT42C_LDD	SMF42LDD
EXT42C_LTM	EXT42C_LTM	SMF42LTM
EXT42C_CCT	EXT42C_CCT	SMF42CCT
EXT42C_CFW	EXT42C_CFW	SMF42CFW
EXT42C_CRH	EXT42C_CRH	SMF42CRH
EXT42C_CWM	EXT42C_CWM	SMF42CWM
EXT42C_CYY	EXT42C_CYY	SMF42CYY
EXT42C_CDD	EXT42C_CDD	SMF42CDD
EXT42C_CTM	EXT42C_CTM	SMF42CTM
EXT42C_AHR	EXT42C_AHR	SMF42IHR
EXT42C_AFW	EXT42C_AFW	SMF42IFW

EXTDATA Record Type - S42D

The MRXT42D and MZXT42D record definitions define the EXTDATA records created by CA JARS from SMF record 42, subtype 6, Dataset Level I/O Statistics for DASD volumes at CLOSE time.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide,* SA22-7630. The chapter entitled "Record Type 42 (2A) DFSMS Statistics and Configuration" gives a detailed description of each field.

Additional information on the contents of RMF Type 42 records can be found by assembling the RMF mapping macro SYS1.MACLIB(IFASMFR), as in this example:

```
RECMAP   DSECT
         IFASMFR (42)
         END
```

All of the fields listed below are found in the macro IFASMFR and its subordinate macros.

Note: Although record types S42D and S42I appear similar, S42D records are produced at event boundaries, and S42I records depict state at the end of a DFSMS interval.

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT42D_JNM	SMF4206A	S42JDJNM
EXT42D_RDT	SMF4206A	S42JDRST
EXT42D_RTM	SMF4206A	S42JDRSD
EXT42D_SSI	SMF42	SMF42SSI
EXT42D_CED	SMF42PRD	SMF42PTE
EXT42D_CET	SMF42PRD	SMF42PTE
EXT42D_UID	SMF4206A	S42JDUID
EXT42D_PGN	SMF4206A	S42JDPGN
EXT42D_DSN	S42DSH	S42DSN
EXT42D_TYP	S42DSH	S42DSTYP
EXT42D_IOR	S42DSIO	S42DSIOR **
EXT42D_IOC	S42DSIO	S42DSIOC **
EXT42D_IOP	S42DSIO	S42DSIOP **
EXT42D_IOD	S42DSIO	S42DSIOD **
EXT42D_IOQ	S42DSIO	S42DSIOQ **
EXT42D_ION	S42DSIO	S42SION
EXT42D_CND	S42DSIO	S42DSCND
EXT42D_HTS	S42DSIO	S42DSSHTS
EXT42D_WCN	S42DSIO	S42DSWCN
EXT42D_WHI	S42DSIO	S42DSWHI
EXT42D_ACC	SMF30ACS	SMF30ACT

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT42D_SEQ	S42DSIO	S42DSSEQ
EXT42D_RLC	S42DSIO	S42DSRLC
EXT42D_ICL	S42DSIO	S42DSICL
EXT42D_DAO	S42DSIO	S42DSDAO
EXT42D_RS2		Reserved
EXT42D_RS3		Reserved
EXT42D_GMO	SMF4206A	S42JDGMO
EXT42D_WSC	SMF4206A	S42JDWSC
EXT42D_WLD	SMF4206A	S42JDWLD
EXT42D_RS4		Reserved
EXT42D_SVOL	S42DSH	S42DSVOL
EXT42D_SDEV	S42DSH	S42DSDEV
EXT42D_SSC	S42DSH	S42DSSC
EXT42D_SBSZ	S42DSH	S42DSBSZ
EXT42D_STRP	S42DSH	S42DSTRP
EXT42D_MXR	S42DSIO	S42DSMXR
EXT42D_MXS	S42DSIO	S42DSMXS
EXT42D_RDD	S42DSIO	S42SCRDD
EXT42D_RDT	S42DSIO	S42SCRDT

** = Time in thousandths of a second

EXTDATA Record Type - S42I

The MRXT42I and MZXT42I record definitions define the EXTDATA records created by CA JARS from SMF record 42, subtype 6, Dataset Level I/O Statistics for DASD volumes at interval expiration. There is one SMF record 42, subtype 6, for each type 30 interval record.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide,* SA22-7630. The chapter entitled "Record Type 42 (2A) DFSMS Statistics and Configuration" gives a detailed description of each field.

Additional information on the contents of RMF Type 42 records can be found by assembling the RMF mapping macro SYS1.MACLIB(IFASMFR), as in this example:

```
RECMAP   DSECT
         IFASMFR (42)
         END
```

All of the fields listed below are found in the macro IFASMFR and its subordinate macros.

Note: Although record types S42D and S42I appear similar, S42D records are produced at event boundaries, and S42I records depict state at the end of a DFSMS interval.

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT42I_JNM	SMF4206A	S42JDJNM
EXT42I_RDT	SMF4206A	S42JDRST
EXT42I_RTM	SMF4206A	S42JDRSD
EXT42I_SSI	SMF4206A	SMF42SID
EXT42I_CED	SMF42PRD	SMF42PTE
EXT42I_CET	SMF42PRD	SMF42PTE
EXT42I_UID	SMF4206A	S42JDUID
EXT42I_PGN	SMF4206A	S42JDPGN
EXT42I_DSN	S42DSH	S42DSN
EXT42I_TYP	S42DSH	S42DSTYP
EXT42I_IOR	S42DSH	S42DSIOR **
EXT42I_IOC	S42DSIO	S42DSIOC **
EXT42I_IOP	S42DSIO	S42DSIOP **
EXT42I_IOD	S42DSIO	S42DSIOD **
EXT42I_IOQ	S42DSIO	S42DSIOQ **
EXT42I_ION	S42DSIO	S42DSION
EXT42I_CND	S42DSIO	S42DSCND
EXT42I_HTS	S42DSIO	S42DSSHTS
EXT42I_WCN	S42DSIO	S42DSWCN
EXT42I_WHI	S42DSIO	S42DSWHI
EXT42I_ACC	SMF30ACS	SMF30ACT

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT42I_SEQ	S42DSIO	S42DSSEQ
EXT42I_RLC	S42DSIO	S42DSRLC
EXT42I_ICL	S42DSIO	S42DSICL
EXT42I_DAO	S42DSIO	S42DSDAO
EXT42I_RS2		Reserved
EXT42I_RS3		Reserved
EXT42I_GMO	SMF4206A	S42JDGMO
EXT42I_WSC	SMF4206A	S42JDWSC
EXT42I_WLD	SMF4206A	S42JDWLD
EXT42I_RS4		Reserved
EXT42I_SVOL	S42DSH	S42DSVOL
EXT42I_SDEV	S42DSH	S42DSDEV
EXT42I_SSC	S42DSH	S42DSSC
EXT42I_SBSZ	S42DSH	S42DSBSZ
EXT42I_STRP	S42DSH	S42DSTRP
EXT42I_MXR	S42DSIO	S42DSMXR
EXT42I_MXS	S42DSIO	S42DSMXS
EXT42I_RDD	S42DSIO	S42SCRDD
EXT42I_RDT	S42DSIO	S42SCRDT

** = Time in thousandths of a second

EXTDATA Record Type - S42S

The MRXT42S and MZXT42S record definitions define the EXTDATA records created by CA JARS from SMF record 42, subtype 5, VTOC and VVDS Statistics.

CA Earl MRXT42S	CA Easytrieve MZXT42S	SMF Data Field
EXT42S_RNL	EXT42S_RNL	S42SCRNL
EXT42S_RNN	EXT42S_RNN	S42SCRNN
EXT42S_IOR	EXT42S_IOR	S42SCIOR **

CA Earl MRXT42S	CA Easytrieve MZXT42S	SMF Data Field
EXT42S_IOC	EXT42S_IOC	S42SCIOC **
EXT42S_IOP	EXT42S_IOP	S42SCIOP **
EXT42S_IOD	EXT42S_IOD	S42SCIOD **
EXT42S_IOQ	EXT42S_IOQ	S42SCIOQ **
EXT42S_ION	EXT42S_ION	S42SCION
EXT42S_CND	EXT42S_CND	S42SCCND
EXT42S_HIT	EXT42S_HIT	S42SCHIT
EXT42S_WCN	EXT42S_WCN	S42SCWCN
EXT42S_WHI	EXT42S_WHI	S42SCWHI
EXT42S_SEQ	EXT42S_SEQ	S42SCSEQ
EXT42S_RLC	EXT42S_RLC	S42SCRLC
EXT42S_ICL	EXT42S_ICL	S42SCICL
EXT42S_DAO	EXT42S_DAO	S42SCDAO

** = Time in thousandths of a second

EXTDATA Record Type - S50

The MRXT50 and MZXT50 record definitions define the EXTDATA records created by CA JARS from SMF record 50, ACF/VTAM Tuning Statistics.

CA Earl MRXT50	CA Easytrieve MZXT50	SMF Data Field
EXT50_NME	EXT50_NME	SMF50NME
EXT50_DLR	EXT50_DLR	SMF50DLR
EXT50_CWR	EXT50_CWR	SMF50CWR
EXT50_CRD	EXT50_CRD	SMF50CRD
EXT50_ATN	EXT50_ATN	SMF50ATN
EXT50_ATR	EXT50_ATR	SMF50ATR
EXT50_PUI	EXT50_PUI	SMF50PUI
EXT50_PUO	EXT50_PUO	SMF50PUO

CA Earl MRXT50	CA Easytrieve MZXT50	SMF Data Field
EXT50_BUF	EXT50_BUF	SMF50BUF
EXT50_SLD	EXT50_SLD	SMF50SLD

EXTDATA Record Type - S572

The MRXT572 and MZXT572 record definitions define the EXTDATA records created by CA JARS from SMF record 57, JES3 Networking Transmission.

CA Earl MRXT572	CA Easytrieve MZXT572	SMF Data Field
EXT572_JID	EXT572_JID	SMF57JID
EXT572_CJD	EXT572_CJD	SMF57CJD
EXT572_ONN	EXT572_ONN	SMF57ONN
EXT572_ENN	EXT572_ENN	SMF57ENN
EXT572_NNN	EXT572_NNN	SMF57NNN
EXT572_DVN	EXT572_DVN	SMF57DVN
EXT572_TSS	EXT572_TSS	SMF57TSS
EXT572_DSS	EXT572_DSS	SMF57DSS
EXT572_TPS	EXT572_TPS	SMF57TPS
EXT572_DPS	EXT572_DPS	SMF57DPS
EXT572_ACN	EXT572_ACN	SMF57ACN
EXT572_TSI	EXT572_TSI	SMF57TSI
EXT572_CNT	EXT572_CNT	SMF57CNT

EXTDATA Record Type - S573

The MRXT573 and MZXT573 record definitions define the EXTDATA records created by CA JARS from SMF record 57, JES3 Networking Transmission.

CA Earl MRXT573	CA Easytrieve MZXT573	SMF Data Field
EXT573_ETM	EXT573_ETM	SMFNJETM
EXT573_EDT	EXT573_EDT	SMFNJEDT
EXT573_IND	EXT573_IND	SMFNJIND
EXT573_NAM	EXT573_NAM	SMFNJNAM
EXT573_NUM	EXT573_NUM	SMFNJNUM
EXT573_ONM	EXT573_ONM	SMFNJONM
EXT573_PGM	EXT573_PGM	SMFNJPGM
EXT573_USR	EXT573_USR	SMFNJUSR
EXT573_ACT	EXT573_ACT	SMFNJACT
EXT573_DPT	EXT573_DPT	SMFNJDPT
EXT573_BLD	EXT573_BLD	SMFNJBLD
EXT573_LOC	EXT573_LOC	SMFNJLOC
EXT573_ORG	EXT573_ORG	SMFNJORG
EXT573_RMT	EXT573_RMT	SMFNJRMT
EXT573_XEQ	EXT573_XEQ	SMFNJXEQ
EXT573_EXU	EXT573_EXU	SMFNJEXU
EXT573_DST	EXT573_DST	SMFNJDST
EXT573_PTH	EXT573_PTH	SMFNJPTH
EXT573_RCT	EXT573_RCT	SMFNJRCT
EXT573_CNT	EXT573_CNT	SMFNJCNT
EXT573_TRN	EXT573_TRN	SMFNJTRN
EXT573_JID	EXT573_JID	SMFNJJID

EXTDATA Record Type - S59F

The MRXT59F and MZXT59F record definitions define the EXTDATA records created by CA JARS from SMF record 59, BDT File-to-File Transmission.

CA Earl MRXT59F	**CA Easytrieve MZXT59F**	**SMF Data Field**
EXT59F_SSN	EXT59F_SSN	SMF59SSN
EXT59F_TNU	EXT59F_TNU	SMF59TNU
EXT59F_TQS	EXT59F_TQS	SMF59TQS
EXT59F_TSP	EXT59F_TSP	SMF59TSP
EXT59F_TSS	EXT59F_TSS	SMF59TSS
EXT59F_TUT	EXT59F_TUT	SMF59TUT
EXT59F_TSU	EXT59F_TSU	SMF59TSU
EXT59F_ONN	EXT59F_ONN	SMF59ONN
EXT59F_OFN	EXT59F_OFN	SMF59OFN
EXT59F_OMN	EXT59F_OMN	SMF59OMN
EXT59F_OVI	EXT59F_OVI	SMF59OVI
EXT59F_OFG	EXT59F_OFG	SMF59OFG
EXT59F_DNN	EXT59F_DNN	SMF59DNN
EXT59F_DFN	EXT59F_DFN	SMF59DFN
EXT59F_DMN	EXT59F_DMN	SMF59DMN
EXT59F_DVI	EXT59F_DVI	SMF59DVI
EXT59F_DFG	EXT59F_DFG	SMF59DFG
EXT59F_TTQ	EXT59F_TTQ	SMF59TTQ
EXT59F_DTQ	EXT59F_DTQ	SMF59DTQ
EXT59F_TTC	EXT59F_TTC	SMF59TTC
EXT59F_DTC	EXT59F_DTC	SMF59DTC
EXT59F_BJN	EXT59F_BJN	SMF59BJN
EXT59F_PNM	EXT59F_PNM	SMF59PNM
EXT59F_TPR	EXT59F_TPR	SMF59TPR
EXT59F_TCM	EXT59F_TCM	SMF59TCM
EXT59F_BTC	EXT59F_BTC	SMF59BTC

CA Earl MRXT59F	CA Easytrieve MZXT59F	SMF Data Field
EXT59F_BCT	EXT59F_BCT	SMF59BCT
EXT59F_US1	EXT59F_US1	SMF59US1
EXT59F_SNN	EXT59F_SNN	SMF59SNN
EXT59F_RCN	EXT59F_RCN	SMF59RCN
EXT59F_XST	EXT59F_XST	SMF59XST
EXT59F_XSD	EXT59F_XSD	SMF59XSD
EXT59F_XPT	EXT59F_XPT	SMF59XPT
EXT59F_XPD	EXT59F_XPD	SMF59XPD
EXT59F_XOC	EXT59F_XOC	SMF59XOC
EXT59F_XDC	EXT59F_XDC	SMF59XDC
EXT59F_US2	EXT59F_US2	SMF59US2
EXT59F_ACT	EXT59F_ACT	SMF59ACT

EXTDATA Record Type - S59N

The MRXT59N and MZXT59N record definitions define the EXTDATA records created by CA JARS from SMF record 59, MVS/BDT File-to-File Transmission.

CA Earl MRXT59N	CA Easytrieve MZXT59N	SMF Data Field
EXT59N_SSN	EXT59N_SSN	SMF59SSN
EXT59N_TNU	EXT59N_TNU	SMF59TNU
EXT59N_TQS	EXT59N_TQS	SMF59TQS
EXT59N_TSP	EXT59N_TSP	SMF59TSP
EXT59N_TSS	EXT59N_TSS	SMF59TSS
EXT59N_TUT	EXT59N_TUT	SMF59TUT
EXT59N_TSU	EXT59N_TSU	SMF59TSU
EXT59N_NJT	EXT59F_NJT	SMF59NJT
EXT59N_NUM	EXT59N_NUM	SMF59NUM
EXT59N_NAM	EXT59N_NAM	SMF59NAM

CA Earl MRXT59N	CA Easytrieve MZXT59N	SMF Data Field
EXT59N_JID	EXT59N_JID	SMF59JID
EXT59N_NUI	EXT59N_NUI	SMF59NUI
EXT59N_NDT	EXT59N_NDT	SMF59NDT
EXT59N_XQN	EXT59N_XQN	SMF59XQN
EXT59N_XQU	EXT59N_XQU	SMF59XQU
EXT59N_NPN	EXT59N_NPN	SMF59NPN
EXT59N_NP	EXT59N_NP	SMF59NP
EXT59N_NPB	EXT59N_NPB	SMF59NPB
EXT59N_TTQ	EXT59N_TTQ	SMF59TTQ
EXT59N_DTQ	EXT59N_DTQ	SMF59DTQ
EXT59N_TTC	EXT59N_TTC	SMF59TTC
EXT59N_DTC	EXT59N_DTC	SMF59DTC
EXT59N_BJN	EXT59N_BJN	SMF59BJN
EXT59N_PNM	EXT59N_PNM	SMF59PNM
EXT59N_TPR	EXT59N_TPR	SMF59TPR
EXT59N_TCM	EXT59N_TCM	SMF59TCM
EXT59N_BTC	EXT59N_BTC	SMF59BTC
EXT59N_BCT	EXT59N_BCT	SMF59BCT
EXT59N_US1	EXT59N_US1	SMF59US1
EXT59N_SNN	EXT59N_SNN	SMF59SNN
EXT59N_RCN	EXT59N_RCN	SMF59RCN
EXT59N_XST	EXT59N_XST	SMF59XST
EXT59N_XSD	EXT59N_XSD	SMF59XSD
EXT59N_XPT	EXT59N_XPT	SMF59XPT
EXT59N_XPD	EXT59N_XPD	SMF59XPD
EXT59N_XOC	EXT59N_XOC	SMF59XOC
EXT59N_XDC	EXT59N_XDC	SMF59XDC
EXT59N_US2	EXT59N_US2	SMF59US2
EXT59N_ACT	EXT59N_ACT	SMF59ACT

EXTDATA Record Type - R70A

The MRXT70A and MZXT70A record definitions define the EXTDATA records created by CA JARS from SMF record 70, RMF Processor Activity.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 70 (46) RMF Processor Activity" gives a detailed description of each field.

Additional information on the contents of RMF type 70 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (70)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70A_LGO	SMF70PRO	SMF70LGO
EXT70A_XNM	SMF70PRO	SMF70XNM
EXT70A_SNM	SMF70PRO	SMF70SNM
EXT70A_IST	SMF70PRO	SMF70IST
EXT70A_DAT	SMF70PRO	SMF70DAT
EXT70A_INT	SMF70PRO	SMF70INT
EXT70A_SAM	SMF70PRO	SMF70SAM
EXT70A_CYC	SMF70PRO	SMF70CYC
EXT70A_PTN	SMF70PRO	SMF70PTN
EXT70A_MOD	SMF70CTL	SMF70MOD
EXT70A_VER	SMF70CTL	SMF70VER
EXT70A_BNP	SMF70CTL	SMF70BNP
EXT70A_GTS	SMF70CTL	SMF70GTS
EXT70A_RMN	SMF70AID	SMF70RMN
EXT70A_RMM	SMF70AID	SMF70RMM
EXT70A_RTT	SMF70AID	SMF70RTT
EXT70A_R00	SMF70AID	SMF70R00

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70A_R01	SMF70AID	SMF70R01
EXT70A_R02	SMF70AID	SMF70R02
EXT70A_R03	SMF70AID	SMF70R03
EXT70A_R04	SMF70AID	SMF70R04
EXT70A_R05	SMF70AID	SMF70R05
EXT70A_R06	SMF70AID	SMF70R06
EXT70A_R07	SMF70AID	SMF70R07
EXT70A_R08	SMF70AID	SMF70R08
EXT70A_R09	SMF70AID	SMF70R09
EXT70A_R10	SMF70AID	SMF70R10
EXT70A_R11	SMF70AID	SMF70R11
EXT70A_R12	SMF70AID	SMF70R12
EXT70A_R13	SMF70AID	SMF70R13
EXT70A_R14	SMF70AID	SMF70R14
EXT70A_R15	SMF70AID	SMF70R15
EXT70A_IMN	SMF70AID	SMF70IMN
EXT70A_IMM	SMF70AID	SMF70IMM
EXT70A_ITT	SMF70AID	SMF70ITT
EXT70A_I00	SMF70AID	SMF70I00
EXT70A_I01	SMF70AID	SMF70I01
EXT70A_I02	SMF70AID	SMF70I02
EXT70A_I03	SMF70AID	SMF70I03
EXT70A_I04	SMF70AID	SMF70I04
EXT70A_I05	SMF70AID	SMF70I05
EXT70A_I06	SMF70AID	SMF70I06
EXT70A_I07	SMF70AID	SMF70I07
EXT70A_I08	SMF70AID	SMF70I08
EXT70A_I09	SMF70AID	SMF70I09
EXT70A_I10	SMF70AID	SMF70I10
EXT70A_I11	SMF70AID	SMF70I11

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70A_OMN	SMF70AID	SMF70OMN
EXT70A_OMM	SMF70AID	SMF70OMM
EXT70A_OTT	SMF70AID	SMF70OTT
EXT70A_O00	SMF70AID	SMF70O00
EXT70A_O01	SMF70AID	SMF70O01
EXT70A_O02	SMF70AID	SMF70O02
EXT70A_O03	SMF70AID	SMF70O03
EXT70A_O04	SMF70AID	SMF70O04
EXT70A_O05	SMF70AID	SMF70O05
EXT70A_O06	SMF70AID	SMF70O06
EXT70A_O07	SMF70AID	SMF70O07
EXT70A_O08	SMF70AID	SMF70O08
EXT70A_O09	SMF70AID	SMF70O09
EXT70A_O10	SMF70AID	SMF70O10
EXT70A_O11	SMF70AID	SMF70O11
EXT70A_WMN	SMF70AID	SMF70WMN
EXT70A_WMM	SMF70AID	SMF70WMM
EXT70A_WTT	SMF70AID	SMF70WTT
EXT70A_W00	SMF70AID	SMF70W00
EXT70A_W01	SMF70AID	SMF70W01
EXT70A_W02	SMF70AID	SMF70W02
EXT70A_W03	SMF70AID	SMF70W03
EXT70A_W04	SMF70AID	SMF70W04
EXT70A_W05	SMF70AID	SMF70W05
EXT70A_W06	SMF70AID	SMF70W06
EXT70A_W07	SMF70AID	SMF70W07
EXT70A_W08	SMF70AID	SMF70W08
EXT70A_W09	SMF70AID	SMF70W09
EXT70A_W10	SMF70AID	SMF70W10
EXT70A_W11	SMF70AID	SMF70W11

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70A_BMN	SMF70AID	SMF70BMN
EXT70A_BMM	SMF70AID	SMF70BMM
EXT70A_BTT	SMF70AID	SMF70BTT
EXT70A_B00	SMF70AID	SMF70B00
EXT70A_B01	SMF70AID	SMF70B01
EXT70A_B02	SMF70AID	SMF70B02
EXT70A_B03	SMF70AID	SMF70B03
EXT70A_B04	SMF70AID	SMF70B04
EXT70A_B05	SMF70AID	SMF70B05
EXT70A_B06	SMF70AID	SMF70B06
EXT70A_B07	SMF70AID	SMF70B07
EXT70A_B08	SMF70AID	SMF70B08
EXT70A_B09	SMF70AID	SMF70B09
EXT70A_B10	SMF70AID	SMF70B10
EXT70A_B11	SMF70AID	SMF70B11
EXT70A_SMN	SMF70AID	SMF70SMN
EXT70A_SMM	SMF70AID	SMF70SMM
EXT70A_STT	SMF70AID	SMF70STT
EXT70A_S00	SMF70AID	SMF70S00
EXT70A_S01	SMF70AID	SMF70S01
EXT70A_S02	SMF70AID	SMF70S02
EXT70A_S03	SMF70AID	SMF70S03
EXT70A_S04	SMF70AID	SMF70S04
EXT70A_S05	SMF70AID	SMF70S05
EXT70A_S06	SMF70AID	SMF70S06
EXT70A_S07	SMF70AID	SMF70S07
EXT70A_S08	SMF70AID	SMF70S08
EXT70A_S09	SMF70AID	SMF70S09
EXT70A_S10	SMF70AID	SMF70S10
EXT70A_S11	SMF70AID	SMF70S11

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70A_TMN	SMF70AID	SMF70TMN
EXT70A_TMM	SMF70AID	SMF70TMM
EXT70A_TTT	SMF70AID	SMF70TTT
EXT70A_T00	SMF70AID	SMF70T00
EXT70A_T01	SMF70AID	SMF70T01
EXT70A_T02	SMF70AID	SMF70T02
EXT70A_T03	SMF70AID	SMF70T03
EXT70A_T04	SMF70AID	SMF70T04
EXT70A_T05	SMF70AID	SMF70T05
EXT70A_T06	SMF70AID	SMF70T06
EXT70A_T07	SMF70AID	SMF70T07
EXT70A_T08	SMF70AID	SMF70T08
EXT70A_T09	SMF70AID	SMF70T09
EXT70A_T10	SMF70AID	SMF70T10
EXT70A_T11	SMF70AID	SMF70T11
EXT70A_LMN	SMF70AID	SMF70LMN
EXT70A_LMM	SMF70AID	SMF70LMM
EXT70A_LTT	SMF70AID	SMF70LTT
EXT70A_L00	SMF70AID	SMF70L00
EXT70A_L01	SMF70AID	SMF70L01
EXT70A_L02	SMF70AID	SMF70L02
EXT70A_L03	SMF70AID	SMF70L03
EXT70A_L04	SMF70AID	SMF70L04
EXT70A_L05	SMF70AID	SMF70L05
EXT70A_L06	SMF70AID	SMF70L06
EXT70A_L07	SMF70AID	SMF70L07
EXT70A_L08	SMF70AID	SMF70L08
EXT70A_L09	SMF70AID	SMF70L09
EXT70A_L10	SMF70AID	SMF70L10
EXT70A_L11	SMF70AID	SMF70L11

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70A_AMN	SMF70AID	SMF70AMN
EXT70A_AMM	SMF70AID	SMF70AMM
EXT70A_ATT	SMF70AID	SMF70ATT
EXT70A_A00	SMF70AID	SMF70A00
EXT70A_A01	SMF70AID	SMF70A01
EXT70A_A02	SMF70AID	SMF70A02
EXT70A_A03	SMF70AID	SMF70A03
EXT70A_A04	SMF70AID	SMF70A04
EXT70A_A05	SMF70AID	SMF70A05
EXT70A_A06	SMF70AID	SMF70A06
EXT70A_A07	SMF70AID	SMF70A07
EXT70A_A08	SMF70AID	SMF70A08
EXT70A_A09	SMF70AID	SMF70A09
EXT70A_A10	SMF70AID	SMF70A10
EXT70A_A11	SMF70AID	SMF70A11
EXT70A_PMN	SMF70AID	SMF70PMN
EXT70A_PMM	SMF70AID	SMF70PMM
EXT70A_PTT	SMF70AID	SMF70PTT
EXT70A_P00	SMF70AID	SMF70P00
EXT70A_P01	SMF70AID	SMF70P01
EXT70A_P02	SMF70AID	SMF70P02
EXT70A_P03	SMF70AID	SMF70P03
EXT70A_P04	SMF70AID	SMF70P04
EXT70A_P05	SMF70AID	SMF70P05
EXT70A_P06	SMF70AID	SMF70P06
EXT70A_P07	SMF70AID	SMF70P07
EXT70A_P08	SMF70AID	SMF70P08
EXT70A_P09	SMF70AID	SMF70P09
EXT70A_P10	SMF70AID	SMF70P10
EXT70A_P11	SMF70AID	SMF70P11

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70A_XMN	SMF70AID	SMF70XMN
EXT70A_XMM	SMF70AID	SMF70XMM
EXT70A_XTT	SMF70AID	SMF70XTT
EXT70A_X00	SMF70AID	SMF70X00
EXT70A_X01	SMF70AID	SMF70X01
EXT70A_X02	SMF70AID	SMF70X02
EXT70A_X03	SMF70AID	SMF70X03
EXT70A_X04	SMF70AID	SMF70X04
EXT70A_X05	SMF70AID	SMF70X05
EXT70A_X06	SMF70AID	SMF70X06
EXT70A_X07	SMF70AID	SMF70X07
EXT70A_X08	SMF70AID	SMF70X08
EXT70A_X09	SMF70AID	SMF70X09
EXT70A_X10	SMF70AID	SMF70X10
EXT70A_X11	SMF70AID	SMF70X11
EXT70A_MVS	SMF70PRO	SMF70MVS
EXT70A_Q00	SMF70AID	SMF70Q00
EXT70A_Q01	SMF70AID	SMF70Q01
EXT70A_Q02	SMF70AID	SMF70Q02
EXT70A_Q03	SMF70AID	SMF70Q03
EXT70A_Q04	SMF70AID	SMF70Q04
EXT70A_Q05	SMF70AID	SMF70Q05
EXT70A_Q06	SMF70AID	SMF70Q06
EXT70A_Q07	SMF70AID	SMF70Q07
EXT70A_Q08	SMF70AID	SMF70Q08
EXT70A_Q09	SMF70AID	SMF70Q09
EXT70A_Q10	SMF70AID	SMF70Q10
EXT70A_Q11	SMF70AID	SMF70Q11
EXT70A_Q12	SMF70AID	SMF70Q12
EXT70A_MDL	SMF70CTL	SMF70MDL

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70A_DSA	SMF70CTL	SMF70DSA
EXT70A_IFA	SMF70CTL	SMF70IFA
EXT70A_CPA	SMF70CTL	SMF70CPA
EXT70A_WLA	SMF70CTL	SMF70WLA
EXT70A_LAC	SMF70CTL	SMF70LAC
EXT70A_HOF	SMF70CTL	SMF70HOF
EXT70A_HWM	SMF70CTL	SMF70HWM
EXT70A_SUP	SMF70CTL	SMF70SUP
EXT70A_GJD	SMF70CTL	SMF70WGJD
EXT70A_GJT	SMF70CTL	SMF70GJT
EXT70A_POM	SMF70CTL	SMF70POM
EXT70A_CSC	SMF70CTL	SMF70CSC
EXT70A_INB	SMF70CTL	SMF70INB
EXT70A_STF	SMF70CTL	SMF70STF
EXT70A_RV1	SMF70CTL	Reserved
EXT70A_PMI	SMF70CTL	SMF70PMI
EXT70A_PMU	SMF70CTL	SMF70PMU
EXT70A_PMW	SMF70CTL	SMF70PMW
EXT70A_PMP	SMF70CTL	SMF70PMP
EXT70A_PMT	SMF70CTL	SMF70PMT
EXT70A_PML	SMF70CTL	SMF70PML
EXT70A_MPC	SMF70CTL	SMF70MPC
EXT70A_MTC	SMF70CTL	SMF70MTC
EXT70A_MCR	SMF70CTL	SMF70MCR
EXT70A_MPR	SMF70CTL	SMF70MPR
EXT70A_MTR	SMF70CTL	SMF70MTR
EXT70A_ZEP	SMF70CTL	SMF70ZEP
EXT70A_ZER	SMF70CTL	SMF70ZER
EXT70A_ZEE	SMF70CTL	SMF70ZEE
EXT70A_ZEC	SMF70CTL	SMF70ZEC

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70A_NRM	SMF70CTL	SMF70NRM
EXT70A_GAU	SMF70CTL	SMF70GAU
EXT70A_ZEI	SMF70CTL	SMF70ZEI
EXT70A_NCR	SMF70CTL	SMF70NCR
EXT70A_NPR	SMF70CTL	SMF70NPR
EXT70A_NTR	SMF70CTL	SMF70NTR
EXT70A_CAI	SMF70CTL	SMF70CAI
EXT70A_CCR	SMF70CTL	SMF70CCR
EXT70A_RSA	SMF70CTL	SMF70RSA
EXT70A_SRM	SMF70CTL	SMF70SRM
EXT70A_CMN	SMF70CTL	SMF70CMN
EXT70A_CMM	SMF70CTL	SMF70CMM
EXT70A_CTT	SMF70CTL	SMF70CTT
EXT70A_DMN	SMF70CTL	SMF70DMN
EXT70A_DMM	SMF70CTL	SMF70DMM
EXT70A_DTT	SMF70CTL	SMF70DTT
EXT70A_EMN	SMF70CTL	SMF70EMN
EXT70A_EMM	SMF70CTL	SMF70EMM
EXT70A_ETT	SMF70CTL	SMF70ETT
EXT70A_U00	SMF70CTL	SMF70U00
EXT70A_U01	SMF70CTL	SMF70U01
EXT70A_U02	SMF70CTL	SMF70U02
EXT70A_U03	SMF70CTL	SMF70U03
EXT70A_U04	SMF70CTL	SMF70U04
EXT70A_U05	SMF70CTL	SMF70U05
EXT70A_U06	SMF70CTL	SMF70U06
EXT70A_U07	SMF70CTL	SMF70U07
EXT70A_U08	SMF70CTL	SMF70U08
EXT70A_U09	SMF70CTL	SMF70U09

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70A_U10	SMF70CTL	SMF70U10
EXT70A_U11	SMF70CTL	SMF70U11
EXT70A_U12	SMF70CTL	SMF70U12
EXT70A_U13	SMF70CTL	SMF70U13
EXT70A_U14	SMF70CTL	SMF70U14
EXT70A_U15	SMF70CTL	SMF70U15

EXTDATA Record Type - R70C

The MRXT70C and MZXT70C record definitions define the EXTDATA records created by CA JARS from SMF record 70, subtype 1, RMF CPU Activity.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 70 (46) RMF Processor Activity" gives a detailed description of each field.

Additional information on the contents of RMF type 70 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (70)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70C_LGO	SMF70PRO	SMF70LGO
EXT70C_XNM	SMF70PRO	SMF70XNM
EXT70C_SNM	SMF70PRO	SMF70SNM
EXT70C_IST	SMF70PRO	SMF70IST
EXT70C_DAT	SMF70PRO	SMF70DAT
EXT70C_INT	SMF70PRO	SMF70INT
EXT70C_SAM	SMF70PRO	SMF70SAM
EXT70C_CYC	SMF70PRO	SMF70CYC
EXT70C_PTN	SMF70PRO	SMF70PTN

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70C_MOD	SMF70CTL	SMF70MOD
EXT70C_VER	SMF70CTL	SMF70VER
EXT70C_BNP	SMF70CTL	SMF70BNP
EXT70C_GTS	SMF70CTL	SMF70GTS
EXT70C_WAT	SMF70CPU	SMF70WAT
EXT70C_CID	SMF70CPU	SMF70CID
EXT70C_CNF	SMF70CPU	SMF70CNF
EXT70C_RV3	SMF70CPU	SMF70RV3
EXT70C_SER	SMF70CPU	SMF70SER
EXT70C_RV4	SMF70CPU	Reserved
EXT70C_TYP	SMF70CPU	SMF70TYP
EXT70C_SLH	SMF70CPU	SMF70SLH
EXT70C_TPI	SMF70CPU	SMF70TPI
EXT70C_VFS	SMF70CPU	SMF70VFS
EXT70C_V	SMF70CPU	SMF70V
EXT70C_RV5	SMF70CPU	SMF70CPM
EXT70C_MVS	SMF70PRO	SMF70MVS
EXT70C_PAT	SMF70CPU	SMF70PAT
EXT70C_6WAT*	SMF70CPU	SMF70WAT
EXT70C_TCB	SMF70CPU	SMF70TCB
EXT70C_SRB	SMF70CPU	SMF70SRB
EXT70C_IO	SMF70CPU	SMF70IO
EXT70C_SIG	SMF70CPU	SMF70SIG
EXT70C_WTD	SMF70CPU	SMF70WTD

* = Time in seconds with microsecond precision

EXTDATA Record Type - R70P

The MRXT70P and MZXT70P record definitions define the EXTDATA records created by CA JARS from SMF record 70, RMF CPU Activity.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 70 (46) RMF Processor Activity" gives a detailed description of each field.

Additional information on the contents of RMF type 70 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (70)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70P_LGO	SMF70PRO	SMF70LGO
EXT70P_XNM	SMF70PRO	SMF70XNM
EXT70P_SNM	SMF70PRO	SMF70SNM
EXT70P_IST	SMF70PRO	SMF70IST
EXT70P_DAT	SMF70PRO	SMF70DAT
EXT70P_INT	SMF70PRO	SMF70INT
EXT70P_SAM	SMF70PRO	SMF70SAM
EXT70P_CYC	SMF70PRO	SMF70CYC
EXT70P_PTN	SMF70PRO	SMF70PTN
EXT70P_MOD	SMF70CTL	SMF70MOD
EXT70P_VER	SMF70CTL	SMF70VER
EXT70P_BNP	SMF70CTL	SMF70BNP
EXT70P_GTS	SMF70CTL	SMF70GTS
EXT70P_LPM	SMF70BCT	SMF70LPM
EXT70P_LPN	SMF70BCT	SMF70LPN
EXT70P_PFG	SMF70BCT	SMF70PFG
EXT70P_BDN	SMF70BCT	SMF70BDN

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70P_RV1	SMF70BCT	SMF70BDS
EXT70P_PDT	SMF70BPD	SMF70PDT
EXT70P_VPA	SMF70BPD	SMF70VPA
EXT70P_BPS	SMF70BPD	SMF70BPS
EXT70P_VPF	SMF70BPD	SMF70VPF
EXT70P_RV2	SMF70BPD	Reserved
EXT70P_EDT	SMF70BPD	SMF70CIX
EXT70P_MVS	SMF70PRO	SMF70MVS
EXT70P_SPN	SMF70BCT	SMF70SPN
EXT70P_STN	SMF70BCT	SMF70STN
EXT70P_RV3	SMF70BCT	Reserved
EXT70P_CSF	SMF70BCT	SMF70CSF
EXT70P_RV4	SMF70BCT	Reserved
EXT70P_ESF	SMF70BCT	SMF70ESF
EXT70P_MSU	SMF70BCT	SMF70MSU
EXT70P_ACS	SMF70BPD	SMF70ACS
EXT70P_MIS	SMF70BPD	SMF70MIS
EXT70P_MAS	SMF70BPD	SMF70MAS
EXT70P_NSI	SMF70BPD	SMF70NSI
EXT70P_NSA	SMF70BPD	SMF70NSA
EXT70P_ONT	SMF70BPD	SMF70ONT
EXT70P_WST	SMF70BPD	SMF70WST
EXT70P_PMA	SMF70BPD	SMF70PMA
EXT70P_NSW	SMF70BPD	SMF70NSW
EXT70P_POW	SMF70BPD	SMF70POW
EXT70P_NCA	SMF70BPD	SMF70NCA
EXT70P_RV5	SMF70BPD	Reserved
EXT70P_CIN	SMF70CIS	SMF70CIN
EXT70P_CTN	SMF70CIS	SMF70CTN
EXT70P_PFL	SMF70BCT	SMF70PFL

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT70P_UPI	SMF70BCT	SMF70UPI
EXT70P_RV6	SMF70BCT	Reserved
EXT70P_GNM	SMF70BCT	SMF70GNM
EXT70P_GMU	SMF70BCT	SMF70GMU
EXT70P_BDA	SMF70BCT	SMF70BDA
EXT70P_DSA	SMF70CTL	SMF70DSA
EXT70P_RV7	SMF70CIS	Reserved
EXT70P_CAN	SMF70CIS	SMF70CAN
EXT70P_6PDT*	SMF70BPD	SMF70PDT
EXT70P_6EDT*	SMF70BPD	SMF70EDT
EXT70P_6ONT*	SMF70BPD	SMF70ONT
EXT70P_6WST*	SMF70BPD	SMF70WST

* = Time in seconds with microsecond precision

EXTDATA Record Type - R70Y

The MRXT70Y and MZXT70Y record definitions map the EXTDATA records created by CA JARS from SMF record 70-2 from the ICSF Services Data Section and the Cryptographic Accelerator Data Sections. The ICSF Services Data Section is repeated for each Cryptographic Accelerator Data Section.

Note: Application of the scaling factor converts time to nanoseconds.

CA Earl MRXT70Y	CA Easytrieve MZXT70Y	RMF Data Field
EXT70Y_LGO	EXT70Y_LGO	RMFLGO
EXT70Y_XNM	EXT70Y_XNM	RMFXNM
EXT70Y_SNM	EXT70Y_SNM	RMFSNM
EXT70Y_IST	EXT70Y_IST	RMFIST
EXT70Y_DAT	EXT70Y_DAT	RMFDAT
EXT70Y_INT	EXT70Y_INT	RMFINT
EXT70Y_SAM	EXT70Y_SAM	RMFSAM

CA Earl MRXT70Y	**CA Easytrieve MZXT70Y**	**RMF Data Field**
EXT70Y_CYC	EXT70Y_CYC	RMFCYC
EXT70Y_PTN	EXT70Y_PTN	RMFPTN
The following are ICSF services fields:		
EXT70Y_MVS	EXT70Y_MVS	SMF70MVS
EXT70Y_SNEC	EXT70Y_SNEC	R702SNEC
EXT70Y_SNEB	EXT70Y_SNEB	R702SNEB
EXT70Y_SNEI	EXT70Y_SNEI	R702SNEI
EXT70Y_TNEC	EXT70Y_TNEC	R702TNEC
EXT70Y_TNEB	EXT70Y_TNEB	R702TNEB
EXT70Y_TNEI	EXT70Y_TNEI	R702TNEI
EXT70Y_SNDC	EXT70Y_SNDC	R702SNDC
EXT70Y_SNDB	EXT70Y_SNDB	R702SNDB
EXT70Y_SNDI	EXT70Y_SNDI	R702SNDI
EXT70Y_TNDC	EXT70Y_TNDC	R702TNDC
EXT70Y_TNDB	EXT70Y_TNDB	R702TNDB
EXT70Y_TNDI	EXT70Y_TNDI	R702TNDI
EXT70Y_NMGC	EXT70Y_NMGC	R702NMGC
EXT70Y_NMGB	EXT70Y_NMGB	R702NMGB
EXT70Y_NMGI	EXT70Y_NMGI	R702NMGI
EXT70Y_NMVC	EXT70Y_NMVC	R702NMVC
EXT70Y_NMVB	EXT70Y_NMVB	R702NMVB
EXT70Y_NMVI	EXT70Y_NMVI	R702NMVI
EXT70Y_NHAC	EXT70Y_NHAC	R702NHAC
EXT70Y_NHAB	EXT70Y_NHAB	R702NHAB
EXT70Y_NHAI	EXT70Y_NHAI	R702NHAI
EXT70Y_NPTC	EXT70Y_NPTC	R702NPTC
EXT70Y_NPVC	EXT70Y_NPVC	R702NPVC
EXT70Y_NH2C	EXT70Y_NH2C	R702NH2C
EXT70Y_NH2B	EXT70Y_NH2B	R702NH2B

CA Earl MRXT70Y	CA Easytrieve MZXT70Y	RMF Data Field
EXT70Y_NH2I	EXT70Y_NH2I	R702NH2I
The following are cryptographic accelerator fields:		
EXT70Y_4AX	EXT70Y_4AX	R7024AX
EXT70Y_4CT	EXT70Y_4CT	R7024CT
EXT70Y_RSV1	EXT70Y_RSV1	Reserved
EXT70Y_4EN	EXT70Y_4EN	R7024EN
EXT70Y_4SF	EXT70Y_4SF	R7024SF
EXT70Y_1MET	EXT70Y_1MET	R7021MET*R7024SF
EXT70Y_1MEC	EXT70Y_1MEC	R7021MEC
EXT70Y_2MET	EXT70Y_2MET	R7022MET*R7024SF
EXT70Y_2MEC	EXT70Y_2MEC	R7022MEC
EXT70Y_1CRT	EXT70Y_1CRT	R7021CRT*R7024SF
EXT70Y_1CRC	EXT70Y_1CRC	R7021CRC
EXT70Y_2CRT	EXT70Y_2CRT	R7022CRT*R7024SF
EXT70Y_2CRC	EXT70Y_2CRC	R7022CRC
EXT70Y_NH5C	EXT70Y_NH5C	R702NH5C
EXT70Y_NH5B	EXT70Y_NH5B	R702NH5B
EXT70Y_NH5I	EXT70Y_NH5I	R702NH5I
EXT70Y_CDLV	EXT70Y_CDLV	R702CDLV
EXT70Y_AESC	EXT70Y_AESC	R702AESC
EXT70Y_AESB	EXT70Y_AESB	R702AESB
EXT70Y_AESI	EXT70Y_AESI	R702AESI
EXT70Y_ASDC	EXT70Y_ASDC	R702ASDC
EXT70Y_ASDB	EXT70Y_ASDB	R702ASDB
EXT70Y_ASDI	EXT70Y_ASDI	R702ASDI

EXTDATA Record Type - R70Z

The MRXT70Z and MZXT70Z record definitions map the EXTDATA records created by CA JARS from SMF record 70-2 from the ICSF Services Data Section and the Cryptographic Coprocessor Data Sections. The ICSF Services Data Section is repeated for each Cryptographic Coprocessor Data Section.

Note: Application of the scaling factor converts time to nanoseconds.

CA Earl MRXT70Z	CA Easytrieve MZXT70Z	RMF Data Field
EXT70Z_LGO	EXT70Z_LGO	RMFLGO
EXT70Z_XNM	EXT70Z_XNM	RMFXNM
EXT70Z_SNM	EXT70Z_SNM	RMFSNM
EXT70Z_IST	EXT70Z_IST	RMFIST
EXT70Z_DAT	EXT70Z_DAT	RMFDAT
EXT70Z_INT	EXT70Z_INT	RMFINT
EXT70Z_SAM	EXT70Z_SAM	RMFSAM
EXT70Z_CYC	EXT70Z_CYC	RMFCYC
EXT70Z_PTN	EXT70Z_PTN	RMFPTN
EXT70Z_MVS	EXT70Z_MVS	SMF70MVS
EXT70Z_SNEC	EXT70Z_SNEC	R702SNEC
EXT70Z_SNEB	EXT70Z_SNEB	R702SNEB
EXT70Z_SNEI	EXT70Z_SNEI	R702SNEI
EXT70Z_TNEC	EXT70Z_TNEC	R702TNEC
EXT70Z_TNEB	EXT70Z_TNEB	R702TNEB
EXT70Z_TNEI	EXT70Z_TNEI	R702TNEI
EXT70Z_SNDC	EXT70Z_SNDC	R702SNDC
EXT70Z_SNDB	EXT70Z_SNDB	R702SNDB
EXT70Z_SNDI	EXT70Z_SNDI	R702SNDI
EXT70Z_TNDC	EXT70Z_TNDC	R702TNDC
EXT70Z_TNDB	EXT70Z_TNDB	R702TNDB
EXT70Z_TNDI	EXT70Z_TNDI	R702TNDI
EXT70Z_NMGC	EXT70Z_NMGC	R702NMGC

CA Earl MRXT70Z	CA Easytrieve MZXT70Z	RMF Data Field
EXT70Z_NMGB	EXT70Z_NMGB	R702NMGB
EXT70Z_NMGI	EXT70Z_NMGI	R702NMGI
EXT70Z_NMVC	EXT70Z_NMVC	R702NMVC
EXT70Z_NMVB	EXT70Z_NMVB	R702NMVB
EXT70Z_NMVI	EXT70Z_NMVI	R702NMVI
EXT70Z_NHAC	EXT70Z_NHAC	R702NHAC
EXT70Z_NHAB	EXT70Z_NHAB	R702NHAB
EXT70Z_NHAI	EXT70Z_NHAI	R702NHAI
EXT70Z_NPTC	EXT70Z_NPTC	R702NPTC
EXT70Z_NPVC	EXT70Z_NPVC	R702NPVC
EXT70Z_NH2C	EXT70Z_NH2C	R702NH2C
EXT70Z_NH2B	EXT70Z_NH2B	R702NH2B
EXT70Z_NH2I	EXT70Z_NH2I	R702NH2I
The following are cryptographic coprocessor fields:		
EXT70Z_3AX	EXT70Z_3AX	R7023AX
EXT70Z_3CT	EXT70Z_3CT	R7023CT
EXT70Z_RSV1	EXT70Z_RSV1	Reserved
EXT70Z_3SF	EXT70Z_3SF	R7023SF
EXT70Z_3TO	EXT70Z_3TO	R7023TO*R7023SF
EXT70Z_3CO	EXT70Z_3CO	R7023CO
EXT70Z_RSV2	EXT70Z_RSV2	Reserved
EXT70Z_3C1	EXT70Z_3C1	R7023C1
EXT70Z_NH5C	EXT70Z_NH5C	R702NH5C
EXT70Z_NH5B	EXT70Z_NH5B	R702NH5B
EXT70Z_NH5I	EXT70Z_NH5I	R702NH5I
EXT70Z_CDLV	EXT70Z_CDLV	R702CDLV
EXT70Z_AESC	EXT70Z_AESC	R702AESC
EXT70Z_AESB	EXT70Z_AESB	R702AESB

CA Earl MRXT70Z	CA Easytrieve MZXT70Z	RMF Data Field
EXT70Z_AESI	EXT70Z_AESI	R702AESI
EXT70Z_ASDC	EXT70Z_ASDC	R702ASDC
EXT70Z_ASDB	EXT70Z_ASDB	R702ASDB
EXT70Z_ASDI	EXT70Z_ASDI	R702ASDI

EXTDATA Record Type - R71P

The MRXT71P and MZXT71P record definitions define the EXTDATA records created by CA JARS from SMF record 71, RMF Paging Activity.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 71 (48) RMF Paging Activity" gives a detailed description of each field.

Additional information on the contents of RMF type 71 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (71)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT71P_LGO	SMF71PRO	SMF71LGO
EXT71P_XNM	SMF71PRO	SMF71XNM
EXT71P_SNM	SMF71PRO	SMF71SNM
EXT71P_IST	SMF71PRO	SMF71IST
EXT71P_DAT	SMF71PRO	SMF71DAT
EXT71P_INT	SMF71PRO	SMF71INT
EXT71P_SAM	SMF71PRO	SMF71SAM
EXT71P_CYC	SMF71PRO	SMF71CYC
EXT71P_PTN	SMF71PRO	SMF71PTN
EXT71P_PIN	SMF71PAG	SMF71PIN

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT71P_POT	SMF71PAG	SMF71POT
EXT71P_PRC	SMF71PAG	SMF71PRC
EXT71P_SSQ	SMF71PAG	SMF71SSQ
EXT71P_SIN	SMF71PAG	SMF71SIN
EXT71P_SOT	SMF71PAG	SMF71SOT
EXT71P_VIN	SMF71PAG	SMF71VIN
EXT71P_VOT	SMF71PAG	SMF71VOT
EXT71P_VRC	SMF71PAG	Reserved
EXT71P_SNI	SMF71PAG	SMF71SNI
EXT71P_SNO	SMF71PAG	SMF71SNO
EXT71P_SNR	SMF71PAG	SMF71SNR
EXT71P_LNI	SMF71PAG	SMF71LNI
EXT71P_LNR	SMF71PAG	Reserved
EXT71P_AFC	SMF71PAG	SMF71AFC
EXT71P_TFC	SMF71PAG	SMF71TFC
EXT71P_TSC	SMF71PAG	SMF71TSC
EXT71P_DSC	SMF71PAG	SMF71DSC
EXT71P_VSC	SMF71PAG	SMF71VSC
EXT71P_NSC	SMF71PAG	SMF71NSC
EXT71P_FIN	SMF71PAG	SMF71FIN
EXT71P_MNF	SMF71PAG	SMF71MNF
EXT71P_MXF	SMF71PAG	SMF71MXF
EXT71P_AVF	SMF71PAG	SMF71AVF
EXT71P_MNP	SMF71PAG	SMF71MNP
EXT71P_MXP	SMF71PAG	SMF71MXP
EXT71P_AVP	SMF71PAG	SMF71AVP
EXT71P_MNS	SMF71PAG	SMF71MNS
EXT71P_MXS	SMF71PAG	SMF71MXS
EXT71P_AVS	SMF71PAG	SMF71AVS
EXT71P_MNT	SMF71PAG	SMF71MNT

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT71P_MXT	SMF71PAG	SMF71MXT
EXT71P_AVT	SMF71PAG	SMF71AVT
EXT71P_MNQ	SMF71PAG	SMF71MNQ
EXT71P_MXQ	SMF71PAG	SMF71MXQ
EXT71P_AVQ	SMF71PAG	SMF71AVQ
EXT71P_MNC	SMF71PAG	SMF71MNC
EXT71P_MXC	SMF71PAG	SMF71MXC
EXT71P_AVC	SMF71PAG	SMF71AVC
EXT71P_MNR	SMF71PAG	SMF71MNR
EXT71P_MXR	SMF71PAG	SMF71MXR
EXT71P_AVR	SMF71PAG	SMF71AVR
EXT71P_MNX	SMF71PAG	SMF71MNX
EXT71P_MXX	SMF71PAG	SMF71MXX
EXT71P_AVX	SMF71PAG	SMF71AVX
EXT71P_MNU	SMF71PAG	SMF71MNU
EXT71P_MXU	SMF71PAG	SMF71MXU
EXT71P_AVU	SMF71PAG	SMF71AVU
EXT71P_MNV	SMF71PAG	SMF71MNV
EXT71P_MXV	SMF71PAG	SMF71MXV
EXT71P_AVV	SMF71PAG	SMF71AVV
EXT71P_MNM	SMF71PAG	SMF71MNM
EXT71P_MXM	SMF71PAG	SMF71MXM
EXT71P_AVM	SMF71PAG	SMF71AVM
EXT71P_MNB	SMF71PAG	SMF71MNB
EXT71P_MXB	SMF71PAG	SMF71MXB
EXT71P_AVB	SMF71PAG	SMF71AVB
EXT71P_MNA	SMF71PAG	SMF71MNA
EXT71P_MXA	SMF71PAG	SMF71MXA
EXT71P_IS1	SMF71PAG	SMF71IS1
EXT71P_IS2	SMF71PAG	SMF71IS2

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT71P_VME	SMF71PAG	SMF71VME
EXT71P_VMG	SMF71PAG	SMF71VMG
EXT71P_VRE	SMF71PAG	SMF71VRE
EXT71P_MVE	SMF71PAG	SMF71MVE
EXT71P_XVE	SMF71PAG	SMF71XVE
EXT71P_AVE	SMF71PAG	SMF71AVE
EXT71P_RV1	SMF71PAG	Reserved
EXT71P_NLP	SMF71PAG	SMF71NLP
EXT71P_XLP	SMF71PAG	SMF71XLP
EXT71P_ALP	SMF71PAG	SMF71ALP
EXT71P_NLF	SMF71PAG	SMF71NLF
EXT71P_XLF	SMF71PAG	SMF71XLF
EXT71P_ALF	SMF71PAG	SMF71ALF
EXT71P_NLS	SMF71PAG	SMF71NLS
EXT71P_XLS	SMF71PAG	SMF71XLS
EXT71P_ALS	SMF71PAG	SMF71ALS
EXT71P_MNL	SMF71PAG	SMF71MNL
EXT71P_MXL	SMF71PAG	SMF71MXL
EXT71P_AVL	SMF71PAG	SMF71AVL
EXT71P_PMV	SMF71PAG	SMF71PMV
EXT71P_OPT	SMF71PAG	SMF71OPT
EXT71P_PES	SMF71PAG	SMF71PES
EXT71P_PEA	SMF71PAG	SMF71PEA
EXT71P_AMN	SMF71PAG	SMF71AMN
EXT71P_AMX	SMF71PAG	SMF71AMX
EXT71P_ASA	SMF71PAG	SMF71ASA
EXT71P_LIC	SMF71PAG	SMF71LIC
EXT71P_HIC	SMF71PAG	SMF71HIC
EXT71P_ACA	SMF71PAG	SMF71ACA
EXT71P_LMA	SMF71PAG	SMF71LMA

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT71P_HMA	SMF71PAG	SMF71HMA
EXT71P_AMA	SMF71PAG	SMF71AMA
EXT71P_CF	SMF71PAG	SMF71CF
EXT71P_OLE	SMF71PAG	SMF71OLE
EXT71P_RES	SMF71PAG	SMF71RES
EXT71P_MSR	SMF71PAG	SMF71MSR
EXT71P_XSR	SMF71PAG	SMF71XSR
EXT71P_ASR	SMF71PAG	SMF71ASR
EXT71P_MSE	SMF71PAG	SMF71MSE
EXT71P_XSE	SMF71PAG	SMF71XSE
EXT71P_ASE	SMF71PAG	SMF71ASE
EXT71P_LME	SMF71PAG	SMF71LME
EXT71P_LXE	SMF71PAG	SMF71LXE
EXT71P_LAE	SMF71PAG	SMF71LAE
EXT71P_CME	SMF71PAG	SMF71CME
EXT71P_CXE	SMF71PAG	SMF71CXE
EXT71P_CAE	SMF71PAG	SMF71CAE
EXT71P_MLR	SMF71PAG	SMF71MLR
EXT71P_XLR	SMF71PAG	SMF71XLR
EXT71P_ALR	SMF71PAG	SMF71ALR
EXT71P_MLE	SMF71PAG	SMF71MLE
EXT71P_XLE	SMF71PAG	SMF71XLE
EXT71P_ALE	SMF71PAG	SMF71ALE
EXT71P_RME	SMF71PAG	SMF71RME
EXT71P_RXE	SMF71PAG	SMF71RXE
EXT71P_RAE	SMF71PAG	SMF71RAE
EXT71P_ISC	SMF71PAG	SMF71ISC
EXT71P_HME	SMF71PAG	SMF71HME
EXT71P_HRE	SMF71PAG	SMF71HRE
EXT71P_HMG	SMF71PAG	SMF71HMG

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT71P_HOT	SMF71PAG	SMF71HOT
EXT71P_HIN	SMF71PAG	SMF71HIN
EXT71P_MHE	SMF71PAG	SMF71MHE
EXT71P_XHE	SMF71PAG	SMF71XHE
EXT71P_AHE	SMF71PAG	SMF71AHE
EXT71P_BLP	SMF71PAG	SMF71BLP
EXT71P_BLK	SMF71PAG	SMF71BLK
EXT71P_PWS	SMF71PAG	SMF71PWS
EXT71P_FNM	SMF71PAG	SMF71FNM
EXT71P_PMT	SMF71PAG	SMF71PMT
EXT71P_SBI	SMF71PAG	SMF71SBI
EXT71P_LBI	SMF71PAG	SMF71LBI
EXT71P_ASI	SMF71PAG	SMF71ASI
EXT71P_ASO	SMF71PAG	SMF71ASO
EXT71P_ESI	SMF71PAG	SMF71ESI
EXT71P_ESO	SMF71PAG	SMF71ESO
EXT71P_MGT	SMF71PAG	SMF71MGT
EXT71P_XGT	SMF71PAG	SMF71XGT
EXT71P_AGT	SMF71PAG	SMF71AGT
EXT71P_MGC	SMF71PAG	SMF71MGC
EXT71P_XGC	SMF71PAG	SMF71XGC
EXT71P_AGC	SMF71PAG	SMF71AGC
EXT71P_MGE	SMF71PAG	SMF71MGE
EXT71P_XGE	SMF71PAG	SMF71XGE
EXT71P_AGE	SMF71PAG	SMF71AGE
EXT71P_MGA	SMF71PAG	SMF71MGA
EXT71P_XGA	SMF71PAG	SMF71XGA
EXT71P_AGA	SMF71PAG	SMF71AGA
EXT71P_MGF	SMF71PAG	SMF71MGF
EXT71P_XGF	SMF71PAG	SMF71XGF

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT71P_AGF	SMF71PAG	SMF71AGF
EXT71P_MGB	SMF71PAG	SMF71MGB
EXT71P_MGC	SMF71PAG	SMF71MGC
EXT71P_XGB	SMF71PAG	SMF71XGB
EXT71P_AGB	SMF71PAG	SMF71AGB
EXT71P_CAM	SMF71PAG	SMF71CAM
EXT71P_CAX	SMF71PAG	SMF71CAX
EXT71P_CAA	SMF71PAG	SMF71CAA
EXT71P_CLM	SMF71PAG	SMF71CLM
EXT71P_CLX	SMF71PAG	SMF71CLX
EXT71P_CLA	SMF71PAG	SMF71CLA
EXT71P_CMM	SMF71PAG	SMF71CMM
EXT71P_CMX	SMF71PAG	SMF71CMX
EXT71P_CMA	SMF71PAG	SMF71CMA
EXT71P_CHM	SMF71PAG	SMF71CHM
EXT71P_CHX	SMF71PAG	SMF71CHX
EXT71P_CHA	SMF71PAG	SMF71CHA
EXT71P_EAM	SMF71PAG	SMF71EAM
EXT71P_EAX	SMF71PAG	SMF71EAX
EXT71P_EAA	SMF71PAG	SMF71EAA
EXT71P_ELM	SMF71PAG	SMF71ELM
EXT71P_ELX	SMF71PAG	SMF71ELX
EXT71P_ELA	SMF71PAG	SMF71ELA
EXT71P_EMM	SMF71PAG	SMF71EMM
EXT71P_EMX	SMF71PAG	SMF71EMX
EXT71P_EMA	SMF71PAG	SMF71EMA
EXT71P_EHM	SMF71PAG	SMF71EHM
EXT71P_EHX	SMF71PAG	SMF71EHX
EXT71P_EHA	SMF71PAG	SMF71EHA
EXT71P_MVS	SMF71PAG	SMF71MVS

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT71P_MVI	SMF71PAG	SMF71MVI
EXT71P_XVI	SMF71PAG	SMF71XVI
EXT71P_AVI	SMF71PAG	SMF71AVI
EXT71P_MHI	SMF71PAG	SMF71MHI
EXT71P_XHI	SMF71PAG	SMF71XHI
EXT71P_AHI	SMF71PAG	SMF71AHI
EXT71P_VWS	SMF71PAG	SMF71VWS
EXT71P_VRS	SMF71PAG	SMF71VRS
EXT71P_HWS	SMF71PAG	SMF71HWS
EXT71P_HRS	SMF71PAG	SMF71HRS
EXT71P_MFB	SMF71PAG	SMF71MFB
EXT71P_XFB	SMF71PAG	SMF71XFB
EXT71P_AFB	SMF71PAG	SMF71AFB
EXT71P_PTH	SMF71PAG	SMF71PTH
EXT71P_PCH	SMF71PAG	SMF71PCH
EXT71P_PAH	SMF71PAG	SMF71PAH
EXT71P_BLG	SMF71PAG	SMF71BLG
EXT71P_PIH	SMF71PAG	SMF71PIH
EXT71P_POH	SMF71PAG	SMF71POH
EXT71P_ULM	SMF71PAG	SMF71ULM
EXT71P_ULC	SMF71PAG	SMF71ULC
EXT71P_UHC	SMF71PAG	SMF71UHC
EXT71P_UHX	SMF71PAG	SMF71UHX
EXT71P_UAM	SMF71PAG	SMF71UAM
EXT71P_UAC	SMF71PAG	SMF71UAC
EXT71P_UAX	SMF71PAG	SMF71UAX
EXT71P_LOM	SMF71PAG	SMF71LOM
EXT71P_LOX	SMF71PAG	SMF71LOX
EXT71P_LOA	SMF71PAG	SMF71LOA
EXT71P_LRM	SMF71PAG	SMF71LRM

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT71P_LRX	SMF71PAG	SMF71LRX
EXT71P_LRA	SMF71PAG	SMF71LRA
EXT71P_COM	SMF71PAG	SMF71COM
EXT71P_COX	SMF71PAG	SMF71COX
EXT71P_COA	SMF71PAG	SMF71COA
EXT71P_CRM	SMF71PAG	SMF71CRM
EXT71P_CRX	SMF71PAG	SMF71CRX
EXT71P_CRA	SMF71PAG	SMF71CRA
EXT71P_CFM	SMF71PAG	SMF71CFM
EXT71P_CFX	SMF71PAG	SMF71CFX
EXT71P_CFA	SMF71PAG	SMF71CFA
EXT71P_CSM	SMF71PAG	SMF71CSM
EXT71P_CSX	SMF71PAG	SMF71CSX
EXT71P_CSA	SMF71PAG	SMF71CSA
EXT71P_SOM	SMF71PAG	SMF71SOM
EXT71P_SOX	SMF71PAG	SMF71SOX
EXT71P_SOA	SMF71PAG	SMF71SOA
EXT71P_SRM	SMF71PAG	SMF71SRM
EXT71P_SRX	SMF71PAG	SMF71SRX
EXT71P_SRA	SMF71PAG	SMF71SRA
EXT71P_GRN	SMF71PAG	SMF71GRN
EXT71P_FBN	SMF71PAG	SMF71FBN
EXT71P_FRN	SMF71PAG	SMF71FRN
EXT71P_FFN	SMF71PAG	SMF71FFN
EXT71P_1RN	SMF71PAG	SMF711RN
EXT71P_NRN	SMF71PAG	SMF71NRN

EXTDATA Record Type - R71S

The MRXT71S and MZXT71S record definitions define the EXTDATA records created by CA JARS from SMF record 71, RMF Paging Activity.

CA Earl MRXT71S	CA Easytrieve MZXT71S	SMF Data Field
EXT71S_LGO	EXT71S_LGO	SMF71SGO
EXT71S_XNM	EXT71S_XNM	SMF71XNM
EXT71S_SNM	EXT71S_SNM	SMF71SNM
EXT71S_IST	EXT71S_IST	SMF71IST
EXT71S_DAT	EXT71S_DAT	SMF71DAT
EXT71S_INT	EXT71S_INT	SMF71INT
EXT71S_SAM	EXT71S_SAM	SMF71SAM
EXT71S_CYC	EXT71S_CYC	SMF71CYC
EXT71S_PTN	EXT71S_PTN	SMF71PTN
EXT71S_SNO	EXT71S_SNO	SMF71SNO
EXT71S_TOT	EXT71S_TOT	SMF71TOT
EXT71S_AXD	EXT71S_AXD	SMF71AXD
EXT71S_LES	EXT71S_LES	SMF71LES
EXT71S_LAX	EXT71S_LAX	SMF71LAX
EXT71S_ESD	EXT71S_ESD	SMF71ESD
EXT71S_MIG	EXT71S_MIG	SMF71MIG
EXT71S_MVS	EXT71S_MVS	SMF71MVS

EXTDATA Record Type - R72C

The MRXT72C and MZXT72C record definitions define the EXTDATA records created by CA JARS from SMF record 72, subtype 4, Workload Activity and Storage Data.

CA Earl MRXT72C	CA Easytrieve MZXT72C	SMF Data Field
EXT72C_LGO	EXT72C_LGO	SMF72LGO
EXT72C_XNM	EXT72C_XNM	SMF72XNM

CA Earl MRXT72C	CA Easytrieve MZXT72C	SMF Data Field
EXT72C_SNM	EXT72C_SNM	SMF72SNM
EXT72C_IST	EXT72C_IST	SMF72IST
EXT72C_DAT	EXT72C_DAT	SMF72DAT
EXT72C_INT	EXT72C_INT	SMF72INT
EXT72C_SAM	EXT72C_SAM	SMF72SAM
EXT72C_CYC	EXT72C_CYC	SMF72CYC
EXT72C_PTN	EXT72C_PTN	SMF72PTN
EXT72C_PNAM	EXT72C_PNAM	R724PNAM
EXT72C_PTMD	EXT72C_PTMD	R724PTM
EXT72C_PTMT	EXT72C_PTMT	R724PTM
EXT72C_LCNM	EXT72C_LCNM	R724LCNM
EXT72C_PERN	EXT72C_PERN	R724PER#
EXT72C_USER	EXT72C_USER	R724USER
EXT72C_ACTV	EXT72C_ACTV	R724ACTV
EXT72C_ACTS	EXT72C_ACTS	R724ACTS
EXT72C_IDLS	EXT72C_IDLS	R724IDLS
EXT72C_PAGE	EXT72C_PAGE	R724PAGE
EXT72C_SWAP	EXT72C_SWAP	R724SWAP
EXT72C_OUTR	EXT72C_OUTR	R724OUTR
EXT72C_PGIN	EXT72C_PGIN	R724PGIN
EXT72C_DIVS	EXT72C_DIVS	R724DIVS
EXT72C_LSSA	EXT72C_LSSA	R724LSSA
EXT72C_PSSA	EXT72C_PSSA	R724PSSA
EXT72C_UPRO	EXT72C_UPRO	R724UPRO
EXT72C_UDEV	EXT72C_UDEV	R724UDEV
EXT72C_DPRO	EXT72C_DPRO	R724DPRO
EXT72C_DDEV	EXT72C_DDEV	R724DDEV
EXT72C_DSTO	EXT72C_DSTO	R724DSTO
EXT72C_DJES	EXT72C_DJES	R724DJES

CA Earl MRXT72C	CA Easytrieve MZXT72C	SMF Data Field
EXT72C_DHSM	EXT72C_DHSM	R724DHSM
EXT72C_DXCF	EXT72C_DXCF	R724DXCF
EXT72C_DENQ	EXT72C_DENQ	R724DENQ
EXT72C_DMNT	EXT72C_DMNT	R724DMNT
EXT72C_DMSG	EXT72C_DMSG	R724DMSG
EXT72C_UNKN	EXT72C_UNKN	R724UNKN
EXT72C_VALD	EXT72C_VALD	R724VALD
EXT72C_LSCT	EXT72C_LSCT	R724LSCT
EXT72C_ESCT	EXT72C_ESCT	R724ESCT
EXT72C_PSCT	EXT72C_PSCT	R724PSCT
EXT72C_ACTF	EXT72C_ACTF	R724ACTF
EXT72C_IDLE	EXT72C_IDLE	R724IDLE
EXT72C_SLOT	EXT72C_SLOT	R724SLOT
EXT72C_DIV	EXT72C_DIV	R724DIV
EXT72C_FIX	EXT72C_FIX	R724FIX
EXT72C_LSCF	EXT72C_LSCF	R724LSCF
EXT72C_LSEF	EXT72C_LSEF	R724LSEF
EXT72C_PSEF	EXT72C_PSEF	R724PSEF
EXT72C_VECT	EXT72C_VECT	R724VECT
EXT72C_ET	EXT72C_ET	R724ET
EXT72C_QT	EXT72C_QT	R724QT
EXT72C_END	EXT72C_END	R724END
EXT72C_OR1	EXT72C_OR1	R724OR1
EXT72C_OR2	EXT72C_OR2	R724OR2
EXT72C_OR3	EXT72C_OR3	R724OR3
EXT72C_OR4	EXT72C_OR4	R724OR4
EXT72C_OR5	EXT72C_OR5	R724OR5
EXT72C_OR6	EXT72C_OR6	R724OR6
EXT72C_OR7	EXT72C_OR7	R724OR7

CA Earl MRXT72C	CA Easytrieve MZXT72C	SMF Data Field
EXT72C_OR8	EXT72C_OR8	R724OR8
EXT72C_OR9	EXT72C_OR9	R724OR9
EXT72C_OR10	EXT72C_OR10	R724OR10
EXT72C_OR11	EXT72C_OR11	R724OR11
EXT72C_OR12	EXT72C_OR12	R724OR12
EXT72C_OR13	EXT72C_OR13	R724OR13
EXT72C_OR14	EXT72C_OR14	R724OR14
EXT72C_OR15	EXT72C_OR15	R724OR15
EXT72C_OR16	EXT72C_OR16	R724OR16
EXT72C_OR17	EXT72C_OR17	R724OR17
EXT72C_TSV	EXT72C_TSV	R724TSV
EXT72C_VIN	EXT72C_VIN	R724VIN
EXT72C_VLC	EXT72C_VLC	R724VLC
EXT72C_GPI	EXT72C_GPI	R724GPI
EXT72C_MVS	EXT72C_MVS	SMF72MVS
EXT72C_OR18	EXT72C_OR18	R724OR18

EXTDATA Record Type - R72G

The MRXT72G and MZXT72G record definitions define the EXTDATA records created by CA JARS from SMF record 72, subtype 2, Workload Activity and Storage Data.

CA Earl MRXT72G	CA Easytrieve MZXT72G	SMF Data Field
EXT72G_LGO	EXT72G_LGO	SMF72LGO
EXT72G_XNM	EXT72G_XNM	SMF72XNM
EXT72G_SNM	EXT72G_SNM	SMF72SNM
EXT72G_IST	EXT72G_IST	SMF72IST
EXT72G_DAT	EXT72G_DAT	SMF72DAT
EXT72G_INT	EXT72G_INT	SMF72INT

CA Earl MRXT72G	CA Easytrieve MZXT72G	SMF Data Field
EXT72G_SAM	EXT72G_SAM	SMF72SAM
EXT72G_CYC	EXT72G_CYC	SMF72CYC
EXT72G_PTN	EXT72G_PTN	SMF72PTN
EXT72G_PG	EXT72G_PG	R722PG
EXT72G_DMN	EXT72G_DMN	R722DMN
EXT72G_USER	EXT72G_USER	R722USER
EXT72G_ACTV	EXT72G_ACTV	R722ACTV
EXT72G_PAGE	EXT72G_PAGE	R722PAGE
EXT72G_SWAP	EXT72G_SWAP	R722SWAP
EXT72G_OUTR	EXT72G_OUTR	R722OUTR
EXT72G_ACTF	EXT72G_ACTF	R722ACTF
EXT72G_ACTS	EXT72G_ACTS	R722ACTS
EXT72G_IDLE	EXT72G_IDLE	R722IDLE
EXT72G_IDLS	EXT72G_IDLS	R722IDLS
EXT72G_PGIN	EXT72G_PGIN	R722PGIN
EXT72G_SLOT	EXT72G_SLOT	R722SLOT
EXT72G_DIV	EXT72G_DIV	R722DIV
EXT72G_DIVS	EXT72G_DIVS	R722DIVS
EXT72G_FIX	EXT72G_FIX	R722FIX
EXT72G_ET	EXT72G_ET	R722ET
EXT72G_QT	EXT72G_QT	R724QT
EXT72G_END	EXT72G_END	R722END
EXT72G_UPRO	EXT72G_UPRO	R722UPRO
EXT72G_UDEV	EXT72G_UDEV	R722UDEV
EXT72G_DPRO	EXT72G_DPRO	R722DPRO
EXT72G_DDEV	EXT72G_DDEV	R722DDEV
EXT72G_DSTO	EXT72G_DSTO	R722DSTO
EXT72G_DJES	EXT72G_DJES	R722DJES
EXT72G_DHSM	EXT72G_DHSM	R722DHSM

CA Earl MRXT72G	CA Easytrieve MZXT72G	SMF Data Field
EXT72G_DXCF	EXT72G_DXCF	R722DXCF
EXT72G_DENQ	EXT72G_DENQ	R722DENQ
EXT72G_DMNT	EXT72G_DMNT	R722DMNT
EXT72G_DMSG	EXT72G_DMSG	R722DMSG
EXT72G_UNKN	EXT72G_UNKN	R722UNKN
EXT72G_VALD	EXT72G_VALD	R722VALD
EXT72G_LSCT	EXT72G_LSCT	R722LSCT
EXT72G_ESCT	EXT72G_ESCT	R722ESCT
EXT72G_PSCT	EXT72G_PSCT	R722PSCT
EXT72G_LSCF	EXT72G_LSCF	R722LSCF
EXT72G_LSEF	EXT72G_LSEF	R722LSEF
EXT72G_LSSA	EXT72G_LSSA	R722LSSA
EXT72G_PSEF	EXT72G_PSEF	R722PSEF
EXT72G_PSSA	EXT72G_PSSA	R722PSSA
EXT72G_VECT	EXT72G_VECT	R722VECT
EXT72G_ACFF	EXT72G_ACFF	R722ACFF
EXT72G_IDLF	EXT72G_IDLF	R722IDLF
EXT72G_SLTF	EXT72G_SLTF	R722SLTF
EXT72G_DIVF	EXT72G_DIVF	R722DIVF
EXT72G_FIXF	EXT72G_FIXF	R722FIXF
EXT72G_OR1	EXT72G_OR1	R722OR1
EXT72G_OR2	EXT72G_OR2	R722OR2
EXT72G_OR3	EXT72G_OR3	R722OR3
EXT72G_OR4	EXT72G_OR4	R722OR4
EXT72G_OR5	EXT72G_OR5	R722OR5
EXT72G_OR6	EXT72G_OR6	R722OR6
EXT72G_OR7	EXT72G_OR7	R722OR7
EXT72G_OR8	EXT72G_OR8	R722OR8
EXT72G_OR9	EXT72G_OR9	R722OR9

CA Earl MRXT72G	CA Easytrieve MZXT72G	SMF Data Field
EXT72G_OR10	EXT72G_OR10	R722OR10
EXT72G_OR11	EXT72G_OR11	R722OR11
EXT72G_OR12	EXT72G_OR12	R722OR12
EXT72G_OR13	EXT72G_OR13	R722OR13
EXT72G_OR14	EXT72G_OR14	R722OR14
EXT72G_OR15	EXT72G_OR15	R722OR15
EXT72G_OR16	EXT72G_OR16	R722OR16
EXT72G_OR17	EXT72G_OR17	R722OR17
EXT72G_TSV	EXT72G_TSV	R722TSV
EXT72G_VIN	EXT72G_VIN	R722VIN
EXT72G_VLC	EXT72G_VLC	R722VLC
EXT72G_GPI	EXT72G_GPI	R722GPI
EXT72G_MVS	EXT72G_MVS	SMF72MVS
EXT72G_OR18	EXT72G_OR18	R722OR18

EXTDATA Record Type - R72P

The MRXT72P and MZXT72P record definitions define the EXTDATA records created by CA JARS from SMF record 72, subtype 1, Workload Activity and Storage Data.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 72 (48) RMF Workload Activity and Storage Data" gives a detailed description of each field.

Additional information on the contents of RMF type 72 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (72)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT72P_LGO	SMF72PRO	SMF72LGO
EXT72P_XNM	SMF72PRO	SMF72XNM
EXT72P_SNM	SMF72PRO	SMF72SNM
EXT72P_IST	SMF72PRO	SMF72IST
EXT72P_DAT	SMF72PRO	SMF72DAT
EXT72P_INT	SMF72PRO	SMF72INT
EXT72P_SAM	SMF72PRO	SMF72SAM
EXT72P_CYC	SMF72PRO	SMF72CYC
EXT72P_PTN	SMF72PRO	SMF72PTN
EXT72P_SUB	SMF72CTL	SMF72SUB
EXT72P_SYS	SMF72CTL	SMF72SYS
EXT72P_CLS	SMF72CTL	SMF72CLS
EXT72P_USR	SMF72CTL	SMF72USR
EXT72P_NAM	SMF72CTL	SMF72NAM
EXT72P_ADJ	SMF72CTL	SMF72ADJ
EXT72P_SRV	SMF72CTL	SMF72SRV
EXT72P_PRD	SMF72WKL	SMF72PGP
EXT72P_TTX	SMF72WKL	SMF72TTX
EXT72P_ACT	SMF72WKL	SMF72ACT
EXT72P_SER	SMF72WKL	SMF72SER
EXT72P_TTM	SMF72WKL	SMF72TTM
EXT72P_RV1	SMF72WKL	Reserved
EXT72P_MTS	SMF72WKL	SMF72MTS
EXT72P_ITS	SMF72WKL	SMF72ITS
EXT72P_CTS	SMF72WKL	SMF72CTS
EXT72P_TAT	SMF72WKL	SMF72TAT
EXT72P_SPP	SMF72WKL	SMF72SPP
EXT72P_CDN	SMF72WKL	SMF72CDN

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT72P_RV2	SMF72WKL	Reserved
EXT72P_TSG	SMF72WKL	SMF72TSG
EXT72P_STS	SMF72WKL	SMF72STS
EXT72P_ET1	SMF72WKL	SMF72ET1
EXT72P_ET2	SMF72WKL	SMF72ET2
EXT72P_PIN	SMF72WKL	SMF72PIN
EXT72P_FT1	SMF72WKL	SMF72FT1
EXT72P_FT2	SMF72WKL	SMF72FT2
EXT72P_HIN	SMF72WKL	SMF72HIN
EXT72P_HRM	SMF72WKL	SMF72HRM
EXT72P_BPI	SMF72WKL	SMF72BPI
EXT72P_PIE	SMF72WKL	SMF72PIE
EXT72P_BPE	SMF72WKL	SMF72BPE
EXT72P_BKA	SMF72WKL	SMF72BKA
EXT72P_BKE	SMF72WKL	SMF72BKE
EXT72P_ER1	SMF72WKL	SMF72ER1
EXT72P_ER2	SMF72WKL	SMF72ER2
EXT72P_RCT	SMF72WKL	SMF72RCT
EXT72P_IIT	SMF72WKL	SMF72ITT
EXT72P_HST	SMF72WKL	SMF72HST
EXT72P_TST	SMF72WKL	SMF72TST
EXT72P_CUS	SMF72WKL	SMF72CUS
EXT72P_TOT	SMF72WKL	SMF72TOT
EXT72P_SRS	SMF72WKL	SMF72SRS
EXT72P_SPA	SMF72WKL	SMF72SPA
EXT72P_SPE	SMF72WKL	SMF72SPE
EXT72P_ICT	SMF72WKL	SMF72ICT
EXT72P_IWT	SMF72WKL	SMF72IWT
EXT72P_IDT	SMF72WKL	SMF72IDT
EXT72P_IRC	SMF72WKL	SMF72IRC

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT72P_TOU	SMF72WKL	SMF72TOU
EXT72P_IOU	SMF72WKL	SMF72IOU
EXT72P_NDI	SMF72WKL	SMF72NDI
EXT72P_IOD	SMF72WKL	SMF72IOD
EXT72P_TSA	SMF72WKL	SMF72TSA
EXT72P_IOT	SMF72WKL	SMF72IOT
EXT72P_QDT	SMF72WKL	SMF72QDT
EXT72P_ADT	SMF72WKL	SMF72ADT
EXT72P_CVT	SMF72WKL	SMF72CVT
EXT72P_IQT	SMF72WKL	SMF72IQT
EXT72P_MVS	SMF72PRO	SMF72MVS
EXT72P_IEA	SMF72WKL	SMF72IEA
EXT72P_XEA	SMF72WKL	SMF72XEA
EXT72P_FEA	SMF72WKL	SMF72FEA

EXTDATA Record Type - R72W

The MRXT72W and MZXT72W record definitions define the EXTDATA records created by CA JARS from SMF record 72, subtype 3, Workload Activity and Storage Data.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 72 (48) RMF Workload Activity and Storage Data" gives a detailed description of each field.

Additional information on the contents of RMF type 72 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (72)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT72W_LGO	SMF72PRO	SMF72LGO
EXT72W_XNM	SMF72PRO	SMF72XNM
EXT72W_SNM	SMF72PRO	SMF72SNM
EXT72W_IST	SMF72PRO	SMF72IST
EXT72W_DAT	SMF72PRO	SMF72DAT
EXT72W_INT	SMF72PRO	SMF72INT
EXT72W_SAM	SMF72PRO	SMF72SAM
EXT72W_CYC	SMF72PRO	SMF72CYC
EXT72W_PTN	SMF72PRO	SMF72PTN
EXT72W_MSCF	R723WMS	R723MSCF
EXT72W_MNSP	R723WMS	R723MNSP
EXT72W_MDSP	R723WMS	R723MDSP
EXT72W_MDPA	R723WMS	R723MDPA
EXT72W_MTPA	R723WMS	R723MTPA
EXT72W_MCPU	R723WMS	R723MCPU
EXT72W_MIOC	R723WMS	R723MIOC
EXT72W_MMSO	R723WMS	R723MMSO
EXT72W_MSRB	R723WMS	R723MSRB
EXT72W_MTVL	R723WMS	R723MTVL
EXT72W_MTV	R723WMS	R723MTV#
EXT72W_MOPT	R723WMS	R723MOPT
EXT72W_MWNM	R723WMS	R723MWNM
EXT72W_MWDE	R723WMS	R723MWDE
EXT72W_MCNM	R723WMS	R723MCNM
EXT72W_MCDE	R723WMS	R723MCDE
EXT72W_MCPG	R723WMS	R723MCPG
EXT72W_MSUB	R723WMS	R723MSUB

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT72W_MERF	R723WMS	R723MERF
EXT72W_MADJ	R723WMS	R723MADJ
EXT72W_MIDN	R723WMS	R723MIDN
EXT72W_MIDD	R723WMS	R723MIDD
EXT72W_MDDI	R723WMS	R723MTDI
EXT72W_MTDI	R723WMS	R723MTDI
EXT72W_MIDU	R723RGS	R723MIDU
EXT72W_GGNM	R723RGS	R723GGNM
EXT72W_GGDE	R723RGS	R723GGDE
EXT72W_GGLT	R723RGS	R723GGLT
EXT72W_GRS2	R723RGS	R723GRS2
EXT72W_GGMN	R723RGS	R723GGMN
EXT72W_GGMX	R723RGS	R723GGMX
EXT72W_CPER	R723SCS	R723CPER
EXT72W_CRGF	R723SCS	R723CRGF
EXT72W_CVAL	R723SCS	R723CVAL
EXT72W_CVL	R723SCS	R723CVAL
EXT72W_CPCT	R723SCS	R723CPCT
EXT72W_CIMP	R723SCS	R723CIMP
EXT72W_CDUR	R723SCS	R723CDUR
EXT72W_CSRV	R723SCS	R723CSRV
EXT72W_CCPU	R723SCS	R723CCPU
EXT72W_CIOC	R723SCS	R723CIOC
EXT72W_CMSO	R723SCS	R723CMSO
EXT72W_CSRB	R723SCS	R723CSRB
EXT72W_CPIR	R723SCS	R723CPIR
EXT72W_CHPI	R723SCS	R723CHPI
EXT72W_CBPI	R723SCS	R723CBPI
EXT72W_CPIE	R723SCS	R723CPIE
EXT72W_CBPE	R723SCS	R723CBPE

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT72W_CBKA	R723SCS	R723CBKA
EXT72W_CBKE	R723SCS	R723CBKE
EXT72W_CPRS	R723SCS	R723CPRS
EXT72W_CERS	R723SCS	R723CERS
EXT72W_CTRR	R723SCS	R723CTRR
EXT72W_CTAT	R723SCS	R723CTAT
EXT72W_CRCT	R723SCS	R723CRCT
EXT72W_CIIT	R723SCS	R723CIIT
EXT72W_CHST	R723SCS	R723CHST
EXT72W_CSWC	R723SCS	R723CSWC
EXT72W_CCRM	R723SCS	R723CCRM
EXT72W_CRCP	R723SCS	R723CRCP
EXT72W_CARC	R723SCS	R723CARC
EXT72W_CNCP	R723SCS	R723CNCP
EXT72W_CANC	R723SCS	R723CANC
EXT72W_CTET	R723SCS	R723CTET
EXT72W_CXET	R723SCS	R723CXET
EXT72W_CETS	R723SCS	R723CETS
EXT72W_CCUS	R723SCS	R723CCUS
EXT72W_CTOT	R723SCS	R723CTOT
EXT72W_CCDE	R723SCS	R723CCDE
EXT72W_CCCA	R723SCS	R723CCCA
EXT72W_CSWI	R723SCS	R723CSWI
EXT72W_CMPL	R723SCS	R723CMPL
EXT72W_CAPR	R723SCS	R723CAPR
EXT72W_CACO	R723SCS	R723CACO
EXT72W_CAXM	R723SCS	R723CAXM
EXT72W_CVIO	R723SCS	R723CVIO
EXT72W_CHSP	R723SCS	R723CHSP
EXT72W_CCHS	R723SCS	R723CCHS

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT72W_CUNK	R723SCS	R723CUNK
EXT72W_CIDL	R723SCS	R723CIDL
EXT72W_CPDE	R723SCS	R723CPDE
EXT72W_CPQU	R723SCS	R723CPQU
EXT72W_CSAC	R723SCS	R723CSAC
EXT72W_CMP1	R723RTS	R723TRDB (map 1)
EXT72W_CMP2	R723RTS	R723TRDB (map 2)
EXT72W_CMP3	R723RTS	R723TRDB (map 3)
EXT72W_CMP4	R723RTS	R723TRDB (map 4)
EXT72W_CMP5	R723RTS	R723TRDB (map 5)
EXT72W_CMP6	R723RTS	R723TRDB (map 6)
EXT72W_CMP7	R723RTS	R723TRDB (map 7)
EXT72W_CMP8	R723RTS	R723TRDB (map 8)
EXT72W_CMP9	R723RTS	R723TRDB (map 9)
EXT72W_CMPA	R723RTS	R723TRDB (map 10)
EXT72W_CMPB	R723RTS	R723TRDB (map 11)
EXT72W_CMPC	R723RTS	R723TRDB (map 12)
EXT72W_CMPD	R723RTS	R723TRDB (map 13)
EXT72W_CMPE	R723RTS	R723TRDB (map 14)
EXT72W_CRT1	R723RTS	R723TRDB (count 1)
EXT72W_CRT2	R723RTS	R723TRDB (count 2)
EXT72W_CRT3	R723RTS	R723TRDB (count 3)
EXT72W_CRT4	R723RTS	R723TRDB (count 4)
EXT72W_CRT5	R723RTS	R723TRDB (count 5)
EXT72W_CRT6	R723RTS	R723TRDB (count 6)
EXT72W_CRT7	R723RTS	R723TRDB (count 7)
EXT72W_CRT8	R723RTS	R723TRDB (count 8)
EXT72W_CRT9	R723RTS	R723TRDB (count 9)
EXT72W_CRTA	R723RTS	R723TRDB (count 10)
EXT72W_CRTB	R723RTS	R723TRDB (count 11)

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT72W_CRTC	R723RTS	R723TRDB (count 12)
EXT72W_CRTD	R723RTS	R723TRDB (count 13)
EXT72W_CRTE	R723RTS	R723TRDB (count 14)
EXT72W_CSRS	R723RTS	R723CSRS
EXT72W_CSPA	R723RTS	R723CSPA
EXT72W_CSPE	R723SCS	R723CSPE
EXT72W_CICT	R723SCS	R723CICT
EXT72W_CIWT	R723SCS	R723CIWT
EXT72W_CIDT	R723SCS	R723CIDT
EXT72W_CIRC	R723SCS	R723CIRC
EXT72W_CTOU	R723SCS	R723CTOU
EXT72W_CIOU	R723SCS	R723CIOU
EXT72W_CIOD	R723SCS	R723CIOD
EXT72W_23CQ	R723SCS	R723CQ
EXT72W_CSPV	R723SCS	R723CSPV
EXT72W_CSVI	R723SCS	R723CSVI
EXT72W_CSHS	R723SCS	R723CSHS
EXT72W_CSMP	R723SCS	R723CSMP
EXT72W_CSSW	R723SCS	R723CSSW
EXT72W_CNDI	R723SCS	R723CNDI
EXT72W_CTDQ	R723SCS	R723CTDQ
EXT72W_CTSA	R723SCS	R723CTSA
EXT72W_CIOT	R723SCS	R723CIOT
EXT72W_CQDT	R723SCS	R723CQDT
EXT72W_CADT	R723SCS	R723CADT
EXT72W_CCVT	R723SCS	R723CCVT
EXT72W_CIQT	R723SCS	R723CIQT
EXT72W_MVS	SMF72PRO	SMF72MVS
EXT72W_CIEA	R723SCS	R723CIEA
EXT72W_CXEA	R723SCS	R723CXEA

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT72W_CFEA	R723SCS	R723CFEA
EXT72W_CAMU	R723SCS	R723CAMU
EXT72W_CAMD	R723SCS	R723CAMD
EXT72W_APU	R723SCS	R723APU
EXT72W_APD	R723SCS	R723APD
EXT72W_FQD	R723SCS	R723FQD
EXT72W_PLSC	R723SCS	R723PLSC
EXT72W_RCOD	R723SCS	R723RCOD
EXT72W_RCOU	R723SCS	R723RCOU
EXT72W_ECTC	R723SCS	R723ECTC
EXT72W_IFAU	R723SCS	R723IFAU
EXT72W_IFCU	R723SCS	R723IFCU
EXT72W_IFAD	R723SCS	R723IFAD
EXT72W_IFAT	R723SCS	R723IFAT
EXT72W_IFCT	R723SCS	R723IFCT
EXT72W_CLSC	R723WMS	R723CLSC
EXT72W_NFFI	R723WMS	R723NFFI
EXT72W_NFFS	R723WMS	R723NFFS
EXT72W_SUPU	R723SCS	R723SUPU
EXT72W_SUCU	R723SCS	R723SUCU
EXT72W_SUPD	R723SCS	R723SUPD
EXT72W_CSUP	R723SCS	R723CSUP
EXT72W_CSUC	R723SCS	R723CSUC
EXT72W_CIFA	R723SCS	R723CIFA
EXT72W_CIFC	R723SCS	R723CIFC
EXT72W_TPDP	R723SCS	R723TPDP
EXT72W_CPDP	R723SCS	R723CPDP
EXT72W_LPDP	R723SCS	R723LPDP
EXT72W_NADJ	R723WMS	R723NADJ
EXT72W_CECA	R723WMS	R723CECA

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT72W_SPDP	R723SCS	R723SPDP
EXT72W_RTDM	R723SCS	R723RTDM
EXT72W_RTDC	R723SCS	R723RTDC
EXT72W_RTDT	R723SCS	R723RTDT
EXT72W_RTDD	R723SCS	R723RTDT

EXTDATA Record Type - R73

The MRXT73 and MZXT73 record definitions define the EXTDATA records created by CA JARS from SMF record 73, RMF Channel Path Activity.

CA Earl MRXT73	CA Easytrieve MZXT73	SMF Data Field
EXT73_LGO	EXT73_LGO	SMF73LGO
EXT73_XNM	EXT73_XNM	SMF73XNM
EXT73_SNM	EXT73_SNM	SMF73SNM
EXT73_IST	EXT73_IST	SMF73IST
EXT73_DAT	EXT73_DAT	SMF73DAT
EXT73_INT	EXT73_INT	SMF73INT
EXT73_SAM	EXT73_SAM	SMF73SAM
EXT73_CYC	EXT73_CYC	SMF73CYC
EXT73_PTN	EXT73_PTN	SMF73PTN
EXT73_SMP	EXT73_SMP	SMF73SMP
EXT73_PID	EXT73_PID	SMF73PID
EXT73_FG2	EXT73_FG2	SMF73FG2
EXT73_FG3	EXT73_FG3	SMF73FG3
EXT73_FG4	EXT73_FG4	SMF73FG4
EXT73_BSY	EXT73_BSY	SMF73BSY
EXT73_PBY	EXT73_PBY	SMF73PBY
EXT73_PTI	EXT73_PTI	SMF73PTI
EXT73_CPD	EXT73_CPD	SMF73CPD

CA Earl MRXT73	CA Easytrieve MZXT73	SMF Data Field
EXT73_MVS	EXT73_MVS	SMF73MVS
EXT73_CFL	EXT73_CFL	SMF73CFL
EXT73_SFL	EXT73_SFL	SMF73SFL
EXT73_CRC	EXT73_CRC	SMF73CRC
EXT73_CSC	EXT73_CSC	SMF73CSC
EXT73_CMI	EXT73_CMI	SMF73CMI
EXT73_CSS	EXT73_CSS	SMF73CSS
EXT73_ACR	EXT73_ACR	SMF73ACR
EXT73_CMG	EXT73_CMG	SMF73CMG
EXT73_FG5	EXT73_FG5	SMF73FG5
EXT73_CPP	EXT73_CPP	SMF73CPP
EXT73_GEN	EXT73_GEN	SMF73GEN
EXT73_R11	EXT73_R11	Reserved

The 48 bytes following EXT73_FG5 are to be interpreted based on the value in field EXT73_CMG.

If the value in EXT73_CMG is 1, use this table:

EXT73_1TUT	EXT73_1TUT	SMF73TUT
EXT73_1PUT	EXT73_1PUT	SMF73PUT
EXT73_1R01	EXT73_1R01	Reserved
EXT73_1R02	EXT73_1R02	Reserved
EXT73_1R03	EXT73_1R03	Reserved
EXT73_1R04	EXT73_1R04	Reserved
EXT73_1R05	EXT73_1R05	Reserved
EXT73_1R06	EXT73_1R06	Reserved
EXT73_1R07	EXT73_1R07	Reserved
EXT73_1R08	EXT73_1R08	Reserved
EXT73_1R09	EXT73_1R09	Reserved
EXT73_1R10	EXT73_1R10	Reserved

If the value in EXT73_CMG is 2, use this table:

EXT73_2MBC	EXT73_2MBC	SMF73MBC
EXT73_2MCU	EXT73_2MCU	SMF73MCU
EXT73_2MWU	EXT73_2MWU	SMF73MWU
EXT73_2MRU	EXT73_2MRU	SMF73MRU
EXT73_2US	EXT73_2US	SMF73US
EXT73_2TBC	EXT73_2TBC	SMF73TBC
EXT73_2TUC	EXT73_2TUC	SMF73TUC
EXT73_2PUC	EXT73_2PUC	SMF73PUC
EXT73_2TWU	EXT73_2TWU	SMF73TWU
EXT73_2PWU	EXT73_2PWU	SMF73PWU
EXT73_2TRU	EXT73_2TRU	SMF73TRU
EXT73_2PRU	EXT73_2PRU	SMF73PRU

If the value in EXT73_CMG is 3, use this table:

EXT73_3PDU	EXT73_2MBC	SMF73MBC
EXT73_3TDU	EXT73_2MCU	SMF73MCU
EXT73_3PUM	EXT73_2MWU	SMF73MWU
EXT73_3TUM	EXT73_2MRU	SMF73MRU
EXT73_3R01	EXT73_2US	SMF73US
EXT73_3PMS	EXT73_2TBC	SMF73TBC
EXT73_3TMS	EXT73_2TUC	SMF73TUC
EXT73_3PUS	EXT73_2PUC	SMF73PUC
EXT73_3PUB	EXT73_2TWU	SMF73TWU
EXT73_3TUB	EXT73_2PWU	SMF73PWU
EXT73_3PDS	EXT73_2TRU	SMF73TRU
EXT73_3TDS	EXT73_2PRU	SMF73PRU

EXTDATA Record Type - R74A

The MRXT74A and MZXT74A record definitions define the EXTDATA records created by CA JARS from SMF record 74, subtype 5, Cache Subsystem Device Activity.

CA Earl MRXT74A	**CA Easytrieve MZXT74A**	**SMF Data Field**
EXT74A_LGO	EXT74A_LGO	SMF74LGO
EXT74A_XNM	EXT74A_XNM	SMF74XNM
EXT74A_SNM	EXT74A_SNM	SMF74SNM
EXT74A_IST	EXT74A_IST	SMF74IST
EXT74A_DAT	EXT74A_DAT	SMF74DAT
EXT74A_INT	EXT74A_INT	SMF74INT

CA Earl MRXT74A	CA Easytrieve MZXT74A	SMF Data Field
EXT74A_SAM	EXT74A_SAM	SMF74SAM
EXT74A_CYC	EXT74A_CYC	SMF74CYC
EXT74A_PTN	EXT74A_PTN	SMF74PTN
EXT74A_LVL	EXT74A_LVL	R745CLVL
EXT74A_MDL	EXT74A_MDL	R745CMDL
EXT74A_CNT	EXT74A_CNT	R745CCNT
EXT74A_CUID	EXT74A_CUID	R745CUID
EXT74A_CSC	EXT74A_CSC	R745CSC
EXT74A_CAE	EXT74A_CAE	R745CAE
EXT74A_RTN	EXT74A_RTN	R745CRTN
EXT74A_IOC	EXT74A_IOC	R745CIOC
EXT74A_RS2	EXT74A_RS2	Reserved
EXT74A_CINT	EXT74A_CINT	R745CINT
EXT74A_RS3	EXT74A_RS3	Reserved
EXT74A_VOL	EXT74A_VOL	R745SVOL
EXT74A_FLG4	EXT74A_FLG4	R745DFL4
EXT74A_RS4	EXT74A_RS4	Reserved
EXT74A_UNT	EXT74A_UNT	R745SUNT
EXT74A_RS5	EXT74A_RS5	Reserved
EXT74A_DEV	EXT74A_DEV	R745SDEV
EXT74A_SLN	EXT74A_SLN	R745SLN
EXT74A_SFT	EXT74A_SFT	R745SFT
EXT74A_DID	EXT74A_DID	R745SDID
EXT74A_NAD	EXT74A_NAD	R745SNAD
EXT74A_NSS	EXT74A_NSS	R745SNSS
EXT74A_SCS	EXT74A_SCS	R745SCS
EXT74A_VSS	EXT74A_VSS	R745SVSS
EXT74A_CLN	EXT74A_CLN	R745SCLN
EXT74A_RS6	EXT74A_RS6	Reserved

CA Earl MRXT74A	CA Easytrieve MZXT74A	SMF Data Field
EXT74A_CNF	EXT74A_CNF	R745SCNF
EXT74A_CBT	EXT74A_CBT	Redefine of CNF
EXT74A_CBS	EXT74A_CBS	Redefine of CNF
EXT74A_AVL	EXT74A_AVL	R745SAVL
EXT74A_ABT	EXT74A_ABT	Redefine of AVL
EXT74A_ABS	EXT74A_ABS	Redefine of AVL
EXT74A_PIN	EXT74A_PIN	R745SPIN
EXT74A_PBT	EXT74A_PBT	Redefine of PIN
EXT74A_PBS	EXT74A_PBS	Redefine of PIN
EXT74A_OFF	EXT74A_OFF	R745SOFF
EXT74A_OBT	EXT74A_OBT	Redefine of OFF
EXT74A_OBS	EXT74A_OBS	Redefine of OFF
EXT74A_DS1	EXT74A_DS1	R745SDS1
EXT74A_DS2	EXT74A_DS2	R745SDS2
EXT74A_CNV	EXT74A_CNV	R745SCNV
EXT74A_NBT	EXT74A_NBT	Redefine of CNV
EXT74A_NBS	EXT74A_NBS	Redefine of CNV
EXT74A_PND	EXT74A_PND	R745SPND
EXT74A_IBT	EXT74A_IBT	Redefine of PND
EXT74A_IBS	EXT74A_IBS	Redefine of PND
EXT74A_SG2	EXT74A_SG2	R745SG2
EXT74A_SGL	EXT74A_SGL	R745SGL
EXT74A_SID	EXT74A_SID	R745SSID
EXT74A_RS7	EXT74A_RS7	Reserved
EXT74A_XP1	EXT74A_XP1	
EXT74A_DVOL	EXT74A_DVOL	R745DVOL
EXT74A_VFLG	EXT74A_VFLG	R745DFL4
EXT74A_DCID	EXT74A_DCID	R745DCID
EXT74A_DUNT	EXT74A_DUNT	R745DUNT

CA Earl MRXT74A	CA Easytrieve MZXT74A	SMF Data Field
EXT74A_RS9	EXT74A_RS9	Reserved
EXT74A_DEVN	EXT74A_DEVN	R745DEVN
EXT74A_RS10	EXT74A_RS10	Reserved
EXT74A_DFLG	EXT74A_DFLG	R745DFLG
EXT74A_DVID	EXT74A_DVID	R745DVID
EXT74A_DVS1	EXT74A_DVS1	R745DVS1
EXT74A_DVS2	EXT74A_DVS2	R745DVS2
EXT74A_DRCR	EXT74A_DRCR	R745DRCR
EXT74A_DCRH	EXT74A_DCRH	R745DCRH
EXT74A_DWRC	EXT74A_DWRC	R745DWRC
EXT74A_DWCH	EXT74A_DWCH	R745DWCH
EXT74A_DRSR	EXT74A_DRSR	R745DRSR
EXT74A_DRSH	EXT74A_DRSH	R745DRSH
EXT74A_DWSR	EXT74A_DWSR	R745DWSR
EXT74A_DWSH	EXT74A_DWSH	R745DWSH
EXT74A_DRNR	EXT74A_DRNR	R745DRNR
EXT74A_DNRH	EXT74A_DNRH	R745DNRH
EXT74A_DWNR	EXT74A_DWNR	R745DWNR
EXT74A_DWNH	EXT74A_DWNH	R745DWNH
EXT74A_DICL	EXT74A_DICL	R745DICL
EXT74A_DBCR	EXT74A_DBCR	R745DBCR
EXT74A_DTC	EXT74A_DTC	R745DTC
EXT74A_DNTD	EXT74A_DNTD	R745DNTD
EXT74A_DCTD	EXT74A_DCTD	R745DCTD
EXT74A_DFWB	EXT74A_DFWB	R745DFWB
EXT74A_DFWC	EXT74A_DFWC	R745DFWC
EXT74A_DFWS	EXT74A_DFWS	R745DFWS
EXT74A_DCRM	EXT74A_DCRM	R745DCRM
EXT74A_DSG2	EXT74A_DSG2	R745DSG2

CA Earl MRXT74A	CA Easytrieve MZXT74A	SMF Data Field
EXT74A_RS11	EXT74A_RS11	Reserved
EXT74A_DSID	EXT74A_DSID	R745DSID
EXT74A_DCWP	EXT74A_DCWP	R745DCWP
EXT74A_DKDW	EXT74A_DKDW	R745DKDW
EXT74A_DKDH	EXT74A_DKDH	R745DKDH
EXT74A_DFWR	EXT74A_DFWR	R745DFWR
EXT74A_MVS	EXT74A_MVS	SMF74MVS
EXT74A_SRL	EXT74A_SRL	SMF74SRL
EXT74A_BYTR	EXT74A_BYTR	R745BYTR
EXT74A_BYTW	EXT74A_BYTW	R745BYTW
EXT74A_RTIR	EXT74A_RTIR	R745RTIR
EXT74A_RTIW	EXT74A_RTIW	R745RTIW
EXT74A_CCMT	EXT74A_CCMT	R745CCMT

EXTDATA Record Type - R74B

The MRXT74B and MZXT74B record definitions define the EXTDATA records created by CA JARS from SMF record 74, subtype 5, Cache Subsystem Device Activity.

CA Earl MRXT74B	CA Easytrieve MZXT74B	SMF Data Field
EXT74B_LGO	EXT74B_LGO	SMF74LGO
EXT74B_XNM	EXT74B_XNM	SMF74XNM
EXT74B_SNM	EXT74B_SNM	SMF74SNM
EXT74B_IST	EXT74B_IST	SMF74IST
EXT74B_DAT	EXT74B_DAT	SMF74DAT
EXT74B_INT	EXT74B_INT	SMF74INT
EXT74B_SAM	EXT74B_SAM	SMF74SAM
EXT74B_CYC	EXT74B_CYC	SMF74CYC
EXT74B_PTN	EXT74B_PTN	SMF74PTN

CA Earl MRXT74B	CA Easytrieve MZXT74B	SMF Data Field
EXT74B_LVL	EXT74B_LVL	R745CLVL
EXT74B_MDL	EXT74B_MDL	R745CMDL
EXT74B_CNT	EXT74B_CNT	R745CCNT
EXT74B_CUID	EXT74B_CUID	R745CUID
EXT74B_CSC	EXT74B_CSC	R745CSC
EXT74B_CAE	EXT74A_CAE	R745CAE
EXT74B_RTN	EXT74B_RTN	R745CRTN
EXT74B_IOC	EXT74B_IOC	R745CIOC
EXT74B_RS2	EXT74B_RS2	Reserved
EXT74B_CINT	EXT74B_CINT	R745CINT
EXT74B_RS3	EXT74B_RS3	Reserved
EXT74B_VOL	EXT74B_VOL	R745SVOL
EXT74B_FLG4	EXT74B_FLG4	R745DFL4
EXT74B_RS4	EXT74B_RS4	Reserved
EXT74B_UNT	EXT74B_UNT	R745SUNT
EXT74B_RS5	EXT74B_RS5	Reserved
EXT74B_DEV	EXT74B_DEV	R745SDEV
EXT74B_SLN	EXT74B_SLN	R745SLN
EXT74B_SFT	EXT74B_SFT	R745SFT
EXT74B_DID	EXT74B_DID	R745SDID
EXT74B_NAD	EXT74B_NAD	R745SNAD
EXT74B_NSS	EXT74B_NSS	R745SNSS
EXT74B_SCS	EXT74B_SCS	R745SCS
EXT74B_VSS	EXT74B_VSS	R745SVSS
EXT74B_CLN	EXT74B_CLN	R745SCLN
EXT74B_RS6	EXT74B_RS6	Reserved
EXT74B_CNF	EXT74B_CNF	R745SCNF
EXT74B_CBT	EXT74B_CBT	Redefine of CNF
EXT74B_CBS	EXT74B_CBS	Redefine of CNF

CA Earl MRXT74B	CA Easytrieve MZXT74B	SMF Data Field
EXT74B_AVL	EXT74B_AVL	R745SAVL
EXT74B_ABT	EXT74B_ABT	Redefine of AVL
EXT74B_ABS	EXT74B_ABS	Redefine of AVL
EXT74B_PIN	EXT74B_PIN	R745SPIN
EXT74B_PBT	EXT74B_PBT	Redefine of PIN
EXT74B_PBS	EXT74B_PBS	Redefine of PIN
EXT74B_OFF	EXT74B_OFF	R745SOFF
EXT74B_OBT	EXT74B_OBT	Redefine of OFF
EXT74B_OBS	EXT74B_OBS	Redefine of OFF
EXT74B_DS1	EXT74B_DS1	R745SDS1
EXT74B_DS2	EXT74B_DS2	R745SDS2
EXT74B_CNV	EXT74B_CNV	R745SCNV
EXT74B_NBT	EXT74B_NBT	Redefine of CNV
EXT74B_NBS	EXT74B_NBS	Redefine of CNV
EXT74B_PND	EXT74B_PND	R745SPND
EXT74B_IBT	EXT74B_IBT	Redefine of PND
EXT74B_IBS	EXT74B_IBS	Redefine of PND
EXT74B_SG2	EXT74B_SG2	R745SG2
EXT74B_SGL	EXT74B_SGL	R745SGL
EXT74B_SID	EXT74B_SID	R745SSID
EXT74B_RS7	EXT74B_RS7	Reserved
EXT74B_XP1	EXT74B_XP1	Reserved
EXT74B_MVS	EXT74B_MVS	SMF74MVS
EXT74B_SRL	EXT74B_SRL	SMF74SRL

EXTDATA Record Type - R74C

The MRXT74C and MZXT74C record definitions define the EXTDATA records created by CA JARS from SMF record 74, subtype 4, Coupling Facility Activity.

CA Earl MRXT74C	**CA Easytrieve MZXT74C**	**SMF Data Field**
EXT74C_LGO	EXT74C_LGO	SMF74LGO
EXT74C_XNM	EXT74C_XNM	SMF74XNM
EXT74C_SNM	EXT74C_SNM	SMF74SNM
EXT74C_IST	EXT74C_IST	SMF74IST
EXT74C_DAT	EXT74C_DAT	SMF74DAT
EXT74C_INT	EXT74C_INT	SMF74INT
EXT74C_SAM	EXT74C_SAM	SMF74SAM
EXT74C_CYC	EXT74C_CYC	SMF74CYC
EXT74C_PTN	EXT74C_PTN	SMF74PTN
EXT74C_CSD	EXT74C_CSD	R744GCSD
EXT74C_CSF	EXT74C_CSF	R744GCSF
EXT74C_TSD	EXT74C_TSD	R744GTSD
EXT74C_TSF	EXT74C_TSF	R744GTSF
EXT74C_DSA	EXT74C_DSA	R744GDSA
EXT74C_DSF	EXT74C_DSF	R744GDSF
EXT74C_DSR	EXT74C_DSR	R744GDSR
EXT74C_NAM	EXT74C_NAM	R744FNAM
EXT74C_MVS	EXT74C_MVS	SMF74MVS
EXT74C_SRL	EXT74C_SRL	SMF74SRL

EXTDATA Record Type - R74D

The MRXT74D and MZXT74D record definitions define the EXTDATA records created by CA JARS from SMF record 74, subtype 1, Device Activity.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 74 (4A) RMF Activity of Several Resources" gives a detailed description of each field.

Additional information on the contents of RMF Type 74 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (74)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74D_LGO	SMF74PRO	SMF74LGO
EXT74D_XNM	SMF74PRO	SMF74XNM
EXT74D_SNM	SMF74PRO	SMF74SNM
EXT74D_IST	SMF74PRO	SMF74IST
EXT74D_DAT	SMF74PRO	SMF74DAT
EXT74D_INT	SMF74PRO	SMF74INT
EXT74D_SAM	SMF74PRO	SMF74SAM
EXT74D_CYC	SMF74PRO	SMF74CYC
EXT74D_PTN	SMF74PRO	SMF74PTN
EXT74D_SUB	SMF74A	SMF74SUB
EXT74D_CFL	SMF74A	SMF74CFL
EXT74D_NUM	SMF74B	SMF74NUM
EXT74D_LCU	SMF74B	SMF74LCU
EXT74D_RSV1	SMF74B	Reserved
EXT74D_CNF	SMF74B	SMF74CNF
EXT74D_SER	SMF74B	SMF74SER
EXT74D_TYP	SMF74B	SMF74TYP

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74D_NUX	SMF74B	SMF74NUX
EXT74D_SSC	SMF74B	SMF74SSC
EXT74D_MEC	SMF74B	SMF74MEC
EXT74D_CNN	SMF74B	SMF74CNN
EXT74D_PEN	SMF74B	SMF74PEN
EXT74D_ATV	SMF74B	SMF74ATV
EXT74D_DIS	SMF74B	SMF74DIS
EXT74D_QUE	SMF74B	SMF74QUE
EXT74D_UTL	SMF74B	SMF74UTL
EXT74D_RSV	SMF74B	SMF74RSV
EXT74D_DSO	SMF74B	SMF74DSO
EXT74D_ALC	SMF74B	SMF74ALC
EXT74D_MTP	SMF74B	SMF74MTP
EXT74D_NRD	SMF74B	SMF74NRD
EXT74D_COF	SMF74B	SMF74COF
EXT74D_ICT	SMF74B	SMF74ICT
EXT74D_DVB	SMF74B	SMF74DVB
EXT74D_CUB	SMF74B	SMF74CUB
EXT74D_CLF	SMF74B	SMF74CLF
EXT74D_RSV2	SMF74B	Reserved
EXT74D_SGN	SMF74B	SMF74SGN
EXT74D_NDA	SMF74B	SMF74NDA
EXT74D_DEV	SMF74B	SMF74DEV
EXT74D_CU	SMF74B	SMF74CU
EXT74D_DPB	SMF74B	SMF74DPB
EXT74D_CNX	SMF74B	SMF74CNX
EXT74D_RSV3	SMF74B	Reserved
EXT74D_MTC	SMF74B	SMF74MTC
EXT74D_RSV4	SMF74B	SMF74DTS
EXT74D_NID	SMF74B	SMF74DCT

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74D_MVS	SMF74PRO	SMF74MVS
EXT74D_SRL	SMF74PRO	SMF74SRL
EXT74D_PCT	SMF74B	SMF74PCT
EXT74D_CMR	SMF74B	SMF74CMR
EXT74D_HPC	SMF74B	SMF74HPC
EXT74D_RSV5	SMF74B	Reserved
EXT74D_PSM	SMF74B	SMF74PSM
EXT74D_CAP	SMF74B	SMF74CAP

EXTDATA Record Type - R74F

The MRXT74F and MZXT74F record definitions define the EXTDATA records created by CA JARS from SMF record 74, subtype 4, Coupling Facility Activity.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 74 (4A) RMF Activity of Several Resources" gives a detailed description of each field.

Additional information on the contents of RMF Type 74 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (74)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74F_LGO	SMF74PRO	SMF74LGO
EXT74F_XNM	SMF74PRO	SMF74XNM
EXT74F_SNM	SMF74PRO	SMF74SNM
EXT74F_IST	SMF74PRO	SMF74IST
EXT74F_DAT	SMF74PRO	SMF74DAT
EXT74F_INT	SMF74PRO	SMF74INT

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74F_SAM	SMF74PRO	SMF74SAM
EXT74F_CYC	SMF74PRO	SMF74CYC
EXT74F_PTN	SMF74PRO	SMF74PTN
EXT74F_NUM	R744PROC	R744PNUM
EXT74F_BSY	R744PROC	R744PBSY
EXT74F_WAI	R744PROC	R744PWAI
EXT74F_NAM	R744FLCF	R744FNAM
EXT74F_MVS	SMF74PRO	SMF74MVS
EXT74F_SRL	SMF74PRO	SMF74SRL
EXT74F_TYP	R744PROC	R744PTYP
EXT74F_RSV1	R744PROC	Reserved
EXT74F_WGT	R744PROC	R744PWGT

EXTDATA Record Type - R74L

The MRXT74L and MZXT74L record definitions define the EXTDATA records created by CA JARS from SMF record 74, subtype 4, Coupling Facility Activity.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 74 (4A) RMF Activity of Several Resources" gives a detailed description of each field.

Additional information on the contents of RMF type 74 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (74)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT74L_LGO	SMF74PRO	SMF74LGO
EXT74L_XNM	SMF74PRO	SMF74XNM

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT74L_SNM	SMF74PRO	SMF74SNM
EXT74L_IST	SMF74PRO	SMF74IST
EXT74L_DAT	SMF74PRO	SMF74DAT
EXT74L_INT	SMF74PRO	SMF74INT
EXT74L_SAM	SMF74PRO	SMF74SAM
EXT74L_CYC	SMF74PRO	SMF74CYC
EXT74L_PTN	SMF74PRO	SMF74PTN
EXT74L_NAM	R744FLCF	R744FNAM
EXT74L_SYS	R744FLCF	R744FSYS
EXT74L_FLG	R744FLCF	R744FFLG
EXT74L_PAM	R744FLCF	R744FPAM
EXT74L_PBC	R744FLCF	R744FPBC
EXT74L_SCG	R744FLCF	R744FSCG
EXT74L_SCU	R744FLCF	R744FSCU
EXT74L_SCL	R744FLCF	R744FSCL
EXT74L_SCC	R744FLCF	R744FSCC
EXT74L_TOR	R744FLCF	R744FTOR
EXT74L_AIL	R744FLCF	R744FAIL
EXT74L_TIM	R744FLCF	R744FTIM
EXT74L_CTM	R744FLCF	R744FCTM
EXT74L_MOD	R744FLCF	R744FMOD
EXT74L_VER	R744FLCF	R744FVER
EXT74L_RSV	R744FLCF	Reserved
EXT74L_LVL	R744FLCF	R744FLVL
EXT74L_MVS	SMF74PRO	SMF74MVS
EXT74L_SRL	SMF74PRO	SMF74SRL
EXT74L_FPAS	R744FLCF	R744FPAS
EXT74L_FPIS	R744FLCF	R744FPIS
EXT74L_FPCM	R744FLCF	R744FPCM
EXT74L_FTAP1	R744FLCF	R744FTAP

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXT74L_FTAP2	R744FLCF	R744FTAP
EXT74L_FTAP3	R744FLCF	R744FTAP
EXT74L_FTAP4	R744FLCF	R744FTAP
EXT74L_FTAP5	R744FLCF	R744FTAP
EXT74L_FTAP6	R744FLCF	R744FTAP
EXT74L_FTAP7	R744FLCF	R744FTAP
EXT74L_FTAP8	R744FLCF	R744FTAP
EXT74L_FSEQ	R744FLCF	R744FSEQ
EXT74L_FPSN	R744FLCF	R744FPSN
EXT74L_FPDN	R744FLCF	R744FPDN
EXT74L_FLPN	R744FLCF	R744FLCF

EXTDATA Record Type - R74M

The MRXT74M and MZXT74M record definitions define the EXTDATA records created by CA JARS from SMF record 74, subtype 2, XCF Activity.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 74 (4A) RMF Activity of Several Resources" gives a detailed description of each field.

Additional information on the contents of RMF Type 74 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (74)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74M_LGO	SMF74PRO	SMF74LGO
EXT74M_XNM	SMF74PRO	SMF74XNM
EXT74M_SNM	SMF74PRO	SMF74SNM

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74M_IST	SMF74PRO	SMF74IST
EXT74M_DAT	SMF74PRO	SMF74DAT
EXT74M_INT	SMF74PRO	SMF74INT
EXT74M_SAM	SMF74PRO	SMF74SAM
EXT74M_CYC	SMF74PRO	SMF74CYC
EXT74M_PTN	SMF74PRO	SMF74PTN
EXT74M_SYS	R742MBR	R742MSYS
EXT74M_GRP	R742MBR	R742MGRP
EXT74M_MEM	R742MBR	R742MMEM
EXT74M_STF	R742MBR	R742MSTF
EXT74M_MST1	R742MBR	R742MST1
EXT74M_MST2	R742MBR	R742MST2
EXT74M_RSV1	R742MBR	Reserved
EXT74M_SNT	R742MBR	R742MSNT
EXT74M_RCV	R742MBR	R742MRCV
EXT74M_MVS	SMF74PRO	SMF74MVS
EXT74M_SRL	SMF74PRO	SMF74SRL
EXT74M_MINT	R742MBR	R742MINT
EXT74M_MJOB	R742MBR	R742MJOB

EXTDATA Record Type - R74P

The MRXT74P and MZXT74P record definitions define the EXTDATA records created by CA JARS from SMF record 74, subtype 2, XCF Activity.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 74 (4A) RMF Activity of Several Resources" gives a detailed description of each field.

Additional information on the contents of RMF type 74 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (74)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74P_LGO	SMF74PRO	SMF74LGO
EXT74P_XNM	SMF74PRO	SMF74XNM
EXT74P_SNM	SMF74PRO	SMF74SNM
EXT74P_IST	SMF74PRO	SMF74IST
EXT74P_DAT	SMF74PRO	SMF74DAT
EXT74P_INT	SMF74PRO	SMF74INT
EXT74P_SAM	SMF74PRO	SMF74SAM
EXT74P_CYC	SMF74PRO	SMF74CYC
EXT74P_PTN	SMF74PRO	SMF74PTN
EXT74P_NME	R742PTH	R742PNME
EXT74P_DEV	R742PTH	R742PDEV
EXT74P_STF	R742PTH	R742PSTF
EXT74P_DIR	R742PTH	R742PDIR
EXT74P_TYP	R742PTH	R742PTYP
EXT74P_RSV1	R742PTH	Reserved
EXT74P_ONA	R742PTH	R742PONA
EXT74P_ODV	R742PTH	R742PODV
EXT74P_STA	R742PTH	R742PSTA
EXT74P_STM	R742PTH	R742PSTM
EXT74P_RSV2	R742PTH	Reserved
EXT74P_RET	R742PTH	R742PRET
EXT74P_RST	R742PTH	R742PRST
EXT74P_MXM	R742PTH	R742PMXM

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74P_SIG	R742PTH	R742PSIG
EXT74P_QLN	R742PTH	R742PQLN
EXT74P_IBR	R742PTH	R742PIBR
EXT74P_SUS	R742PTH	R742PSUS
EXT74P_APP	R742PTH	R742PAPP
EXT74P_TCN	R742PTH	R742PTCN
EXT74P_STR	R742PTH	R742PSTR
EXT74P_MVS	SMF74PRO	SMF74MVS
EXT74P_SRL	SMF74PRO	SMF74SRL
EXT74P_PIOT	R742PTH	R742PIOT
EXT74P_PRCT	R742PTH	R742PRCT
EXT74P_PPND	R742PTH	R742PPND
EXT74P_PUSE	R742PTH	R742PUSE
EXT74P_PLIN	R742PTH	R742PLIN

EXTDATA Record Type - R74S

The MRXT74S and MZXT74S record definitions define the EXTDATA records created by CA JARS from SMF record 74, subtype 2, XCF Activity.

CA Earl MRXT74S	CA Easytrieve MZXT74S	SMF Data Field
EXT74S_LGO	EXT74S_LGO	SMF74LGO
EXT74S_XNM	EXT74S_XNM	SMF74XNM
EXT74S_SNM	EXT74S_SNM	SMF74SNM
EXT74S_IST	EXT74S_IST	SMF74IST
EXT74S_DAT	EXT74S_DAT	SMF74DAT
EXT74S_INT	EXT74S_INT	SMF74INT
EXT74S_SAM	EXT74S_SAM	SMF74SAM
EXT74S_CYC	EXT74S_CYC	SMF74CYC
EXT74S_PTN	EXT74S_PTN	SMF74PTN

CA Earl MRXT74S	CA Easytrieve MZXT74S	SMF Data Field
EXT74S_NME	EXT74S_NME	R742SNME
EXT74S_STF	EXT74S_STF	R742SSTF
EXT74S_DIR	EXT74S_DIR	R742SDIR
EXT74S_RSV1	EXT74S_RSV1	Reserved
EXT74S_PTH	EXT74S_PTH	R742SPTH
EXT74S_BSY	EXT74S_BSY	R742SBSY
EXT74S_NOP	EXT74S_NOP	R742SNOP
EXT74S_MXB	EXT74S_MXB	R742SMXB
EXT74S_BIG	EXT74S_BIG	R742SBIG
EXT74S_FIT	EXT74S_FIT	R742SFIT
EXT74S_SML	EXT74S_SML	R742SSML
EXT74S_OVR	EXT74S_OVR	R742SOVR
EXT74S_TCL	EXT74S_TCL	R742STCL
EXT74S_TCN	EXT74S_TCN	R742STCN
EXT74S_MVS	EXT74S_MVS	SMF74MVS
EXT74S_SRL	EXT74S_SRL	SMF74SRL

EXTDATA Record Type - R74X

The MRXT74X and MZXT74X record definitions define the EXTDATA records created by CA JARS from SMF record 74, subtype 4, Coupling Facility Activity.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 74 (4A) RMF Activity of Several Resources" gives a detailed description of each field.

Additional information on the contents of RMF Type 74 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (74)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74X_LGO	SMF74PRO	SMF74LGO
EXT74X_XNM	SMF74PRO	SMF74XNM
EXT74X_SNM	SMF74PRO	SMF74SNM
EXT74X_IST	SMF74PRO	SMF74IST
EXT74X_DAT	SMF74PRO	SMF74DAT
EXT74X_INT	SMF74PRO	SMF74INT
EXT74X_SAM	SMF74PRO	SMF74SAM
EXT74X_CYC	SMF74PRO	SMF74CYC
EXT74X_PTN	SMF74PRO	SMF74PTN
EXT74X_STR	R744SREQ	R744SNAM
EXT74X_SIZ	R744QSDS	R744QSIZ
EXT74X_VER	R744SREQ	R744SVER
EXT74X_TYP	R744SREQ	R744STYP
EXT74X_FLG	R744SREQ	R744SFLG
EXT74X_RSV1	R744SREQ	Reserved
EXT74X_SLEC	R744SREQ	R744SLEC
EXT74X_LEL	R744SREQ	R744SLEL
EXT74X_LEM	R744SREQ	R744SLEM
EXT74X_LTL	R744SREQ	R744SLTL
EXT74X_LTM	R744SREQ	R744SLTM
EXT74X_STA	R744SREQ	R744SSTA
EXT74X_TRC	R744SREQ	R744STRC
EXT74X_TAC	R744SREQ	R744STAC
EXT74X_ARC	R744SREQ	R744SARC
EXT74X_ATM	R744SREQ	R744SATM
EXT74X_SRC	R744SREQ	R744SSRC
EXT74X_STM	R744SREQ	R744SSTM
EXT74X_QRC	R744SREQ	R744SQRC

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74X_QTM	R744SREQ	R744SQTM
EXT74X_DRC	R744SREQ	R744SDRC
EXT74X_DTM	R744SREQ	R744SDTM
EXT74X_DMP	R744SREQ	R744SDMP
EXT74X_HTO	R744SREQ	R744SHTO
EXT74X_HMN	R744SREQ	R744SHMN
EXT74X_HMX	R744SREQ	R744SHMX
EXT74X_LTO	R744SREQ	R744SLTO
EXT74X_LMN	R744SREQ	R744SLMN
EXT74X_LMX	R744SREQ	R744SLMX
EXT74X_DTO	R744SREQ	R744SDTO
EXT74X_DMN	R744SREQ	R744SDMN
EXT74X_DMX	R744SREQ	R744SDMX
EXT74X_CN	R744SREQ	R744SCN
EXT74X_FCN	R744SREQ	R744SFCN
EXT74X_NAM	R744FLCF	R744FNAM
EXT74X_SSIZ	R744SREQ	R744SSIZ
EXT74X_MAS	R744SREQ	R744SMAS
EXT74X_MIS	R744SREQ	R744SMIS
EXT74X_DEC	R744SREQ	R744SDEC
EXT74X_DEL	R744SREQ	R744SDEL
EXT74X_NLH	R744SREQ	R744SNLH
EXT74X_MAE	R744SREQ	R744SMAE
EXT74X_CUE	R744SREQ	R744SCUE
EXT74X_RSV		Reserved
EXT74X_DSI	R744SREQ	R744CDSI
EXT74X_DNE	R744SREQ	R744CDNE
EXT74X_MVS	SMF74PRO	SMF74MVS
EXT74X_SRL	SMF74PRO	SMF74SRL
EXT74X_SPLN	R744SREQ	R744SPLN

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT74X_SPES	R744SREQ	R744SPES
EXT74X_SPTC	R744SREQ	R744SPTC
EXT74X_SPST	R744SREQ	R744SPST
EXT74X_SPSS	R744SREQ	R744SPSS
EXT74X_SRTC	R744SREQ	R744SRTC
EXT74X_SRST	R744SREQ	R744SRST
EXT74X_SRSS	R744SREQ	R744SRSS
EXT74X_SCTC	R744SREQ	R744SCTC
EXT74X_SCST	R744SREQ	R744SCST
EXT74X_SCSS	R744SREQ	R744SCSS
EXT74X_SLSV	R744SREQ	R744SLSV
EXT74X_SETM	R744SREQ	R744SETM

EXTDATA Record Type - R75

The MRXT75 and MZXT75 record definitions define the EXTDATA records created by CA JARS from SMF record 75, RMF Page/Swap Data Set Activity.

CA Earl MRXT75	CA Easytrieve MZXT75	SMF Data Field
EXT75_LGO	EXT75_LGO	SMF75LGO
EXT75_XNM	EXT75_XNM	SMF75XNM
EXT75_SNM	EXT75_SNM	SMF75SNM
EXT75_IST	EXT75_IST	SMF75IST
EXT75_DAT	EXT75_DAT	SMF75DAT
EXT75_INT	EXT75_INT	SMF75INT
EXT75_SAM	EXT75_SAM	SMF75SAM
EXT75_CYC	EXT75_CYC	SMF75CYC
EXT75_PTN	EXT75_PTN	SMF75PTN
EXT75_DSN	EXT75_DSN	SMF75DSN
EXT75_PST	EXT75_PST	SMF75PST

CA Earl MRXT75	**CA Easytrieve MZXT75**	**SMF Data Field**
EXT75_FL2	EXT75_FL2	SMF75FL2
EXT75_RV5	EXT75_RV5	SMF75RV5
EXT75_TYP	EXT75_TYP	SMF75TYP
EXT75_CHA	EXT75_CHA	SMF75CHA
EXT75_VOL	EXT75_VOL	SMF75VOL
EXT75_RV3	EXT75_RV3	SMF75RV3
EXT75_SLA	EXT75_SLA	SMF75SLA
EXT75_MXU	EXT75_MXU	SMF75MXU
EXT75_MNU	EXT75_MNU	SMF75MNU
EXT75_AVU	EXT75_AVU	SMF75AVU
EXT75_BDS	EXT75_BDS	SMF75BDS
EXT75_USE	EXT75_USE	SMF75USE
EXT75_REQ	EXT75_REQ	SMF75REQ
EXT75_SIO	EXT75_SIO	SMF75SIO
EXT75_PGX	EXT75_PGX	SMF75PGX
EXT75_DEV	EXT75_DEV	SMF75DEV
EXT75_CU	EXT75_CU	SMF75CU
EXT75_MVS	EXT75_MVS	SMF75MVS
EXT75_SRL	EXT75_SRL	SMF75SRL

EXTDATA Record Type - R77

The MRXT77 and MZXT77 record definitions define the EXTDATA records created by CA JARS from SMF record 77, RMF Enqueue Activity.

CA Earl MRXT77	**CA Easytrieve MZXT77**	**SMF Data Field**
EXT77_LGO	EXT77_LGO	SMF77LGO
EXT77_XNM	EXT77_XNM	SMF77XNM
EXT77_SNM	EXT77_SNM	SMF77SNM

CA Earl MRXT77	CA Easytrieve MZXT77	SMF Data Field
EXT77_IST	EXT77_IST	SMF77IST
EXT77_DAT	EXT77_DAT	SMF77DAT
EXT77_INT	EXT77_INT	SMF77INT
EXT77_SAM	EXT77_SAM	SMF77SAM
EXT77_CYC	EXT77_CYC	SMF77CYC
EXT77_PTN	EXT77_PTN	SMF77PTN
EXT77_QNM	EXT77_QNM	SMF77QNM
EXT77_RNM	EXT77_RNM	SMF77RNM
EXT77_WTM	EXT77_WTM	SMF77WTM *
EXT77_WTX	EXT77_WTX	SMF77WTX *
EXT77_WTT	EXT77_WTT	SMF77WTT *
EXT77_RV3	EXT77_RV3	SMF77RV3
EXT77_QL1	EXT77_QL1	SMF77QL1
EXT77_QL2	EXT77_QL2	SMF77QL2
EXT77_QL3	EXT77_QL3	SMF77QL3
EXT77_QL4	EXT77_QL4	SMF77QL4
EXT77_QLT	EXT77_QLT	SMF77QLT
EXT77_EXM	EXT77_EXM	SMF77EXM
EXT77_EXX	EXT77_EXX	SMF77EXX
EXT77_SHM	EXT77_SHM	SMF77SHM
EXT77_SHX	EXT77_SHX	SMF77SHX
EXT77_EVT	EXT77_EVT	SMF77EVT
EXT77_RLN	EXT77_RLN	SMF77RLN
EXT77_DFG	EXT77_DFG	SMF77DFG
EXT77_DOW	EXT77_DOW	SMF77DOW
EXT77_DWR	EXT77_DWR	SMF77DWR
EXT77_DO1	EXT77_DO1	SMF77DO1
EXT77_DO2	EXT77_DO2	SMF77DO2
EXT77_DW1	EXT77_DW1	SMF77DW1

CA Earl MRXT77	CA Easytrieve MZXT77	SMF Data Field
EXT77_DW2	EXT77_DW2	SMF77DW2
EXT77_SY1	EXT77_SY1	SMF77SY1
EXT77_SY2	EXT77_SY2	SMF77SY2
EXT77_SY3	EXT77_SY3	SMF77SY3
EXT77_SY4	EXT77_SY4	SMF77SY4
EXT77_AQL	EXT77_AQL	SMF77AQL
EXT77_MVS	EXT77_MVS	SMF77MVS
EXT77_SRL	EXT77_SRL	SMF77SRL

* = Time in hundredths of a second

EXTDATA Record Type - R78A

The MRXT78A and MZXT78A record definitions define the EXTDATA records created by CA JARS from SMF record 78, subtype 3, I/O Queuing Activity. One R78A record is created for each I/O processor reported in the IOP Initiative Queue and Utilization Data Section.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 78 (4E) RMF Virtual Storage and I/O Queuing Activity" gives a detailed description of each field.

Additional information on the contents of RMF Type 78 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (78)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT78A_LGO	SMF78PRO	SMF78LGO
EXT78A_XNM	SMF78PRO	SMF78XNM
EXT78A_SNM	SMF78PRO	SMF78SNM

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT78A_IST	SMF78PRO	SMF78IST
EXT78A_DAT	SMF78PRO	SMF78DAT
EXT78A_INT	SMF78PRO	SMF78INT
EXT78A_SAM	SMF78PRO	SMF78SAM
EXT78A_CYC	SMF78PRO	SMF78CYC
EXT78A_PTN	SMF78PRO	SMF78PTN
EXT78A_MVS	SMF78PRO	SMF78MVS
EXT78A_SRL	SMF78PRO	SMF78SRL
EXT78A_GFLG	R783GD	R783GFLG
EXT78A_CFL	R783GD	R783CFL
EXT78A_CSS	R783GD	R783CSS
EXT78A_RSV1	R783GD	Reserved
EXT78A_TNM	R783GD	R783TNM
EXT78A_TSF	R783GD	R783TSF
EXT78A_RSV2	R783GD	Reserved
EXT78A_TDY	R783GD	R783TDY
EXT78A_TTM	R783GD	R783TTM
EXT78A_IQID	R783IQD	R783IQID
EXT78A_IFLG	R783IQD	R783IFLG
EXT78A_RSV3	R783IQD	Reserved
EXT78A_IQSM	R783IQD	R783IQSM
EXT78A_IQCT	R783IQD	R783IQCT
EXT78A_RSV4	R783IQD	Reserved
EXT78A_IIPB	R783IQD	R783IIPB
EXT78A_IIPI	R783IQD	R783IIPI
EXT78A_IIFS	R783IQD	R783IIFS
EXT78A_IPII	R783IQD	R783IPII
EXT78A_ICPB	R783IQD	R783ICPB
EXT78A_IDPB	R783IQD	R783IDPB

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT78A_ICUB	R783IQD	R783ICUB
EXT78A_IDVB	R783IQD	R783IDVB

EXTDATA Record Type - R78B

The MRXT78B and MZXT78B record definitions define the EXTDATA records created by CA JARS from SMF record 78, subtype 3, I/O Queuing Activity. One R78B record is created for each logical control unit (LCU) reported in the I/O Queuing Data Section and HyperPAV Data Sections. Data in HyperPAV sections for the same LCU (from different control units) are aggregated. The fields EXT78B_TPT to EXT78B_TSBS are aggregated from the I/O Queuing Configuration Data Section for the same LCU (from different channel paths).

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 78 (4E) RMF Virtual Storage and I/O Queuing Activity" gives a detailed description of each field.

Additional information on the contents of RMF type 78 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (78)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT78B_LGO	SMF78PRO	SMF78LGO
EXT78B_XNM	SMF78PRO	SMF78XNM
EXT78B_SNM	SMF78PRO	SMF78SNM
EXT78B_IST	SMF78PRO	SMF78IST
EXT78B_DAT	SMF78PRO	SMF78DAT
EXT78B_INT	SMF78PRO	SMF78INT
EXT78B_SAM	SMF78PRO	SMF78SAM
EXT78B_CYC	SMF78PRO	SMF78CYC
EXT78B_PTN	SMF78PRO	SMF78PTN

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT78B_MVS	SMF78PRO	SMF78MVS
EXT78B_SRL	SMF78PRO	SMF78SRL
EXT78B_LCID	R783CS	R783ID1
EXT78B_DST	R783DS	R783DST
EXT78B_DSTX	R783DS	R783DSTX
EXT78B_QSM	R783DS	R783QSM
EXT78B_QCT	R783DS	R783QCT
EXT78B_MCMN	R783DS	R783MCMN
EXT78B_MCMX	R783DS	R783MCMX
EXT78B_MCDF	R783DS	R783MCDF
EXT78B_RSV1	R783DS	Reserved
EXT78B_PTM	R783DS	R783PTM
EXT78B_DPBM	R783DS	R783DPBM
EXT78B_CUBM	R783DS	R783CUBM
EXT78B_CBTM	R783DS	R783CBTM
EXT78B_CMRM	R783DS	R783CMRM
EXT78B_SBSM	R783DS	R783SBSM
EXT78B_DCTM	R783DS	R783DCTM
EXT78B_DDTM	R783DS	R783DDTM
EXT78B_CSST	R783DS	R783CSST
EXT78B_HNAI	R783HPAV	R783HNAI
EXT78B_HTIO	R783HPAV	R783HTIO
EXT78B_HAIU	R783HPAV	R783HAIU
EXT78B_HCAD	R783HPAV	R783HCAD
EXT78B_HIOQ	R783HPAV	R783HIOQ
EXT78B_TPT	R783CPD	R783PT
EXT78B_TDPB	R783CPD	R783DPB
EXT78B_TCUB	R783CPD	R783CUB
EXT78B_TCBT	R783CPD	R783CBT

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT78B_TCMR	R783CPD	R783CMR
EXT78B_TSBS	R783CPD	R783SBS

EXTDATA Record Type - R78C

The MRXT78C and MZXT78C record definitions define the EXTDATA records created by CA JARS from SMF record 78, subtype 3, I/O Queuing Activity. One R78C record is created for each channel path reported in the I/O Queuing Configuration Data Section.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 78 (4E) RMF Virtual Storage and I/O Queuing Activity" gives a detailed description of each field.

Additional information on the contents of RMF type 78 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (78)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT78C_LGO	SMF78PRO	SMF78LGO
EXT78C_XNM	SMF78PRO	SMF78XNM
EXT78C_SNM	SMF78PRO	SMF78SNM
EXT78C_IST	SMF78PRO	SMF78IST
EXT78C_DAT	SMF78PRO	SMF78DAT
EXT78C_INT	SMF78PRO	SMF78INT
EXT78C_SAM	SMF78PRO	SMF78SAM
EXT78C_CYC	SMF78PRO	SMF78CYC
EXT78C_PTN	SMF78PRO	SMF78PTN
EXT78C_MVS	SMF78PRO	SMF78MVS
EXT78C_SRL	SMF78PRO	SMF78SRL
EXT78C_LCID	R783CS	R783ID1

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT78C_CPID	R783CPD	R783CPID
EXT78C_CPST	R783CPD	R783CPST
EXT78C_CUN	R783CPD	R783CUN
EXT78C_CU1	R783CPD	R783CU1
EXT78C_CU2	R783CPD	R783CU2
EXT78C_CU3	R783CPD	R783CU3
EXT78C_CU4	R783CPD	R783CU4
EXT78C_CUB	R783CPD	R783CUB
EXT78C_PT	R783CPD	R783PT
EXT78C_RSV1	R783CPD	Reserved
EXT78C_DPB	R783CPD	R783DPB
EXT78C_CBT	R783CPD	R783CBT
EXT78C_CMR	R783CPD	R783CMR
EXT78C_SBS	R783CPD	R783SBS
EXT78C_RSV2	R783CPD	Reserved
EXT78C_CPXF	R783CPD	R783CPXF
EXT78C_CPAT	R783CPD	R783CPAT

EXTDATA Record Type - R89

The MRXT89 and MZXT89 record definitions define the EXTDATA records created by CA JARS from SMF record 89, Usage Data.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 89 (59) Usage Data" gives a detailed description of each field. The IBM usage reporting program is described in the *z/OS MVS Product Management guide.*

Additional information on the contents of RMF Type 89 records can be found by assembling the RMF mapping macro SYS1.MACLIB(IFASMFR), as in this example:

```
RECMAP   DSECT
         IFASMFR (89)
         END
```

All of the fields listed below are found in the macro IFASMFR and its subordinate macros.

Note: Record type R89 contains usage interval data, and R89S depicts the state at the end of a product interval.

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT89_IST	SMF89PR	SMF89IST
EXT89_ISD	SMF89PR	SMF89ISD
EXT89_IET	SMF89PR	SMF89IET
EXT89_IED	SMF89PR	SMF89IED
EXT89_SYN	SMF89SI	SMF89SYN
EXT89_UST	SMF89SI	SMF89UST
EXT89_USD	SMF89SI	SMF89USD
EXT89_UET	SMF89SI	SMF89UET
EXT89_UED	SMF89SI	SMF89UED
EXT89_CSU	SMF89SI	SMF89CSU
EXT89_SRU	SMF89SI	SMF89SRU
EXT89_CMN	SMF89SI	SMF89CMN
EXT89_CVN	SMF89SI	SMF89CVN
EXT89_LPI	SMF89SI	SMF89LPI
EXT89_SER	SMF89SI	SMF89SER
EXT89_RSV1	SMF89SI	SMF89LP3
EXT89_RPP	SMF89SI	SMF89RPP
EXT89_SPN	SMF89SI	SMF89SPN
EXT89_CPT	SMF89SI	SMF89CPT
EXT89_CPM	SMF89SI	SMF89CPM
EXT89_CPS	SMF89SI	SMF89CPS
EXT89_RSV2		Reserved
EXT89_UPO	SMF89UD	SMF89UPO
EXT89_UPN	SMF89UD	SMF89UPN
EXT89_UPV	SMF89UD	SMF89UPV
EXT89_UPQ	SMF89UD	SMF89UPQ

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT89_UPI	SMF89UD	SMF89UPI
EXT89_UCT	SMF89UD	SMF89UCT
EXT89_USR	SMF89UD	SMF89USR
EXT89_UFG	SMF89UD	SMF89UFG
EXT89_RSV3		Reserved
EXT89_URT	SMF89UD	SMF89URT
EXT89_URD	SMF89UD	SMF89URD
EXT89_OSL	SMF89PR	SMF89OSL
EXT89_MNF	SMF89SI	SMF89MNF
EXT89_TID	SMF89SI	SMF89TID
EXT89_MDL	SMF89SI	SMF89MDL
EXT89_SQC	SMF89SI	SMF89SQC
EXT89_POM	SMF89SI	SMF89POM
EXT89_CPC	SMF89SI	SMF89CPC
EXT89_CCC	SMF89SI	SMF89CCC
EXT89_SCC	SMF89SI	SMF89SCC
EXT89_MAF	SMF89SI	SMF89MAF
EXT89_HOF	SMF89PR	SMF89HOF
EXT89_DTO	SMF89PR	SMF89DTO
EXT89_PFL	SMF89PR	SMF89PFL
EXT89_LPN	SMF89SI	SMF89LPN
EXT89_CAP_CC	SMF89SI	SMF89_Capacity_Change_Cnt
EXT89_RCT_AA	SMF89SI	SMF89_RCTPCPUA_Actual
EXT89_RCT_NA	SMF89SI	SMF89_RCTPCPUA_Nominal
EXT89_RCT_SF	SMF89SI	SMF89_RCTPCPUA_Scaling_Factor
EXT89_CAP_AI	SMF89SI	SMF89_Capacity_Adjustment_Ind
EXT89_CAP_CR	SMF89SI	SMF89_Capacity_Change_Rsn
EXT89_CAP_FL	SMF89SI	SMF89_Capacity_Flags

EXTDATA Record Type - R89S

The MRXT89 and MZXT89 record definitions define the EXTDATA records created by CA JARS from SMF record 89, Usage Data.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The chapter entitled "Record Type 89 (59) Usage Data" gives a detailed description of each field. The IBM usage reporting program is described in the *z/OS MVS Product Management guide.*

Additional information on the contents of RMF Type 89 records can be found by assembling the RMF mapping macro SYS1.MACLIB(IFASMFR), as in this example:

```
RECMAP   DSECT
         IFASMFR (89)
         END
```

All of the fields listed below are found in the macro IFASMFR and its subordinate macros.

Note: Record type R89 contains usage interval data, and R89S depicts the state at the end of a product interval.

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT89S_IST	SMF89PR	SMF89IST
EXT89S_ISD	SMF89PR	SMF89ISD
EXT89S_IET	SMF89PR	SMF89IET
EXT89S_IED	SMF89PR	SMF89IED
EXT89S_OSL	SMF89PR	SMF89OSL
EXT89S_PRODOWNER	SMF89T2	SMF89T2PRODOWNER
EXT89S_PRODNAME	SMF89T2	SMF89T2PRODNAME
EXT89S_FEATURENAME	SMF89T2	SMF89T2FEATURENAME
EXT89S_PRODVERS	SMF89T2	SMF89T2PRODVERS
EXT89S_PRODREL	SMF89T2	SMF89T2PRODREL
EXT89S_PRODMOD	SMF89T2	SMF89T2PRODMOD
EXT89S_PRODID	SMF89T2	SMF89T2PRODID
EXT89S_FLAGS	SMF89T2	SMF89T2FLAGS
EXT89S_RSV1S	SMF89T2	Reserved
EXT89S_NUMINSTANCES	SMF89T2	SMF89T2NUMINSTANCES

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT89S_HOF	SMF89PR	SMF89HOF
EXT89S_DTO	SMF89PR	SMF89DTO
EXT89S_PFL	SMF89PR	SMF89PFL

EXTDATA Record Type - OHFS

The MRXT92 and MZXT92 record definitions define the EXTDATA records created by CA JARS from SMF record 92, Open MVS File System Activity.

CA Earl MRXT92	CA Easytrieve MZXT92	SMF Data Field
EXT92_SUB	EXT92_SUB	SMF92WID
EXT92_STM	EXT92_STM	SMF92STM
EXT92_RGD	EXT92_RGD	SMF92RGD
EXT92_RUD	EXT92_RUD	SMF92RUD
EXT92_UID	EXT92_UID	SMF92UID
EXT92_GID	EXT92_GID	SMF92GID
EXT92_PID	EXT92_PID	SMF92PID
EXT92_PGD	EXT92_PGD	SMF92PGD
EXT92_SSD	EXT92_SSD	SMF92SSD
EXT92_ID1	EXT92_ID1	SMF92API
EXT92_ID2	EXT92_ID2	SMF92APG
EXT92_ID3	EXT92_ID3	SMF92ASG
EXT92_CTO	EXT92_CTO	SMF92CTO
EXT92_CDO	EXT92_CDO	SMF92CTO
EXT92_CTC	EXT92_CTC	SMF92CTC
EXT92_CDC	EXT92_CDC	SMF92CTC
EXT92_CTY	EXT92_CTY	SMF92CTY
EXT92_CFG	EXT92_CFG	SMF92CFG
EXT92_RSV1	EXT92_RSV1	Reserved
EXT92_CTK	EXT92_CTK	SMF92CTK

CA Earl MRXT92	CA Easytrieve MZXT92	SMF Data Field
EXT92_CIN	EXT92_CIN	SMF92CIN
EXT92_CDN	EXT92_CDN	SMF92CDN
EXT92_CSR	EXT92_CSR	SMF92CSR
EXT92_CSW	EXT92_CSW	SMF92CSW
EXT92_CDI	EXT92_CDI	SMF92CDI
EXT92_CIR	EXT92_CIR	SMF92CIR
EXT92_CIW	EXT92_CIW	SMF92CIW
EXT92_CBR	EXT92_CBR	SMF92CBR
EXT92_CBW	EXT92_CBW	SMF92CBW
EXT92_ACC	EXT92_ACC	SMF30ACT
EXT92_RDD	EXT92_RDD	SMF92RST
EXT92_RDT	EXT92_RDT	SMF92RSD
EXT92_JBN	EXT92_JBN	SMF92JBN
EXT92_OSL	EXT92_OSL	SMF92OSL

EXTDATA Record Type - S101

For a description of the source fields listed in the third column, see these IBM guides: *DB2 Administration Guide* and *DB2 Application Programming and SQL Guide.* For a field-by-field breakdown, see the DSNDQxxx macros in the dataset &DB2prefix...DB2810.ADSNMACS.

The MRXT101 and MZXT101 record definitions define the EXTDATA records created by CA JARS from SMF record 101, DATABASE 2 Accounting.

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_AID	QWHCAID	
EXT101_SID	SM101SID	
EXT101_BSCD	QWACBSC	
EXT101_BSCT	QWACBSC	
EXT101_CCN	QWHCCN	
EXT101_PLAN	QWHCPLAN	

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_CCV	QWHCCV	
EXT101_NID	QWACNID	
EXT101_SSSID	QWHSSSID	
EXT101_SRN	QWHSRN	
EXT101_RINV	QWACRINV	
EXT101_SISEQ	QWHSISEQ	
EXT101_SWSEQ	QWHSWSEQ	
EXT101_SMTN	QWHSWMTN	
EXT101_COMM	QWACCOMM	
EXT101_ABRT	QWACABRT	
EXT101_ASC	QWACESC	
EXT101_JST	QWACBJST	
EXT101_SRB	QWACBSRB	
EXT101_AWTI	QWACAWTI	
EXT101_AWTL	QWACAWTL	
EXT101_ARNE	QWACARNE	
EXT101_ARNA	QWACARNA	
EXT101_0GET	QBACGET	
EXT101_0BPX	QBACBPX	QBACBPX is obsolete. After DB2 4.1, it is overlaid with QBACSWS.
EXT101_0SWS	QBACSWS	
EXT101_0SWU	QBACSWU	QBACSWU is obsolete. After DB2 4.1, it is overlaid with QBACRIO.
EXT101_0RIO	QBACRIO	
EXT101_0SEQ	QBACSEQ	
EXT101_1GET	QBACGET	
EXT101_1BPX	QBACBPX	QBACBPX is obsolete. After DB2 4.1, it is overlaid with QBACSWS.
EXT101_1SWS	QBACSWS	
EXT101_1SWU	QBACSWU	QBACSWU is obsolete. After DB2 4.1, it is overlaid with QBACRIO.

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_1RIO	QBACRIO	
EXT101_1SEQ	QBACSEQ	
EXT101_2GET	QBACGET	
EXT101_2BPX	QBACBPX	QBACBPX is obsolete. After DB2 4.1, it is overlaid with QBACSWS.
EXT101_2SWS	QBACSWS	
EXT101_2SWU	QBACSWU	QBACSWU is obsolete. After DB2 4.1, it is overlaid with QBACRIO.
EXT101_2RIO	QBACRIO	
EXT101_2SEQ	QBACSEQ	
EXT101_3GET	QBACGET	
EXT101_3BPX	QBACBPX	
EXT101_3SWS	QBACSWS	
EXT101_3SWU	QBACSWU	
EXT101_3RIO	QBACRIO	
EXT101_3SEQ	QBACSEQ	
EXT101_DEA	QTXADEA	
EXT101_SUS	QTXASLOC	
EXT101_TIM	QTXATIM	
EXT101_LES	QTXALES	
EXT101_LEX	QTXALEX	
EXT101_NPL	QTXANPL	
EXT101_SELCT	QXSELECT	
EXT101_INSRT	QXINSRT	
EXT101_UPDTE	QXUPDTE	
EXT101_DELET	QXDELET	
EXT101_DESC	QXDESC	
EXT101_PREP	QXPREP	
EXT101_OPEN	QXOPEN	
EXT101_CLOSE	QXCLOSE	
EXT101_CRTAB	QXCRTAB	

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_CRINF	QXCRINX	
EXT101_CTABS	QXCTABS	
EXT101_CRSYN	QXCRSYN	
EXT101_CRDAB	QXCRDAB	
EXT101_CRSTG	QXCRSTG	
EXT101_DEFVU	QXDEFVU	
EXT101_DRPIX	QXDRPIX	
EXT101_DRPTA	QXDRPTA	
EXT101_DRPTS	QXDRPTS	
EXT101_DRPDB	QXDRPDB	
EXT101_DRPSY	QXDRPSY	
EXT101_DRPST	QXDRPST	
EXT101_DRPVU	QXDRPVU	
EXT101_ALTST	QXALTST	
EXT101_FETCH	QXFETCH	
EXT101_ALTTS	QXALTTS	
EXT101_ALTTA	QXALTTA	
EXT101_ALTIX	QXALTIX	
EXT101_CMTON	QXCMTON	
EXT101_LOCK	QXLOCK	
EXT101_GRANT	QXGRANT	
EXT101_REVOK	QXREVOK	
EXT101_INCRB	QXINCRB	
EXT101_LABON	QXLABON	
EXT101_4KGET	QBACGET	
EXT101_4KBPX	QBACBPX	QBACBPX is obsolete. After DB2 4.1, it is overlaid with QBACSWS.
EXT101_4KSWS	QBACSWS	
EXT101_4KSWU	QBACSWU	QBACSWU is obsolete. After DB2 4.1, it is overlaid with QBACRIO.
EXT101_4KRES	Reserved	

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_4KRIO	QBACRIO	
EXT101_4KSEQ	QBACSEQ	
EXT101_4KIMW	QBACIMW	
EXT101_4KLPF	QBACLPF	
EXT101_4KDPF	QBACDPF	
EXT101_4KHRE	QBACHRE	QBACHRE is obsolete. In DB2 8.1, it is reserved.
EXT101_4KHRF	QBACHRF	QBACHRF is obsolete. In DB2 8.1, it is reserved.
EXT101_4KHWR	QBACHWR	QBACHWR is obsolete. In DB2 8.1, it is reserved.
EXT101_4KHWF	QBACHWF	QBACHWF is obsolete. In DB2 8.1, it is reserved.
EXT101_4KNGT	QBACNGT	
EXT101_4KSIO	QBACSIO	
EXT101_4KHPG	QBACHPG	QBACHPG is obsolete. In DB2 8.1, it is reserved.
EXT101_32KGET	QBACGET	
EXT101_32KBPX	QBACBPX	QBACBPX is obsolete. After DB2 4.1, it is overlaid with QBACSWS.
EXT101_32KSWS	QBACSWS	
EXT101_32KSWU	QBACSWU	QBACSWU is obsolete. After DB2 4.1, it is overlaid with QBACRIO.
EXT101_32KRES	Reserved	
EXT101_32KRIO	QBACRIO	
EXT101_32KSEQ	QBACSEQ	
EXT101_32KIMW	QBACIMW	
EXT101_32KLPF	QBACLPF	
EXT101_32KDPF	QBACDPF	
EXT101_32KHRE	QBACHRE	QBACHRE is obsolete. In DB2 8.1, it is reserved.
EXT101_32KHRF	QBACHRF	QBACHRF is obsolete. In DB2 8.1, it is reserved.

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_32KHWR	QBACHWR	QBACHWR is obsolete. In DB2 8.1, it is reserved.
EXT101_32KHWF	QBACHWF	QBACHWF is obsolete. In DB2 8.1, it is reserved.
EXT101_32KNGT	QBACNGT	
EXT101_32KSIO	QBACSIO	
EXT101_32KHPG	QBACHPG	QBACHPG is obsolete. In DB2 8.1, it is reserved.
EXT101_HSLCN	QWHSLOCN	
EXT101_HSNID	QWHSNID	
EXT101_HSLUN	QWHSLUNM	
EXT101_HSLUV	QWHSLUUV	
EXT101_HSLUC	QWHSLUCC	
EXT101_HCOPD	QWHCOPID	
EXT101_HCTYP	QWHCATYP	
EXT101_HCTOK	QWHCTOKN	
EXT101_HCRES	Reserved	
EXT101_STSQL	QXSETSQL	
EXT101_STALS	QXCRALS	
EXT101_STDRA	QXDRPAL	
EXT101_STMIA	QXMIAP	
EXT101_STSMI	QXNSMIAP	
EXT101_STRMI	QXMRMIAP	
EXT101_STTHV	QXSETHV	
EXT101_STDAB	QXALDAB	
EXT101_STPKG	QXDRPPKG	
EXT101_STRTB	QXDSCRTB	
EXT101_STDEG	QXMAXDEG	
EXT101_STGRP	QXTOTGRP	
EXT101_STCUR	QXDEGCUR	
EXT101_STESA	QXDEGESA	

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_STBUF	QXDEGBUF	
EXT101_STDGR	QXREDGRP	
EXT101_STORG	QXNORGRP	
EXT101_STON1	QXCON1	
EXT101_STON2	QXCON2	
EXT101_STREL	QXREL	
EXT101_STSTC	QXSETCON	
EXT101_STCDG	QXSETCDG	
EXT101_STCRL	QXSETCRL	
EXT101_STCAL	QXCALL	
EXT101_STLAB	QXCALLAB	
EXT101_STLTO	QXCALLTO	
EXT101_STLRJ	QXCALLRJ	
EXT101_STENC	QXDEGENC	
EXT101_ACASC	QWACASC	
EXT101_ACJST	QWACAJST	
EXT101_ACSRB	QWACASRB	
EXT101_ACWTR	QWACAWTR	
EXT101_ACWTW	QWACAWTW	
EXT101_ACWTE	QWACAWTE	
EXT101_ACLOG	QWACALOG	
EXT101_ACRNL	QWACARNL	
EXT101_ACRNR	QWACARNR	
EXT101_ACRNW	QWACARNW	
EXT101_ACRNS	QWACARNS	
EXT101_ACLCT	QWACALCT	
EXT101_ACRND	QWACARND	
EXT101_ACWDR	QWACAWDR	
EXT101_ACWCL	QWACAWCL	
EXT101_ACRNC	QWACARNC	

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_ACWAR	QWACAWAR	
EXT101_ACNAR	QWACANAR	
EXT101_ACWTP	QWACAWTP	
EXT101_ACRNH	QWACARNH	
EXT101_ACFLG	QWACFLGS	
EXT101_ACKGN	QWACPKGN	
EXT101_ACWTG	QWACAWTG	
EXT101_ACWTJ	QWACAWTJ	
EXT101_ACRNG	QWACARNG	
EXT101_ACRNJ	QWACARNJ	
EXT101_ACPCP	QWACSPCP	
EXT101_ACPTT	QWACSPTT	
EXT101_ACPNE	QWACSPNE	
EXT101_ACAST	QWACCAST	
EXT101_ACANM	QWACCANM	
EXT101_ACCNT	QWACPCNT	
EXT101_ACACE	QWACPACE	
EXT101_ACSR2	QWACPSRB	
EXT101_XAFLG	QTXAFLG1	
EXT101_XARES	Reserved	
EXT101_XALID	QTXARLID	
EXT101_XAREC	QTXAPREC	
EXT101_XALMT	QTXASLMT	
EXT101_XACLM	QTXACCMT	
EXT101_XAHUS	QTXACHUS	
EXT101_XALAT	QTXASLAT	
EXT101_XAOTH	QTXASOTH	
EXT101_XAOCK	QTXALOCK	
EXT101_XANLK	QTXAUNLK	
EXT101_XAQRY	QTXAQRY	

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_XACHG	QTXACHG	
EXT101_XARLM	QTXAIRLM	
EXT101_XALNO	QTXACLNO	
EXT101_XALUN	QTXACLUN	
EXT101_XARNO	QTXADRNO	
EXT101_XARUN	QTXADRUN	
EXT101_DASLN	QMDAASLN	
EXT101_DATYP	QMDAPTYP	
EXT101_DAVER	QMDAPVER	
EXT101_DAREL	QMDAPREL	
EXT101_DAMOD	QMDAPMOD	
EXT101_DALOC	QMDALOCN	
EXT101_DANET	QMDANETN	
EXT101_DALUN	QMDALUNM	
EXT101_DANAM	QMDACNAM	
EXT101_DATPE	QMDACTYP	
EXT101_DACOR	QMDACORR	
EXT101_DAATH	QMDAAUTH	
EXT101_DAPLN	QMDAPLAN	
EXT101_DAPLT	QMDAPLAT	
EXT101_DAPPL	QMDAAPPL	
EXT101_DATID	QMDAATID	
EXT101_DAFLN	QMDASFLN	
EXT101_DAACT	QMDAACCT	
EXT101_COORNO	QXCOORNO	
EXT101_ISORR	QXISORR	
EXT101_CRGTT	QXCRGTT	
EXT101_STREOP	QXSTREOP	
EXT101_XCBPNK	QXXCBPNK	
EXT101_XCSKIP	QXXCSKIP	

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_ALOCL	QXALOCL	
EXT101_ALOCC	QXALOCC	
EXT101_STFND	QXSTFND	
EXT101_STNFND	QXSTNFND	
EXT101_STIPRP	QXSTIPRP	
EXT101_STNPRP	QXSTNPRP	
EXT101_STDEXP	QXSTDEXP	
EXT101_STDINV	QXSTDINV	
EXT101_RNTAB	QXRNTAB	
EXT101_CTRIG	QXCTRIG	
EXT101_DRPTR	QXDRPTR	
EXT101_SETPTH	QXSETPTH	
EXT101_DRPFN	QXDRPFN	
EXT101_DRPPR	QXDRPPR	
EXT101_CDIST	QXCDIST	
EXT101_DDIST	QXDDIST	
EXT101_CRUDF	QXCRUDF	
EXT101_CRPRO	QXCRPRO	
EXT101_HOLDL	QXHOLDL	
EXT101_FREEL	QXFREEL	
EXT101_REPOP1	QXREPOP1	
EXT101_REPOP2	QXREPOP2	
EXT101_CRATB	QXCRATB	
EXT101_STLOBV	QXSTLOBV	
EXT101_ALUDF	QXALUDF	
EXT101_ALPRO	QXALPRO	
EXT101_ROIMAT	QXROIMAT	
EXT101_ROIIDX	QXROIIDX	
EXT101_ROITS	QXROITS	
EXT101_STTRG	QXSTTRG	

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_ROWTRG	QXROWTRG	
EXT101_TRGERR	QXTRGERR	
EXT101_CASCDP	QXCASCDP	
EXT101_CAUD	QXCAUD	
EXT101_CAUDAB	QXCAUDAB	
EXT101_CAUDTO	QXCAUDTO	
EXT101_CAUDRJ	QXCAUDRJ	
EXT101_SETCPR	QXSETCPR	
EXT101_DCLGTT	QXDCLGTT	
EXT101_DEGDTT	QXDEGDTT	
EXT101_CRESEQ	QXCRESEQ	
EXT101_ALTSEQ	QXALTSEQ	
EXT101_DROSEQ	QXDROSEQ	
EXT101_PRRESI	QXPRRESI	
EXT101_ALTVW	QXALTVW	
EXT101_HCEUID	QWHCEUID	
EXT101_HCEUTX	QWHCEUTX	
EXT101_HCEUWN	QWHCEUWN	
EXT101_ACARLG	QWACARLG	
EXT101_ACAWLG	QWACAWLG	
EXT101_ACSUCV	QWACSUCV	
EXT101_ACWLME	QWACWLME	
EXT101_ACLRN	QWACLRN	
EXT101_ACLRAB	QWACLRAB	
EXT101_ACLRA2	QWACLRA2	
EXT101_ACLRA4	QWACLRA4	
EXT101_ACUDCP	QWACUDCP	
EXT101_ACUDTT	QWACUDTT	
EXT101_ACUDNE	QWACUDNE	
EXT101_ACUDST	QWACUDST	

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_ACUDEA	QWACUDEA	
EXT101_ACUDEB	QWACUDEB	
EXT101_ACTRTT	QWACTRTT	
EXT101_ACTRET	QWACTRET	
EXT101_ACPECT	QWACPECT	
EXT101_ACPECD	QWACPECD	
EXT101_ACSPEA	QWACSPE	
EXT101_ACSPEB	QWACSPEB	
EXT101_ACTRTE	QWACTRTE	
EXT101_ACTREE	QWACTREE	
EXT101_ACSVPT	QWACSVPT	
EXT101_ACRLSV	QWACRLSV	
EXT101_ACRBSV	QWACRBSV	
EXT101_ACAWTK	QWACAWTK	
EXT101_ACAWTM	QWACAWTM	
EXT101_ACAWTN	QWACAWTN	
EXT101_ACAWTO	QWACAWTO	
EXT101_ACAWTQ	QWACAWTQ	
EXT101_ACARNK	QWACARNK	
EXT101_ACARNM	QWACARNM	
EXT101_ACARNN	QWACARNN	
EXT101_ACARNO	QWACARNO	
EXT101_ACARNQ	QWACARNQ	
EXT101_6ACASC	QWACASC	See note 1 below.
EXT101_6ACAJST	QWACAJST	See note 1 below.
EXT101_6ACASRB	QWACASRB	See note 1 below.
EXT101_6ACAWTI	QWACAWTI	See note 1 below.
EXT101_6ACAWTL	QWACAWTL	See note 1 below.
EXT101_6ACAWTR	QWACAWTR	See note 1 below.
EXT101_6ACAWTW	QWACAWTW	See note 1 below.

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_6ACAWTE	QWACAWTE	See note 1 below.
EXT101_6ACALOG	QWACAWLG	See note 1 below.
EXT101_6ACAWDR	QWACAWDR	See note 1 below.
EXT101_6ACAWCL	QWACAWCL	See note 1 below.
EXT101_6ACAWAR	QWACAWAR	See note 1 below.
EXT101_6ACAWTP	QWACAWTP	See note 1 below.
EXT101_6ACAWTG	QWACAWTG	See note 1 below.
EXT101_6ACAWTJ	QWACAWTJ	See note 1 below.
EXT101_6ACSPCP	QWACSPCP	See note 1 below.
EXT101_6ACSPTT	QWACSPTT	See note 1 below.
EXT101_6ACCAST	QWACCAST	See note 1 below.
EXT101_6ACPSRB	QWACSUCV	See note 1 below.
EXT101_6ACJST	QWACBJST	See note 1 below.
EXT101_6ACESC	QWACESC	See note 1 below.
EXT101_ALTJR	QXALTJR	
EXT101_MERGE	QXMERGE	
EXT101_TRTBL	QXTRTBL	
EXT101_CRROL	QXCRROL	
EXT101_DRPROL	QXDRPROL	
EXT101_CRCTX	QXCRCTX	
EXT101_ALTCTX	QXALTCTX	
EXT101_DRPCTX	QXDRPCTX	
EXT101_RNIX	QXRNIX	
EXT101_ACALBC	QWACALBC	
EXT101_ACALBW	QWACALBW	See note 2 below.
EXT101_ACCLS1_ZIIP	QWACCLS1_ZIIP	See note 2 below.
EXT101_ACCLS2_ZIIP	QWACCLS2_ZIIP	See note 2 below.
EXT101_ACTRTT_ZIIP	QWACTRTT_ZIIP	See note 2 below.
EXT101_ACZIIP_ELIG	QWACZIIP_ELIGIBLE	See note 2 below.
EXT101_ACSPNF_ZIIP	QWACSPNF_ZIIP	See note 2 below.

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_ACUDFNF_ZIIP	QWACUDFNF_ZIIP	See note 3 below.
EXT101_ACSPNF_ELAP	QWACSPNF_ELAP	See note 2 below.
EXT101_ACSPNF_CP	QWACSPNF_CP	See note 2 below.
EXT101_ACUDFNF_ELAP	QWACUDFNF_ELAP	See note 3 below.
EXT101_ACUDFNF_CP	QWACUDFNF_CP	See note 3 below.
EXT101_SELCTX	QXSELECT	See note 4 below.
EXT101_INSRTX	QXINSRT	See note 4 below.
EXT101_UPDTEX	QXUPDTE	See note 4 below.
EXT101_DELETX	QXDELET	See note 4 below.
EXT101_DESCX	QXDESC	See note 4 below.
EXT101_PREPX	QXPREP	See note 4 below.
EXT101_OPENX	QXOPEN	See note 4 below.
EXT101_CLOSEX	QXCLOSE	See note 4 below.
EXT101_CRTABX	QXCRTAB	See note 4 below.
EXT101_CRINFX	QXCRINX	See note 4 below.
EXT101_CTABSX	QXCTABS	See note 4 below.
EXT101_CRSYNX	QXCRSYN	See note 4 below.
EXT101_CRDABX	QXCRDAB	See note 4 below.
EXT101_CRSTGX	QXCRSTG	See note 4 below.
EXT101_DEFVUX	QXDEFVU	See note 4 below.
EXT101_DRPIXX	QXDRPIX	See note 4 below.
EXT101_DRPTAX	QXDRPTA	See note 4 below.
EXT101_DRPTSX	QXDRPTS	See note 4 below.
EXT101_DRPDBX	QXDRPDB	See note 4 below.
EXT101_DRPSYX	QXDRPSY	See note 4 below.
EXT101_DRPSTX	QXDRPST	See note 4 below.
EXT101_DRPVUX	QXDRPVU	See note 4 below.
EXT101_ALTSTX	QXALTST	See note 4 below.
EXT101_FETCHX	QXFETCH	See note 4 below.

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_ALTTSX	QXALTTS	See note 4 below.
EXT101_ALTTAX	QXALTTA	See note 4 below.
EXT101_ALTIXX	QXALTIX	See note 4 below.
EXT101_CMTONX	QXCMTON	See note 4 below.
EXT101_LOCKX	QXLOCK	See note 4 below.
EXT101_GRANTX	QXGRANT	See note 4 below.
EXT101_REVOKX	QXREVOK	See note 4 below.
EXT101_INCRBX	QXINCRB	See note 4 below.
EXT101_LABONX	QXLABON	See note 4 below.
EXT101_STSQLX	QXSETSQL	See note 4 below.
EXT101_STALSX	QXCRALS	See note 4 below.
EXT101_STDRAX	QXTDRPAL	See note 4 below.
EXT101_STMIAX	QXTMIAP	See note 4 below.
EXT101_STSMIX	QXTNSMIAP	See note 4 below.
EXT101_STRMIX	QXTMRMIAP	See note 4 below.
EXT101_STTHVX	QXSETHV	See note 4 below.
EXT101_STDABX	QXALDAB	See note 4 below.
EXT101_STPKGX	QXSDRPPKG	See note 4 below.
EXT101_STRTBX	QXDSCRTB	See note 4 below.
EXT101_STDEGX	QXMAXDEG	See note 4 below.
EXT101_STGRPX	QXTOTGRP	See note 4 below.
EXT101_STCURX	QXDEGCUR	See note 4 below.
EXT101_STESAX	QXDEGESA	See note 4 below.
EXT101_STBUFX	QXDEGBUF	See note 4 below.
EXT101_STDGRX	QXREDGRP	See note 4 below.
EXT101_STORGX	QXNORGRP	See note 4 below.
EXT101_STON1X	QXCON1	See note 4 below.
EXT101_STON2X	QXCON2	See note 4 below.
EXT101_STRELX	QXREL	See note 4 below.

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_STSTCX	QXSETCON	See note 4 below.
EXT101_STCDGX	QXSETCDG	See note 4 below.
EXT101_STCRLX	QXSETCRL	See note 4 below.
EXT101_STCALX	QXCALL	See note 4 below.
EXT101_STLABX	QXCALLAB	See note 4 below.
EXT101_STLTOX	QXCALLTO	See note 4 below.
EXT101_STLRJX	QXCALLRJ	See note 4 below.
EXT101_STENCX	QXDEGENC	See note 4 below.
EXT101_COORNOX	QXCOORNO	See note 4 below.
EXT101_ISORRX	QXISOFRR	See note 4 below.
EXT101_CRGTTX	QXCRGTT	See note 4 below.
EXT101_STREOPX	QXSTREOP	See note 4 below.
EXT101_XCBPNXX	QXXCBPNX	See note 4 below.
EXT101_XCSKIPX	QXXCSKIP	See note 4 below.
EXT101_ALOCLX	QXALOCL	See note 4 below.
EXT101_ALOCCX	QXALOCC	See note 4 below.
EXT101_STFNDX	QXSTFND	See note 4 below.
EXT101_STNFNDX	QXSTNFND	See note 4 below.
EXT101_STIPRPX	QXSTIPRP	See note 4 below.
EXT101_STNPRPX	QXSTNPRP	See note 4 below.
EXT101_STDEXPX	QXSTDEXP	See note 4 below.
EXT101_STDINVX	QXSTDINV	See note 4 below.
EXT101_RNTABX	QXRNTAB	See note 4 below.
EXT101_CTRIGX	QXCTRIG	See note 4 below.
EXT101_DRPTRX	QXDRPTR	See note 4 below.
EXT101_SETPTHX	QXSETPTH	See note 4 below.
EXT101_DRPFNX	QXDRPFN	See note 4 below.
EXT101_DRPPRX	QXDRPPR	See note 4 below.
EXT101_CDISTX	QXCDIST	See note 4 below.

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_DDISTX	QXDDIST	See note 4 below.
EXT101_CRUDFX	QXCRUDF	See note 4 below.
EXT101_CRPROX	QXCRPRO	See note 4 below.
EXT101_HOLDLX	QXHOLDL	See note 4 below.
EXT101_FREELX	QXFREEL	See note 4 below.
EXT101_REPOP1X	QXREPOP1	See note 4 below.
EXT101_REPOP2X	QXREPOP2	See note 4 below.
EXT101_CRATBX	QXCRATB	See note 4 below.
EXT101_STLOBVX	QXSTLOBV	See note 4 below.
EXT101_ALUDFX	QXALUDF	See note 4 below.
EXT101_ALPROX	QXALPRO	See note 4 below.
EXT101_ROIMATX	QXROIMAT	See note 4 below.
EXT101_ROIIDXX	QXROIIDX	See note 4 below.
EXT101_ROITSX	QXROITS	See note 4 below.
EXT101_STTRGX	QXSTTRG	See note 4 below.
EXT101_ROWTRGX	QXROWTRG	See note 4 below.
EXT101_TRGERRX	QXTRGERR	See note 4 below.
EXT101_CASCDPX	QXCASCDP	See note 4 below.
EXT101_CAUDX	QXCAUD	See note 4 below.
EXT101_CAUDABX	QXCAUDAB	See note 4 below.
EXT101_CAUDTOX	QXCAUDTO	See note 4 below.
EXT101_CAUDRJX	QXCAUDRJ	See note 4 below.
EXT101_SETCPRX	QXSETCPR	See note 4 below.
EXT101_DCLGTTX	QXDCLGTT	See note 4 below.
EXT101_DEGDTTX	QXDEGDTT	See note 4 below.
EXT101_CRESEQX	QXCRESEQ	See note 4 below.
EXT101_ALTSEQX	QXALTSEQ	See note 4 below.
EXT101_DROSEQX	QXDROSEQ	See note 4 below.
EXT101_PRRESIX	QXPRRESI	See note 4 below.

CA JARS EXTDATA Variable Name	SMF Data Field	Notes
EXT101_ALTVWX	QXALTVW	See note 4 below.
EXT101_ALTJRX	QXALTJR	See note 4 below.
EXT101_MERGEX	QXMERGE	See note 4 below.
EXT101_TRTBLX	QXTRTBL	See note 4 below.
EXT101_CRROLX	QXRROL	See note 4 below.
EXT101_DRPROLX	QXDRPROL	See note 4 below.
EXT101_CRCTXX	QXCRCTX	See note 4 below.
EXT101_ALTCTXX	QXALTCTX	See note 4 below.
EXT101_DRPCTXX	QXDRPCTX	See note 4 below.
EXT101_RNIXX	QXRNIX	See note 4 below.

Notes:

1. The fields named EXT101_6xxxx are duplicates of time fields stored in EXTDATA. These fields are stored as microseconds instead of the usual practice of storing 1/100th seconds. See sample report MZXT0331 for a field comparison.
2. These fields are stored as microseconds.
3. These fields are reserved by IBM for future use.
4. IBM enlarged the SQL Data Statement fields from 4 to 8 bytes beginning at DB2 Version 10 Release 1, but did not retain the original 4 byte fields. These S101 EXTDATA fields have been added to support DB2 10.1, but the corresponding pre-10.1 fields have been retained for compatibility.

EXTDATA Record Type - CMCC

For a complete description of each SMF data field listed below, refer to the *IBM CICS Performance Guide (SC34-6833).* The chapter on performance class data with the listing of data fields gives a detailed description of each field. For more information about the contents of CTS SMF 110 records, see the *IBM OS CICS Customication Guide (SC34-6814).*

Note: The CTS 3.1 order number for the *IBM CICS Performance Guide* was SC34-6452, and for the *IBM OS CICS Customication Guide* was SC34-6429. These guides will not contain fields that are new in CTS 3.2.

The first five fields are from the SMF Type110 record header and product section. These are mapped in macro &cicsprefix.SDFHMAC(DFHSMSDS).

CA JARS EXTDATA Variable Name	MacroName.DSECTName	IBM Variable Name
EXT110_SYSID	DFHSMFDS.DFHSMFDS	SMFSID
EXT110_CICS	DFHSMFDS.DFHSMFDS	SMFSSI ('CICS')
EXT110_GENAPPL	DFHSMFDS.DFHSMFDS	SMFMNPRN
EXT110_SPCAPPL	DFHSMFDS.DFHSMFDS	SMFMNSPN
EXT110_SUBTYPE	DFHSMFDS.DFHSMFDS	SMFSTY

Unlike other SMF records, there is an additional layer of indirection in CTS Type 110 data. The specific configuration of the MCT determines a CICS data dictionary that delineates the location of each field at execution time. Other SMF record field locations are determined at compile time. Thus, field locations are mapped in DSECTs in other SMF records, but mapped in a CTS dictionary for Type 110. The CTS dictionary itself is displayed in this IBM macro assembly:

```
DFHMCTDR DIR
END
```

The macro DFHMCTDR can be found in &cicsprefix.SDFHMAC(DFHMCTDR).

Each field in a CTS record is uniquely identified by group name, type, and ID number. ID number alone is not a unique identifier. In addition, each field has an informal name. CA JARS bases the EXTDATA variable name on the CTS informal name. This makes it easy for you to search the *IBM CICS Performance Guide* for detailed descriptions.

The MRXT110 and MZXT110 EARL and EasyTrieve macros define the EXTDATA records created by CA JARS from SMF record 110, CMF Records.

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_TRAN	DFHTASK.C.1	TRAN
EXT110_TERM	DFHTERM.C.2	TERM
EXT110_USERID	DFHCICS.C.89	USERID
EXT110_TTYPE	DFHTASK.C.4	TTYPE
EXT110_SDATE	DFHCICS.T.5	START DATE
EXT110_STIME	DFHCICS.T.5	START TIME
EXT110_EDATE	DFHCICS.T.6	STOP DATE
EXT110_ETIME	DFHCICS.T.6	STOP TIME

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_TRANNUM	DFHTASK.P.31	TRANNUM
EXT110_TRANPRI	DFHTASK.A.109	TRANPRI
EXT110_TCLSNAME	DFHTASK.C.166	TCLSNAME
EXT110_LUNAME	DFHTERM.C.111	LUNAME
EXT110_PGMNAME	DFHPROG.C.71	PGMNAME
EXT110_NETNAME	DFHTASK.C.98	NETNAME
EXT110_UOWID	DFHTASK.c.97	UOWID
EXT110_RSYSID	DFHCICS.C.130	RSYSID
EXT110_TASKFLAG	DFHTASK.A.64	TASKFLAG
EXT110_ABCODEO	DFHPROG.C.113	ABCODEO
EXT110_ABCODEC	DFHPROG.C.114C	ABCODEC
EXT110_RTYPE	DFHCICS.C.112	RTYPE
EXT110_TCMSGIN1	DFHTERM.A.34	TCMSGIN1
EXT110_TCCHRIN1	DFHTERM.A.83	TCCHRIN1
EXT110_TCMSGOU1	DFHTERM.A.35	TCMSGOU1
EXT110_TCCHROU1	DFHTERM.A.84	TCCHROU1
EXT110_TCCHRIN2	DFHTERM.A.85	TCCHRIN2
EXT110_TCMSGOU2	DFHTERM.A.68	TCMSGOU2
EXT110_TCCHROU2	DFHTERM.A.86	TCCHROU2
EXT110_TCM62IN2	DFHTERM.A.135	TCM62IN2
EXT110_TCC62IN2	DFHTERM.A.137	TCC62IN2
EXT110_TCM62OU2	DFHTERM.A.136	TCM62OU2
EXT110_TCALLOCT	DFHTERM.A.69	TCALLOCT
EXT110_SCUGETCT	DFHSTOR.A.105	SCUGETCTB
EXT110_SCUGETCT2	DFHSTOR.A.54	SCUGETCTA
EXT110_SCCGETCT1	DFHSTOR.A.120	SCCGETCTB
EXT110_SCCGETCT2	DFHSTOR.A.117	SCCGETCTA
EXT110_SCUSRHWM1	DFHSTOR.A.33	SCUSRHWMB
EXT110_SCUSRHWM2	DFHSTOR.A.106	SCUSRHWMA
EXT110_SC24CHWM	DFHSTOR.A.116	SC24CHWM

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_SC31CHWM	DFHSTOR.A.119	SC31CHWM
EXT110_SCUSRSTG1	DFHSTOR.A.107	SCUSRSTG1
EXT110_SCUSRSTG2	DFHSTOR.A.95	SCUSRSTG2
EXT110_SC24COCC	DFHSTOR.A.118	SC24COCC
EXT110_SC31COCC	DFHSTOR.A.121	SC31COCC
EXT110_PCSTGHWM	DFHSTOR.A.87	PCSTGHWM
EXT110_PC31AHWM	DFHSTOR.A.139	PC31AHWM
EXT110_PC24BHWM	DFHSTOR.A.108	PC24BHWM
EXT110_PC31CHWM	DFHSTOR.A.142	PC31CHWM
EXT110_PC24CHWM	DFHSTOR.A.143	PC24CHWM
EXT110_PC31RHWM	DFHSTOR.A.122	PC31RHWM
EXT110_PC24RHWM	DFHSTOR.A.162	PC24RHWM
EXT110_PC31SHWM	DFHSTOR.A.161	PC31SHWM
EXT110_PC24SHWM	DFHSTOR.A.160	PC24SHWM
EXT110_FCGETCT	DFHFILE.A.36	FCGETCT
EXT110_FCPUTCT	DFHFILE.A.37	FCPUTCT
EXT110_FCBRWCT	DFHFILE.A.38	FCBRWCT
EXT110_FCADDCT	DFHFILE.A.39	FCADDCT
EXT110_FCDELCT	DFHFILE.A.40	FCDELCT
EXT110_FCTOTCT	DFHFILE.A.93	FCTOTCT
EXT110_FCAMCT	DFHFILE.A.70	FCAMCT
EXT110_TDGETCT	DFHDEST.A.41	TDGETCT
EXT110_TDPUTCT	DFHDEST.A.42	TDPUTCT
EXT110_TDPURCT	DFHDEST.A.43	TDPURCT
EXT110_TDTOTCT	DFHDEST.A.91	TDTOTCT
EXT110_TSGETCT	DFHTEMP.A.44	TSGETCT
EXT110_TSPUTACT	DFHTEMP.A.46	TSPUTACT
EXT110_TSPUTMCT	DFHTEMP.A.47	TSPUTMCT
EXT110_TSTOTCT	DFHTEMP.A.92	TSTOTCT
EXT110_BMSMAPCT	DFHMAPP.A.50	BMSMAPCT

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_BMSINCT	DFHMAPP.A.51	BMSINCT
EXT110_BMSOUTCT	DFHMAPP.A.52	BMSOUTCT
EXT110_BMSTOTCT	DFHMAPP.A.90	BMSTOTCT
EXT110_PCLINKCT	DFHPROG.A.55	PCLINKCT
EXT110_PCXCTLCT	DFHPROG.A.56	PCXCTLCT
EXT110_PCLOADCT	DFHPROG.A.57	PCLOADCT
EXT110_JCPUWRCT	DFHJOUR.A.58	JCPUWRCT
EXT110_ICPUINCT	DFHTASK.A.59	ICPUINCT
EXT110_SPCYNCCT	DFHSYNC.A.60	SPSYNCCT
EXT110_SZALLOCT	DFHFEPI.A.150	SZALLOCT
EXT110_SZRCVCT	DFHFEPI.A.151	SZRCVCT
EXT110_SZENDCT	DFHFEPI.A.152	SZSENDCT
EXT110_SZTRTCT	DFHFEPI.A.153	SZSTRTCT
EXT110_SZCHROUT	DFHFEPI.A.154	SZCHROUT
EXT110_SZCHRIN	DFHFEPI.A.155	SZCHRIN
EXT110_SZALLCTO	DFHFEPI.A.157	SZALLCTO
EXT110_SZRCVTO	DFHFEPI.A.158	SZRCVTO
EXT110_SZTOTCT	DFHFEPI.A.159	SZTOTCT
EXT110_USRDISPT	DFHTASK.S.7	USRDISPT
EXT110_USRCPUT	DFHTASK.S.8	USRCPUT
EXT110_SUSPTIME	DFHTASK.S.14	SUSPTIME
EXT110_DISPWTT	DFHTASK.S.102	DISPWTT
EXT110_EXWTTIME	DFHCICS.S.103	EXWTTIME
EXT110_TCIOWTT	DFHTERM.S.9	TCIOWTT
EXT110_FCIOWTT	DFHFILE.S.63	FCIOWTT
EXT110_JCIOWTT	DFHJOUR.S.10	JCIOWTT
EXT110_TSIOWTT	DFHTEMP.S.11	TSIOWTT
EXT110_IRIOWTT	DFHTERM.S.100	IRIOWTT
EXT110_TDIOWTT	DFHDEST.S.101	TDIOWTT
EXT110_PCLOADTM	DFHPROG.S.115	PCLOADTM

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_DSPDELAY	DFHTASK.S.125	DSPDELAY
EXT110_TCCDELAY	DFHTASK.S.126	TCCDELAY
EXT110_MXTDELAY	DFHTASK.S.127	MXTDELAY
EXT110_ENQDELAY	DFHTASK.S.129	ENQDELAY
EXT110_LU61WTT	DFHTERM.S.133	LU61WTT
EXT110_LU62WTT	DFHTERM.S.134	LU62WTT
EXT110_SZWAIT	DFHFEPI.S.156	SZWAIT
EXT110_RMITIME	DFHTASK.S.170	RMITIME
EXT110_RMISUSP	DFHTASK.S.171	RMISUSP
EXT110_DCEDELAY		Obsolete
EXT110_DCESWAIT		Obsolete
EXT110_OPR		Obsolete
EXT110_TCSTG		Obsolete
EXT110_PC31UHWM		Obsolete
EXT110_PC24UHWM		Obsolete
EXT110_PAGINCT		Obsolete
EXT110_MNEXCCT		Obsolete
EXT110_TCC62OU2	DFHTERM.A.138	TCC62OU2
EXT110_CIL04	User Defined	USERCHR1
EXT110_C2L04	User Defined	USERCHR2
EXT110_C3L08	User Defined	USERCHR3
EXT110_C4L08	User Defined	USERCHR4
EXT110_C5L16	User Defined	USERCHR5
EXT110_C6L16	User Defined	USERCHR6
EXT110_C7L50	User Defined	USERCHR7
EXT110_P1	User Defined	USERPACK1
EXT110_P2	User Defined	USERPACK2
EXT110_P3	User Defined	USERPACK3
EXT110_P4	User Defined	USERPACK4
EXT110_PERRECNT	DFHCICS.A.131	PERRECNT

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_RMUOWID	DFHTASK.T.132	RMUOWID
EXT110_SRVCLSNM	DFHCICS.C.167	SRVCLSNM
EXT110_RPTCLSNM	DFHCICS.C.168	RPTCLSNM
EXT110_FCTYNAME	DFHTASK.C.163	FCTYNAME
EXT110_TRANFLAG	DFHTASK.A.164	TRANFLAG
EXT110_TERMINFO	DFHTERM.A.165	TERMINFO
EXT110_TERMCNNM	DFHTERM.C.169	TERMCNNM
EXT110_SC24SGCT	DFHSTOR.A.144	SC24SGCT
EXT110_SC24GSHR	DFHSTOR.A.145	SC24GSHR
EXT110_SC24FSHR	DFHSTOR.A.146	SC24FSHR
EXT110_SC31SGCT	DFHSTOR.A.147	SC31SGCT
EXT110_SC31GSHR	DFHSTOR.A.148	SC31GSHR
EXT110_SC31FSHR	DFHSTOR.A.149	SC31FSHR
EXT110_LOGWRTCT	DFHJOUR.A.172	LOGWRTCT
EXT110_SYNCTIME	DFHSYNC.S.173	SYNCTIME
EXT110_RLSWAIT	DFHFILE.S.174	RLSWAIT
EXT110_RLSCPUT	DFHFILE.S.175	RLSCPUT
EXT110_BRDGTRAN	DFHTASK.C.124	BRDGTRAN
EXT110_PCLURMCT	DFHPROG.A.72	PCLURMCT
EXT110_ICTOTCT	DFHTASK.A.66	ICTOTCT
EXT110_LMDELAY	DFHTASK.S.128	LMDELAY
EXT110_WTEXWAIT	DFHTASK.S.181	WTEXWAIT
EXT110_WTCEWAIT	DFHTASK.S.182	WTCEWAIT
EXT110_ICDELAY	DFHTASK.S.183	ICDELAY
EXT110_GVUPWAIT	DFHTASK.S.184	GVUPWAIT
EXT110_TSSHWAIT	DFHTEMP.S.178	TSSHWAIT
EXT110_RRMSURID	DFHTASK.C.190	RRMSURID
EXT110_PRCSNAME	DFHCBTS.C.200	PRCSNAME
EXT110_PRCSTYPE	DFHCBTS.C.201	PRCSTYPE
EXT110_PRCSID	DFHCBTS.C.202	PRCSID

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_ACTVTYID	DFHCBTS.C.203	ACTVTYID
EXT110_ACTVTYNM	DFHCBTS.C.204	ACTVTYNM
EXT110_CLIPADDR	DFHSOCK.C.244	CLIPADDR
EXT110_PLDPLCT	DFHPROG.A.73	PCDPLCT
EXT110_CFCAPICT	DFHCICS.A.25	CFCAPICT
EXT110_BARSYNCT	DFHCBTS.A.205	BARSYNCT
EXT110_BARASYCT	DFHCBTS.A.206	BARASYCT
EXT110_BALKPACT	DFHCBTS.A.207	BALKPACT
EXT110_BADPROCT	DFHCBTS.A.208	BADPROCT
EXT110_BADACTCT	DFHCBTS.A.209	BADACTCT
EXT110_BARSPACT	DFHCBTS.A.210	BARSPACT
EXT110_BASUPACT	DFHCBTS.A.211	BASUPACT
EXT110_BARMPACT	DFHCBTS.A.212	BARMPACT
EXT110_BADCPACT	DFHCBTS.A.213	BADCPACT
EXT110_BAACQPCT	DFHCBTS.A.214	BAACQPCT
EXT110_BATOTPCT	DFHCBTS.A.215	BATOTPCT
EXT110_BAPRDCCT	DFHCBTS.A.216	BAPRDCCT
EXT110_BAACDCCT	DFHCBTS.A.217	BAACDCCT
EXT110_BATOTCCT	DFHCBTS.A.218	BATOTCCT
EXT110_BARATECT	DFHCBTS.A.219	BARATECT
EXT110_BADFIECT	DFHCBTS.A.220	BADFIECT
EXT110_BATIAECT	DFHCBTS.A.221	BATIAECT
EXT110_BATOTECT	DFHCBTS.A.222	BATOTECT
EXT110_WBRCVCTT	DFHWEBB.A.231	WBRCVCT
EXT110_WBCHRIN	DFHWEBB.A.232	WBCHRIN
EXT110_WBSENDCT	DFHWEBB.A.233	WBSENDCT
EXT110_WBCHROUT	DFHWEBB.A.234	WBCHROUT
EXT110_WBTOTCT	DFHWEBB.A.235	WBTOTCT
EXT110_WBREPRCT	DFHWEBB.A.236	WBREPRCT
EXT110_WBREPWCT	DFHWEBB.A.237	WBREPWCT

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_DHCRECT	DFHDOCH.A.226	DHCRECT
EXT110_DHINSCT	DFHDOCH.A.227	DHINSCT
EXT110_DHSETCT	DFHDOCH.A.228	DHSETCT
EXT110_DHRETCT	DFHDOCH.A.229	DHRETCT
EXT110_DHTOTCT	DFHDOCH.A.230	DHTOTCT
EXT110_DHTOTDCL	DFHDOCH.A.240	DHTOTDCL
EXT110_SOBYENCT	DFHSOCK.A.242	SOBYENCT
EXT110_SOBYDECT	DFHSOCK.A.243	SOBYDECT
EXT110_IMSREQCT	DFHDATA.A.179	IMSREQCT
EXT110_DB2REQCT	DFHDATA.A.180	DB2REQCT
EXT110_SHMODECT		Obsolete
EXT110_TCBATTCT	DFHTASK.A.251	TCBATTCT
EXT110_QRDISPT	DFHTASK.S.255	QRDISPT
EXT110_QRCPUT	DFHTASK.S.256	QRCPUT
EXT110_MSDISPT	DFHTASK.S.257	MSDISPT
EXT110_MSCPUT	DFHTASK.S.258	MSCPUT
EXT110_L8CPUT	DFHTASK.S.259	L8CPUT
EXT110_J8CPUT	DFHTASK.S.260	J8CPUT
EXT110_S8CPUT	DFHTASK.S.261	S8CPUT
EXT110_QRMODDLY	DFHTASK.S.249	QRMODDLY
EXT110_MAXOTDLY	DFHTASK.S.250	MAXOTDLY
EXT110_GNQDELAY	DFHTASK.S.123	GNQDELAY
EXT110_CFDTWAIT	DFHFILE.S.176	CFDTWAIT
EXT110_SRVSYWTT	DFHSYNC.S.177	SRVSYWTT
EXT110_PRMSWAIT	DFHTASK.S.191	RRMSWAIT
EXT110_RUNTRWTT	DFHTASK.S.195	RUNTRWTT
EXT110_SYNCDLY	DFHSYNC.S.196	SYNCDLY
EXT110_SOIOWTT	DFHSOCK.S.241	SOIOWTT
EXT110_IMSWAIT	DFHDATA.S.186	IMSWAIT
EXT110_DB2RDYQW	DFHDATA.S.187	DB2RDYQW

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_DB2CONWT	DFHDATA.S.188	DB2CONWT
EXT110_DB2WAIT	DFHDATA.S.189	DB2WAIT
EXT110_JVMTIME	DFHTASK.S.253	JVMTIME
EXT110_JVMSUSP	DFHTASK.S.254	JVMSUSP
EXT110_TRNGRPID	DFHTASK.C.82	TRNGRPID
EXT110_RQRWAIT	DFHTASK.S.192	RQRWAIT
EXT110_RQPWAIT	DFHTASK.S.193	RQPWAIT
EXT110_OTSTID1	DFHTASK.C.194	OTSTID1
EXT110_OTSTID2	DFHTASK.C.194	OTSTID2
EXT110_NETID	DFHTERM.C.197	NETID
EXT110_RLUNAME	DFHTERM.C.198	RLUNAME
EXT110_OTSINDWT	DFHSYNC.S.199	TSINDWT
EXT110_WBREADCT	DFHWEBB.A.224	WBREADCT
EXT110_WBWRITCT	DFHWEBB.A.225	WBWRITCT
EXT110_WBEXTRCT	DFHWEBB.A.238	WBEXTRCT
EXT110_WBBRWCT	DFHWEBB.A.239	WBBRWCT
EXT110_TCPSRVCE	DFHSOCK.C.245	TCPSRVCE
EXT110_PORTNUM	DFHSOCK.A.246	PORTNUM
EXT110_KY8DISPT	DFHTASK.S.262	KY8DISPT
EXT110_KY8CPUT	DFHTASK.S.263	KY8CPUT
EXT110_JVMITIME	DFHTASK.S.273	JVMITIME
EXT110_JVMRTIME	DFHTASK.S.275	JVMRTIME
EXT110_SOEXTRCT	DFHSOCK.A.289	SOEXTRCT
EXT110_SOCNPSCT	DFHSOCK.A.290	SOCNPSCT
EXT110_SOCPSCT	DFHSOCK.A.291	SOCPSCT
EXT110_SONPSHWM	DFHSOCK.A.292	SONPSHWM
EXT110_SOPSHWM	DFHSOCK.A.293	SOPSHWM
EXT110_SORCVCT	DFHSOCK.A.294	SORCVCT
EXT110_SOCHRIN	DFHSOCK.A.295	SOCHRIN
EXT110_SOSENDCT	DFHSOCK.A.296	SOSENDCT

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_SOCHROUT	DFHSOCK.A.297	SOCHROUT
EXT110_SOTOTCT	DFHSOCK.A.298	SOTOTCT
EXT110_SOOIOWTT	DFHSOCK.S.299	SOOIOWTT
EXT110_MAXJTDLY	DFHWEBB.A.277	MAXJTDLY
EXT110_MAXHTDLY		Obsolete
EXT110_PTPWAIT	DFHTASK.S.285	PTPWAIT
EXT110_SOMSGIN1	DFHSOCK.A.301	SOMSGIN1
EXT110_SOCHRIN1	DFHSOCK.A.302	SOCHRIN1
EXT110_SOMSGOU1	DFHSOCK.A.303	SOMSGOU1
EXT110_SOCHROU1	DFHSOCK.A.304	SOCHROU1
EXT110_DSTCBHWM	DFHTASK.A.252	DSTCBHWN
EXT110_KY9DISPT	DFHTASK.S.264	KY9DISPT
EXT110_PCLNKCCT	DFHPROG.A.306	PCLNKCCT
EXT110_KY9CPUT	DFHTASK.S.265	KY9CPUT
EXT110_PCXCLCCT	DFHPROG.A.307	PCXCLCCT
EXT110_J9CPUT	DFHTASK.S.267	J9CPUT
EXT110_PCDPLCCT	DFHPROG.A.308	PCDPLCCT
EXT110_DSTCBMWT	DFHTASK.S.268	DSTCBMWT
EXT110_PCRTNCCT	DFHPROG.A.309	PCRTNCCT
EXT110_DSMMSCWT	DFHTASK.S.279	DSMMSCWT
EXT110_PCRTNCDL	DFHPROG.A.310	PCRTNCDL
EXT110_CBSRVRNM	DFHEJBS.C.311	CBSRVRNM
EXT110_EJBSACCT	DFHEJBS.A.312	EJBSACCT
EXT110_EJBSPACT	DFHEJBS.A.313	EJBSPACT
EXT110_EJBCRECT	DFHEJBS.A.314	EJBCRECT
EXT110_EJBREMCT	DFHEJBS.A.315	EJBREMCT
EXT110_EJBMTHCT	DFHEJBS.A.316	EJBMTHCT
EXT110_L9CPUT	DFHTASK.S.266	L9CPUT
EXT110_MAXSTDLY	DFHTASK.S.281	MAXSTDLY
EXT110_DCSHMDLY	DFHTASK.S.247	DCSHMDLY

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_ICSTRCCT	DFHTASK.A.346	ICSTRCCT
EXT110_ICSTRCDL	DFHTASK.A.347	ICSTRCDL
EXT110_WBREDOCT	DFHWEBB.A.331	WBREDOCT
EXT110_WBWRTOCT	DFHWEBB.A.332	WBWRTOCT
EXT110_WBRCVIN1	DFHWEBB.A.333	WBRCVIN1
EXT110_WBCHRIN1	DFHWEBB.A.334	WBCHRIN1
EXT110_WBSNDOU1	DFHWEBB.A.335	WBSNDOU1
EXT110_WBCHROU1	DFHWEBB.A.336	WBCHROU1
EXT110_WBPARSCT	DFHWEBB.A.337	WBPARSCT
EXT110_WBBRWOCT	DFHWEBB.A.338	WBBRWOCT
EXT110_WBIWBSCT	DFHWEBB.A.340	WBIWBSCT
EXT110_WBREPRDL	DFHWEBB.A.341	WBREPRDL
EXT110_WBREPWDL	DFHWEBB.A.342	WBREPWDL
EXT110_ICSTACCT	DFHTASK.A.65	ICSTACCT
EXT110_PGTOTCCT	DFHCHNL.A.321	PGTOTCCT
EXT110_PGBRWCCT	DFHCHNL.A.322	PGBRWCCT
EXT110_PGGETCCT	DFHCHNL.A.323	PGGETCCT
EXT110_PGPUTCCT	DFHCHNL.A.324	PGPUTCCT
EXT110_PGMOVCCT	DFHCHNL.A.325	PGMOVCCT
EXT110_PGGETCDL	DFHCHNL.A.326	PGGETCDL
EXT110_PGPUTCDL	DFHCHNL.A.327	PGPUTCDL
EXT110_PGCRECCT	DFHCHNL.A.328	PGCRECCT
EXT110_PCDLCSDL	DFHPROG.A.286	PCDLCSDL
EXT110_ICSTACDL	DFHTASK.A.345	ICSTACDL
EXT110_PCDLCRDL	DFHPROG.A.287	PCDLCRDL
EXT110_RODISPT	DFHTASK.S.269	RODISPT
EXT110_ROCPUT	DFHTASK.S.270	ROCPUT
EXT110_X8CPUT	DFHTASK.S.271	X8CPUT
EXT110_X9CPUT	DFHTASK.S.272	X9CPUT
EXT110_MAXXTDLY	DFHTASK.S.282	MAXXTDLY

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_RMITOTAL	DFHRMI S.1	RMITOTAL
EXT110_RMIOTHER	DFHRMI S.2	RMIOTHER
EXT110_RMIDB2	DFHRMI S.3	RMIDB2
EXT110_RMIDBCTL	DFHRMI S.4	RMIDBCTL
EXT110_RMIEXDLI	DFHRMI S.5	RMIEXDLI
EXT110_RMIMQM	DFHRMI S.6	RMIMQM
EXT110_RMICPSM	DFHRMI S.7	RMICPSM
EXT110_RMITCPIP	DFHRMI S.8	RMITCPIP
EXT110_DHDELCT	DFHDOCH.A.223	DHDELCT
EXT110_ISALLOCT	DFHSOCK.A.288	ISALLOCT
EXT110_CLIPPORT	DFHSOCK.A.330	CLIPPORT
EXT110_OPORTNUM	DFHCICS.A.367	OPORTNUM
EXT110_OCLIPORT	DFHCICS.A.369	OCLIPORT
EXT110_OTRANFLG	DFHCICS.A.370	OTRANFLG
EXT110_ISIPCNNM	DFHSOCK.C.305	ISIPCNNM
EXT110_OAPPLID	DFHCICS.C.360	OAPPLID
EXT110_OTRAN	DFHCICS.C.363	OTRAN
EXT110_OUSERID	DFHCICS.C.364	OUSERID
EXT110_OUSERCOR	DFHCICS.C.365	OUSERCOR
EXT110_OTCPSVCE	DFHCICS.C.366	OTCPSVCE
EXT110_OCLIPADR	DFHCICS.C.368	OCLIPADR
EXT110_OFCTYNME	DFHCICS.C.371	OFCTYNME
EXT110_OTRANNUM	DFHCICS.P.362	OTRANNUM
EXT110_ISIOWTT	DFHSOCK.S.300	ISIOWTT
EXT110_OSTART	DFHCICS.T.361	OSTART
EXT110_PGCSTHWM	DFHCHNL.A.329	PGCSTHWM
EXT110_WMQREQCT	DFHDATA.A.395	WMQREQCT
EXT110_ONETWKID	DFHCICS.C.359	ONETWKID
EXT110_WMQGETWT	DFHDATA.S.396	WMQGETWT
EXT110_RESPONSE		Calculated from Stop Time - Start Time

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_MAXTTDLY	DFHTASK.S.283	MAXTTDLY
EXT110_WBURIMNM	DFHWEBB.C.380	WBURIMNM
EXT110_WBPIPLNM	DFHWEBB.C.381	WBPIPLNM
EXT110_WBATMSNM	DFHWEBB.C.382	WBATMSNM
EXT110_WBSVCENM	DFHWEBB.C.383	WBSVCENM
EXT110_WBPROGNM	DFHWEBB.C.385	WBPROGNM
EXT110_T8CPUT	DFHTASK.S.400	T8CPUT
EXT110_EICTOTCT	DFHCICS.A.402	EICTOTCT
EXT110_TIASKTCT	DFHCICS.A.405	TIASKTCT
EXT110_TITOTCT	DFHCICS.A.406	TITOTCT
EXT110_BFDGSTCT	DFHCICS.A.408	BFDGSTCT
EXT110_BFTOTCT	DFHCICS.A.409	BFTOTCT
EXT110_MLXSSCTM	DFHWEBB.S.411	MLXSSCTM
EXT110_MLXSSTDL	DFHWEBB.A.412	MLXSSTDL
EXT110_ECSIGECT	DFHCICS.A.415	ECSIGECT
EXT110_ECEFOPCT	DFHCICS.A.416	ECEFOPCT
EXT110_ECEVNTCT	DFHCICS.A.417	ECEVNTCT
EXT110_OCLIPAV6	DFHCICS.C.372	OCLIPADR *
EXT110_CLIPAV6	DFHSOCK.C.318	CLIPADDR *
EXT110_WMQASRBT	DFHDATA.S.397	WMQASRBT
EXT110_JVMTHDWT	DFHTASK.S.401	JVMTHDWT
EXT110_WBSVOPNM	DFHWEBB.C.384	WBSVOPNM
EXT110_WBSFCRCT	DFHWEBB.A.386	WBSFCRCT
EXT110_WBSFTOCT	DFHWEBB.A.387	WBSFTOCT
EXT110_WBISSFCT	DFHWEBB.A.388	WBISSFCT
EXT110_WBSREQBL	DFHWEBB.A.390	WBSREQBL
EXT110_WBSRSPBL	DFHWEBB.A.392	WBSRSPBL
EXT110_MLXMLTCT	DFHWEBB.A.413	MLXMLTCT
EXT110_WSACBLCT	DFHWEBB.A.420	WSACBLCT
EXT110_WSACGTCT	DFHWEBB.A.421	WSACGTCT

CA JARS EXTDATA Variable Name	IBM CTS Group Name.Type.ID	IBM CTS Informal Name
EXT110_WSAEPCCT	DFHWEBB.A.422	WSAEPCCT
EXT110_WSATOTCT	DFHWEBB.A.423	WSATOTCT

* - This field contains the IPV6 Version of the IP address.

EXTDATA Record Type - SMQB

For a description of the source fields listed in the third column, see these IBM guides:

WebSphere MQ for z/OS System Setup Guide Version 6.0 - SC34-6583

MP1B: MQSeries for OS/390 V5 Interpreting Accounting and Statistics Data Version 1.5 MQSeries for z/OS

Note: MP1B is not updated for MQSeries 6.0.

For a field-by-field breakdown, see the CMQxxx and CSQxxx macros distributed with MQSeries. Find these in the dataset &MQprefix...SCSQMACS.

The MRXT115B and MZXT115B record definitions define the EXTDATA records created by CA JARS from SMF record 115, subtype 2, Buffer Manager Statistics Records.

CA Earl MRXT115B	CA Easytrieve MZXT115B	SMF Data Field
EXT115B_MQSUBSYS	EXT115B_MQSUBSYS	SM115SSI
EXT115B_CBID	EXT115B_CBID	QPSTID
EXT115B_CBLEN	EXT115B_CBLEN	QPSTLL
EXT115B_CBEYE	EXT115B_CBEYE	QPSTEYEC
EXT115B_BPID	EXT115B_BPID	QPSTPOOL
EXT115B_NUMBUF	EXT115B_NUMBUF	QPSTNBUF
EXT115B_LOWBUF	EXT115B_LOWBUF	QPSTCBSL
EXT115B_AVAILB	EXT115B_AVAILB	QPSTCBS
EXT115B_GETBUFDR	EXT115B_GETBUFDR	QPSTGETP
EXT115B_GETNEWB	EXT115B_GETNEWB	QPSTGETN
EXT115B_PAGEREAD	EXT115B_PAGEREAD	QPSTRIO
EXT115B_PAGEUPD	EXT115B_PAGEUPD	QPSTSTW

CA Earl MRXT115B	CA Easytrieve MZXT115B	SMF Data Field
EXT115B_PAGEWRIO	EXT115B_PAGEWRIO	QPSTTPW
EXT115B_PAGEWRIT	EXT115B_PAGEWRIT	QPSTWIO
EXT115B_ASYNCHW	EXT115B_ASYNCHW	QPSTIMW
EXT115B_ASTRT	EXT115B_ASTRT	QPSTDWT
EXT115B_STRTHR	EXT115B_STRTHR	QPSTDMC
EXT115B_PGENOTFN	EXT115B_PGENOTFN	QPSTSTL
EXT115B_HCDBS	EXT115B_HCDBS	QPSTSTLA
EXT115B_NOAVAILB	EXT115B_NOAVAILB	QPSTSOS
EXT115B_RESV	EXT115B_RESV	Reserved
EXT115B_MQREL	EXT115B_MQREL	unnamed field

EXTDATA Record Type - SMQC

The MRXT115C and MZXT115C record definitions define the EXTDATA records created by CA JARS from SMF record 115, subtype 2, Coupling Facility Statistics.

CA Earl MRXT115C	CA Easytrieve MZXT115C	SMF Data Field
EXT115C_MQSUBSYS	EXT115C_MQSUBSYS	SM115SSI
EXT115C_CBID	EXT115C_CBID	QESTID
EXT115C_CBLEN	EXT115C_CBLEN	QESTLL
EXT115C_CBEYE	EXT115C_CBEYE	QESTEYEC
EXT115C_STRNAME	EXT115C_STRNAME	QESTSTR
EXT115C_STRNUM	EXT115C_STRNUM	QESTSTRN
EXT115C_CSEC	EXT115C_CSEC	QESTCSEC
EXT115C_CMEC	EXT115C_CMEC	QESTCMEC
EXT115C_SSTC	EXT115C_SSTC	QESTSSTC
EXT115C_MSTC	EXT115C_MSTC	QESTMSTC
EXT115C_RSEC	EXT116C_RSEC	QESTRSEC
EXT115C_RMEC	EXT115C_RMEC	QESTRMEC

CA Earl MRXT115C	CA Easytrieve MZXT115C	SMF Data Field
EXT115C_SFUL	EXT115C_SFUL	QESTSFUL
EXT115C_MNUS	EXT115C_MNUS	QESTMNUS
EXT115C_MLUS	EXT115C_MLUS	QESTMLUS
EXT115C_RESV	EXT115C_RESV	QESTRESV
EXT115C_MQREL	EXT115C_MQREL	unnamed field

EXTDATA Record Type - SMQD

The MRXT115D and MZXT115D record definitions define the EXTDATA records created by CA JARS from SMF record 115, subtype 2, Data Manager Statistics Records.

CA Earl MRXT115D	CA Easytrieve MZXT115D	SMF Data Field
EXT115D_MQSUBSYS	EXT115D_MQSUBSYS	SM115SSI
EXT115D_CBID	EXT115D_CBID	QISTID
EXT115D_CBLEN	EXT115D_CBLEN	QISTLL
EXT115D_CBEYE	EXT115D_CBEYE	QISTEYEC
EXT115D_MGET	EXT115D_MGET	QISTMGET
EXT115D_MPUT	EXT115D_MPUT	QISTMPUT
EXT115D_QISTMBLR	EXT115D_QISTMBLR	QISTMBLR
EXT115D_OBJCR8	EXT115D_OBJCR8	QISTDCRE
EXT115D_OBJPUT	EXT115D_OBJPUT	QISTDPUT
EXT115D_OBJDEL	EXT115D_OBJDEL	QISTDDEL
EXT115D_OBJGET	EXT115D_OBJGET	QISTDGET
EXT115D_OBJLOC	EXT115D_OBJLOC	QISTDLOC
EXT115D_QISTMCNT	EXT115D_QISTMCNT	QISTMCNT
EXT115D_STCCHNG	EXT115D_STCCHNG	QISTALST
EXT115D_QISTLOMM	EXT115D_QISTLOMM	QISTLOMM
EXT115D_QISTDLMM	EXT115D_QISTDLMM	QISTDLMM
EXT115D_QISTENUM	EXT115D_QISTENUM	QISTENUM

CA Earl MRXT115D	CA Easytrieve MZXT115D	SMF Data Field
EXT115D_QISTRAIO	EXT115D_QISTRAIO	QISTRAIO
EXT115D_QISTRABP	EXT115D_QISTRABP	QISTRABP
EXT115D_QISTGETD	EXT115D_QISTGETD	QISTGETD
EXT115D_QISTGETB	EXT115D_QISTGETB	QISTGETB
EXT115D_Resrvd1	EXT115D_Resrvd1	Reserved
EXT115D_MQREL	EXT115D_MQREL	SM115REL

EXTDATA Record Type - SMQL

The MRXT115L and MZXT115L record definitions define the EXTDATA records created by CA JARS from SMF record 115, subtype 1, Log Manager Statistics Records.

CA Earl MRXT115L	CA Easytrieve MZXT115L	SMF Data Field
EXT115L_MQSUBSYS	EXT115L_MQSUBSYS	SM115SSI
EXT115L_CBID	EXT115L_CBID	QJSTID
EXT115L_CBLEN	EXT115L_CBLEN	QJSTLL
EXT115L_CBEYE	EXT115L_CBEYE	QJSTEID
EXT115L_WRITE	EXT115L_WRITE	QJSTWRW
EXT115L_ASYNCWRT	EXT115L_ASYNCWRT	QJSTWRNW
EXT115L_FWRITE	EXT115L_FWRITE	QJSTWRF
EXT115L_BUFWRT	EXT115L_BUFWRT	QJSTWTB
EXT115L_RDLOGST	EXT115L_RDLOGST	QJSTRBUF
EXT115L_RDLOGACT	EXT115L_RDLOGACT	QJSTRACT
EXT115L_RDLOGARC	EXT115L_RDLOGARC	QJSTRARH
EXT115L_RDLOGDL	EXT115L_RDLOGDL	QJSTWTL
EXT115L_BOOTREQ	EXT115L_BOOTREQ	QJSTBSDS
EXT115L_ALINTER	EXT115L_ALINTER	QJSTBFFL
EXT115L_ALCALLW	EXT115L_ALCALLW	QJSTBFWR
EXT115L_ALALLOCR	EXT115L_ALALLOCR	QJSTALR

CA Earl **MRXT115L**	CA Easytrieve **MZXT115L**	SMF Data Field
EXT115L_ALALLOCW	EXT115L_ALALLOCW	QJSTALW
EXT115L_CIOF	EXT115L_CIOF	QJSTCIOF
EXT115L_LLCP	EXT115L_LLCP	QJSTLLCP
EXT115L_WUR	EXT115L_WUR	QJSTWUR
EXT115L_LAMA	EXT115L_LAMA	QJSTLAMA
EXT115L_LAMS	EXT115L_LAMS	QJSTLAMS
EXT115L_LSUS	EXT115L_LSUS	QJSTLSUS
EXT115L_LOGW	EXT115L_LOGW	QJSTLOGW
EXT115L_CIWR	EXT115L_CIWR	QJSTCIWR
EXT115L_SERW	EXT115L_SERW	QJSTSERW
EXT115L_THRW	EXT115L_THRW	QJSTTHRW
EXT115L_BPAG	EXT115L_BPAG	QJSTBPAG
EXT115L_RESV01	EXT115L_RESV01	Reserved
EXT115L_MQREL	EXT115L_MQREL	unnamed field

EXTDATA Record Type - SMQM

The MRXT115M and MZXT115M record definitions define the EXTDATA records created by CA JARS from SMF record 115, subtype 2, Message Manager Statistics Records.

CA Earl **MRXT115M**	CA Easytrieve **MZXT115M**	SMF Data Field
EXT115M_MQSUBSYS	EXT115M_MQSUBSYS	SM115SSI
EXT115M_CBID	EXT115M_CBID	QMSTID
EXT115M_CBLEN	EXT115M_CBLEN	QMSTLL
EXT115M_CBEYE	EXT115M_CBEYE	QMSTEYEC
EXT115M_MQOPEN	EXT115M_MQOPEN	QMSTOPEN
EXT115M_MQCLOSE	EXT115M_MQCLOSE	QMSTCLOS
EXT115M_MQGET	EXT115M_MQGET	QMSTGET
EXT115M_MQPUT	EXT115M_MQPUT	QMSTPUT

CA Earl MRXT115M	CA Easytrieve MZXT115M	SMF Data Field
EXT115M_MQPUT1	EXT115M_MQPUT1	QMSTPUT1
EXT115M_MQINQ	EXT115M_MQINQ1	QMSTINQ
EXT115M_RESV1	EXT115M_RESV1	Reserved
EXT115M_MQSET	EXT115M_MQSET	QMSTSET
EXT115M_RESV2	EXT115M_RESV2	Reserved
EXT115M_CLOSEHND	EXT115M_CLOSEHND	QMSTCALH
EXT115M_MQREL	EXT115M_MQREL	unnamed field

EXTDATA Record Type - SMQ2

The MRXT1152 and MZXT1152 record definitions define the EXTDATA records created by CA JARS from SMF record 115, subtype 2, DB2 Statistics.

CA Earl MRXT1152	CA Easytrieve MZXT1152	SMF Data Field
EXT1152_MQSUBSYS	EXT1152_MQSUBSYS	SM116SSI
EXT1152_CBID	EXT1152_CBID	Q5STID
EXT1152_CBLEN	EXT1152_CBLEN	Q5STLL
EXT1152_CBEYE	EXT1152_CBEYE	Q5STEYEC
EXT1152_NUMTASK	EXT1152_NUMTASK	NUMTASK
EXT1152_ACTTASK	EXT1152_ACTTASK	ACTTASK
EXT1152_CONREQ	EXT1152_CONREQ	CONNCNT
EXT1152_DCONREQ	EXT1152_DCONREQ	DISCCNT
EXT1152_MAXQDEP	EXT1152_MAXQDEP	DHIGMAX
EXT1152_SRVABEND	EXT1152_SRVABEND	ABNDCNT
EXT1152_REQREQUE	EXT1152_REQREQUE	REQUCNT
EXT1152_DLOKTOUT	EXT1152_DLOKTOUT	DEADCNT
EXT1152_DELECNT	EXT1152_DELECNT	DELECNT
EXT1152_LISTCNT	EXT1152_LISTCNT	LISTCNT
EXT1152_READCNT	EXT1152_READCNT	READCNT

CA Earl MRXT1152	CA Easytrieve MZXT1152	SMF Data Field
EXT1152_UPDTCNT	EXT1152_UPDTCNT	UPDTCNT
EXT1152_WRITCNT	EXT1152_WRITCNT	WRITCNT
EXT1152_SCSSEL	EXT1152_SCSSEL	SCSSEL
EXT1152_SCSINS	EXT1152_SCSINS	SCSINS
EXT1152_SCSUPD	EXT1152_SCSUPD	SCSUPD
EXT1152_SCSDEL	EXT1152_SCSDEL	SCSDEL
EXT1152_SSKSEL	EXT1152_SSKSEL	SSKSEL
EXT1152_SSKINS	EXT1152_SSKINS	SSKINS
EXT1152_SSKDEL	EXT1152_SSKDEL	SSKDEL
EXT1152_SCSBFTS	EXT1152_SCSBFTS	SCSBFTS
EXT1152_SCSMAXR	EXT1152_SCSMAXR	SCSMAXR
EXT1152_RESV01	EXT1152_RESV01	Reserved
EXT1152_DELETCUW	EXT1152_DELETCUW	DELETCUW
EXT1152_DELETMXW	EXT1152_DELETMXW	DELETMXW
EXT1152_DELESCUW	EXT1152_DELESCUW	DELESCUW
EXT1152_DELESMXW	EXT1152_DELESMXW	DELESMXW
EXT1152_LISTTCUW	EXT1152_LISTTCUW	LISTTCUW
EXT1152_LISTTMXW	EXT1152_LISTTMXW	LISTTMXW
EXT1152_LISTSCUW	EXT1152_LISTSCUW	LISTSCUW
EXT1152_LISTSMXW	EXT1152_LISTSMXW	LISTSMXW
EXT1152_READTCUW	EXT1152_READTCUW	READTCUW
EXT1152_READTMXW	EXT1152_READTMXW	READTMXW
EXT1152_READSCUW	EXT1152_READSCUW	READSCUW
EXT1152_READSMXW	EXT1152_READSMXW	READSMXW
EXT1152_UPDTTCUW	EXT1152_UPDTTCUW	UPDTTCUW
EXT1152_UPDTTMXW	EXT1152_UPDTTMXW	UPDTTMXW
EXT1152_UPDTSCUW	EXT1152_UPDTSCUW	UPDTSCUW
EXT1152_UPDTSMXW	EXT1152_UPDTSMXW	UPDTSMXW
EXT1152_WRITTCUW	EXT1152_WRITTCUW	WRITTCUW

CA Earl MRXT1152	CA Easytrieve MZXT1152	SMF Data Field
EXT1152_WRITTMXW	EXT1152_WRITTMXW	WRITTMXW
EXT1152_WRITSCUW	EXT1152_WRITSCUW	WRITSCUW
EXT1152_WRITSMXW	EXT1152_WRITSMXW	WRITSMXW
EXT1152_SCSSTCUW	EXT1152_SCSSTCUW	SCSSTCUW
EXT1152_SCSSTMXW	EXT1152_SCSSTMXW	SCSSTMXW
EXT1152_SCSSSCUW	EXT1152_SCSSSCUW	SCSSSCUW
EXT1152_SCSSSMXW	EXT1152_SCSSSMXW	SCSSSMXW
EXT1152_SCSITCUW	EXT1152_SCSITCUW	SCSITCUW
EXT1152_SCSITMXW	EXT1152_SCSITMXW	SCSITMXW
EXT1152_SCSISCUW	EXT1152_SCSISCUW	SCSISCUW
EXT1152_SCSISMXW	EXT1152_SCSISMXW	SCSISMXW
EXT1152_SCSUTCUW	EXT1152_SCSUTCUW	SCSUTCUW
EXT1152_SCSUTMXW	EXT1152_SCSUTMXW	SCSUTMXW
EXT1152_SCSUSCUW	EXT1152_SCSUSCUW	SCSUSCUW
EXT1152_SCSUSMXW	EXT1152_SCSUSMXW	SCSUSMXW
EXT1152_SCSDTCUW	EXT1152_SCSDTCUW	SCSDTCUW
EXT1152_SCSDTMXW	EXT1152_SCSDTMXW	SCSDTMXW
EXT1152_SCSDSCUW	EXT1152_SCSDSCUW	SCSDSCUW
EXT1152_SCSDSMXW	EXT1152_SCSDSMXW	SCSDSMXW
EXT1152_SSKSTCUW	EXT1152_SSKSTCUW	SSKSTCUW
EXT1152_SSKSTMXW	EXT1152_SSKSTMXW	SSKSTMXW
EXT1152_SSKSSCUW	EXT1152_SSKSSCUW	SSKSSCUW
EXT1152_SSKSSMXW	EXT1152_SSKSSMXW	SSKSSMXW
EXT1152_SSKITCUW	EXT1152_SSKITCUW	SSKITCUW
EXT1152_SSKITMXW	EXT1152_SSKITMXW	SSKITMXW
EXT1152_SSKISCUW	EXT1152_SSKISCUW	SSKISCUW
EXT1152_SSKISMXW	EXT1152_SSKISMXW	SSKISMXW
EXT1152_SSKDTCUW	EXT1152_SSKDTCUW	SSKDTCUW
EXT1152_SSKDTMXW	EXT1152_SSKDTMXW	SSKDTMXW

CA Earl MRXT1152	CA Easytrieve MZXT1152	SMF Data Field
EXT1152_SSKDSCUW	EXT1152_SSKDSCUW	SSKDSCUW
EXT1152_SSKDSMXW	EXT1152_SSKDSMXW	SSKDSMXW
EXT1152_MQREL	EXT1152_MQREL	unnamed field
EXT1152_LMSSEL	EXT1152_LMSSEL	LMSSEL
EXT1152_LMSINS	EXT1152_LMSINS	LMSINS
EXT1152_LMSUPD	EXT1152_LMSUPD	LMSUPD
EXT1152_LMSDEL	EXT1152_LMSDEL	LMSDEL
EXT1152_LMSLIS	EXT1152_LMSLIS	LMSLIS
EXT1152_RESV02	EXT1152_RESV02	Reserved
EXT1152_LMSSTCUW	EXT1152_LMSSTCUW	LMSSTCUW
EXT1152_LMSSTMXW	EXT1152_LMSSTMXW	LMSSTMXW
EXT1152_LMSSSCUW	EXT1152_LMSSSCUW	LMSSSCUW
EXT1152_LMSSSMXW	EXT1152_LMSSSMXW	LMSSSMXW
EXT1152_LMSITCUW	EXT1152_LMSITCUW	LMSITCUW
EXT1152_LMSITMXW	EXT1152_LMSITMXW	LMSITMXW
EXT1152_LMSISCUW	EXT1152_LMSISCUW	LMSISCUW
EXT1152_LMSISMXW	EXT1152_LMSISMXW	LMSISMXW
EXT1152_LMSUTCUW	EXT1152_LMSUTCUW	LMSUTCUW
EXT1152_LMSUTMXW	EXT1152_LMSUTMXW	LMSUTMXW
EXT1152_LMSUSCUW	EXT1152_LMSUSCUW	LMSUSCUW
EXT1152_LMSUSMXW	EXT1152_LMSUSMXW	LMSUSMXW
EXT1152_LMSDTCUW	EXT1152_LMSDTCUW	LMSDTCUW
EXT1152_LMSDTMXW	EXT1152_LMSDTMXW	LMSDTMXW
EXT1152_LMSDSCUW	EXT1152_LMSDSCUW	LMSDSCUW
EXT1152_LMSDSMXW	EXT1152_LMSDSMXW	LMSDSMXW
EXT1152_LMSLTCUW	EXT1152_LMSLTCUW	LMSLTCUW
EXT1152_LMSLTMXW	EXT1152_LMSLTMXW	LMSLTMXW
EXT1152_LMSLSCUW	EXT1152_LMSLSCUW	LMSLSCUW
EXT1152_LMSLSMXW	EXT1152_LMSLSMXW	LMSLSMXW

EXTDATA Record Type - SMQA

The MRXT116A and MZXT116A record definitions define the EXTDATA records created by CA JARS from SMF record 116, subtype 0, Message Manager Statistics.

CA Earl MRXT116A	**CA Easytrieve MZXT116A**	**SMF Data Field**
EXT116A_MQSUBSYS	EXT116A_MQSUBSYS	SM116SSI
EXT116A_RESV1	EXT116A_RESV1	Reserved
EXT116A_SUBSYSNM	EXT116A_SUBSYSNM	QWHSSSID
EXT116A_RESV2	EXT116A_RESV2	Reserved
EXT116A_USERID	EXT116A_USERID	QWHCAID
EXT116A_CV	EXT116A_CV	QWHCCV
EXT116A_CICSTHRD	EXT116A_CICSTHRD	Redefine of CV
EXT116A_CICSTRAN	EXT116A_CICSTRAN	Redefine of CV
EXT116A_CICSTASK	EXT116A_CICSTASK	Redefine of CV
EXT116A_IMSPSTID	EXT116A_IMSPSTID	Redefine of CV
EXT116A_IMSPSBNM	EXT116A_IMSPSBNM	Redefine of CV
EXT116A_CONNAME	EXT116A_CONNAME	QWHCCN
EXT116A_RESV3	EXT116A_RESV3	Reserved
EXT116A_OPERID	EXT116A_OPERID	QWHCOPID
EXT116A_TYPESYS	EXT116A_TYPESYS	QWHCATYP
EXT116A_ACCTDATA	EXT116A_ACCTDATA	QWHCTOKM
EXT116A_RESV4	EXT116A_RESV4	Reserved
EXT116A_CBID	EXT116A_CBID	QMACID
EXT116A_CBLEN	EXT116A_CBLEN	QMACLL
EXT116A_EYEC	EXT116A_EYEC	QMACEYEC
EXT116A_RESV5	EXT116A_RESV5	Reserved
EXT116A_CPUTIME	EXT116A_CPUTIME	QMACCPUT ***
EXT116A_MQPUT1	EXT116A_MQPUT1	QMACPUTA
EXT116A_MQPUT2	EXT116A_MQPUT2	QMACPUTB
EXT116A_MQPUT3	EXT116A_MQPUT3	QMACPUTC
EXT116A_MQPUT4	EXT116A_MQPUT4	QMACPUTD

CA Earl MRXT116A	CA Easytrieve MZXT116A	SMF Data Field
EXT116A_MQGET1	EXT116A_MQGET1	QMACGETA
EXT116A_MQGET2	EXT116A_MQGET2	QMACGETB
EXT116A_MQGET3	EXT116A_MQGET3	QMACGETC
EXT116A_MQGET4	EXT116A_MQGET4	QMACGETD
EXT116A_NETID	EXT116A_NETID	QWHCNIDD
EXT116A_NETNAME	EXT116A_NETNAME	Redefine of NETID
EXT116A_NETNUM	EXT116A_NETNUM	Redefine of NETID
EXT116A_MQREL	EXT116A_MQREL	unnamed field

*** = Time in ten thousandths of a second

EXTDATA Record Type - SMQQ

The MRXT116Q and MZXT116Q record definitions define the EXTDATA records created by CA JARS from SMF record 116, Queue Records. They are created as subtype 1, then overflow to create a subtype 2, as needed.

CA Earl MRXT116Q	CA Easytrieve MZXT116Q	SMF Data Field
EXT116Q_MQSUBSYS	EXT116Q_MQSUBSYS	SM116SSI
EXT116Q_TYPESYS	EXT116Q_TYPESYS	WTIDATYP
EXT116Q_CONNAME	EXT116Q_CONNAME	WTIDCCN
EXT116Q_OPERID	EXT116Q_OPERID	WTIDOPID
EXT116Q_NETID	EXT116Q_NETID	WTIDNID
EXT116Q_CV	EXT116Q_CV	WTIDCORI
EXT116Q_CICSTHRD	EXT116Q_CICSTHRD	Redefine of CV
EXT116Q_CICSTRAN	EXT116Q_CICSTRAN	Redefine of CV
EXT116Q_CICSTASK	EXT116Q_CICSTASK	Redefine of CV
EXT116Q_IMSPSTID	EXT116Q_IMSPSTID	Redefine of CV
EXT116Q_IMSPSBNM	EXT116Q_IMSPSBNM	Redefine of CV
EXT116Q_LUOWI	EXT116Q_LUOWI	WTIDUOWI
EXT116Q_ACCTDATA	EXT116Q_ACCTDATA	WTIDACCT

CA Earl MRXT116Q	CA Easytrieve MZXT116Q	SMF Data Field
EXT116Q_CHANNEL	EXT116Q_CHANNEL	WTIDCHL
EXT116Q_CHANCONN	EXT116Q_CHANCONN	WTIDCHLC
EXT116Q_CTXT	EXT116Q_CTXT	WTIDCTXT
EXT116Q_USERID	EXT116Q_USERID	WTIDTRAN
EXT116Q_CBID	EXT116Q_CBID	WQID
EXT116Q_CBLEN	EXT116Q_CBLEN	WQLL
EXT116Q_CBEYE	EXT116Q_CBEYE	WQEYE
EXT116Q_VER	EXT116Q_VER	WQVER
EXT116Q_RESV01	EXT116Q_RESV01	WQNEXT
EXT116Q_CORREL	EXT116Q_CORREL	CORREL
EXT116Q_OBJNAME	EXT116Q_OBJNAME	OBJNAME
EXT116Q_BASENAME	EXT116Q_BASENAME	BASENAME
EXT116Q_OPENDATE	EXT116Q_OPENDATE	OPENTIME
EXT116Q_OPENTIME	EXT116Q_OPENTIME	OPENTIME
EXT116Q_CLOSDATE	EXT116Q_CLOSDATE	CLOSTIME
EXT116Q_CLOSTIME	EXT116Q_CLOSTIME	CLOSTIME
EXT116Q_QTYPE	EXT116Q_QTYPE	QTYPE
EXT116Q_INDXTYPE	EXT116Q_INDXTYPE	INDXTYPE
EXT116Q_QSGDISP	EXT116Q_QSGDISP	QSGDISP
EXT116Q_OPENEYE	EXT116Q_OPENEYE	OPENEYE
EXT116Q_OPENET	EXT116Q_OPENET	OPENET
EXT116Q_OPENCT	EXT116Q_OPENCT	OPENCT
EXT116Q_OPENN	EXT116Q_OPENN	OPENN
EXT116Q_CLOSEEYE	EXT116Q_CLOSEEYE	CLOSEEYE
EXT116Q_CLOSEET	EXT116Q_CLOSEET	CLOSEET
EXT116Q_CLOSECT	EXT116Q_CLOSECT	CLOSECT
EXT116Q_CLOSEN	EXT116Q_CLOSEN	CLOSEEYE
EXT116Q_GETEYE	EXT116Q_GETEYE	GETEYE
EXT116Q_GETET	EXT116Q_GETET	GETET

CA Earl MRXT116Q	CA Easytrieve MZXT116Q	SMF Data Field
EXT116Q_GETCT	EXT116Q_GETCT	GETCT
EXT116Q_GETN	EXT116Q_GETN	GETN
EXT116Q_GETBRWA	EXT116Q_GETBRWA	GETBRWA
EXT116Q_GETBRWS	EXT116Q_GETBRWS	GETBRWS
EXT116Q_GETA	EXT116Q_GETA	GETA
EXT116Q_GETS	EXT116Q_GETS	GETS
EXT116Q_GETERR	EXT116Q_GETERR	GETERR
EXT116Q_GETJWET	EXT116Q_GETJWET	GETJWET
EXT116Q_GETJWN	EXT116Q_GETJWN	GETJWN
EXT116Q_GETPSET	EXT116Q_GETPSET	GETPSET
EXT116Q_GETPSN	EXT116Q_GETPSN	GETPSN
EXT116Q_GETSUST	EXT116Q_GETSUST	GETSUSET
EXT116Q_GETSUSN	EXT116Q_GETSUSN	GETSUSN
EXT116Q_GETEPAGE	EXT116Q_GETEPAGE	GETEPAGE
EXT116Q_GETSMSG	EXT116Q_GETSMSG	GETMSG
EXT116Q_GETEXMSG	EXT116Q_GETEXMSG	GETEXMSG
EXT116Q_PUTEYE	EXT116Q_PUTEYE	PUTEYE
EXT116Q_PUTET	EXT116Q_PUTET	PUTET
EXT116Q_PUTCT	EXT116Q_PUTCT	PUTCT
EXT116Q_PUTN	EXT116Q_PUTN	PUTN
EXT116Q_PUTJWET	EXT116Q_PUTJWET	PUTJWET
EXT116Q_PUTJWN	EXT116Q_PUTJWN	PUTJWN
EXT116Q_PUTSUST	EXT116Q_PUTSUST	PUTSUSET
EXT116Q_PUTSUSN	EXT116Q_PUTSUSN	PUTSUSN
EXT116Q_PUTPSET	EXT116Q_PUTPSET	PUTPSET
EXT116Q_PUTPSN	EXT116Q_PUTPSN	PUTPSN
EXT116Q_PUT1EYE	EXT116Q_PUT1EYE	PUT1EYE
EXT116Q_PUT1ET	EXT116Q_PUT1ET	PUT1ET
EXT116Q_PUT1CT	EXT116Q_PUT1CT	PUT1CT

CA Earl MRXT116Q	CA Easytrieve MZXT116Q	SMF Data Field
EXT116Q_PUT1N	EXT116Q_PUT1N	PUT1N
EXT116Q_PUT1JWET	EXT116Q_PUT1JWET	PUT1JWET
EXT116Q_PUT1JWN	EXT116Q_PUT1JWN	PUT1JWN
EXT116Q_PUT1SUST	EXT116Q_PUT1SUST	PUT1SUSET
EXT116Q_PUT1SUSN	EXT116Q_PUT1SUSN	PUT1SUSN
EXT116Q_PUT1PSET	EXT116Q_PUT1PSET	PUT1PSET
EXT116Q_PUT1PSN	EXT116Q_PUT1PSN	PUT1PSN
EXT116Q_INQEYE	EXT116Q_INQEYE	INQEYE
EXT116Q_INQET	EXT116Q_INQET	INQET
EXT116Q_INQCT	EXT116Q_INQCT	INQCT
EXT116Q_INQN	EXT116Q_INQN	INQN
EXT116Q_SETEYE	EXT116Q_SETEYE	SETEYE
EXT116Q_SETET	EXT116Q_SETET	SETET
EXT116Q_SETCT	EXT116Q_SETCT	SETCT
EXT116Q_SETN	EXT116Q_SETN	SETN
EXT116Q_SETJWET	EXT116Q_SETJWET	SETJWET
EXT116Q_SETJWN	EXT116Q_SETJWN	SETJWN
EXT116Q_NPS	EXT116Q_NPS	NPS
EXT116Q_CFSTRUCN	EXT116Q_CFSTRUCN	CFSTRUCNAME
EXT116Q_NBUFPOOL	EXT116Q_NBUFPOOL	NBUFFPOOL
EXT116Q_PUTBYTES	EXT116Q_PUTBYTES	PUTBYTES
EXT116Q_GETBYTES	EXT116Q_GETBYTES	GETBYTES
EXT116Q_VALIDPUT	EXT116Q_VALIDPUT	VALIDPUT
EXT116Q_VALIDGET	EXT116Q_VALIDGET	VALIDGET
EXT116Q_NGEN	EXT116Q_NGEN	NGEN
EXT116Q_GETMAXMS	EXT116Q_GETMAXMS	GETMAXMS
EXT116Q_GETMINMS	EXT116Q_GETMINMS	GETMINMS
EXT116Q_PUTMAXMS	EXT116Q_PUTMAXMS	PUTMAXMS
EXT116Q_PUTMINMS	EXT116Q_PUTMINMS	PUTMINMS

CA Earl MRXT116Q	CA Easytrieve MZXT116Q	SMF Data Field
EXT116Q_MAXLATNT	EXT116Q_MAXLATNT	MAXLATNT
EXT116Q_MINLATNT	EXT116Q_MINLATNT	MINLATNT
EXT116Q_TOTLATNT	EXT116Q_TOTLATNT	TOTLATNT
EXT116Q_RESV02	EXT116Q_RESV02	Reserved
EXT116Q_USECOUNT	EXT116Q_USECOUNT	USE_COUNT
EXT116Q_TOTALUSE	EXT116Q_TOTALUSE	TOTAL_USE
EXT116Q_MQREL	EXT116Q_MQREL	unnamed field
EXT116Q_PUTBYTEP	EXT116Q_PUTBYTEP	PUTBYTES *
EXT116Q_GETBYTEP	EXT116Q_GETBYTEP	GETBYTES *
EXT116Q_GETPMSG	EXT116Q_GETPMSG	GETPMSG
EXT116Q_PUTPMSG	EXT116Q_PUTPMSG	PUTPMSG
EXT116Q_PUT1PMSG	EXT116Q_PUT1PMSG	PUT1PMSG
EXT116Q_MAXQDPTH	EXT116Q_MAXQDPTH	MAXQDPTH
EXT116Q_FLAGS	EXT116Q_FLAGS	FLAGS
EXT116Q_RESRV3	EXT116Q_RESRV3	Reserved
EXT116Q_GETDVAL	EXT116Q_GETDVAL	GETDVAL
EXT116Q_GETJCET	EXT116Q_GETJCET	GETJCET
EXT116Q_GETJCN	EXT116Q_GETJCN	GETJCN
EXT116Q_PUTPWG	EXT116Q_PUTPWG	PUTPWG
EXT116Q_PUTJCET	EXT116Q_PUTJCET	PUTJCET
EXT116Q_PUTJCN	EXT116Q_PUTJCN	PUTJCN
EXT116Q_PUT1PWG	EXT116Q_PUT1PWG	PUT1PWG
EXT116Q_PUT1JCET	EXT116Q_PUT1JCET	PUT1JCET
EXT116Q_PUT1JCN	EXT116Q_PUT1JCN	PUT1JCN
EXT116Q_SETJCET	EXT116Q_SETJCET	SETJCET
EXT116Q_SETJCN	EXT116Q_SETJCN	SETJCN
EXT116Q_RESRV4	EXT116Q_RESRV4	Reserved

* For values up to 2GB, these fields are identical to fields EXT116Q_PUTBYTES/GETBYTES. For values >2GB, you must use these fields for accurate values.

EXTDATA Record Type - SMQR

The MRXT116R and MZXT116R record definitions define the EXTDATA records created by CA JARS from SMF record 116, subtype 1, Task Related Information.

CA Earl MRXT116R	CA Easytrieve MRXT116R	SMF Data Field
EXT116R_MQSUBSYS	EXT116R_MQSUBSYS	SM116SSI
EXT116R_TYPESYS	EXT116R_TYPESYS	WTIDATYP
EXT116R_CONNAME	EXT116R_CONNAME	WTIDCCN
EXT116R_OPERID	EXT116R_OPERID	WTIDOPID
EXT116R_NETID	EXT116R_NETID	WTIDNID
EXT116R_CV	EXT116R_CV	WTIDCORI
EXT116R_CICSTHRD	EXT116R_CICSTHRD	Redefine of CV
EXT116R_CICSTRAN	EXT116R_CICSTRAN	Redefine of CV
EXT116R_CICSTASK	EXT116R_CICSTASK	Redefine of CV
EXT116R_IMSPSTID	EXT116R_IMSPSTID	Redefine of CV
EXT116R_IMSPSBNM	EXT116R_IMSPSBNM	Redefine of CV
EXT116R_LUOWI	EXT116R_LUOWI	WTIDUOWI
EXT116R_ACCTDATA	EXT116R_ACCTDATA	WTIDACCT
EXT116R_CHANNEL	EXT116R_CHANNEL	WTIDCHL
EXT116R_CHANCONN	EXT116R_CHANCONN	WTIDCHLC
EXT116R_CTXT	EXT116R_CTXT	WTIDCTXT
EXT116R_USERID	EXT116R_USERID	WTIDTRAN
EXT116R_CBID	EXT116R_CBID	WTASSHEX
EXT116R_CBLEN	EXT116R_CBLEN	WTASLEN
EXT116R_CBEYE	EXT116R_CBEYE	WTASEYEC
EXT116R_CORR	EXT116R_CORR	WTASCORR
EXT116R_LATC	EXT116R_LATC	Reserved
EXT116R_HSHI	EXT116R_HSHI	Reserved
EXT116R_RESERV01	EXT116R_RESERV01	Reserved
EXT116R_LWET00	EXT116R_LWET00	WTASLWET
EXT116R_LWET01	EXT116R_LWET01	WTASLWET

CA Earl MRXT116R	CA Easytrieve MRXT116R	SMF Data Field
EXT116R_LWET02	EXT116R_LWET02	WTASLWET
EXT116R_LWET03	EXT116R_LWET03	WTASLWET
EXT116R_LWET04	EXT116R_LWET04	WTASLWET
EXT116R_LWET05	EXT116R_LWET05	WTASLWET
EXT116R_LWET06	EXT116R_LWET06	WTASLWET
EXT116R_LWET07	EXT116R_LWET07	WTASLWET
EXT116R_LWET08	EXT116R_LWET08	WTASLWET
EXT116R_LWET09	EXT116R_LWET09	WTASLWET
EXT116R_LWET10	EXT116R_LWET10	WTASLWET
EXT116R_LWET11	EXT116R_LWET11	WTASLWET
EXT116R_LWET12	EXT116R_LWET12	WTASLWET
EXT116R_LWET13	EXT116R_LWET13	WTASLWET
EXT116R_LWET14	EXT116R_LWET14	WTASLWET
EXT116R_LWET15	EXT116R_LWET15	WTASLWET
EXT116R_LWET16	EXT116R_LWET16	WTASLWET
EXT116R_LWET17	EXT116R_LWET17	WTASLWET
EXT116R_LWET18	EXT116R_LWET18	WTASLWET
EXT116R_LWET19	EXT116R_LWET19	WTASLWET
EXT116R_LWET20	EXT116R_LWET20	WTASLWET
EXT116R_LWET21	EXT116R_LWET21	WTASLWET
EXT116R_LWET22	EXT116R_LWET22	WTASLWET
EXT116R_LWET23	EXT116R_LWET23	WTASLWET
EXT116R_LWET24	EXT116R_LWET24	WTASLWET
EXT116R_LWET25	EXT116R_LWET25	WTASLWET
EXT116R_LWET26	EXT116R_LWET26	WTASLWET
EXT116R_LWET27	EXT116R_LWET27	WTASLWET
EXT116R_LWET28	EXT116R_LWET28	WTASLWET
EXT116R_LWET29	EXT116R_LWET29	WTASLWET
EXT116R_LWET30	EXT116R_LWET30	WTASLWET

CA Earl MRXT116R	CA Easytrieve MRXT116R	SMF Data Field
EXT116R_LWET31	EXT116R_LWET31	WTASLWET
EXT116R_LWN00	EXT116R_LWN00	WTASLWN
EXT116R_LWN01	EXT116R_LWN01	WTASLWN
EXT116R_LWN02	EXT116R_LWN02	WTASLWN
EXT116R_LWN03	EXT116R_LWN03	WTASLWN
EXT116R_LWN04	EXT116R_LWN04	WTASLWN
EXT116R_LWN05	EXT116R_LWN05	WTASLWN
EXT116R_LWN06	EXT116R_LWN06	WTASLWN
EXT116R_LWN07	EXT116R_LWN07	WTASLWN
EXT116R_LWN08	EXT116R_LWN08	WTASLWN
EXT116R_LWN09	EXT116R_LWN09	WTASLWN
EXT116R_LWN10	EXT116R_LWN10	WTASLWN
EXT116R_LWN11	EXT116R_LWN11	WTASLWN
EXT116R_LWN12	EXT116R_LWN12	WTASLWN
EXT116R_LWN13	EXT116R_LWN13	WTASLWN
EXT116R_LWN14	EXT116R_LWN14	WTASLWN
EXT116R_LWN15	EXT116R_LWN15	WTASLWN
EXT116R_LWN16	EXT116R_LWN16	WTASLWN
EXT116R_LWN17	EXT116R_LWN17	WTASLWN
EXT116R_LWN18	EXT116R_LWN18	WTASLWN
EXT116R_LWN19	EXT116R_LWN19	WTASLWN
EXT116R_LWN20	EXT116R_LWN20	WTASLWN
EXT116R_LWN21	EXT116R_LWN21	WTASLWN
EXT116R_LWN22	EXT116R_LWN22	WTASLWN
EXT116R_LWN23	EXT116R_LWN23	WTASLWN
EXT116R_LWN24	EXT116R_LWN24	WTASLWN
EXT116R_LWN25	EXT116R_LWN25	WTASLWN
EXT116R_LWN26	EXT116R_LWN26	WTASLWN
EXT116R_LWN27	EXT116R_LWN27	WTASLWN

CA Earl MRXT116R	CA Easytrieve MRXT116R	SMF Data Field
EXT116R_LWN28	EXT116R_LWN28	WTASLWN
EXT116R_LWN29	EXT116R_LWN29	WTASLWN
EXT116R_LWN30	EXT116R_LWN30	WTASLWN
EXT116R_LWN31	EXT116R_LWN31	WTASLWN
EXT116R_OTET	EXT116R_OTET	WTASOTET
EXT116R_OTCT	EXT116R_OTCT	WTASOTCT
EXT116R_OTN	EXT116R_OTN	WTASOTN
EXT116R_MLW	EXT116R_MLW	WTASMLW
EXT116R_MLWN	EXT116R_MLWN	WTASMLWN
EXT116R_RESERV02	EXT116R_RESERV02	Reserved
EXT116R_RESERV03	EXT116R_RESERV03	Reserved
EXT116R_CMET	EXT116R_CMET	WTASCMET
EXT116R_CMCT	EXT116R_CMCT	WTASCMCT
EXT116R_CMN	EXT116R_CMN	WTASCMN
EXT116R_BAET	EXT116R_BAET	WTASBAET
EXT116R_BACT	EXT116R_BACT	WTASBACT
EXT116R_BAN	EXT116R_BAN	WTASBAN
EXT116R_RESERV04	EXT116R_RESERV04	Reserved
EXT116R_JWET	EXT116R_JWET	WTASJWET
EXT116R_JWN	EXT116R_JWN	WTASJWN
EXT116R_JWB	EXT116R_JWB	WTASJWB
EXT116R_JCET	EXT116R_JCET	WTASJCET
EXT116R_JCN	EXT116R_JCN	WTASJCN
EXT116R_SUSN	EXT116R_SUSN	WTASSUSN
EXT116R_SUSE	EXT116R_SUSE	WTASSUSE
EXT116R_PSE0	EXT116R_PSE0	WTASPSE0
EXT116R_PSN0	EXT116R_PSN0	WTASPSN0
EXT116R_DBET	EXT116R_DBET	WTASDBET
EXT116R_DBES	EXT116R_DBES	WTASDBES

CA Earl MRXT116R	CA Easytrieve MRXT116R	SMF Data Field
EXT116R_DBMT	EXT116R_DBMT	WTASDBMT
EXT116R_DBMS	EXT116R_DBMS	WTASDBMS
EXT116R_DBCT	EXT116R_DBCT	WTASDBCT
EXT116R_CSEC	EXT116R_CSEC	WTASCSEC
EXT116R_CMEC	EXT116R_CMEC	WTASCMEC
EXT116R_RSEC	EXT116R_RSEC	WTASRSEC
EXT116R_RMEC	EXT116R_RMEC	WTASRMEC
EXT116R_SSTC	EXT116R_SSTC	WTASSSTC
EXT116R_MSTC	EXT116R_MSTC	WTASMSTC
EXT116R_RESERV05	EXT116R_RESERV05	Reserved
EXT116R_RESERV06	EXT116R_RESERV06	Reserved
EXT116R_RESERV07	EXT116R_RESERV07	Reserved
EXT116R_RESERV08	EXT116R_RESERV08	Reserved
EXT116R_INTSDATE	EXT116R_INTSDATE	WTASINTS
EXT116R_INTSTIME	EXT116R_INTSTIME	WTASINTS
EXT116R_INTEDATE	EXT116R_INTEDATE	WTASINTE
EXT116R_INTETIME	EXT116R_INTETIME	WTASINTE
EXT116R_GPO	EXT116R_GPO	WTASGPO
EXT116R_GPN	EXT116R_GPN	WTASGPN
EXT116R_MQREL	EXT116R_MQREL	unnamed field
EXT116R_WTASCQF	EXT116R_WTASCQF	WTASCQF
EXT116R_WTASCQB	EXT116R_WTASCQB	WTASCQB
EXT116R_WTASVER	EXT116R_WTASVER	WTASVER
EXT116R_RESERV10	EXT116R_RESERV10	Reserved
EXT116R_WTASDBPT	EXT116R_WTASDBPT	WTASDBPT
EXT116R_WTASDBGT	EXT116R_WTASDBGT	WTASDBGT
EXT116R_RESERV11	EXT116R_RESERV11	Reserved

Note: WTASLWET and WTASLWN are listed in the available documentation as arrays of 32 elements each; the elements are not individually named.

EXTDATA Record Type - SAPI

For a complete description of each SMF data field offset listed in the third column, refer to the SMF Record Layout for API Calls in the *IBM TCP/IP Customization and Administration Guide.*

The MRXTAPI and MZXTAPI record definitions define the EXTDATA records created by CA JARS from SMF record 118, API Calls.

CA Earl MRXTAPI	**CA Easytrieve MZXTAPI**	**SMF Data Field Offset**
EXTAPI_LIP	EXTAPI_LIP	28-31
EXTAPI_LIP1	EXTAPI_LIP1	28-28
EXTAPI_LIP2	EXTAPI_LIP2	29-29
EXTAPI_LIP3	EXTAPI_LIP3	30-30
EXTAPI_LIP4	EXTAPI_LIP4	31-31
EXTAPI_FIP	EXTAPI_FIP	32-35
EXTAPI_FIP1	EXTAPI_FIP1	32-32
EXTAPI_FIP2	EXTAPI_FIP2	33-33
EXTAPI_FIP3	EXTAPI_FIP3	34-34
EXTAPI_FIP4	EXTAPI_FIP4	35-35
EXTAPI_LPT	EXTAPI_LPT	36-37
EXTAPI_FPT	EXTAPI_FPT	38-39
EXTAPI_BIN	EXTAPI_BIN	40-43
EXTAPI_BOT	EXTAPI_BOT	44-47
EXTAPI_STM	EXTAPI_STM	6-9
EXTAPI_STD	EXTAPI_STD	10-13
EXTAPI_ETM	EXTAPI_ETM	6-9
EXTAPI_ETD	EXTAPI_ETD	10-13

EXTDATA Record Type - SFTP

The MRXTFTP and MZXTFTP record definitions define the EXTDATA records created by CA JARS from SMF record 118, FTP Server.

CA Earl MRXTFTP	CA Easytrieve MZXTFTP	SMF Data Field Offset
EXTFTP_CMD	EXTFTP_CMD	24-27
EXTFTP_REP	EXTFTP_REP	28-31
EXTFTP_CIP	EXTFTP_CIP	32-35
EXTFTP_CIP1	EXTFTP_CIP1	32-32
EXTFTP_CIP2	EXTFTP_CIP2	33-33
EXTFTP_CIP3	EXTFTP_CIP3	34-34
EXTFTP_CIP4	EXTFTP_CIP4	35-35
EXTFTP_SIP	EXTFTP_SIP	36-39
EXTFTP_SIP1	EXTFTP_SIP1	36-36
EXTFTP_SIP2	EXTFTP_SIP2	37-37
EXTFTP_SIP3	EXTFTP_SIP3	38-38
EXTFTP_SIP4	EXTFTP_SIP4	39-39
EXTFTP_CPT	EXTFTP_CPT	206-207
EXTFTP_SPT	EXTFTP_SPT	204-205
EXTFTP_RUS	EXTFTP_RUS	196-203
EXTFTP_DFM	EXTFTP_DFM	56
EXTFTP_TMD	EXTFTP_TMD	57
EXTFTP_DST	EXTFTP_DST	59
EXTFTP_STM	EXTFTP_STM	60-63
EXTFTP_ETM	EXTFTP_ETM	64-67
EXTFTP_BYT	EXTFTP_BYT	68-71
EXTFTP_COS	EXTFTP_COS	72
EXTFTP_DS1	EXTFTP_DS1	76-119
EXTFTP_PD1	EXTFTP_PD1	120-127
EXTFTP_ABI	EXTFTP_ABI	128-135
EXTFTP_DS2	EXTFTP_DS2	136-179

CA Earl MRXTFTP	CA Easytrieve MZXTFTP	SMF Data Field Offset
EXTFTP_PD2	EXTFTP_PD2	180-187
EXTFTP_STC	EXTFTP_STC	188-195
EXTFTP_NJE	EXTFTP_NJE	196-203
EXTFTP_STD	EXTFTP_STD	10-13
EXTFTP_EDT	EXTFTP_EDT	10-13

EXTDATA Record Type - SSNA

For a complete description of each SMF data field offset listed in the third column, refer to the *IBM System Management Facilities (SMF) Guide.*

The MRXTRJE and MZXTRJE record definitions define the EXTDATA records created by CA JARS from SMF record types 47-49 and 52-54, RJE, SNA/BSC.

This EXTDATA record can be used for accounting and chargeback. Its associated IRD/ORD is SNA. The IRD/ORD field names are in the table below.

CA Earl MRXTRJE	CA Easytrieve MZXTRJE	SMF Data Field	IRD/ORD Field Name
EXTRJE_LINE	EXTRJE_LINE	SMF48LIN	LINE NAME
EXTRJE_EXCP	EXTRJE_EXCP	SMF48IO	
EXTRJE_NAKS	EXTRJE_NAKS	SMF48NAK	
EXTRJE_DATA	EXTRJE_DATA	SMF48DCK	
EXTRJE_TIME	EXTRJE_TIME	SMF48OUT	
EXTRJE_ERRS	EXTRJE_ERRS	SMF48ERR	
EXTRJE_PASS	EXTRJE_PASS	SMF48PSW	PASSWORD
EXTRJE_SYS	EXTRJE_SYS	SMF48SID	SYSID
EXTRJE_RMT	EXTRJE_RMT	SMF48RMT	REMOTE NAME
EXTRJE_TYPE	EXTRJE_TYPE	Set by CA JARS SNA/BSC	
EXTRJE_SDAT	EXTRJE_SDAT	SMF48TME	
EXTRJE_STIM	EXTRJE_STIM	SMF48DTE	
EXTRJE_EDAT	EXTRJE_EDAT	Set by CA JARS	
EXTRJE_ETIM	EXTRJE_ETIM	Set by CA JARS	

EXTDATA Record Type - STEL

For a complete description of each SMF data field offset listed in the third column, refer to theTelnet Server SMF Record Format in the *IBM TCP/IP Customization and Administration Guide.*

The MRXTTEL and MZXTTEL record definitions define the EXTDATA records created by CA JARS from SMF record 118, Telnet Calls Client and Server.

CA Earl MRXTTEL	**CA Easytrieve MZXTTEL**	**SMF Data Field Offset**
EXTTEL_LU	EXTTEL_LU	28-35
EXTTEL_APP	EXTTEL_APP	36-43
EXTTEL_LDA	EXTTEL_LDA	44-47
EXTTEL_RPT	EXTTEL_RPT	90-91
EXTTEL_LPT	EXTTEL_LPT	92-93
EXTTEL_RIP	EXTTEL_RIP	48-51
EXTTEL_RIP1	EXTTEL_RIP1	48-48
EXTTEL_RIP2	EXTTEL_RIP2	49-49
EXTTEL_RIP3	EXTTEL_RIP3	50-50
EXTTEL_RIP4	EXTTEL_RIP4	51-51
EXTTEL_LIP	EXTTEL_LIP	52-55
EXTTEL_LIP1	EXTTEL_LIP1	52-52
EXTTEL_LIP2	EXTTEL_LIP2	53-53
EXTTEL_LIP3	EXTTEL_LIP3	54-54
EXTTEL_LIP4	EXTTEL_LIP4	55-55
EXTTEL_STC	EXTTEL_STC	56-63
EXTTEL_NJE	EXTTEL_NJE	64-71
EXTTEL_BIN	EXTTEL_BIN	74-77
EXTTEL_BOT	EXTTEL_BOT	78-81
EXTTEL_STM	EXTTEL_STM	82-85
EXTTEL_FL1	EXTTEL_FL1	Reserved
EXTTEL_STD	EXTTEL_STD	86-89
EXTTEL_ETM	EXTTEL_ETM	82-85

CA Earl MRXTTEL	CA Easytrieve MZXTTEL	SMF Data Field Offset
EXTTEL_FL2	EXTTEL_FL2	Reserved
EXTTEL_ETD	EXTTEL_ETD	86-89

EXTDATA Record Type - VTS1

The MRXT094A and MZXT094A record definitions define the EXTDATA created by CA JARS from SMF type 94, subtype 1 records, IBM Tape Library Dataserver Statistics.

For details about monitoring and reporting on VTS, see the *IBM TotalStorage Virtual Tape Server: Planning, Implementing, and Monitoring* (SG24-2229).

Additional information on the contents of SMF type 94 subtype 1 records can be found by assembling the SMF mapping macro, as in this example:

```
RECMAP   DSECT
         IFASMFR 94
         END
```

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_SUBSYS	SMFRCD94	SMF94WID
EXT94A_HSF	SMF94HDR	SMF94HSF
EXT94A_HHI	SMF94HDR	SMF94HHI
Self-Description Section		
EXT94A_SLT	SMF94SLF	SMF94SLT
EXT94A_SLM	SMF94SLF	SMF94SLM
EXT94A_SMA	SMF94SLF	SMF94SMA
EXT94A_SPL	SMF94SLF	SMF94SPL
EXT94A_SNO	SMF94SLF	SMF94SNO
EXT94A_RSV01	SMF94SLF	reserved
Library Statistics		
EXT94A_LID	SMF94LIB	SMF94LID
EXT94A_LMD	SMF94LIB	SMF94LMD
EXT94A_LM1	SMF94LIB	SMF94LM1
EXT94A_LM2	SMF94LIB	SMF94LM2

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_LM3	SMF94LIB	SMF94LM3
EXT94A_LT1	SMF94LIB	SMF94LT1
EXT94A_LT2	SMF94LIB	SMF94LT2
EXT94A_LT3	SMF94LIB	SMF94LT3
Mount Statistics		
EXT94A_MPR	SMF94MNT	SMF94MPR
EXT94A_MP1	SMF94MNT	SMF94MP1
EXT94A_MP2	SMF94MNT	SMF94MP2
EXT94A_MP3	SMF94MNT	SMF94MP3
EXT94A_MTO	SMF94MNT	SMF94MTO
EXT94A_MIN	SMF94MNT	SMF94MIN
EXT94A_MPM	SMF94MNT	SMF94MPM
EXT94A_MT1	SMF94MNT	SMF94MT1
EXT94A_MT2	SMF94MNT	SMF94MT2
EXT94A_MT3	SMF94MNT	SMF94MT3
Demount Statistics		
EXT94A_DPR	SMF94DMT	SMF94DPR
EXT94A_DP1	SMF94DMT	SMF94DP1
EXT94A_DP2	SMF94DMT	SMF94DP2
EXT94A_DP3	SMF94DMT	SMF94DP3
EXT94A_DTO	SMF94DMT	SMF94DTO
EXT94A_DIN	SMF94DMT	SMF94DIN
EXT94A_DPM	SMF94DMT	SMF94DPM
EXT94A_DT1	SMF94DMT	SMF94DT1
EXT94A_DT2	SMF94DMT	SMF94DT2
EXT94A_DT3	SMF94DMT	SMF94DT3
Eject Statistics		
EXT94A_EPR	SMF94EJT	SMF94EPR
EXT94A_EP1	SMF94EJT	SMF94EP1
EXT94A_EP2	SMF94EJT	SMF94EP2

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_EP3	SMF94EJT	SMF94EP3
EXT94A_ETO	SMF94EJT	SMF94ETO
EXT94A_ET1	SMF94EJT	SMF94ET1
EXT94A_ET2	SMF94EJT	SMF94ET2
EXT94A_ET3	SMF94EJT	SMF94ET3
Audit Statistics		
EXT94A_APR	SMF94AUD	SMF94APR
EXT94A_AP1	SMF94AUD	SMF94AP1
EXT94A_AP2	SMF94AUD	SMF94AP2
EXT94A_AP3	SMF94AUD	SMF94AP3
EXT94A_ATO	SMF94AUD	SMF94ATO
EXT94A_AT1	SMF94AUD	SMF94AT1
EXT94A_AT2	SMF94AUD	SMF94AT2
EXT94A_AT3	SMF94AUD	SMF94AT3
Insert Statistics		
EXT94A_INS	SMF94INP	SMF94INS
VTS Statistics		
EXT94A_VNO	SMF94VTS	SMF94VNO
EXT94A_VLS	SMF94VTS	SMF94VLS
EXT94A_VTI	SMF94VTS	SMF94VTI
EXT94A_VTA	SMF94VTS	SMF94VTA
EXT94A_VTX	SMF94VTS	SMF94VTX
EXT94A_VTN	SMF94VTS	SMF94VTN
EXT94A_VTV	SMF94VTS	SMF94VTV
EXT94A_VR2	SMF94VTS	SMF94VR2
EXT94A_VMX	SMF94VTS	SMF94VMX
EXT94A_VMN	SMF94VTS	SMF94VMN
EXT94A_VMV	SMF94VTS	SMF94VMV
EXT94A_VPS	SMF94VTS	SMF94VPS
EXT94A_VPM	SMF94VTS	SMF94VPM

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_VPR	SMF94VTS	SMF94VPR
EXT94A_VDC	SMF94VTS	SMF94VDC
EXT94A_VDX	SMF94VTS	SMF94VDX
EXT94A_VDN	SMF94VTS	SMF94VDN
EXT94A_VDA	SMF94VTS	SMF94VDA
EXT94A_VVX	SMF94VTS	SMF94VVX
EXT94A_VVN	SMF94VTS	SMF94VVN
EXT94A_VVA	SMF94VTS	SMF94VVA
EXT94A_VRX	SMF94VTS	SMF94VRX
EXT94A_VRN	SMF94VTS	SMF94VRN
EXT94A_VRA	SMF94VTS	SMF94VRA
EXT94A_VFR	SMF94VTS	SMF94VFR
EXT94A_VMH	SMF94VTS	SMF94VMH
EXT94A_VMS	SMF94VTS	SMF94VMS
EXT94A_VMP	SMF94VTS	SMF94VMP
EXT94A_VBW	SMF94VTS	SMF94VBW
EXT94A_VBR	SMF94VTS	SMF94VBR
EXT94A_VTW	SMF94VTS	SMF94VTW
EXT94A_VTR	SMF94VTS	SMF94VTR
EXT94A_VCA	SMF94VTS	SMF94VCA
EXT94A_VCZ	SMF94VTS	SMF94VCZ
EXT94A_VNM	SMF94VTS	SMF94VNM
EXT94A_VR3	SMF94VTS	SMF94VR3
EXT94A_VBA	SMF94VTS	SMF94VBA
EXT94A_VLA	SMF94VTS	SMF94VLA
EXT94A_VEC	SMF94VTS	SMF94VEC
Import/Export Statistics		
EXT94A_IM1	SMF94X00	SMF94IM1
EXT94A_EX1	SMF94X00	SMF94EX1
EXT94A_IM2	SMF94X00	SMF94IM2

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_EX2	SMF94X00	SMF94EX2
EXT94A_IM3	SMF94X00	SMF94IM3
EXT94A_EX3	SMF94X00	SMF94EX3
EXT94A_IM4	SMF94X00	SMF94IM4
EXT94A_EX4	SMF94X00	SMF94EX4
EXT94A_RSV02	SMF94X00	reserved
EXT94A_RSV03	SMF94X00	reserved
EXT94A_ACA	SMF94X00	SMF94ACA
EXT94A_ACB	SMF94X00	SMF94ACB
EXT94A_RSV04	SMF94X00	reserved
VTS Enhanced Statistics		
EXT94A_BSRAT	S94STATS	S94BSRAT
EXT94A_HARAT	S94STATS	S94HARAT
EXT94A_TVCS	S94STATS	S94TVCS
EXT94A_ESCON	S94STATS	S94ESCON
EXT94A_SCSI	S94STATS	S94SCSI
EXT94A_NUMBS	S94STATS	S94NUMBS
EXT94A_0KB	S94STATS	S940KB
EXT94A_2KB	S94STATS	S942KB
EXT94A_4KB	S94STATS	S944KB
EXT94A_8KB	S94STATS	S948KB
EXT94A_16KB	S94STATS	S9416KB
EXT94A_32KB	S94STATS	S9432KB
EXT94A_64KB	S94STATS	S9464KB
EXT94A_RCPRT	S94STATS	S94RCPRT
EXT94A_WROVPRT	S94STATS	S94WROVT
EXT94A_RSV05	S94STATS	reserved
EXT94A_AVRCT	S94STATS	S94AVRCT
EXT94A_AVWROVT	S94STATS	S94AVWOT
EXT94A_RSV06	S94STATS	reserved

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_TOTAT	S94STATS	S94TOTAT
EXT94A_MAXFR	S94STATS	S94MAXFR
EXT94A_MINFR	S94STATS	S94MINFR
EXT94A_AVGFR	S94STATS	S94AVGFR
EXT94A_MAXCH	S94STATS	S94MAXCH
EXT94A_MINCH	S94STATS	S94MINCH
EXT94A_AVGCH	S94STATS	S94AVGCH
EXT94A_MAXRM	S94STATS	S94MAXRM
EXT94A_MINRM	S94STATS	S94MINRM
EXT94A_AVGRM	S94STATS	S94AVGRM
EXT94A_ADV05	S94STATS	S94ADV05
EXT94A_ADV10	S94STATS	S94ADV10
EXT94A_ADV15	S94STATS	S94ADV15
EXT94A_ADV20	S94STATS	S94ADV20
EXT94A_ADV25	S94STATS	S94ADV25
EXT94A_ADV30	S94STATS	S94ADV30
EXT94A_ADV35	S94STATS	S94ADV35
EXT94A_ADV40	S94STATS	S94ADV40
EXT94A_ADV45	S94STATS	S94ADV45
EXT94A_ADV50	S94STATS	S94ADV50
EXT94A_ADV55	S94STATS	S94ADV55
EXT94A_ADV60	S94STATS	S94ADV60
EXT94A_ADV65	S94STATS	S94ADV65
EXT94A_ADV70	S94STATS	S94ADV70
EXT94A_ADV75	S94STATS	S94ADV75
EXT94A_ADV80	S94STATS	S94ADV80
EXT94A_ADV85	S94STATS	S94ADV85
EXT94A_ADV90	S94STATS	S94ADV90
EXT94A_ADV95	S94STATS	S94ADV95
EXT94A_ADV00	S94STATS	S94ADV00

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_THRES	S94STATS	S94THRES
EXT94A_RSV07	S94STATS	reserved
EXT94A_SRTCT	S94STATS	S94SRTCT
EXT94A_PRICT	S94STATS	S94PRICT
EXT94A_MTVCA	S94STATS	S94MTVCA
EXT94A_CMGTS	S94STATS	S94CMGTS
EXT94A_RSV08	S94STATS	reserved
EXT94A_LVVCM	S94STATS	S94LVVCM
EXT94A_LVVCF	S94STATS	S94LVVCF
EXT94A_LVLMV	S94STATS	S94LVLMV
EXT94A_LVLMR	S94STATS	S94LVLMR
EXT94A_RSV11	S94STATS	reserved
EXT94A_RSV12	S94STATS	reserved
EXT94A_CLLVC	S94STATS	S94CLLVC
EXT94A_CLDTC	S94STATS	S94CLDTC
EXT94A_CLMT0	S94STATS	S94CLMT0
EXT94A_CLMT1	S94STATS	S94CLMT1
EXT94A_RSV13	S94STATS	reserved
EXT94A_CLDC0	S94STATS	S94CLDC0
EXT94A_CLVC0	S94STATS	S94CLVC0
EXT94A_CLRD0	S94STATS	S94CLRD0
EXT94A_CLWD0	S94STATS	S94CLWD0
EXT94A_CLCM0	S94STATS	S94CLCM0
EXT94A_CLSM0	S94STATS	S94CLSM0
EXT94A_CLRM0	S94STATS	S94CLRM0
EXT94A_CLCR0	S94STATS	S94CLCR0
EXT94A_CLPF0	S94STATS	S94CLPF0
EXT94A_CLCS0	S94STATS	S94CLCS0
EXT94A_CLRL0	S94STATS	S94CLRL0
EXT94A_RSV16	S94STATS	reserved

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_CLDC1	S94STATS	S94CLDC1
EXT94A_CLVC1	S94STATS	S94CLVC1
EXT94A_CLRD1	S94STATS	S94CLRD1
EXT94A_CLWD1	S94STATS	S94CLWD1
EXT94A_CLCM1	S94STATS	S94CLCM1
EXT94A_CLSM1	S94STATS	S94CLSM1
EXT94A_CLRM1	S94STATS	S94CLRM1
EXT94A_CLCR1	S94STATS	S94CLCR1
EXT94A_CLPF1	S94STATS	S94CLPF1
EXT94A_CLCS1	S94STATS	S94CLCS1
EXT94A_CLRL1	S94STATS	S94CLRL1
EXT94A_RSV19	S94STATS	reserved
EXT94A_CLDC2	S94STATS	S94CLDC2
EXT94A_CLVC2	S94STATS	S94CLVC2
EXT94A_CLRD2	S94STATS	S94CLRD2
EXT94A_CLWD2	S94STATS	S94CLWD2
EXT94A_CLCM2	S94STATS	S94CLCM2
EXT94A_CLSM2	S94STATS	S94CLSM2
EXT94A_CLRM2	S94STATS	S94CLRM2
EXT94A_CLCR2	S94STATS	S94CLCR2
EXT94A_CLPF2	S94STATS	S94CLPF2
EXT94A_CLCS2	S94STATS	S94CLCS2
EXT94A_CLRL2	S94STATS	S94CLRL2
EXT94A_RSV22	S94STATS	reserved
EXT94A_CLDC3	S94STATS	S94CLDC3
EXT94A_CLVC3	S94STATS	S94CLVC3
EXT94A_CLRD3	S94STATS	S94CLRD3
EXT94A_CLWD3	S94STATS	S94CLWD3
EXT94A_CLCM3	S94STATS	S94CLCM3
EXT94A_CLSM3	S94STATS	S94CLSM3

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_CLRM3	S94STATS	S94CLRM3
EXT94A_CLCR3	S94STATS	S94CLCR3
EXT94A_CLPF3	S94STATS	S94CLPF3
EXT94A_CLCS3	S94STATS	S94CLCS3
EXT94A_CLRL3	S94STATS	S94CLRL3
EXT94A_RSV25	S94STATS	reserved
EXT94A_CLDC4	S94STATS	S94CLDC4
EXT94A_CLVC4	S94STATS	S94CLVC4
EXT94A_CLRD4	S94STATS	S94CLRD4
EXT94A_CLWD4	S94STATS	S94CLWD4
EXT94A_CLCM4	S94STATS	S94CLCM4
EXT94A_CLSM4	S94STATS	S94CLSM4
EXT94A_CLRM4	S94STATS	S94CLRM4
EXT94A_CLCR4	S94STATS	S94CLCR4
EXT94A_CLPF4	S94STATS	S94CLPF4
EXT94A_CLCS4	S94STATS	S94CLCS4
EXT94A_CLRL4	S94STATS	S94CLRL4
EXT94A_RSV28	S94STATS	reserved
EXT94A_CLDC5	S94STATS	S94CLDC5
EXT94A_CLVC5	S94STATS	S94CLVC5
EXT94A_CLRD5	S94STATS	S94CLRD5
EXT94A_CLWD5	S94STATS	S94CLWD5
EXT94A_CLCM5	S94STATS	S94CLCM5
EXT94A_CLSM5	S94STATS	S94CLSM5
EXT94A_CLRM5	S94STATS	S94CLRM5
EXT94A_CLCR5	S94STATS	S94CLCR5
EXT94A_CLPF5	S94STATS	S94CLPF5
EXT94A_CLCS5	S94STATS	S94CLCS5
EXT94A_CLRL5	S94STATS	S94CLRL5
EXT94A_RSV31	S94STATS	reserved

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_CLDC6	S94STATS	S94CLDC6
EXT94A_CLVC6	S94STATS	S94CLVC6
EXT94A_CLRD6	S94STATS	S94CLRD6
EXT94A_CLWD6	S94STATS	S94CLWD6
EXT94A_CLCM6	S94STATS	S94CLCM6
EXT94A_CLSM6	S94STATS	S94CLSM6
EXT94A_CLRM6	S94STATS	S94CLRM6
EXT94A_CLCR6	S94STATS	S94CLCR6
EXT94A_CLPF6	S94STATS	S94CLPF6
EXT94A_CLCS6	S94STATS	S94CLCS6
EXT94A_CLRL6	S94STATS	S94CLRL6
EXT94A_RSV34	S94STATS	reserved
EXT94A_CLDC7	S94STATS	S94CLDC7
EXT94A_CLVC7	S94STATS	S94CLVC7
EXT94A_CLRD7	S94STATS	S94CLRD7
EXT94A_CLWD7	S94STATS	S94CLWD7
EXT94A_CLCM7	S94STATS	S94CLCM7
EXT94A_CLSM7	S94STATS	S94CLSM7
EXT94A_CLRM7	S94STATS	S94CLRM7
EXT94A_CLCR7	S94STATS	S94CLCR7
EXT94A_CLPF7	S94STATS	S94CLPF7
EXT94A_CLCS7	S94STATS	S94CLCS7
EXT94A_CLRL7	S94STATS	S94CLRL7
EXT94A_RSV37	S94STATS	reserved
EXT94A_CMVVTC0	S94STATS	S94CMV_VTC0
EXT94A_CFVVTC0	S94STATS	S94CFV_VTC0
EXT94A_CMVVTC1	S94STATS	S94CMV_VTC1
EXT94A_CFVVTC1	S94STATS	S94CFV_VTC1
EXT94A_CMVVTC2	S94STATS	S94CMV_VTC2
EXT94A_CFVVTC2	S94STATS	S94CFV_VTC2

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_CMVVTC3	S94STATS	S94CMV_VTC3
EXT94A_CFVVTC3	S94STATS	S94CFV_VTC3
EXT94A_CMVVTC4	S94STATS	S94CMV_VTC4
EXT94A_CFVVTC4	S94STATS	S94CFV_VTC4
EXT94A_CMVVTC5	S94STATS	S94CMV_VTC5
EXT94A_CFVVTC5	S94STATS	S94CFV_VTC5
EXT94A_CMVVTC6	S94STATS	S94CMV_VTC6
EXT94A_CFVVTC6	S94STATS	S94CFV_VTC6
EXT94A_CMVVTC7	S94STATS	S94CMV_VTC7
EXT94A_CFVVTC7	S94STATS	S94CFV_VTC7
EXT94A_RSV38	S94STATS	reserved
EXT94A_PMVDC	S94STATS	S94OPM_VDC
EXT94A_MAXVDM	S94STATS	S94OPM_MAXVDM
EXT94A_MINVDM	S94STATS	S94OPM_MINVDM
EXT94A_AVGVDM	S94STATS	S94OPM_AVGVDM
EXT94A_RSV38A	S94STATS	reserved
EXT94A_DCI1	S94STATS	S94OPM_DCI1
EXT94A_PDI1	S94STATS	S94OPM_PDI1
EXT94A_CAFU1	S94STATS	S94OPM_CAFU1
EXT94A_MAXCM1	S94STATS	S94OPM_MAXCM1
EXT94A_MINCM1	S94STATS	S94OPM_MINCM1
EXT94A_AVGCM1	S94STATS	S94OPM_AVGCM1
EXT94A_MAXTTM1	S94STATS	S94OPM_MAXTTM1
EXT94A_MINTTM1	S94STATS	S94OPM_MINTTM1
EXT94A_AVGTTM1	S94STATS	S94OPM_AVGTTM1
EXT94A_STGMNTS1	S94STATS	S94OPM_STGMNTS1
EXT94A_MIGMNTS1	S94STATS	S94OPM_MIGMNTS1
EXT94A_RECMNTS1	S94STATS	S94OPM_RECMNTS1
EXT94A_SDEMNTS1	S94STATS	S94OPM_SDEMNTS1
EXT94A_PPWRITN1	S94STATS	S94OPM_PPWRITN1

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_SPWRITN1	S94STATS	S94OPM_SPWRITN1
EXT94A_RSV40	S94STATS	reserved
EXT94A_DCI2	S94STATS	S94OPM_DCI2
EXT94A_PDI2	S94STATS	S94OPM_PDI2
EXT94A_CAFU2	S94STATS	S94OPM_CAFU2
EXT94A_MAXCM2	S94STATS	S94OPM_MAXCM2
EXT94A_MINCM2	S94STATS	S94OPM_MINCM2
EXT94A_AVGCM2	S94STATS	S94OPM_AVGCM2
EXT94A_MAXTTM2	S94STATS	S94OPM_MAXTTM2
EXT94A_MINTTM2	S94STATS	S94OPM_MINTTM2
EXT94A_AVGTTM2	S94STATS	S94OPM_AVGTTM2
EXT94A_STGMNTS2	S94STATS	S94OPM_STGMNTS2
EXT94A_MIGMNTS2	S94STATS	S94OPM_MIGMNTS2
EXT94A_RECMNTS2	S94STATS	S94OPM_RECMNTS2
EXT94A_SDEMNTS2	S94STATS	S94OPM_SDEMNTS2
EXT94A_PPWRITN2	S94STATS	S94OPM_PPWRITN2
EXT94A_SPWRITN2	S94STATS	S94OPM_SPWRITN2
EXT94A_RSV42	S94STATS	reserved
EXT94A_1PMC	S94OPM_ARRAY	S94OPM_PMC
EXT94A_1VVIC	S94OPM_ARRAY	S94OPM_VVIC
EXT94A_1DRIC	S94OPM_ARRAY	S94OPM_DRIC
EXT94A_1TVCA4	S94OPM_ARRAY	S94OPM_TVCA4
EXT94A_1VM4	S94OPM_ARRAY	S94OPM_VM4
EXT94A_1TVCA48	S94OPM_ARRAY	S94OPM_TVCA48
EXT94A_1VM48	S94OPM_ARRAY	S94OPM_VM48
EXT94A_1TVCA35	S94OPM_ARRAY	S94OPM_TVCA35
EXT94A_1VM35	S94OPM_ARRAY	S94OPM_VM35
EXT94A_1FRMT	S94OPM_ARRAY	S94OPM_FRMT
EXT94A_1FRMNTS	S94OPM_ARRAY	S94OPM_FRMNTS
EXT94A_1CHTIME	S94OPM_ARRAY	S94OPM_CHTIME

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_1CHMNTS	S94OPM_ARRAY	S94OPM_CHMNTS
EXT94A_1CMTIME	S94OPM_ARRAY	S94OPM_CMTIME
EXT94A_1CMMNTS	S94OPM_ARRAY	S94OPM_CMMNTS
EXT94A_1ARSV04	S94OPM_ARRAY	reserved
EXT94A_1ARSV05	S94OPM_ARRAY	reserved
EXT94A_1ARSV06	S94OPM_ARRAY	reserved
EXT94A_1ARSV07	S94OPM_ARRAY	reserved
EXT94A_2PMC	S94OPM_ARRAY	S94OPM_PMC
EXT94A_2VVIC	S94OPM_ARRAY	S94OPM_VVIC
EXT94A_2DRIC	S94OPM_ARRAY	S94OPM_DRIC
EXT94A_2TVCA4	S94OPM_ARRAY	S94OPM_TVCA4
EXT94A_2VM4	S94OPM_ARRAY	S94OPM_VM4
EXT94A_2TVCA48	S94OPM_ARRAY	S94OPM_TVCA48
EXT94A_2VM48	S94OPM_ARRAY	S94OPM_VM48
EXT94A_2TVCA35	S94OPM_ARRAY	S94OPM_TVCA35
EXT94A_2VM35	S94OPM_ARRAY	S94OPM_VM35
EXT94A_2FRMT	S94OPM_ARRAY	S94OPM_FRMT
EXT94A_2FRMNTS	S94OPM_ARRAY	S94OPM_FRMNTS
EXT94A_2CHTIME	S94OPM_ARRAY	S94OPM_CHTIME
EXT94A_2CHMNTS	S94OPM_ARRAY	S94OPM_CHMNTS
EXT94A_2CMTIME	S94OPM_ARRAY	S94OPM_CMTIME
EXT94A_2CMMNTS	S94OPM_ARRAY	S94OPM_CMMNTS
EXT94A_2ARSV04	S94OPM_ARRAY	reserved
EXT94A_2ARSV05	S94OPM_ARRAY	reserved
EXT94A_2ARSV06	S94OPM_ARRAY	reserved
EXT94A_2ARSV07	S94OPM_ARRAY	reserved
EXT94A_3PMC	S94OPM_ARRAY	S94OPM_PMC
EXT94A_3VVIC	S94OPM_ARRAY	S94OPM_VVIC
EXT94A_3DRIC	S94OPM_ARRAY	S94OPM_DRIC
EXT94A_3TVCA4	S94OPM_ARRAY	S94OPM_TVCA4

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_3VM4	S94OPM_ARRAY	S94OPM_VM4
EXT94A_3TVCA48	S94OPM_ARRAY	S94OPM_TVCA48
EXT94A_3VM48	S94OPM_ARRAY	S94OPM_VM48
EXT94A_3TVCA35	S94OPM_ARRAY	S94OPM_TVCA35
EXT94A_3VM35	S94OPM_ARRAY	S94OPM_VM35
EXT94A_3FRMT	S94OPM_ARRAY	S94OPM_FRMT
EXT94A_3FRMNTS	S94OPM_ARRAY	S94OPM_FRMNTS
EXT94A_3CHTIME	S94OPM_ARRAY	S94OPM_CHTIME
EXT94A_3CHMNTS	S94OPM_ARRAY	S94OPM_CHMNTS
EXT94A_3CMTIME	S94OPM_ARRAY	S94OPM_CMTIME
EXT94A_3CMMNTS	S94OPM_ARRAY	S94OPM_CMMNTS
EXT94A_3ARSV04	S94OPM_ARRAY	reserved
EXT94A_3ARSV05	S94OPM_ARRAY	reserved
EXT94A_3ARSV06	S94OPM_ARRAY	reserved
EXT94A_3ARSV07	S94OPM_ARRAY	reserved
EXT94A_4PMC	S94OPM_ARRAY	S94OPM_PMC
EXT94A_4VVIC	S94OPM_ARRAY	S94OPM_VVIC
EXT94A_4DRIC	S94OPM_ARRAY	S94OPM_DRIC
EXT94A_4TVCA4	S94OPM_ARRAY	S94OPM_TVCA4
EXT94A_4VM4	S94OPM_ARRAY	S94OPM_VM4
EXT94A_4TVCA48	S94OPM_ARRAY	S94OPM_TVCA48
EXT94A_4VM48	S94OPM_ARRAY	S94OPM_VM48
EXT94A_4TVCA35	S94OPM_ARRAY	S94OPM_TVCA35
EXT94A_4VM35	S94OPM_ARRAY	S94OPM_VM35
EXT94A_4FRMT	S94OPM_ARRAY	S94OPM_FRMT
EXT94A_4FRMNTS	S94OPM_ARRAY	S94OPM_FRMNTS
EXT94A_4CHTIME	S94OPM_ARRAY	S94OPM_CHTIME
EXT94A_4CHMNTS	S94OPM_ARRAY	S94OPM_CHMNTS
EXT94A_4CMTIME	S94OPM_ARRAY	S94OPM_CMTIME
EXT94A_4CMMNTS	S94OPM_ARRAY	S94OPM_CMMNTS

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_4ARSV04	S94OPM_ARRAY	reserved
EXT94A_4ARSV05	S94OPM_ARRAY	reserved
EXT94A_4ARSV06	S94OPM_ARRAY	reserved
EXT94A_4ARSV07	S94OPM_ARRAY	reserved
EXT94A_5PMC	S94OPM_ARRAY	S94OPM_PMC
EXT94A_5VVIC	S94OPM_ARRAY	S94OPM_VVIC
EXT94A_5DRIC	S94OPM_ARRAY	S94OPM_DRIC
EXT94A_5TVCA4	S94OPM_ARRAY	S94OPM_TVCA4
EXT94A_5VM4	S94OPM_ARRAY	S94OPM_VM4
EXT94A_5TVCA48	S94OPM_ARRAY	S94OPM_TVCA48
EXT94A_5VM48	S94OPM_ARRAY	S94OPM_VM48
EXT94A_5TVCA35	S94OPM_ARRAY	S94OPM_TVCA35
EXT94A_5VM35	S94OPM_ARRAY	S94OPM_VM35
EXT94A_5FRMT	S94OPM_ARRAY	S94OPM_FRMT
EXT94A_5FRMNTS	S94OPM_ARRAY	S94OPM_FRMNTS
EXT94A_5CHTIME	S94OPM_ARRAY	S94OPM_CHTIME
EXT94A_5CHMNTS	S94OPM_ARRAY	S94OPM_CHMNTS
EXT94A_5CMTIME	S94OPM_ARRAY	S94OPM_CMTIME
EXT94A_5CMMNTS	S94OPM_ARRAY	S94OPM_CMMNTS
EXT94A_5ARSV04	S94OPM_ARRAY	reserved
EXT94A_5ARSV05	S94OPM_ARRAY	reserved
EXT94A_5ARSV06	S94OPM_ARRAY	reserved
EXT94A_5ARSV07	S94OPM_ARRAY	reserved
EXT94A_6PMC	S94OPM_ARRAY	S94OPM_PMC
EXT94A_6VVIC	S94OPM_ARRAY	S94OPM_VVIC
EXT94A_6DRIC	S94OPM_ARRAY	S94OPM_DRIC
EXT94A_6TVCA4	S94OPM_ARRAY	S94OPM_TVCA4
EXT94A_6VM4	S94OPM_ARRAY	S94OPM_VM4
EXT94A_6TVCA48	S94OPM_ARRAY	S94OPM_TVCA48
EXT94A_6VM48	S94OPM_ARRAY	S94OPM_VM48

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_6TVCA35	S94OPM_ARRAY	S94OPM_TVCA35
EXT94A_6VM35	S94OPM_ARRAY	S94OPM_VM35
EXT94A_6FRMT	S94OPM_ARRAY	S94OPM_FRMT
EXT94A_6FRMNTS	S94OPM_ARRAY	S94OPM_FRMNTS
EXT94A_6CHTIME	S94OPM_ARRAY	S94OPM_CHTIME
EXT94A_6CHMNTS	S94OPM_ARRAY	S94OPM_CHMNTS
EXT94A_6CMTIME	S94OPM_ARRAY	S94OPM_CMTIME
EXT94A_6CMMNTS	S94OPM_ARRAY	S94OPM_CMMNTS
EXT94A_6ARSV04	S94OPM_ARRAY	reserved
EXT94A_6ARSV05	S94OPM_ARRAY	reserved
EXT94A_6ARSV06	S94OPM_ARRAY	reserved
EXT94A_6ARSV07	S94OPM_ARRAY	reserved
EXT94A_7PMC	S94OPM_ARRAY	S94OPM_PMC
EXT94A_7VVIC	S94OPM_ARRAY	S94OPM_VVIC
EXT94A_7DRIC	S94OPM_ARRAY	S94OPM_DRIC
EXT94A_7TVCA4	S94OPM_ARRAY	S94OPM_TVCA4
EXT94A_7VM4	S94OPM_ARRAY	S94OPM_VM4
EXT94A_7TVCA48	S94OPM_ARRAY	S94OPM_TVCA48
EXT94A_7VM48	S94OPM_ARRAY	S94OPM_VM48
EXT94A_7TVCA35	S94OPM_ARRAY	S94OPM_TVCA35
EXT94A_7VM35	S94OPM_ARRAY	S94OPM_VM35
EXT94A_7FRMT	S94OPM_ARRAY	S94OPM_FRMT
EXT94A_7FRMNTS	S94OPM_ARRAY	S94OPM_FRMNTS
EXT94A_7CHTIME	S94OPM_ARRAY	S94OPM_CHTIME
EXT94A_7CHMNTS	S94OPM_ARRAY	S94OPM_CHMNTS
EXT94A_7CMTIME	S94OPM_ARRAY	S94OPM_CMTIME
EXT94A_7CMMNTS	S94OPM_ARRAY	S94OPM_CMMNTS
EXT94A_7ARSV04	S94OPM_ARRAY	reserved
EXT94A_7ARSV05	S94OPM_ARRAY	reserved
EXT94A_7ARSV06	S94OPM_ARRAY	reserved

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94A_7ARSV07	S94OPM_ARRAY	reserved
EXT94A_8PMC	S94OPM_ARRAY	S94OPM_PMC
EXT94A_8VVIC	S94OPM_ARRAY	S94OPM_VVIC
EXT94A_8DRIC	S94OPM_ARRAY	S94OPM_DRIC
EXT94A_8TVCA4	S94OPM_ARRAY	S94OPM_TVCA4
EXT94A_8VM4	S94OPM_ARRAY	S94OPM_VM4
EXT94A_8TVCA48	S94OPM_ARRAY	S94OPM_TVCA48
EXT94A_8VM48	S94OPM_ARRAY	S94OPM_VM48
EXT94A_8TVCA35	S94OPM_ARRAY	S94OPM_TVCA35
EXT94A_8VM35	S94OPM_ARRAY	S94OPM_VM35
EXT94A_8FRMT	S94OPM_ARRAY	S94OPM_FRMT
EXT94A_8FRMNTS	S94OPM_ARRAY	S94OPM_FRMNTS
EXT94A_8CHTIME	S94OPM_ARRAY	S94OPM_CHTIME
EXT94A_8CHMNTS	S94OPM_ARRAY	S94OPM_CHMNTS
EXT94A_8CMTIME	S94OPM_ARRAY	S94OPM_CMTIME
EXT94A_8CMMNTS	S94OPM_ARRAY	S94OPM_CMMNTS
EXT94A_8ARSV04	S94OPM_ARRAY	reserved
EXT94A_8ARSV05	S94OPM_ARRAY	reserved
EXT94A_8ARSV06	S94OPM_ARRAY	reserved
EXT94A_8ARSV07	S94OPM_ARRAY	reserved
EXT94A_IARTAFRT	S94STATS	S94OPM_IARTAFRT
EXT94A_IARTFRM	S94STATS	S94OPM_IARTFRM
EXT94A_IARTCHMT	S94STATS	S94OPM_IARTCHMT
EXT94A_IARTCHM	S94STATS	S94OPM_IARTCHM
EXT94A_IARTCMMT	S94STATS	S94OPM_IARTCMMT
EXT94A_IARTCMM	S94STATS	S94OPM_IARTCMM

EXTDATA Record Type - VTS2

The MRXT094B and MZXT094B record definitions define the EXTDATA created by CA JARS from SMF type 94, subtype 2 records, IBM Tape Library Dataserver Statistics - Volume Pool Statistics.

For details about monitoring and reporting on VTS, see the *IBM TotalStorage Virtual Tape Server: Planning, Implementing, and Monitoring* (SG24-2229).

Additional information on the contents of SMF type 94 subtype 2 records can be found by assembling the SMF mapping macro, as in this example:

```
RECMAP   DSECT
         IFASMFR 94
         END
```

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94B_SUBSYS	SMF94S2	SMF94S2_WID
EXT94B_RSVD1	SMF94S2	reserved
EXT94B_LIBID	SMF94S2	SMF94S2_LIBID
EXT94B_RSVD2	SMF94S2	reserved
EXT94B_HHI	SMF94S2	SMF94S2_HHI
EXT94B_LRTD	SMF94S2	SMF94S2_LRTD
EXT94B_MNVP	SMF94S2	SMF94S2_MNVP
EXT94B_RSVD3	SMF94S2	reserved
EXT94B_VPSET	SMF94S2	SMF94S2_VPSET
EXT94B_RSVD4	SMF94S2	reserved
EXT94B_BPMI0	SMF94S2	SMF94S2_BPMI0
EXT94B_BPSVC0	SMF94S2	SMF94S2_BPSVC0
EXT94B_RSVD5	SMF94S2	reserved
EXT94B_BPMI1	SMF94S2	SMF94S2_BPMI1
EXT94B_BPSVC1	SMF94S2	SMF94S2_BPSVC1
EXT94B_RSVD6	SMF94S2	reserved
EXT94B_BPMI2	SMF94S2	SMF94S2_BPMI2
EXT94B_BPSVC2	SMF94S2	SMF94S2_BPSVC2
EXT94B_RSVD7	SMF94S2	reserved

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94B_BPMI3	SMF94S2	SMF94S2_BPMI3
EXT94B_BPSVC3	SMF94S2	SMF94S2_BPSVC3
EXT94B_RSVD8	SMF94S2_ENTRY	reserved
EXT94B_VPN	SMF94S2_ENTRY	SMF94S2_VPN
EXT94B_RSVD9	SMF94S2_ENTRY	reserved
EXT94B_ALVIP	SMF94S2_ENTRY	SMF94S2_ALVIP
EXT94B_ADIVP	SMF94S2_ENTRY	SMF94S2_ADIVP
EXT94B_DWTPLH	SMF94S2_ENTRY	SMF94S2_DWTPLH
EXT94B_PDCI	SMF94S2_ENTRY	SMF94S2_PDCI
EXT94B_MI0	SMF94S2_ENTRY	SMF94S2_MI0
EXT94B_PSSSVC0	SMF94S2_ENTRY	SMF94S2_PSSSVC0
EXT94B_PSPSVC0	SMF94S2_ENTRY	SMF94S2_PSPSVC0
EXT94B_PBSSVC0	SMF94S2_ENTRY	SMF94S2_PBSSVC0
EXT94B_PBPSVC0	SMF94S2_ENTRY	SMF94S2_PBPSVC0
EXT94B_RSVD10	SMF94S2_ENTRY	reserved
EXT94B_MI1	SMF94S2_ENTRY	SMF94S2_MI1
EXT94B_PSSSVC1	SMF94S2_ENTRY	SMF94S2_PSSSVC1
EXT94B_PSPSVC1	SMF94S2_ENTRY	SMF94S2_PSPSVC1
EXT94B_PBSSVC1	SMF94S2_ENTRY	SMF94S2_PBSSVC1
EXT94B_PBPSVC1	SMF94S2_ENTRY	SMF94S2_PBPSVC1
EXT94B_RSVD11	SMF94S2_ENTRY	reserved
EXT94B_AAORD	SMF94S2_ENTRY	SMF94S2_AAORD
EXT94B_MAORD	SMF94S2_ENTRY	SMF94S2_MAORD
EXT94B_AAOFPSV	SMF94S2_ENTRY	SMF94S2_AAOFPSV
EXT94B_MAOFPSV	SMF94S2_ENTRY	SMF94S2_MAOFPSV
EXT94B_RSVD12	SMF94S2_ENTRY	reserved
EXT94B_VPRTP	SMF94S2_ENTRY	SMF94S2_VPRTP
EXT94B_ADD00	SMF94S2_ENTRY	SMF94S2_ADD00
EXT94B_ADD05	SMF94S2_ENTRY	SMF94S2_ADD05
EXT94B_ADD10	SMF94S2_ENTRY	SMF94S2_ADD10

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXT94B_ADD15	SMF94S2_ENTRY	SMF94S2_ADD15
EXT94B_ADD20	SMF94S2_ENTRY	SMF94S2_ADD20
EXT94B_ADD25	SMF94S2_ENTRY	SMF94S2_ADD25
EXT94B_ADD30	SMF94S2_ENTRY	SMF94S2_ADD30
EXT94B_ADD35	SMF94S2_ENTRY	SMF94S2_ADD35
EXT94B_ADD40	SMF94S2_ENTRY	SMF94S2_ADD40
EXT94B_ADD45	SMF94S2_ENTRY	SMF94S2_ADD45
EXT94B_ADD50	SMF94S2_ENTRY	SMF94S2_ADD50
EXT94B_ADD55	SMF94S2_ENTRY	SMF94S2_ADD55
EXT94B_ADD60	SMF94S2_ENTRY	SMF94S2_ADD60
EXT94B_ADD65	SMF94S2_ENTRY	SMF94S2_ADD65
EXT94B_ADD70	SMF94S2_ENTRY	SMF94S2_ADD70
EXT94B_ADD75	SMF94S2_ENTRY	SMF94S2_ADD75
EXT94B_ADD80	SMF94S2_ENTRY	SMF94S2_ADD80
EXT94B_ADD85	SMF94S2_ENTRY	SMF94S2_ADD85
EXT94B_ADD90	SMF94S2_ENTRY	SMF94S2_ADD90
EXT94B_ADD95	SMF94S2_ENTRY	SMF94S2_ADD95
EXT94B_PPP	SMF94S2_ENTRY	SMF94S2_PPP
EXT94B_RSVD13	SMF94S2_ENTRY	reserved
EXT94B_RPN	SMF94S2_ENTRY	SMF94S2_RPN
EXT94B_RSVD14	SMF94S2_ENTRY	reserved
EXT94B_RPDSLA	SMF94S2_ENTRY	SMF94S2_RPDSLA
EXT94B_RPDSLW	SMF94S2_ENTRY	SMF94S2_RPDSLW
EXT94B_RPDSLDI	SMF94S2_ENTRY	SMF94S2_RPDSLDI
EXT94B_RPMADP	SMF94S2_ENTRY	SMF94S2_RPDMADP
EXT94B_RSVD15	SMF94S2_ENTRY	reserved

EXTDATA Record Type - STCT

The MRXT119A and MZXT119A record definitions define the EXTDATA created by CA JARS from SMF type 119 subtype 2 records, TCP connection termination.

For a complete description of each SMF data field listed below, refer to the *z/OS Communications Server IP Configuration Reference* (SC31-8776). Appendix C, "SMF Type 119 Records," gives a detailed description of each field.

Additional information on the contents of SMF type 119 subtype 2 can be found by assembling the SMF mapping macro SYS1.MACLIB(EZASMF77), as in this example:

```
RECMAP   DSECT
         EZASMF77
         END
```

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSTCT_ID_SUBID	SMF119Header	SMF119HDSSI
EXTSTCT_ID_SYSNAME	SMF119Ident	SMF119TI_SYSName
EXTSTCT_ID_SYSPLEX	SMF119Ident	SMF119TI_SysplexName
EXTSTCT_ID_STACK	SMF119Ident	SMF119TI_Stack
EXTSTCT_ID_RELID	SMF119Ident	SMF119TI_ReleaseID
EXTSTCT_ID_COMP	SMF119Ident	SMF119TI_Comp
EXTSTCT_ID_ASNAME	SMF119Ident	SMF119TI_ASName
EXTSTCT_ID_SUSER	SMF119Ident	SMF119TI_UserID
EXTSTCT_ID_RESV1	SMF119Ident	Reserved
EXTSTCT_ID_ASID	SMF119Ident	SMF119TI_ASID
EXTSTCT_ID_REASON	SMF119Ident	SMF119TI_Reason
EXTSTCT_ID_RESV2	SMF119Ident	Reserved
EXTSTCT_SOCKET	SMF119AP_TT	SMF119AP_TTRName
EXTSTCT_CONNID	SMF119AP_TT	SMF119AP_TTConnID
EXTSTCT_SUBTASK	SMF119AP_TT	SMF119AP_TTSubtask
EXTSTCT_STIME	SMF119AP_TT	SMF119AP_TTSTime
EXTSTCT_SDATE	SMF119AP_TT	SMF119AP_TTSDate
EXTSTCT_ETIME	SMF119AP_TT	SMF119AP_TTETime
EXTSTCT_EDATE	SMF119AP_TT	SMF119AP_TTEDate

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSTCT_RIP	SMF119AP_TT	SMF119AP_TTRIP_IPV4
EXTSTCT_RIP1	SMF119AP_TT	SMF119AP_TTRIP_IPV4+0
EXTSTCT_RIP2	SMF119AP_TT	SMF119AP_TTRIP_IPV4+1
EXTSTCT_RIP3	SMF119AP_TT	SMF119AP_TTRIP_IPV4+2
EXTSTCT_RIP4	SMF119AP_TT	SMF119AP_TTRIP_IPV4+3
EXTSTCT_LIP	SMF119AP_TT	SMF119AP_TTLIP_IPV4
EXTSTCT_LIP1	SMF119AP_TT	SMF119AP_TTLIP_IPV4+0
EXTSTCT_LIP2	SMF119AP_TT	SMF119AP_TTLIP_IPV4+1
EXTSTCT_LIP3	SMF119AP_TT	SMF119AP_TTLIP_IPV4+2
EXTSTCT_LIP4	SMF119AP_TT	SMF119AP_TTLIP_IPV4+3
EXTSTCT_REMPORT	SMF119AP_TT	SMF119AP_TTRPort
EXTSTCT_LOCPORT	SMF119AP_TT	SMF119AP_TTLPort
EXTSTCT_BYTESIN	SMF119AP_TT	SMF119AP_TTinBytes
EXTSTCT_BYTESOUT	SMF119AP_TT	SMF119AP_TTOutBytes
EXTSTCT_WSCLOSE	SMF119AP_TT	SMF119AP_TTSWS
EXTSTCT_MXWNDS	SMF119AP_TT	SMF119AP_TTMSWS
EXTSTCT_CONGWS	SMF119AP_TT	SMF119AP_TTCWS
EXTSTCT_SEGSIZE	SMF119AP_TT	SMF119AP_TTSMS
EXTSTCT_RTT	SMF119AP_TT	SMF119AP_TTRTT
EXTSTCT_RTTVA	SMF119AP_TT	SMF119AP_TTRVA
EXTSTCT_OTYPE	SMF119AP_TT	SMF119AP_TTStatus
EXTSTCT_SRVTYP	SMF119AP_TT	SMF119AP_TTTOS
EXTSTCT_RETRANS	SMF119AP_TT	SMF119AP_TTXRT
EXTSTCT_SRVPROF	SMF119AP_TT	SMF119AP_TTProf
EXTSTCT_SRVPOL	SMF119AP_TT	SMF119AP_TTPol
EXTSTCT_SEGSIN	SMF119AP_TT	SMF119AP_TTinSeg
EXTSTCT_SEGSOUT	SMF119AP_TT	SMF119AP_TTOutSeg
EXTSTCT_TTLSCS	SMF119AP_TT	SMF119AP_TTTTLSCS
EXTSTCT_TTLSPS	SMF119AP_TT	SMF119AP_TTTTLSPS
EXTSTCT_TERMCODE	SMF119AP_TT	SMF119AP_TTTermCode

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSTCT_RIPV6	SMF119AP_TT	SMF119AP_TTRIP
EXTSTCT_RIPV61	SMF119AP_TT	SMF119AP_TTRIP+0
EXTSTCT_RIPV62	SMF119AP_TT	SMF119AP_TTRIP+2
EXTSTCT_RIPV63	SMF119AP_TT	SMF119AP_TTRIP+4
EXTSTCT_RIPV64	SMF119AP_TT	SMF119AP_TTRIP+6
EXTSTCT_RIPV65	SMF119AP_TT	SMF119AP_TTRIP+8
EXTSTCT_RIPV66	SMF119AP_TT	SMF119AP_TTRIP+10
EXTSTCT_RIPV67	SMF119AP_TT	SMF119AP_TTRIP+12
EXTSTCT_RIPV68	SMF119AP_TT	SMF119AP_TTRIP+14
EXTSTCT_LIPV6	SMF119AP_TT	SMF119AP_TTLIP
EXTSTCT_LIPV61	SMF119AP_TT	SMF119AP_TTLIP+0
EXTSTCT_LIPV62	SMF119AP_TT	SMF119AP_TTLIP+2
EXTSTCT_LIPV63	SMF119AP_TT	SMF119AP_TTLIP+4
EXTSTCT_LIPV64	SMF119AP_TT	SMF119AP_TTLIP+6
EXTSTCT_LIPV65	SMF119AP_TT	SMF119AP_TTLIP+8
EXTSTCT_LIPV66	SMF119AP_TT	SMF119AP_TTLIP+10
EXTSTCT_LIPV67	SMF119AP_TT	SMF119AP_TTLIP+12
EXTSTCT_LIPV68	SMF119AP_TT	SMF119AP_TTLIP+14
EXTSTCT_SSTCK	SMF119AP_TT	SMF119AP_TTSSTCK
EXTSTCT_ESTCK	SMF119AP_TT	SMF119AP_TTESTCK
EXTSTCT_DUPACKS	SMF119AP_TT	SMF119AP_TTDupAcksRcvd
EXTSTCT_LUNAME	SMF119AP_TTTel	SMF119AP_TTTelLUName
EXTSTCT_APPL	SMF119AP_TTTel	SMF119AP_TTTelAppl
EXTSTCT_LOGMODE	SMF119AP_TTTel	SMF119AP_TTTelLogmode
EXTSTCT_STATUS	SMF119AP_TTTel	SMF119AP_TTTelStatus
EXTSTCT_TERMC	SMF119AP_TTTel	SMF119AP_TTTelTermCode
EXTSTCT_SSP	SMF119AP_TTTTLS	SMF119AP_TTTTLSSP
EXTSTCT_SNC	SMF119AP_TTTTLS	SMF119AP_TTTTLSNC
EXTSTCT_SST	SMF119AP_TTTTLS	SMF119AP_TTTTLSST
EXTSTCT_SUID	SMF119AP_TTTTLS	SMF119AP_TTTTLSUID

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSTCT_LSFP	SMF119AP_TTTTLS	SMF119AP_TTTTLSFP

EXTDATA Record Type - SCTC

The MRXT119B and MZXT119B record definitions define the EXTDATA created by CA JARS from SMF type 119 subtype 3 records, FTP Client Transfer Completion.

For a complete description of each SMF data field listed below, refer to the *z/OS Communications Server IP Configuration Reference* (SC31-8776). Appendix C, "SMF Type 119 Records," gives a detailed description of each field.

Additional information on the contents of SMF type 119 subtype 3 can be found by assembling the SMF mapping macro SYS1.MACLIB(EZASMF77), as in this example:

```
RECMAP   DSECT
         EZASMF77
         END
```

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSCTC_ID_SUBID	SMF119Header	SMF119HDSSI
EXTSCTC_ID_SYSNAME	SMF119Ident	SMF119TI_SYSName
EXTSCTC_ID_SYSPLEX	SMF119Ident	SMF119TI_SysplexName
EXTSCTC_ID_STACK	SMF119Ident	SMF119TI_Stack
EXTSCTC_ID_RELID	SMF119Ident	SMF119TI_ReleaseID
EXTSCTC_ID_COMP	SMF119Ident	SMF119TI_Comp
EXTSCTC_ID_ASNAME	SMF119Ident	SMF119TI_ASName
EXTSCTC_ID_SUSER	SMF119Ident	SMF119TI_UserID
EXTSCTC_ID_RESV1	SMF119Ident	Reserved
EXTSCTC_ID_ASID	SMF119Ident	SMF119TI_ASID
EXTSCTC_ID_REASON	SMF119Ident	SMF119TI_Reason
EXTSCTC_ID_RESV2	SMF119Ident	Reserved
EXTSCTC_FCCMD	SMF119FT_FC	SMF119FT_FCCmd
EXTSCTC_FCTYPE	SMF119FT_FC	SMF119FT_FCFType
EXTSCTC_FCDRIP	SMF119FT_FC	SMF119FT_FCDRIP_IPV4
EXTSCTC_FCDRIP1	SMF119FT_FC	SMF119FT_FCDRIP_IPV4+0

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSCTC_FCDRIP2	SMF119FT_FC	SMF119FT_FCDRIP_IPV4+1
EXTSCTC_FCDRIP3	SMF119FT_FC	SMF119FT_FCDRIP_IPV4+2
EXTSCTC_FCDRIP4	SMF119FT_FC	SMF119FT_FCDRIP_IPV4+3
EXTSCTC_FCDLIP	SMF119FT_FC	SMF119FT_FCDLIP_IPV4
EXTSCTC_FCDLIP1	SMF119FT_FC	SMF119FT_FCDLIP_IPV4+0
EXTSCTC_FCDLIP2	SMF119FT_FC	SMF119FT_FCDLIP_IPV4+1
EXTSCTC_FCDLIP3	SMF119FT_FC	SMF119FT_FCDLIP_IPV4+2
EXTSCTC_FCDLIP4	SMF119FT_FC	SMF119FT_FCDLIP_IPV4+3
EXTSCTC_FCDREMPORT	SMF119FT_FC	SMF119FT_FCDRPort
EXTSCTC_FCDLOCPORT	SMF119FT_FC	SMF119FT_FCDLPort
EXTSCTC_FCCRIP	SMF119FT_FC	SMF119FT_FCCRIP_IPV4
EXTSCTC_FCCRIP1	SMF119FT_FC	SMF119FT_FCCRIP_IPV4+0
EXTSCTC_FCCRIP2	SMF119FT_FC	SMF119FT_FCCRIP_IPV4+1
EXTSCTC_FCCRIP3	SMF119FT_FC	SMF119FT_FCCRIP_IPV4+2
EXTSCTC_FCCRIP4	SMF119FT_FC	SMF119FT_FCCRIP_IPV4+3
EXTSCTC_FCCLIP	SMF119FT_FC	SMF119FT_FCCLIP_IPV4
EXTSCTC_FCCLIP1	SMF119FT_FC	SMF119FT_FCCLIP_IPV4+0
EXTSCTC_FCCLIP2	SMF119FT_FC	SMF119FT_FCCLIP_IPV4+1
EXTSCTC_FCCLIP3	SMF119FT_FC	SMF119FT_FCCLIP_IPV4+2
EXTSCTC_FCCLIP4	SMF119FT_FC	SMF119FT_FCCLIP_IPV4+3
EXTSCTC_FCCREMPORT	SMF119FT_FC	SMF119FT_FCCRPort
EXTSCTC_FCCLOCPORT	SMF119FT_FC	SMF119FT_FCCLPort
EXTSCTC_FCRUSER	SMF119FT_FC	SMF119FT_FCRUser
EXTSCTC_FCLUSER	SMF119FT_FC	SMF119FT_FCLUser
EXTSCTC_FCDTYPE	SMF119FT_FC	SMF119FT_FCType
EXTSCTC_FCMODE	SMF119FT_FC	SMF119FT_FCMode
EXTSCTC_FCSTRUCT	SMF119FT_FC	SMF119FT_FCStruct
EXTSCTC_FCDSTYPE	SMF119FT_FC	SMF119FT_FCDSType
EXTSCTC_FCSTIME	SMF119FT_FC	SMF119FT_FCSTime
EXTSCTC_FCSDATE	SMF119FT_FC	SMF119FT_FCSDate

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSCTC_FCETIME	SMF119FT_FC	SMF119FT_FCETime
EXTSCTC_FCEDATE	SMF119FT_FC	SMF119FT_FCEDate
EXTSCTC_FCDUR	SMF119FT_FC	SMF119FT_FCDur
EXTSCTC_BYTESTRAN	SMF119FT_FC	SMF119FT_FCBytes
EXTSCTC_FCLREPLY	SMF119FT_FC	SMF119FT_FCLReply
EXTSCTC_PDSMEM	SMF119FT_FC	SMF119FT_FCM1
EXTSCTC_HOSTNAME	SMF119FT_FC	SMF119FT_FCHostname
EXTSCTC_ABNRML	SMF119FT_FC	SMF119FT_FCRS
EXTSCTC_FLOATRAN	SMF119FT_FC	SMF119FT_FCBytesFloat
EXTSCTC_FILENAME	SMF119FT_FCAN	SMF119FT_FCFileName
EXTSCTC_SOCKSIP	SMF119FT_FCSO	SMF119FT_FCCIP_IPV4
EXTSCTC_SOCKS1	SMF119FT_FCSO	SMF119FT_FCCIP_IPV4+0
EXTSCTC_SOCKS2	SMF119FT_FCSO	SMF119FT_FCCIP_IPV4+1
EXTSCTC_SOCKS3	SMF119FT_FCSO	SMF119FT_FCCIP_IPV4+2
EXTSCTC_SOCKS4	SMF119FT_FCSO	SMF119FT_FCCIP_IPV4+3
EXTSCTC_SOCKSPORT	SMF119FT_FCSO	SMF119FT_FCCPort
EXTSCTC_SOCKSVER	SMF119FT_FCSO	SMF119FT_FCCPort
EXTSCTC_FCCCONNID	SMF119FT_FC	SMF119FT_FCCConnID
EXTSCTC_FCDCONNID	SMF119FT_FC	SMF119FT_FCDConnID
EXTSCTC_FCDRIPV6	SMF119FT_FC	SMF119FT_FCDRIP
EXTSCTC_FCDRIPV61	SMF119FT_FC	SMF119FT_FCDRIP+0
EXTSCTC_FCDRIPV62	SMF119FT_FC	SMF119FT_FCDRIP+2
EXTSCTC_FCDRIPV63	SMF119FT_FC	SMF119FT_FCDRIP+4
EXTSCTC_FCDRIPV64	SMF119FT_FC	SMF119FT_FCDRIP+6
EXTSCTC_FCDRIPV65	SMF119FT_FC	SMF119FT_FCDRIP+8
EXTSCTC_FCDRIPV66	SMF119FT_FC	SMF119FT_FCDRIP+10
EXTSCTC_FCDRIPV67	SMF119FT_FC	SMF119FT_FCDRIP+12
EXTSCTC_FCDRIPV68	SMF119FT_FC	SMF119FT_FCDRIP+14
EXTSCTC_FCDLIPV6	SMF119FT_FC	SMF119FT_FCDLIP
EXTSCTC_FCDLIPV61	SMF119FT_FC	SMF119FT_FCDLIP+0

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSCTC_FCDLIPV62	SMF119FT_FC	SMF119FT_FCDLIP+2
EXTSCTC_FCDLIPV63	SMF119FT_FC	SMF119FT_FCDLIP+4
EXTSCTC_FCDLIPV64	SMF119FT_FC	SMF119FT_FCDLIP+6
EXTSCTC_FCDLIPV65	SMF119FT_FC	SMF119FT_FCDLIP+8
EXTSCTC_FCDLIPV66	SMF119FT_FC	c.SMF119FT_FCDLIP+10
EXTSCTC_FCDLIPV67	SMF119FT_FC	c.SMF119FT_FCDLIP+12
EXTSCTC_FCDLIPV68	SMF119FT_FC	c.SMF119FT_FCDLIP+14
EXTSCTC_FCCRIPV6	SMF119FT_FC	SMF119FT_FCCRIP
EXTSCTC_FCCRIPV61	SMF119FT_FC	SMF119FT_FCCRIP+0
EXTSCTC_FCCRIPV62	SMF119FT_FC	SMF119FT_FCCRIP+2
EXTSCTC_FCCRIPV63	SMF119FT_FC	SMF119FT_FCCRIP+4
EXTSCTC_FCCRIPV64	SMF119FT_FC	SMF119FT_FCCRIP+6
EXTSCTC_FCCRIPV65	SMF119FT_FC	SMF119FT_FCCRIP+8
EXTSCTC_FCCRIPV66	SMF119FT_FC	SMF119FT_FCCRIP+10
EXTSCTC_FCCRIPV67	SMF119FT_FC	SMF119FT_FCCRIP+12
EXTSCTC_FCCRIPV68	SMF119FT_FC	SMF119FT_FCCRIP+14
EXTSCTC_FCCLIPV6	SMF119FT_FC	SMF119FT_FCCLIP
EXTSCTC_FCCLIPV61	SMF119FT_FC	SMF119FT_FCCLIP+0
EXTSCTC_FCCLIPV62	SMF119FT_FC	SMF119FT_FCCLIP+2
EXTSCTC_FCCLIPV63	SMF119FT_FC	SMF119FT_FCCLIP+4
EXTSCTC_FCCLIPV64	SMF119FT_FC	SMF119FT_FCCLIP+6
EXTSCTC_FCCRIPV65	SMF119FT_FC	SMF119FT_FCCLIP+8
EXTSCTC_FCCRIPV66	SMF119FT_FC	SMF119FT_FCCLIP+10
EXTSCTC_FCCRIPV67	SMF119FT_FC	SMF119FT_FCCLIP+12
EXTSCTC_FCCRIPV68	SMF119FT_FC	SMF119FT_FCCLIP+14
EXTSCTC_SOCKSIPV6	SMF119FT_FCSO	SMF119FT_FCCIP
EXTSCTC_SOCKSIPV61	SMF119FT_FCSO	SMF119FT_FCCIP+0
EXTSCTC_SOCKSIPV62	SMF119FT_FCSO	SMF119FT_FCCIP+2
EXTSCTC_SOCKSIPV63	SMF119FT_FCSO	SMF119FT_FCCIP+4
EXTSCTC_SOCKSIPV64	SMF119FT_FCSO	SMF119FT_FCCIP+6

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSCTC_SOCKSIPV65	SMF119FT_FCSO	SMF119FT_FCCIP+8
EXTSCTC_SOCKSIPV66	SMF119FT_FCSO	SMF119FT_FCCIP+10
EXTSCTC_SOCKSIPV67	SMF119FT_FCSO	SMF119FT_FCCIP+12
EXTSCTC_SOCKSIPV68	SMF119FT_FCSO	SMF119FT_FCCIP+14
EXTSCTC_FCMECH	SMF119FT_FCSC	SMF119FT_FCMechanism
EXTSCTC_FCCPROTECT	SMF119FT_FCSC	SMF119FT_FCCProtect
EXTSCTC_FCDPROTECT	SMF119FT_FCSC	SMF119FT_FCDProtect
EXTSCTC_FCLOGINM	SMF119FT_FCSC	SMF119FT_FCLoginMech
EXTSCTC_FCPROTOL	SMF119FT_FCSC	SMF119FT_FCProtoLevel
EXTSCTC_FCCIPHER	SMF119FT_FCSC	SMF119FT_FCCipherSpec
EXTSCTC_FCBUFSIZE	SMF119FT_FCSC	SMF119FT_FCProtBuffSize
EXTSCTC_FCUSERID	SMF119FT_FCUI	SMF119FT_FCIUserId

EXTDATA Record Type - SSTP

The MRXT119C and MZXT119C record definitions define the EXTDATA created by CA JARS from SMF type 119 subtype 8 records, TCP/IP Stack Start/Stop.

For a complete description of each SMF data field listed below, refer to the *z/OS Communications Server IP Configuration Reference* (SC31-8776). Appendix C, "SMF Type 119 Records," gives a detailed description of each field.

Additional information on the contents of SMF type 119 subtype 8 can be found by assembling the SMF mapping macro SYS1.MACLIB(EZASMF77), as in this example:

```
RECMAP   DSECT
         EZASMF77
         END
```

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSSTP_ID_SUBID	SMF119Header	SMF119HDSSI
EXTSSTP_ID_SYSNAME	SMF119Ident	SMF119TI_SYSName
EXTSSTP_ID_SYSPLEX	SMF119Ident	SMF119TI_SysplexName
EXTSSTP_ID_STACK	SMF119Ident	SMF119TI_Stack
EXTSSTP_ID_RELID	SMF119Ident	SMF119TI_ReleaseID

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSSTP_ID_COMP	SMF119Ident	SMF119TI_Comp
EXTSSTP_ID_ASNAME	SMF119Ident	SMF119TI_ASName
EXTSSTP_ID_SUSER	SMF119Ident	SMF119TI_UserID
EXTSSTP_ID_RESV1	SMF119Ident	Reserved
EXTSSTP_ID_ASID	SMF119Ident	SMF119TI_ASID
EXTSSTP_ID_REASON	SMF119Ident	SMF119TI_Reason
EXTSSTP_ID_RESV2	SMF119Ident	Reserved
EXTSSTP_STTYPE	SMF119TC_ST	SMF119TC_STType
EXTSSTP_STSTIME	SMF119TC_ST	SMF119TC_STTime
EXTSSTP_STSDATE	SMF119TC_ST	SMF119TC_STDate
EXTSSTP_STFLAGS	SMF119TC_ST	SMF119TC_STFlags

EXTDATA Record Type - SUDP

The MRXT119D and MZXT119D record definitions define the EXTDATA created by CA JARS from SMF type 119 subtype 10 records, UDP Socket Close.

For a complete description of each SMF data field listed below, refer to the *z/OS Communications Server IP Configuration Reference* (SC31-8776). Appendix C, "SMF Type 119 Records," gives a detailed description of each field.

Additional information on the contents of SMF type 119 subtype 10 can be found by assembling the SMF mapping macro SYS1.MACLIB(EZASMF77), as in this example:

```
RECMAP   DSECT
         EZASMF77
         END
```

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSUDP_ID_SUBID	SMF119Header	SMF119HDSSI
EXTSUDP_ID_SYSNAME	SMF119Ident	SMF119TI_SYSName
EXTSUDP_ID_SYSPLEX	SMF119Ident	SMF119TI_SysplexName
EXTSUDP_ID_STACK	SMF119Ident	SMF119TI_Stack
EXTSUDP_ID_RELID	SMF119Ident	SMF119TI_ReleaseID
EXTSUDP_ID_COMP	SMF119Ident	SMF119TI_Comp

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSUDP_ID_ASNAME	SMF119Ident	SMF119TI_ASName
EXTSUDP_ID_SUSER	SMF119Ident	SMF119TI_UserID
EXTSUDP_ID_RESV1	SMF119Ident	Reserved
EXTSUDP_ID_ASID	SMF119Ident	SMF119TI_ASID
EXTSUDP_ID_REASON	SMF119Ident	SMF119TI_Reason
EXTSUDP_ID_RESV2	SMF119Ident	Reserved
EXTSUDP_USNAME	SMF119UD_UC	SMF119UD_UCRname
EXTSUDP_UCONNID	SMF119UD_UC	SMF119UD_UCConnID
EXTSUDP_USUBTASK	SMF119UD_UC	SMF119UD_UCSubTask
EXTSUDP_UOTIME	SMF119UD_UC	SMF119UD_UCOTime
EXTSUDP_UODATE	SMF119UD_UC	SMF119UD_UCODate
EXTSUDP_UCTIME	SMF119UD_UC	SMF119UD_UCCTime
EXTSUDP_UCDATE	SMF119UD_UC	SMF119UD_UCCDate
EXTSUDP_RIP	SMF119UD_UC	SMF119UD_UCRIP_IPV4
EXTSUDP_RIP1	SMF119UD_UC	SMF119UD_UCRIP_IPV4+0
EXTSUDP_RIP2	SMF119UD_UC	SMF119UD_UCRIP_IPV4+1
EXTSUDP_RIP3	SMF119UD_UC	SMF119UD_UCRIP_IPV4+2
EXTSUDP_RIP4	SMF119UD_UC	SMF119UD_UCRIP_IPV4+3
EXTSUDP_LIP	SMF119UD_UC	SMF119UD_UCLIP_IPV4
EXTSUDP_LIP1	SMF119UD_UC	SMF119UD_UCLIP_IPV4+0
EXTSUDP_LIP2	SMF119UD_UC	SMF119UD_UCLIP_IPV4+1
EXTSUDP_LIP3	SMF119UD_UC	SMF119UD_UCLIP_IPV4+2
EXTSUDP_LIP4	SMF119UD_UC	SMF119UD_UCLIP_IPV4+3
EXTSUDP_REMPORT	SMF119UD_UC	SMF119UD_UCRPort
EXTSUDP_LOCPORT	SMF119UD_UC	SMF119UD_UCLPort
EXTSUDP_UTYPE	SMF119UD_UC	SMF119UD_UCType
EXTSUDP_UREASON	SMF119UD_UC	SMF119UD_UCReason
EXTSUDP_UINDGRAMS	SMF119UD_UC	SMF119UD_UCinDgrams
EXTSUDP_UOUTDGRAMS	SMF119UD_UC	SMF119UD_UCOutDgrams
EXTSUDP_UBYTESIN	SMF119UD_UC	SMF119UD_UCInBytes

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSUDP_UBYTESOUT	SMF119UD_UC	SMF119UD_UCOutBytes
EXTSUDP_RIPV6	SMF119UD_UC	SMF119UD_UCRIP
EXTSUDP_RIPV61	SMF119UD_UC	SMF119UD_UCRIP+0
EXTSUDP_RIPV62	SMF119UD_UC	SMF119UD_UCRIP+2
EXTSUDP_RIPV63	SMF119UD_UC	SMF119UD_UCRIP+4
EXTSUDP_RIPV64	SMF119UD_UC	SMF119UD_UCRIP+6
EXTSUDP_RIPV65	SMF119UD_UC	SMF119UD_UCRIP+8
EXTSUDP_RIPV66	SMF119UD_UC	SMF119UD_UCRIP+10
EXTSUDP_RIPV67	SMF119UD_UC	SMF119UD_UCRIP+12
EXTSUDP_RIPV68	SMF119UD_UC	SMF119UD_UCRIP+14
EXTSUDP_LIPV6	SMF119UD_UC	SMF119UD_UCLIP
EXTSUDP_LIPV61	SMF119UD_UC	SMF119UD_UCLIP+0
EXTSUDP_LIPV62	SMF119UD_UC	SMF119UD_UCLIP+2
EXTSUDP_LIPV63	SMF119UD_UC	SMF119UD_UCLIP+4
EXTSUDP_LIPV64	SMF119UD_UC	SMF119UD_UCLIP+6
EXTSUDP_LIPV65	SMF119UD_UC	SMF119UD_UCLIP+8
EXTSUDP_LIPV66	SMF119UD_UC	SMF119UD_UCLIP+10
EXTSUDP_LIPV67	SMF119UD_UC	SMF119UD_UCLIP+12
EXTSUDP_LIPV68	SMF119UD_UC	SMF119UD_UCLIP+14

EXTDATA Record Type - SSST

The MRXT119E and MZXT119E record definitions define the EXTDATA created by CA JARS from SMF type 119 subtype 21 records, TN3270 Server SNA Session Termination.

For a complete description of each SMF data field listed below, refer to the *z/OS Communications Server IP Configuration Reference* (SC31-8776). Appendix C, "SMF Type 119 Records," gives a detailed description of each field.

Additional information on the contents of SMF type 119 subtype 21 can be found by assembling the SMF mapping macro SYS1.MACLIB(EZASMF77), as in this example:

```
RECMAP   DSECT
         EZASMF77
         END
```

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSSST_ID_SUBID	SMF119Header	SMF119HDSSI
EXTSSST_ID_SYSNAME	SMF119Ident	SMF119TI_SYSName
EXTSSST_ID_SYSPLEX	SMF119Ident	SMF119TI_SysplexName
EXTSSST_ID_STACK	SMF119Ident	SMF119TI_Stack
EXTSSST_ID_RELID	SMF119Ident	SMF119TI_ReleaseID
EXTSSST_ID_COMP	SMF119Ident	SMF119TI_Comp
EXTSSST_ID_ASNAME	SMF119Ident	SMF119TI_ASName
EXTSSST_ID_SUSER	SMF119Ident	SMF119TI_UserID
EXTSSST_ID_RESV1	SMF119Ident	Reserved
EXTSSST_ID_ASID	SMF119Ident	SMF119TI_ASID
EXTSSST_ID_REASON	SMF119Ident	SMF119TI_Reason
EXTSSST_ID_RESV2	SMF119Ident	Reserved
EXTSSST_NTLU	SMF119TN_NT	SMF119TN_NTLU
EXTSSST_NTAPPL	SMF119TN_NT	SMF119TN_NTAppl
EXTSSST_NTDEV	SMF119TN_NT	SMF119TN_NTLdev
EXTSSST_RIP	SMF119TN_NT	SMF119TN_NTRIP_IPV4
EXTSSST_RIP1	SMF119TN_NT	SMF119TN_NTRIP_IPV4+0
EXTSSST_RIP2	SMF119TN_NT	SMF119TN_NTRIP_IPV4+1
EXTSSST_RIP3	SMF119TN_NT	SMF119TN_NTRIP_IPV4+2
EXTSSST_RIP4	SMF119TN_NT	SMF119TN_NTRIP_IPV4+3
EXTSSST_LIP	SMF119TN_NT	SMF119TN_NTLIP_IPV4
EXTSSST_LIP1	SMF119TN_NT	SMF119TN_NTLIP_IPV4+0
EXTSSST_LIP2	SMF119TN_NT	SMF119TN_NTLIP_IPV4+1
EXTSSST_LIP3	SMF119TN_NT	SMF119TN_NTLIP_IPV4+2
EXTSSST_LIP4	SMF119TN_NT	SMF119TN_NTLIP_IPV4+3

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSSST_REMPORT	SMF119TN_NT	SMF119TN_NTRPort
EXTSSST_LOCPORT	SMF119TN_NT	SMF119TN_NTLPort
EXTSSST_NTHOSTNM	SMF119TN_NT	SMF119TN_NTHostNm
EXTSSST_BYTESIN	SMF119TN_NT	SMF119TN_NTInByte
EXTSSST_BYTESOUT	SMF119TN_NT	SMF119TN_NTOutByte
EXTSSST_STIME	SMF119TN_NT	SMF119TN_NTiTime
EXTSSST_SDATE	SMF119TN_NT	SMF119TN_NTiDate
EXTSSST_ETIME	SMF119TN_NT	SMF119TN_NTtTime
EXTSSST_EDATE	SMF119TN_NT	SMF119TN_NTtDate
EXTSSST_NTDUR	SMF119TN_NT	SMF119TN_NTDur
EXTSSST_NTSTYPE	SMF119TN_NT	SMF119TN_NTSType
EXTSSST_NTLUSEL	SMF119TN_NT	SMF119TN_NTLUSel
EXTSSST_NTSSL	SMF119TN_NT	SMF119TN_NTSSL
EXTSSST_NTCOPT	SMF119TN_NT	SMF119TN_NTCopt
EXTSSST_NT32OPT	SMF119TN_NT	SMF119TN_NT32opt
EXTSSST_NTRCODE	SMF119TN_NT	SMF119TN_NTRCode
EXTSSST_NTRLMODE	SMF119TN_NT	SMF119TN_NTLMode
EXTSSST_NTDEVT	SMF119TN_NT	SMF119TN_NTDevt
EXTSSST_NTHOSTNAME	SMF119TN_NTH	SMF119TN_NTHostname
EXTSSST_RIPV6	SMF119TN_NT	SMF119TN_NTRIP
EXTSSST_RIPV61	SMF119TN_NT	SMF119TN_NTRIP+0
EXTSSST_RIPV62	SMF119TN_NT	SMF119TN_NTRIP+2
EXTSSST_RIPV63	SMF119TN_NT	SMF119TN_NTRIP+4
EXTSSST_RIPV64	SMF119TN_NT	SMF119TN_NTRIP+6
EXTSSST_RIPV65	SMF119TN_NT	SMF119TN_NTRIP+8
EXTSSST_RIPV66	SMF119TN_NT	SMF119TN_NTRIP+10
EXTSSST_RIPV67	SMF119TN_NT	SMF119TN_NTRIP+12
EXTSSST_RIPV68	SMF119TN_NT	SMF119TN_NTRIP+14
EXTSSST_LIPV6	SMF119TN_NT	SMF119TN_NTLIP
EXTSSST_LIPV61	SMF119TN_NT	SMF119TN_NTLIP+0

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSSST_LIPV62	SMF119TN_NT	SMF119TN_NTLIP+2
EXTSSST_LIPV63	SMF119TN_NT	SMF119TN_NTLIP+4
EXTSSST_LIPV64	SMF119TN_NT	SMF119TN_NTLIP+6
EXTSSST_LIPV65	SMF119TN_NT	SMF119TN_NTLIP+8
EXTSSST_LIPV66	SMF119TN_NT	SMF119TN_NTLIP+10
EXTSSST_LIPV67	SMF119TN_NT	SMF119TN_NTLIP+12
EXTSSST_LIPV68	SMF119TN_NT	SMF119TN_NTLIP+14
EXTSSST_NTRRTS	SMF119TN_NTR	SMF119TN_NTRRts
EXTSSST_NTRIPRTS	SMF119TN_NTR	SMF119TN_NTRIPRts
EXTSSST_NTRCOUNTTR	SMF119TN_NTR	SMF119TN_NTRCountTrans
EXTSSST_NTRCOUNTIP	SMF119TN_NTR	SMF119TN_NTRCountIP
EXTSSST_NTRRNDTRPSQ	SMF119TN_NTR	SMF119TN_NTRElapsRndTrpSq
EXTSSST_NTRIPRTSQ	SMF119TN_NTR	SMF119TN_NTRElapsIpRtSq
EXTSSST_NTRSNARTSQ	SMF119TN_NTR	SMF119TN_NTRElapsSnaRtSq
EXTSSST_NTRGRPINDEX	SMF119TN_NTR	SMF119TN_NTRGrpIndex
EXTSSST_NTRDR	SMF119TN_NTR	SMF119TN_NTRDR
EXTSSST_NTBNDRY1	SMF119TN_NTB	SMF119TN_NTBucketBndry1
EXTSSST_NTBNDRY2	SMF119TN_NTB	SMF119TN_NTBucketBndry2
EXTSSST_NTBNDRY3	SMF119TN_NTB	SMF119TN_NTBucketBndry3
EXTSSST_NTBNDRY4	SMF119TN_NTB	SMF119TN_NTBucketBndry4
EXTSSST_NTBUCKET1	SMF119TN_NTB	SMF119TN_NTBucket1Rts
EXTSSST_NTBUCKET2	SMF119TN_NTB	SMF119TN_NTBucket2Rts
EXTSSST_NTBUCKET3	SMF119TN_NTB	SMF119TN_NTBucket3Rts
EXTSSST_NTBUCKET4	SMF119TN_NTB	SMF119TN_NTBucket4Rts
EXTSSST_NTBUCKET5	SMF119TN_NTB	SMF119TN_NTBucket5Rts

EXTDATA Record Type - STCC

The MRXT119F and MZXT119F record definitions define the EXTDATA created by CA JARS from SMF type 119 subtype 23 records, TSO Telnet Client Connection Termination.

For a complete description of each SMF data field listed below, refer to the *z/OS Communications Server IP Configuration Reference* (SC31-8776). Appendix C, "SMF Type 119 Records," gives a detailed description of each field.

Additional information on the contents of SMF type 119 subtype 23 can be found by assembling the SMF mapping macro SYS1.MACLIB(EZASMF77), as in this example:

```
RECMAP   DSECT
         EZASMF77
         END
```

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSTCC_ID_SUBID	SMF119Header	SMF119HDSSI
EXTSTCC_ID_SYSNAME	SMF119Ident	SMF119TI_SYSName
EXTSTCC_ID_SYSPLEX	SMF119Ident	SMF119TI_SysplexName
EXTSTCC_ID_STACK	SMF119Ident	SMF119TI_Stack
EXTSTCC_ID_RELID	SMF119Ident	SMF119TI_ReleaseID
EXTSTCC_ID_COMP	SMF119Ident	SMF119TI_Comp
EXTSTCC_ID_ASNAME	SMF119Ident	SMF119TI_ASName
EXTSTCC_ID_SUSER	SMF119Ident	SMF119TI_UserID
EXTSTCC_ID_RESV1	SMF119Ident	Reserved
EXTSTCC_ID_ASID	SMF119Ident	SMF119TI_ASID
EXTSTCC_ID_REASON	SMF119Ident	SMF119TI_Reason
EXTSTCC_ID_RESV2	SMF119Ident	Reserved
EXTSTCC_RIP	SMF119TN_CT	SMF119TN_CTRIP_IPV4
EXTSTCC_RIP1	SMF119TN_CT	SMF119TN_CTRIP_IPV4+0
EXTSTCC_RIP2	SMF119TN_CT	SMF119TN_CTRIP_IPV4+1
EXTSTCC_RIP3	SMF119TN_CT	SMF119TN_CTRIP_IPV4+2
EXTSTCC_RIP4	SMF119TN_CT	SMF119TN_CTRIP_IPV4+3
EXTSTCC_LIP	SMF119TN_CT	SMF119TN_CTLIP_IPV4
EXTSTCC_LIP1	SMF119TN_CT	SMF119TN_CTLIP_IPV4+0

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSTCC_LIP2	SMF119TN_CT	SMF119TN_CTLIP_IPV4+1
EXTSTCC_LIP3	SMF119TN_CT	SMF119TN_CTLIP_IPV4+2
EXTSTCC_LIP4	SMF119TN_CT	SMF119TN_CTLIP_IPV4+3
EXTSTCC_REMPORT	SMF119TN_CT	SMF119TN_CTRPort
EXTSTCC_LOCPORT	SMF119TN_CT	SMF119TN_CTLPort
EXTSTCC_NJENODE	SMF119TN_CT	SMF119TN_CTNJENode
EXTSTCC_BYTESIN	SMF119TN_CT	SMF119TN_CTInBytes
EXTSTCC_BYTESOUT	SMF119TN_CT	SMF119TN_CTOutBytes
EXTSTCC_STIME	SMF119TN_CT	SMF119TN_CTiTime
EXTSTCC_SDATE	SMF119TN_CT	SMF119TN_CTiDate
EXTSTCC_ETIME	SMF119TN_CT	SMF119TN_CTtTime
EXTSTCC_EDATE	SMF119TN_CT	SMF119TN_CTtDate
EXTSTCC_DUR	SMF119TN_CT	SMF119TN_CTDur
EXTSTCC_STYPE	SMF119TN_CT	SMF119TN_CTCOpt
EXTSTCC_DEVTYPE	SMF119TN_CT	SMF119TN_CTDevt
EXTSTCC_RIPV6	SMF119TN_CT	SMF119TN_CTRIP
EXTSTCC_RIPV6	SMF119TN_CT	SMF119TN_CTRIP
EXTSTCC_RIPV61	SMF119TN_CT	SMF119TN_CTRIP+0
EXTSTCC_RIPV62	SMF119TN_CT	SMF119TN_CTRIP+2
EXTSTCC_RIPV63	SMF119TN_CT	SMF119TN_CTRIP+4
EXTSTCC_RIPV64	SMF119TN_CT	SMF119TN_CTRIP+6
EXTSTCC_RIPV65	SMF119TN_CT	SMF119TN_CTRIP+8
EXTSTCC_RIPV66	SMF119TN_CT	SMF119TN_CTRIP+10
EXTSTCC_RIPV67	SMF119TN_CT	SMF119TN_CTRIP+12
EXTSTCC_RIPV68	SMF119TN_CT	SMF119TN_CTRIP+14
EXTSTCC_LIPV6	SMF119TN_CT	SMF119TN_CTLIP
EXTSTCC_LIPV61	SMF119TN_CT	SMF119TN_CTLIP+0
EXTSTCC_LIPV62	SMF119TN_CT	SMF119TN_CTLIP+2
EXTSTCC_LIPV63	SMF119TN_CT	SMF119TN_CTLIP+4
EXTSTCC_LIPV64	SMF119TN_CT	SMF119TN_CTLIP+6

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSTCC_LIPV65	SMF119TN_CT	SMF119TN_CTLIP+8
EXTSTCC_LIPV66	SMF119TN_CT	SMF119TN_CTLIP+10
EXTSTCC_LIPV67	SMF119TN_CT	SMF119TN_CTLIP+12
EXTSTCC_LIPV68	SMF119TN_CT	SMF119TN_CTLIP+14

EXTDATA Record Type - SFST

The MRXT119G and MZXT119G record definitions define the EXTDATA created by CA JARS from SMF type 119 subtype 70 records, FTP Server Transfer Completion.

For a complete description of each SMF data field listed below, refer to the *z/OS Communications Server IP Configuration Reference* (SC31-8776). Appendix C, "SMF Type 119 Records," gives a detailed description of each field.

Additional information on the contents of SMF type 119 subtype 70 can be found by assembling the SMF mapping macro SYS1.MACLIB(EZASMF77), as in this example:

```
RECMAP   DSECT
         EZASMF77
         END
```

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSFST_ID_SUBID	SMF119Header	SMF119HDSSI
EXTSFST_ID_SYSNAME	SMF119Ident	SMF119TI_SYSName
EXTSFST_ID_SYSPLEX	SMF119Ident	SMF119TI_SysplexName
EXTSFST_ID_STACK	SMF119Ident	SMF119TI_Stack
EXTSFST_ID_RELID	SMF119Ident	SMF119TI_ReleaseID
EXTSFST_ID_COMP	SMF119Ident	SMF119TI_Comp
EXTSFST_ID_ASNAME	SMF119Ident	SMF119TI_ASName
EXTSFST_ID_SUSER	SMF119Ident	SMF119TI_UserID
EXTSFST_ID_RESV1	SMF119Ident	Reserved
EXTSFST_ID_ASID	SMF119Ident	SMF119TI_ASID
EXTSFST_ID_REASON	SMF119Ident	SMF119TI_Reason
EXTSFST_ID_RESV2	SMF119Ident	Reserved
EXTSFST_FSOPER	SMF119FT_FS	SMF119FT_FSOper

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSFST_FSCMD	SMF119FT_FS	SMF119FT_FSCmd
EXTSFST_FSFTYPE	SMF119FT_FS	SMF119FT_FSFType
EXTSFST_FSDRIP	SMF119FT_FS	SMF119FT_FSDRIP_IPV4
EXTSFST_FSDRIP1	SMF119FT_FS	SMF119FT_FSDRIP_IPV4+0
EXTSFST_FSDRIP2	SMF119FT_FS	SMF119FT_FSDRIP_IPV4+1
EXTSFST_FSDRIP3	SMF119FT_FS	SMF119FT_FSDRIP_IPV4+2
EXTSFST_FSDRIP4	SMF119FT_FS	SMF119FT_FSDRIP_IPV4+3
EXTSFST_FSDLIP	SMF119FT_FS	SMF119FT_FSDLIP_IPV4
EXTSFST_FSDLIP1	SMF119FT_FS	SMF119FT_FSDLIP_IPV4+0
EXTSFST_FSDLIP2	SMF119FT_FS	SMF119FT_FSDLIP_IPV4+1
EXTSFST_FSDLIP3	SMF119FT_FS	SMF119FT_FSDLIP_IPV4+2
EXTSFST_FSDLIP4	SMF119FT_FS	SMF119FT_FSDLIP_IPV4+3
EXTSFST_FSDREMPORT	SMF119FT_FS	SMF119FT_FSDRPort
EXTSFST_FSDLOCPORT	SMF119FT_FS	SMF119FT_FSDLPort
EXTSFST_FSCRIP	SMF119FT_FS	SMF119FT_FSCRIP_IPV4
EXTSFST_FSCRIP1	SMF119FT_FS	SMF119FT_FSCRIP_IPV4+0
EXTSFST_FSCRIP2	SMF119FT_FS	SMF119FT_FSCRIP_IPV4+1
EXTSFST_FSCRIP3	SMF119FT_FS	SMF119FT_FSCRIP_IPV4+2
EXTSFST_FSCRIP4	SMF119FT_FS	SMF119FT_FSCRIP_IPV4+3
EXTSFST_FSCLIP	SMF119FT_FS	SMF119FT_FSCLIP_IPV4
EXTSFST_FSCLIP1	SMF119FT_FS	SMF119FT_FSCLIP_IPV4+0
EXTSFST_FSCLIP2	SMF119FT_FS	SMF119FT_FSCLIP_IPV4+1
EXTSFST_FSCLIP3	SMF119FT_FS	SMF119FT_FSCLIP_IPV4+2
EXTSFST_FSCLIP4	SMF119FT_FS	SMF119FT_FSCLIP_IPV4+3
EXTSFST_FSCREMPORT	SMF119FT_FS	SMF119FT_FSCRPort
EXTSFST_FSCLOCPORT	SMF119FT_FS	SMF119FT_FSCLPort
EXTSFST_FSSUSER	SMF119FT_FS	SMF119FT_FSSUser
EXTSFST_FSTYPE	SMF119FT_FS	SMF119FT_FSType
EXTSFST_FSMODE	SMF119FT_FS	SMF119FT_FSMode
EXTSFST_FSSTRUCT	SMF119FT_FS	SMF119FT_FSStruct

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSFST_FSDSTYPE	SMF119FT_FS	SMF119FT_FSDsType
EXTSFST_FSSTIME	SMF119FT_FS	SMF119FT_FSSTime
EXTSFST_FSSDATE	SMF119FT_FS	SMF119FT_FSSDate
EXTSFST_FSETIME	SMF119FT_FS	SMF119FT_FSETime
EXTSFST_FSEDATE	SMF119FT_FS	SMF119FT_FSEDate
EXTSFST_FSDUR	SMF119FT_FS	SMF119FT_FSDur
EXTSFST_BYTESTRAN	SMF119FT_FS	SMF119FT_FSBytes
EXTSFST_FSLREPLY	SMF119FT_FS	SMF119FT_FSLReply
EXTSFST_PDSMEM	SMF119FT_FS	SMF119FT_FSM1
EXTSFST_ABNRML	SMF119FT_FS	SMF119FT_FSRS
EXTSFST_PDSMEM2	SMF119FT_FS	SMF119FT_FSM2
EXTSFST_FLOATRAN	SMF119FT_FS	SMF119FT_FSBytesFloat
EXTSFST_HOSTNAME	SMF119FT_FSHN	SMF119FT_FSHostname
EXTSFST_FILENAME1	SMF119FT_FSA1	SMF119FT_FSFileName1
EXTSFST_FILENAME2	SMF119FT_FSA2	SMF119FT_FSFileName2
EXTSFST_FSCCONNID	SMF119FT_FS	SMF119FT_FSCConnID
EXTSFST_FSDCONNID	SMF119FT_FS	SMF119FT_FSDConnID
EXTSFST_FSSESSID	SMF119FT_FS	SMF119FT_FSSessionID
EXTSFST_FSDRIPV6	SMF119FT_FS	SMF119FT_FSDRIP
EXTSFST_FSDRIPV61	SMF119FT_FS	SMF119FT_FSDRIP+0
EXTSFST_FSDRIPV62	SMF119FT_FS	SMF119FT_FSDRIP+2
EXTSFST_FSDRIPV63	SMF119FT_FS	SMF119FT_FSDRIP+4
EXTSFST_FSDRIPV64	SMF119FT_FS	SMF119FT_FSDRIP+6
EXTSFST_FSDRIPV65	SMF119FT_FS	SMF119FT_FSDRIP+8
EXTSFST_FSDRIPV66	SMF119FT_FS	SMF119FT_FSDRIP+10
EXTSFST_FSDRIPV67	SMF119FT_FS	SMF119FT_FSDRIP+12
EXTSFST_FSDRIPV68	SMF119FT_FS	SMF119FT_FSDRIP+14
EXTSFST_FSDLIPV6	SMF119FT_FS	SMF119FT_FSDLIP
EXTSFST_FSDLIPV61	SMF119FT_FS	SMF119FT_FSDLIP+0
EXTSFST_FSDLIPV62	SMF119FT_FS	SMF119FT_FSDLIP+2

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSFST_FSDLIPV63	SMF119FT_FS	SMF119FT_FSDLIP+4
EXTSFST_FSDLIPV64	SMF119FT_FS	SMF119FT_FSDLIP+6
EXTSFST_FSDLIPV65	SMF119FT_FS	SMF119FT_FSDLIP+8
EXTSFST_FSDLIPV66	SMF119FT_FS	SMF119FT_FSDLIP+10
EXTSFST_FSDLIPV67	SMF119FT_FS	SMF119FT_FSDLIP+12
EXTSFST_FSDLIPV68	SMF119FT_FS	SMF119FT_FSDLIP+14
EXTSFST_FSCRIPV6	SMF119FT_FS	SMF119FT_FSCRIP
EXTSFST_FSCRIPV61	SMF119FT_FS	SMF119FT_FSCRIP+0
EXTSFST_FSCRIPV62	SMF119FT_FS	SMF119FT_FSCRIP+2
EXTSFST_FSCRIPV63	SMF119FT_FS	SMF119FT_FSCRIP+4
EXTSFST_FSCRIPV64	SMF119FT_FS	SMF119FT_FSCRIP+6
EXTSFST_FSCRIPV65	SMF119FT_FS	SMF119FT_FSCRIP+8
EXTSFST_FSCRIPV66	SMF119FT_FS	SMF119FT_FSCRIP+10
EXTSFST_FSCRIPV67	SMF119FT_FS	SMF119FT_FSCRIP+12
EXTSFST_FSCRIPV68	SMF119FT_FS	SMF119FT_FSCRIP+14
EXTSFST_FSCLIPV6	SMF119FT_FS	SMF119FT_FSCLIP
EXTSFST_FSCLIPV61	SMF119FT_FS	SMF119FT_FSCLIP+0
EXTSFST_FSCLIPV62	SMF119FT_FS	SMF119FT_FSCLIP+2
EXTSFST_FSCLIPV63	SMF119FT_FS	SMF119FT_FSCLIP+4
EXTSFST_FSCLIPV64	SMF119FT_FS	SMF119FT_FSCLIP+6
EXTSFST_FSCLIPV65	SMF119FT_FS	SMF119FT_FSCLIP+8
EXTSFST_FSCLIPV66	SMF119FT_FS	SMF119FT_FSCLIP+10
EXTSFST_FSCLIPV67	SMF119FT_FS	SMF119FT_FSCLIP+12
EXTSFST_FSCLIPV68	SMF119FT_FS	SMF119FT_FSCLIP+14
EXTSFST_FSMECH	SMF119FT_FSSC	SMF119FT_FSMechanism
EXTSFST_FSCPROTECT	SMF119FT_FSSC	SMF119FT_FSCProtect
EXTSFST_FSDPROTECT	SMF119FT_FSSC	SMF119FT_FSDProtect
EXTSFST_FSLOGINM	SMF119FT_FSSC	SMF119FT_FSLoginMech
EXTSFST_FSPROTOL	SMF119FT_FSSC	SMF119FT_FSProtoLevel

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTSFST_FSCIPHER	SMF119FT_FSSC	SMF119FT_FSCipherSpec
EXTSFST_FSBUFSIZE	SMF119FT_FSSC	SMF119FT_FSProtBuffSize
EXTSFST_FSFIPS140	SMF119FT_FSSC	SMF119FT_FSFips140

EXTDATA Record Type - SWWA

The MRXT120G and MZXT120G record definitions define the EXTDATA created by CA JARS from SMF type 120 subtype 7 records.

For a description of the SMF data fields listed in the following tables, see the IBM WebSphere documents at this website:

http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp

Note: Certain WebSphere 6.0 fields are 64-bit binary format. 64-bit binary is fully supported in CA JARS, but is not supported in CA Easytrieve or CA Earl. The CA Easytrieve mapping macro MZXT120A supplied with CA JARS maps only the last 32 bits of 64-bit fields. This will be corrected when CA Easytrieve is changed to support 64-bit binary fields.

CA Earl MRXT120G	CA Easytrieve MZXT120G	SMF Data Field
EXTSWWA_ID_SUBID	EXTSWWA_ID_SUBID	SM120SSI
EXTSWWA_ID_HOSTNAME	EXTSWWA_ID_HOSTNAME	SM120WAA
EXTSWWA_ID_SERVNAME	EXTSWWA_ID_SERVNAME	SM120WAB
EXTSWWA_ID_INSTNAME	EXTSWWA_ID_INSTNAME	SM120WAC
EXTSWWA_ID_ENCTOKEN	EXTSWWA_ID_ENCTOKEN	SM120WAD
EXTSWWA_ID_ACTIDENT	EXTSWWA_ID_ACTIDENT	SM120WAE
EXTSWWA_ID_STTIME	EXTSWWA_ID_STTIME	SM120WAF **
EXTSWWA_ID_STDATE	EXTSWWA_ID_STDATE	
EXTSWWA_ID_ENDTIME	EXTSWWA_ID_ENDTIME	SM120WAG **
EXTSWWA_ID_ENDDATE	EXTSWWA_ID_ENDDATE	
EXTSWWA_HS_SESSCRE	EXTSWWA_HS_SESSCRE	SM120WAH
EXTSWWA_HS_SESSINV	EXTSWWA_HS_SESSINV	SM120WAI
EXTSWWA_HS_SESSACT	EXTSWWA_HS_SESSACT	SM120WAJ

CA Earl MRXT120G	CA Easytrieve MZXT120G	SMF Data Field
EXTSWWA_HS_SESSLIFE	EXTSWWA_HS_SESSLIFE	SM120WAK
EXTSWWA_AP_APPNAME	EXTSWWA_AP_APPNAME	SM120WAL **
EXTSWWA_AP_SVLTCT	EXTSWWA_AP_SVLTCTE	SM120WAM
EXTSWWA_SV_SVLTNAME	EXTSWWA_SV_SVLTNAME	SM120WAQ **
EXTSWWA_SV_RESPTIME	EXTSWWA_SV_RESPTIME	SM120WAR
EXTSWWA_SV_NUMERRS	EXTSWWA_SV_NUMERRS	SM120WAS
EXTSWWA_SV_LOADED	EXTSWWA_SV_LOADED	SM120WAT
EXTSWWA_SV_LOADTIME	EXTSWWA_SV_LOADTIME	SM120WAU **
EXTSWWA_SV_LOADDATE	EXTSWWA_SV_LOADDATE	
EXTSWWA_CPU	EXTSWWA_CPU	SM120CPU
EXTSWWA_CL4	EXTSWWA_CL4	SM120CL4
EXTSWWA_ND4	EXTSWWA_ND4	SM120ND4

** Some fields are converted into new formats. Time and Date fields are derived from the single SMF record fields. Application Name and Servlet Name fields are translated from 16-bit Unicode to EBCDIC.

EXTDATA Record Type - SWWI

The MRXT120H and MZXT120H record definitions define the EXTDATA created by CA JARS from SMF type 120 subtype 8 records.

For a description of the SMF data fields listed in the following tables, see the IBM WebSphere documents at this website:

http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp

Note: Certain WebSphere 6.0 fields are 64-bit binary format. 64-bit binary is fully supported in CA JARS, but is not supported in CA Easytrieve or CA Earl. The CA Easytrieve mapping macro MZXT120A supplied with CA JARS maps only the last 32 bits of 64-bit fields. This will be corrected when CA Easytrieve is changed to support 64-bit binary fields.

CA Earl MRXT120H	**CA Easytrieve MZXT120H**	**SMF Data Field**
EXTSWWI_ID_SUBID	EXTSWWI_ID_SUBID	SM120SSI
EXTSWWI_ID_HOSTNAME	EXTSWWI_ID_HOSTNAME	SM120WIA
EXTSWWI_ID_SERVNAME	EXTSWWI_ID_SERVNAME	SM120WIB
EXTSWWI_ID_INSTNAME	EXTSWWI_ID_INSTNAME	SM120WIC
EXTSWWI_ID_STTIME	EXTSWWI_ID_STTIME	SM120WID **
EXTSWWI_ID_STDATE	EXTSWWI_ID_STDATE	
EXTSWWI_ID_ENDTIME	EXTSWWI_ID_ENDTIME	SM120WIE **
EXTSWWI_ID_ENDDATE	EXTSWWI_ID_ENDDATE	
EXTSWWI_HS_SESSCRE	EXTSWWI_HS_SESSCRE	SM120WIF
EXTSWWI_HS_SESSINV	EXTSWWI_HS_SESSINV	SM120WIG
EXTSWWI_HS_SESSACT	EXTSWWI_HS_SESSACT	SM120WIH
EXTSWWI_HS_SESSMNA	EXTSWWI_HS_SESSMINA	SM120WII
EXTSWWI_HS_SESSMXA	EXTSWWI_HS_SESSMAXA	SM120WIJ
EXTSWWI_HS_SESSLIFE	EXTSWWI_HS_SESSLIFE	SM120WIK
EXTSWWI_HS_SESSIT	EXTSWWI_HS_SESSINVT	SM120WIL
EXTSWWI_HS_SESSFIN	EXTSWWI_HS_SESSFIN	SM120WIM
EXTSWWI_HS_SESSLIVE	EXTSWWI_HS_SESSLIVE	SM120WIN
EXTSWWI_HS_SESSMNL	EXTSWWI_HS_SESSMINL	SM120WIO
EXTSWWI_HS_SESSMXL	EXTSWWI_HS_SESSMAXL	SM120WIP

CA Earl **MRXT120H**	**CA Easytrieve** **MZXT120H**	**SMF Data Field**
EXTSWWI_AP_APPNAME	EXTSWWI_AP_APPNAME	SM120WIQ **
EXTSWWI_AP_SVLTLD	EXTSWWI_AP_SVLTLD	SM120WIR
EXTSWWI_AP_SVLTCT	EXTSWWI_AP_SVLTCTE	SM120WIS
EXTSWWI_SV_SVLTNAME	EXTSWWI_SV_SVLTNAME	SM120WIW **
EXTSWWI_SV_TOTREQS	EXTSWWI_SV_REQUESTS	SM120WIX
EXTSWWI_SV_AVGRESP	EXTSWWI_SV_AVGRESP	SM120WIY
EXTSWWI_SV_MINRESP	EXTSWWI_SV_MINRESP	SM120WIZ
EXTSWWI_SV_MAXRESP	EXTSWWI_SV_MAXRESP	SM120WJ1
EXTSWWI_SV_NUMERRS	EXTSWWI_SV_NUMERRS	SM120WJ2
EXTSWWI_SV_LOADTIME	EXTSWWI_SV_LOADTIME	SM120WJ3 **
EXTSWWI_SV_LOADDATE	EXTSWWI_SV_LOADDATE	
EXTDWWI_WJ4	EXTDWWI_WJ4	SM120WJ4
EXTDWWI_WJ5	EXTDWWI_WJ5	SM120WJ5
EXTDWWI_WJ6	EXTDWWI_WJ6	SM120WJ6
EXTDWWI_CL5	EXTDWWI_CL5	SM120CL5
EXTDWWI_ND5	EXTDWWI_ND5	SM120ND5

** - Some fields are converted into new formats. Time and Date fields are derived from the single SMF record fields. Application Name and Servlet Name fields are translated from 16-bit Unicode to EBCDIC.

EXTDATA Record Type - RSSX

The MRXTRSSX and MZXTRSSX record definitions define the EXTDATA created by CA JARS from SMF type 74 subtype 8 records, RMF ESS (Enterprise Storage Server) extent pool statistics.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The section entitled Subtype 8 Enterprise Disk System Statistics in the chapter "Record Type 74(4A) RMF Activity of Several Resources" gives a detailed description of each field.

Additional information on the contents of RMF type 74 subtype 8 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (74)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTRSSX_LGO	SMF74PRO	SMF74LGO
EXTRSSX_XNM	SMF74PRO	SMF74XNM
EXTRSSX_SNM	SMF74PRO	SMF74SNM
EXTRSSX_IST	SMF74PRO	SMF74IST
EXTRSSX_DAT	SMF74PRO	SMF74DAT
EXTRSSX_INT	SMF74PRO	SMF74INT
EXTRSSX_SAM	SMF74PRO	SMF74SAM
EXTRSSX_CYC	SMF74PRO	SMF74CYC
EXTRSSX_PTN	SMF74PRO	SMF74PTN
EXTRSSX_CLVL	R748CNTL	R748CLVL
EXTRSSX_CTYP	R748CNTL	R748CTYP
EXTRSSX_CMDL	R748CNTL	R748CMDL
EXTRSSX_CSER	R748CNTL	R748CSER
EXTRSSX_CVSN	R748CNTL	R748CVSN
EXTRSSX_CAE	R748CNTL	R748CAE
EXTRSSX_CRTN	R748CNTL	R748CRTN
EXTRSSX_CSC	R748CNTL	R748CSC
EXTRSSX_CIOC	R748CNTL	R748CIOC
EXTRSSX_CFDV	R748CNTL	R748CFDV
EXTRSSX_CVOL	R748CNTL	R748CVOL
EXTRSSX_CDEV	R748CNTL	R748CDEV
EXTRSSX_CFLG	R748CNTL	R748CFLG
EXTRSSX_RSVD	R748CNTL	Reserved

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTRSSX_CINT	R748CNTL	R748CINT
EXTRSSX_CFTM	R748CNTL	R748CFTM
EXTRSSX_CFDT	R748CNTL	R748CFDT
EXTRSSX_CFCI	R748CNTL	R748CFCI
EXTRSSX_CMVS	SMF74PRO	SMF74MVS
EXTRSSX_CSRL	SMF74PRO	SMF74SRL
EXTRSSX_XPID	R748EXTP	R748XPID
EXTRSSX_XPLT	R748EXTP	R748XPLT
EXTRSSX_XRSV	R748EXTP	Reserved
EXTRSSX_XRCP	R748EXTP	R748XRCP
EXTRSSX_XRNS	R748EXTP	R748XRNS
EXTRSSX_XRNA	R748EXTP	R748XRNA
EXTRSSX_XRSC	R748EXTP	R748XRSC
EXTRSSX_XVCP	R748EXTP	R748XVCP
EXTRSSX_XVNS	R748EXTP	R748XVNS
EXTRSSX_XVSC	R748EXTP	R748XVSC
EXTRSSX_XSDY	R748EXTP	R748XSDY
EXTRSSX_XTDY	R748EXTP	R748XTDY

EXTDATA Record Type - RSSL

The MRXTRSSL and MZXTRSSL record definitions define the EXTDATA created by CA JARS from SMF type 74 subtype 8 records, RMF ESS (Enterprise Storage Server) link statistics.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The section entitled Subtype 8 Enterprise Disk System Statistics in the chapter "Record Type 74(4A) RMF Activity of Several Resources" gives a detailed description of each field.

Additional information on the contents of RMF type 74 subtype 8 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (74)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTRSSL_LGO	SMF74PRO	SMF74LGO
EXTRSSL_XNM	SMF74PRO	SMF74XNM
EXTRSSL_SNM	SMF74PRO	SMF74SNM
EXTRSSL_IST	SMF74PRO	SMF74IST
EXTRSSL_DAT	SMF74PRO	SMF74DAT
EXTRSSL_INT	SMF74PRO	SMF74INT
EXTRSSL_SAM	SMF74PRO	SMF74SAM
EXTRSSL_CYC	SMF74PRO	SMF74CYC
EXTRSSL_PTN	SMF74PRO	SMF74PTN
EXTRSSL_CLVL	R748CNTL	R748CLVL
EXTRSSL_CTYP	R748CNTL	R748CTYP
EXTRSSL_CMDL	R748CNTL	R748CMDL
EXTRSSL_CSER	R748CNTL	R748CSER
EXTRSSL_CVSN	R748CNTL	R748CVSN
EXTRSSL_CAE	R748CNTL	R748CAE
EXTRSSL_CRTN	R748CNTL	R748CRTN
EXTRSSL_CSC	R748CNTL	R748CSC
EXTRSSL_CIOC	R748CNTL	R748CIOC
EXTRSSL_CFDV	R748CNTL	R748CFDV
EXTRSSL_CVOL	R748CNTL	R748CVOL
EXTRSSL_CDEV	R748CNTL	R748CDEV
EXTRSSL_CFLG	R748CNTL	R748CFLG
EXTRSSL_RSVD	R748CNTL	Reserved
EXTRSSL_CINT	R748CNTL	R748CINT
EXTRSSL_CFTM	R748CNTL	R748CFTM
EXTRSSL_CFDT	R748CNTL	R748CFDT
EXTRSSL_CFCI	R748CNTL	R748CFCI
EXTRSSL_CMVS	SMF74PRO	SMF74MVS

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTRSSL_CSRL	SMF74PRO	SMF74SRL
EXTRSSL_LAID	R748LSS	R748LAID
EXTRSSL_LTYP	R748LSS	R748LTYP
EXTRSSL_LFLG	R748LSS	R748LFLG
EXTRSSL_LRSV	R748LSS	Reserved
EXTRSSL_LERB	R748LSS	R748LERB
EXTRSSL_LEWB	R748LSS	R748LEWB
EXTRSSL_LERO	R748LSS	R748LERO
EXTRSSL_LEWO	R748LSS	R748LEWO
EXTRSSL_LERT	R748LSS	R748LERT
EXTRSSL_LEWT	R748LSS	R748LEWT
EXTRSSL_LPSB	R748LSS	R748LPSB
EXTRSSL_LPRB	R748LSS	R748LPRB
EXTRSSL_LPSO	R748LSS	R748LPSO
EXTRSSL_LPRO	R748LSS	R748LPRO
EXTRSSL_LPST	R748LSS	R748LPST
EXTRSSL_LPRT	R748LSS	R748LPRT
EXTRSSL_LSRB	R748LSS	R748LSRB
EXTRSSL_LSWB	R748LSS	R748LSWB
EXTRSSL_LSRO	R748LSS	R748LSRO
EXTRSSL_LSWO	R748LSS	R748LSWO
EXTRSSL_LSRT	R748LSS	R748LSRT
EXTRSSL_LSWT	R748LSS	R748LSWT
EXTRSSL_LFLF	R748LSS	R748LFLF
EXTRSSL_LFLY	R748LSS	R748LFLY
EXTRSSL_LFLS	R748LSS	R748LFLS
EXTRSSL_LFPQ	R748LSS	R748LFPQ
EXTRSSL_LFIT	R748LSS	R748LFIT
EXTRSSL_LFCR	R748LSS	R748LFCR
EXTRSSL_LFR1	R748LSS	R748LFR1

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTRSSL_LFR2	R748LSS	R748LFR2
EXTRSSL_LFIF	R748LSS	R748LFIF
EXTRSSL_LFOD	R748LSS	R748LFOD
EXTRSSL_LFOA	R748LSS	R748LFOA
EXTRSSL_LFDF	R748LSS	R748LFDF
EXTRSSL_LFIO	R748LSS	R748LFIO
EXTRSSL_LFTC	R748LSS	R748LFTC
EXTRSSL_LFBC	R748LSS	R748LFBC

EXTDATA Record Type - RSSR

The MRXTRSSR and MZXTRSSR record definitions define the EXTDATA created by CA JARS from SMF type 74 subtype 8 records, RMF ESS (Enterprise Storage Server) rank and array statistics.

For a complete description of each SMF data field listed below, refer to the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630). The section entitled Subtype 8 Enterprise Disk System Statistics in the chapter "Record Type 74(4A) RMF Activity of Several Resources" gives a detailed description of each field.

Additional information on the contents of RMF type 74 subtype 8 records can be found by assembling the RMF mapping macro SYS1.MACLIB(ERBSMFR), as in this example:

```
RECMAP   DSECT
         ERBSMFR (74)
         END
```

All of the fields listed below are found in the macro ERBSMFR and its subordinate macros. Corresponding CA Earl and CA Easytrieve maps are MRXTRSSR and MZXTRSSR.

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTRSSR_LGO	SMF74PRO	SMF74LGO
EXTRSSR_XNM	SMF74PRO	SMF74XNM
EXTRSSR_SNM	SMF74PRO	SMF74SNM
EXTRSSR_IST	SMF74PRO	SMF74IST
EXTRSSR_DAT	SMF74PRO	SMF74DAT

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTRSSR_INT	SMF74PRO	SMF74INT
EXTRSSR_SAM	SMF74PRO	SMF74SAM
EXTRSSR_CYC	SMF74PRO	SMF74CYC
EXTRSSR_PTN	SMF74PRO	SMF74PTN
EXTRSSR_CLVL	R748CNTL	R748CLVL
EXTRSSR_CTYP	R748CNTL	R748CTYP
EXTRSSR_CMDL	R748CNTL	R748CMDL
EXTRSSR_CSER	R748CNTL	R748CSER
EXTRSSR_CVSN	R748CNTL	R748CVSN
EXTRSSR_CAE	R748CNTL	R748CAE
EXTRSSR_CRTN	R748CNTL	R748CRTN
EXTRSSR_CSC	R748CNTL	R748CSC
EXTRSSR_CIOC	R748CNTL	R748CIOC
EXTRSSR_CFDV	R748CNTL	R748CFDV
EXTRSSR_CVOL	R748CNTL	R748CVOL
EXTRSSR_CDEV	R748CNTL	R748CDEV
EXTRSSR_CFLG	R748CNTL	R748CFLG
EXTRSSR_RSVD	R748CNTL	Reserved
EXTRSSR_CINT	R748CNTL	R748CINT
EXTRSSR_CFTM	R748CNTL	R748CFTM
EXTRSSR_CFDT	R748CNTL	R748CFDT
EXTRSSR_CFCI	R748CNTL	R748CFCI
EXTRSSR_CMVS	SMF74PRO	SMF74MVS
EXTRSSR_CSRL	SMF74PRO	SMF74SRL
EXTRSSR_RRID	R748RANK	R748RRID
EXTRSSR_RPNM	R748RANK	R748RPNM
EXTRSSR_RCNT	R748RANK	R74RCNT
EXTRSSR_RBYR	R748RANK	R748RBYR
EXTRSSR_RBYW	R748RANK	R748RBYW
EXTRSSR_RROP	R748RANK	R748RROP

CA JARS EXTDATA Variable Name	IBM DSECT Name	IBM Variable Name
EXTRSSR_RWOP	R748RANK	R748RWOP
EXTRSSR_RKRT	R748RANK	R748RKRT
EXTRSSR_RKWT	R748RANK	R748RKWT
EXTRSSR_AAID	R748ARRY	R748AAID
EXTRSSR_ARID	R748ARRY	R748ARID
EXTRSSR_AEBC	R748ARRY	R748AEBC
EXTRSSR_ATYP	R748ARRY	R748ATYP
EXTRSSR_AASP	R748ARRY	R748AASP
EXTRSSR_AAWD	R748ARRY	R748AAWD
EXTRSSR_AACP	R748ARRY	R748AACP
EXTRSSR_RPLT	R748EXTP	R748XPLT

EXTDATA Record Type - LOGA

The MRXTLOGA and MZXTLOGA record maps define the EXTDATA created by CA JARS from SMF type 88 subtype 1 records, System Logger Activity.

For details about the System Logger and SMF fields, see the *z/OS System Logger System Programmer's Guide* (SG24-6898) and the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630).

Additional information on the contents of SMF type 88 subtype 1 records can be found by assembling the SMF mapping macro, as in this example:

```
RECMAP   DSECT
         IFASMFR 88
         END
```

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXTLOGA_WID	SMFRCD88	SMF88WID
EXTLOGA_LIT	SMF88LSD	SMF88LIT
EXTLOGA_LSN	SMF88LSD	SMF88LSN
EXTLOGA_LFL	SMF88LSD	SMF88LFL
EXTLOGA_LTD	SMF88LSD	SMF88LTD (see note 1)
EXTLOGA_LTT	SMF88LSD	SMF88LTD (see note 2)

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXTLOGA_LLD	SMF88LSD	SMF88LTD (see note 3)
EXTLOGA_LLT	SMF88LSD	SMF88LTD (see note 4)
EXTLOGA_LWI	SMF88LSD	SMF88LWI
EXTLOGA_LIB	SMF88LSD	SMF88LIB
EXTLOGA_LAB	SMF88LSD	SMF88LAB
EXTLOGA_LWB	SMF88LSD	SMF88LWB
EXTLOGA_LDB	SMF88LSD	SMF88LDB
EXTLOGA_LIO	SMF88LSD	SMF88LIO
EXTLOGA_LIS	SMF88LSD	SMF88LIS
EXTLOGA_GRP	SMF88LSD	SMF88GRP
EXTLOGA_EDS	SMF88ESD	SMF88EDS
EXTLOGA_ERI	SMF88ESD	SMF88ERI
EXTLOGA_ERC	SMF88ESD	SMF88ERC
EXTLOGA_ESF	SMF88ESD	SMF88ESF
EXTLOGA_ETT	SMF88ESD	SMF88ETT
EXTLOGA_ETF	SMF88ESD	SMF88ETF
EXTLOGA_EO	SMF88ESD	SMF88EO
EXTLOGA_EFS	SMF88ESD	SMF88EFS
EXTLOGA_EDO	SMF88ESD	SMF88EDO
EXTLOGA_EAF	SMF88ESD	SMF88EAF
EXTLOGA_STN	SMF88SSD	SMF88STN
EXTLOGA_SWB	SMF88SSD	SMF88SWB
EXTLOGA_SIB	SMF88SSD	SMF88SIB
EXTLOGA_SAB	SMF88SSD	SMF88SAB
EXTLOGA_RSV2	SMF88SSD	reserved
EXTLOGA_SII	SMF88SSD	SMF88SII
EXTLOGA_SAI	SMF88SSD	SMF88SAI
EXTLOGA_SC1	SMF88SSD	SMF88SC1
EXTLOGA_SC2	SMF88SSD	SMF88SC2
EXTLOGA_SC3	SMF88SSD	SMF88SC3

Notes:

1. This field contains the date in GMT.
2. This field contains the time in GMT.
3. This field contains the date in local time.
4. This field contains the time in local time.

EXTDATA Record Type - LOGB

The MRXTLOGB and MZXTLOGB record maps define the EXTDATA created by CA JARS from SMF type 88 subtype 11 records, System Logger Structure Alter Activity.

For details about the System Logger and SMF fields, see the *z/OS System Logger System Programmer's Guide* (SG24-6898) and the *z/OS MVS System Management Facilities (SMF) Guide* (SA22-7630).

Additional information on the contents of SMF type 88 subtype 11 records can be found by assembling the SMF mapping macro, as in this example:

```
RECMAP   DSECT
         IFASMFR 88
         END
```

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXTLOGB_WID	SMFRCD88	SMF88WID
EXTLOGB_ANM	SMF88ASD	SMF88ANM
EXTLOGB_ATD	SMF88ASD	SMF88ATK (see note 1)
EXTLOGB_ATT	SMF88ASD	SMF88ATK (see note 2)
EXTLOGB_ALD	SMF88ASD	SMF88ATK (see note 3)
EXTLOGB_ALT	SMF88ASD	SMF88ATK (see note 4)
EXTLOGB_AIT	SMF88ASD	SMF88AIT
EXTLOGB_AWB	SMF88ASD	SMF88AWB
EXTLOGB_AO	SMF88ASD	SMF88AO
EXTLOGB_ACB	SMF88ASD	SMF88ACB
EXTLOGB_ATB	SMF88ASD	SMF88ATB
EXTLOGB_ASZ	SMF88ASD	SMF88ASZ
EXTLOGB_ATW	SMF88ASD	SMF88ATW

CA JARS EXTDATA Variable name	IBM DSECT name	IBM Variable name
EXTLOGB_ALS	SMF88ASD	SMF88ALS
EXTLOGB_AFG	SMF88ASD	SMF88AFG

Notes:

1. This field contains the date in GMT.
2. This field contains the time in GMT.
3. This field contains the date in local time.
4. This field contains the time in local time.

Using the Sample EXTDATA Reports

The sample EXTDATA reports allow you to quickly use CA JARS to produce reports. The following table lists the CA Easytrieve member name for each sample report. The sample reports are also provided in CA Earl. To produce a CA Earl report, use the member name ERXTnnnn, instead of EZXTnnnn.

The JCL used to produce the CA Easytrieve reports is located in CAJRJCL member CAJRRPTZ. CAJRRPTZ uses a CA Easytrieve PROC, CAJREASY, which is located in CAJRPROC.

The JCL used to produce the CA Earl reports is located in the CAJRJCL member CAJRRPT. CAJRRPT uses an Earl PROC, CAJREARL, which is located in CAJRPROC.

Sample CA Earl and CA Easytrieve EXTDATA report control statements are contained in the CAJREARL and CAJREXTR libraries respectively.

Member Name	Report Name	SMF/EXT Record Type
EZXT0011	Weekday Workload Profile	06, 30-5 S30, SIO, S06
EZXT0016	Weekday Workload Profile by Hour	06, 30-5 S30, SIO, S06
EZXT0017	Remote Input Log	30-5 S30
EZXT0019	Tape Mounts by Job Name	30-5 S30, SIO
EZXT0021	Class/Priority Turnaround Analysis	30-5 S30, SIO

Member Name	Report Name	SMF/EXT Record Type
EZXT0022	Job Turnaround Analysis	30-5 S30
EZXT0023	Computer Utilization Log	06, 30-4 S30X, S06
EZXT0034	TSO Session Analysis	30-2/3/5 S30, SIO
EZXT0037	Peak Paging Periods	30-4 S30X
EZXT0040	Requeued Jobs Log	30-5 S30
EZXT0042	Utilization Summary by Job	06, 30-5 S30, SIO, S06
EZXT0043	Utilization Summary by Program	30-4 S30X, SIOX
EZXT0044	Program Paging Profile	30-4 S30X
EZXT0045	Abnormal Terminations by Program Name	30-4 S30X
EZXT0048	Workload Trend Analysis	06, 30-4/5 S30, SIO, S06
EZXT0049	Application Trend Analysis	06, 30-4/5 S30, SIO, S06
EZXT0050	Printer Device Utilization by Day	06 S06
EZXT0051	Special Forms Utilization	06 S06
EZXT0101	Device Status by Date/Time	8-11 S07-S12
EZXT0102	IPL Information List	00 S00
EZXT0103	DB2 Detail	101 S101
EZXT0104	TSO/E Command Report	32 S32
EZXT0105	Data in Virtual (DIV) Report	41-2 S41

Member Name	Report Name	SMF/EXT Record Type
EZXT0106	Extended Sysout	06 S06
EZXT0107	Extended Address Space	30-2/3 S30I
EZXT0108	RJE Report	47-49 SSNA 52-54 SBSC
EZXT0150	CPU Utilization Profile	70 R70C
EZXT0151	System Queue Lengths	70 R70A
EZXT0153	LPAR Cluster Report	70 R70P
EZXT0154	Paging Activity	71 R71P
EZXT0155	Paging Frame Utilization	71 R71P
EZXT0158	Channel Path Statistics	73 R73
EZXT0159	Device Activity Report	74 R74D
EZXT0160	XCF Activity - Signals Sent/Received	74 R74M
EZXT0161	XCF Activity - System Request Summary	74 R74S
EZXT0162	XCF Path Activity	74 R74P
EZXT0163	Coupling Facility CPU Utilization Percentage	74 R74F
EZXT0164	Coupling Facility Request Summary	74 R74L
EZXT0165	Coupling Facility Storage Summary	74 R74C
EZXT0166	Coupling Facility Structure Performance	74 R74X

Member Name	Report Name	SMF/EXT Record Type
EZXT0167	Page Data Set Activity Analysis	75 R75
EZXT0168	Exclusive Enqueue Contention Report	77 R77
EZXT0201	CPU Wait Time Profile	70 R70C
EZXT0202	Batch Address Space Usage	70 R70A
EZXT0203	TSO/E Address Space Usage	70 R70A
EZXT0204	STC Address Space Usage	70 R70A
EZXT0205	Ready Address Space Usage	70 R70A
EZXT0206	In Address Space Usage	70 R70A
EZXT0207	Out Address Space Usage	70 R70A
EZXT0208	Wait Address Space Usage	70 R70A
EZXT0209	Logical Ready Address Space Usage	70 R70A
EZXT0210	Logical Wait Address Space Usage	70 R70A
EZXT0211	ASCH Address Space Usage	70 R70A
EZXT0212	UNIX System Services Address Space Usage	70 R70A
EZXT0213	PR/SM Partition and LPAR Usage	70 R70P
EZXT0214	Paging Statistics	71 R71P
EZXT0215	Swap Activity by Reason	71 R71S
EZXT0216	Channel Path Stats	73 R73

Member Name	Report Name	SMF/EXT Record Type
EZXT0217	Page/Swap Data Activity	75 R75
EZXT0218	Enq Stats	77 R77
EZXT0219	Storage Class I/O Summary	42 S42S
EZXT0220	Dataset Response Report	42-6 S42D
EZXT0223	VLF Statistics	41-3 S4IV
EZXT0224	ACF/VTAM Statistics	50 S50
EZXT0225	Volume Space Stats	19 S19
EZXT0226	Disk Device Statistics	74 R74D
EZXT0227	Job Measured Usage	30 U30
EZXT0228	System Measured Usage	89 R89
EZXT0229	XCF Message Traffic	74-2 R74S
EZXT0230	XCF Path Message Traffic	74-2 R74P
EZXT0231	XCF Path Message Traffic	74-2 R74M
EZXT0232	Coupling CPU Usage	74-2 R74F
EZXT0233	Local Coupling Facility Stats	74-4 R74L
EZXT0234	Local Coupling Facility Storage Stats	74-4 R74C
EZXT0235	Coupling Facility Structure Stats	74-4 R74X
EZXT0236	Workload Class Stats	72-4 R72C

Member Name	Report Name	SMF/EXT Record Type
EZXT0238	FTP Stats	118 SFTP
EZXT0239	Telnet Stats	118 STEL
EZXT0240	API Socket Stats	118 SAPI
EZXT0241	UNIX System Services Job Usage	30 O30
EZXT0243	Storage Class BMF Stats	42-1 S42B
EZXT0244	Summary of Sysout Transmissions by Node	57 S572
EZXT0245	Control Unit Cache Stats	42-2 S42C
EZXT0246	Dataset I/O Statistics	42-6 S42D, S42I
EZXT0247	MQSeries Detail Log Manager Statistics	115-1 SMQL
EZXT0248	MQSeries Summary Log Manager Statistics	115-1 SMQL
EZXT0249	MQSeries Detail Data Manager Statistics	115-2 SMQD
EZXT0250	MQSeries Summary Data Manager Statistics	115-2 SMQD
EZXT0251	MQSeries Detail Message Manager Statistics	115-2 SMQM
EZXT0252	MQSeries Summary Message Manager Statistics	115-2 SMQM
EZXT0253	MQSeries Buffer Manager Statistics	115-2 SMQB
EZXT0254	MQSeries Buffer Manager Statistics	115-2 SMQB
EZXT0255	MQSeries Accounting Data	116 SMQA
EZXT0256	Cache Subsystem Status	74-5 R74B

Member Name	Report Name	SMF/EXT Record Type
EZXT0257	Cache Subsystem Activity	74-5 R74A
EZXT0270	MQSeries Coupling Facility Usage Stats	115-2 SMQC
EZXT0271	MQSeries DB2 Statistics	115-2 SMQ2
EZXT0272	MQSeries DB2 Thread and Server Stats	115-2 SMQ2
EZXT0273	MQSeries Type Work Summary (count)	116-2, -3 SMQR
EZXT0274	MQSeries Type Work Summary (percent)	116-2, -3 SMQR
EZXT0275	MQSeries CICS Task Accounting	116-2, -3 SMQR
EZXT0276	MQSeries CICS Queue Statistics	116-2, -3 SMQQ
EZXT0298	CICS Web Support Log	110 CMCC
EZXT0299	CICS Daily Log	110 CMCC
EZXT0300	WebSphere Configuration Report	103 SWCF
EZXT0301	WebSphere Performance Detail Report	103 SWPF
EZXT0303	WebSphere Server Event Detail Report	103 SWSA
EZXT0304	WebSphere Server Event Summary Report	103 SWSA
EZXT0305	WebSphere Container Interval Detail Report	120 SWJI
EZXT0306	WebSphere Container Interval Summary Report	120 SWJI
EZXT0307	WebSphere Server Interval Detail Report	120 SWSI
EZXT0308	WebSphere Server Interval Summary Report	120 SWSI

Member Name	Report Name	SMF/EXT Record Type
EZXT0309	WebSphere Container Interval Detail Report	120 SWCI
EZXT0310	WebSphere J2EE Container Activity	120 SWJA
EZXT0311	WebSphere J2EE Container Activity Summary	120 SWJA
EZXT0312	Address Space zIIP CPU Activity	30-4 S30X
EZXT0313	Address Space zAAP CPU Activity	30-4 S30X
EZXT0314	Tape Library Volume Pool - Hourly Poolset Statistics	94-2 VTS2
EZXT0315	Tape Library Volume Pool - Hourly Active Data	94-2 VTS2
EZXT0316	Virtual Tape Server Stats Detail	94-1 VTS1
EZXT0317	Virtual Tape Server Stats Summary	94-1 VTS1
EZXT0318	Tape Library Volume Pool - Hourly Volume Pool Media Statistics	94-2 VTS2
EZXT0320	TCP/IP Connection Termination	119-2 STCT
EZXT0321	FTP Client Transfer Completion	119-3 SCTC
EZXT0322	TCP/IP Stack Start Stop Information	119-8 SSTP
EZXT0323	TCP/IP UDP Socket Information	119-10 SUDP
EZXT0324	TN3270 Server SNA Session Termination	119-21 SSST
EZXT0325	TSO Telnet Client Termination	119-23 STCC
EZXT0326	FTP Server Transfer Completion	119-70 SFST
EZXT0327	Crypto Accelerator Stats	70-2 R70Y

Member Name	Report Name	SMF/EXT Record Type
EZXT0328	Crypto Coprocessor Stats	70-2 R70Z
EZXT0329	State Data From MVS Register Service	89-2 R89S
EZXT0330	Dependent Enclave CPU Usage	30-x S30 S30I S30X
EZXT0331	DB2 Report Microsecond Times	101 S101
EZXT0332	DB2 Processing Exception Report	101 S101
EZXT0333	DB2 Concurrent Sessions	101 S101
EZXT0334	CICS RMI Support Log	110 CMCC
EZXT0335	MQSeries DB2 Statistics BLOB READ Times	101 SMQ2
EZXT0336	MQSeries Queue Accounting Statistics	101 SMQ2
EZXT0337	CPU Activity Report	70-1 70C, R70P
EZXT0338	CPU Activity Daily Report	70-1 70C, R70P
EZXT0339	ESS Extent Pool Statistics	74-8 RSSX
EZXT0340	ESS Link Statistics	74-8 RSSL
EZXT0341	ESS Rank Statistics	74-8 RSSR
EZXT0342	IP Printway Usage Report	6 & 9 S06
EZXT0343	CICS Response Apdex Index	110 CMCC
EZXT0344	CICS Concurrent Transactions	110 CMCC
EZXT0345	Blocked Workload Analysis	70-1 R70A

Member Name	Report Name	SMF/EXT Record Type
EZXT0346	Partition Data Report (see note below)	70-1 R70P
EZXT0347	I/O Queuing - I/O Processors (see note below)	78-3 R78A
EZXT0348	I/O Queuing - Logical Control Units (see note below)	78-3 R78B
EZXT0349	I/O Queuing - Channel Paths (see note below)	78-3 R78C
EZXT0350	Virtual Tape Server - Hourly Active Data	94-1 VTS1
EZXT0351	Virtual Tape Server - Hourly Capacity Data	94-1 VTS1
EZXT0352	Virtual Tape Server - TVC Activity Report	94-1 VTS1
EZXT0353	Virtual Tape Server - TVC Activity Summary Report	94-1 VTS1
EZXT0354	I/O Queuing - DCM Channels Summary Report (see note below)	78-3 R78B
EZXT0360	WLM Goal Mode Report - Transactions (see note below)	72-3 R72W
EZXT0361	WLM Goal Mode Report - Transaction Times (see note below)	72-3 R72W
EZXT0362	WLM Goal Mode Report - DASD I/O (see note below)	72-3 R72W
EZXT0363	WLM Goal Mode Report - Service Units Consumed (see note below)	72-3 R72W
EZXT0364	WLM Goal Mode Report - Service Times (see note below)	72-3 R72W
EZXT0365	WLM Goal Mode Report - Storage and Page-in Rates (see note below)	72-3 R72W
EZXT0366	WLM Goal Mode Report - Performance Analysis by Workload (see note below)	72-3 R72W
EZXT0367	WLM Goal Mode Report - Execution Delays (see note below)	72-3 R72W
EZXT0368	WLM Goal Mode Report - Response Time Distribution (see note below)	72-3 R72W

Member Name	Report Name	SMF/EXT Record Type
EZXT0369	WLM Goal Mode Report - Performance Analysis by SID (see note below)	72-3 R72W
EZXT0380	System Logger Activity Report by System ID	88-1 LOGA
EZXT0381	System Logger Activity Report by Logstream Name	88-1 LOGA
EZXT0382	System Logger Events Report	88-1 LOGA
EZXT0383	System Logger Interim Storage Report	88-1 LOGA
EZXT0384	System Logger Structure Alter Report	88-11 LOGB
EZXT0385	System Logger Activity Report by Structure Name	88-1 LOGA
EZXT0400	DB2 SQL Statement Counters (Number One)	101 S101
EZXT0401	DB2 SQL Statement Counters Summary (Number One)	101 S101
EZXT0402	DB2 SQL Statement Counters (Number Two)	101 S101
EZXT0403	DB2 SQL Statement Counters Summary (Number Two)	101 S101
EZXT0404	DB2 SQL Statement Counters (Number Three)	101 S101
EZXT0405	DB2 SQL Statement Counters Summary (Number Three)	101 S101
EZXT0406	DB2 SQL Statement Counters (Number Four)	101 S101
EZXT0407	DB2 SQL Statement Counters Summary (Number Four)	101 S101
EZXT0408	DB2 SQL Statement Counters (Number Five)	101 S101
EZXT0409	DB2 SQL Statement Counters Summary (Number Five)	101 S101
EZXT0410	DB2 SQL Statement Counters (Number Six)	101 S101

Member Name	Report Name	SMF/EXT Record Type
EZXT0411	DB2 SQL Statement Counters Summary (Number Six)	101 S101
EZXT0412	DB2 Log and Savepoint Data	101 S101
EZXT0413	DB2 Log and Savepoint Data Summary	101 S101
EZXT0414	DB2 User Defined Functions Data	101 S101
EZXT0415	DB2 User Defined Functions Data Summary	101 S101
EZXT0416	DB2 Global Wait Times	101 S101
EZXT0417	DB2 Global Wait Times Summary	101 S101
EZXT0418	DB2 Global Wait Counts	101 S101
EZXT0419	DB2 Global Wait Counts Summary	101 S101
EZXT0420	DB2 zIIP Times	101 S101
EZXT0421	DB2 zIIP Times Summary	101 S101
EZXT0500	WebContainer Servlet Response Time Detail	120-7 SWWA
EZXT0501	WebContainer Servlet Interval Report	120-8 SWWI
EZXTA001	ADABAS Activity Summary	SIEA
EZXTD001	CA Datacom Activity Summary	SIED
EZXTI001	Transaction Performance Analysis	IMS log records
EZXTN001	NetView Session Detail	39, SIEN
EZXTR001	CA Roscoe Session Analysis	SIER
EZXTT001	Tape Inventory Snapshot	SIET
EZXTX001	VM Transmission Report	SIEX

Member Name	Report Name	SMF/EXT Record Type
EZXTZ001	VM Resource Utilization	zVM accounting records 1, 2, 3 SIEZ
EZXTZ002	Session Detail Stats	zVM accounting record 1 SIEZ
EZXTZ004	VM Special Processor Use	zVM accounting record 1 SIEZ

Note: These reports compute the total time covered using the minimum and maximum time from all available intervals. Therefore, in order for these reports to give meaningful results, the time range covered by the data must be the same for all the SIDs or sysplexes in the data, and it must not contain any missing intervals.

Earl CSV (Comma Separated Value) File Output

CA JARS now provides new and expanded support for CSV file production. See the "CSV File Production" chapter for details. The CSV support described below is maintained for previous users, but is not recommended for new CSV production.

The following example illustrates the required input statements.

```
//SYSIN  DD *
OPTION PRTEXIT=CAJRCSV
OPTION LIST OFF
OPTION EXCLUDE
OPTION PRINTER = 132 PAGE = 99999
OPTION CPAGE = 60
OPTION OMIT ALL BLANK LINES
HISTIN:  FILE JARS RECORD=3697
  DEF INAREA 1-3697 X
  COPY MRXTHDR
  COPY MRXT50
!
REPORT 'CSV TEST'
SELECT EXTTYPE = 'S50 '
CONTROL SKIP  SID  EXT50_NME RECDATEC (RECHR)
  SET(T) ZID (X 4) = SID
  SET(T) ZNME (X 8) = EXT50_NME
  SET(T) ZDATE (X 6) = RECDATEC
PRINT TOTALS ONLY
PRINT 'RP1' 'SID=' ZID 'NAME=' ZNME 'DATE=' ZDATE 'HOUR=' RECHR
      'WR=' (EXT50_CWR) 'RD=' (EXT50_CRD)
      'PI=' (EXT50_PUI) 'PO=' (EXT50_PUO)
END
```

Listed next is each input statement and their corresponding functions.

OPTION PRTEXIT=CAJRCSV

causes the CAJRCSV exit to be invoked, and to produce CSV files from all output reports in this Earl run.

OPTION LIST OFF

causes the Earl program listing to be omitted from the output.

OPTION EXCLUDE

causes the compilation listing to be omitted.

OPTION PRINTER = 132 PAGE = 99999

sets the maximum print line width for the run (216 is the maximum), PAGE = 99999. Also causes Earl to not generate page breaks.

HISTIN

sets the DDNAME to be used as input.

COPY MRXTHDR, COPY MRXT50

includes the file definition of the required EXTDATA record.

REPORT 'CSV TEST'

dummy report statement which starts the Earl report section.

SELECT

selects only the given record type for this report.

CONTROL

sets the report order. In this case we are creating a summary CSV file, so the parentheses around RECHR also show the output break level. In this case we want a CSV record per hour, within date, VTAM line name, and Sysid.

SET(T)

causes the alphabetic key fields to be printed on the TOTALS line.

PRINT TOTALS ONLY

no detail printing required. Only summary information desired.

PRINT 'RP1' 'SID=' ZID ....

The CAJRCSV exit expects the first token on the output line to be the output data set DDNAME, in this case RP1. Be sure to include an RP1 DD statement in the JCL. Each report typically produces its own output CSV file. The following tokens on the PRINT line must be in the format of 'column=' field, where column is the column name for the CSV file, and field is the actual data.

The following output data example illustrates what was generated from this report definition.

```
SID,NAME,DATE,HOUR,WR,RD,PI,PO

XAD1,A01H04,950119,0,1091,0,1214,1201
XAD1,A01H04,950119,1,1287,0,1479,1463
XAD1,A01H04,950119,2,1058,0,1100,1080
XAD1,A01H04,950119,3,1184,0,1261,1321
XAD1,A01H04,950119,4,1829,0,1892,2088
```

The first line of output in the CSV file contains the column names, followed by the data itself.

The output file can be downloaded to spreadsheets, word processors, or other PC-based applications. It can also be used as a basis for EIS-type systems.

It should be noted that the CAJRCSV exit can be used with any type of input data. CA JARS History/Account records, EXTDATA, as well as Chargeback records from CCCTAB/CCCMOD may be used to produce CSV files.

To use CCCMOD as an input file, the CCCTAF synonym must be created to point to CCCMOD instead of CCCTAB. For example, to process with a CCCTAB file, copy CAKRINVE from CAJREARL, then add OPTION PRTEXIT.

EARLGRAF Routine

CA JARS provides a routine, EARLGRAF, which allows the creation of mainframe graphs with CA Earl. Examples of mainframe graphs are available in CAJREARL as members SYSDAY1, SYSDAY2, and SYSWEEK1. An overview of what is necessary to produce mainframe graphs is described below along with the required input statements.

SET(D) = TSO_RESP * 100 / 5.0

The variable E1 is the value representing the length of the bar graph line. In this case the TSO_RESP time as a percentage of the fixed amount 5.0 (5 seconds). A response of 1 second would cause the value in E1 to be 20 (e.g., 20%).

CALL(D) EARLGRAF USING STARS STARLEN E1 ASTS

This function call requires various parameters to be passed in a certain format. The first parm (STARS) is the returned character variable, filled with graph characters. The second parm (STARLEN) is a fullword (B 10.0) which is set to the length of the first parm. The remaining parms are really pairs of parms. The first is the value to be plotted (E1 in this case), the second parm in the pair is the plot character (ASTS in this case).

for example:

```
DEF STARS (70) = ' ' '     PLOT PERCENTAGE'
DEF STARLEN (B 10.0) = 100
DEF E1 (B 10.0) = 0
DEF ASTS (1) = '*'
```

Note: The numeric parms **must** be defined as (B 10.0).

The following example illustrates the required input statements.

```
OPTION PRINTER = 132 PAGE = 60
HISTIN: FILE JARS RECORD=3697
  DEF INAREA 1-3697 X
  COPY MRXTHDR
  COPY MRXT72P
  DEF REC_HHMM = RECTIME 1-4 N 'INTERVAL' 'END TIME' PIC '99:99'
DEF TSO_RESP  (5.2)  = 0 'TSO' 'RESPONSE TIME'
DEF STARLEN  (B 10.0) = 100
DEF E1(B 10.0) = 0
DEF DASHER (1) = '-'
DEF ASTS   (1) = '*'
DEF START  (70) = ' ' 'PLOT PERCENTAGE'
'----+----1----+----2----+----3----+----4----+----5----+----6----+----7'
DEF STARA  (30) = ' ' ' '
'----+----8----+----9----+----0'
IF     PROCID NOT = ':'
       THEN GOTO START
ENDIF
IF EXTTYPE = 'R72P' AND EXT72P_SYS = 'TSO ' THEN
   IF EXT72P_TTX > 0 THEN
      SET TSO_RESP = EXT72P_TTM / EXT72P_TTX
   ELSE
      SET TSO_RESP = 0
   ENDIF
ELSE
   GOTO START
NOTE *******************************************************************
NOTE *                 REPORT R72P                                     *
NOTE *******************************************************************
REPORT 'R72P - TSO PERIOD 1 RESPONSE TIME'
TITLE @1 'SYSID = ' @10 SID
TITLE @1 'DATE = '  @17 RECDATE
TITLE '100% = 5.00 SECONDS'
SELECT EXTTYPE = 'R72P' AND EXT72P_PRD = 1 AND SID = 'XAD1'
CONTROL (SID) SKIP  (RECDATE) SKIP REC_HHMM
SET(D) E1  = TSO_RESP * 100 / 5.0
IF(D) E1 > 100 THEN
   SET(D) E1 = 100
   CALL (D) EarlGRAF USING STARS STARLEN E1 DASHES
ELSE
   CALL(D) EarlGRAF USING STARS STARLEN E1 ASTS
ENDIF
PRINT  @9 REC_HHMM @30 TSO_RESP @31 '|' @32 &STARS. @102 &STARA. @132 '|'
IFTAG 0;PRINT &STARLEN. &ASTS. &DASHES.
!
END
```

The following report is produced from the previous input statements.

```
01/02/98                                         R72P - TSO PERIOD 1 RESPONSE TIME                                      PAGE     1

SYSID =  XAD1
DATE =   98/01/19
                                                        100% = 5.00 SECONDS
-----------------------------------------------------------------------------------------------------------------------------------
 INTERVAL                  TSO PLOT PERCENTAGE
 END TIME        RESPONSE TIME ----+----1----+----2----+----3----+----4----+----5----+----6----+----7
-----------------------------------------------------------------------------------------------------------------------------------
    00:00                3.07 |*************************************************************
    00:15                3.45 |*********************************************************************
    00:30                3.75 |***************************************************************************
    00:45                2.57 |***************************************************
    01:00                1.72 |**********************************
    01:15                2.39 |***********************************************
    01:30                4.35 |***************************************************************************************
    01:45                4.67 |*********************************************************************************************
    02:00                4.18 |***********************************************************************************
    02:15                4.36 |***************************************************************************************
    02:30                4.77 |***********************************************************************************************
    02:45                4.20 |************************************************************************************
    03:00                3.38 |*******************************************************************
    03:15                2.28 |*********************************************
    03:30                1.58 |*******************************
    03:45                1.61 |********************************
    04:00                1.47 |*****************************
    04:15                1.30 |**************************
    04:30                1.26 |*************************
    04:45                1.53 |******************************
    05:00                1.81 |************************************
    05:15                1.45 |*****************************
    05:30                1.96 |***************************************
    05:45                2.00 |****************************************
    06:00                1.40 |****************************
    06:15                1.02 |********************
    06:30                1.42 |****************************
    06:45                1.29 |*************************
    07:00                2.31 |**********************************************
    07:15                3.01 |************************************************************
    07:30                2.54 |**************************************************
    07:45                1.87 |*************************************
    08:00                1.52 |******************************
    08:15                1.59 |*******************************
    08:30                1.45 |*****************************
    08:45                0.98 |*******************
    09:00                1.02 |********************
    09:15                0.77 |***************
    09:30                0.68 |*************
    09:45                0.88 |*****************
    10:00                1.08 |*********************
    10:15                0.80 |****************
    10:30                0.63 |************
    10:45                0.78 |***************
    11:00                0.70 |**************
    11:15                0.87 |*****************
    11:30                0.73 |**************
    11:45                0.78 |***************
    12:00                0.87 |*****************
    12:15                0.84 |****************
    12:30                0.84 |****************
```

EXTDATA System Reports

There are four sample EXTDATA System Reports supplied with CA JARS to monitor the performance of the system. They are:

1. SYSDAY1
2. SYSDAY2
3. SYSWEEK1
4. TAPEMNT

These members provide a starting point for building your own set of EXTDATA System Reports. The control statements are contained in CAJREARL. The JCL to execute these examples is provided in CAJRJCL as member CAJRRPT. Each report has a record type printed on the heading line. Refer to the EXTDATA Record Types section previously described in this chapter.

SYSDAY1 contains the following reports:

- TSO Period 1 Response Time Graph
- TSO Response Times (all Periods)
- PR/SM CPU Utilization
- Non PR/SM Busy Time
- I/O Interrupt/Sec Graph
- Address Space Maximums
- Channel Path Statistics

SYSDAY2 contains the following reports:

- Expanded storage usage
- Paging and storage usage
- Real Page usage Graph
- Expanded Page usage Graph
- Swap Activity

SYSWEEK1 contains the following reports:

- PR/SM CPU Graph (by APAR)
- Job Usage by Class
- Channel Path Averages by Date/Time
- Channel Path Averages by CHAD
- VTAM Stats

TAPEMNT contains an example report showing the average time taken to satisfy a mount condition. In addition, TAPEMNT also illustrates how to build a more complex Earl EXTDATA report.

See sample EXTDATA System Reports in the *Reports Guide.*

Chapter 7: Operating Instructions

This chapter provides information on report writer DD statements, using DD DUMMY statements, concatenating multiple input files, using the suspense file feature, and region size.

Report Writer DD Statements

CA JARS is executed using the basic capabilities of the z/OS operating system. The amount of temporary work area needed on DASD units varies depending upon the volume of accounting data to be processed and the type of DASD units used.

The JCL below illustrates a typical run deck setup.

```
//JARS     JOB  (1234,ABCD),'I.M. PROGRAMMER',MSGLEVEL=1,CLASS=D
//         EXEC PGM=JSIMAIN,REGION=4096K
//STEPLIB  DD   DSN=CAI.JARS.CAJRLOAD,DISP=SHR
//SORTLIB  DD   DSN=SYS1.SORTLIB,DISP=SHR
//SYSOUT   DD   SYSOUT=*
//SYSPRINT DD   SYSOUT=*
//CAIJSNAP DD   SYSOUT=*
//CAIJSSMF DD   DSN=SMF.JAN94,UNIT=(TAPE,,DEFER),DISP=OLD,VOL=SER=001039
//         DD   DSN=CAI.JARS.SUSPEND(0),DISP=OLD
//CAIJSACT DD   UNIT=SYSDA,SPACE=(TRK,(200,20)),DISP=(,DELETE)
//SORTWK01 DD   UNIT=SYSDA,SPACE=(CYL,(20),,CONTIG)
//SORTWK02 DD   UNIT=(SYSDA,,,SEP=(SORTWK01)),SPACE=(CYL,(20),,CONTIG)
//SORTWK03 DD   UNIT=(SYSDA,,,SEP=(SORTWK01,SORTWK02)),
//              SPACE=(CYL,(20),,CONTIG)
//CAIJSCT1 DD   UNIT=SYSDA,SPACE=(TRK,(2,1))
//CAIJSCT2 DD   UNIT=SYSDA,SPACE=(TRK,(2,1))
//CAIJSPRT DD   SYSOUT=A,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=1330)
//CAIJSSPN DD   DSN=CAI.JARS.SUSPEND(+1),DISP=(,CATLG)
//              SPACE=(TRK,(30,15),RLSE),UNIT=SYSDA.
//
//CAIJSCIN DD   *
                            REPORT CONTROL CARDS
/*
//
```

Note: Additional DD statements may be required depending upon processing options selected.

Report Writer DDNAMEs

DDNAME	Description	Predefined DCB Attributes
CAIJSSMF	Used to input SMF accounting file and suspensed data (SELECT statement position 13).	RECFM=VBS LRECL=32760 BLKSIZE=4096
CAIJSDOS	Used to input DOS accounting file (SELECT statement position 10).	RECFM=V LRECL=1084 BLKSIZE=1088
CAIJSAIP	Used to input working database generated in previous run under CAIJSACT DDNAME (SELECT statement position 14).	RECFM=VB LRECL=8188 BLKSIZE=8192
CAIJSHST	Used to input summary file generated in previous run using Summarization feature (SELECT statement position 15).	RECFM=VB LRECL=8188 BLKSIZE=8192
CAIJSDCI	Used to input CMF data dictionary (DDNAME CAJRCMFO from CAJ1CMU3) (EXTDATA Statement, position 38). See the CMF Processing chapter in the *Systems Programmer Guide* for details.	RECFM=FB LRECL=80 BLKSIZE=80
anyname#	Output data set for summary file generated using Summarization feature (SORT statement positions 55-62).	RECFM=VB LRECL=8188 BLKSIZE=8192
CAIJSACT	Intermediate data set to hold working database (SELECT statement position 16). EXTDATA, if requested, will also be written to this file.	RECFM=VB LRECL=8188 BLKSIZE=8192
SORTWKnn	Temporary data sets used as sort work area in all sort phases.	NONE
CAIJSCT1	Temporary data set to hold edited report control statements.	RECFM=F LRECL=80
CAIJSCT2	Same as CAIJSCT1.	RECFM=F LRECL=80
CAIJSCIN	Used to input report control statements.	RECFM=F LRECL=80
CAIJSPRT	SYSOUT data set for output reports.	RECFM=F LRECL=133 BLKSIZE=133

DDNAME	Description	Predefined DCB Attributes
CAIJSCSV	CSV output for the PDS data set.	RECFM=VB LRECL=512 BLKSIZE=5124 DSORG=PO
CAIJSIDX	CSV index file.	RECFM=VB LRECL=255 BLKSIZE=2550
CAIJSNAP	Used to snap rejected SMF records. Must be a valid SYSOUT class. Cannot be DUMMY.	RECFM=VBS LRECL=125 BLKSIZE=882
CAIJSSPN	Used to hold records from incomplete jobs/sessions for later processing (use OPTION statement position 38 to request Suspense file).	RECFM=VB LRECL=4256 BLKSIZE=6233
CAIJDB2X	Used to hold DB2 accounting records for later processing by CA JARS Wizard's DB2 accounting extract (OPTION statement position 37).	RECFM=FB LRECL=372 BLKSIZE=2976
CAIJDB2P	(Optional) Used for problems determination and to hold a formatted dump of each DB2 accounting record. Do not DUMMY (OPTION statement position 37).	RECFM=VBS LRECL=137 BLKSIZE 1100
CAIJMSFX	(Optional) Used to hold NETVIEW session records for later CA JARS Wizard processing.	RECFM=FB LRECL=200 BLKSIZE=4000
CAIJS(X)	(Optional) Alternate data set for output report. DDNAME suffix as indicated on SORT statement (SORT statement position 64).	RECFM=F LRECL=133 BLKSIZE=133
CAIJXxx	Output XML data set produced by XML Writer. The last two characters in the name are filled in with the characters in positions 65-66 of the SORT statement.	RECFM=VB LRECL=255
CAIMXxx	Output XML schema data set produced by XML Writer. The last two characters in the name are filled in with the characters in positions 67-68 of the SORT statement. If these positions are blank, the last two characters will be set using the characters in positions 65-66.	RECFM=VB LRECL=255

DDNAME	Description	Predefined DCB Attributes
CAISDPRM	Used as input to CA Service Desk for optional parameters. See the *Systems Programmer Guide* for more information on these parameters.	RECFM=F/FB LRECL=80 BLKSIZE=multiple of 80 if FB; otherwise 80
SYSOUT	Output data set for SORT output.	NONE
STEPLIB	Used to access library containing CA JARS modules.	NONE
SORTLIB	Used to access library containing SORT modules.	NONE

Using DD DUMMY Statements

Although the SELECT statement controls the function which opens the accounting input files, a DD statement still causes the data set(s) to be allocated to an I/O device as per the JCL. The allocation of a tape drive by the executing program precludes any other job in the computer from using that drive, even if the program does not plan on bringing in a tape file on that drive. To avoid unnecessary allocation of resources when it is inconvenient to simply remove unnecessary DD statements, use the DUMMY form of the DD statement as follows:

```
//CAIJSDOS DD DUMMY
```

This example illustrates how to avoid allocating an unnecessary tape drive if no DOS/VSE job accounting data is introduced to CA JARS.

Note that the DUMMY option is **not** supported for the SNAP DD statement (DDNAME CAIJSNAP), or DDNAME CAIJDB2P.

Concatenating Multiple Input Files

The SELECT statement contains input indicators which, when *turned on,* instruct CA JARS to open the appropriate data set(s). Multiple input files are controlled by JCL in conjunction with turned on input indicators.

This product has been programmed to automatically accept and process input data sets under the same file name (DDNAME) with unlike attributes. This feature allows you to concatenate input data sets residing on different device types and having different DCB attributes.

SMF Input File

Multiple SMF files may be input by concatenating data sets using JCL statements. The following examples illustrate how to use this technique:

```
//CAIJSSMF DD DSN=SMF.JAN98,UNIT=(2400,,DEFER),DISP=OLD,
//            DCB=(RECFM=VBS,LRECL=32760,BLKSIZE=4096),VOL=SER=001039
//         DD DSN=SMF.DEC97,UNIT=AFF=CAIJSSMF,DISP=OLD,
//            DCB=*.CAIJSSMF,VOL=SER=001522
```

This product processes reel #001039 as defined by the first DD statement. The system rewinds and unloads the first tape and then requests a mount for reel #001522 on the same drive as per the AFF subparameter of the UNIT parameter. The second tape has the same DCB attributes as the first tape, thereby allowing the 'refer back' option to be used.

```
//CAIJSSMF DD DSN=SMF.JAN98,DISP=SHR
//         DD DSN=SMF.FEB98,DISP=SHR
```

These data sets are processed in a similar manner as the previous example. The SMF.JAN98 and SMF.FEB98 data sets have been previously cataloged on the system and may be the actual data sets which reside on disk and collect the SMF accounting data.

Using the Suspense File Feature

It is often the case that not all the SMF records pertaining to a job or TSO session are present in an SMF file at the time it is processed. When the optional Suspense File feature is invoked, all of the SMF records for an incomplete job or session are written to a suspense file. In a subsequent execution, processing a new SMF file, the suspense file is concatenated to the SMF input and reprocessed. Records for those jobs/sessions that are still not complete are written to a *new* Suspense file along with records from new incomplete jobs or sessions.

At this point, there will be two suspense files, one, created in a previous execution and now used as input, and a second, created in this most recent execution. These two files may be rotated between input and output for all future executions, or more than two may be created and used in rotation. The only requirement is that the file used as input must be the file created in the most recent previous execution. It is not important when a file, once used for input, is next used for output.

Suspense File JCL Requirements

The DD statement CAIJSSPN defines the output suspense file and must be present in order for incomplete jobs/sessions to be suspended. A DD statement concatenated to the CAIJSSMF DD statement defines the previously created input suspense file. If it is not present, the portions of jobs now completed by subsequent SMF data are converted into the account file and are missing data that had previously been suspended.

In order to avoid continual JCL modifications, it may be appropriate to establish a Generation Data Group to define the data set names used for the Suspense files. In this case, an example input suspense file's data set name might be JARS.SPINFILE(0), and the output data set name would be JARS.SPINFILE(+1). Under normal circumstances, the space requirement for a suspense file does not exceed approximately 10% of the space required to hold the amount of SMF data typically processed. For example, if 40 cylinders of a given device type are allocated for the input SMF file, then 4 cylinders should be adequate for a suspense file.

Another alternative is shown in the example on the next page. Note that permanent, preallocated files have been setup. A trailing job step conditionally copies the output suspense file (created *today)* to the (next) input suspense file (to be read *tomorrow).*

The data set names are examples meant to convey usage in this JCL skeleton:

```
//   EXEC PGM=JSIMAIN
//CAIJSSMF DD DISP=SHR,DSN=raw.SMF                  (INPUT)
//         DD DISP=SHR,DSN=suspense.yesterday       (INPUT)
//CAIJSSPN DD DISP=SHR,DSN=suspense.today           (OUTPUT)
 .
 .
 .
//   EXEC PGM=IEBGENER,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSIN    DD DUMMY
//SYSUT1   DD DISP=SHR,DSN=suspense.today           (INPUT)
//SYSUT2   DD DISP=SHR,DSN=suspense.yesterday       (OUTPUT)
```

Additional Considerations

The suspense file logic uses the presence or absence of certain SMF record types to determine whether a job or session is complete. Normally, the absence of the job purge record (type 26) triggers the suspension of records for a job or session. Optionally, the absence of the termination record (type 30, subtype 5) may be used. In this case, a job or session is considered incomplete only if it has not terminated by the time the SMF data is dumped. Also, in this case, a job that consists of only output writer records (type 6) would be considered complete and not be suspended.

Regardless of the presence or absence of certain record types, if the number of days between when a job was originally submitted (the Reader Start Date) and the current date is higher than a user-specified value, the job is not be suspended. For example, if a job was submitted on the 10th, is still in the suspense file on the 15th, and the specified suspend limit was four, the job is not be suspended again, but is processed. Refer to the description of the OPTION statement for information about suspense file related options.

Purging a Suspense File

For a number of reasons, an installation may wish to process all suspended jobs regardless of their *completeness* status. To do this, specify a suspend limit of zero on the OPTION statement. This causes all currently suspended jobs to be processed and no new jobs to be suspended. It also causes the output suspense file to be reset to empty so that subsequent use of the file for input is consistent and not raise the possibility of duplicate or otherwise incorrect data.

Region Size

CA JARS resides on disk as several members in a partitioned data set (user library) which you set up at the time the Job Accounting Report System is installed.

The member name given to the program must appear on the EXEC statement along with a REGION parameter (if necessary) defining the amount of core storage required to execute the program.

```
//  EXEC PGM=JSIMAIN,REGION=4096K
```

The Report Writer itself requires approximately 2048K to execute. The default sort core size is 960K, which causes the minimum region size to be 2138K, unless you code a smaller value for sort core size on the PARMS statement.

Chapter 8: Interfacing with CA JARS

There are several interfaces to this product available on the distribution tape. They are:

- ADABAS Interface
- DB2 Interface
- CA Datacom/DB Interface
- IMS Interface
- Network Accounting Interface
- Roscoe Interface
- Tape Volume Accounting Interface
- VM Interface
- Online System Interface (JOS)

The CICS interface (CA JARS for CICS), IDMS interface (CA JARS CA IDMS Option), and the Disk Space Accounting interface (CA JARS DSA Option) are available on separate tapes. Each interface has its own documentation.

All of the interfaces produce output that can be used as input to CA JARS or into the Wizard Report Writer. In addition, some of the interfaces can also generate EXTDATA records that can be used by CA Earl and CA Easytrieve. To determine if an interface produces EXTDATA, see the documentation for that interface. For record layouts for interface EXTDATA records, see CA Earl and CA Easytrieve SMF Data Dictionary in the chapter "EXTDATA Reporting."

Because CA JARS is primarily designed to read SMF data, these interfaces have been created to permit data collected by other program products to be read into the report writer as well, with a few exceptions. What follows is a brief explanation of the interfaces to this product.

The ADABAS Interface

The ADABAS Interface allows users of Software AG's ADABAS Database Management package to use this product to report and charge on ADABAS data. The ADABAS command log file is reformatted into CA JARS history record format with this interface. The Report Writer may then be used to generate invoices, activity reports or whatever reports are desired.

The DB2 Interface

The DB2 Interface extracts CPU elements from SMF type 101 records and enables you to chargeback for this activity. This interface is similar to that of DSA in that, DB2 calculates charges for DB2 activity, generates reports, then creates DEBIT control statements to be input to the Report Writer. Those DEBITs will then be included in the TOTAL CHARGE for the appropriate cost center or account code. No history file is generated in the interface, and all charges for the DB2 activity are calculated by the interface, not the Report Writer (CA JARS).

The IMS Interface

The input to this interface is the IMS log file, which contains the information about IMS application resource usage. The log records are reformatted into history record format and account codes or cost center identification may be added during the reformatting process. Full reporting and charging capabilities of CA JARS may then be applied to IMS data.

Optionally, EXTDATA records may also be produced by this interface.

The Network Accounting Interface

The Network Accounting Interface provides a mechanism for:

- Accounting for network system usage
- Adding network charges to your reports

The data used to assess and charge network cost is obtained from either CA Mazdamon or IBM NETVIEW. This guide describes how to manipulate NETVIEW and CA Mazdamon data through CA JARS and CA JARS Wizard.

The Roscoe Interface

The Roscoe Interface reformats the Roscoe account file into CA JARS history records, thus making the Report Writer available to users of ADR's Roscoe product.

The Tape Volume Accounting Interface

The CA JARS Tape Volume Accounting Interface provides a mechanism for users of CA tape management software packages (CA 1 and CA DYNAM/TLMS) to:

- Account for tape volume usage
- Add charges for tape volume usage to your CA JARS reports

The VM Interface

The VM Interface converts the VM account file data to CA JARS history format so reports may be generated to reflect the activity of each VM machine and each CMS user. Billing reports and invoices may also be created based on the accounting information provided through this interface.

The Disk Space Accounting Interface (CA JARS DSA Option)

The DSA Interface lets you account for disk space usage and charge for it as well. This interface is different from the others, in that, DSA calculates charges for disk space usage, generates reports, then creates DEBIT control statements to be input to CA JARS. Those DEBITs will then be included in the TOTAL CHARGE for the appropriate cost center or account code. No history file is generated in the interface, and all charges for the space used are calculated by the interface, not CA JARS.

The IDMS Interface (CA JARS CA IDMS Option)

The IDMS Interface is a tool for effectively analyzing IDMS activity. This interface compiles information about IDMS resource usage into a format that can be used for producing reports with CA JARS. To accomplish this, the interface reformats your IDMS Archived Log File records, producing a history file. All data required for you to monitor and allocate resource utilization is retained.

The CICS Interface (CA JARS for CICS)

The CICS Interface, once installed, becomes an integral part of CICS. Without altering IBM code, CA JARS for CICS collects data on transaction activity within CICS. Log files containing that data are maintained by the interface and through batch processing are reformatted into history records to be input to the report writer. The reformatting process (the Translate Utility) permits the user to generate utilization graphs on transaction, program, or file statistics and assign an account code or cost center identification to each record.

CA JARS for CICS GOLD is the feature of this interface that permits the user access to the collected data, online, before any batch processing is performed on the log files. Graphic reports can be generated on the terminal, and CICS can be closely monitored to assist in pinpointing problems during peak utilization periods.

DMS, UFO and MANTIS information can be included in the CICS data if desired.

The CA Datacom/DB Interface

The CA Datacom/DB Interface is a tool for effectively analyzing CA Datacom/DB activity. This interface compiles information about CA Datacom/DB resource usage into a format that can be used for producing reports with CA JARS. To accomplish this, the interface reformats your CA Datacom/DB accounting records, producing a CA JARS summary file. All data required for you to monitor and allocate resource utilization is retained on the CA JARS summary file.

The Online System Interface (JOS)

JOS is an ISPF interface designed to increase user productivity by providing an interactive, menu-driven environment for creating reports. You simply specify the options you want to perform using the menu-driven system. This eliminates the task of creating control statements.

Summary

When running reports on several interfaces and batch data, See the Account Record Matrix in this chapter to compare the record layout across all interfaces. Keep in mind that some fields are vastly different, depending on which interface data is input. For example, CICS executes transactions much more rapidly than batch jobs can run in the operating system. Therefore, time fields in the CICS data are in a different format than in batch data. (CICS times are relative to minutes, seconds, and fractions of seconds, and batch times are relative to hours, minutes, and seconds.) Similar differences exist in other data elements as well.

When generating a summary line on a report including data from multiple interfaces and SMF, be sure to display only fields that are true across all the data types, or totals can lose meaning. For example, you cannot add number of lines printed to number of file I/Os and expect the total to always be useful.

Each interface, except DB2 and DSA, comes with its own data element title table. An explanation of the Title Tables can be found in the *CA JARS Systems Programmer Guide.*

A good example of a report for multiple types of data, or interfaces, is an invoice. The report program is an excellent method of generating such an invoice. Different algorithms may be applied to each type of data. It may be necessary to perform grouping on processing id and/or a specific literal in the record to have the correct charge calculated for each data type.

Running the sample reports provided with each interface will prove helpful in familiarizing you with the different data elements definitions.

Account Record Matrix

On the following pages you will find an *expanded* account record matrix.

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
1	CPU ID	CPU 1	CPU ID	CPU ID	57
2-3	Reserved	Reserved	Reserved	Reserved	None
4-9	Rdr Start Date	CICS Start Date	Logon Date	Date Record Written	60
10-15	Rdr Start Time	CICS Start Time	Logon Time	Time Record Written	61
16-23	Jobname/RJE Line Name	Trans/Term ID	User ID	Job Name	04/H1
24-25	Record Ind.: 1 in 24=Step 1 in 25=Job	Record Ind.: 1 in 24=Program Record 2 in 25=Trans. Record	Step Job Ind. C'11'	Record Ind. C'11'	
26-27	Step Number	Use Count	# of Steps	Trans Count	56
28	Processing ID: D,S,T,+,*,- H,R, or U	Processing ID C	Processing ID T	Processing ID 'C'	03
29-36	User Ident.	Term/Trans ID	Account No.	Trans ID	10
37-42	Start Time (HHMMSS)	Trans Start Time (HHMMSS)	Logon Time	Trans Stop Time	12
43-48	Run Date	Trans Start Date	Logon Date	Trans Stop Date	06
49-50	Class/ Partition ID APPC Class	Trans Type Short/Long/Pvt.	Reserved	Trans Type	07
51-56	Stop Time	Trans Stop Time	Stop Time	Reserved	13
57-76	Programmer Name/APPC Conversation ID	User Character Field A	Reserved	SAF User ID	58
77-92	User Info/ Acct Field	User Info	Acct Fields	User Info	
93-96	Completion Code/Cancel Cancel	Abend Code	Reserved	Abend Code	09
97-98	Termination Indicator	State Indicator (S/M/C)	Reserved	Reserved	59

BAT	ADABAS Interface	Roscoe Interface	IDMS Interface	CA Datacom/DB	ODE
1	'S' CPU ID	CPU ID	CPU ID	CPU ID	57
2-3	File ID & Vers Level X'F74C'	Reserved	Reserved	Reserved	None
4-9	Min Start Date YYMMDD (6)	Signon Date	Task Start Date RDR Start Date	Min Start Time	60
10-15	Min Start Time HHMMSS (6)	Signon Time	Task Start Time RDR Start	Min Start Time	61
16-23	Jobname (B)	Jobname 1st 8 chars. of User Signon Key	Logical Term. ID Job Name	Job Name	04/H1
24-25	Step Ind '1' (1) Job Ind '1' (1)	Record Ind. C'11	Reserved	Reserved	
26-27	Number of log records included (2)	Reserved	Step Number	Command Count	56
28	Processing ID C (1)	Processing ID T	Processing ID C	Processing ID C	03
29-36	User ID = '*ADABAS*' (8)	User ID = '*Roscoe*'	Task Code	Reserved	10
37-42	Min Start Time HHMMSS (6)	Signon Time	Task Start Time Step Start Time	Min Start Time	12
43-48	Min Start Date YYMMDD (6)	Signon Date	Task Start Date Step Start Date	Min Start Date	06
49-50	Command Code (2)	Job Class 'V'	Trans Type	Job Class	07
51-56	Max End Time HHMMSS (6)	Signoff Time	Trans Stop Time	Max End Time	13
57-76	User/Terminal ID (5) Followed by '-' Jobname (8) followed by '-' Command Code (2)	User Signon Key	Reserved	Concat of Job Name, Run Unit, Operator ID	58
77-92	User/Terminal ID (5)	Last 14 chars. User Signon Key	Account Fields (08)	User Account Code	
93-96	Reserved	Reserved	IDMS Indicator C 'IDMS'	Reserved	09
97-98	Reserved	Reserved	Reserved	Reserved	59

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
99-106	Step Name/RJE Remote Name	User Character Field B	Record ID '*VM/370*'	Step Name	11/H0
107-114	Program/ Phase Name/RJE Pswd/ APPC TP Name	Program Name	Reserved	PSB Name	05/G9
115-118	Core Allocated	Largest Getmain	Reserved	Reserved	22
119-122	Core Used	Max Core Used	Prod. Value	Reserved	21
123-125	% of Unused Core	Reserved	Reserved	Reserved	23
* 126-130	Job Number (J/S Level)	Last Task No.	Reserved	Reserved	14
** 126	Reserved	Reserved	Reserved	Reserved	
** 127-128	Number TSO Sessions	Reserved	Reserved	Reserved	B4/H3
** 129-130	Number Batch Jobs	Reserved	Reserved	Reserved	14
131-132	Priority Level	Trans Priority	Reserved	Reserved	15
133-138	Cards Read	TS Operations	Reserved	Total Message Gets	18
139-144	Lines Printed	File Operations	Lines Printed	Total DL/I I/O counts	19
145-150	Special Lines Printed	DL/I Operations	Reserved	Reserved	E6
151-156	Cards Punched	TD Operations	Reserved	Total Message Inserts	20
157-160	Prt Forms ID	Relative Line Number	Reserved	Reserved	16
161-164	Punch Forms ID	Operator ID	Reserved	Reserved	17
165-170	Setup/Idle Time	Wait Time	Reserved	Reserved	24
171-176	Elapsed Time	Elapsed Time	Elapsed Time	Elapsed Time	25,65
177-182	CPU Time	Application CPU Time	Total CPU Time	Application CPU Time	26,66

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
183-188	Ovrhd Time/RJE Active Time/APPC TCB Time	System CPU Time	Reserved	Reserved	27, 67/G7
189-194	Wait Time/RJE Connect Time/APPC SRB Time	Connect Time	Reserved	Reserved	28, 68/G1

* = if account history level is 6 or 7
** = if account history level is 1-5

BAT	ADABAS Interface	Roscoe Interface	IDMS Interface	CA Datacom/DB	ODE
99-106	User/Terminal ID (5)	VTAM Terminal Name	System ID	Record ID 'Datacom'	11/H0
107-114	Command Code (2) Followed by '-' File Number (5)	Roscoe Jobname	Reserved	Program Name	05/G9
115-118	Reserved	Reserved	Stg HWM	Reserved	22
119-122	Reserved	Reserved	Stg HWM	Reserved	21
123-125	Reserved	Reserved	Reserved	Reserved	23
126-130	Reserved	User Session	Task Number	Job Number	14 ID
126	Reserved	Reserved	Reserved	Reserved	
127-128	Reserved	Reserved	Reserved	Reserved	B4/H3
129-130	Reserved	Reserved	Reserved	Reserved	14
131-132	Reserved	Reserved	Reserved	Priority Level	15
133-138	Reserved	Reserved	Cumm Scratch Requests	Reserved	18
139-144	Reserved	Reserved	Cumm Scratch Request	Reserved	19
145-150	Reserved	Reserved	Pages Read	Reserved	E6
151-156	Reserved	Reserved	Pages Written	Reserved	20
157-160	Reserved	Reserved	Reserved	Reserved	16
161-164	Reserved	Reserved	Reserved	Reserved	17
165-170	Reserved	Reserved	Reserved	Reserved	24

BAT	ADABAS Interface	Roscoe Interface	IDMS Interface	CA Datacom/DB	ODE
171-176	Elapsed Time in Hrs: Dec=5 (6)	Elapsed Time	Elapsed Time	Elapsed Time	25,65
177-182	CPU Time in Hrs: Dec=5 (6)	CPU Time	CPU Time	CPU Time	26,66
183-188	Reserved	Reserved	User Time	Reserved	27,67, G7
189-194	Reserved	Reserved	Wait Time	Wait Time	28,68, G1

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
195-200	Rdr Queue Time	User Time Field A	Reserved	Reserved	62
201-206	Writer Queue Time	User Time Field B	Reserved	Reserved	63
207-212	Turnaround Time	User Time Field C	Reserved	Reserved	64
213-219	Rdr I/O Cnt/ RJE Trans Count/APPC Bytes Sent	Journal Control Count	Spooled Rdr I/O Count	Reserved	33/G2
220-226	Printer I/O Count/RJE NAK Count/APPC Bytes Rec'd	Terminal Msgs.	Spooled Prt I/O Count	Terminal Messages	34/G4
227-233	Punch I/O Count/RJE Data Check Count/APPC # Calls	Terminal I/O Characters	Spooled Punch I/O Count	Reserved	35/G6
234-240	Tape I/O Cnt/ RJE Invalid Logon Count/APPC # Conversations	User Count Field A	Tape Connect Time	GU/GHU DLI Counts	37/G8
241-247	Disk I/O Cnt/ RJE Line Error Count/APPC EXCP Count	User Count Field B	Disk Cyl Blk Hrs	GN/GHN DLI Counts	38/G3
248-254	Other I/O Count/RJE Time Out Count/APPC Device Connect Time (1/1000th sec.)	User Count Field C	NonSpooled I/O Count	GNP/GHNP DLI Counts	39/G5
255-261	Total I/O Count	Reserved	Total I/O Count	Total DLI Gets	40

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
262-265	I/O Index	Reserved	I/O Index	Reserved	78
266	Storage Indicator/APPC Type	Storage Ind. (R/V/X)	Batch Ind.	Reserved	72
267-273	Page-In Count	Page-In Count	VS Page Reads	Reserved	73
274-280	Page-Out Count	Page-Out Count	VS Page Writes	Reserved	74

BAT	ADABAS Interface	Roscoe Interface	IDMS Interface	CA Datacom/DB	ODE
195-200	Reserved	Reserved	Reserved	Reserved	62
201-206	Reserved	Reserved	Reserved	Reserved	63
207-212	Reserved	Reserved	Reserved	Reserved	64
213-219	Associator I/Os (7)	Reserved	GETSTG Requests	Data EXCPs	33/G2
220-226	Work I/Os (7)	Reserved	FREESTG Requests (NAK) Count	Index EXCPs	34/G4
227-233	Reserved	Reserved	Terminal I/Os	Data I/O	35/G6
234-240	Reserved	Reserved	Pages Requested	Index Logical I/O	37/G8
241-247	Reserved	Disk Accessed I/O	Records	Other EXCPs	38/G3
248-254	Data I/Os (7)	Terminal Accesses	Records Current RU	Other Logical I/O	39/G5
255-261	Total I/Os (7)	Total Accesses	Fragments Stored	Total I/O Count	40
262-265	I/O Index	I/O Index	Reserved	Reserved	78
266	Reserved	Reserved	Real CPU Indicator	Reserved	72
267-273	Reserved	Reserved	Number Locks	Reserved	73
274-280	Reserved	Reserved	Number Select Locks	Reserved	74

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
281-287	Total Paging Count	Total Pages	Total VS Pages	Reserved	75
288-291	CPU Paging Rate	CPU Page Rate	CPU Paging Rate	Reserved	77

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
292-295	Elapsed Paging Rate	Elapsed Page Rate	Elapsed Paging Rate	Reserved	76
296	Group-Code #1	Group-Code #1	Group Code #1	Group-Code #1	84
297	Group-Code #2	Group-Code #2	Group Code #2	Group-Code #2	85
298	Group-Code #3	Group-Code #3	Group Code #3	Group-Code #3	86
299-300	Partition ID	Trans Class	Reserved	Reserved	87/H4
301-308	Input Device Name/APPC Local LU Name	User Character Field C	Project Name	Term ID	A0
309-314	Reader Duration	Reserved	NonTape Dedic. Dev Con Time	Reserved	88
315-320	Writer Duration	Reserved	Reserved	Reserved	89
321-327	Number Swaps	User Count Field D	Reserved	ISRT DLI Counts	A1
328-334	Swap Pages In	User Count Field	Reserved	DLET DLI Counts	A2
335-341	Swap Pages Out	User Count Field F	Reserved	REPL DLI Count	A3
342-348	Total Swap Pages	Reserved	Reserved	Reserved	A4
349-350	# Of Readers Used	User Count Field G	Reserved	Reserved	92
351-352	# Of Printers Used	User Count Field H	Reserved	Reserved	93
353-354	# Of Punches Used	User Count Field I	Reserved	Reserved	94
355-356	# Of Tapes Used	User Count Field J	# Tape Mounts	Reserved	95
357-358	# Of Disks Used	User Count Field K	# Disk Mounts	Reserved	96
359-360	# Of Others Used	User Count Field L	# Other Devices	Reserved	98
361-362	# Of Disks Private	User Count Field M	Disk Mounts	Reserved	97
363-364	# Of Devices Used	Reserved	Reserved	Reserved	32

BAT	ADABAS Interface	Roscoe Interface	IDMS Interface	CA Datacom/DB	ODE
281-287	Reserved	Reserved	No. Update Locks	Reserved	75
288-291	Reserved	Reserved	Reserved	Reserved	77
292-295	Reserved	Reserved	Reserved	Reserved	76
296	Group Code #1	Group Code #1	Group Code #1	Group Code #1	84
297	Group Code #2	Group Code #2	Group Code #2	Group Code #2	85
298	Group Code #3	Group Code #3	Group Code #3	Group Code #3	86

BAT	ADABAS Interface	Roscoe Interface	IDMS Interface	CA Datacom/DB	ODE
299-300	Reserved	Reserved	Reserved	Reserved	87
301-308	Reserved	User Terminal ID	Reserved	Reserved	A0
309-314	Reserved	Reserved	Reserved	Reserved	88
315-320	Reserved	Reserved	Reserved	Reserved	89
321-327	Reserved	Reserved	Records	Reserved	A1
328-334	Reserved	Reserved	System Serv. Requests	Reserved	A2
335-341	Reserved	Reserved	Reserved	Reserved	A3
342-348	Reserved	Reserved	Reserved	Reserved	A4
349-350	Reserved	Reserved	Reserved	Reserved	92
351-352	Reserved	Reserved	Terminal Errors	Reserved	93
353-354	Reserved	Reserved	Reserved	Reserved	94
355-356	Reserved	Reserved	Reserved	Reserved	95
357-358	Reserved	Reserved	Reserved	Reserved	96
359-360	Reserved	Reserved	Reserved	Reserved	98
361-362	Reserved	Reserved	Reserved	Reserved	97
363-364	Reserved	Reserved	Reserved	Reserved	32

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
365-368	TPUTS	Reserved	Statements Punched	Reserved	A5
369-372	TGETS	Reserved	Statements Read	Reserved	A6
373-378	Active Time	Response Time	Virtual CPU Time	Reserved	A7,A8
379-384	Connect Time	Reserved	Connect Time	Reserved	B0,B1
385-390	Allocation Delay Time	Reserved	Reserved	Reserved	B8,B9
391-396	Resident Time	Reserved	Reserved	Reserved	C1,C2
397-402	CPU Time (SRB)	Reserved	CP Overhead	Reserved	C4,C5
403-408	CPU Time (TCB)	Reserved	Virtual CPU Time	Reserved	C7,C8
409-414	Service Units	Reserved	Reserved	Reserved	D1
415-417	Service Rate	Reserved	Reserved	Reserved	D2

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
418-419	CPU Index	Reserved	CPU Index	Reserved	D0
420-425	Page Seconds	Reserved	Reserved	Reserved	D3
426-428	Performance Group	Reserved	Reserved	Reserved	D4
429-431	Input Route Code	Terminal Type & Model	Reserved	Priority	B6
432-434	Print Route Code	Terminal Access Method	Reserved	Region Protect Key	B7
435-436	Job Requeued Indicator	Real CPU Indicator	Reserved	Reserved	B5
437	Day-Of-Week Indicator	Day-Of-Week Indicator	Day-Of-Week Indicator	Reserved	D5
438	Group-Code #4	Group-Code #4	Group Code #4	Reserved	D7
439	Group-Code #5	Group-Code #5	Group Code #5	Reserved	D8
440	Group-Code #6	Group-Code #6	Group Code #6	Reserved	D9
441-442	Forms-Entries	Reserved	Forms Ent.	Reserved	E0
443	Sysout Class	Reserved	Reserved	Reserved	E1
444	Sysout Type	Reserved	Reserved	Reserved	E2
445	Sysout Intv Code	Reserved	Reserved	Reserved	E3
446-453	Output Device Name/APPC Partner LU Name	Reserved	Product Name	Reserved	E4
454-459	STD Lines Printed	Reserved	Line Printed Total	Reserved	E5
460-464	STD Pages Printed	Reserved	Reserved	Reserved	E7
465-469	SPCL Pages Printed	Reserved	Reserved	Reserved	E8

BAT	ADABAS Interface	Roscoe Interface	IDMS Interface	CA Datacom/DB	ODE
365-368	Posted ECBs (4)	Reserved	Reserved	Posted ECBs	A5
369-372	Descriptors Updated (4)	Reserved	Reserved	Descriptors Updated	A6
373-378	Reserved	Active Time	Reserved	Reserved	A7,A8
379-384	Reserved	Connect Time	Reserved	Reserved	B0,B1
385-390	Reserved	Reserved	Reserved	Reserved	B8,B9

BAT	ADABAS Interface	Roscoe Interface	IDMS Interface	CA Datacom/DB	ODE
391-396	Reserved	Resident Time	Reserved	Reserved	C1,C2
397-402	Reserved	Reserved	Reserved	Reserved	C4,C5
403-408	Reserved	CPU Time (TCB)	System Time	Reserved	C7,C8
409-414	Reserved	Reserved	Reserved	Reserved	D1
415-417	Reserved	Reserved	Reserved	Reserved	D2
418-419	CPU Index	Reserved	Reserved	CPU Index	D0
420-425	Reserved	Reserved	Reserved	Reserved	D3
426-428	Reserved	Reserved	Reserved	Reserved	D4
429-431	Reserved	UCB # of Terminal	Reserved	Reserved	B6
432-434	Reserved	Terminal Type	Reserved	Reserved	B7
435-436	Reserved	Reserved	Reserved	Reserved	B5
437	Min Start Day-of-Week Indicator (1)	Day-of-Week Indicator	Day-of-Week Indicator	Day-of-Week Indicator	D5
438	Group Code #4	Group Code #4	Group Code #4	Group Code #4	D7
439	Group Code #5	Group Code #5	Group Code #5	Group Code #5	D8
440	Group Code #6	Group Code #6	Group Code #6	Group Code #6	D9
441-442	Reserved	Reserved	Reserved	Reserved	E0
443	Reserved	Reserved	Reserved	Reserved	E1
444	Reserved	Reserved	Reserved	Reserved	E2
445	Reserved	Reserved	Reserved	Reserved	E3
446-453	Reserved	Roscoe Session ID	Reserved	Reserved	E4
454-459	Reserved	Reserved	Reserved	Reserved	E5
460-464	Reserved	Reserved	Calc Noflow	Reserved	E7
465-469	Reserved	Reserved	Calc Ovflow	Reserved	E8

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
470-474	Total Pages Printed	Reserved	Reserved	Reserved	E9
475-478	No. Of Tape Mounts	Reserved	# Tape Mounts	Reserved	F0
479-482	No. Of Disk Mounts	Reserved	# Disk Mounts	Reserved	F1
483-486	Absorption Rate	Reserved	Reserved	Reserved	F8

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
487-502	Acct Field 2	Reserved	2 + 3 Prod.	Reserved	F2
503-518	Acct Field 3	Reserved	Reserved	Reserved	F3
519-534	User Char. Field/APPC User Data Field	User Char. Field	Reserved	Reserved	F4
535-539	User Count Field	User Count Field	Reserved	Reserved	F5
540-544	User Time Field	User Time Field	Reserved	Reserved	F6
545-550	SMF Audit	Reserved	Reserved	Reserved	F9

Fields Beyond This Point May Not Be Referenced By Grouping Logic

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
551-556	Processor Time	Processor Time	Processor Time	Processor Time	29,69
557-562	Processor Charge	Processor Charge	Processor Charge	Processor Charge	44
563-568	I/O Time	Reserved	I/O Time	Reserved	30,70
569-574	I/O Charge	Reserved	I/O Charge	Reserved	45
575-579	U/R Charge	File I/O Charge	U/R Charge	File I/O Charge	54
580-584	Setup Charge	Reserved	Setup Charge	Reserved	55
585-590	Total Charge/ Credit Amt/ Debit Amt/ Budget Amt	Total Charge	Total Charge	Total Charge	46, 79, 80, 81
591	Charge Suffix	Charge Suffix	Reserved	Reserved	None
592-597	Adjusted Rate	Adjusted Rate	Adjusted Rate	Reserved	43
598-602	Connect Charge	Reserved	Connect Charge	Reserved	B3
603-607	RJE Charge including APPC	Reserved	Reserved	Reserved	H2
608	Reserved	Reserved	Reserved	Reserved	None

BAT	ADABAS Interface	Roscoe Interface	IDMS Interface	CA Datacom/DB	ODE
470-474	Reserved	Reserved	Reserved	Reserved	E9
475-478	Reserved	Reserved	Via Noflow	Reserved	F0
479-482	Reserved	Reserved	Via Ovflow	Reserved	F1

BAT	ADABAS Interface	Roscoe Interface	IDMS Interface	CA Datacom/DB	ODE
483-486	Reserved	Reserved	Reserved	Reserved	F8
487-502	Reserved	Reserved	Acct Fields 2	Reserved	F2
503-518	Run Cycle (8 positions only)	User Signon Key	Acct Fields 3	Reserved	F3
519-534	Account Code defined in QAACT Table: based on Jobname- Userid Match (16)	Reserved	User Char. Field	Reserved	F4
535-539	Plan Unique Identifier	User Count Field	User Count Field	Reserved	F5
540-544	Delay Time	Reserved	User Time Field	Reserved	F6
545-550	'YNNNNN' (6)	Reserved	Condense Key	Reserved	F9

Fields Beyond This Point May Not Be Referenced By Grouping Logic

BAT	CA JARS	CICS Interface	VM Interface	IMS Interface	ODE
551-556	Processor Time	Processor Time	Processor Time	Processor Time	29,69
557-562	Processor Charge	Processor Charge	Processor Charge	Processor Charge	44
563-568	I/O Time	I/O Time	Reserved	I/O Time	30,70
569-574	I/O Charge	I/O Charge	Reserved	I/O Charge	45
575-579	Reserved	Reserved	File I/O Charge	Reserved	54
580-584	Reserved	Setup Charge	Reserved	Reserved	55
585-590	Total Charge	Total Charge	Total Charge	Total Charge	46
591	Charge Suffix	Charge Suffix	Charge Suffix	Reserved	None
592-597	Reserved	Adjusted Rate	Adjusted Rate	Reserved	43
598-602	Reserved	Connect Rate	Reserved	Reserved	B3
603-607	Reserved	Reserved	Reserved	Reserved	H2
608	Reserved	Reserved	Reserved	Reserved	None

For CA JARS and All Interfaces:

The following output data elements are **not** carried in the Account record, but are either calculated from elements within the Account record or are derived from other sources (specified below).

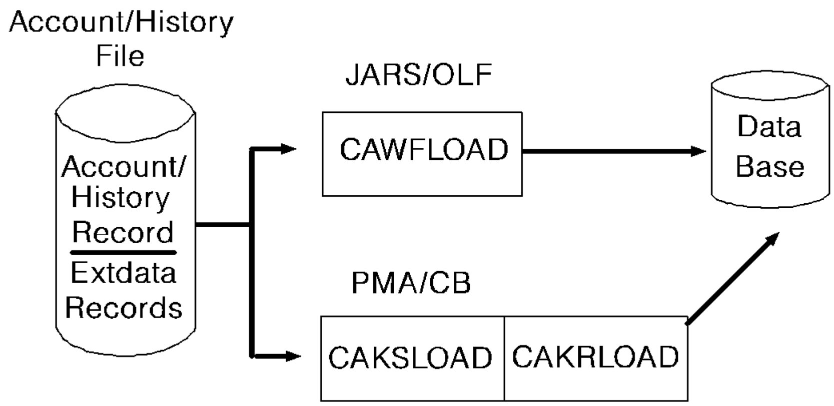
Output Data Elements Table

ODE	Description	Source
01	Control Field	Sort Control
02	Description Field	Description Table
41	% Total Charge Within Job Class	Calculated
42	% Total Charge	Calculated
47	Distributed Charge	Calculated
71	Total Time	Calculated
82	Over/Under Budget	Calculated
83	% Budget Spent	Calculated
90	Elapsed Time - Averaged	Calculated
91	CPU Time - Averaged	Calculated
99	Blank Spaces	Supplied For Editing Print Line
A9	Active Time - Averaged	Calculated
B2	Connect Time - Averaged	Calculated
C0	Allocation Time - Averaged	Calculated
C3	Resident Time - Averaged	Calculated
C6	CPU Time (SRB) - Averaged	Calculated
C9	CPU Time (TCB) - Averaged	Calculated
G0	I/O Count By Device	Devaddr Table
F7	Control Break Count	Sort Control

Interfacing with JARS/OLF and CA PMA Chargeback

The EXTDATA control statement produces records that can be input to the JARS/OLF or CA PMA Chargeback systems directly. Their IRD definitions are supplied with these systems. A list of available IRDs is given in the documentation for these systems.

Account/History records can also be directly input to these systems.



See the *JARS/OLF* or *CA PMA Chargeback User Guides* for information regarding these systems.

Chapter 9: CSV and XML File Production

With CA JARS you can create CSV (comma separated value) files directly from the Report Writer, and the CA Earl Report Writer. Two new files are introduced with this feature, the CAIJSCSV file and the CAIJSIDX file. The CAIJSCSV file is a PDS that acts as a repository for the CSV files. The CAIJSIDX file is an index file that contains information about CSV files that have been created, and where they reside.

The CAIJSCSV CSV file is a PDS that is used by CA JARS or CA Earl as a repository for CSV files. The members of the PDS are named either through the SORT control statement from the user defined report which created them if using the Report Writer, or through the 'MEM=MEMNAME' statement if using the CA Earl Report Writer. The PDS is a variable blocked file with an LRECL of 512 bytes and a default BLKSIZE of 5124 bytes, which may be changed by the user through JCL. The CAIJSCSV PDS is defined as a GDG (Generation Data Group) type data set (recommended) to allow for repeated executions of CA JARS or CA Earl jobs that create CSV files (weekly, for example).

When a CSV file is produced, it is also possible to generate an XML Profile that describes the CSV data. This profile will have the same member name as indicated in the report generation, with the exception that the first three characters of the XML profile will be PRF. For example, if the CSV member name is REP10110, the XML Profile will be named PRF10110.

We recommend not using names beginning with PRF for CSV members. This profile is used by iCan Service Management Suite, and describes the CSV file that is produced so that it can process the CSV file correctly.

CSV Record Types

Each CSV member in the CAIJSCSV PDS contains three record types: the identification record, the dictionary record, and the data record. The first two types of records contain descriptive information, appear only once, and are found at the beginning of the file. The third type of record, the data record, starts with record number three and continues to the end of the member. Detailed information about each record type is in the following sections.

CA JARS can also produce reports in XML format. The XML data can be used in newer applications that process XML data and can display or analyze it programmatically. The XML process also produces a schema for the XML document. The schema is compliant with the standards initiated by the World Wide Web Consortium (W3C) in 2001. To learn more about the schema standard, go to http://www.w3.org/2001/XMLSchema.

This *User Guide* assumes you have some knowledge of basic XML concepts. For general information about XML and how to work with it, go to the main W3C website, http://www.w3.org, or the XML.org website at http://www.xml.org.

Note: To use the XML feature, IBM's z/OS XML Toolkit must be installed on the system where CA JARS is running. If Toolkit is not in the system linklist, the library where it resides must be concatenated to STEPLIB in the CA JARS JCL. For more information on the XML Toolkit, go to IBM's website at http://www.ibm.com.

The Identification Record

The first record of a CSV member is the Identification record and contains the following 14 data elements, all stored as comma separated values.

1

Identifies the record as a CSV header and contains HCSV.

2

The CSV Version, contains all zeroes.

3

The originating product, which is CA JARS.

4

The originating product version.

5

The Date the CSV member is created in YYYYMMDD format.

6

The Time the CSV member is created in HHMMSS format.

7

The CSV member name, taken from the SORT control statement for CA JARS Reports and the ' MEM=MEMNAME' statement for CA Earl generated CSV files.

8

The data name qualifier, always CAI.

9

The data source, always CA JARS.

10

The number of CSV data fields that appear in the dictionary and data records.

11

The number of data records in the CSV member, always zero.

12

The output control value set by CA JARS or CA Earl (number of keys).

13

The time series chart descriptive text, always blank.

14

The title of the CSV member. This is either the report title from CA JARS, or the 'TITLE=TITLE' statement from CA Earl.

15

Reserved

16

Reserved

17

Reserved

18

XML Profile member name used by iCan Service Management Sutie, if an XML Profile is requested, otherwise the field will consist of spaces.

The Dictionary Record

The second record found in a CSV member is the Dictionary record. This record defines all of the data elements found in the subsequent data records. This record contains the data element names as a series of quoted and comma separated character values. The order of the data elements in this record defines the order of the data elements found in the subsequent data records. These data elements are derived from the column titles of the CA JARS report being produced. If a data element in a report does not contain a Title, the CSV dictionary record uses a '?' as the Title. For CA Earl reports the names are derived from the 'FLDNAME=' constants found on the CA Earl PRINT statement.

The Data Record

The third record type is the Data record. Data records begin with the third record of the member and continue to the end of the file. The data records contain data values derived from either the detail or summary lines of the CA JARS or CA Earl reports, depending on the type of report being produced. Data records contain as many values as there are data elements in the dictionary record. Character fields are delimited by double quotes while numeric data is not quoted. Numeric values that are negative are preceded by the minus (-) sign. In addition, the CURRENCY symbol (Default $) is removed from numerical data in the data record. The CURRENCY symbol to be removed is set by the user through the use of the CURRENCY setting on the OPTION control statement for CA JARS reports, or through the 'EURO=.$' statement for CA Earl users. In addition, all commas are removed from numeric data, but decimal points are left intact. CSV files contain only detail or summary data depending on the type of report requested. Control break lines that appear on printed reports are not reflected in the CSV files. For CA JARS reports, if two levels of descript processing are in effect for a report, the SUB-ID column appears in the dictionary record and this identifies the column heading. The data records contain the control break values from the descript cards. The following is an example of a CSV PDS member.

```
"HCSV","0000","JARS","C.0","19980903","160602","CSVTST16","CAI","JARS",9,0000,"K1D1"," ",
"JOB NAME","NBR JOBS","NBR SESSNS","SERVICE UNITS","USER INFO","ALLOC TME-AVG","ACT TME-AVG","CPU
"CAS9",1,0,59001," ","00:00:04","00:02:28","00:00:04","00:00:04"
"CLEANSYS",4,0,397382," ","00:00:09","00:03:56","00:00:06","00:00:25"
"FONGW01",0,1,262023," ","00:00:01","00:03:31","00:00:10","00:00:10"
"FONGW01E",4,0,15566," ","00:00:03","00:00:16","00:00:00","00:00:01"
"JRDR",6,0,11263," ","00:00:00","00:00:10","00:00:00","00:00:01"
"LLA",5,0,972334," ","00:00:02","03:41:58","00:00:05","00:00:25"
"SMFDMP",1,0,10090," ","00:04:16","00:00:08","00:00:01","00:00:01"
"SMFE",7,0,7334," ","00:00:03","00:00:04","00:00:00","00:00:00"
"SMFG",3,0,3128," ","00:00:00","00:00:02","00:00:00","00:00:00"
```

Note: The CSV format used by CA JARS is compatible with the CSV file format created by CA MICS and the CA Query and Reporting Workstation product.

European Support

The OPTION control statement is used to alter the characters used to represent commas and periods in support of European conventions for representation of numerical data. If you want European support, specify comma as a period, and period as a comma. In this instance the variable in a CSV file is delimited by the semi-colon (;) character instead of the comma, and the decimal point is represented by the comma. For CA Earl users, the default setting 'EURO=.$' is changed by specifying the decimal point as a comma or swapping the pound symbol for the dollar sign. Below is an example of a CSV file created under these circumstances from either the Report Writer for this product or the CA Earl Report Writer.

```
 "HCSV";"0000";"JARS";"C.0";"19980903";"160642";"CSVTST01";"CAI";"JARS";5;0000;"K2D1";" ";"DATA
 "COST CENTER RESOURCE";"SUB ID";"DEBIT";"CREDIT";"TOTAL CHARGE"
 "ACCOUNTING DEPT.";"RERUNS";,00;48,24;-48,24
 "ACCOUNTING DEPT.";"PROGRAMMING TIME";431,00;,00;431,00
 "ACCOUNTING DEPT.";"DATA ENTRY";116,00;,00;116,00
 "ACCOUNTING DEPT.";"DATA CONTROL";57,00;,00;57,00
 "ACCOUNTING DEPT.";"OFF-LINE CHARGES";120,00;,00;120,00
 "ACCOUNTING DEPT.";"SUPPLIES";36,50;,00;36,50
 "ACCOUNTING DEPT.";"TELCOM COSTS";120,00;,00;120,00
 "ACCOUNTING DEPT.";"SYSTEMS SUPPORT";18,00;,00;18,00
 " ","PRODUCTION"
.00;,00;7,95
 " ","PRODUCTION"
.00;,00;2,99
 "ADMINISTRATION";"PRODUCTION";,00;,00;,21
 "SYSTEMS SUPPORT";"PRODUCTION";,00;,00;6,97
 "PRODUCTION DEPT.";"PRODUCTION";,00;,00;,31
```

Note: The periods that appear within character fields were not replaced with commas. The swapping of commas for decimal points only occurs for numerical data.

The Index Record

In addition to creating CSV members, CA JARS and CA Earl can write index records to the CAIJSIDX data set as each CSV member is created. This index, or directory, is used to keep track of the CSV files. Each record in the CSV directory has a one byte record type field in the first position of the record. Valid record types are:

V

Version

J

Job record

D

Data set name record

I

Query name

M

Member name record

Each record in the CSV directory has one or more fields in addition to the record type field. These fields have a fixed format and length. The version record is created when the CAIJSIDX directory data set is initially created, and identifies the level of the CSV directory and the version of the host software that created the directory file. The job record contains the job name of the execution that created the directory entry, along with a description. The data set name record contains the name of the data set that contains the CSV members that are indicated on subsequent member records. The Query name record will always contain the constant JARBAT, followed by the date and time that the batch execution occurred. The member records contain the CSV member name, the number of records, the report title, and the key structure field. On the next page is an example of what a CA JARS or CA Earl CAIJSIDX directory data set may contain.

```
position
         1         2         3         4         5         6         7
1...5....0....5....0....5....0....5....0....5....0....5....0....5....0

V JARSR12 SP0
J CHARLIEB RUN DATE 1998/09/03 RUN TIME 16:05:47
D CHARLIE.JARS.CSVPDS.OUTPUT
I JARBAT 98/09/03 16:05 CA JARS BATCH EXECUTION
M CSVTST22 00000008 PEAK  PAGING  PERIODS                K1D1
M CSVTST20 00000004 RESOURCE CONSUMPTION SUMMARY         K1D1
M CSVTST32 00000004 DISK EXCP SUMMARY BY DAY             K1D1
M CSVTST16 00000011 UTILIZATION  SUMMARY  BY  JOB        K1D1
M CSVTST18 00000013 PROGRAM  PAGING  PROFILE             K1D1
J CHARLIEB RUN DATE 1998/09/03 RUN TIME 16:20:03
D CHARLIE.JARS.CSVPDS.GDG.G0001V00
I JARBAT 98/09/03 16:20 CA JARS BATCH EXECUTION
M CSVTST22 00000008 PEAK  PAGING  PERIODS                K1D1
M CSVTST20 00000004 RESOURCE CONSUMPTION SUMMARY         K1D1
M CSVTST32 00000004 DISK EXCP SUMMARY BY DAY             K1D1
M CSVTST16 00000011 UTILIZATION  SUMMARY  BY  JOB        K1D1
M CSVTST18 00000013 PROGRAM  PAGING  PROFILE             K1D1
J CHARLIEB RUN DATE 1998/09/03 RUN TIME 16:24:04
D CHARLIE.JARS.CSVPDS.GDG.G0002V00
I JARBAT 98/09/03 16:24 CA JARS BATCH EXECUTION
M CSVTST22 00000008 PEAK  PAGING  PERIODS                K1D1
M CSVTST20 00000004 RESOURCE CONSUMPTION SUMMARY         K1D1
M CSVTST32 00000004 DISK EXCP SUMMARY BY DAY             K1D1
M CSVTST16 00000011 UTILIZATION  SUMMARY  BY  JOB        K1D1
M CSVTST18 00000013 PROGRAM  PAGING  PROFILE             K1D1
```

Note that only one version record exists, followed by "groups" of Job, data set, query, and member name records that correspond to the various batch executions that have occurred. The CAIJSIDX DD is required during any execution of CA JARS or CA Earl that creates output CSV members, but may be specified as DD DUMMY for users who do not want to maintain this file. Notice that the index file can point to many different data sets that contain CSV files. This example points at a NON-GDG type PDS in the first data set record, and a GDG type PDS in the next two data set records. As many index files and PDS CSV repositories can be maintained by the user as desired. You can have one directory file for each CSV PDS file, one directory file for all CSV PDS files, or a combination of the two.

Optional iCan Service Management Suite XML Profiles

In addition to the CSV members and Index Records, CA JARS provides the option of generating an XML Profile for the CSV report. This XML profile enables the iCan Service Management Suite product to process the CSV reports that are produced by CA JARS, and on behalf of CA JARS by CA Earl. The XML Profile produced is a well-formed XML document that describes the data in the CSV report's data records. The following XML tags are generated in the document (note that the indentation reflects the parent/child tag relationship within the document).

```
<--   -->  - These lines are comments to XML parsers.  They are used
             to indicate the date and time of generation, as well as the
             Job Name that created the XML Profile.

<root> - The base tag for the document

  <profile> - Indicates this is a data profile

    <profile_name> - This is the member name in the PDS of the profile

    <domain_name> - Not used

    <profile_type> - The profile type, which is always 1, indicating the
                     CSV file reports metrics.

    <is_data_file_fixed_length> - Indicates if the data records are
                                  fixed formats (value = 1) or variable
                                  (value = 0).  For CA JARS,
                                  this is always 0.

    <field_separator> - This indicates what character is used to
                        separate objects on the data lines.  It is an
                        integer representation of an ASCII character.
                        In most cases the value will be '44', which
                        represents a comma (ASCII code X'2C') or '59',
                        which represents a semicolon (ASCII code X'3B').
```

```
<build_sql_query> - Not used

<comment> - This is set to the title of the Report as indicated
            in the CA JARS input statements.

<field> - Description of each field.  There is one field element
          per column heading in the dictionary record of the CSV
          member.

  <display_name> - This is the column heading text.

  <data_type> - The type of data this field represents:

                  0 - Character string
                  1 - Integer
                  2 - Floating Point Number
                  3 - Date stamp

  <data_length> - Size of character data, unused for other types

  <data_format> - Date stamp formats, unused for other types

  <default_value> - The default value for a column if not present.
                    This is not used by CA JARS


  <start_position> - For variable length data files like the
                     CA JARS files, this indicates which
                     element in a line this field definition covers.

  <end_position> - This is not used by CA JARS
```

Note: There is no time format for iCan Service Management Suite XML profiles. Times are considered 8-byte strings. String manipulation is needed to process time information within iCan Service Management Suite.

If the CSV files are generated using the CA Earl product, all numeric fields are treated as floating point values, and all character strings and date stamps are treated as character strings.

The following sample XML Profile is generated by CA JARS along with the sample CSV Output that is mapped by the profile.


```
<!-- ======================================== -->
<!-- Generated by JARS     Version n.n        -->
<!-- Date Generated:2003-08-14 at 09.32.54    -->
<!-- CSV Member:JOBINFO  CSV Key:K1D9         -->
<!-- ======================================== -->
<root>
<profile>
<profile_name>PRFINFO</profile_name>
<domain_name/>
<profile_type>1</profile_type>
<is_data_file_fixed_length>0</is_data_file_fixed_length>
<field_separator>44</field_separator>
<build_sql_query/>
<comment>SAMPLE CSV REPORT</comment>
<field>
<display_name>JOB NAME</display_name>
<data_type>0</data_type>
<data_length>8</data_length>
<data_format/>
<default_value/>
<start_position>1</start_position>
<end_position/>
</field>
<field>
<display_name>USER ID</display_name>
<data_type>0</data_type>
<data_length>8</data_length>
<data_format/>
<default_value/>
<start_position>2</start_position>
<end_position/>
</field>
<field>
<display_name>RDR STRT DATE</display_name>
<data_type>3</data_type>
<data_length/>
<data_format>YY/MM/DD</data_format>
<default_value/>
<start_position>3</start_position>
<end_position/>
</field>
<field>
<display_name>RDR STRT TIME</display_name>
```

```
<data_type>0</data_type>
<data_length>8</data_length>
<data_format/>
<default_value/>
<start_position>4</start_position>
<end_position/>
</field>
<field>
<display_name>JOB NBR</display_name>
<data_type>1</data_type>

<data_length/>
<data_format/>
<default_value/>
<start_position>5</start_position>
<end_position/>
</field>
<field>
<display_name>CPU TIME</display_name>
<data_type>0</data_type>
<data_length>8</data_length>
<data_format/>
<default_value/>
<start_position>6</start_position>
<end_position/>
</field>
<field>
<display_name>CC</display_name>
<data_type>0</data_type>
<data_length>4</data_length>
<data_format/>
<default_value/>
<start_position>7</start_position>
<end_position/>
</field>
<field>
<display_name>ELAPSED TIME</display_name>
<data_type>0</data_type>
<data_length>8</data_length>
<data_format/>
<default_value/>
<start_position>8</start_position>
<end_position/>
</field>
<field>
```

```
<display_name>PERCENT TOTAL</display_name>
<data_type>2</data_type>
<data_length/>
<data_format/>
<default_value/>
<start_position>9</start_position>
<end_position/>
</field>
<field>
<display_name>ELAP PAGE</display_name>
<data_type>1</data_type>
<data_length/>
<data_format/>
<default_value/>
<start_position>10</start_position>
<end_position/>
</field>
</profile>
</root>
```

The following CSV output corresponds to the XML profile on the previous pages:

```
"HCSV","0000","JARS","C.0","20030814","093254","JOBINFO","CAI","JARS",10,0000,"K1D9"," ","SAMPLE
CSV
"JOB NAME","USER ID","RDR STRT DATE","RDR STRT TIME","JOB NBR","CPU TIME","CC","ELAPSED
TIME","PERCENT
"RXQUMON","STCSYS","03/07/07","19:26:14",00422,"00:00:01","0000","01:00:01",.000,0
"ABBCH02","ABBCH02","03/07/08","10:30:01",0,"00:00:00","S622","00:01:53",.000,0
"ABEWI01","ABEWI01","03/07/08","09:37:31",0,"00:00:00","0000","00:34:17",.000,0
"ANDMA02","ANDMA02","03/07/08","10:19:16",0,"00:00:02","0000","00:39:48",.000,0
"ANDMA02P","ANDMA02","03/07/08","10:49:54",05300,"00:00:08","0000","00:01:00",.000,6
"ANTAS000","+ANTAS00","03/07/05","22:21:10",0,"00:00:00","0000","01:00:00",.000,0
"ANTMAIN","+ANTMAIN","03/07/05","22:21:01",0,"00:00:00","0000","01:00:00",.000,0
"APPC","APPC","03/07/05","22:23:50",0,"00:00:00","0000","01:00:00",.000,0
"AREAS01","AREAS01","03/07/08","07:36:54",0,"00:00:04","0000","01:07:15",.000,0
"ASCH","STCSYS","03/07/05","22:23:50",0,"00:00:00","0000","01:00:00",.000,0
"ASTEX","STCSYS","03/07/05","22:23:50",08059,"00:01:14","0000","01:00:00",.000,0
"AWSTART6","AWADMIN","03/07/05","22:25:01",00000,"00:00:00","0000","01:00:00",.000,0
"AWSTART7","AWADMIN","03/07/05","22:25:03",00000,"00:00:01","0000","01:00:00",.000,0
"AWSTART8","AWADMIN","03/07/05","22:25:08",00000,"00:00:02","0000","01:00:00",.000,0
```

Creating CSV Files Using the Report Writer

With CA JARS it is possible to create CSV files directly from the Report Writer for availability to desktop applications. Creating a CSV file from an existing report is as easy as adding a CSV member name to the SORT control statement and adding the CAIJSCSV and CAIJSIDX DD statements to the execution JCL. The only restriction on CSV file creation from existing or newly created reports is the number of DESCRIPT control statement summarization levels, which is fixed at two. If more than two levels of DESCRIPT processing are encountered, an error message is issued and CSV processing is terminated. In this rare instance you should change the report to conform to the DESCRIPT control statement restriction. This will happen only on rare occasions. Of the forty plus working set report examples supplied with this product, only one report has more DESCRIPT summarization levels than the supported number.

The production of CSV files from the Report Writer occurs during the output phase while generating user-defined reports. User defined reports are instructed to create CSV output files by placing a CSV member name in columns 65-72 of the SORT control statement for the particular user defined report being generated. This causes a CSV member to be created in the PDS defined by the CAIJSCSV DD statement contained in the execution JCL. An entry is made in the file defined by the CAIJSIDX DD statement. The CSV index file contains pointers to where CSV members exist. The program that creates the CSV members and updates the CSV index file is called after the EXIT 3 point in processing. This allows any users who have implemented an EXIT 3 to modify the print line information before it is seen by the CSV program. Up to 15 CSV files can be produced as output from a single execution of CA JARS.

The first step in creating CSV files from the Report Writer is to identify existing reports that are candidates for CSV file production, or to define requirements for the content of specific CSV files that the user wants to see on the desktop. If you are creating a new report with the intent of producing a CSV output file, we recommend that you first get the report to produce the desired output, and then add the CSV member name to the SORT control statement.

Getting Started

To create CSV files with the Report Writer, follow these steps:

1. Allocate and initialize the index data set.
2. Define a GDG PDS data set if desired.
3. Alter the batch execution JCL to create a new PDS data set, or point to an existing PDS data set to contain CSV members. Alter the SORT control statement to create a CSV output file, or an XML Profile indicator to describe the CSV output file.

Allocate and Initialize the Index Data Set

Member CAJRINIT, found in the CAJRJCL library, is used to initialize the CAIJSIDX index data set used by CA Earl to track the location of CSV files. This JCL is executed to initially create the index file, or clear or re-initialize an index data set.

```
//CAJRINIT JOB (ACCTINFO),'PGMR',CLASS=A,MSGCLASS=X,REGION=0M
//*********************************************************************
//*                                                                   *
//*  MEMBER : CAJRINIT FROM CAI.CAJRJCL                               *
//*                                                                   *
//*  PURPOSE: THIS SAMPLE JCL MEMBER MAY BE USED TO INITIALIZE THE    *
//*           INDEX FILE TO TRACK CSV FILE PRODUCTION.                *
//*                                                                   *
//*  MODIFICATIONS:                                                   *
//*                                                                   *
//*  1.   CHANGE 'CAI' FOR THE SYSUT1 AND SYSUT2 TO MATCH YOUR HIGH    *
//*       LEVEL QUALIFIERS IN USE AT YOUR INSTALLATION.               *
//*                                                                   *
//*  2.   CHANGE 'VOLID' TO THE VOLSER OF THE DASD DEVICE TO BE USED.  *
//*                                                                   *
//*  3.   CHANGE 'PERM' TO THE DEVICE TYPE OF THE VOLSER TO BE USED.   *
//*                                                                   *
//*********************************************************************
//CR8IDX    EXEC PGM=IEBGENER
//SYSPRINT  DD   SYSOUT=*
//SYSUT1    DD   DSN=CAI.CAJROPTN(CAJRINDX),DISP=SHR        <=== MODIFY
//SYSUT2    DD   DSN=CAI.CSVPDS.INDEX,                      <=== MODIFY
//          DISP=(,CATLG,DELETE),VOL=SER=VOLID,UNIT=PERM,   <=== MODIFY
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=2550),DSORG=PS,
//          SPACE=(TRK,(5,2))
//SYSIN     DD   DUMMY
/*
//
```

Define a GDG PDS Data Set (Optional)

Member CAJRGDGS, found in the CAJRJCL library, is used to initialize a Generation Data Group (GDG) data set on disk that becomes a repository for CSV files created by CA Earl. The creation of a GDG data set is not required but recommended. As many different GDG CSV data sets as required may be created. For example, you can create a daily, weekly, monthly, quarterly or yearly CSV GDG data set. Each CSV GDG data set can be managed by a separate index data set, or all CSV GDG data sets can be managed by a single index data set.

```
//CAJRGDGS JOB (ACCTINFO),'PGMR',MSGCLASS=X,CLASS=A
//BLDGDGS  EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//CSVPDS   DD DSN=CAI.JARS.CSVPDS.GDG,
//         DISP=(,KEEP),SPACE=(CYL,5),
//         DCB=(RECFM=VB,LRECL=512,BLKSIZE=5124)
//SYSIN    DD *
  DEFINE GDG(NAME(CAI.JARS.CSVPDS.GDG) LIMIT(255) SCRATCH)
//*
//
```

Batch Execution JCL and SORT Statement

Member CAJRCSVJ, found in the CAJRJCL library, is used as an example of the JCL requirements and SORT control statement changes necessary to create CSV files as output from CA JARS.

```
//CAJRCSVJ JOB (ACCTINFO),'PGMR',CLASS=A,MSGCLASS=X,REGION=0M
//*********************************************************************
//*                                                                   *
//*  MEMBER : CAJRCSVJ IN CAI.CAJRJCL                                 *
//*                                                                   *
//*  PURPOSE: THIS IS  AN EXAMPLE JCL  MEMBER THAT SHOWS THE USER HOW *
//*           TO  CREATE  CSV  FILES  IN A  PDS  USING  THE CA-JARS   *
//*           REPORT WRITER.  THE  CAIJSCSV  AND  CAIJSIDX DD  WHICH  *
//*           DEFINE THE CSV  PDS DATASET AND  THE CSV INDEX DATASET  *
//*           ARE  OF  PARTICULAR  INTEREST.  ALSO,  NOTICE THE SORT  *
//*           CONTROL  STATEMENT  HAS  THE CSV MEMBER NAME SPECIFIED  *
//*           IN COLUMNS 65 THROUGH 72.                               *
//*                                                                   *
//*  MODIFICATIONS:                                                   *
//*                                                                   *
//*  1.  THE INDEX DATASET  MUST EXIST  PRIOR  TO SUBMISSION  OF THIS *
//*      JOB.  PROCESS MEMBER 'CAJRINIT' IN  CAI.CAJRJCL  TO ALLOCATE *
//*      AND  INITIALIZE THE  INDEX DATASET, CAIJSIDX.  REFER TO  THE *
//*      CSV FILE  PRODUCTION  CHAPTER  OF  THE  CA-JARS  r12  USERS  *
//*      GUIDE FOR MORE DETAILED INFORMATION ON THE CREATION OF CSV   *
//*      FILES.                                                       *
//*                                                                   *
//*  2.  CHANGE  ALL REFERENCES TO 'CAI' TO  MATCH YOUR  INSTALLATION *
//*      STANDARDS.                                                   *
//*                                                                   *
//*  3.  ALL  UNIT=SYSDA STATEMENTS  MAY HAVE  TO BE  CHANGED IF YOUR *
//*      INSTALLATION  USES DIFFERENT  ESOTERIC  NAMES FOR  TEMPORARY *
//*      DASD.                                                        *
//*                                                                   *
```

```
//*  4.  ALL UNIT=???? AND VOL=SER=XXXXXX HAVE TO BE CHANGED TO MATCH *
//*      YOUR INSTALLATION STANDARDS.                                 *
//*                                                                   *
//*      **NOTE** RETURN CODE SHOULD NOT BE GREATER THAN 4.           *
//*                                                                   *
//*********************************************************************
//JARS      EXEC PGM=JSIMAIN
//STEPLIB   DD DSN=CAI.CAJRLOAD,DISP=SHR               <==CUSTOMIZE
//CAIJSNAP  DD SYSOUT=*,DCB=(RECFM=VBS,LRECL=125,BLKSIZE=882)
//CAIJSPRT  DD SYSOUT=*
//SYSOUT    DD SYSOUT=*
//CAIJSC    DD DUMMY
//CAIJSOUT  DD SYSOUT=*
//SYSUDUMP  DD SYSOUT=*
//CAIJSCSV  DD DSN=CAI.CSVPDS.OUTPUT,                 <==CUSTOMIZE
//          DISP=(NEW,CATLG,KEEP),
//          DCB=(RECFM=VB,LRECL=512,BLKSIZE=5124),
//          UNIT=????,VOL=SER=XXXXXX,                 <==CUSTOMIZE
//          SPACE=(CYL,(10,5,20)),
//          DSORG=PO
//CAIJSIDX  DD DSN=CAI.CSVPDS.INDEX,DISP=MOD          <==CUSTOMIZE
//SORTWK01  DD UNIT=SYSDA,
//             SPACE=(CYL,(5))
//SORTWK02  DD UNIT=SYSDA,
//             SPACE=(CYL,(5))
//SORTWK03  DD UNIT=SYSDA,
//             SPACE=(CYL,(5))
//SORTWK04  DD UNIT=SYSDA,
//             SPACE=(CYL,(5))
//SORTWK05  DD UNIT=SYSDA,
//             SPACE=(CYL,(5))
//SORTWK06  DD UNIT=SYSDA,
//             SPACE=(CYL,(5))
//CAIJSCT2  DD UNIT=SYSDA,DISP=(,DELETE,DELETE),
//             SPACE=(TRK,(10,1))
//CAIJSCT1  DD UNIT=SYSDA,DISP=(,DELETE,DELETE),
//             SPACE=(TRK,(10,1))
//CAIJSSMF  DD DSN=CAI.SMF.IMPUT.DATA,DISP=SHR         <==CUSTOMIZE
//SYSPRINT  DD SYSOUT=*
//SYSPUNCH  DD SYSOUT=*
//HISTFILE  DD DSN=CAI.JARS.HISTORY,DISP=OLD          <==CUSTOMIZE
//CAIJSACT  DD DSN=CAI.JARS.ACCT,DISP=OLD             <==CUSTOMIZE
//CAIJSCIN  DD *
 SELECT     1                                    M                      P 3 1 5
 OPTION   0001              ,.
```

```
EXTDATA NYNYYYYYYYYYYYYYYYYYYYYYYYYYYYYNYYY
MHEADER  048P E A K   P A G I N G   P E R I O D S
MSORT    29701A3                                     S          CSVTST22
MDISPLAY   0020560A81A90C21C30C81C90D3075040178177142
MRATE     1000          100
MTSORATE  1000              100
MTITLE   02                    TIME INTERVAL
MTITLE   42PERCENT                 CPU
MTITLE   56   NBR               STEPS
MGROUP   0281 R0372
MGROUPC  1T
MGROUPC  200      01      A
MGROUPC  202      03      B
MGROUPC  204      05      C
MGROUPC  206      07      D
MGROUPC  208      09      E
MGROUPC  210      11      F
MGROUPC  212      13      G
MGROUPC  214      15      H
MGROUPC  216      17      I
MGROUPC  218      19      J
MGROUPC  220      21      K
MGROUPC  222      23      L
MDESCRIPT1        UNIDENTIFIED
MDESCRIPT1A       00.00  TO  01.59
MDESCRIPT1B       02.00  TO  03.59
MDESCRIPT1C       04.00  TO  05.59
MDESCRIPT1D       06.00  TO  07.59
MDESCRIPT1E       08.00  TO  09.59
MDESCRIPT1F       10.00  TO  11.59
MDESCRIPT1G       12.00  TO  13.59
MDESCRIPT1H       14.00  TO  15.59
MDESCRIPT1I       16.00  TO  17.59
MDESCRIPT1J       18.00  TO  19.59
MDESCRIPT1K       20.00  TO  21.59
MDESCRIPT1L       22.00  TO  23.59
/*
//
```

Creating CSV Files Using the CA Earl Report Writer

With this product it is possible to create CSV files from the CA Earl Report Writer for availability to desktop applications. Creating a CSV file from the CA Earl Report Writer is accomplished by specifying the JSICSVE program on the PRTEXIT option, and adding DD statements to the execution JCL. Creating CSV files through the use of CA Earl allows you to create CSV files derived from RMF records; this cannot be accomplished using the CA JARS Report Writer. The PDS used to store CSV files from CA Earl can be the same or a separate PDS data set from the one used to store CSV files created as output from the CA JARS Report Writer. The CA Earl print exit program builds and maintains the index data set that keeps track of the location of CSV files. This data set can be separate from the one used by the CA JARS Report Writer, or it can be shared. On the next page is an example CA Earl program that creates a CSV file as output. Each required statement is documented following the program example. The example shows only the parts of the program that are required for CSV file production. A complete listing of the program can be found in the CAJREARL library under the name of ERXT0259.

```
OPTION LIST OFF
NOTE*******************************************************************
NOTE*  REPORT ID:      CACHE SUBSYSTEM ACTIVITY                        *
NOTE*  REPORT NAME:    CACHE ACTIVITY REPORT (CSV)                     *
NOTE*  DESCRIPTION:    CACHE ACTIVITY CSV  BY DEVICE                   *
NOTE*                                                                  *
NOTE*  RECORD TYPES:   MRXTHDR,                                        *
NOTE*                  MRXT74B                                         *
NOTE*  MACROS:         DEFDATE - DEFINE FIELDS FOR JULIAN TO GREG CNV *
NOTE*                  TIMEHMS - CONVERT TIME TO PRINTABLE FORMAT     *
NOTE*******************************************************************
!
OPTION PRINTER = 216
OPTION PAGE = 99999
OPTION PRTEXIT = JSICSVE
OPTION EXCLUDE
OPTION OMIT ALL BLANK LINES
!
     .
     .
     .
     .
```

```
PRINT TOTALS ONLY
           ' MEM=CSVCACHE'
           ' KEY=K5D7'
           ' TITLE=CACHE ACTIVITY  '
           ' EURO=.$'
           ' XI=Y'
           ' SID=' SID
           ' DATE=' CAI_PRTDATE
           ' SUBSYS=' SUBSYST
           ' CNTRL=' GSA_DEV
           ' SUBID=' GSA_SID
           ' VOL=' DVOL
           ' RDHIT=' READHIT
           ' DFWHIT=' DFWHIT
           ' CFWHIT=' CFWHIT
           ' STAGE=' STAGE
           ' DFWBP=' DFWBP
           ' ICL=' ICL
END
```

OPTION LIST OFF

This option causes the CA Earl program listing to be omitted from the output. It can be turned to ON during program development to aide in debugging.

OPTION PRINTER = 216

This option sets the maximum print line length for this execution to the CA Earl maximum of 216. We recommend that you always set this value to the maximum. When creating CSV output files, no hardcopy reports are produced, only the CSV file. Note that CA Earl still calculates the line length internally. It counts positions between the single quotes as literals, and adds this amount to the calculated line length, even though the actual CSV line length is significantly shorter. This results in RC=16 and message "CALC257E Field SPACED OUTSIDE COLUMNS 1 TO 216." Specifying a value greater than 216 causes a default to a length of 132.

OPTION PAGE = 99999

This option sets the number of lines to be printed on each report page. A specification of 99999 causes CA Earl to **not** generate page breaks.

OPTION EXCLUDE

This option specifies that all page and column headings should be suppressed.

OPTION OMIT ALL BLANK LINES

This option will compress reports by omitting all detail and/or total lines that are entirely blank or zero.

PRINT TOTALS ONLY

The PRINT statement specifies:

- which fields are to appear
- where the fields print on each print line
- what accumulations, if any, are to occur
- whether it is a summary (TOTALS ONLY) or detail report (TOTALS ONLY not specified)
- whether SINGLE, DOUBLE or TRIPLE spacing is to occur

When producing CSV output files using the JSICSVE print exit, a detail or summary report can be created but DOUBLE or TRIPLE spacing must not be specified. If DOUBLE or TRIPLE spacing is specified, the print exit program does not function properly, and the resultant CSV files are not created as expected. Refer to the CA Earl documentation for a complete list of PRINT statement options. Another restriction for CSV file creation is that multiple reports in a single execution are not allowed. If this is attempted the JSICSVE print exit program issues a message and terminates processing.

The first three fields following the PRINT or PRINT TOTALS ONLY control statement are required for CSV file production and their format is documented next. The fourth field is optional and is specified by users who wish to create CSV files in European format. The remainder of the fields are "pairs" of header information and data fields that appear in the CSV output file. If expected fields are not found by the exit or not found in the proper sequence, an error message is issued before termination.

' MEM=CSVCACHE'

The MEM= statement begins with a blank and can contain up to an eight-character member name following the equal sign. This names the member to be stowed in the PDS data set referenced by the CAIJSCSV DDNAME in the execution JCL. The member name must begin with a character, must be one to eight characters long, and cannot contain embedded blanks.

' KEY=K5D7'

The KEY= statement begins with a blank, and contains four characters following the equal sign. 'K5' indicates how many keys (sort control keys and control breaks) are in the CSV file. If K5 is specified, the first five print items that are heading and data item pairs should be KEYS. D7 indicates how many data elements (heading and data item pairs) the CSV file contains that are not KEYS. A specification of KEY=K5D7 indicates that the CSV file has 12 data elements for each data line of the CSV file, (five keys and seven elements).

' TITLE=CACHE ACTIVITY '

The TITLE= statement begins with a blank, and contains up to 68 characters of information for the title of the CSV file. This information appears in the index file referenced by the CAIJSIDX DDNAME in the execution JCL, and the CAIJSCSV PDS member being created as part of the identification record. Because specifying the title uses space on the print line, which is limited by to 216 bytes, you should make the title as concise as possible.

' EURO=.$'

The EURO= statement is optional, but must follow the TITLE= statement, if used. This statement begins with a blank and is used to indicate the method of representing the period and the currency symbol in use. The default, as shown in the sample, is a period to represent a period, and the currency symbol is the dollar sign. For European support, specify a comma instead of a period and the currency symbol in use. In this case the resultant CSV output file has its variables delimited by semi-colons and periods and the numeric fields represented with commas. An example of a European format CSV file is shown earlier in this chapter in the section European Support.

```
' SID=' SID
' DATE=' CAI_PRTDATE
' SUBSYS=' SUBSYST
' CNTRL=' GSA_DEV
' SUBID=' GSA_SID
' VOL=' DVOL
' RDHIT=' READHIT
' DFWHIT=' DFWHIT
' CFWHIT=' CFWHIT
' STAGE=' STAGE
' DFWBP=' DFWBP
' ICL=' ICL
```

' XI=Y'

The 'XI=' statement is optional, but must follow the title statement and, if present, the EURO= statement. The statement begins with a blank and is used to indicate that an iCan Service Management Suite XML profile member describing the CSV member is to be generated. If a value of Y is present, the iCan Service Management Suite XML profile is created for the CSV report. If there is any other value or no keyword, the report is not generated.

The remaining items on the PRINT statement are the actual column headings and data item 'pairs'. To print a data item, print a 'heading' to identify the data item in the CSV file. These 'headings' all begin with a blank and end with an equal sign, with the data item following. The 'headings' cannot contain embedded blanks. If you must specify a multiple word heading such as SUBSYS ID, it must be specified as 'SUBSYS-ID=' or in some similar manner that does not include an embedded blank.

The following output data illustrates what is generated from the ERXT0259 CA Earl Report just described.

```
"HCSV","0000","JARS","C.0","19980930","150115","CSVCACHE","CAI","JARS",12,0000,"K5D7"," ","CACHE
ACT"
"SID","DATE","SUBSYS","CNTRL","SUBID","VOL","RDHIT","DFWHIT","CFWHIT","STAGE","DFWBP","ICL"
"XE44","98/01/06",3990-03,"0C41","007A","VMCHI3",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"0C41","007A","VM9325",0.4,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"0C41","007A","VM9326",2.3,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,0501,"007B","IM1001",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,0501,"007B","IM1002",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,0501,"007B","IM1003",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,0501,"007B","DEMPP1",0.3,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,2041,"007C","DLB430",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,2041,"007C","VMU042",0.1,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,2041,"007C","DLB510",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"223F",0080,"MV136A",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"223F",0080,"SECB1A",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"223F",0080,"MINI03",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"223F",0080,"SECB1B",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,2261,0081,"OMVS02",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,2261,0081,"DLI394",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,2261,0081,"EMAIL1",9.0,0.8,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"22C1",0083,"MVXE84",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"22C1",0083,"MVXE99",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"22C1",0083,"CAT394",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"22C1",0083,"OPSL09",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,"22C1",0083,"ECAM02",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,2121,"00E0","MVR52D",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,2121,"00E0","MV392I",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,2121,"00E0","DLI392",0.0,0.0,0.0,0.0,0.0,0.0
"XE44","98/01/06",3990-03,2121,"00E0","YR2000",0.0,0.0,0.0,0.0,0.0,0.0
```

The record types found within the individual CSV members are described earlier in this chapter as is the format and content of the index file, both of which are created by the print exit program JSICSVE.

Getting Started

To create CSV files with the CA Earl Report Writer, follow these steps:

1. Allocate and initialize the index data set.
2. Define a GDG PDS data set if desired.
3. Alter the batch execution JCL to create a new PDS data set, or point to an existing PDS data set to contain CSV members. Create programs using the PRTEXIT=JSICSVE option to produce CSV output files.

Allocate and Initialize the Index Data Set

Member CAJRINIT, found in the CAJRJCL data set, is used to initialize the CAIJSIDX index data set to track the location of CSV files. This JCL is executed initially to create the index file, or clear or re-initialize an index data set.

```
//CAJRINIT JOB (ACCTINFO),'PGMR',CLASS=A,MSGCLASS=X,REGION=0M
//*********************************************************************
//*                                                                   *
//*  MEMBER : CAJRINIT FROM CAI.CAJRJCL                               *
//*                                                                   *
//*  PURPOSE: THIS SAMPLE JCL MEMBER MAY BE USED TO INITIALIZE THE    *
//*           INDEX FILE TO TRACK CSV FILE PRODUCTION.                *
//*                                                                   *
//*  MODIFICATIONS:                                                   *
//*                                                                   *
//*  1.  CHANGE 'CAI' FOR THE SYSUT1 AND SYSUT2 TO MATCH YOUR HIGH    *
//*      LEVEL QUALIFIERS IN USE AT YOUR INSTALLATION.                *
//*                                                                   *
//*  2.  CHANGE 'VOLID' TO THE VOLSER OF THE DASD DEVICE TO BE USED.  *
//*                                                                   *
//*  3.  CHANGE 'PERM' TO THE DEVICE TYPE OF THE VOLSER TO BE USED.   *
//*                                                                   *
//*********************************************************************
//CR8IDX    EXEC PGM=IEBGENER
//SYSPRINT  DD   SYSOUT=*
//SYSUT1    DD   DSN=CAI.CAJROPTN(CAJRINDX),DISP=SHR         <=== MODIFY
//SYSUT2    DD   DSN=CAI.CSVPDS.INDEX,                       <=== MODIFY
//          DISP=(,CATLG,DELETE),VOL=SER=VOLID,UNIT=PERM,    <=== MODIFY
//          DCB=(RECFM=VB,LRECL=255,BLKSIZE=2550),DSORG=PS,
//          SPACE=(TRK,(5,2))
//SYSIN     DD   DUMMY
/*
//
```

Define a GDG PDS Data Set (Optional)

Member CAJRGDGS, found in the CAJRJCL data set, is used to initialize a GDG data set on disk that becomes a repository for CSV files created by this product or CA Earl. The creation of a GDG data set is not required but recommended. As many different GDG CSV data sets as required may be created. For example, you can create a daily, weekly, monthly, quarterly or yearly CSV GDG data set. Each CSV GDG data set can be managed by a separate index data set, or all CSV GDG data sets can be managed by a single index data set.

```
//CAJRGDGS JOB (ACCTINFO),'PGMR',CLASS=A,MSGCLASS=X,REGION=0M
//*********************************************************************
//*                                                                   *
//*  MEMBER : CAJRGDGS FROM CAI.CAJRJCL                               *
//*                                                                   *
//*  PURPOSE: THIS  SAMPLE MEMBER  MAY BE USED  AS AN  EXAMPLE  FOR   *
//*           DEFINING A GDG DATASET TO CONTAIN CSV MEMBERS CREATED   *
//*           BY THE CA-JARS REPORT  WRITER AND THE  CA-EARL REPORT   *
//*           WRITER.                                                 *
//*                                                                   *
//*  MODIFICATIONS:                                                   *
//*                                                                   *
//*  1.  CHANGE ALL OCCURENCES OF 'CAI' TO MATCH YOUR HIGH            *
//*      LEVEL QUALIFIERS IN USE AT YOUR INSTALLATION.                *
//*                                                                   *
//*********************************************************************
//BLDGDGS  EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//CSVPDS   DD DSN=CAI.CSVPDS.GDG,                        <=== MODIFY
//            DISP=(,KEEP),SPACE=(CYL,5),
//            DCB=(RECFM=VB,LRECL=512,BLKSIZE=5124)
//SYSIN    DD *
  DEFINE GDG(NAME(CAI.CSVPDS.GDG) LIMIT(255) SCRATCH)    <=== MODIFY
/*
//
```

CA Earl Batch Execution JCL

Member CAJRCSVE, found in the CAJRJCL data set, is used as an example of the JCL requirements and SORT control statement changes necessary to create CSV files as output from CA Earl.

```
//CAJRCSVE JOB (ACCTINFO),'PGMR',CLASS=A,MSGCLASS=X,REGION=0M
//*******************************************************************
//*  MEMBER : CAJRCSVE IN CAI.CAJRJCL.                              *
//*                                                                 *
//*  PURPOSE: THIS IS  AN EXAMPLE JCL  MEMBER THAT SHOWS THE USER HOW *
//*           TO CREATE  CSV FILES  IN A PDS USING THE CA-EARL REPORT *
//*           WRITER. THE CAIJSCSV AND  CAIJSIDX DD STATEMENTS  WHICH *
//*           DEFINE  THE CSV PDS DATASET AND  THE  CSV INDEX DATASET *
//*           ARE OF PARTICULAR INTEREST. ALSO  NOTICE  THE  SYSIN DD *
//*           STATEMENT  WHICH  INDICATES  THE  CA-EARL  PROGRAM  TO  *
//*           EXECUTE.                                              *
//*                                                                 *
//*  MODIFICATIONS:                                                 *
//*                                                                 *
//*  1.  THE INDEX DATASET  MUST EXIST  PRIOR  TO SUBMISSION  OF THIS *
//*      JOB.  PROCESS MEMBER 'CAJRINIT' IN  CAI.CAJRJCL  TO ALLOCATE *
//*      AND  INITIALIZE THE  INDEX DATASET, CAIJSIDX.  REFER TO  THE *
//*      CSV FILE PRODUCTION CHAPTER OF THE  CA-JARS r12 USERS GUIDE  *
//*      FOR MORE DETAILED INFORMATION ON THE CREATION OF CSV FILES.  *
//*                                                                 *
//*  2.  CHANGE  ALL REFERENCES TO 'CAI' TO  MATCH YOUR  INSTALLATION *
//*      STANDARDS.                                                 *
//*                                                                 *
//*  3.  ALL  UNIT=SYSDA STATEMENTS  MAY HAVE  TO BE  CHANGED IF YOUR *
//*      INSTALLATION  USES DIFFERENT  ESOTERIC NAMES  FOR  TEMPORARY *
//*      DASD.                                                      *
//*                                                                 *
//*  4.  ALL UNIT=???? AND VOL=SER=XXXXXX HAVE TO BE CHANGED TO MATCH *
//*      YOUR INSTALLATION STANDARDS.                               *
//*                                                                 *
//*      **NOTE** RETURN CODE SHOULD NOT BE GREATER THAN 4.         *
//*                                                                 *
//*******************************************************************
//EARL     EXEC PGM=EARL
//STEPLIB  DD DSN=CAI.CAJRLOAD,DISP=SHR                 <==CUSTOMIZE
//EARLLIB  DD DSN=CAI.CAJREARL,DISP=SHR                 <==CUSTOMIZE
//EARLOBJ  DD UNIT=SYSDA,SPACE=(CYL,(3,1))
//CAIJSPRT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*,DCB=(RECFM=VBS,LRECL=216,BLKSIZE=2160)
//SYSOUT   DD SYSOUT=*
```

```
//CAIJSCSV DD DSN=CAI.JARS.EARL.CSVPDS.OUTPUT,           <==CUSTOMIZE
//            DISP=(NEW,CATLG,KEEP),
//            DCB=(RECFM=VB,LRECL=512,BLKSIZE=5124),
//            UNIT=????,VOL=SER=XXXXXX,                  <==CUSTOMIZE
//            SPACE=(CYL,(10,5,20)),
//            DSORG=PO
//CAIJSIDX  DD DSN=CAI.JARS.EARL.CSVPDS.INDEX,           <==CUSTOMZIE
//           DISP=MOD
//SORTIN   DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//SORTOUT  DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//WORK1    DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//SYSUT1   DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//SYSUT2   DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//SYSUT3   DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//SYSUT4   DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//SYSUT5   DD UNIT=SYSDA,SPACE=(CYL,(5,2))
//SYSIN    DD DSN=CAI.CAJREARL(ERXT0259),DISP=SHR        <==CUSTOMIZE
//HISTIN   DD DSN=CAI.JARS.ACCT,DISP=SHR                 <==CUSTOMIZE
/*
//
```

The three DDNAMEs of importance are:

CAIJSPRT DDNAME

contains any error messages printed by the JSICSVE exit program.

Note: The exit program prints error messages to the CAIJSPRT DDNAME; then terminates the execution with a U3000 abend. If you receive any U3000 abends when creating CSV files, check the CAIJSPRT DDNAME output to see if the exit detected any fatal errors.

CAIJSCSV DDNAME

indicates the repository for the CSV file to be created during this execution of CA Earl.

CAIJSIDX DDNAME

points to the CSV index file.

XML File Types

If the system where CA JARS is running the Report Writer has IBM's XML Toolkit installed, CA JARS can produce an output report in XML.

When the CA JARS Report Writer is called upon to generate XML data for a report, it generates two output files that are both well-formed XML documents. There is the document containing the report data itself, and a basic schema that can be used to describe the report data document, and can also be used to validate the report data document. (The schema is always generated because there are XML applications that require a schema for processing.)

The XML Report Data Document

CA JARS report documents provide a method for delivering a CA JARS report in a standard data format. This format can be imported into applications that consume XML documents as part of their processing and the report data can be used programatically by other applications, as opposed to being simply listed in tabular form on a page, or as a list of values separated by a delimiter that can only be consumed by a limited number of applications, as in a comma separated value file that would be imported into a spreadsheet application.

XML Report Layout

All of the CA JARS XML reports are laid out similarly. At the very top is the tag indicating the XML version and page encoding. The second item in the report is the top group tag. The top group name in the report is the same as the report title on the HEADER card, although all of the spaces in the title are changed to underscores (_). In addition, the slash, less-than, and greater-than characters are changed to hyphens. XML does not allow these characters in tag names. The top group has two attributes: the schema standard that is being used and the location of the schema that was created at the same time as the report. The schema location is the data set name of the schema as allocated in the job that was run.

If you are running the XML writer and routing the schema to DUMMY or to print, the schema name reflects the system data set name that is assigned. If you are going to be processing the output XML with an application that requires a schema, you must produce the schema with every call, or add a step in the processing to replace the schema name with a reference to a pre-existing schema.

Following the top group tag is the REPORT_LINE tag, which delineates each report line in the report. Under the REPORT_LINE tags are the values of each column in a report, with the column header being used as the descriptive tag for the value. Again, spaces in the column headers are converted to underscores in the tag names.

Here is a sample XML report:

```
<?xml version="1.0" encoding="ibm-1047" ?>
<SAMPLE_XML_REPORT
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation=
  "//'LIVMI02.TEST.XMLLIB(XMLES)'">

<REPORT_LINE>
  <JOB_NAME>$RXQUMON</JOB_NAME>
  <USER_ID>STCSYS</USER_ID>
  <RDR_STRT_DATE>03/07/07</RDR_STRT_DATE>
  <RDR_STRT_TIME>19:26:14</RDR_STRT_TIME>
  <JOB_NBR> 00422</JOB_NBR>
  <CPU_TIME>  00:00:01</CPU_TIME>
  <CC>0000</CC>
  <ELAPSED_TIME>  01:00:01</ELAPSED_TIME>
  <PERCENT_TOTAL>   .000</PERCENT_TOTAL>
  <ELAP_PAGE>   0</ELAP_PAGE>
</REPORT_LINE>

<REPORT_LINE>
  <JOB_NAME>ABBCH02</JOB_NAME>
  <USER_ID>ABBCH02</USER_ID>
  <RDR_STRT_DATE>03/07/08</RDR_STRT_DATE>
  <RDR_STRT_TIME>10:30:01</RDR_STRT_TIME>
  <JOB_NBR></JOB_NBR>
  <CPU_TIME>  00:00:00</CPU_TIME>
  <CC>S622</CC>
  <ELAPSED_TIME>  00:01:53</ELAPSED_TIME>
  <PERCENT_TOTAL>   .000</PERCENT_TOTAL>
  <ELAP_PAGE>   0</ELAP_PAGE>
</REPORT_LINE>
</SAMPLE_XML_REPORT>
```

All CA JARS XML documents have a similar format. The header is present, indicating the version and encoding in the top line. The top group name is the same as the report title from the HEADER statement in the report, with all of the spaces converted to underscores (_), and the greater-than, less-than, and slash characters converted to hyphens. Beneath the top group are the individual lines of the report with the REPORT_LINE tag. Each tag beneath the line is the column header in the CA JARS report (again with the same substitutions as in the top group tag name.)

XML Report Restrictions

Not all possible CA JARS reports can produce XML output. If more than two levels of DESCRIPT are indicated in the report definition, for example, an XML report is not produced. In fact, all of the restrictions for XML report production are the same restrictions as for CSV reports.

XML Report Guidelines

While XML data is very versatile and useful in terms of what can consume the data, running an XML report can potentially produce voluminous amounts of data. Consider that the column headers are imbedded in the report for every single line that is represented in the report. In fact the characters that make up the column headers are imbedded twice, since the closing tag for each element in a line contains the column header name as well.

We strongly recommend that, for most detail reports, XML data not be produced, unless the report is being filtered for specific criteria that can limit the amount of data.

The issue of document size is important if the XML document is going to be consumed by an application running on a different platform. This means that the entire document is transmitted across the wire to the receiving platform. There is no data compression in a CA JARS XML document, so remember this when composing a report that is used to write XML data. There is no problem with using an additional product to compress the data before sending it to the consuming application platform, provided there is a matching decompression for the data upon arrival.

Also, we recommend that the consuming application itself be considered when constructing an XML report. The consuming application may have restrictions on any number of items that are part of a CA JARS XML document. For instance, the consuming application may not allow tag names longer than 10 characters. There are any number of tailoring commands to set up column headers, field values, and so on, and these can be used with the XML writer, as the XML writer picks up customer column headers.

The XML Report Schema Document

The schemas that are produced by the CA JARS XML writer are very simple in nature, in that they only describe each field under a REPORT_LINE tag in the document.

The schema itself is constructed to the 2001 schema standard as defined by the W3C. For more information, go to http://www.w3.org/2001/XMLSchema. By definition, the schema is a well-formed XML document. It consists of a header (which describes the schema as an XML document), and a series of elements. The order in which the elements are described is as follows:

- Report element
- Report line element
- Field elements

The schemas produced are not going to have handling for attributes, nor will they show any fields that are not in the report. The only type of value in the schema is character data. This is because the XML document is produced from an exit to the CA JARS report writer print process and the input data into the report are print lines, meaning the data in the document is already formatted as output print data.

Here is a sample schema document:

```
<?xml version="1.0" encoding="ibm-1047" ?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

<xs:element name="SAMPLE_XML_REPORT">
<xs:complexType>
<xs:sequence maxOccurs="unbounded">

<xs:element name="REPORT_LINE"
    type="rowType"/>

</xs:sequence>
</xs:complexType>
</xs:element>

<xs:complexType name="rowType">
<xs:sequence>

<xs:element name="JOB_NAME"
    type="fieldType1" minOccurs="0"/>
<xs:element name="USER_ID"
    type="fieldType2" minOccurs="0"/>
<xs:element name="RDR_STRT_DATE"
    type="fieldType3" minOccurs="0"/>
<xs:element name="RDR_STRT_TIME"
    type="fieldType4" minOccurs="0"/>
<xs:element name="JOB_NBR"
    type="fieldType5" minOccurs="0"/>
<xs:element name="CPU_TIME"
    type="fieldType6" minOccurs="0"/>
<xs:element name="CC"
    type="fieldType7" minOccurs="0"/>
<xs:element name="ELAPSED_TIME"
    type="fieldType8" minOccurs="0"/>
<xs:element name="PERCENT_TOTAL"
    type="fieldType9" minOccurs="0"/>
<xs:element name="ELAP_PAGE"
    type="fieldType10" minOccurs="0"/>

</xs:sequence>
</xs:complexType>
```

```
<xs:simpleType name="fieldType1">
  <xs:restriction base="xs:string">
    <xs:maxLength value="8"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="fieldType2">
  <xs:restriction base="xs:string">
    <xs:maxLength value="8"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="fieldType3">
  <xs:restriction base="xs:string">
    <xs:maxLength value="8"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="fieldType4">
  <xs:restriction base="xs:string">
    <xs:maxLength value="8"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="fieldType5">
  <xs:restriction base="xs:string">
    <xs:maxLength value="6"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="fieldType6">
  <xs:restriction base="xs:string">
    <xs:maxLength value="10"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="fieldType7">
  <xs:restriction base="xs:string">
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="fieldType8">
  <xs:restriction base="xs:string">
    <xs:maxLength value="10"/>
  </xs:restriction>
</xs:simpleType>
```

```
<xs:simpleType name="fieldType9">
  <xs:restriction base="xs:string">
    <xs:maxLength value="8"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="fieldType10">
  <xs:restriction base="xs:string">
    <xs:maxLength value="4"/>
  </xs:restriction>
</xs:simpleType>

</xs:schema>
```

Generating XML Files

Before XML files can be produced by the CA JARS report writer, the IBM XML Toolkit for z/OS must be installed on the system where CA JARS is run. The XML Toolkit is a free download from IBM and can be installed with or without SMP/E. CA JARS will work with the Toolkit no matter which way it is installed. The only requirement is that the Toolkit must either be in the system linklist, or the load library from the Toolkit must be concatenated to the STEPLIB DD.

To generate XML files using the CA JARS report writer, option 3 must be coded in position 73 of the SORT statement used in a report. If this is set, columns 65-70 are redefined to have the following meaning:

65-66

ddname suffix for the XML report data document

67-68

ddname suffix for the XML schema

69-70

codepage indicator

Positions 71-72 are ignored by the XML writer process. These bytes can be set to anything, but since they are not used, they should be set to spaces.

Rules

- The characters in columns 65-66 must be uppercase alphanumeric, and the characters in columns 67-68 must be uppercase alphanumeric or spaces.
- There is no default for the ddname suffix for the XML report data document. This must be coded.

- The ddname suffix for the XML schema is optional, as it will default to the value of the suffix for the XML report data document.
- The Codepage Indicator must be numeric or left blank, and must contain a supported value indicating one of the supported codepages.

XML File Processing

Ddname Suffixes

The ddname suffixes are used to indicate the ddnames where the XML report and schema are to be written. The value coded in positions 65-66 is appended to CAIJX to form the ddname. So if 01 is coded in those positions, the ddname for CA JARS is CAIJX01.

The suffix for the schema has the same processing rules as the XML report data document ddname suffix. The suffix for the schema is appended to CAIJM to form the ddname. So, if S4 is coded in positions 67-68 on the SORT statement, the schema is written to the ddname CAIJMS4. If positions 67-68 are both blank, the suffix indicated in positions 65-66 is used.

Here are some examples:

```
Columns 65-68           XML DDName        Schema DDName
   0101                 CAIJX01           CAIJM01
   X1                   CAIJXX1           CAIJMX1
   A1B2                 CAIJXA1           CAIJMB2
```

The XML report data file and the XML schema file that are produced can be written to any device that can process a sequential file, such as disk (sequential file or PDS member) or tape. The files can also be written to the Hierarchical File System (HFS) using a PATH parameter on the DD statement. The output files can also be written to SYSOUT, or to DUMMY, if they are not needed.

Codepage Indicators

The codepage indicator tells the XML writer which character sets should be used to write the output XML data and schema. The following codepage indicators are currently supported:

00

EBCDIC (the default)

01

UTF-8

Note: If the XML data report or schema are being routed to SYSOUT, we strongly recommend that the EBCDIC code page be used. If UTF-8 is used, the records are written to SYSOUT, but are unreadable.

Sample JCL and Control Statements

```
//          JOB
//*
//* THIS JOB WILL RUN JSIMAIN TO PROCESS SMF RECORDS AND CREATE
//* BOTH A PRINTED AND XML VERSION OF THE OUTPUT JARS REPORTS.
//* THE XML REPORT GENERATED WILL MATCH THE SAMPLE REPORT ABOVE IN
//* TERMS OF THE FIELDS USED.  THE SCHEMA THAT IS PRODUCED WILL ALSO
//* BE SIMILAR.
//*
//* PLEASE NOTE: THE IBM XML TOOLKIT FOR Z/OS DOES NOT HAVE TO BE
//* CONCATENATED TO STEPLIB IF THE TOOLKIT IS IN THE SYSTEM LINK LIST.
//*
//JARS      EXEC PGM=JSIMAIN,REGION=6M
//STEPLIB   DD DSN=CAI.CAJRLOAD,DISP=SHR
//          DD DSN=IBM.XML.TOOLKIT,DISP=SHR
//CAIJSNAP  DD SYSOUT=*,DCB=(RECFM=VBS,LRECL=125,BLKSIZE=882)
//CAIJSPRT  DD SYSOUT=*
//SYSOUT    DD SYSOUT=*
//CAIJSC    DD SYSOUT=*
//CAIJSOUT  DD SYSOUT=*
//SYSUDUMP  DD SYSOUT=*
//SYSPRINT  DD SYSOUT=*
//SYSLIST   DD SYSOUT=*
//SORTWK01  DD UNIT=SYSDA,SPACE=(CYL,(5))
//SORTWK02  DD UNIT=SYSDA,SPACE=(CYL,(5))
//SORTWK03  DD UNIT=SYSDA,SPACE=(CYL,(5))
//SORTWK04  DD UNIT=SYSDA,SPACE=(CYL,(5))
//SORTWK05  DD UNIT=SYSDA,SPACE=(CYL,(5))
//SORTWK06  DD UNIT=SYSDA,SPACE=(CYL,(5))
//CAIJSCT2  DD UNIT=SYSDA,DISP=(,DELETE,DELETE),SPACE=(TRK,(10,1))
//CAIJSCT1  DD UNIT=SYSDA,DISP=(,DELETE,DELETE),SPACE=(TRK,(10,1))
```

```
//*****************************************************************
//* SMF INPUT DATASET
//*****************************************************************
//CAIJSSMF  DD DSN=SMF.MANDUMP1,DISP=SHR
//*****************************************************************
//HISTFILE  DD DSN=CAI.CAJARS.HISTFILE,DISP=SHR
//CAIJSACT  DD DSN=CAI.CAJARS.ACCTFILE,DISP=SHR
//*****************************************************************
//* XML OUTPUT DATA SETS (CAIJX__ - XML, CAIJM__ - SCHEMAS)
//*****************************************************************
//CAIJXX1   DD DSN=CAI.CAJARS.XMLLIB(XMLE),DISP=SHR
//CAIJMX1   DD DSN=CAI.CAJARS.XMLLIB(XMLES),DISP=SHR
//*****************************************************************
//CAIJSCIN  DD *
 SELECT     1                                     A
AHEADER     SAMPLE XML REPORT
ASORT    01608                                   1              X1      3
ADISPLAY   004210260261214266209265242276
/*
//
```

Note that only the XML ddname suffix is coded, so that the Output XML ddnames are CAIJXX1 and CAIJMX1. Since the codepage is also omitted, the output files are in the EBCDIC character set.

File Considerations

For disk (non-HFS) and tape data sets, the following is the specification for the XML report data documents and for the schemas:

```
RECFM = VB or FB
LRECL = 255 or higher
BLKSIZE = for VB at least 4 more than the LRECL
          for FB a multiple of the LRECL
```

The XML writer will not generate spanned records. Note that if the output file is going to be converted into a non-EBCDIC code page, such as UTF-8, that the RECFM must be set to VB.

The UTF-8 codepage option is provided to assist customers who are sharing files in the HFS with non-EBCDIC systems. It is not required, however that the UTF-8 files be written to the HFS.

Multiple Report Considerations

The XML writer can produce multiple XML documents during a single CA JARS run. Each report produced in a run can also be produced in XML. There are some considerations however:

- Documents that are written to the same ddname are concatenated to each other. If report A in a run is followed by report B, and both write XML to the same ddname, the XML for report B is appended to the XML for report A. This applies to report data documents as well as schemas.
- If multiple documents are written to the same data set from different job steps, only the documents written in the last step are kept. This applies to report data documents as well as schemas.

We recommend that separate DD statements be used for all XML documents and schemas needed in a CA JARS run. If multiple reports are in the run, each report should have its own set of XML and schema ddnames.

You can create Comma Separated Value (CSV) files compatible with the CA NSM APIs using the CA Earl Report Writer. Two new files are introduced with this feature; the CAIJSCSV file and the CAIJSIDX file.

The CAIJSCSV file is a Partitioned Data Set (PDS) that acts as a repository for the CSV files. The CAIJSIDX file is an index file that contains information about CSV files that have been created, and where they reside.

The members of the CAIJSCSV PDS are named using pattern AAAAnnCC, where the prefix AAAA may be user-specified through the 'SET MEM=' command in the CA Earl module, nn is a numeric starting with '01' and incrementing as each member is created in the PDS during a single run, and the 'CC' is a constant. If you do not specify a member prefix, the name will default to 'CSVM.'

For a given CA Earl run, one member is created for each date found on the CA JARS ACCT or History file input. For example, if your input file has data from 3, 4, and 5 September, the CA Earl run with an empty CAIJSCSV PDS will create members CSVM01CC, CSVM02CC, and CSVM03CC.

The PDS is a variable blocked file with an LRECL of 512 bytes and a default BLKSIZE of 5124 bytes. These values can be changed in your JCL. The CAIJSCSV PDS is defined as a Generation Data Group (GDG) type data set (recommended) to allow for repeated executions of CA Earl jobs that create CSV files (weekly, for example).

The reports provided for the user are in CAJREARL, member names ERXT0262 through ERXT0269.

CSV Record Types

Each CSV member in the CAIJSCSV PDS contains three record types: the Header record, the Time Band record and the Data record. The Header record appears once for each member, the Time Band appears once for each group of metrics in the member, and the Data records follow each time band record. Detailed information about each record type follows.

The Header Record

The first record of a CSV member is the Header record. It looks like this:

```
"Machine Name","Resource, Type","Resource, Sub-type","Resource, Instance", "Date",,"Data ->"
```

These fields are constants describing the format of the data records in the member. In the data records, actual values from the EXTDATA records will replace these constants. For example, "Machine Name" will be replaced with the actual sysid of your machine. "Resource, Type" may be changed to Device Activity or CPU Activity depending on which CSV file you are generating.

The Time Band Record

The second record found in a CSV member is the Time Band record. It looks like this:

```
"Time (HH:MM)
->",,,,,,00:00,01:00,02:00,03:00,04:00,05:00,06:00,07:00,08:00,09:00,10:00,11:00,12:00,13:00,14:0
0,15:00,16:00,17:00,18:00,19:00,20:00,21:00,22:00,23:00
```

These are constants, with the hours (or time bands) in the same relative position of the record as the data values from that hour in the data records. There are as many time band records, and therefore groups of data records, as there are logical groups in the data requested by the user. For example, depending on the report chosen, records may be grouped by sysid or device number.

The Data Record

The third record type is the Data record. Data records follow each time band record as the output is logically grouped. The data records contain replacement values for the elements named in the header record, followed by data values derived from EXTDATA record fields. There are 24 of these derived values, one for each hour of the day reported on, separated by commas. The following is an example of a CA NSM CSV PDS member. The lines are wrapped and separated by spaces for readability.

```
-------------------------------------------------------------------------------
"Machine Name","Resource, Type","Resource, Sub-type","Resource, Instance", "Date",,"Data ->"

"Time (HH:MM)
->",,,,,,00:00,01:00,02:00,03:00,04:00,05:00,06:00,07:00,08:00,09:00,10:00,11:00,12:00,13:00,14:0
0,15:00,16:00,17:00,18:00,19:00,20:00,21:00,22:00,23:00

"XAD1","XCF SYSTEM ACTIVITY","ACCUM MAX MSG BUFR SPACE (1K BLKS)","XAD1","02 April 2000","XCF SYSTEM
ACTIVITY->ACCUM MAX MSGBUFR SPACE (1K BLKS)",,,,,,,,,,,,,,,,,,,,,,16000,32000

"XAD1","XCF SYSTEM ACTIVITY","ACCUM TRANSPORT CLASS MSG LENGTH","XAD1","02 April 2000","XCF SYSTEM
ACTIVITY->ACCUM TRANSPORT CLASS MSG LENGTH",,,,,,,,,,,,,,,,,,,,,,16112,32224

"XAD1","XCF SYSTEM ACTIVITY","BIG MSGS EXCEEDING OPTIMUM LENGTH","XAD1","02 April 2000","XCF SYSTEM
ACTIVITY->BIG MSGS EXCEEDING OPTIMUM LENGTH",,,,,,,,,,,,,,,,,,,,,,160,284

"XAD1","XCF SYSTEM ACTIVITY","MSGS - TOTAL","XAD1","02 April 2000","XCF SYSTEM ACTIVITY->MSGS - TOTAL"
,,,,,,,,,,,,,,,,,,,,,,33336,65052

"XAD1","XCF SYSTEM ACTIVITY","MSGS FITTING DEFINED BUFFER","XAD1","02 April 2000","XCF SYSTEM
ACTIVITY
->MSGS FITTING DEFINED BUFFER",,,,,,,,,,,,,,,,,,,,,,632,1276

"XAD1","XCF SYSTEM ACTIVITY","MSGS LARGER THAN DEFINED BUFFER","XAD1","02 April 2000","XCF SYSTEM
ACTIVITY->MSGS LARGER THAN DEFINED BUFFER",,,,,,,,,,,,,,,,,,,,,,208,334

"XAD1","XCF SYSTEM ACTIVITY","MSGS MIGRATED NO PATH","XAD1","02 April 2000","XCF SYSTEM ACTIVITY->
MSGS MIGRATED NO PATH",,,,,,,,,,,,,,,,,,,,,,0,0

"XAD1","XCF SYSTEM ACTIVITY","MSGS PER SECOND REJECTED","XAD1","02 April 2000","XCF SYSTEM ACTIVITY
->MSGS PER SECOND REJECTED",,,,,,,,,,,,,,,,,,,,,,0,0

"XAD1","XCF SYSTEM ACTIVITY","MSGS PER SECOND TOTAL","XAD1","02 April 2000","XCF SYSTEM
ACTIVITY->MSGS
PER SECOND TOTAL",,,,,,,,,,,,,,,,,,,,,,842.57904,1612.51753

"XAD1","XCF SYSTEM ACTIVITY","MSGS REJECTED","XAD1","02 April 2000","XCF SYSTEM ACTIVITY->MSGS
REJECTED"
,,,,,,,,,,,,,,,,,,,,,,0,0

"XAD1","XCF SYSTEM ACTIVITY","MSGS SMALLER THAN DEFINED BUFFER","XAD1","02 April 2000","XCF SYSTEM
ACTIVITY->MSGS SMALLER THAN DEFINED BUFFER",,,,,,,,,,,,,,,,,,,,,,32496,63442

"XAD1","XCF SYSTEM ACTIVITY","PATHS IN SERVICE","XAD1","02 April 2000","XCF SYSTEM ACTIVITY->PATHS
IN
SERVICE",,,,,,,,,,,,,,,,,,,,,,12,24
```

Note: This CSV format is specific to CA NSM.

The Index File Record

In addition to creating CSV members, CA Earl can write index records to the CAIJSIDX data set as each CSV member is created. This index, or directory, is used to keep track of the CSV files. Each record in the CSV directory has a one byte record type field in the first position of the record. Valid record types are:

V

Version

D

Data set name record

M

Member name record

Each record in the CSV directory has one or more fields in addition to the record type field. These fields have a fixed format and length.

The version record is created when the CAIJSIDX directory data set is initially created, and identifies the level of the host software that created the directory file.

The data set name record contains the name of the data set containing the CSV members that are indicated on subsequent member records.

The member records contain the CSV member name and the date and time the CA Earl run was created, (NOT the date of your data). The constant 'PT' in positions 3 and 4 are a requirement of the download program.

The following example shows what a CA Earl CAIJSIDX directory data set may contain. It also shows an index file tracking an output PDS defined as a GDG. Had the PDS NOT been defined as a GDG, the second CA Earl run would not have created members CSVM03CC and CSVM04CC, but would have rewritten CSVM01CC and CSVM02CC, causing a loss of data if the data had not been downloaded in the interim.

```
position
          1         2         3         4         5         6         7
 1...5....0....5....0....5....0....5....0....5....0....5....0....5....0

 V JARSR12 SP0
 D CONST03.CSV.ERXT0262.PDS.G0001V00
 M PT CSVM01CC 2000/09/20 14:14
 M PT CSVM02CC 2000/09/20 14:14
 D CONST03.CSV.ERXT0262.PDS.G0002V00
 M PT CSVM01CC 2000/09/20 14:16
 M PT CSVM02CC 2000/09/20 14:16
 D CONST03.CSV.ERXT0265.PDS.G0003V00
 M PT CSVM01CC 2000/09/20 14:59
 M PT CSVM02CC 2000/09/20 14:59
 D CONST03.CSV.ERXT0267.PDS.G0003V00
 M PT CSVM01CC 2000/09/20 14:59
 M PT CSVM02CC 2000/09/20 14:59
 D CONST03.CSV.ERXT0262.PDS.G0003V00
 M PT CSVM01CC 2000/09/20 15:00
 M PT CSVM02CC 2000/09/20 15:00
```

Only one version record exists, followed by "groups" of data set and member name records that correspond to the various batch executions that have occurred. The CAIJSIDX DD is required during any execution of CA Earl that creates output CSV members, but may be specified as DD DUMMY for users who do not want to maintain this file. Notice that the index file can point to many different data sets that contain CSV files. As many index files and PDS CSV repositories as desired can be maintained by the user. You can have one directory file for each CSV PDS file, one directory file for all CSV PDS files, or a combination of the two.

Creating CA NSM CSV Files Using CA Earl

You can create CSV files from the CA Earl Report Writer in a format compatible with CA NSM APIs that can create performance cubes from CSV files. See the *Network and Systems Management (NSM) Database Performance Monitor Option guide, Using the Performance Agent,* for more detailed information.

Creating a CSV file from the CA Earl Report Writer is accomplished by specifying members ERXT0262 through ERXT0269 on the SYSIN DD statement and adding CAIJSCSV and CAIJSIDX DD statements to the CA Earl execution JCL. Input to this process is your RMF data. The PDS used to store CSV files **must** be separate from the one used to store other CSV files created by CA JARS, as the record formats are different.

The CA Earl print exit program builds and maintains the index data set that keeps track of the location of CSV files. Again, this data set may **not** be the same as the one used by the CA JARS Report Writer, due to an incompatible record format.

On the next page is an example CA Earl program that creates a CSV file as output. Statements that can be modified by the user are documented following the program example. The example shows only part of the program. A complete listing of the program can be found in the CAJREARL library in member ERXT0269.

```
--------------------------------------------------------------------------------
NOTE ****************************************************************** 00010000
NOTE *  REPORT ID:      ERXT0269                                     * 00020008
NOTE *  REPORT NAME:    XCF SYSTEM ACTIVITY CSV                      * 00030008
NOTE *  DESCRIPTION:    CSV OF CROSS SYSTEM COUPLING FACILITY        * 00040008
NOTE *                  ACTIVITY.                                    * 00050008
NOTE *  RECORD TYPES:   MRXTHDR,                                     * 00060000
NOTE *                  MRXT74S        ( TYPE 74-2)                  * 00070008
NOTE ****************************************************************** 00100000
!OPTION LIST OFF                                                        00110000
OPTION PRINTER   = 216                                                  00120000
OPTION PRTEXIT   = JSICSVT                                              00130000
OPTION PAGE      = 99999                                                00140000
OPTION PRECISION = ALL                                                  00150000
OPTION CPAGE = 60                                                       00160000
OPTION EXCLUDE                                                          00170000
OPTION OMIT ALL BLANK LINES                                             00180000
OPTION WORKFILES                                                        00190000
    .
    .
    .
SET MEM       = 'CSVM'        !MEM CAN ONLY BE 4 CHARACTERS LONG        00990000
!                              PRINT EXIT WILL START WITH 01CC SUFFIX   01000000
!                              AND INCREMENT FOR EACH DATE CHANGE       01010000
!                              MEM WILL BE TRUNCATED TO 4 BY PRTEXIT    01020000
!                                                                       01030000
SET SELVAR001 = '4SD ' !DURATION WITHIN INTERVAL          (XCF  - 74S) 01040004
SET SELVAR002 = 'MSR ' !MSGS PER SECOND REJECTED          (XCF  - 74S) 01050004
SET SELVAR003 = 'MST ' !MSGS PER SECOND TOTAL             (XCF  - 74S) 01060004
SET SELVAR004 = 'XMB ' !BIG MSGS EXCEEDING OPTIMUM LENGTH (XCF  - 74S) 01070004
SET SELVAR005 = 'XMF ' !MSGS FITTING DEFINED BUFFER       (XCF  - 74S) 01080004
SET SELVAR006 = 'XML ' !MSGS LARGER THAN DEFINED BUFFER   (XCF  - 74S) 01090004
SET SELVAR007 = 'XMR ' !MSGS REJECTED                     (XCF  - 74S) 01100004
SET SELVAR008 = 'XMS ' !MSGS SMALLER THAN DEFINED BUFFER  (XCF  - 74S) 01110004
SET SELVAR009 = 'XMT ' !MSGS - TOTAL                      (XCF  - 74S) 01120004
SET SELVAR010 = 'XMX ' !ACCUM MAX MSG BUFR SPACE (1K BLKS) (XCF  - 74S) 01130004
SET SELVAR011 = 'XNP ' !MSGS MIGRATED NO PATH             (XCF  - 74S) 01140004
SET SELVAR012 = 'XPS ' !PATHS IN SERVICE                  (XCF  - 74S) 01150004
SET SELVAR013 = 'XTC ' !ACCUM TRANSPORT CLASS MSG LENGTH  (XCF  - 74S) 01160004
    .
    .
    .
```

```
PRINT TOTALS ONLY                                                      03280000
 ' M='  0 PMEM 0 '         S=' 0 PSID      0 ' R=' 0 PRESOURCE 0       03290000
 ' RS=' 0 PRESOURCESUB 0 ' I=' 0 PINSTANCE 0 ' D=' 0 PDATE     0       03300000
 ' H='  0 PHOUR        0 ' V=' 0 PVALUE                               03310000
!                                                                      03320004
END                                                                    03330000
```

Header comments

Please pay particular attention to these, as there are requirements documented in some of them which may not be intuitive.

OPTION Statements

No modification to OPTION statements is required. You may change LIST OFF to LIST ON to view the CA Earl program in your output.

SET MEM = 'CSVM'

This is the prefix of your CSV PDS members. Set this prefix to any valid four character combination. With the default prefix, members will be named CSVM01CC, CSVM02CC, and so on. The CC suffix is hard-coded and may not be changed.

SET SELVAR0xx =

These are the user-selectable metrics for inclusion in the CSV output file. To include this metric in your output, ensure the line is not commented out. If you do not desire a particular metric, insert an exclamation point (!) in position 1 of that line.

PRINT TOTALS ONLY

The PRINT statement must not be modified by the user. These programs are coded to construct the CSV file in a particular format for NSM Database Performance Management option.

There are no other statements that can be modified.

Getting Started

To create CA NSM Performance Management CSV files with CA Earl, follow these steps:

1. Allocate and initialize the index data set.
2. Define a GDG PDS data set if desired.
3. Alter the CA Earl batch execution JCL to create a new PDS data set, or point to an existing PDS data set that you want to contain CSV members. Specify the appropriate CAJREARL member on the SYSIN DD statement to produce the desired report.

Allocate and Initialize the Index Data Set

Member CAJRTNGI, found in CAJRJCL, is used to initialize the CAIJSIDX index data set used to track the location of CSV files. This JCL is executed initially to create the index file, or clear or reinitialize an index data set. Below is a sample CAJRTNGI member.

```
//CAJRTNGI JOB (ACCTINFO),PGMR,CLASS=K,MSGCLASS=X,REGION=0M
//*****************************************************************
//*                                                               *
//* MEMBER : CAJRTNGI IN CAI.CAJRJCL                              *
//*                                                               *
//* PURPOSE: ALLOCATE AN INDEX THAT WILL BE USED DURING GENERATION *
//*          OF THE CSV FILES.                                    *
//*                                                               *
//* REFER TO THE CA-JARS USER GUIDE FOR DETAILS.                  *
//*                                                               *
//*****************************************************************
//CR8IDX   EXEC PGM=IEBGENER
//SYSPRINT  DD SYSOUT=*
//SYSUT1    DD DSN=CAI.CAJROPTN(CAJRINDX),DISP=SHR  << MODIFY
//SYSUT2    DD DSN=CAI.CSVTNG.INDEX,                << MODIFY
//             DISP=(,CATLG,DELETE),
//             VOL=SER=XXXXXX,UNIT=3390,            << MODIFY
//             SPACE=(TRK,(5,2)),
//             DCB=(RECFM=VB,LRECL=255,BLKSIZE=2550)
//SYSIN     DD DUMMY
//
```

Define a GDG PDS Data Set (Optional)

Member CAJRTNGS, found in CAJRJCL, is used to initialize a GDG data set on disk that becomes a repository for CSV files created by CA JARS or CA Earl. The creation of a GDG data set is not required, but recommended. You can create as many different GDG CSV data sets as you need. For example, you can create a daily, weekly, monthly, quarterly or yearly CSV GDG data set. Each CSV GDG data set can be managed by a separate index data set, or all CSV GDG data sets can be managed by a single index data set. Below is a sample CAJRTNGS member.

```
//CAJRTNGS JOB (ACCTINFO),'PGMR',MSGCLASS=X,CLASS=A,REGION=0M
//*******************************************************************
//*                                                                 *
//* MEMBER : CAJRTNGS IN CAI.CAJRJCL                                *
//*                                                                 *
//* PURPOSE: CAN BE USED TO GENERATE A GDG THAT WILL BE USED IN     *
//*          THE  CSV  GENERATION  OF  RMF  DATA  FOR  INPUT TO     *
//*          CA-UNICENTER/TNG INTEGRATION.                          *
//*                                                                 *
//* REFER TO THE CA-JARS USER GUIDE FOR DETAILS.                    *
//*                                                                 *
//*******************************************************************
//BLDGDGS  EXEC PGM=IDCAMS
//SYSPRINT  DD SYSOUT=*
//SYSIN     DD *
 DEFINE GDG(NAME(CAI.CSV.TNGPDS.GDG) LIMIT(255) SCRATCH)
//
```

CA Earl Batch Execution JCL

Member CAJRCSVT, found in CAJRJCL, is used as an example of the JCL requirements to create CSV files as output from CA Earl. Below is a sample CAJRCSVT member.

```
//CAJRCSVT JOB (ACCTINFO),'PGMR',CLASS=A,MSGCLASS=X,REGION=0M
//*********************************************************************
//*  MEMBER : CAJRCSVT IN CAI.CAJRJCL.                                *
//*                                                                   *
//*  PURPOSE: THIS IS  AN EXAMPLE JCL  MEMBER THAT SHOWS THE USER HOW *
//*           TO CREATE  CSV FILES  IN A PDS USING THE CA-EARL REPORT *
//*           WRITER. OF  PARTICULAR  INTEREST ARE THE  CAIJSCSV  AND *
//*           CAIJSIDX DD STATEMENTS WHICH DEFINE THE CSV PDS DATA SET*
//*           AND THE  CSV INDEX DATA SET.  ALSO NOTICE THE  SYSIN DD *
//*           STATEMENT  WHICH  INDICATES  THE  CA-EARL  PROGRAM  TO  *
//*           EXECUTE.                                                *
//*                                                                   *
//*  **NOTE** EACH RUN OF THIS JOB CREATES A (+1) OF THE CAIJSCSV GDG *
//*           DATA SET. THIS  IS DONE  TO  PREVENT  THE  PROGRAM FROM *
//*           OVERWRITING EXISTING  PDS MEMBERS,  AS  THE PGM CREATES *
//*           MEMBERS STARTING  WITH CSVM01CC,  AND INCREMENTING  THE *
//*           NUMERICS WITH EACH DATE CHANGE ON THE INPUT FILE.       *
//*                                                                   *
//*  MODIFICATIONS:                                                   *
//*                                                                   *
//*  1.  THE INDEX DATA SET MUST EXIST  PRIOR TO  SUBMISSION OF THIS  *
//*      JOB.  PROCESS MEMBER 'CAJRTNGI' IN  CAI.CAJRJCL TO ALLOCATE  *
//*      AND  INITIALIZE  THE  INDEX DATA SET, CAIJSIDX.  REFER  TO   *
//*      CHAPTER 10:  'CA-JARS AND CA-UNICENTER/TNG PERFORMANCE  AND  *
//*      TREND INTEGRATION' IN THE CA-JARS r12 USER  GUIDE FOR MORE   *
//*      DETAILED  INFORMATION ON  THE  CREATION OF CA-UNICENTER TNG  *
//*      CSV FILES.                                                   *
//*                                                                   *
//*  2.  CHANGE ALL REFERENCES TO  'CAI' TO MATCH YOUR INSTALLATION   *
//*      STANDARDS.                                                   *
//*                                                                   *
//*  3.  ALL  UNIT=SYSDA STATEMENTS  MAY HAVE TO BE CHANGED IF YOUR   *
//*      INSTALLATION  USES DIFFERENT  ESOTERIC  NAMES FOR  TEMPORARY *
//*      DASD.                                                        *
//*                                                                   *
//*  4.  ALL UNIT=???? AND VOL=SER=XXXXXX HAVE TO BE CHANGED TO MATCH *
//*      YOUR INSTALLATION STANDARDS.                                 *
//*                                                                   *
//*  5.  UPDATE THE SYSIN DD STATEMENT TO REFLECT EITHER THE TYPE OF  *
//*      CSV FILE THAT YOU WOULD LIKE TO GENERATE.  SELECT FROM       *
//*      CAI.CAJREARL MEMBERS ERXT0262 THROUGH 269. REFER TO          *
//*      CHAPTER 10: CA-JARS AND CA-UNICENTER/TNG PERFORMANCE TREND   *
//*      INTEGRATION FOR DETAILS.                                     *
//*                                                                   *
```

```
//*  6.  UPDATE THE HISTIN DD STATEMENT TO REFLECT EITHER A CA-JARS   *
//*      ACCOUNT OR HISTORY FILE THAT CONTAINS RMF EXT DATA RECORDS.  *
//*      REFER TO CHAPTER 4: CA-JARS CONTROL STATEMENTS AND TABLES OF *
//*      THE CA-JARS r12 USER GUIDE FOR DETAILS.                      *
//*                                                                   *
//*      **NOTE** RETURN CODE SHOULD NOT BE GREATER THAN 4.           *
//*                                                                   *
//*********************************************************************
//EARL     EXEC PGM=EARL
//*
//STEPLIB   DD DISP=SHR,DSN=CAI.CAJRLOAD                 <==CUSTOMIZE
//EARLLIB   DD DISP=SHR,DSN=CAI.CAJREARL                 <==CUSTOMIZE
//EARLOBJ   DD UNIT=SYSDA,SPACE=(CYL,(3,1))
//CAIJSPRT  DD SYSOUT=*
//SYSPRINT  DD SYSOUT=*
//SYSEARL   DD SYSOUT=*,DCB=(RECFM=VBS,LRECL=216,BLKSIZE=2160)
//SYSOUT    DD SYSOUT=*
//SYSUDUMP  DD SYSOUT=*
//CAIJSCSV  DD DSN=CAI.CSVTNG.PDS.GDG(+1),               <==CUSTOMIZE
//             DISP=(NEW,CATLG,DELETE),
//             UNIT=?????,VOL=SER=XXXXXX,                <==CUSTOMIZE
//             SPACE=(CYL,(3,5,20)),
//             DSORG=PO,
//             RECFM=VB,LRECL=612,BLKSIZE=0
//CAIJSIDX  DD DSN=CAI.CSVTNG.INDEX,                     <==CUSTOMIZE
//             DISP=(MOD,KEEP,KEEP)
//SORTIN    DD UNIT=SYSDA,SPACE=(CYL,(600,150))
//SORTOUT   DD UNIT=SYSDA,SPACE=(CYL,(600,150))
//SORTWK01  DD UNIT=SYSDA,SPACE=(CYL,(200,15))
//SORTWK02  DD UNIT=SYSDA,SPACE=(CYL,(200,15))
//SORTWK03  DD UNIT=SYSDA,SPACE=(CYL,(200,15))
//WORK1     DD UNIT=SYSDA,SPACE=(CYL,(25,15))
//SYSUT1    DD UNIT=SYSDA,SPACE=(CYL,(5,15))
//SYSUT2    DD UNIT=SYSDA,SPACE=(CYL,(5,15))
//SYSUT3    DD UNIT=SYSDA,SPACE=(CYL,(5,15))
//SYSUT4    DD UNIT=SYSDA,SPACE=(CYL,(5,15))
//SYSUT5    DD UNIT=SYSDA,SPACE=(CYL,(5,15))
//SYSUT6    DD UNIT=SYSDA,SPACE=(CYL,(5,15))
//SYSIN     DD DISP=SHR,DSN=CAI.CAJREARL(ERXT0269)       <==CUSTOMIZE
//HISTIN    DD DISP=SHR,DSN=your.acct.or.history.file    <==CUSTOMIZE
/*
//
```

The three DDNAMEs of importance are:

CAIJSPRT

contains any error messages printed by the JSICSVT exit program. The exit program prints error messages to the CAIJSPRT DDNAME and then terminates the CA Earl execution with a U3000 abend. If you receive any U3000 abends when creating CSV files, check the CAIJSPRT DDNAME output to see if the exit detected any fatal errors.

CAIJSCSV

indicates the repository for the CSV file created during this execution of CA Earl.

CAIJSIDX

points to the CSV index file.

Data Transfer and Conversion

After CSV data for CA NSM Performance Management has been created, it must be downloaded to the CA NSM machine where CA NSM Performance Management is installed. Furthermore, CSV data for Performance Management must be converted into the Performance Management CUBE format before it can be processed.

The RMWSXfr program supports CSV data conversion and data transfer. To install a copy of RMWSXfr on your workstation, complete the following four steps.

1. Download CAJROPTN.

   To use FTP (File Transfer Protocol) to transfer RMWSXfr to your Microsoft Windows workstation:

   - Open a DOS command window.
   - Start the FTP program using the following:

     ```
     FTP <hostname>
     ```

     where <hostname> is the machine name or the IP address of the z/OS system.

     Supply the host userid and password as prompted.

   - Set binary transfer mode by entering the following command (in lower case):

     ```
     binary
     ```

     Note: This FTP command and those that follow must be entered in lower case.

   - Set the name of the host data set with the following:

     ```
     cd 'hlq.CAJROPTN'
     ```

- Set the directory name of the workstation directory to hold RMWSXfr with the following command:

  ```
  lcd <directory>
  ```

  where <directory> is a directory on the workstation which will contain RMWSXfr. Generally, this is a temporary or working directory (e.g., C:&bslash.&bslash.TEMP).

- Transfer the RMWSXfr to the workstation with the following command:

  ```
  get RMWSXFRZ RMWSXFRZ.EXE
  ```

  This will copy RMWSXFRZ to the directory that you specified and rename it to RMWSXFRZ.EXE.

- Once the transfer is complete, exit FTP by entering:

  ```
  quit
  ```

  While this example uses FTP to perform the actual transfer, other utilities (such as IND$FILE) can be used. The utility being used must be able to transfer from the host to the workstation without performing any character translation (i.e., EBCDIC to ASCII).

2. Run RMWSXFRZ.EXE by double-clicking on the file name. This starts the self-extracting process. You will be prompted for a location in which to store the unzipped files.
3. Run the setup.exe by double-clicking on the filename. Follow the prompts to complete the install.
4. After the installation is complete, read the README.TXT in the program directory for detailed instructions on how to use RMWSXfr. The README.TXT is applicable to both CA JARS and CA MICS.

Glossary

abend

Abnormal ending. An early termination of a program due to an error.

account file

A temporary data set that is not saved but used in generating reports and a history file.

APPCRATE statement

Sets rates and billing algorithm for APPC (SMF33) records and APPC tasks.

archive

Copies data onto tape and deletes them from disks. Archiving is one method of increasing available space on Direct Access Storage Devices.

basic accounting table (BAT)

A layout of the job and job step records contained in the account file.

batch

A method of processing large amounts of data at one time for jobs too large to perform immediately online.

block

Any kind of grouped data (a string of records, a string of words, a character string) treated as a single unit.

BUDGET statement

Introduces a budget figure to the reporting component for cost comparison reporting.

card image

A one-to-one representation of the hole patterns of a punched card.

character string

One or more alphabetic, numeric, or special characters, usually enclosed in delimiters.

CONFIG statement

Used to define device configuration.

CONFIGX statement

Defines your four character peripheral device configuration to the report writer.

control block

A storage area that a program uses to hold control information.

control field

A portion of records you designate, which are used by the program to sort or merge records into a specific sequence.

control file

A set of parameters, based on frequency-of-use criteria, that regulates DASD operations. The control file determines which data sets are to be backed up, archived, or migrated. It also automatically determines how often processing should take place and updates the history of each data set.

control parameters

Parameters which are generally governed by their installation defaults and will only need to be specified in special cases.

CPU

Central Processing Unit. The "brain" of the computer, consisting of three basic parts: the control unit, the arithmetic/logic unit, and the storage (main memory) unit. The control unit interprets instructions and issues the appropriate commands to the other two parts as well as to other computer system devices. The storage unit holds instructions and data required for use in the system temporarily and acts as the common link to all parts of the system. The arithmetic/logic unit performs all the necessary arithmetical and logical manipulations on data supplied to the system.

CREDIT statement

Introduces a credit amount to supplement the billing algorithm.

CRITERIA statement

Selects records based on date or DOS partition ID.

data management

Controlling the access, storage, and retrieval of data; and the monitoring of input and output devices.

data set

A group of logically related records stored together and given a unique name.

database

A systemized collection of data stored for immediate access.

DEBIT statement

Introduces a debit amount to supplement the billing algorithm.

delimiter

A special character that precedes and follows a character string.

DESCRIPT statement

Provides descriptions at sort control breaks.

detail-level history file

This file contains an archive of all job accounting information -- not just the information output on the report. It is created either at the job or job step level and serves much the same purpose as the raw data, except that it is already formatted and merged with data collected by other systems, with all calculations already performed.

DEVADDR statement

Selects records based on device address.

DEVNMBR statement

Used to specify four-character device numbers for which I/O counts are to be displayed.

diagnostic message

A message displayed and/or printed out by the compiler or CA product when it detects an error in your program.

DISPLAY statement

Defines elements to be displayed on an output report.

DL/1

Data Language 1. A data base language used with CICS/VS systems.

dump

A printout of the data which is currently stored in memory.

EDIT statement

Modifies data elements to be displayed on output.

eurodate

The European date format -- dd/mm/yy.

exit

A program instruction which may be used to escape one set of instructions and pass control to another.

EXITS statement

Introduces user-supplied exit routines for exit 1, 2 or 3.

EXTDATA record

A record produced by the JSIMAIN program which contains reformatted raw data.

EXTDATA statement

Causes EXTDATA records to be produced from the available SMF records.

external job

A non-CPU task such as keypunch or report distribution.

facility

An operational capability provided to accomplish a particular task.

FACOM

FACOM is a non-IBM operating system that is based on IBM z/OS architecture and used by customers in some parts of Asia and the Far East.

field

Where a single item of information is stored.

fixed length records

These records have the same length as all other records with which they are associated.

FORMRATE statement

Sets rates and billing algorithm for forms records.

global parameter

A variable that can be set to an arithmetic, binary, or character value and used in criteria statements as a predecessor condition which must be satisfied before a schedule or job is available for processing.

GROUP statement

Provides condition selection/rejection processing.

GROUPC statement

Used in conjunction with the GROUP statement to define conditions for selection/rejection processing.

HEADER statement

Provides a heading for each report.

input device

A device or unit used to enter data into the system.

installation option

A value specified on the installation macro when the product is installed. This value controls scheduling operations throughout the data center unless it is overridden at the schedule or job level.

JCL

Job Control Language. The computer language that links your program to the computer, assigning files to specific devices and describing each file in detail to the system.

job

JCL with one JOB statement and one or more EXEC statements.

job number

A number that allows a job to be run more than once a day as part of the same schedule. If no job number is defined, the first occurrence is assumed.

keyword

A part of a command that consists of a specific character string.

module

A discrete program unit which may be compiled, loaded, and combined with other units.

MVS

Multiple Virtual Storage. A virtual storage operating system that IBM supports.

OPTION statement

Modifies the reporting component with specific options you select.

output data elements table (ODE)

This table defines the formatted data elements as they are available for display for user-defined reports only. This is an internal table which only exists as print lines are generated.

output parameters

Parameters which you must specify in order to control your source listing output.

PARMS statement

Defines operational elements to CA JARS.

PRIORITY statement

Adjusts the billing algorithm based on job class and priority.

RATE statement

Sets the rates and billing algorithms for batch records.

record

A group of logically related fields treated as a unit.

RJE

Remote Job Entry.

RJERATE statement

Sets rates and billing algorithm for remote BSC records.

ROSCOE

A time-sharing software system (similar to TSO), enabling two or more users to execute their programs at the same time.

SELECT statement

Defines input and selects output reports for generation.

set code

Each CA JARS report is identified by a set code. This code is used to tie together all control statements relating to a specific report.

SNARATE statement

Sets rate and billing algorithm for remote SNA records.

SORT statement

Orders records for output, defines history output and summarization.

STDFORM

STDPRINT statement overrides the alfa of what makes PRINT with STD or SPCL.

STDPUNCH statement

Overrides the definition of what makes output either PUNCH or PRINT.

summary-level history file

An output file containing summary line information.

system use reports

A set of computer utilization time graphs and reports. They provide snapshots of system activity relative to dates and time.

SYSUSE1 statement

Customizes System Use Reports.

SYSUSE2 statement

Customizes System Use Reports.

task

A basic unit of work to be done by the computer.

TITLE statement

Modifies output data element titles (column titles).

TSO

Time Sharing Option. Enables two or more users to execute their programs at the same time by dividing the machine resources among terminal users.

TSORATE statement

Sets rates and billing algorithms for TSO records.

user exits

Computer instructions that allow you to modify the software package's code to meet your data center's needs

user tables

Unique tables you define to specify limits on a data set or a defined portion of it. For example, with the user range table you can restrict certain data set prefixes to a specific volume serial number range.

user-defined reports

Reports that you design/customize to meet your reporting requirements.

utility functions

Run general-purpose programs that perform some activity not specific to any other particular application.

variable length records

Records that are not uniform in length.

variable parameter

A symbolic parameter that is defined when a procedure is cataloged and referenced in the body of the procedure. During expansion, each reference to the symbolic parameter is replaced with a default or override value.

Index

D

E

F

G

R

S

T

U

V