CA IDMS™/Journal Analyzer

Journal Analyzer User Guide

Release 18.5.00, 2nd Edition

ca technologies

CA Technologies Product References

This document references the following CA products:

- CA ACF2™ for z/OS
- CA ADS
- CA Common Services for z/OS (CCS)
- CA IDMS™/DB
- CA IDMS™/DC
- CA IDMS™/DC or CA IDMS UCF (DC/UCF)
- CA IDMS™ DDS
- CA Top Secret® for z/OS

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Documentation Changes

The following documentation updates were made for the 18.5.00, 2nd Edition release of this documentation:

■ —Updated the description of the *display-blksize* variable.

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Chapter 1: Introduction

This guide is designed to be used as a reference tool that provides information and instructions on the correct use of CA IDMS Database Journal Analyzer.

This guide is intended to serve as a comprehensive reference for the following topics.

- CA IDMS Database Dictionary Loader Option

- CA IDMS Database Dictionary Migrator Option

- CA IDMS Database Dictionary Query Facility Option

- CA IDMS Database Dictionary Module Editor Option

- CA IDMS Database Presspack Option

Chapter 2: General Information

CA IDMS Journal Analyzer is CAs comprehensive performance analysis facility that gathers and combines reliable management and performance data, and reports it in concise logical formats. CA IDMS Journal Analyzer can be used to support a company's management and performance reporting needs by providing three distinct types of printed output for user analysis:

- Journal Reports

- Journal Displays

- Audit Report

This section contains the following topics:

Need For CA IDMS Journal Analyzer

CA IDMS system represents a company's commitment and investment to the management of the data resource. However, management means more than simply the manipulation of the data resource; it also means having the ability to:

- Measure and evaluate system performance and resource consumption

- Impose system controls with discretion

- Forecast undesirable trends

- Understand the performance capabilities of your data resource

The lack of these management functions can cause your database system to generate many more questions than it can provide answers.

In addition, as a Database Administrator, you need more sources of management and performance related information, or methods of using the readily available sources. For example, the CA IDMS Disk Journal file is the Central Version (CV) run-time audit file which is offloaded to the Archive Journal file. This promising source of information is available, yet needs to be reported or used by existing facilities more efficiently. Therefore, you need a facility that can properly document this valuable information and begin providing you with the necessary answers.

What the CA IDMS database administrator needs is a facility that gathers and combines reliable management and performance data, and reports it in concise logical formats. The facility must be flexible and comprehensive in its ability to assist the Administrators, Programmers/Analysts and Auditors in your organization in controlling the database environment, and realizing the fullest utilization of your data resource.

This unique facility is now available in a software product called CA IDMS Journal Analyzer.

What Is CA IDMS Journal Analyzer?

CA IDMS Journal Analyzer is a comprehensive data analysis facility that enables the CA IDMS user to perform the following activities:

- Audit run-time statistics recorded in the Archive Journal file.
- Sample the audit data from broad surveys of entire programs to precise examinations of individual data fields.
- Evaluate the CA IDMS Central Version (CV) configuration, CV run-time performance, and run-unit consumption of resources.
- Resolve database performance problems.
- Understand performance capabilities of the database system.
- Evaluate user applications and system responsiveness.
- Allows the journal reports and displays to be shown in UTC time.

Processing Environment

CA IDMS Journal Analyzer supports CA IDMS Release 18.5.00.

System Output

CA IDMS Journal Analyzer produces three classes of printed system output for user analysis:

- Journal Reports—provide statistical information that give detailed and/or summarized views of the database activity.
- Journal Displays—provide a detailed view of specific database changes.
- Audit Report—provides a listing of the messages generated by CA IDMS Journal Analyzer.

Journal Reports

The first class of printed output is the Journal Reports. These reports contain statistical information and provide users with numerous views of database activity. Journal Reports are divided into four (4) major types:

- Activity Report
- Program Reports
- Special Reports
- Management Reports

Activity Report

The Activity Report summarizes run unit activity over a period of time. The statistics are reported by user-specified time intervals.

Program Reports

The Program Reports feature detailed and summarized statistics by application program within selected time intervals. The level of reporting (details vs. summary) selection of time interval length, and the programs to be analyzed are controlled by the user. The detail Program Reports also indicate the node name of the CA IDMS system within a data sharing group where data sharing is in operation.

Special Reports

The Special Reports provide key information with which to solve existing problems and also identify potential problems within the database environment.

Management Reports

The Management Reports provide summarized highlights and rankings of program performance and resource consumption. See System Output (see page 13) for more detailed information on each of these Journal Reports.

Journal Displays

The second class of printed output is the Journal Displays. These displays allow the user to view specific database changes. In addition, the before and after images of database record modifications are reported by record ID, database key, or program name. Prior to being reported, spanned or fragmented records are recomposed, and compressed records are decompressed. The journal displays character/hexadecimal representations of the database changes and optional subschema view of field changes using the Program Display.

Journal Displays provide the user the ability to effectively monitor changes to sensitive record types, scrutinize performance problems, and to assist in program debugging. Journal Displays are divided into three major types:

- Record Displays
- Database Key Displays
- Program Displays

Record Display

The Record Display shows changes for particular record types during specific time periods.

Database Key Display

The Database Key Display shows changes for particular record occurrences or particular database pages during specific time periods.

Program Display

The Program Display shows database changes effected by particular application programs during specific time periods. The Program Display can be optionally formatted according to the program's subschema view of the database records (i.e., Subschema Display).

For More information about Journal Displays see

Audit Report

The third class of printed output is the Audit Report. This report contains the informative, error, and processing messages generated by CA IDMS Journal Analyzer, and provides a summary of all processing.

For More information about Audit Reports see

Control Parameters

The user has extensive control over CA IDMS Journal Analyzer processing through the use of the following parameters.

- PROCESS
- SUPPRESS
- REPORT
- BYPASS
- DISPLAY
- DLIMITS
- DSUPPS

PROCESS Parameter

The PROCESS parameter specifies the major processing to be performed during a single execution of CA IDMS Journal Analyzer. The PROCESS parameter is mandatory--one must be present for each execution of CA IDMS Journal Analyzer.

With the PROCESS parameter, users can designate one of the following options:

- EXTRACTS
- REPORTS
- DISPLAYS
- ALL
- EXTRACTS

Extracts

This option directs CA IDMS Journal Analyzer to generate extract records from an input Archive Journal. No Journal Reports or Displays are printed when the EXTRACTS option of the PROCESS parameter is specified. Only a historical Extract file is produced.

Reports

This option directs CA IDMS Journal Analyzer to honor only requests for Journal Reports and bypass the generation of extract and display records. Therefore, a previously created Extract file and valid report requests must be input to CA IDMS Journal Analyzer in order to create the requested Journal Reports.

ALL

This option directs CA IDMS Journal Analyzer to perform all processing of the EXTRACTS, REPORTS, and DISPLAYS options. As a result, record generation, and printing of Journal Reports and Displays can be accomplished in a single execution of CA IDMS Journal Analyzer.

Displays

This option directs CA IDMS Journal Analyzer to honor only valid requests for Journal Displays and bypass the generation of extract records and Journal Reports. If valid user requests for Journal Displays are input, CA IDMS Journal Analyzer will create the requested Journal Displays.

SUPPRESS Parameter

SUPPRESS is an optional parameter that is used to inhibit the generation of extract records for a specific Journal Report type. The use of this parameter can have a significant impact on the operating efficiency of CA IDMS Journal Analyzer.

REPORT Parameter

The REPORT parameter specifies that a Journal Report is to be printed. This parameter also specifies the criteria by which to select extract records for the report. It is possible to define multiple selection criteria for a particular report type by submitting multiple REPORT parameters for that report type.

DISPLAY Parameter

The operands of the DISPLAY parameter are used to select individual before and after images of database records in the Archive Journal file.

DLIMITS Parameter

The DLIMITS parameter is used in conjunction with the DISPLAY parameter to limit the quantity of display output.

DSUPPS Parameter

The DSUPPS parameter is used in conjunction with the DISPLAY parameter to suppress the display output for selected record IDs. The DSUPPS parameter affects **only** the PROGRAM Display.

You can find more information on these Control Parameters and their operands in Chapter 4 (see page 81).
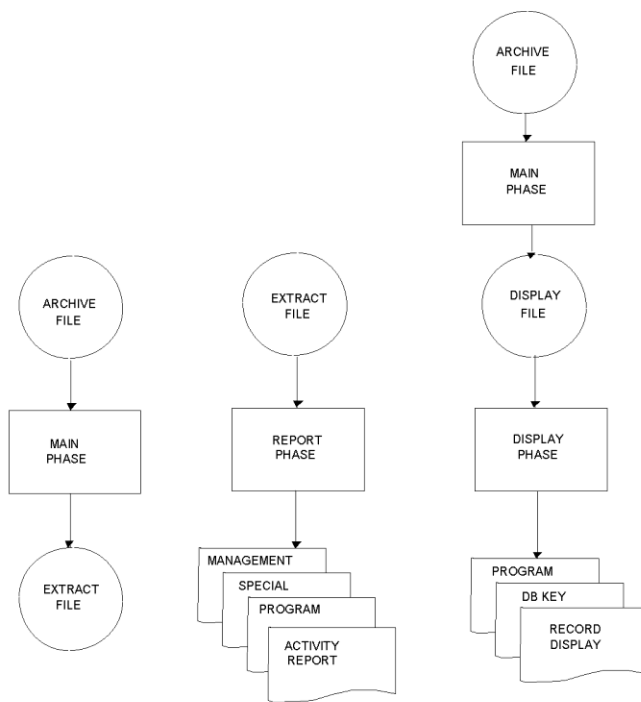
Figure 1.1A
PROCESS = EXTRACTS

Figure 1.1B
PROCESS = REPORTS

Figure 1.1C
PROCESS = DISPLAYS
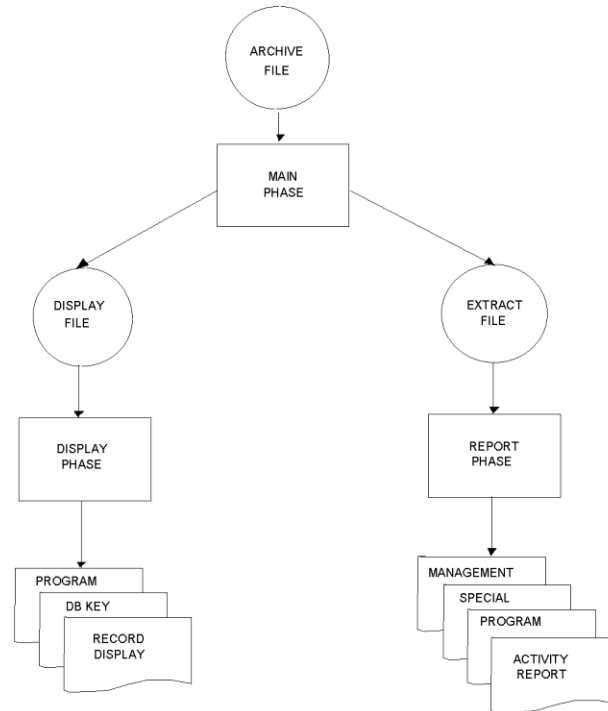
BYPASS Parameter

The BYPASS parameter allows the User to define up to ten different program names that will be bypassed during Data Extract Processing and Reporting in Journal Analyzer.

CA IDMS Presspack Decompression Support

CA IDMS Presspack is a tool for compression and decompression of CA IDMS records or tables. Its compression efficiency makes it ideal for compressing large volume databases. CA IDMS Journal Analyzer supports decompression of records that were compressed using CA IDMS Presspack and displays them in the Journal Displays.

CA IDMS Journal Analyzer supports compression techniques that use BUILTIN or custom built Data Characteristic Tables (DCTs). To decompress records using custom DCTs, the appropriate DCT load modules must be available in the JNLA loadlib concatenation. The highest version number schema record only for a given schema within the OOAK-S set is processed. This is in line with the current mode of operation. Additionally, CA IDMS Presspack must be used for both record compression and record decompression as indicated in the dictionary SRCALL-040 records.

Journal Displays can be created for both CA IDMS Presspack and CA IDMS Presspack compressed records in the same run.

Chapter 3: System Output

CA IDMS Journal Analyzer produces three classes of printed output for user analysis:

- Journal Reports

- Journal Displays

- Audit Report

The Journal Reports contain statistical information that provides numerous views of database activity recorded in the Archive Journal file.

These views include:

- Run unit activity

- Detail and summary statistics

- Problem solving information

- Highlights/rankings of program performance.

The Journal Displays provide a detailed view of specific database changes.

These views include:

- Before and after images of database modifications shown in character/hexadecimal representation

- An optional subschema view of field changes.

The Audit Report provides a listing of any messages generated by CA IDMS Journal Analyzer and provides a summary of all processing.

This section contains the following topics:

Printed Output

CA IDMS Journal Analyzer produces three classes of printed output:

- Journal Reports

- Journal Displays

- Audit Report

Journal Reports

The first class of output generated by CA IDMS Journal Analyzer is the Journal Reports. These reports contain statistical information that provides views of the database activity recorded in the Archive Journal file.

These are the Journal Reports:

- ACTIVITY Report
- PROGRAM Reports
- SPECIAL Reports
- MANAGEMENT Reports

Each Journal Report type can be produced for selected time periods or for the entire duration represented in the Archive Journal file.

ACTIVITY Report

The ACTIVITY Report summarizes run unit activity in the Archive Journal file based on user-specified time intervals. The activity summarized can span the entire file, or can be from selected time periods. The reports can be used to monitor run unit activity on an ongoing basis, with special attention paid to peak periods.

By examining the reported totals such as the Maximum Concurrent Run Unit Count, you can evaluate the adequacy of the CV generation parameters. In addition, ACTIVITY Reports can help to verify the system activity. Journal Reports or Journal Displays can provide more details for the time intervals in question.

The activity statistics are reported by user-specified time intervals. For each time interval, activity is divided into ONLINE and BATCH run units, and reported accordingly. If both ONLINE and BATCH run units are reported, a TOTAL summary line is also produced. A set of GRAND TOTALS summarize all activity within the reporting periods.

PROGRAM Reports

The PROGRAM Reports feature detailed and summarized statistics by application program within selected time intervals. There are three levels of reporting available:

- Program Details—includes run time counts (CA IDMS statistics) for all run units ordered by the selected program names.
- Program Summary—records the sum of all run units for an application program.
- System Summary—presents a sum of all Program summaries within a time interval.

The level of reporting (Detail vs. Summary) selection of the time interval length, and the programs to be analyzed are controlled by you. Each program's totals are also reflected as a ratio of the system totals (the percentage of all CA IDMS resources consumed that were accounted for by the program).

If Program Summary is the reporting level, you can optionally request program highlights that are statistics of the run units with lowest and highest duration (up to 10 each). A lower reporting level includes all higher summary reporting (Program Details are accompanied by Program and System Summaries). When only one time interval is reported, the System Summary is the total of all selected run units. Whenever multiple time intervals are reported, a Grand Summary is produced for all run units. The Grand Summary is simply a total of all the System Summaries.

SPECIAL Reports

The SPECIAL Reports provide key information with which to monitor and control the database environment. There are two SPECIAL Reports:

- CHRONOLOGICAL EVENT Report

- ABORT COINCIDENCE Report

Each report presents a different perspective from which to identify and correct performance problems and system abuses.

The CHRONOLOGICAL EVENT Report outlines all recorded activity in a time wise sequence. You can visualize all run unit events within selected time intervals. Each event (BGIN, COMT, ENDJ, and ABRT) is reported with a time stamp and the current quiesce level. The termination of each recovery unit (COMT, ENDJ, and ABRT) is accompanied by totals of critical resource consumption, and all ABRTs are flagged. Periods of inactivity or with no posted events are also highlighted on the report.

The ABORT COINCIDENCE Report provides a daily analysis of all aborted run units in two parts.

The first part of the analysis lists all programs executing concurrently with an aborted program along with their coincidence ratios. The second part of the analysis relates the **coincident** programs with the programs which aborted whenever the coincident programs were active.

Note: The coincidence of the RHDCRUAL program is automatically eliminated by CA IDMS Journal Analyzer (one or more RHDCRUAL run units will always be coincident) to eliminate unnecessary skewing. CA IDMS Journal Analyzer automatically sets the periodic time interval values to report

MANAGEMENT Reports

The MANAGEMENT Reports feature two formats:

- Highlights

- Rankings

The Highlight reports contain summarized information of system performance and resource consumption derived from the original PROGRAM Report. These reports present totals, highest, lowest, means, medians of program attributes (quiesce levels, etc.), and program consumption (CA IDMS statistics).

The Ranking reports contain system performance and resource consumption information derived from the original PROGRAM Report that is ranked, rather than summarized. You can designate the particular item to be ranked (Pages Read, %ABORTED, etc.), and can designate the ranking process to be used (program type to be used, number of items to be ranked, etc.).

Journal Displays

The second class of output generated by CA IDMS Journal Analyzer is the Journal Displays. The Journal Displays provide you with the means to effectively monitor changes to sensitive record types, to scrutinize performance problems, and to assist in program debugging. The displays are extremely effective whenever you are most precise in defining the display selection parameters. The choice of parameter values can be influenced by close examination of the statistics produced by the Journal Reports.

The before and after images of database record modifications can be reported by several Journal Display types:

- RECORD Display

- DATABASE KEY Display

- PROGRAM Display

Each Journal Display type can be produced for selected time periods or for the entire duration represented by the Archive Journal file. The Journal Displays can be produced in two formats:

- Full Format—all record positions or fields are displayed with the changed values highlighted

- Sparse Format—only the changed positions or fields are displayed.

While the Journal Reports present you with a broad survey of the database activity recorded in the Archive Journal file, the Journal Displays enable you to view the database changes at a precise, almost microscopic level in three logical sequences:

■ RECORD Display—displays changes for particular record types during specific time periods

■ DATABASE KEY Display—displays changes for particular record occurrences or particular database pages during specific time periods.

■ PROGRAM Display—displays database changes effected by particular application programs during specific time periods. Fragmented records are automatically recomposed.

In addition, you can request the PROGRAM Display to provide a program's subschema view of database changes as defined in the data dictionary. The Subschema Display provides PROGRAM Display information in a format which is better suited for the less technical end-user. The data is presented as individual fields, rather than complete records. Changes are paired in a Before/After, side-by-side format. All fields are identified similar to the original subschema definitions, and all values are converted to externally printable formats. Therefore, programmers and/or auditors can examine the Subschema Display with little or no interpretation by a database technician.

Audit Report

The third class of output generated by CA IDMS Journal Analyzer is the Audit Report. This report contains the informative, error, and processing messages generated by CA IDMS Journal Analyzer, and provides a summary of all processing.

ACTIVITY Report

The ACTIVITY Report summarizes run unit activity in the Archive Journal file. The activity summarized can span the entire file, or can be from selected time periods. The report can be used to monitor run unit activity on an ongoing basis, with special attention paid to peak periods.

The ACTIVITY Report provides statistics on such items as:

■ Number of run units initiated (START)

■ Number of recovery checkpoints issued (COMMIT)

■ Number of units successfully terminated (FINISH)

■ Number of recovery units which terminated abnormally (ABORT)

■ Number of run units active within the reported time interval (ACTIVE)

■ Duration of run units within the reported time interval (DURATION)

The activity statistics are reported in the time intervals you specify (for example hourly). For each time interval, activity is divided into online (ONL) and batch (BTC) run units, and reported accordingly. If both ONL and BTC run units are reported, a total (TOT) summary line is also produced. A set of GRAND TOTALS summarize all activity within the reporting periods.

By examining the reported totals such as the Maximum Concurrent Run Unit Count, the adequacy of the CV generation parameters can be evaluated. In addition, the ACTIVITY Report can help to verify your suspicions of undue or unusual system activity. This may lead you to the use of other Journal Reports or Journal Displays for the time intervals in question.

Note: It is recommended that the ACTIVITY Report be generated on a daily basis in order to get an overall view of system activity.

ACTIVITY Report Fields

The following is a description of the various fields which make up the ACTIVITY Report.

PERIOD - Start and stop date/time intervals.

START (BGIN) - Number of run units initiating activity within the reported time interval.

COMMIT (COMT) - Number of recovery unit checkpoints issued by run units activated within the reported time interval.

FINISH (ENDJ) - Number of recovery units activated within the reported time interval which terminated successfully.

ABORT (ABRT) - Number of recovery units activated within the reported time interval which terminated abnormally.

ACTIVE - Number of run units active within the time interval. When both ONL and BTC run units are present, an ACTIVE count is reported for the TOT summary line only.

Note: The value of ACTIVE can exceed the value of START if run units were active at the start of the current time interval.

DURATION (SEC)
- **LOW** - Lowest run unit duration encountered within the reported time interval.
- **HIGH** - Highest run unit duration encountered within the reported time interval.
- **MEAN** - Average run unit duration encountered within the reported time interval.
- **MEDIAN** - Median run unit duration encountered within the reported time interval, except for the TOT summary line.

Processing Type - Online (ONL), Batch (BTC), or total (TOT). When both ONL and BTC run units are present within a time interval, a TOT summary line is produced.

MAXIMUM CONCURRENT RUN UNITS - Highest quiesce level encountered in a BGIN archive record within the reported time interval.

The following example shows the Activity Report:

```
ID              RELEASE                  CA IDMS JOURNAL ANALYZER              DATE          TIME         PAGE
                Rnn.nn                       ACTIVITY REPORT                  mm/dd/yy      hh:mm:ss          2

    PERIOD                 START         COMMIT      FINISH     ABORT     ACTIVE    --------------DURATION (SEC)-------------
                           (BGIN)        (COMT)      (ENDJ)     (ABRT)              LOW          HIGH        MEAN       MEDIAN

    mm/dd/yy hh:mm ONL       18            53           12         6        *       0.04      88,285.96   5,152.66       0.15
    mm/dd/yy hh:mm BTC        6             0            6         0        *       8.65         78.83      41.23       60.78
                   TOT      24            53           18         6       24       0.04      88,285.96   3,874.80         *
                   MAXIMUM CONCURRENT RUN UNITS =      2

    mm/dd/yy hh:mm BTC        4             0            4         0        5       9.34         73.64      47.57       73.18
    mm/dd/yy hh:mm
                   MAXIMUM CONCURRENT RUN UNITS =      2

    mm/dd/yy hh:mm ONL        1            25            0         1        1   18,096.92     18,096.92  18,096.92   18,096.92
    mm/dd/yy hh:mm
                   MAXIMUM CONCURRENT RUN UNITS =      1

    mm/dd/yy hh:mm ONL        1             9            0         1        1   65,333.88     65,333.88  65,333.88   65,333.88
    mm/dd/yy hh:mm
                   MAXIMUM CONCURRENT RUN UNITS =      1

    mm/dd/yy hh:mm BTC        1             0            1         0        2       1.80          1.80       1.80        1.80
    mm/dd/yy hh:mm
                   MAXIMUM CONCURRENT RUN UNITS =      2

    mm/dd/yy hh:mm ONL        1            20            0         1        1   2,491.42      2,491.42   2,491.42    2,491.42
    mm/dd/yy hh:mm
                   MAXIMUM CONCURRENT RUN UNITS =      1

    mm/dd/yy hh:mm ONL        1             2            1         0        1   81,644.72     81,644.72  81,644.72   81,644.72
    mm/dd/yy hh:mm
                   MAXIMUM CONCURRENT RUN UNITS =      1

    mm/dd/yy hh:mm BTC        2             0            2         0        3       9.53         78.43      43.98       78.43
    mm/dd/yy hh:mm
                   MAXIMUM CONCURRENT RUN UNITS =      2

    mm/dd/yy hh:mm ONL        5             0            5         0        6       0.22          3.95       1.47        0.68
    mm/dd/yy hh:mm
                   MAXIMUM CONCURRENT RUN UNITS =      2

    mm/dd/yy hh:mm BTC        1             0            1         0        2      10.40         10.40      10.40       10.40
    mm/dd/yy hh:mm
                   MAXIMUM CONCURRENT RUN UNITS =      2

    *GRAND TOTALS*
    mm/dd/yy hh:mm ONL       27           109           18         9        *       0.04      88,285.96   9,641.56         *
    mm/dd/yy hh:mm BTC       14             0           14         0        *       1.80         78.83      36.70         *
                   TOT      41           109           32         9       41       0.04      88,285.96   6,361.85         *
                   MAXIMUM CONCURRENT RUN UNITS =      2
```

PROGRAM Reports

The PROGRAM Reports feature detailed and summarized statistics by application program within selected time intervals. There are three levels of reporting available:

- Program Details - presents run-time counts (CA IDMS statistics) for all run units ordered by the selected program names

- Program Summary - presents the sum of all run units for an application program

- System Summary - presents a sum of all program summaries within a time interval.

The level of reporting (Detail vs Summary), selection of the time interval length, and the programs to be analyzed are controlled by you. Each program's totals are also reflected as a ratio of the system totals (the percentage of all CA IDMS resources consumed that were accounted for by the program).

If Program Summary is the reporting level, you can optionally request program highlights which are statistics of the run units with lowest and highest duration (up to 10 each). A lower reporting level includes all higher summary reporting (e.g., Program Details are accompanied by Program and System Summaries). When only one time interval is reported, the System Summary is the total of all selected run units. Whenever multiple time intervals are reported, a Grand Summary is produced for all run units. The Grand Summary is simply a total of all the System Summaries.

Note: The most practical method of monitoring program activity periodically is to request program summary/highlights without a specific time interval (LEVEL=SUMMARY, HILITES=YES).

Program Details (LEVEL=DETAILS) should be reported on those occasions where there are more than 20 run unit occurrences for a program, when a strictly timewise sequence of all program activity is desired, or where it is necessary to view all occurrences of a program for detailed investigation.

Program highlights (HILITES=YES) represent those run units which are the lowest and the highest in duration for an application program. Up to ten (10) run units in each category are reported, and are sorted sequentially by length of duration.

When reviewing the Summaries (Program, System, or Grand) attention should be focused on the COUNTS and RATIOS. These statistics can reveal the trends which reflect upon the 'vitality' of the database environment.

In the Program Summary, attention should be paid to the highlighted run units with the longest duration. The cause of the lengthy duration could be:

- An extraordinary amount of processing was performed—check COUNTS

- High run unit activity occurred at the time of execution of the run units —check the ACTIVITY Report

- Inefficient database processing is indicated—check COUNTS and RATIOS

- Program was locked out or had some resource conflict with a concurrently executing program—check the CHRONOLOGICAL EVENT Report.

Note: If a more precise view of the suspected problem is needed, a PROGRAM Display can be requested using a narrow time interval. The run unit IDs and start date/time in the PROGRAM Reports can assist you in selecting the desired time interval.

Program Details

Program Details depict selected run unit activity in timewise order for each application program. The majority of the statistics is commonly known as CA IDMS statistics, and are additionally summarized in the summary reports. The information for each run unit is presented on two report lines.

Description of the Program Details layout starts on the following page.

Program Details Report Fields

The following is a description of the various fields which make up the Program Details Report.

Start and stop date/time of the time interval.

PROGRAM—Application program name.

START—Starting date/time of run unit.

END—Ending date/time of run unit.

ABRT—Abort flag (*) if the run unit is aborted.

DURATION (SEC)—Run unit duration, shown in seconds.

AREAS OPENED—Number of areas opened in an update mode.

RUN UNIT—Run unit numeric ID.

QUIESCE LEVEL—Highest quiesce level encountered at the run unit initiation (BGIN).

COUNTS—The fields listed below are fields containing CA IDMS statistics

PAGES

- **READ**—Number of pages read from database.

- **WRITTEN**—Number of pages written to database.

- **REQUESTED**—Number of pages requested from database.

CALC RECORDS

- **HOME PAGE**—Number of CALC records stored on the home page.

- **OVERFLOW**—Number of CALC records stored on an overflow page.

LOCKS

- **REQUESTED**—Number of record locks requested by run unit.

- **SELECT**—Number of select (shared) locks maintained by run unit.

- **UPDATE**—Number of update (exclusive) locks held at the termination of the run unit.

RECORDS

- **UPDATED**—Number of database records updated.

- **REQUESTED**—Number of records requested.

- **CURRENT**—Number of records made current by run unit.

- **OWNER**—Number of VIA records stored on owner page.

- **OVERFLOW**—Number of VIA records stored on an overflow page.

CALLS TO IDMSDBMS—Number of DML verbs executed.

- **FRAGMENTS STORED**—Number of record fragments stored.

- **ROOTS/RCDS RELOCATED**—Number of records relocated because of restructuring.

The following example shows the PROGRAM REPORT (Details):

```
ID                 RELEASE                  CA IDMS JOURNAL ANALYZER              DATE          TIME         PAGE
                   Rnn.nn                        PROGRAM REPORT                 mm/dd/yy       hh:mm:ss        2

                                        mm/dd/yy hh:mm - mm/dd/yy hh:mm

PROGRAM   START        A  DURATION AREAS    ----------PAGES-----------   ----CALC RECORDS----  ------------LOCKS-----------
                       B   (SEC) OPENED       READ    WRITTEN REQUESTED  HOME PAGE  OVERFLOW REQUESTED    SELECT   UPDATE
NODE NAME END          R  RUN QUIESCE  ----------RECORDS---------- -----VIA RECORDS-----   CALLS TO  FRAGMENTS ROOTS/RCDS
                       T   UNIT LEVEL    UPDATED  REQUESTED   CURRENT OWNER PAGE  OVERFLOW  IDMSDBMS    STORED  RELOCATED

IDMSDDDL  mm/dd/yy hh:mm:ss   77.29  1     1,407       844      22,902         4         0    32,280       253    15,266
          mm/dd/yy hh:mm:ss   1706   2    20,594    25,915       8,859       340       528    11,546        29         0

IDMSDDDL  mm/dd/yy hh:mm:ss   47.45  1     1,018       938       5,533         0         0    14,998       154     7,948
          mm/dd/yy hh:mm:ss   1708   2     7,754     8,129         233         0         0       344         0         0

IDMSDDDL  mm/dd/yy hh:mm:ss   60.78  1     1,198       685      19,724        17        49    20,656       128     7,611
          mm/dd/yy hh:mm:ss   1713   2    14,658    20,935       8,641       229       670    10,958        34         0

IDMSDDDL  mm/dd/yy hh:mm:ss   78.83  1     1,441       901      23,984         0         0    32,577       240    15,395
          mm/dd/yy hh:mm:ss   1724   2    20,761    26,159       8,911       229       637    11,599        43         0

IDMSDDDL  mm/dd/yy hh:mm:ss   73.18  1     1,442       903      23,929         0         0    32,539       221    15,378
          mm/dd/yy hh:mm:ss   1766   2    20,683    26,159       8,911       229       637    11,599        34         0

IDMSDDDL  mm/dd/yy hh:mm:ss   73.64  1     1,442       902      23,927         0         0    32,538       232    15,366
          mm/dd/yy hh:mm:ss   1771   2    20,681    26,159       8,911       229       637    11,599        34         0

IDMSDDDL  mm/dd/yy hh:mm:ss    1.80  1        38         1         146         0         0       123        19         2
          mm/dd/yy hh:mm:ss   1803   2         1       178         123         0         0       135         0         0

IDMSDDDL  mm/dd/yy hh:mm:ss   78.43  1     1,442       902      23,929         0         0    32,543       230    15,372
          mm/dd/yy hh:mm:ss   1873   2    20,682    26,162       8,912       229       637    11,601        34         0
```

Program Summary/Highlights

A Program Summary Report presents a sum-total of all run unit totals for an application program. Optionally, whenever a program has three or more run units, detailed statistics of those run units with the lowest and highest durations can be reported. Up to ten run units with the lowest duration are presented with the lowest duration depicted as number '1'. Also, up to ten run units with highest duration are presented with the highest duration depicted as number '1'.

Program Summary/Highlights Report Fields

The following is a description of the various fields which make up the Program Summary Report.

SUMMARY—Application program name and processing type.

Start and stop date/time interval of report.

LOWEST/HIGHEST—category of program highlights.

Sequence, relative to duration, within the highlight category.

Starting date/time of run unit.

Ending date/time of run unit.

ABRT—Abort flag (*) if run unit is aborted.

Note: Some run units may show up as aborted when, in fact, they have not. The reason is that CA IDMS Journal Analyzer did not detect an ENDJ checkpoint record for the run unit.

DURATION—Run unit duration.

AREAS OPENED—Number of areas opened in an update mode.

RUN UNIT—Run unit numeric ID.

QUIESCE LEVEL—Highest quiesce level encountered at the run unit initiation (BGIN).

COUNTS—(See Program Details (see page 29) for definitions).

NODE NAME—The name of a CA IDMS System in a data sharing group or '*LOCAL*' if data sharing is not in use.

The following example shows the PROGRAM Report (Summary/Highlights):

```
ID              RELEASE                  CA IDMS JOURNAL ANALYZER              DATE           TIME            PAGE
                Rnn.nn                        PROGRAM REPORT                   mm/dd/yy       hh:mm:ss          2

                                            SUMMARY = IDMSDDDL BTC
                                       mm/dd/yy hh:mm - mm/dd/yy hh:mm

******   START      A  DURATION AREAS     ----------PAGES-----------  ----CALC RECORDS----  -------------LOCKS-----------
LOWEST              B   (SEC) 0PENED      READ    WRITTEN  REQUESTED  HOME PAGE   OVERFLOW  REQUESTED     SELECT    UPDATE
******   END        R  RUN QUIESCE   ----------RECORDS---------- -----VIA RECORDS-----   CALLS TO  FRAGMENTS ROOTS/RCDS
                    T  UNIT LEVEL    UPDATED  REQUESTED   CURRENT OWNER PAGE   OVERFLOW  IDMSDBMS    STORED   RELOCATED

   1    mm/dd/yy hh:mm:ss   1.80    1       38       1       146        0         0        123        19         2
        mm/dd/yy hh:mm:ss   1803    2        1      178       123        0         0        135         0         0

   2    mm/dd/yy hh:mm:ss  47.45    1    1,018      938     5,533        0         0     14,998       154     7,948
        mm/dd/yy hh:mm:ss   1708    2    7,754    8,129       233        0         0        344         0         0

   3    mm/dd/yy hh:mm:ss  60.78    1    1,198      685    19,724       17        49     20,656       128     7,611
        mm/dd/yy hh:mm:ss   1713    2   14,658   20,935     8,641      229       670     10,958        34         0

   4    mm/dd/yy hh:mm:ss  73.18    1    1,442      903    23,929        0         0     32,539       221    15,378
        mm/dd/yy hh:mm:ss   1766    2   20,683   26,159     8,911      229       637     11,599        34         0


*******  START      A  DURATION AREAS     ----------PAGES-----------  ----CALC RECORDS----  -------------LOCKS-----------
HIGHEST             B   (SEC) 0PENED      READ    WRITTEN  REQUESTED  HOME PAGE   OVERFLOW  REQUESTED     SELECT    UPDATE
*******  END        R  RUN QUIESCE   ----------RECORDS---------- -----VIA RECORDS-----   CALLS TO  FRAGMENTS ROOTS/RCDS
                    T  UNIT LEVEL    UPDATED  REQUESTED   CURRENT OWNER PAGE   OVERFLOW  IDMSDBMS    STORED   RELOCATED

   4    mm/dd/yy hh:mm:ss  73.64    1    1,142      902    23,927        0         0     32,538       232    15,566
        mm/dd/yy hh:mm:ss   1771    2   20,681   26,159     8,911      229       637     11,599        34         0

   3    mm/dd/yy hh:mm:ss  77.29    1    1,407      884    22,902        4         0     32,280       253    15,266
        mm/dd/yy hh:mm:ss   1706    2   20,59 4  25,915     8,859      340       528     11,546        29         0

   2    mm/dd/yy hh:mm:ss  78.43    1    1,442      902    23,929        0         0     32,543       230    15,372
        mm/dd/yy hh:mm:ss   1873    2   20,682   26,162     8,912      229       637     11,601        34         0

   1    mm/dd/yy hh:mm:ss  78.83    1    1,441      901    23,984        0         0     32,577       240    15,395
        mm/dd/yy hh:mm:ss   1724    2   20,761   26,159     8,911      229       637     11,599        43         0
```

Program Summary/Totals

A Program Summary Report presents a sum-total of all run unit totals of an application program. In addition to a summary of the CA IDMS statistics, statistics for run unit occurrence, duration, and quiesce level are reported along with several key processing ratios.

Program Summary/Totals Report Fields

The following is a description of the various fields which make up the Program Summary/Totals Report.

SUMMARY—Application program name and processing type.

Start and stop date/time interval of report.

RUN UNITS

- **SUCCESSFUL (ENDJ)**—Number of recovery units activated within the reported time interval which terminated successfully.

- **ABORTED (ABRT)**—Number of recovery units activated within the reported time interval which terminated abnormally.

- **TOTAL (BGIN)**—Total number of run units activated within the reported time interval.

- **CHECKPOINT (COMT)**—Number of recovery unit checkpoints issued within the reported time interval.

DURATION (SEC)

- **LOWEST**—Lowest run unit duration encountered.

- **HIGHEST**—Highest run unit duration encountered.

- **MEAN**—Average run unit duration encountered.

- **MEDIAN**—Median run unit duration encountered.

QUIESCE LEVEL

- **MEAN**—Average quiesce level encountered.

- **HIGHEST**—Highest quiesce level encountered.

COUNTS—The CA IDMS statistics (see the Program Details (see page 29) for definitions) are reported in three values.

- **MEAN VALUE**—Average value per run unit occurrence within the reported time interval.

- **ACCUMULATED VALUE**—Total value for all run unit occurrences within the reported time interval.

- **PERCENT OF SYSTEM OCCURRENCES**—Ratio of the accumulated value for this program against the accumulated value for all programs active within the reported time interval. Highlights the programs which consume the largest amount of system resources.

The following example shows the PROGRAM Report (Summary/Totals):

```
ID              RELEASE              CA IDMS JOURNAL ANALYZER         DATE        TIME      PAGE
                Rnn.nn                    PROGRAM REPORT             mm/dd/yy    hh:mm:ss     3

                                        SUMMARY = IDMSDDDL  BTC
                                   mm/dd/yy hh:mm - mm/dd/yy hh:mm

RUN UNITS------SUCCESSFUL  (ENDJ)                        8 1.00
              ABORTED     (ABRT)                        0 0.00
              TOTAL       (BGIN)                        8

DURATION------LOWEST                                 1.80
(SEC)         HIGHEST                                78.83
              MEAN                                   61.43
              MEDIAN                                 73.64

QUIESCE LEVEL--MEAN                                   2.00
              HIGHEST                                   2

                                              MEAN VALUE         ACCUMULATED           PERCENT OF
                                                                    VALUE          SYSTEM OCCURRENCES

COUNTS--------RECORDS UPDATED                  15,726.75           125,814               1.00
              PAGES READ                        1,178.50             9,428               1.00
              PAGES WRITTEN                        764.50             6,116               1.00
              PAGES REQUESTED                   18,009.25           144,074               1.00
              CALC RCDS ON HOME PAGE                 2.63                21               1.00
              CALC RCDS OVERFLOW                     6.13                49               1.00
              VIA RCDS ON OWNER PAGE               185.63             1,485               1.00
              VIA RCDS OVERFLOW                    468.25             3,746               1.00
              RECORDS REQUESTED                 19,974.50           159,796               1.00
              RECORDS BECOMING CURRENT           6,687.63            53,501               1.00
              CALLS TO IDMSDBMS                  8,672.63            69,381               1.00
              FRAGMENTS STORED                      26.00               208               1.00
              ROOTS OR RCS RELOCATED                 0.00                 0               0.00
              LOCKS REQUESTED                   24,781.75           198,254               1.00
              SELECT LOCKS HELD                    184.63             1,477               1.00
              UPDATE LOCKS HELD                 11,542.25            92,338               1.00

RATIOS--------PAGES REQUESTED / PAGES READ          15.28
              RECORDS REQUESTED / PAGES READ        16.95
              RECORDS REQUESTED / RECORDS CURRENT    2.99
              CALC RCDS OVERFLOW / CALC RCDS HOME     2.33
              VIA RCDS OVERFLOW / VIA RCDS OWNER      2.52

AREAS---------SHR UPD DDLDML       LOW=   60,001 HIGH=      62,000 COUNT=       5
              SHR UPD DDLDML       LOW=   60,001 HIGH=      62,000 COUNT=       1
              SHR UPD DDLDML       LOW=   60,001 HIGH=      62,000 COUNT=       1
              SHR UPD DDLDML       LOW=   60,001 HIGH=      62,000 COUNT=       1
```

RATIOS—The ratios are calculated from the accumulated values of the appropriate counts.

PAGES REQUESTED/PAGES READ—Measures the effectiveness of buffer pool size and allocation. Small ratios (less than 2.00) can indicate random processing, inadequate buffer pool size, or the need for additional buffer pools.

RECORDS REQUESTED/PAGES READ—Measures the overall effectiveness of space management, CALC synonym handling, VIA options, and buffer management. Large ratios (greater than 20) usually indicate effective buffering (the minimizing of database I/O).

RECORDS REQUESTED/RECORDS CURRENT—Measures the amount of processing transparency provided by the database management system. High ratios (greater than 20) indicate a large amount of database traversing is occurring before target records are retrieved. Close examination must be paid to sorted sets, sets without PRIOR or OWNER pointers, or improper program strategy which does not adequately capitalize on currency.

CALC RCDS OVERFLOW/CALC RCDS HOME—Measures the randomness of the CALC field values, or the fullness of database areas. Large ratios (greater than 1 or 2) or steadily increasing ratio values indicate a large number of CALC synonyms, or that space use is increasing and that an area needs reorganizing or enlarging.

VIA RCDS OVERFLOW/VIA RCDS OWNER —Measures the effectiveness of the storage of VIA records, or the fullness of database areas. Large ratios (greater than 1 or 2) or steadily increasing ratios can indicate very large clustering or packing of VIA records (near the associated OWNER records), or a lack of randomness of the OWNER record types or VIA member records. Space utilization may be getting high that may indicate that the area should be reorganized or enlarged.

AREAS—List of up to 8 areas opened by the program with the following information: usage mode, area name, page range, and ready count.

System Summary

A System Summary Report presents totals of all Program Summary accumulated values within a time interval. All statistical categories are reported by processing type: ONLINE, BATCH, and SYSTEM (total of all ONL and BTC run unit activity during time interval).

System Summary Report Fields

The fields of the System Summary Report are described below.

Start and stop date/time of the time interval of the report. **RUN UNITS**—(see below)

SUCCESSFUL (ENDJ)—Number of recovery units activated within the reported time interval which terminated successfully.

ABORTED (ABRT)—Number of recovery units activated within the reported time interval which terminated abnormally.

TOTAL (BGIN)—Total number of run units activated within the reported time interval.

CHECKPOINT (COMT)—Number of recovery unit checkpoints issued within the reported time interval.

DURATION (SEC)

- **LOWEST**—Lowest run unit duration encountered.

- **HIGHEST**—Highest run unit duration encountered.

- **MEAN**—Average run unit duration encountered.

QUIESCE LEVEL

- **MEAN**—Average quiesce level encountered.

- **HIGHEST**—Highest quiesce level encountered.

COUNTS—The CA IDMS statistics are reported. (See Program Details (see page 29) for definitions.) The ratio of ONLINE or BATCH to SYSTEM is presented for all non-zero counts.

RATIOS—See Program Summary/Totals (see page 33) Report for definitions.

The ratios are calculated from the appropriate counts.

Grand Summary

A Grand Summary Report is produced for all run units whenever multiple time intervals are reported (in effect, a total of all System Summaries). The format of the Grand Summary Report is identical to the System Summary Report.

The following example shows the PROGRAM System Summary Report:

```
ID              RELEASE              CA IDMS JOURNAL ANALYZER         DATE        TIME        PAGE
                Rnn.nn                   PROGRAM REPORT             mm/dd/yy    hh:mm:ss        2

                                         SYSTEM SUMMARY
                                 mm/dd/yy hh:mm - mm/dd/yy hh:mm


 ***   CATEGORY   ***                         ***  ONLINE  ***    ***  BATCH  ***    ***  SYSTEM  ***

 RUN UNITS------SUCCESSFUL  (ENDJ)                12 0.55           10 0.45            22  0.79
               ABORTED      (ABRT)                 6 1.00            0 0.00             6  0.21
               TOTAL        (BGIN)                18                10                 28
                                                0.64              0.36


               CHECKPOINT   (COMT)                53                 0                 53

 DURATION-------LOWEST                           0.04              8.65               0.04
 (SEC)         HIGHEST                      88,285.96             78.83          88,285.96
               MEAN                          5,152.66             41.37           3,327.20

 QUIESCE LEVEL--MEAN                             1.67              2.00               1.79
               HIGHEST                             2                 2                  2

 COUNTS---------RECORDS UPDATED               9,670 0.07      125,739 0.93          135,409
               PAGES READ                     7,300 0.51        7,080 0.49           14,380
               PAGES WRITTEN                   1,242 0.22        4,430 0.78            5,672
               PAGES REQUESTED               22,489 0.14      134,648 0.86          157,137
               CALC RCDS ON HOME PAGE            60 0.70           26 0.30               86
               CALC RCDS OVERFLOW               14 0.22           49 0.78               63
               VIA RCDS ON OWNER PAGE          146 0.04        3,195 0.96            3,341
               VIA RCDS OVERFLOW                56 0.02        3,163 0.98            3,219
               RECORDS REQUESTED             20,898 0.12      150,726 0.88          171,624
               RECORDS BECOMING CURRENT       9,662 0.17       48,208 0.83           57,870
               CALLS TO IDMSDBMS             11,649 0 16       62,475 0.84           74,124
               FRAGMENTS STORED                   0 0.00          408 1.00              408
               ROOTS OR RCDS RELOCATED            0                 0                    0
               LOCKS REQUESTED               27,656 0.13      188,616 0.87          216,272
               SELECT LOCKS HELD               189 0.12        1,415 0.88            1,604
               UPDATE LOCKS HELD             10,593 0.11       88,632 0.89           99,225

 RATIOS---------PAGES REQUESTED / PAGES READ      3.08             19.02              10.93
               RECORDS REQUESTED / PAGES READ    2.86             21.29              11.93
               RECORDS REQUESTED / RECORDS CURRENT 2.16            3.13               2.97
               CALC RCDS OVERFLOW / CALC RCDS HOME 0.23            1.88               0.73
               VIA RCDS OVERFLOW / VIA RCDS OWNER  0.38            0.99               0.96
```

The following example shows the PROGRAM Grand Summary Report:

```
ID               RELEASE            CA IDMS JOURNAL ANALYZER          DATE        TIME        PAGE
                 Rnn.nn                  PROGRAM REPORT             mm/dd/yy    hh:mm:ss        6

                                         GRAND SUMMARY
                                 mm/dd/yy hh:mm - mm/dd/yy hh:mm


***   CATEGORY   ***                      ***   ONLINE  ***    ***   BATCH  ***     ***   SYSTEM   ***

RUN UNITS------SUCCESSFUL  (ENDJ)              18 0.56          14 0.44              32  0.78
              ABORTED      (ABRT)               9 1.00           0 0.00               9  0.22
              TOTAL        (BGIN)              27              14                    41
                                             0.66            0.34


              CHECKPOINT   (COMT)             109               0                   109

DURATION-------LOWEST                          0.04            1.80                   0.04
(SEC)          HIGHEST                    88,285.96           78.83              88,285.96
               MEAN                        9,641.56           36.70               6,361.85

QUIESCE LEVEL--MEAN                            1.63            2.00                   1.76
               HIGHEST                         2               2                     2

COUNTS---------RECORDS UPDATED            11,235 0.07     158,324 0.93             169,559
               PAGES READ                 8,552 0.50       8,624 0.50              17,176
               PAGES WRITTEN              1,271 0.19       5,397 0.81               6,668
               PAGES REQUESTED           26,249 0.14     167,133 0.86             193,382
               CALC RCDS ON HOME PAGE        63 0.69          28 0.31                  91
               CALC RCDS OVERFLOW            14 0.22          49 0.78                  63
               VIA RCDS ON OWNER PAGE       166 0.04       4,190 0.96               4,356
               VIA RCDS OVERFLOW            57 0.01       3,822 0.99               3,879
               RECORDS REQUESTED         24,144 0.11     187,886 0.89             212,030
               RECORDS BECOMING CURRENT  11,413 0.16      58,813 0.84              70,226
               CALLS TO IDMSDBMS         13,560 0 15      76,259 0.85              89,819
               FRAGMENTS STORED              2 0.00         534 1.00                 536
               ROOTS OR RCDS RELOCATED       0               0                       0
               LOCKS REQUESTED          31,909 0.12     237,816 0.88             269,725
               SELECT LOCKS HELD            224 0.11       1,808 0.89               2,032
               UPDATE LOCKS HELD        12,415 0.10     112,662 0.90             125,077

RATIOS---------PAGES REQUESTED / PAGES READ    3.07           19.38                  11.26
               RECORDS REQUESTED / PAGES READ  2.86           21.79                  12.34
               RECORDS REQUESTED / RECORDS CURRENT 2.12        3.19                   3.02
               CALC RCDS OVERFLOW / CALC RCDS HOME 0.22        1.75                   0.69
               VIA RCDS OVERFLOW / VIA RCDS OWNER  0.34        0.91                   0.89
```

CHRONOLOGICAL EVENT Report

The CHRONOLOGICAL EVENT Report outlines all recorded activity in a timewise sequence. The user is presented a detailed view of run unit events in contrast to the ACTIVITY Report which summarizes run unit activity during user-defined time intervals (for example, hourly). Although much of the information contained in the CHRONOLOGICAL EVENT report is identical to the PROGRAM Reports, the information is reported in a strictly chronological order.

Each reported event includes the current quiesce level which indicates the degree of total run unit concurrency.

Note: In CA IDMS environments, the quiesce level can be non-zero although no user tasks are active because all active RHDCRUAL system run units are reflected in the quiesce level count. Events for the RHDCRUAL program will not be reported unless RHDCRUAL=YES was specified on the PROCESS parameter card when the journal extract records were produced.

The CHRONOLOGICAL EVENT Report is normally requested on special demand only. For example, when unusual activity is recorded in the ACTIVITY Report, you can use the CHRONOLOGICAL EVENT Report to acquire a detailed view of such activity by specifying the appropriate time intervals on the REPORT parameter cards.

If a PROGRAM Report shows run units with excessively long durations, or a large number of program aborts, the cause may be resource contention among concurrently executing run units. In which case, the CHRONOLOGICAL EVENT Report of the time period in question will reveal the contending programs, and the ABORT COINCIDENCE Report will reaffirm coincidence of such programs.

If you are required to manually recover part of the CA IDMS database, the following functions are generally performed:

1. A quiesce point must be determined in order to limit the extent of the recovery by the ROLLBACK or the ROLLFORWARD utilities.

2. The ROLLFORWARD utility is executed with the PRINT parameter to list the before and after images.

3. You search through a stack of ROLLFORWARD image reports to establish a quiesce point on which to synchronize the recovery.

4. The ROLLBACK or ROLLFORWARD utility is executed with the appropriate DATE and TIME parameters.

Note: The CHRONOLOGICAL EVENT Report offers you a reasonable alternative to steps 2 and 3. A significant savings in computer resources, paper, and research time can be realized if this report is used to establish the recovery quiesce point. The concise format of the CHRONOLOGICAL EVENT Report eases your burden in this most unenviable task.

CHRONOLOGICAL EVENT Report Fields

The following is a description of the various fields that make up the CHRONOLOGICAL EVENT Report.

EVENT

- **TIME**—Time recorded for each event.

- **TYPE**—BGIN, COMT, ENDJ, or ABRT. ABRT's are further highlighted by "- >" next to the event time.

- **DURATION**—Run unit duration reported in seconds, for ENDJ and ABRT events.

IDENT

- **RUN UNIT**—Run unit numeric ID.

- **PROGRAM**—Application program name and processing type (ONL or BTC).

QUIESCE LVL/USER/EXT ID—Quiesce level at the time of the event, reported as a number of X's. A fully quiesce system is represented by a zero. If the number of concurrent run units exceeds 20, that number is reported.

User ID reported on the BGIN checkpoint journal record. If the report is run against journal files created prior to r16 SP4 (the user ID is not present in the BGIN), the report displays USER ID NOT CAPTURED. If the report is run against journal files created after r16 SP4, but the user does not sign on, the user ID field in the BGIN is filled with spaces, and the report displays NO USER SIGNON.

Ext ID reported on the BGIN checkpoint journal record. IF the report is run against journal files created before IDMS Server r16.1 or before IDMS r16 SP6 (the external ID is not present in the BGIN), the report displays spaces. If the report is run against journal files created after IDMS Server r16.1 or after IDMS r16 SP6 and the external ID field is not populated, the report displays spaces.

Note: Whether a run-unit affects the quiesce level is determined by the manner that an area is READY. Since the READY may occur sometime after the BIND RUNUNIT, the quiesce level may sometime appear to change erratically.

The following example shows the CHRONOLOGICAL EVENT Report:

```
ID                  RELEASE                  CA IDMS JOURNAL ANALYZER              DATE          TIME         PAGE
                    Rnn.nn                   CHRONOLOGICAL EVENT REPORT           mm/dd/yy      hh:mm:ss       2

--------EVENT--------  --------IDENT--------  ---QUIESCE LVL/USER/EXT ID---  ---------PAGES---------  -----------LOCKS----------
TIME    TYPE DURATION  RUN UNIT    PROGRAM                            READ       WRITTEN  REQUESTED  REQUESTED    SELECT   UPDATE

mm/dd/yy

hh:mm START********************************                    ***********************************************END hh:mm

hh:mm:ss BGIN              27414 FILLJNL1 BTC  X
                                              USER01
                                              CUSTOMER99
                                                           SHR  UPD EMP-DEMO-REGION   LOW=     75,001  HIGH=   75,050
                                                             SHR UPD ORG-DEMO-REGION    LOW=     75,151  HIGH=   75,175
hh:mm:ss COMT             27414 FILLJNL1 BTC  X                 19        15        65        94        4        38
hh:mm:ss ENDJ    hh:mm    27414 FILLJNL1 BTC  0                  0         8        32        67        0        30
hh:mm:ss BGIN             27415 FILLJNL2 BTC  X
                                              USER01
                                                           SHR  UPD ORG-DEMO-REGION   LOW=     75,151  HIGH=   75,175
```

PAGES

- **READ**—Number of pages read from the database.

- **WRITTEN**—Number of pages written to the database.

- **REQUESTED**—Number of pages requested that were satisfied by a read of a database page or an access into the buffer pool.

LOCKS

- **REQUESTED**—Number of record locks requested by the run (recovery) unit, automatically or upon request.

- **SELECT**—Number of select (shared) locks maintained by the run (recovery) unit.

- **UPDATE**—Number of update (exclusive) locks held at the termination of the run (recovery) unit.

TIME LINE—A line of asterisks is printed for each hour of activity.

AREAS OPENED—Each area readied by the run unit is listed with the following information: usage mode, area name, and page range.

NO EVENTS POSTED—A line of asterisks is printed for each hour when no events were posted although at least one run unit was active.

NO ACTIVITY—A line of asterisks is printed for each hour when no run units were active.

Note: The CHRONOLOGICAL EVENT Report manipulates data on the Archive Journal file to show PAGES and LOCKS in relation to the work accomplished by the 'recovery unit'. A recovery unit is that segment of CA IDMS activity bounded by BIND, COMMIT, ROLLBACK, and/or FINISH. In this context, a run unit may be one or several recovery units. As maintained by CA IDMS, these values are incremented throughout the run unit and are only reset to zero at the end of the run unit. UPDATE LOCKS is the exception. It is reset to zero at the end of each recovery unit. Therefore it is reported without manipulation.

ABORT COINCIDENCE Report

The ABORT COINCIDENCE Report provides a daily analysis of all aborted recovery units. The report is in two parts. In the first part, the report is ordered by aborted program name. You should be alerted to programs that were concurrently executing when a program aborted, especially when the coincidence ratio exceeds 50%. The excessive consumption of database resources by one run unit can cause other run units to prematurely terminate with resource acquisition delays or deadly embraces.

The second part of the ABORT COINCIDENCE Report, that is only produced when at least one program was executing when another program aborted, is ordered by coincident program name. The associated aborted programs are ranked by their coincidence ratios. A high ratio may reveal resource contention between program types, or possibly between run units of the same program.

The instances of program aborts are recorded in the PROGRAM Reports and the CHRONOLOGICAL EVENT Report, if available. The CHRONOLOGICAL EVENT Report explicitly lists the concurrent programs. This may reveal a pattern such as excessive contention at certain periods of the day.

ABORT COINCIDENCE Report Fields (Part 1)

The following is a description of the various fields which make up Part 1 of the ABORT COINCIDENCE Report.

DATE—Date of activity.

ABORTED PROGRAM—Name of aborted application program.

ABORTS—Number of run units aborted.

COINCIDENT PROGRAM—Name of application program active when the program aborted.

OCCURS—Total occurrences of coincident program when the program aborted.

COINCIDENCE RATIO—Ratio of occurrences of a coincident program to the number of aborts for the program. Ratios of 50 percent or greater are flagged with asterisks (*).

The following example shows the ABORT COINCIDENCE Report (Part 1):

```
ID    RELEASE        CA IDMS JOURNAL ANALYZER            DATE         TIME        PAGE
      Rnn.nn       ABORT COINCIDENCE REPORT PART 1      mm/dd/yy     hh:mm:ss      1
                                                        mm/dd/yy


                   ABORTED                      COINCIDENT           COINCIDENCE
                   PROGRAM       ABORTS          PROGRAM    OCCURS      RATIO
                   -------       ------         ----------  ------   -----------

                   RHDCRUAL        5
```

ABORT COINCIDENCE Report Fields (Part 2)

The following is a description of the various fields that make up Part 2 of the ABORT COINCIDENCE Report.

DATE—Date of activity.

COINCIDENT PROGRAM—Name of application program active when program aborted.

OCCURS—Total occurrences of coincident program when the program aborted.

ABORTED PROGRAM—Name of aborted application program.

ABORTS—Number of recovery units aborted.

COINCIDENCE RATIO—Ratio of occurrences of the coincident program to the number of aborts for a program. Ratios of 50 percent or greater are flagged with asterisks (*).

RANK—Relative order by the magnitude of the coincidence ratio. The highest rank is "1".

The following example shows the ABORT COINCIDENCE Report (Part 2):

```
ID        RELEASE        CA IDMS JOURNAL ANALYZER           DATE          TIME      PAGE
          Rnn.nn       ABORT COINCIDENCE REPORT PART 2      mm/dd/yy      hh:mm:ss  nnnn
                                                            mm/dd/yy

          COINCIDENT                      ABORTED              COINCIDENCE
          PROGRAM        OCCURS           PROGRAM      ABORTS     RATIO       RANK
          -------        ------         ----------     ------  -----------    ----
          DBMSNNNN          6            DBMSEEEE         8        75.0**       1
                            2            DBMSAAAA         4        50.0**       2
                            2            DBMSBBBB         6        33.3         3

          DBMSMMMN          3            DBMSDDDD         4        75.0**       1
                            2            DBMSEEEE         8        25.0         2
                            1            DBMSBBBB         6        16.7         3

          DBMSXXXX          4            DBMSAAAA         4       100.0**       1
                            4            DBMSDDDD         4       100.0**       2
```

MANAGEMENT Reports

The MANAGEMENT Reports are grouped into two formats:

Highlights

- Summaries

- Online Response Time

- Buffer Pool Utilization

Rankings

Management Highlights

The Highlight reports contain summarized information of system performance and resource consumption derived from the original PROGRAM Report. The Highlight reports provide three levels of summaries:

- Program Summary—accumulation for one program in one time interval

- System Summary—accumulation for one time interval

- Grand Summary—accumulation of all system summaries whenever multiple time intervals are reported.

These summary reports present totals, highest, lowest, means, medians of program attributes (Quiesce Levels, etc.), and program consumption (CA IDMS statistics).

The Highlight reports also include Online Response Time and BUFFER POOL UTILIZATION. Online Response Time provides distribution of run unit duration, on an hourly basis, for each day's activities. In addition, Buffer Pool Utilization distributes the ratios of Pages Requested to Pages Read into hourly brackets for each day's activities.

Program Summary Report

The Program Summary Report contains summarized information of system performance and resource consumption accumulated by one program in one time interval. The information is derived from the Program Details Report.

MANAGEMENT Highlights/Program Summary Report Fields

The following is a description of the various fields which make up the MANAGEMENT Highlights/Program Summary Report.

Application program name, processing type, and start/stop date and time of report.

RUN UNITS

- **SUCCESSFUL (ENDJ)**—Number of recovery units activated within the reported time interval which terminated successfully.

- **ABORTED (ABRT)**—Number of recovery units activated within the reported time interval which terminated abnormally.

- **TOTAL (BGIN)**—Total number of run units activated within the reported time interval.

- **CHECKPOINT (COMT)**—Number of recovery unit checkpoints issued within the reported time interval.

LOWEST—Lowest value encountered for any run unit within the reported time interval.

HIGHEST—Highest value encountered for any run unit within the reported time interval.

MEAN—Average value for all run units within the reported time interval.

MEDIAN—Median value for all run units within the reported time interval.

DURATION—Run unit duration. **QUIESCE**

LEVEL—Quiesce level encountered at the run unit initiation (BGIN). **COUNTS**—The CA IDMS statistics (see Program Details (see page 29) for definitions) are reported in four values: Lowest, Highest, Mean, and Median.

RATIOS—The Ratios (see Program Summary/Totals (see page 33) for definitions) are calculated for each run unit and are reported in four values: Lowest, Highest, Mean, and Median.

The following example shows the MANAGEMENT HIGHLIGHTS/PROGRAM SUMMARY Report:

```
ID              RELEASE                 CA IDMS JOURNAL ANALYZER            DATE        TIME       PAGE
                Rnn.nn            MANAGEMENT HIGHLIGHTS/PROGRAM SUMMARY    mm/dd/yy    hh:mm:ss      5
                           RHDCRUAL ONL  mm/dd/yy  hh:mm - mm/dd/yy  hh:mm


RUN UNITS------SUCCESSFUL    (ENDJ)                        2 1.00
              ABORTED       (ABRT)                        0 0.00
              TOTAL         (BGIN)                        2

              CHECKPOINTS   (COMT)                        47


                                          LOWEST        HIGHEST           MEAN          MEDIAN

DURATION (SEC)                              1.38        8,601.92       4,301.65        8,601.92

QUIESCE LEVEL                                  1               1           1.00               1

COUNTS--------RECORDS UPDATED                  0             272         136.00             272
              PAGES READ                      17           1,308         662.50           1,308
              PAGES WRITTEN                    16              80          48.00              80
              PAGES REQUESTED                 221           3,690       1,955.50           3,690
              CALC RCDS ON HOME PAGE            0               8           4.00               8
              CALC RCDS OVERFLOW               0               2           1.00               2
              VIA RCDS ON OWNER PAGE            0              35          17.50              35
              VIA RCDS OVERFLOW                0              20          10.00              20
              RECORDS REQUESTED              261           2,875       1,568.00           2,875
              RECORDS BECOMING CURRENT        10           2,251       1,130.50           2,251
              CALLS TO IDMSDBMS               24           2,931       1,477.50           2,931
              FRAGMENTS STORED                 0               0           0.00               0
              ROOTS OR RCDS RELOCATED          0               0           0.00               0
              LOCKS REQUESTED                472           2,331       1,401.50           2,331
              SELECT LOCKS HELD                2               5           3.50               5
              UPDATE LOCKS HELD              108             329         218.50             329

RATIOS--------PAGES REQUESTED / PAGES READ  2.82           13.00           7.91           13.00
              RECORDS REQUESTED / PAGES READ 2.20          15.35           8.78           15.35
              RECORDS REQUESTED / RECORDS CURRENT 1.28      26.10          13.69           26.10
              CALC RCDS OVERFLOW / CALC RCDS HOME 0.00       0.25           0.13            0.25
              VIA RCDS OVERFLOW / VIA RCDS OWNER  0.00       0.57           0.29            0.57
```

System Summary Report

The System Summary Report contains summarized information of system performance and resource consumption accumulated for one time interval.

MANAGEMENT Highlights/System Summary Report Fields

The following is a description of the various fields which make up the MANAGEMENT Highlights/System Summary Report.

Start and stop date/time of the time interval of the report.

RUN UNITS

- **SUCCESSFUL (ENDJ)**—Number of recovery units activated within the reported time interval which terminated successfully.

- **ABORTED (ABRT)**—Number of recovery units activated within the reported time interval which terminated abnormally.

- **TOTAL (BGIN)**—Total number of run units activated within the reported time interval.

- **CHECKPOINT (COMT)**—Number of recovery unit checkpoints issued within the reported time interval.

DURATION

- **LOWEST**—Lowest run unit duration encountered.

- **HIGHEST**—Highest run unit duration encountered.

- **MEAN**—Average run unit duration.

QUIESCE LEVEL

- **LOWEST**—Lowest quiesce level encountered.

- **HIGHEST**—Highest quiesce level encountered.

- **MEAN**—Average quiesce level.

RATIOS—See Program Summary/Totals (see page 33) for definitions. The ratios are reported in three values: Lowest, Highest, and Mean.

COUNTS—The CA IDMS statistics (see Program Details (see page 29) for definitions) are reported in three values: Lowest, Highest, and Mean.

The following example shows the MANAGEMENT HIGHLIGHTS/SYSTEM SUMMARY Report:

```
ID            RELEASE              CA IDMS JOURNAL ANALYZER              DATE        TIME        PAGE
              Rnn.nn           MANAGEMENT HIGHLIGHTS/SYSTEM SUMMARY     mm/dd/yy    hh:mm:ss      21
                                  mm/dd/yy  h:mm  - mm/dd/yy  hh:mm


         CATEGORY                                  ONLINE           BATCH               SYSTEM

 RUN UNITS------SUCCESSFUL    (ENDJ)              11 1.00          0 0.00              11 1.00
                ABORTED       (ABRT)               0 0.00          0 0.00               0 0.05
                TOTAL         (BGIN)              11 1.00          0 0.00              11

                CHECKPOINTS   (COMT)              54               0                   54

 DURATION-------LOWEST                             0.04            0.00                 0.04
 (SEC)          HIGHEST                        8,601.92            0.00             8,601.92
                MEAN                             783.40            0.00               783.40

 QUIESCE LEVEL--LOWEST                             1               0                    1
                HIGHEST                           2               0                    2
                MEAN                              1.82            0.00                 1.82

 RATIOS--------PAGES REQUESTED / PAGES     LOWEST    0.00          0.00                 0.00
                                           HIGHEST  17.80          0.00                17.80
                                           MEAN      7.19          0.00                 7.19

                RECORDS REQUESTED / PAGES READ  LOWEST    0.00     0.00                 0.00
                                                HIGHEST  25.00     0.00                25.00
                                                MEAN      9.10     0.00                 9.10

                RECORDS REQUESTED / RECORDS CURRENT LOWEST  1.06   0.00                 1.06
                                                HIGHEST  26.10     0.00                26.10
                                                MEAN      4.27     0.00                 4.27

                CALC RCDS OVERFLOW / CALC RCDS HOME  LOWEST  0.00  0.00                 0.00
                                                HIGHEST   1.00     0.00                 1.00
                                                MEAN      0.20     0.00                 0.20

                VIA RCDS OVERFLOW / VIA RCDS OWNER  LOWEST   0.00  0.00                 0.00
                                                HIGHEST   0.57     0.00                 0.57
                                                MEAN      0.06     0.00                 0.06
```

The following example shows the MANAGEMENT HIGHLIGHTS/SYSTEM SUMMARY Report:

```
ID              RELEASE                CA IDMS JOURNAL ANALYZER           DATE          TIME        PAGE
                Rnn.nn              MANAGEMENT HIGHLIGHTS/SYSTEM SUMMARY   mm/dd/yy     hh:mm:ss       8
                                      mm/dd/yy  hh:mm - mm/dd/yy  hh:mm


        CATEGORY                                    ONLINE          BATCH              SYSTEM

  COUNTS---------RECORDS UPDATED       LOWEST          0               0                   0
                                       -HIGHEST      424               0                 424
                                       --MEAN        105.09            0.00              105.09
                PAGES READ             LOWEST          0               0                   0
                                       -HIGHEST    1,559               0               1,559
                                       --MEAN        422.09            0.00              422.09
                PAGES WRITTEN          LOWEST          1               0                   1
                                       -HIGHEST       80               0                  80
                                       --MEAN         16.45            0.00               16.45
                PAGES REQUESTED        LOWEST          2               0                   2
                                       -HIGHEST    9,691               0               9,691
                                       --MEAN      2,239.27            0.00            2,239.27
                CALC RCDS ON HOME PAGE LOWEST          0               0                   0
                                       -HIGHEST        8               0                   8
                                       --MEAN          1.36            0.00                1.36
                CALC RCDS OVERFLOW     LOWEST          0               0                   0
                                       -HIGHEST        2               0                   2
                                       --MEAN          0.36            0.00                0.36
                VIA RCDS ON OWNER PAGE LOWEST          0               0                   0
                                       -HIGHEST       35               0                  35
                                       --MEAN          8.27            0.00                8.27
                VIA RCDS OVERFLOW      LOWEST          0               0                   0
                                       -HIGHEST       20               0                  20
                                       --MEAN          2.00            0.00                2.00
                RECORDS REQUESTED      LOWEST          3               0                   3
                                       -HIGHEST    9,725               0               9,725
                                       --MEAN      2,208.64            0.00            2,208.64
                RECORDS BECOMING CURRENT LOWEST        1               0                   1
                                       -HIGHEST    6,849               0               6,849
                                       --MEAN      1,539.55            0.00            1,539.55
                CALLS TO IDMSDBMS      LOWEST         18               0                  18
                                       -HIGHEST   10,837               0              10,837
                                       --MEAN      2,352.09            0.00            2,352.09
                FRAGMENTS STORED       LOWEST          0               0                   0
                                       -HIGHEST        1               0                   1
                                       --MEAN          0.18            0.00                0.18
                ROOTS OR RCDS RELOCATED LOWEST         0               0                   0
                                       -HIGHEST        0               0                   0
                                       --MEAN          0.00            0.00                0.00
                LOCKS REQUESTED        LOWEST          6               0                   6
                                       -HIGHEST    9,709               0               9,709
                                       --MEAN      2,187.73            0.00            2,187.73
                SELECT LOCKS HELD      LOWEST          1               0                   1
                                       -HIGHEST       23               0                  23
                                       --MEAN          6.82            0.00                6.82
                SELECT LOCKS HELD      LOWEST          2               0                   2
                                       -HIGHEST      329               0                 329
                                       --MEAN         66.91            0.00               66.91
```

Grand Summary Report

The Grand Summary Report contains summarized information of system performance and resource consumption accumulated for all System Summaries whenever multiple time intervals are reported.

MANAGEMENT Highlights/Grand Summary Report Fields

The following is a description of the various fields which make up the MANAGEMENT Highlights/Grand Summary Report.

Start and stop date/time of the time interval of the report.

RUN UNITS

- **SUCCESSFUL (ENDJ)**—Number of recovery units activated within the reported time interval which terminated successfully.

- **ABORTED (ABRT)**—Number of recovery units activated within the reported time interval which terminated abnormally.

- **TOTAL (BGIN)**—Total number of run units activated within the reported time interval.

- **CHECKPOINT (COMT)**—Number of recovery unit checkpoints issued within the reported time interval.

DURATION

- **LOWEST**—Lowest run unit duration encountered.

- **HIGHEST**—Highest run unit duration encountered.

- **MEAN**—Average run unit duration.

QUIESCE LEVEL

- **LOWEST**—Lowest quiesce level encountered.

- **HIGHEST**—Highest quiesce level encountered.

- **MEAN**—Average quiesce level.

RATIOS—Refer to Program Summary/Totals (see page 33) for definitions. The ratios are reported in three values: Lowest, Highest, and Mean.

COUNTS—The CA IDMS statistics (refer to Program Details (see page 29) for definitions) are reported in three values: Lowest, Highest, and Mean.

The following example shows the MANAGEMENT HIGHLIGHTS/GRAND SUMMARY Report:

```
ID            RELEASE              CA IDMS JOURNAL ANALYZER         DATE           TIME        PAGE
              Rnn.nn            MANAGEMENT HIGHLIGHTS/GRAND SUMMARY  mm/dd/yy      hh:mm:ss      19
                                   mm/dd/yy  hh:mm - mm/dd/yy  hh:mm


      CATEGORY                                    ONLINE          BATCH              SYSTEM

RUN UNITS------SUCCESSFUL  (ENDJ)                37 1.00         0 0.00             37 0.95
              ABORTED     (ABRT)                  2 1.00         0 0.00              2 0.05
              TOTAL       (BGIN)                 39 1.00         0 0.00             39

              CHECKPOINTS (COMT)                167             0                 167

DURATION-------LOWEST                              0.03          0.00                0.03
(SEC)         HIGHEST                          8,601.92         0.00            8,601.92
              MEAN                               456.73         0.00              456.73

QUIESCE LEVEL--LOWEST                              1             0                   1
              HIGHEST                             2             0                   2
              MEAN                               1.85          0.00                1.85

RATIOS---------PAGES REQUESTED / PAGES    LOWEST     0.00       0.00                0.00
                                          HIGHEST   63.50       0.00               63.50
                                          MEAN       8.29       0.00                8.29

              RECORDS REQUESTED / PAGES READ  LOWEST    0.00    0.00                0.00
                                          HIGHEST  121.50       0.00              121.50
                                          MEAN      11.04       0.00               11.04

              RECORDS REQUESTED / RECORDS CURRENT LOWEST  1.06  0.00                1.06
                                          HIGHEST   26.10       0.00               26.10
                                          MEAN       3.39       0.00                3.39

              CALC RCDS OVERFLOW / CALC RCDS HOME  LOWEST  0.00 0.00                0.00
                                          HIGHEST    1.00       0.00                1.00
                                          MEAN       0.13       0.00                0.13

              VIA RCDS OVERFLOW / VIA RCDS OWNER   LOWEST  0.00 0.00                0.00
                                          HIGHEST    0.80       0.00                0.80
                                          MEAN       0.13       0.00                0.13
```

The following example shows the MANAGEMENT HIGHLIGHTS/GRAND SUMMARY Report:

```
ID              RELEASE                 CA IDMS JOURNAL ANALYZER          DATE          TIME      PAGE
                Rnn.nn               MANAGEMENT HIGHLIGHTS/GRAND SUMMARY  mm/dd/yy      hh:mm:ss    20
                                     mm/dd/yy  hh:mm - mm/dd/yy  hh:mm


       CATEGORY                                      ONLINE          BATCH                 SYSTEM

COUNTS--------RECORDS UPDATED         LOWEST           0               0                     0
                                      -HIGHEST       424               0                   424
                                      --MEAN          98.33            0.00                 98.33
              PAGES READ              LOWEST           0               0                     0
                                      -HIGHEST     2,573               0                 2,573
                                      --MEAN         330.82            0.00                330.82
              PAGES WRITTEN           LOWEST           1               0                     1
                                      -HIGHEST       224               0                   224
                                      --MEAN          22.36            0.00                 22.36
              PAGES REQUESTED         LOWEST           2               0                     2
                                      -HIGHEST    14,338               0                14,338
                                      --MEAN       1,789.36            0.00              1,789.36
              CALC RCDS ON HOME PAGE  LOWEST           0               0                     0
                                      -HIGHEST        17               0                    17
                                      --MEAN           1.69            0.00                  1.69
              CALC RCDS OVERFLOW      LOWEST           0               0                     0
                                      -HIGHEST         3               0                     3
                                      --MEAN           0.28            0.00                  0.28
              VIA RCDS ON OWNER PAGE  LOWEST           0               0                     0
                                      -HIGHEST       101               0                   101
                                      --MEAN          10.72            0.00                 10.72
              VIA RCDS OVERFLOW       LOWEST           0               0                     0
                                      -HIGHEST        81               0                    81
                                      --MEAN           5.00            0.00                  5.00
              RECORDS REQUESTED       LOWEST           2               0                     2
                                      -HIGHEST    14,741               0                14,741
                                      --MEAN       1,802.67            0.00              1,802.67
              RECORDS BECOMING CURRENT LOWEST          1               0                     1
                                      -HIGHEST    11,076               0                11,076
                                      --MEAN       1,287.69            0.00              1,287.69
              CALLS TO IDMSDBMS       LOWEST          10               0                    10
                                      -HIGHEST    17,063               0                17,063
                                      --MEAN       1,951.64            0.00              1,951.64
              FRAGMENTS STORED        LOWEST           0               0                     0
                                      -HIGHEST         3               0                     3
                                      --MEAN           0.41            0.00                  0.41
              ROOTS OR RCDS RELOCATED LOWEST           0               0                     0
                                      -HIGHEST         0               0                     0
                                      --MEAN           0.00            0.00                  0.00
              LOCKS REQUESTED         LOWEST           3               0                     3
                                      -HIGHEST    10,749               0                10,749
                                      --MEAN       1,591.62            0.00              1,591.62
              SELECT LOCKS HELD       LOWEST           0               0                     0
                                      -HIGHEST        24               0                    24
                                      --MEAN           5.44            0.00                  5.44
              SELECT LOCKS HELD       LOWEST           1               0                     1
                                      -HIGHEST       329               0                   329
                                      --MEAN          61.21            0.00                 61.21
```

Online Response Time

The Online Response Time Report is used to distribute run unit duration, on an hourly basis, for each day's activities. This report can be help you gain an understanding of how response time patterns change over periods of time based on system activity.

MANAGEMENT Highlights/Online Response Time Report Fields

The following is a description of the various fields that make up the MANAGEMENT Highlights/Online Response Time Report.

Date of the report.

HOUR—Hour of the day for which reporting occurred. The numbers of run units whose duration, in seconds, falls within the indicated range are listed with the associated percentage of the total run units for the indicated hour.

TOTAL—Number of run units reported in the indicated hour time frame.

MEAN DURTN—Average duration of run units reported.

MEDN DURTN—Median duration of run units reported.

Buffer Pool Utilization

The Buffer Pool Utilization Report is used to distribute the ratio of Pages Requested to Pages Read into hourly time brackets for each day's activities.

MANAGEMENT Highlights/Buffer Pool Utilization Report Fields

The following is a description of the various fields which make up the MANAGEMENT Highlights/Buffer Pool Utilization Report.

Date of the report.

HOUR—Hour of the day for which reporting occurred. The numbers of run units whose ratios are within the indicated range are listed with the associated percentage of the total run units for the indicated hour.

TOTAL—Number of run units reported in the indicated hour time frame.

MEAN RATIO—Average ratio value of run units reported.

MEDN RATIO—Median ratio value of run units reported.

The following example shows the MANAGEMENT HIGHLIGHTS/Online Response Time Report:

```
ID              RELEASE                   CA IDMS JOURNAL ANALYZER          DATE        TIME        PAGE
                Rnn.nn           MANAGEMENT HIGHLIGHTS/ONLINE RESPONSE TIME  mm/dd/yy    hh:mm:ss      21
                                             mm/dd/yy

HOUR   00.00 - 00.99  01.00 - 01.99  02.00 - 03.99  04.00 - 07.99  08.00 - 15.99  16.00 - ...   TOTAL   MEAN DURTN   MEDN DURTN
-----  -------------  -------------  -------------  -------------  -----------  -------------   --------  ----------   ----------

09:00      0  0.00        1  0.50        0  0.00        0  0.00        0  0.00       1  0.50        2    4,301.65      8,601.92

11:00      5  0.56        2  0.22        1  0.11        1  0.11        0  0.00       0  0.00        9        1.57          0.60

12:00      6  0.55        2  0.18        0  0.00        0  0.00        1  0.09       2  0.18       11      781.99          0.78

13:00      1  0.50        0  0.00        1  0.50        0  0.00        0  0.00       0  0.00        2        1.30          2.55

14:00      2  0.40        1  0.20        1  0.20        0  0.00        0  0.00       1  0.20        5      117.15          1.52

16:00      1  1.00        0  0.00        0  0.00        0  0.00        0  0.00       0  0.00        1        0.44          0.44

17:00      8  0.89        1  0.11        0  0.00        0  0.00        0  0.00       0  0.00        9        0.48          0.37

TOTAL     23  0.59        7  0.18        3  0.08        1  0.03        1  0.03       4  0.10       39      456.73             *
```

The following example shows the MANAGEMENT HIGHLIGHTS/Buffer Pool Utilization Report:

```
ID              RELEASE                   CA IDMS JOURNAL ANALYZER          DATE        TIME        PAGE
                Rnn.nn          MANAGEMENT HIGHLIGHTS/BUFFER POOL UTILIZATION  mm/dd/yy    hh:mm:ss      22
                                             mm/dd/yy

HOUR   00.00 - 00.99  01.00 - 01.99  02.00 - 03.99  04.00 - 07.99  08.00 - 15.99  16.00 - ...   TOTAL   MEAN RATIO   MEDN RATIO
-----  -------------  -------------  -------------  -------------  -----------  -------------   --------  ----------   ----------

09:00      0  0.00        0  0.00        1  0.50        0  0.00        1  0.50       0  0.00        2        7.91         13.00

11:00      2  0.22        2  0.22        0  0.00        2  0.22        1  0.11       2  0.22        9        7.03          6.21

12:00      3  0.27        0  0.00        2  0.18        3  0.27        1  0.09       2  0.18       11        6.25          5.56

13:00      1  0.50        0  0.00        0  0.00        0  0.00        0  0.00       1  0.50        2        9.02         18.03

14:00      2  0.40        0  0.00        0  0.00        1  0.20        0  0.00       2  0.40        5        8.26          5.57

16:00      0  0.00        0  0.00        0  0.00        0  0.00        1  1.00       0  0.00        1        8.73          8.73

17:00      2  0.22        0  0.00        1  0.11        2  0.22        3  0.33       1  0.11        9       11.93          6.86

TOTAL     10  0.26        2  0.05        4  0.10        8  0.21        7  0.18       8  0.21       39        8.29             *
```

Management Rankings

The Ranking reports contain system performance and resource consumption information derived from the original PROGRAM Report which is ranked, rather than summarized. The user can designate the particular items(s) to be ranked, and can designate the ranking process to be used (program type to be used, number of items to be ranked, etc.). The following information is listed for each ranked item:

- Rank of run unit

- Run Unit ID (ABSOLUTE value type only)

- Program Name

- Processing Type (ONL or BTC)

- Start date/time (ABSOLUTE value type only)

- Item value

The Ranking reports can specify the value type of the item to be ranked:

ABSOLUTE—indicates value of an individual run unit from a single execution of the named program.

MEDIAN—indicates a middle value for all executions of the named program.

MEAN—indicates an average value for all executions of the named program.

The Ranking Report also provides cumulative values for all like named program executions for the following attributes:

- LOCKS REQUESTED

- PAGES READ

- PAGES WRITTEN

- PAGES WRITTEN + PAGES READ (TOTAL I/O's)

- RECORDS UPDATED

The following example shows the Management Ranking Report Attributes:

```
RANKWHAT          RANKITEM              ATTRIBUTE

   #RU               1                  #RUN UNITS (#BGIN)
   #SUCCESS          2                  #SUCCESSFUL (#ENDJ)
   #ABORT            3                  #ABORTED (#ABRT)
   %ABORT            4                  %ABORTED (#ABRT/#BGIN)
   DURATION          5                  DURATION
   REC-UPD           6                  RECORDS UPDATED
   PG-READ           7                  PAGES READ
   PG-WRITTEN        8                  PAGES WRITTEN
   PG-IO             9                  PAGES WRITTEN + PAGES READ (TOTAL I/O's)
   LOCK-REQ          10                 LOCKS REQUESTED
   PG-RATIO          11                 PAGES REQUESTED/PAGES READ
   CALC-RATIO        12                 CALC RECORDS OVERFLOW/
                                           RECORDS ON HOME PAGE

   VIA-RATIO         13                 VIA RECORDS OVERFLOW/
                                           RECORDS ON OWNER PAGE
```

MANAGEMENT Ranking Report Fields

The following are descriptions of the various fields that make up the MANAGEMENT Ranking Reports.

MANAGEMENT Ranking Report (ABSOLUTE value type).

Start and stop date/time of the report.

Description of report function.

RANK—Ranking of run unit as requested by report.

RUN UNIT—Run unit numeric ID.

PROGRAM—Program name and processing type.

START—Start date/time of the run unit.

VALUE—Value of run unit (seconds, percentage, etc.).

MANAGEMENT Ranking Report (MEDIAN value type).

Start and stop date/time of report.

Description of report function.

RANK—Ranking of run unit as requested by report.

PROGRAM—Program name and processing type.

VALUE—Value of run unit (seconds, percentage, etc.).

MANAGEMENT Ranking Report (MEAN value type).

Start and stop date/time of report.

Description of report function.

RANK—Ranking of run unit as requested by report.

PROGRAM—Program name and processing type.

VALUE—Value of run unit (seconds, percentage, etc.).

The MANAGEMENT RANKING Report (%ABORTED) is an example of a Ranking Report using a different attribute (%ABORTED). The field descriptions are identical to the MEDIAN and MEAN value type reports.

The following example shows the MANAGEMENT RANKING Report (ABSOLUTE Value Type):

```
 ID            RELEASE               CA IDMS JOURNAL ANALYZER          DATE        TIME      PAGE
               Rnn.nn                  MANAGEMENT RANKINGS            mm/dd/yy    hh:mm:ss     23
                                    mm/dd/yy hh:mm - mm/dd/yy hh:mm


               ALL RUN UNITS RANKED HIGHEST (TO LOWEST) BY PAGES READ + WRITTEN
               RANK    RUN UNIT     PROGRAM         START           VALUE
               ----    --------    ------------    -----------------   ------------
                 1     2090437     IDMSDDDL ONL    mm/dd/yy hh:mm:ss          1,113
                       TOTALS      IDMSDDDL                        1,113
                 2     2092894     ADSOGEN1 ONL    mm/dd/yy hh:mm:ss            403
                 3     2092734     ADSOGEN1 ONL    mm/dd/yy hh:mm:ss            389
                 4     2090152     ADSOGEN1 ONL    mm/dd/yy hh:mm:ss            379
                 5     2092617     ADSOGEN1 ONL    mm/dd/yy hh:mm:ss            375
                       TOTALS      ADSOGEN1                        1,546
                 6     2090589     RHDCSGEN ONL    mm/dd/yy hh:mm:ss            366
                 7     2090664     RHDCSGEN ONL    mm/dd/yy hh:mm:ss            361
                 8     2090509     RHDCSGEN ONL    mm/dd/yy hh:mm:ss            358
                 9     2090365     RHDCSGEN ONL    mm/dd/yy hh:mm:ss            355
                10     2090269     RHDCSGEN ONL    mm/dd/yy hh:mm:ss            351
                       TOTALS      RHDCSGEN                        1,791
```

The following example shows the MANAGEMENT RANKING Report (MEDIAN Value Type):

```
ID              RELEASE              CA IDMS JOURNAL ANALYZER          DATE        TIME      PAGE
                Rnn.nn               MANAGEMENT RANKINGS               mm/dd/yy    hh:mm:ss   32
                              mm/dd/yy hh:mm - mm/dd/yy hh:mm

            ALL PROGRAMS RANKED HIGHEST (TO LOWEST) BY MEDIAN PAGE/BUFFER RATIO

                        RANK         PROGRAM            VALUE
                        ----       ------------      -----------

                          1        ADSOGEN1 ONL         17.80
                          2        RHDCRUAL ONL         13.00
                          3        RHDCSGEN ONL          6.22
                          4        IDMSDDDL ONL          1.10
                          5        ADSOEDIT ONL          0.00
```

The following example shows the MANAGEMENT RANKING Report (MEAN Value Type):

```
ID              RELEASE              CA IDMS JOURNAL ANALYZER          DATE        TIME      PAGE
                Rnn.nn               MANAGEMENT RANKINGS               mm/dd/yy    hh:mm:ss   26
                              mm/dd/yy hh:mm - mm/dd/yy hh:mm

            ALL PROGRAMS RANKED HIGHEST (TO LOWEST) BY AVERAGE PAGES READ + WRITTEN

                        RANK         PROGRAM            VALUE
                        ----       ------------      -----------

                          1        RHDCSGEN ONL        788.50
                          2        RHDCRUAL ONL        710.50
                          3        IDMSDDDL ONL        122.00
                          4        ADSOGEN1 ONL         67.50
                          5        ADSOEDIT ONL          1.00
```

The following example shows the MANAGEMENT RANKING Report (%ABORTED):

```
ID              RELEASE              CA IDMS JOURNAL ANALYZER          DATE        TIME      PAGE
                Rnn.nn               MANAGEMENT RANKINGS               mm/dd/yy    hh:mm:ss   29
                              mm/dd/yy hh:mm - mm/dd/yy hh:mm

            ALL PROGRAMS RANKED HIGHEST (TO LOWEST) BY %ABORTED

                        RANK         PROGRAM            VALUE
                        ----       ------------      -----------

                          1        ADSOEDIT ONL          0.00
                          2        ADSOGEN1 ONL          0.00
                          3        IDMSDDDL ONL          0.00
                          4        RHDCRUAL ONL          0.00
                          5        RHDCSGEN ONL          0.00
```

Record Display

The Record Display is used to display changes for particular record types during specific time periods, or for the duration of the Archive Journal file. The Record Display can be produced in two formats:

- **Full Format**—all record positions are displayed with the changed values highlighted.

- **Sparse Format**—only the changed values are displayed.

Record Display Report Fields (Full Format)

The following is a description of the various fields that make up the Record Display (Full Format).

Display type, record ID, and record name.

Starting date/time of the run unit.

RU—Run unit numeric ID.

IMAGE TYPE—Indicates either a before image (BFOR), or an after image (AFTR).

Abort Flag—If run unit (or recovery unit) terminates abnormally, "ABORTED" is displayed following image type.

PREFIX LEN—Length (in bytes) of the prefix portion (pointers) of the database record.

DATA LEN—Length (in bytes) of the data portion of the database record.

Program name and database key.

DML VERB—Verb that caused the creation of the before or after image.

PREFIX —All pointers are displayed. The pointer position, relative to 1, appears to the left of the database key. If the pointer was modified, an asterisk (*) appears between the pointer position and the database key.

DATA—Five display lines present the character/hexadecimal representation of each record position and any changes. The CHGS line flags any data change as "A" (added character), "D" (deleted character), or "*" (modified character). The CHAR line lists the EBCDIC character value of each record position. The ZONE line lists the hex equivalent of the zone bits of each record position. The NUMR line lists the hex equivalent of the numeric bits of each record position. The fifth line numbers the character position within the record.

The following example shows the Record Display (Full Format):

```
ID                RELEASE              CA IDMS JOURNAL ANALYZER           DATE         TIME       PAGE
                  Rnn.nn                    RECORD DISPLAY             mm/dd/yy      hh:mm:ss       2
                               SR0036 SR-036

**    mm/dd/yy    RU =    1,707    PREFIX LEN =   76      IDMSDDDL        60,086:0010
      hh:mm:ss    BFOR             DATA  LEN =  188      MODIFY RECORD    SEQ # =                621,934

   PREFIX          1      60,086:0011   2      60,086:0009   3      60,086:0010   4      60,086:0010   5      60,086:0010
                   6      60,086:0010   7      60,086:0010   8      60,086:0010   9      60,086:0010  10      60,086:0010
                  11      60,086:0010  12      60,086:0010  13      60,086:0011  14      60,086:0011  15      60,086:0012
                  16      60,086:0012  17      61,948:0012  18      60,945:0023  19      60,086:0010

   DATA     CHGS
            CHAR      LITERAL-100                           U  D                                   mm/dd/yy
            ZONE  0B00DCECDCD6FFF44444444444444444444400000E06C444444444444444444444444444444444444FF6FF6FF4444444
            NUMR  0C003935913010000000000000000000000040440000000000000000000000000000000000010125194000000
                  1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95.....

            CHGS
            CHAR       F  mm/dd/yyFULJO02 FULJO02  010322431
            ZONE  4444444444C00FF6FF6FFCEDDDFF4CEDDDFF44FFFFFFFFFF0004400044444444444444444444444444444
            NUMR  00000000006001011319464316020643160200010322431F00000000000000000000000000000000000000
                  101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**    mm/dd/yy    RU =    1,706    PREFIX LEN =   76      IDMSDDDL        60,086:0010
      hh:mm:ss    AFTR             DATA  LEN =  188      MODIFY RECORD    SEQ # =                621,935

   PREFIX          1      60,086:0011   2      60,086:0009   3      60,086:0010   4      60,086:0010   5      60,086:0010
                   6      60,086:0010   7      60,086:0010   8      60,086:0010   9      60,086:0010  10      60,086:0010
                  11      60,086:0010  12      60,086:0010  13      60,086:0011  14      60,086:0011  15      60,086:0012
                  16      60,086:0012  17      61,948:0012  18      60,945:0023  19      60,086:0010

   DATA     CHGS
            CHAR      LITERAL-100                           U  D                                   mm/dd/yy
            ZONE  0B00DCECDCD6FFF44444444444444444444400000E06C444444444444444444444444444444444444FF6FF6FF4444444
            NUMR  0C003935913010000000000000000000000040440000000000000000000000000000000000010125194000000
                  1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95.....

            CHGS                                          * ****
            CHAR       F  mm/dd/yyFULJO02 FULJO02  010525245
            ZONE  4444444444C00FF6FF6FFCEDDDFF4CEDDDFF44FFFFFFFFFF0004400044444444444444444444444444444
            NUMR  0000000000600101131946431602064316020001052524 5F0000000000000000000000000000000000000
                  101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**    mm/dd/yy    RU =    1,706    PREFIX LEN =   76      IDMSDDDL        60,086:0010
      hh:mm:ss    BFOR             DATA  LEN =  108      ERASE RECORD ALL SEQ # =                621,952

   PREFIX          1      60,086:0011   2      60,086:0009   3      60,086:0010   4      60,086:0010   5      60,086:0010
                   6      60,086:0010   7      60,086:0010   8      60,086:0010   9      60,086:0010  10      60,086:0010
                  11      60,086:0010  12      60,086:0010  13      60,086:0011  14      60,086:0011  15      60,086:0012
                  16      60,086:0012  17      61,948:0012  18      60,945:0023  19      60,086:0010

**    mm/dd/yy    RU =    1,706    PREFIX LEN =   76      IDMSDDDL        60,086:0010
      hh:mm:ss    AFTR             DATA  LEN =  108      ERASE RECORD ALL SEQ # =                621,953
```

Record Display Report Fields (Sparse Format)

The following is a description of the various fields that make up the Record Display (Sparse Format).

Display type, record ID, and record name.

Starting date/time of the run unit.

RU—Run unit numeric ID.

IMAGE TYPE—Indicates either a before image (BFOR), or an after image (AFTR).

Abort Flag—If run unit (or recovery unit) terminates abnormally, "ABORTED" is displayed following image type.

PREFIX LEN—Length (in bytes) of the prefix portion (pointers) of the database record.

DATA LEN—Length (in bytes) of the data portion of the database record.

Program name and database key.

DML VERB—Verb that caused the creation of the before or after image.

PREFIX CHANGES—Only pointers which were modified are displayed. The pointer position, relative to 1, appears to the left of the database key. If none of the pointers were modified, *** NONE *** appears.

DATA—Four display lines present the character/hexadecimal representation of each record position whose value has changed. Only those positions that have changed are displayed. The CHAR line presents the EBCDIC character value of each record position. The ZONE line presents the hex equivalent of the zone bits of each record position. The NUMR line presents the hex equivalent of the numeric bits of each record position. The fourth line numbers character positions within the record. If a record position has been deleted (shortening of a variable-length record), a "D" appears on the ZONE line at the corresponding record position. If the data portion was not changed, *** NONE *** appears in place of the four display lines.

Note: The data portion of a database record will be decompressed if it can be uniquely determined that the record type is compressed by the IDMSCOMP program. NONUNIQ=Y may be required on the PROCESS parameter card.

The following example shows the Record Display (Sparse Format):

```
ID              RELEASE                CA IDMS JOURNAL ANALYZER              DATE        TIME        PAGE
                Rnn.nn                       RECORD DISPLAY                mm/dd/yy    hh:mm:ss         2
                                       SR0036 SR-036

**    mm/dd/yy   RU =    1,706   PREFIX LEN =   76        IDMSDDDL          60,086:0010
      hh:mm:ss   BFOR            DATA   LEN =  188        MODIFY RECORD      SEQ # =                 621,934

   PREFIX CHANGES     1    60,086:0011   2     60,086:0009   3     60,086:0010   4     60,086:0010   5    60,086:0010
                      6    60,086:0010   7     60,086:0010   8     60,086:0010   9     60,086:0010  10    60,086:0010
                     11    60,086:0010  12     60,086:0010  13     60,086:0011  14     60,086:0011  15    60,086:0012
                     16    60,086:0012  17     61,948:0012  18     60,945:0023  19     60,086:0010

   DATA     CHAR     LITERAL-100                        U  D                              mm/dd/yy
            ZONE  0B00DCECDCD6FFF4444444444444444444444400000E06C44444444444444444444444444444444444444FF6FF6FF4444444
            NUMR  0C00393591301000000000000000000000000040440000000000000000000000000000000000001101251940000000
                  1...5...10...15...20...25...30...35...40...45...50...55...60.65...70...75...80...85...90...95......

            CHAR      F  mm/dd/yyFULJO02 FULJO02  010322431
            ZONE  444444444C00FF6FF6FFCEDDDFF4CEDDDFF44FFFFFFFFFF00044000044444444444444444444444444444444
            NUMR  000000000600101131946431602064316020001032243 1F0000000000000000000000000000000000000000
                  101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**    mm/dd yy   RU =    1,706   PREFIX LEN =   76        IDMSDDDL          60,086:0010
      hh:mm:ss   AFTR            DATA   LEN =  188        MODIFY RECORD      SEQ # =                 621,935

   PREFIX CHANGES  *** NONE ***

   DATA     CHAR                                     5 5245
            ZONE                                     F FFFF
            NUMR                                     5 5245
                  101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**    mm/dd yy   RU =    1,706   PREFIX LEN =   76        IDMSDDDL          60,086:0010
      hh:mm:ss   BFOR            DATA   LEN =  108        ERASE RECORD ALL   SEQ # =                 621,952

   PREFIX CHANGES  *** NONE ***

**    mm/dd yy   RU =    1,706   PREFIX LEN =   76        IDMSDDDL          60,086:0010
      hh:mm:ss   AFTR            DATA   LEN =  108        ERASE RECORD ALL   SEQ # =                 621,953

   PREFIX CHANGES    15      60,086:0010  16      60,086:0010

**    mm/dd yy   RU =    1,706   PREFIX LEN =   76        IDMSDDL           60,086:0010
      hh:mm:ss   BFOR            DATA   LEN =  108        STORE RECORD       SEQ # =                 621,956

   PREFIX CHANGES *** NONE ***

**    mm/dd yy   RU =    1,706   PREFIX LEN =   76        IDMSDDDL          60,086:0010
      hh:mm:ss   AFTR            DATA   LEN =  108        STORE RECORD       SEQ # =                 621,958

   PREFIX CHANGES    15      60,086:0012  16      60,086:0012

**    mm/dd yy   RU =    1,706   PREFIX LEN =   76        IDMSDDL           60,086:0010
      hh:mm:ss   BFOR            DATA   LEN =  188        MODIFY RECORD      SEQ # =                 621,968
```

DATABASE KEY Display

The Database Key Display is used to display changes for particular record occurrences, or particular database pages during specific time periods. The Database Key Display can be produced in two formats:

- **Full Format**—all record positions are displayed with the changed values highlighted.

- **Sparse Format**—only the changed values are displayed.

DATABASE KEY Display Report Fields (Full Format)

The following is a description of the various fields which make up the Database Key Display (Full Format).

Display type, page and line of database record.

Starting date/time of the run unit.

RU—Run unit numeric ID.

IMAGE TYPE—Indicates either a before image (BFOR), or an after image (AFTR).

Abort Flag—If run unit (or recovery unit) terminates abnormally, "ABORTED" is displayed following image type.

PREFIX LEN—Length (in bytes) of the prefix portion (pointers) of the database record.

DATA LEN—Length (in bytes) of the data portion of the database record.

Program name, record ID, and record name.

DML VERB—Verb that caused the creation of the before or after image.

PREFIX —All pointers are displayed. The pointer position, relative to 1, appears to the left of the database key. If the pointer was modified, an asterisk (*) appears between the pointer position and the database key.

DATA—Five display lines present the character/hexadecimal representation of each record position and any change flags. The CHGS line flags any data change as "A" (added character), "D" (deleted character), or "*" (modified character). The CHAR line presents the EBCDIC character value of each record position. The ZONE line presents the hex equivalent of the zone bits of each record position. The NUMR line presents the hex equivalent of the numeric bits of each record position. The fifth line numbers the character positions within the record.

The following example shows the DATABASE KEY Display (Full Format):

```
ID              RELEASE              CA IDMS JOURNAL ANALYZER           DATE        TIME       PAGE
                Rnn.nn                  DATABASE KEY DISPLAY           mm/dd/yy    hh:mm:ss      2
                                            60,086:0010

**   mm/dd/yy   RU =   1,706    PREFIX LEN =   76      IDMSDDDL        SR0036 SR-036
     hh:mm:ss   BFOR             DATA  LEN =  188      MODIFY RECORD        SEQ # =              621,934

   PREFIX          1    60,086:0011   2    60,086:0009   3    60,086:0010   4    60,086:0010   5    60,086:0010
                   6    60,086:0010   7    60,086:0010   8    60,086:0010   9    60,086:0010  10    60,086:0010
                  11    60,086:0010  12    60,086:0010  13    60,086:0011  14    60,086:0011  15    60,086:0012
                  16    60,086:0012  17    61,948:0012  18    60,945:0023  19    60,086:0010

   DATA     CHGS
            CHAR     LITERAL-100                      U  D                                mm/dd/yy
            ZONE   0B00DCECDCD6FFF44444444444444444444444400000E06C444444444444444444444444444444444444444FF6FF6FF4444444
            NUMR   0C0039359130100000000000000000000000000004044000000000000000000000000000000000000010125194 0000000
                   1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95.....

            CHGS
            CHAR        F  mm/dd/yyFULJ002 FULJ002  010322431
            ZONE   4444444444C00FF6FF6FFCEDDDFF4CEDDDFF44FFFFFFFFFF0004400004444444444444444444444444444444
            NUMR   0000000006001011319464316020643160200010322431F0000000000000000000000000000000000000000
                   101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**   mm/dd/yy   RU =   1,706    PREFIX LEN =   76      IDMSDDDL        SR0036 SR-036
     hh:mm:ss   AFTR             DATA  LEN =  188      MODIFY RECORD        SEQ # =              621,935

   PREFIX          1    60,086:0011   2    60,086:0009   3    60,086:0010   4    60,086:0010   5    60,086:0010
                   6    60,086:0010   7    60,086:0010   8    60,086:0010   9    60,086:0010  10    60,086:0010
                  11    60,086:0010  12    60,086:0010  13    60,086:0011  14    60,086:0011  15    60,086:0012
                  16    60,086:0012  17    61,948:0012  18    60,945:0023  19    60,086:0010

   DATA     CHGS
            CHAR     LITERAL-100                      U  D                                mm/dd/yy
            ZONE   0B00DCECDCD6FFF44444444444444444444444400000E06C444444444444444444444444444444444444444FF6FF6FF4444444
            NUMR   0C0039359130100000000000000000000000000004044000000000000000000000000000000000000010125194 0000000
                   1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95.....

            CHGS                                      *  ****
            CHAR        F  mm/dd/yyFULJ002 FULJ002  010525245
            ZONE   4444444444C00FF6FF6FFCEDDDFF4CEDDDFF44FFFFFFFFFF0004400004444444444444444444444444444444
            NUMR   0000000006001011319464316020643160200010525245F0000000000000000000000000000000000000000
                   101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**   mm/dd/yy   RU =   1,706    PREFIX LEN =   76      IDMSDDDL        SR0036 SR-036
     hh:mm:ss   BFOR             DATA  LEN =  108      ERASE RECORD ALL     SEQ # =              621,952

   PREFIX          1    60,086:0011   2    60,086:0009   3    60,086:0010   4    60,086:0010   5    60,086:0010
                   6    60,086:0010   7    60,086:0010   8    60,086:0010   9    60,086:0010  10    60,086:0010
                  11    60,086:0010  12    60,086:0010  13    60,086:0011  14    60,086:0011  15    60,086:0012
                  16    60,086:0012  17    61,948:0012  18    60,945:0023  19    60,086:0010

**   mm/dd/yy   RU =   1,706    PREFIX LEN =   76      IDMSDDDL        SR0036 SR-036
     hh:mm:ss   AFTR             DATA  LEN =  108      ERASE RECORD ALL     SEQ # =              621,953
```

DATABASE KEY Display Report Fields (Sparse Format)

The following is a description of the various fields which make up the DATABASE KEY Display (Sparse Format).

Display type, page and line of database record.

Starting date/time of the run unit.

RU—Run unit numeric ID.

IMAGE TYPE—Indicates either a before image (BFOR), or an after image (AFTR).

Abort Flag—If run unit (or recovery unit) terminates abnormally, "ABORTED" is displayed following image type.

PREFIX LEN—Length (in bytes) of the prefix portion (pointers) of the database record.

DATA LEN—Length (in bytes) of the data portion of the database record.

Program name, record ID, and record name.

DML VERB—Verb which caused the creation of the before or after image.

PREFIX CHANGES—Only pointers which were modified are displayed. The pointer position, relative to 1, appears to the left of the database key. If none of the pointers were modified, *** NONE *** appears.

DATA—Four (4) display lines present the character/hexadecimal representation of each record position whose value has changed. Only those positions which have changed are displayed. The CHAR line presents the EBCDIC character value of each record position. The ZONE line presents the hex equivalent of the zone bits of each record position. The NUMR line presents the hex equivalent of the numeric bits of each record position. The fourth line numbers the character positions within the record. If a record position has been deleted (shortening of a variable-length record), a "D" appears on the ZONE line at the corresponding record position. If the data portion was not changed, *** NONE *** appears in place of the four display lines.

Note: The data portion of a database record will be decompressed if it can be uniquely determined that the record type is compressed by the IDMSCOMP program. NONUNIQ=Y may be required on the PROCESS parameter card.

The following example shows the DATABASE KEY Display (Sparse Format):

```
ID              RELEASE                  CA IDMS JOURNAL ANALYZER              DATE         TIME         PAGE
                Rnn.nn                    DATABASE KEY DISPLAY                mm/dd/yy     hh:mm:ss        2
                                              60,086:0010

**    mm/dd/yy   RU =    1,706    PREFIX LEN =   76       IDMSDDDL          SR0036 SR-036
      hh:mm:ss   BFOR             DATA  LEN =   188       MODIFY RECORD               SEQ # =                621,934

   PREFIX CHANGES   1     60,086:0011   2     60,086:0009   3     60,086:0010   4     60,086:0010   5     60,086:0010
                    6     60,086:0010   7     60,086:0010   8     60,086:0010   9     60,086:0010  10     60,086:0010
                   11     60,086:0010  12     60,086:0010  13     60,086:0011  14     60,086:0011  15     60,086:0012
                   16     60,086:0012  17     61,948:0012  18     60,945:0023  19     60,086:0010

   DATA     CHAR     LITERAL-100                          U  D                        mm/dd/yy
            ZONE  0B00DCECDCD6FFF44444444444444444400000E06C444444444444444444444444444444444444444FF6FF6FF4444444
            NUMR  0C0039359130100000000000000000000000000040440000000000000000000000000000000000010125194000 000
                  1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95......

            CHAR      F  mm/dd/yyFULJO02 FULJ002  010322431
            ZONE  444444444C00FF6FF6FFCEDDDFF4CEDDDFF44FFFFFFFFFF00044000044444444444444444444444444444
            NUMR  0000000006001011319464316020643160200010322431F00000000000000000000000000000000000000
                  101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**    mm/dd yy    RU =    1,706    PREFIX LEN =   76       IDMSDDDL          SR0036 SR-036
      hh:mm:ss   AFTR             DATA  LEN =   188       MODIFY RECORD               SEQ # =                621,935

   PREFIX CHANGES   *** NONE ***

   DATA     CHAR                                  5 5245
            ZONE                                  F FFFF
            NUMR                                  5 5245
                  101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**    mm/dd yy    RU =    1,706    PREFIX LEN =   76       IDMSDDDL          SR0036 SR-036
      hh:mm:ss   BFOR             DATA  LEN =   108       ERASE RECORD ALL            SEQ # =                621,952

   PREFIX CHANGES   *** NONE ***

**    mm/dd yy    RU =    1,706    PREFIX LEN =   76       IDMSDDDL          SR0036 SR-36
      hh:mm:ss   AFTR             DATA  LEN =   108       ERASE RECORD ALL            SEQ # =                621,953

   PREFIX CHANGES   15       60,086:0010  16       60,086:0010

**    mm/dd yy    RU =    1,706    PREFIX LEN =   76       IDMSDDL           SR0036 SR-036
      hh:mm:ss   BFOR             DATA  LEN =   108       STORE RECORD                SEQ # =                621,956

   PREFIX CHANGES *** NONE ***

**    mm/dd yy    RU =    1,706    PREFIX LEN =   76       IDMSDDDL          SR0036 SR-36
      hh:mm:ss   AFTR             DATA  LEN =   108       STORE RECORD                SEQ # =                621,958

   PREFIX CHANGES   15       60,086:0012  16       60,086:0012

**    mm/dd yy    RU =    1,706    PREFIX LEN =   76       IDMSDDL           SR0036 SR-036
      hh:mm:ss   BFOR             DATA  LEN =   188       MODIFY RECORD               SEQ # =                621,968
```

PROGRAM Display (Regular View)

The Program Display is used to display database changes effected by particular application programs during specific time periods. The Program Display can be produced in two formats:

- **Full Format**—all record positions are displayed with the changed values highlighted
- **Sparse Format**—only the changed values are displayed.

PROGRAM Display Report Fields (Full Format)

The following is a description of the various fields which make up the PROGRAM Display (Full Format).

Display type and program name.

Starting date/time of the run unit.

RU—Run unit numeric ID.

IMAGE TYPE—Indicates either a before image (BFOR), or an after image (AFTR).

Abort Flag—If run unit (or recovery unit) terminates abnormally, "ABORTED" is displayed following image type.

PREFIX LEN—Length (in bytes) of the prefix portion (pointers) of the database record.

DATA LEN—Length (in bytes) of the data portion of the database record.

Database key, record ID, and record name.

DML VERB—Verb that caused the creation of the before or after image.

PREFIX —Appears unless DATA-ONLY was specified. All pointers are displayed. The pointer position, relative to 1, appears to the left of the database key. If the pointer was modified, an asterisk (*) appears between the pointer position and the database key.

DATA—Five display lines present the character/hexadecimal representation of each record position and any change flags. The CHGS line flags any data change as "A" (added character), "D" (deleted character), or "*" (modified character). The CHAR line presents the EBCDIC character value of each record position. The ZONE line presents the hex equivalent of the zone bits of each record position. The NUMR line presents the hex equivalent of the numeric bits of each record position. The fifth line numbers the character position within the record.

The following example shows the PROGRAM Display (Full Format):

```
ID               RELEASE                  CA IDMS JOURNAL ANALYZER              DATE         TIME         PAGE
                 Rnn.nn                       PROGRAM DISPLAY                   mm/dd/yy     hh:mm:ss       2
                                                IDMSDDDL

**    mm/dd/yy   RU =    1,706    PREFIX LEN =   76            60,196:0025 SR0036 SR-036
      hh:mm:ss   BFOR             DATA  LEN =   188        MODIFY RECORD        SEQ # =              621,261

   PREFIX           1    60,196:0026   2    60,196:0024   3    60,196:0025   4    60,196:0025   5    60,196:0025
                    6    60,196:0025   7    60,196:0025   8    60,196:0025   9    60,196:0025  10    60,196:0025
                   11    60,196:0025  12    60,196:0025  13    60,196:0026  14    60,196:0026  15    60,196:0027
                   16    60,196:0027  17    61,479:0003  18    60,196:0018  19    60,196:0025

   DATA      CHGS
             CHAR      MESSAGE-77                          U  D                                  mm/dd/yy
             ZONE  0B00DCEECCC6FF4444444444444444444444444400000E03C4444444444444444444444444444444444444444FF6FF6FF4444444
             NUMR  0C00452217507700000000000000000000000000040C4000000000000000000000000000000000000000000101251940000000
                   1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95.....

             CHGS
             CHAR        F  mm/dd/yyFULJ002 FULJ002  010322213
             ZONE  444444444C00FF6FF6FFCEDDDFF4CEDDDFF44FFFFFFFFFF00044000044444444444444444444444444444444444444
             NUMR  0000000006001011319464316020643160200010322213F0000000000000000000000000000000000000000000000
                   101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**    mm/dd/yy   RU =    1,706    PREFIX LEN =   76            60,196:0025 SR0036 SR-036
      hh:mm:ss   AFTR             DATA  LEN =   188        MODIFY RECORD        SEQ # =              621,262

   PREFIX           1    60,196:0026   2    60,196:0024   3    60,196:0025   4    60,196:0025   5    60,196:0025
                    6    60,196:0025   7    60,196:0025   8    60,196:0025   9    60,196:0025  10    60,196:0025
                   11    60,196:0025  12    60,196:0025  13    60,196:0026  14    60,196:0026  15    60,196:0027
                   16    60,196:0027  17    61,479:0003  18    60,196:0018  19    60,196:0025

   DATA      CHGS
             CHAR      MESSAGE-77                          U  D                                  mm/dd/yy
             ZONE  0B00DCEECCC6FFF4444444444444444444444444400000E03C4444444444444444444444444444444444444444FF6FF6FF4444444
             NUMR  0C00452217507700000000000000000000000000040C4000000000000000000000000000000000000000000101251940000000
                   1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95.....

             CHGS                                         *   ****
             CHAR        F  mm/dd/yyFULJ002 FULJ002  010524988
             ZONE  444444444C00FF6FF6FFCEDDDFF4CEDDDFF44FFFFFFFFFF00044000044444444444444444444444444444444444444
             NUMR  0000000006001011319464316020643160200010524988F0000000000000000000000000000000000000000000000
                   101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**    mm/dd/yy   RU =    1,706    PREFIX LEN =   56            60,196:0028 SR0083 NAMESYN-083
      hh:mm:ss   BFOR             DATA  LEN =   144        ERASE RECORD ALL     SEQ # =              621,263

   PREFIX           1    60,196:0026   2    60,196:0026   3    60,196:0026   4    60,196:0027   5    60,196:0027
                    6    60,196:0027   7    60,196:0024   8    60,196:0022   9    60,196:0024  10    60,196:0028
                   11    60,196:0028  12    60,196:0028  13    60,196:0028  14    60,196:0028

   DATA      CHGS
             CHAR      MESSAGE-77
             ZONE  0900DCEECCC6FF4444444444444444444444444444444444444444444444444444444444444444444444444444444444
             NUMR  000045221750770000000000000000000000000000000000000000000000000000000000000000000000000 000000000
                   1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95.....
```

PROGRAM Display Report Fields (Sparse Format)

The following is a description of the various fields which make up the PROGRAM Display (Sparse Format).

Display type and program name.

Starting date/time of the run unit.

RU—Run unit numeric ID.

IMAGE TYPE—Indicates either a before image (BFOR), or an after image (AFTR).

Abort Flag—If run unit (or recovery unit) terminates abnormally, "ABORTED" is displayed following image type.

PREFIX LEN—Length (in bytes) of the prefix portion (pointers) of the database record.

DATA LEN—Length (in bytes) of the data portion of the database record.

Database key, record ID, and record name.

DML VERB—Verb that caused the creation of the before or after image.

PREFIX CHANGES—Only pointers which were modified are displayed. The pointer position, relative to 1, appears to the left of the database key. If none of the pointers were modified, *** NONE *** appears.

DATA—Four display lines present the character/hexadecimal representation of each record position whose value has changed. Only those positions that have changed are displayed. The CHAR line presents the EBCDIC character value of each record position. The ZONE line presents the hex equivalent of the zone bits of each record position. The NUMR line presents the hex equivalent of the numeric bits of each record position. The fourth line numbers the character positions within the record. If a record position has been deleted (shortening of a variable-length record), a "D" appears on the ZONE line at the corresponding record position. If the data portion was not changed, *** NONE *** appears in place of the four display lines.

Note: The data portion of a database record will be decompressed if it can be uniquely determined that the record type is compressed by the IDMSCOMP program. NONUNIQ=Y may be required on the PROCESS parameter card.

The following example shows the PROGRAM Display (Sparse Format):

```
ID              RELEASE                 CA IDMS JOURNAL ANALYZER            DATE         TIME         PAGE
                Rnn.nn                      PROGRAM DISPLAY               mm/dd/yy      hh:mm:ss         2
                                               IDMSDDDL

**    mm/dd/yy   RU =    1,706    PREFIX LEN =   76            60,196:0025 SR0036 SR-036
      hh:mm:ss   BFOR             DATA   LEN =  188      MODIFY RECORD        SEQ # =            621,261

   PREFIX  CHANGES    1    60,196:0026   2    60,196:0024   3    60,196:0025   4    60,196:0025   5    60,196:0025
                      6    60,196:0025   7    60,196:0025   8    60,196:0025   9    60,196:0025  10    60,196:0025
                     11    60,196:0025  12    60,196:0025  13    60,196:0026  14    60,196:0026  15    60,196:0027
                     16    60,196:0027  17    61,479:0003  18    60,196:0018  19    60,196:0025

   DATA      CHAR     MESSAGE-77                       U  D                         mm/dd/yy
             ZONE  0B00DCEECCC6FF44444444444444444444444000000E03C44444444444444444444444444444444444FF6FF6FF4444444
             NUMR  0C004522175077000000000000000000000000000040C40000000000000000000000000000000000001012519400000000
                   1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95.....

             CHAR      F  mm/dd/yyFULJO02 FULJ002  010322213
             ZONE  444444444C00FF6FF6FFCEDDDFF4CEDDDFF44FFFFFFFFFF0004400004444444444444444444444444444444444
             NUMR  0000000006001011319464316020643160200010322213F0000000000000000000000000000000000000000000
                   101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**    mm/dd/yy   RU =    1,706    PREFIX LEN =   76            60,196:0025 SR0036 SR-036
      hh:mm:ss   AFTR             DATA   LEN =  188      MODIFY RECORD        SEQ # =            621,262

   PREFIX  CHANGES *** NONE ***

   DATA      CHAR                                5 4988
             ZONE                                F FFFF
             NUMR                                5 4988
                   101...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...

**    mm/dd/yy   RU =    1,706    PREFIX LEN =   56            60,196:0028 SR0083 NAMESYN-083
      hh:mm:ss   BFOR             DATA   LEN =  144      ERASE RECORD ALL     SEQ # =            621,263

   PREFIX  CHANGES    1    60,196:0026   2    60,196:0026   3    60,196:0026   4    60,196:0027   5    60,196:0027
                      6    60,196:0027   7    60,196:0024   8    60,196:0022   9    60,196:0024  10    60,196:0028
                     11    60,196:0028  12    60,196:0028  13    60,196:0028  14    60,196:0028

   DATA      CHAR     MESSAGE-77
             ZONE  0900DCEECCC6FF44444444444444444444444444444444444444444444444444444444444444444444444 444444444444444
             NUMR  000045221750770000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
                   1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95.....

             CHAR             D
             ZONE  044444444400C4444444444444444444444444444444444
             NUMR  0000000001400000000000000000000000000000000000
                   101...5...10...15...20...25...30...35...40...4

**    mm/dd/yy   RU =    1,706    PREFIX LEN =   52            60,196:0024 SR0085 ELEMSYN-085
      hh:mm:ss   BFOR             DATA   LEN =   44      ERASE RECORD ALL     SEQ # =            621,264

   PREFIX  CHANGES    1    60,196:0025   2    60,196:0023   3    60,196:0022   4    60,196:0028   5    60,196:0023
                      6    60,196:0023   7    60,196:0023   8    60,196:0024   9    60,196:0024  10       -NULL-
                     11       -NULL-    12       -NULL-    13    60,196:0024

**    mm/dd/yy   RU =    1,706    PREFIX LEN =   52            60,196:0024 SR0085 ELEMSYN-085
      hh:mm:ss   AFTR             DATA   LEN =   44      ERASE RECORD ALL     SEQ # =            621,265
```

PROGRAM Display (Subschema View)

You can request the PROGRAM Display to provide a program's subschema view of database changes as defined in the data dictionary. The Subschema Display provides PROGRAM Display information in a format that is better suited for the less technical end-user. The data is presented as individual fields, rather than complete records. Changes are paired in a Before/After, side-by-side format. All fields are identified similar to the original subschema definitions, and all values are converted to externally printable formats. Therefore, programmers and/or auditors can examine the Subschema Display with little or no interpretation by a database technician.

This optional subschema view for the PROGRAM Display can be requested for all programs or for selected programs by specifying 'VIEW=SUBSC' on the appropriate DISPLAY parameter.

Note: The record identification portion of the PROGRAM Display is revised for the Subschema View.

As defined in a program's registered subschema, each prefix pointer and each field for every valid record is individually identified and presented in a columnar before/after format. For additions, an AFTER-ONLY image is formatted; for updates, a BEFORE-AFTER pair is formatted side-by-side; and for deletions, a BEFORE-ONLY image is formatted. The display of a record's prefix portion can be optionally suppressed by specifying 'DATA=ONLY' on the DISPLAY parameter.

Prefix pointers are individually identified by pointer position, Owner/Member relationship, set name, and pointer type. The Database Key values are presented in Page:Line formats. When sparse formatting is specified, only the pointers which were changed are displayed. When DATA=ONLY is specified, no pointer information is displayed.

The Subschema Display fields are identified by COBOL level, field name, and field subscript value (if applicable). When sparse formatting is specified, only the elementary items which were changed are displayed along with any preceding group items to ensure non-ambiguous identification. Field values are only formatted for elementary items having (a PICTURE clause). Each item value is automatically converted to a printable character format as necessary. Display numeric (signed or unsigned), binary (COMP) and packed (COMP-3) values are treated as numerical quantities and are zero-suppressed and left-justified. Eight byte binary values are handled as exceptions and are formatted as 2-byte hexadecimal pairs (16 hexadecimal digits). All other non-character data types are also converted to a hexadecimal format along with any fields that do not conform to their defined data types.

The Program Display (Subschema View) can be produced in two formats:

- **Full Format**—all fields are displayed.

- **Sparse Format**—only the changed fields are displayed.

Subschema Display Report Fields (Full Format)

The following is a description of the various fields which make up the Subschema Display (Full Format).

Display type and program name.

RECORD IDENT—Record name.

Record ID.

DATABASE KEY—Database key of the record.

RUN UNIT—Run unit numeric ID.

Starting date/time of the run unit.

Abort Flag—If run unit (or recovery unit) terminates abnormally, "ABORTED" is displayed.

DML VERB—Verb that caused the creation of the before or after image.

Image Type—Image types affected by DML VERB: **AFTER-ONLY; BEFORE-AFTER; BEFORE-ONLY**.

PREFIX—The first 64 pointers are displayed. The following information is formatted for each pointer: the position (relative to 1); Owner or member relationship; set name; pointer type (NEXT, PRIOR, OWNER); and the before and after values of the database key.

DATA—All fields (defined in subschema) are displayed. The following information is formatted for each field: COBOL level number; field name; before/after field values (for elementary items) converted to printable characters.

Subschema Display Report Fields (Sparse Format)

The following is a description of the various fields which make up the Subschema Display (Sparse Format).

Display type and program name.

RECORD IDENT—Record name.

Record ID.

DATABASE KEY—Database key of the record.

RUN UNIT—Run unit numeric ID.

Starting date/time of the run unit.

Abort Flag—If run unit (or recovery unit) terminates abnormally, "ABORTED" is displayed.

DML VERB—Verb that caused the creation of the before or after image.

Image Type—Image types affected by DML VERB: **AFTER-ONLY; BEFORE-AFTER; BEFORE-ONLY**.

PREFIX—The first 64 pointers are processed, and only those that were modified are displayed. The following information is formatted for each pointer: the position (relative to 1); Owner or member relationship; set name; pointer type (NEXT, PRIOR, OWNER); and the before and after values of the database key.

DATA—Only those fields which were modified are displayed. All pertinent group level fields are included for completeness. The following information is formatted for each field: COBOL level number; field name; before/after field values (for elementary items) converted to printable characters.

The following example shows the Subschema Display (Full Format):

```
ID              RELEASE                 CA IDMS JOURNAL ANALYZER           DATE          TIME        PAGE
                Rnn.nn                     PROGRAM DISPLAY               mm/dd/yy      hh:mm:ss         2
                                              IDMSDDDL


      *-------------------IDENTIFICATION----------------------* *-----------BEFORE-----------* *----------AFTER-----------*


**RECORD IDENT: SR-036                           SR0036   SEQ # =           621,261 SEQ # =              621,262
   DATABASE KEY:        60,196:0025
   RUN UNIT   :          1,706  mm/dd/yy  hh:mm:ss
   DML VERB   : MODIFY RECORD               BEFORE-AFTER

   PREFIX     1 MEMBER IN CALC                   NEXT      60,196:0026                   60,196:0026
              2 MEMBER IN CALC                   PRIOR     60,196:0024                   60,196:0024
              3 OWNER OF  SR-USERRCD             NEXT      60,196:0025                   60,196:0025
              4 OWNER OF  SR-USERRCD             PRIOR     60,196:0025                   60,196:0025
              5 OWNER OF  SR-EXPL                NEXT      60,196:0025                   60,196:0025
              6 OWNER OF  SR-EXPL                PRIOR     60,196:0025                   60,196:0025
              7 OWNER OF  SR-IMPL                NEXT      60,196:0025                   60,196:0025
              8 OWNER OF  SR-IMPL                PRIOR     60,196:0025                   60,196:0025
              9 OWNER OF  SR-RCDATTR             NEXT      60,196:0025                   60,196:0025
             10 OWNER OF  SR-RCDATTR             PRIOR     60,196:0025                   60,196:0025
             11 OWNER OF  SR-RCDCMT              NEXT      60,196:0025                   60,196:0025
             12 OWNER OF  SR-RCDCMT              PRIOR     60,196:0025                   60,196:0025
             13 OWNER OF  SR-RCDSYN              NEXT      60,196:0026                   60,196:0026
             14 OWNER OF  SR-RCDSYN              PRIOR     60,196:0026                   60,196:0026
             15 OWNER OF  SR-SDR                 NEXT      60,196:0027                   60,196:0027
             16 OWNER OF  SR-SDR                 PRIOR     60,196:0027                   60,196:0027
             17 MEMBER IN OOAK-SR                NEXT      61,479:0003                   61,479:0003
             18 MEMBER IN OOAK-SR                PRIOR     60,196:0018                   60,196:0018
             19 VARIABLE  FRAGMENT  POINTER      NEXT      60,196:0025                   60,196:0025

   DATA     02 SR-NAM-036                                  MESSAGE-77                    MESSAGE-77
            02 OCCURS-036                                  0                             0
            02 RCD-VERS-036                                228                           228
            02 DLGTH-036                                   60                            60
            02 BUILDER-036                                 D                             D
            02 DESCR-036
            02 DATE-LU-036                                 mm/dd/yy                      mm/dd/yy
            02 RECTYPE-036
            02 REC-FORMAT-036                              F                             F
            02 ALT-PIC-TYPE-036                            0                             0
            02 DATE-CREATED-036                            mm/dd/yy                      mm/dd/yy
            02 PREP-BY-036                                 FULJO02                       FULJO02
            02 REV-BY-036                                  FULJO02                       FULJO02
            02 ENT-TYPE-036
            02 ERR-036                                     0                             0
            02 TIME-LU-036                                 10322213                      10524988
            02 PUB-ACCESS-FLAG-036
            02 FLAG-036
            02 USER-COUNT-036                              0                             0
            02 FILLER
            02 LOGICAL-RECORD-USE-COUNT-036               0                             0
            02 FILLER


**RECORD IDENT: NAMESYN-083                      SR0083   SEQ # =           621,263
   DATABASE KEY:        60,196:0028
   RUN UNIT   :          1,706  mm/dd/yy  hh:mm:ss
   DML VERB   : ERASE RECORD ALL             BEFORE-ONLY
```

The following example shows the Subschema Display (Sparse Format):

```
ID                 RELEASE                  CA IDMS JOURNAL ANALYZER              DATE           TIME        PAGE
                   Rnn.nn                      PROGRAM DISPLAY                   mm/dd/yy       hh:mm:ss       2
                                                IDMSDDDL


     *-------------------IDENTIFICATION----------------------*  *----------BEFORE------------*  *----------AFTER-----------*

  **RECORD IDENT:  SR-036                          SR0036    SEQ # =              621,261 SEQ # =              621,262
    DATABASE KEY:        60,196:0025
    RUN UNIT   :          1,706  mm/dd/yy  hh:mm:ss
    DML VERB   : MODIFY RECORD               BEFORE-AFTER

    PREFIX    *** NO CHANGES ***

    DATA    02 TIME-LU-036                            10322213                    10524988


  **RECORD IDENT:  NAMESYN-083                     SR0083    SEQ # =              621,263
    DATABASE KEY:        60,196:0028
    RUN UNIT   :          1,706  mm/dd/yy  hh:mm:ss
    DML VERB   : ERASE RECORD ALL            BEFORE-ONLY

    PREFIX     1 MEMBER IN RCDSYN-NAMESYN        NEXT       60,196:0026
               2 MEMBER IN RCDSYN-NAMESYN        PRIOR      60,196:0026
               3 MEMBER IN RCDSYN-NAMESYN        OWNER      60,196:0026
               4 MEMBER IN SDR-NAMESYN           NEXT       60,196:0027
               5 MEMBER IN SDR-NAMESYN           PRIOR      60,196:0027
               6 MEMBER IN SDR-NAMESYN           OWNER      60,196:0027
               7 MEMBER IN ELEMSYN-NAMESYN       NEXT       60,196:0024
               8 MEMBER IN ELEMSYN-NAMESYN       PRIOR      60,196:0022
               9 MEMBER IN ELEMSYN-NAMESYN       OWNER      60,196:0024
              10 OWNER OF  NAMESYN-MAPFLD        NEXT       60,196:0028
              11 OWNER OF  NAMESYN-MAPFLD        PRIOR      60,196:0028
              12 OWNER OF  NAMESYN-NAMEDES       NEXT       60,196:0028
              13 OWNER OF  NAMESYN-NAMEDES       PRIOR      60,196:0028
              14 VARIABLE  FRAGMENT  POINTER     NEXT       60,196:0028

    DATA    02 SYN-NAME-083                         MESSAGE-77
            02 RDF-NAM-083
            02 DEPEND-ON-083
            02 NAMESYN-FLAG-083
            02 FILLER
            02 DR-LPOS-083                           1
            02 BUILDER-083                           D
            02 FILLER

  **RECORD IDENT:  ELEMSYN-085                     SR0085    SEQ # =              621,264 SEQ # =              621,265
    DATABASE KEY:        60,196:0024
    RUN UNIT   :          1,706  mm/dd/yy  hh:mm:ss
    DML VERB   : ERASE RECORD ALL            BEFORE-AFTER

    PREFIX    4 OWNER OF  ELEMSYN-NAMESYN        PRIOR      60,196:0028                  60,196:0022


  **RECORD IDENT:  NAMESYN-083                     SR0083    SEQ # =              621,266 SEQ # =              621,267
    DATABASE KEY:        60,196:0022
    RUN UNIT   :          1,706  mm/dd/yy  hh:mm:ss
    DML VERB   : ERASE RECORD ALL            BEFORE-AFTER
```

Audit Report

The third class of output generated by CA IDMS Journal Analyzer is the Audit Report. This report contains the informative, error, and processing messages generated by CA IDMS Journal Analyzer, and provides a summary of all processing.

Report Fields

The following is a description of the various fields that make up the AUDIT Report.

Report title.

Informative messages.

PROCESS parameters.

Error Messages.

Valid parameters.

Extracting phase.

Report phase.

Processing messages.

The following example shows the AUDIT Report:

```
ID              RELEASE              CA IDMS JOURNAL ANALYZER          DATE        TIME        PAGE
                Rnn.nn                    AUDIT REPORT               mm/dd/yy    hh:mm:ss        2

  I027 - INPUT PARAMETER STATEMENT              P=ALL        ,CONT=N,NONUNIQ=Y ,RHDCRUAL=Y ,IDMS=Y ,ABEND=N,FORMAT=FULL
  I001 - PROCESSING OPTIONS ...         PROCESS = EXTRACTS/REPORTS/DISPLAYS
  I001 - PROCESSING OPTIONS ...                DISCONTINUE IF ERRORS
  I001 - PROCESSING OPTIONS ...                DISPLAY FORMAT = FULL
  I001 - PROCESSING OPTIONS ...                PROCESS RHDCRUAL RUN UNITS
  I001 - PROCESSING OPTIONS ...                PROCESS IDMS.... PROGRAMS
  I001 - PROCESSING OPTIONS ...                ALLOW NON-UNIQUE SCHEMAS
  I001 - PROCESSING OPTIONS ...                NO USER DECOMPRESS MODULE SPECIFIED
  I001 - PROCESSING OPTIONS ...                RETURN CODE OF 16 IF SERIOUS ERROR
  I027 - INPUT PARAMETER STATEMENT        R=ACTV,    A   LL=Y, INTVL=120
  I027 - INPUT PARAMETER STATEMENT        R=PROG,    N   AME=IDMSDDDL,  LEVEL=DETAIL
  I027 - INPUT PARAMETER STATEMENT        R=PROG,    N   AME=IDMSDDDL,  LEVEL=SUMMARY , HILIGHTS=Y
  I027 - INPUT PARAMETER STATEMENT        R=CHRONO,    ALL=Y,
  I027 - INPUT PARAMETER STATEMENT                     START=1025941030,STOP=1025941200
  I027 - INPUT PARAMETER STATEMENT        R=ABORTC, A   LL=Y
  I027 - INPUT PARAMETER STATEMENT        R=HI-SUM, A   LL=Y,  LEVEL=PROGRAM
  I027 - INPUT PARAMETER STATEMENT                     START=1025941030,STOP=1025941200
  I027 - INPUT PARAMETER STATEMENT        R=HI-ONL, A   LL=Y,
  I027 - INPUT PARAMETER STATEMENT                     START=1025941030,STOP=1025941200
  I027 - INPUT PARAMETER STATEMENT        R=HI-BPU, A   LL=Y,
  I027 - INPUT PARAMETER STATEMENT                     START=1025941030,STOP=1025941200
   I027 - INPUT PARAMETER STATEMENT          R=RANK,  RANKWHAT=PGIO,    RANKHOW=HIGH, RANK# = 50,RANKV=ABSOLUTE,
  I027 - INPUT PARAMETER STATEMENT                     START=1025941030,STOP=1025941200
  I027 - INPUT PARAMETER STATEMENT        R=RANK,    R  ANKWHAY=PG-RATIO, RANKHOW=HIGH, RANK# = 50,RANKV=MEDIAN,
  I027 - INPUT PARAMETER STATEMENT                     START=1025941030,STOP=1025941200
  I027 - INPUT PARAMETER STATEMENT        R=RANK,    R  ANKWHAT=PGIO,    RANKHOW=HIGH, RANK# = 50,RANKV=MEAN,
  I027 - INPUT PARAMETER STATEMENT                     START=1025941030,STOP=1025941200
  I027 - INPUT PARAMETER STATEMENT        R=RANK,    R  ANKWHAY=%ABORT,  RANKHOW=HIGH, RANK# = 50,RANKV=ABSOLUTE,
  I027 - INPUT PARAMETER STATEMENT                     START=1025941030,STOP=1025941200

  I004 - EXTRACT RECORDS WILL BE CREATED FOR ...      ACTIVITY
  I005 - EXTRACT RECORDS WILL BE SUPPRESSED FOR ...   DATABASE/AREA
  I005 - EXTRACT RECORDS WILL BE SUPPRESSED FOR ...   DATABASE/RECORD
  I004 - EXTRACT RECORDS WILL BE CREATED FOR ...      PROGRAM
  I004 - EXTRACT RECORDS WILL BE CREATED FOR ...      CHRONO-EVENT
  I004 - EXTRACT RECORDS WILL BE CREATED FOR ...      ABORT-COINCIDENCE
  I004 - EXTRACT RECORDS WILL BE CREATED FOR ...      MANAGEMENT
ID              RELEASE              CA IDMS JOURNAL ANALYZER          DATE        TIME        PAGE
                Rnn.nn                    AUDIT REPORT               mm/dd/yy    hh:mm:ss        3

  I009 - EXTRACT PROCESSING                    STARTED    mm/dd/yy  hhmmss
  I010 - JSEG RECORD - DATE, TIME, # ELEMENTS  mm/dd/yy hh:mm:ss     0
  I011 - ARCHIVE RECORDS BYPASSED TO FIRST BGIN         4,699    mm/dd/yy  hh:mm:ss
  I012 - FIRST AND LAST TIME RECORDS           mm/dd/yy hh:mm:ss      mm/dd/yy  hh:mm:ss
  I013 - TOTAL RUN UNITS FORCED TO ABRT                 2
  I014 - ARCHIVE RECORDS BYPASSED AFTER FIRST BGIN      0
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    ABRT              9
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    AFTR         90,448
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    AREA             60
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    BFOR         90,455
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    BGIN             43
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    COMT            137
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    ENDJ             33
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    JSEG              1
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    TIME          9,993
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    DSEG              0
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    RTSV              0
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    CKPT              0
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    JHDA              0
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    JHDR              0
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    JHDS              0
  I015 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE ...    USER              0
  I016 - TOTAL ARCHIVE RECORDS PROCESSED                ****        191,179
  I017 - EXTRACT RECORDS CREATED FOR ........           ACTIVITY        191
  I017 - EXTRACT RECORDS CREATED FOR ........           PROGRAM         249
  I017 - EXTRACT RECORDS CREATED FOR ........           CHRONO-EVENT    281
  I017 - EXTRACT RECORDS CREATED FOR ........           ABORT-COINCIDENCE  9
  I017 - EXTRACT RECORDS CREATED FOR ........           MANAGEMENT      191
  I018 - TOTAL EXTRACT RECORDS CREATED                  ****            921
  I019 - DISPLAY RECORDS CREATED FOR ........           DISPLAY-RECORD    0
```

```
   I019 - DISPLAY RECORDS CREATED FOR ........        DISPLAY-DBKEY                 0
   I019 - DISPLAY RECORDS CREATED FOR ........        DISPLAY-PROGRAM               0
   I020 - TOTAL DISPLAY RECORDS CREATED               ****                          0
   I021 - TOTAL RUN UNITS PROCESSED                             43
   I022 - MAXIMUM CONCURRENT RUN UNITS ENCOUNTERED               2
   I099 - EXTRACT PROCESSING                          ENDED    mm/dd/yy  hhmmss
ID              RELEASE              CA IDMS JOURNAL ANALYZER            DATE           TIME        PAGE
                Rnn.nn                    AUDIT REPORT                 mm/dd/yy      hh:mm:ss        4

   I023 - REPORT PROCESSING                           STARTED    mm/dd/yy  hhmmss
   I024 - REPORTS WILL BE CREATED FOR ...             ACTIVITY REPORT - ALL       120  8107010000 - 9912312359
   I024 - REPORTS WILL BE CREATED FOR ...             EVENT REPORT - ALL               9410251030 - 9410251200
   I024 - REPORTS WILL BE CREATED FOR ...             ABORT COINCIDE RPT - ALL   1,400  8107010000 - 9912312359
   I024 - REPORTS WILL BE CREATED FOR ...             PROGRAM                          8107010000 - 9912312359
   I025 -                                                IDMSDDDL  PROGRAM DETAILS
   I024 - REPORTS WILL BE CREATED FOR ...             PROGRAM                          8107010000 - 9912312359
   I025 -                                                IDMSDDDL  PROGRAM SUMMARIES     LOW-HIGH
   I024 - REPORTS WILL BE CREATED FOR ...             MANAGEMENT PROGRAM SUMMRY        9410251030 - 9410251200
   I024 - REPORTS WILL BE CREATED FOR ...             MANAGEMENT ONLINE RESPNSE        9410251030 - 9410251200
   I024 - REPORTS WILL BE CREATED FOR ...             MANAGEMENT BUFFER UTILIZE        9410251030 - 9410251200
   I024 - REPORTS WILL BE CREATED FOR ...             MANAGEMENT RANKING               9410251030 - 9410251200
   I025 -                                                50 SYS ITEM #09 HIGHEST                        ABSOLUTE
   I024 - REPORTS WILL BE CREATED FOR ...             MANAGEMENT RANKING               9410251030 - 9410251200
   I025 -                                                50 SYS ITEM #11 HIGHEST                          MEDIAN
   I024 - REPORTS WILL BE CREATED FOR ...             MANAGEMENT RANKING               9410251030 - 9410251200
   I025 -                                                50 SYS ITEM #09 HIGHEST                            MEAN
   I024 - REPORTS WILL BE CREATED FOR ...             MANAGEMENT RANKING               9410251030 - 9410251200
   I025 -                                                50 SYS ITEM #04 HIGHEST                        ABSOLUTE
   I023 - REPORT PROCESSING                           ENDED      mm/dd/yy  hhmmss
```

Chapter 4: Parameters

This chapter of the user guide describes the parameters coded by a CA IDMS Journal Analyzer user to produce the Journal Reports and Journal Displays. There are seven primary parameter statements:

- PROCESS
- SUPPRESS
- REPORT
- BYPASS
- DISPLAY
- DLIMITS
- DSUPPS

This section contains the following topics:

CA IDMS Journal Analyzer

You have extensive control over CA IDMS Journal Analyzer processing through the use of six parameter statements:

- PROCESS
- SUPPRESS
- REPORT
- DISPLAY
- DLIMITS
- DSUPPS

PROCESS

The PROCESS statement is mandatory -- one **must** be present for each execution of CA IDMS Journal Analyzer. The PROCESS statement indicates the input(s) that must be provided, and the type of output to be produced during a single execution of CA IDMS Journal Analyzer.

SUPPRESS

The SUPPRESS statement is optional, used to inhibit the automatic generation of extract records for a specific Journal Report type.

REPORT

The REPORT statement specifies the Journal Report type to be printed. Multiple REPORT requests can be specified in a single execution of CA IDMS Journal Analyzer.

BYPASS

The BYPASS Parameter is used to define a specific Program Name that will be bypassed during Data Extraction and Reporting.

DISPLAY

The DISPLAY specifies the Journal Display type to be printed. It is also used to select individual before and after images of database records from the Archive Journal file. Records meeting the selection criteria are printed on the display. Multiple DISPLAY requests can be specified in a single execution of CA IDMS Journal Analyzer.

DLIMITS

The DLIMITS statement is used in conjunction with the DISPLAY statement in order to limit the quantity of display output. The DLIMITS statement limits display output using the following criteria:

- Run unit type

- Run unit ID

- Number of run units

- Number of before/after sets

- Sampling every Nth before/after set

- Certain combinations of above criteria

DSUPPS

The DSUPPS statement is used in conjunction with the DISPLAY parameter to suppress the display output for selected record IDs. The DSUPPS parameter affects *only* the PROGRAM Display.

The following examples demonstrate the rules that you need to adhere to relating to notation conventions:

Example: Keywords appear in UPPERCASE

```
:display. PROCESS
```

The required portion of each keyword is underlined. You can omit the portion of a keyword that is not underlined without altering the meaning of the statement.

Example: Variables appear in lowercase

```
:display. REPORT = report type
```

You must substitute an appropriate value for each variable.

Example: Braces enclose two or more options

```
          / ALL      \
          | REPORTS  |
PROCESS = < DISPLAYS >
          \ EXTRACTS /
```

You must select only one of the options.

Example: Square brackets indicate optional clauses

```
:display. [,DATE=start-date]
```

The following are the rules that you need to adhere to relating to parameter syntax:

Order of Parameter Statements

Enter the PROCESS statement first. You can enter the other parameter statements in any order.

Continuing a Parameter Statement

To continue a parameter statement onto the next record, key in a trailing comma. Do not split a keyword between two records.

Entering Blanks in Parameter Statements

You can enter blanks (character spaces) to separate keywords and improve readability in a parameter statement without affecting processing. When you include blanks in a value field, you must enclose the entire field in single quotes.

Entering Parameter Statements

On an 80-character input record, enter all parameter syntax between columns 1 and 72 (inclusive).

Comments

Enter an asterisk (*) in column 1 to indicate a comment.

Series of Variables

When entering values for a series of variables, separate the values with commas and enclose the entire series with parentheses.

The remainder of this describes the parameter formats and syntax, as well as all the fields associated with each parameter. You can examples illustrating the use of the parameters in .

PROCESS Parameter

The PROCESS parameter specifies the input required, and the output(s) to be created by this execution of CA IDMS Journal Analyzer. It also indicates whether processing is to be discontinued if a parameter error is detected. A single valid PROCESS parameter is required as the first request in the Parameter file.

The PROCESS parameter syntax is as follows.

```
            / ALL        \    ┌            / Y \ ┐
 PROCESS =  < REPORTS   >     | ,CONT =          |
            | DISPLAYS  |     └            \ N / ┘
            \ EXTRACTS  /

┌            / FULL     \ ┐
| ,FORMAT =               |
└            \ SPARSE  / ┘

┌             / Y \ ┐     ┌             / Y \ ┐
| ,RHDCRUAL =       |     | ,IDMSXXXX =       |
└             \ N / ┘     └             \ N / ┘

┌            / Y \ ┐
| ,NONUNIQ =       |     ┌ ,USERDCOM = procedure name ┐
└            \ N / ┘     └                            ┘

┌           / Y \ ┐
| ,ABEND =        |
└           \ N / ┘
| ,UTC           |
```

where:

```
            / ALL        \
 PROCESS =  < REPORTS   >
            | DISPLAYS  |
            \ EXTRACTS  /
```

Identifies the type of processing to be performed by CA IDMS Journal Analyzer. You can use one of four options to define the type of processing:

ALL - This option directs CA IDMS Journal Analyzer to create an Extract file and any Journal Reports and Journal Displays requested by appropriate parameters.

REPORTS - This option indicates that an Extract file is to be input and that only Journal Reports are to be produced.

Note: An Extract file must be input to CA IDMS Journal Analyzer when the REPORTS option is specified.

DISPLAYS - this option indicates that an Archive Journal is input and that journal displays are to be created. No Extract file creation is performed, and no reports are produced.

EXTRACTS - This option indicates that only an Extract file is to be created (no journal displays, and no reports are produced). Input is one or more Archive Journal files.

```
┌          / Y \  ┐
|  ,CONT =        |
└          \ N /  ┘
```

Indicates whether processing should continue if parameter errors are detected.

Y - Indicates that processing is to continue.

N - Indicates that processing is to terminate. This option is the default value.

Note: Blanks are not a valid option for this parameter.

```
┌           / FULL  \  ┐
|  ,FORMAT = <        >  |
└           \ SPARSE /  ┘
```

Designates the format of the journal displays.

FULL - Indicates that all record positions are to be displayed with the changed values highlighted.

Note: No highlighting occurs for SUBSCHEMA DISPLAYS.

SPARSE - indicates that only the changed values are to be displayed. This option is the default value.

```
┌            / Y \  ┐
|  ,RHDCRUAL =      |
└            \ N /  ┘
```

Allows extract and display records to be produced for run units whose program name is **Y** - causes the extract and display records to be produced.

N - Indicates that the extract and display records are not required. This option is the default value.

Note: Blanks are not a valid option for this parameter.

```
┌            / Y \ ┐
|  ,IDMSSXXXX =      |
└            \ N /  ┘
```

Allows extract and display records to be produced for run units whose program name begins with IDMS.

Y - Causes the extract and display records to be produced.

N - Indicates that the extract and display records are not required. This option is the default value.

Note: Blanks are not a valid option for this parameter.

```
┌        / Y \ ┐
|  ,NONUNIQ =     |
└        \ N / ┘
```

Specifies the action to be taken when a record id is not uniquely defined in the data dictionary (is described in multiple schemas).

Y - Causes only the first description for the record id to be processed.

N - Causes only the first description for the record id to be processed, prevents the record from being decompressed if it is compressed, and causes an error message (***NON-UNIQUE RECORD TYPE***) to replace the record name if multiple record descriptions are encountered for a record id. This option is the default value.

Note: Blanks are not a valid option for this parameter.

`  [ ,USERDCOM = procedure name ]`

Designates the database procedure name of a user-written decompression routine for Journal Displays. This routine, substitutes for the CA IDMS supplied module IDMSDCOM, and must not issue any CA IDMS Central Version macros such as #GETSTG and #FREESTG. If IDMSDCOM is replaced with a user version of the same name, then USERDCOM = IDMSDCOM must be entered. If the compressed version of the database record is to be retained for displays, then a 'dummy' procedure name must be specified (e.g., USERDCOM = NONE).

Note: If your decompression routine requires that the valid subschema name be placed in the Applications Control Block, then the programs must be registered to their subschemas.

```
┌        / Y \  ┐
|   ABEND =     |
└        \ N /  ┘
```

Specifies that upon certain processing errors CA IDMS Journal Analyzer will either produce an operation exception abend, or that it will terminate with a return code of 16.

Y - causes termination with an operation exception.

N - causes termination with a return code of 16. This option is the default value.

Note: Blanks are not a valid option for this parameter.

| UTC |

Specifies that the journal record times on all reports and displays are shown in UTC time. By default all journal record times are shown in local time.

SUPPRESS Parameter

The SUPPRESS parameter is used to inhibit the automatic generation of extract records for a specific Journal Report type. A report cannot be produced if that report type has been suppressed. A SUPPRESS parameter is not required to suppress a Journal Display because the absence of a valid DISPLAY parameter effectively suppresses the production of the display.

Note: The use of the SUPPRESS parameter can influence the operational efficiency of CA IDMS Journal Analyzer, by reducing the volume of data written to the EXTRACT file. The SUPPRESS parameter syntax is as follows.

```
            / ACTIVITY          \
            | PROGRAM           |
SUPPRESS = < CHRONO-EVENT       >
            | ABORT-COINCIDENCE |
            | MANAGEMENT         |
            | ALL               |
            \ #n                /
```

where:

SUPPRESS =

indicates the Journal Report type whose extract records are to be suppressed.

Note: The SUPPRESS parameter has no default value.

ALL - indicates that all Journal Report types will be suppressed.

The **#n** operand is used to suppress multiple journal report types.

- **#1** - suppresses all Journal Reports except MANAGEMENT.

- **#2** - suppresses all Journal Reports except PROGRAM and CHRONO-EVENT.

- **#3 or #4** - suppresses all Journal Reports except ACTIVITY, ABORT-COINCIDENCE, and MANAGEMENT.

- **#4** - suppresses all Journal Reports except ACTIVITY, DATABASE/RECORD, ABORT-COINCIDENCE, and MANAGEMENT.

REPORT Parameter

The REPORT parameter specifies the Journal Report type to be printed, and the criteria by which to select extract records for the report. It is possible to define multiple selection criteria for a particular report type by submitting multiple REPORT parameters for that report type. The only restrictions imposed on multiple selection criteria for a given report type are that the report options be identical, and that the time periods do not overlap. However, the time periods can differ between the different Journal Report types.

Note: Up to twenty system output requests (REPORT and/or DISPLAY parameters) can be specified per program run. Additionally, up to twenty requests for Management Ranking (REPORT=RANK) can be specified.

The REPORT parameter contains keywords common to all report types and some that are specific to a report type. The common REPORT keywords are described first, followed by the specific keywords by report type.

Common Syntax

The common REPORT parameter syntax is as follows.

```
REPORT = report type [ ,ALL =   Y ]
```

```
[ ,START = start date/time ]
```

```
[ ,STOP = stop date/time ] [ ,INTVL = length ]
```

where:

REPORT = report type

specifies the Journal Report type to be printed. The values for report type are described with specific keywords for a particular report (see the specific report types in this section).

[,ALL =   Y]

specifies whether extract records for a particular report type, within a designated time period, are to be included in the production of the Journal Report.

Y - causes all extract records to be processed. This option will override certain selection criteria of several report types.

[,START = start date/time]

defines the start of a selection time period for a single REPORT request. If this keyword is omitted, the assumed value for the start date is taken from the first TIME record on the input file, and for start time is 0000.

start date/time - this value must be specified in the MMDDYYHHMM format, where MMDDYY is the Gregorian date and HHMM is the time (24 hr. clock)

Note: Run units are associated with their initiation time (BGIN) and not their termination time (ENDJ, ABRT). Reports will show all selected activity for run units that begin during the selection time period.

[,STOP = stop date/time]

defines the end of a selection time period for a single REPORT request. If this keyword is omitted, the assumed value is 1231992359.

stop date/time - this value must be specified in the MMDDYYHHMM format, where MMDDYY is the Gregorian date and HHMM is the time (24 hr. clock).

[,*I*NTVL = length]

defines the constant length (in minutes) by which the selection time period is to be divided. If this keyword is omitted, the time period is not divided.

length - this value must be specified in the MMMMM (minutes) format. It is not necessary to include leading zeros.

Note: It is recommended that a START keyword accompany the use of the INTVL keyword.

ACTIVITY Report

The following is the REPORT parameter syntax for designating an ACTIVITY report.

Note: The following syntax contains all the keywords which can be used for designating this report. However, only the keywords not previously defined will be described in detail.

```
                 /        / Y \ \
 REPORT = ACTV           | ,SELECT =     |
                 <        \ N / >
                 | ,ALL = Y       |
                 \              /
```

[,*START* = start date/time]

[,*STOP* = stop date/time]

[,*I*NTVL = length]

where:

*R*EPORT **=** *ACTV* - specifies the Journal Report type to be printed.

ACTV - indicates that an ACTIVITY report is to be printed.

```
/                   / Y \   \
<  SELECT =                >
\                   \ N /   /
```

used when the user submits multiple requests for ACTIVITY reports for several distinct time periods. This keyword is mutually exclusive from the ALL keyword.

Y - used when the definition of multiple time periods is required (i.e., multiple REPORT = ACTV parameters).

N - indicates that all extract records are to be produced. As a result, it is not necessary to include the SELECT keyword phrase.

Note: Blanks are not a valid option for this parameter.

PROGRAM Report

The following is the REPORT parameter syntax for designating a PROGRAM report.

Note: The following syntax contains all the keywords which can be used for designating this report. However, only the keywords not previously defined will be described in detail.

*R*EPORT *= PROG*

```
/ ,NAME = name  \
<              >
\ ,ALL = Y    /
```

```
     / DETAIL   ┌      / Y \ ┐ \
,LEVEL = < SUMMARY  |,HILITES =    | >
     \ SYSTEM  └      \ N / ┘ /
```

[,*START* **= start date/time]**

[,*STOP* **= stop date/time]**

[,*I*NTRVL **= length]**

where:

*R*EPORT *= PROG*

specifies the Journal Report type to be printed.

PROG - indicates that a PROGRAM report is to be printed.

,*NAME* **= name**

allows the user to select a program by name. This keyword is mutually exclusive from the ALL keyword.

name - this field specifies the name of the selected program.

Note: If the first character of the name field is an asterisk (*), all programs whose names begin with the remaining characters of the name field will qualify for reporting. For example, if NAME=*ABC, all programs whose names begin with ABC will be reported.

```
      / DETAIL   \
,LEVEL = < SUMMARY  >
      \ SYSTEM   /
```

specifies the level of reporting.

Note: There is no default value for the LEVEL keyword.

DETAIL - indicates that program details (run units in time-wise sequence) are required. In addition, program summaries and a system summary are produced for each time interval.

SUMMARY - indicates that program summaries are required. In addition, a system summary is produced for each time interval.

SYSTEM - indicates that only system summaries are produced for each time interval. A grand summary is produced if multiple intervals are reported.

```
      / Y \
,HILITES =
      \ N /
```

used to request the highlighting of the run units with the lowest and highest durations. This keyword is honored only when the level of reporting begins with program summaries (LEVEL = SUMMARY).

Y - causes program highlights to be produced with the program summaries.

N - indicates that no program highlights are required.

Note: Blanks are not a valid option for this parameter.

CHRONOLOGICAL EVENT Report

The following is the REPORT parameter syntax for designating a CHRONOLOGICAL EVENT report.

Note: The following syntax contains all the keywords which can be used for designating this report. However, only the keywords not previously defined will be described in detail.

```
REPORT = CHRONO  /       / Y \  \
          | ,SELECT =      |
          <        \ N /  >
          | ,ALL = Y      |
          \              /
```

[,*START* = start date/time]

[,*STOP* = stop date/time]

where:

*R***EPORT = *CHRONO*

specifies the Journal Report type to be printed.

CHRONO - indicates that a CHRONOLOGICAL EVENT report is to be printed.

```
        / Y \
,SELECT =
        \ N /
```

used when submitting multiple requests for CHRONOLOGICAL EVENT reports for several distinct time periods. This keyword is mutually exclusive from the ALL keyword.

Y - used when the definition of multiple time periods is required (multiple REPORT = CHRONO parameters).

N - indicates that all extract records are to be processed. Therefore, it is not necessary to include the SELECT keyword phrase.

Note: Blanks are not a valid option for this parameter.

ABORT COINCIDENCE Report

The following is the REPORT parameter syntax for designating an ABORT COINCIDENCE report.

Note: The following syntax contains all the keywords which can be used for designating this report. However, only the keywords not previously defined will be described in detail.

```
REPORT = ABORTC /         / Y \ \
           | ,SELECT =    |
           <        \ N /  >
           | ,ALL = Y      |
           \              /
```

[,*START* = start date/time]

[,*STOP* = stop date/time]

where:

*R***EPORT** = *ABORTC*

specifies the Journal Report type to be printed.

ABORTC - indicates that an ABORT COINCIDENCE report is to be printed.

```
     / Y \
,SELECT =
     \ N /
```

used to submit multiple requests for ABORT COINCIDENCE reports for several distinct time periods. This keyword is mutually exclusive from the ALL keyword.

Note: A report interval of INTVL = 1440 is always assumed.

Y - used when the definition of multiple time periods is required.

N - indicates that all extract records are to be processed. Therefore, it is *not* necessary to include this keyword phrase.

Note: Blanks are not a valid option for this parameter.

MANAGEMENT HIGHLIGHT Reports

The following are the REPORT parameter syntaxes for designating the various MANAGEMENT HIGHLIGHT reports.

Note: The following syntax contains all the keywords which can be used for designating this report. However, only the keywords not previously defined will be described in detail.

Selection time periods specified for MANAGEMENT HIGHLIGHT reports must not overlap. Also, all such reports must be for the same INTVL.

```
REPORT = HI-SUM, ┌        / PROGRAM \ ┐
                 | ,LEVEL = < SYSTEM  > |
                 |         \ GRAND   / |
                 └                     ┘
```

[,*START* = start date/time]

[,*STOP* = stop date/time]

[,*INTVL* = length]

where:

*R*EPORT *= HI-SUM*

specifies the Journal Report type to be printed.

HI-SUM - indicates that a MANAGEMENT HIGHLIGHT/ SUMMARIES report is to be printed.

```
        / PROGRAM \
,LEVEL = < SYSTEM  >
        \ GRAND   /
```

specifies the level of reporting.

PROGRAM - indicates accumulation for each program in a time interval.

SYSTEM - indicates accumulation for a time interval.

GRAND - indicates accumulation of all system summaries whenever multiple time intervals are reported. This option is the default value.

Online Response Time

*R*EPORT = *HI-ONL*

[,*START* = start date/time]

[,*STOP* = stop date/time]

[,*I*NTVL = length]

where:

*R***EPORT =** *HI-ONL*

specifies the Journal Report type to be printed.

HI-ONL - indicates that a MANAGEMENT HIGHLIGHT/ ONLINE RESPONSE TIME report is to be printed.

Note: Regardless of what you specify, the report is produced as though start time is 0000, stop time is 2359, and INTVL=1440.

Buffer Pool Utilization

*R*EPORT = *HI-BPU*

[,*START* = start date/time]

[,*STOP* = stop date/time]

[,*I*NTVL = length]

where:

*R***EPORT =** *HI-BPU*

specifies the Journal Report type to be printed.

HI-BPU - indicates that a MANAGEMENT HIGHLIGHT/BUFFER POOL UTILIZATION report is to be printed.

Note: Regardless of what you specify, the report is produced as though start time is 0000, stop time is 2359, and INTVL=1440.

MANAGEMENT RANKING Report

The following is the REPORT parameter syntax for designating the MANAGEMENT RANKING report.

Up to twenty requests for Management Ranking reports can be specified in a single run of CA IDMS Journal Analyzer.

Note: The following syntax contains all the keywords which are used for designating this report. However, only the keywords not previously defined will be described in detail.

```
REPORT = RANK [ ,RANK# = number of items ]


 ┌         /ONL\ ┐
 | ,RANKPROG =  <BTC>  |
 └         \SYS/ ┘


/ ,RANKWHAT = item  \

\ ,RANKITEM  = nn    /


        /       \
        | LOW      |
        | HIGH     |
        | LT: value |
,RANKHOW = < LE: value >
        | GT: value |
        | GE: value |
        \        /


 ┌        / MEAN     \ ┐
 | ,RANKVALU  = < MEDIAN   > |
 └        \ ABSOLUTE / ┘


[ ,START = start date/time ]

[ ,STOP = stop date/time ]

[ ,INTVL = length ]
```

where:

REPORT = *RANK*

indicates that a MANAGEMENT RANKING report is to be printed.

, *RANK#* = number of items

indicates the number of items to be ranked. The maximum number is 50. The default value is 20.

```
      /ONL \
,RANKPROG = <BTC >
      \SYS /
```

indicates the type of program to be used in the ranking.

ONL - indicates that only ONLINE programs are to be ranked.

BTC - indicates that only BATCH programs are to be ranked.

SYS - indicates that ONLINE and BATCH programs are to be ranked. This option is the default value.

, *RANKW***HAT = item**

specifies the attribute to be ranked in the report. This keyword is mutually exclusive from the RANKITEM keyword. There is no default value.

, *RANKI***TEM = nn**

specifies a numeric identifier (1 to 13) for the attribute to be ranked. This keyword is mutually exclusive from the RANKWHAT keyword. There is no default value.

The following example shows Management Ranking Report Attributes:

```
RANKWHAT    RANKITEM   ATTRIBUTE

#RU        1    #RUN UNITS (#BGIN)
#SUCCESS   2    #SUCCESSFUL (#ENDJ)
#ABORT     3    #ABORTED (#ABRT)
%ABORT     4    %ABORTED (#ABRT/#BGIN)
DURATION   5    DURATION
REC-UPD    6    RECORDS UPDATED
PG-READ    7    PAGES READ
PG-WRITTEN 8    PAGES WRITTEN
PG-10      9    PAGES WRITTEN + PAGES READ (TOTAL I/O'S)
LOCK-REQ   10    LOCKS REQUESTED
PG-RATIO   11    PAGES REQUESTED/PAGES READ
CALC-RATIO 12    CALC RECORDS OVERFLOW/
               RECORDS ON HOME PAGE
VIA-RATIO  13    VIA RECORDS OVERFLOW/
               RECORDS ON OWNER PAGE
```

```
         / LOW      \
         | HIGH     |
         | LT:value  |
,RANKHOW = < LE:value   >
         | GT:value  |
         \ GE:value  /
```

specifies how the attribute is to be ranked.

LOW - the attribute will be ranked from its lowest value in an ascending order.

HIGH - the attribute will be ranked from its highest value in a descending order.

LT:value - the attribute will be ranked from a point less than the specified value in ascending order.

LE:value - the attribute will be ranked from a point less than or equal to the specified value in ascending order.

GT:value - the attribute will be ranked from a point greater than the specified value in ascending order.

GE:value - the attribute will be ranked from a point greater than or equal to the specified value in ascending order.

Note: If RANKITEM = 1, 2, 3, 4 or RANKVALU = MEAN or MEDIAN, then RANKHOW will default to HIGH if anything other than LOW is specified.

The specified values for LT, LE, GT, and GE must include two (2) decimal positions when ranking durations or ratios (e.g., duration of 5 seconds is 500; a ratio of 3.14 is 314).

Note: There is no default value for the RANKHOW operand.

```
           / MEAN     \

,RANKVALU = < MEDIAN    >

           \ ABSOLUTE /
```

specifies the value type of the attribute to be ranked.

MEAN - indicates an average value for all executions of the ranked program.

MEDIAN - indicates a middle value for all executions of the ranked program.

ABSOLUTE - indicates a value from a single execution of the ranked program. This option is the default value.

Note: If RANKITEM = 1, 2, 3, or 4, then RANKVALU must be specified as ABSOLUTE.

BYPASS Parameter

The BYPASS Parameter is used to define a specific Program Name that will be bypassed during Data Extraction and Reporting.

Each BYPASS parameter identifies one such program. Up to ten BYPASS Parameters can be specified as follows:

BYPASS = < Program name >

DISPLAY Parameter

The DISPLAY parameter specifies the criteria by which the before and after images of database records are selected from the Archive Journal file. For the archive records meeting the selection criteria, display records are created and passed to the DISPLAY phase for printing. It is possible to define multiple selection criteria for a particular display type by submitting multiple DISPLAY parameters for that display type.

Note: Up to twenty system output requests (REPORT and/or DISPLAY parameters) can be specified per program run. Additionally, up to twenty requests for Management Ranking reports (REPORT=RANK) can be specified.

The DISPLAY parameter contains keywords common to all display types and some which are specific to a display type. The common DISPLAY keywords are described first, followed by the specific display type keywords.

The DISPLAY parameter syntax is as follows.

 *D*ISPLAY = display type ,*ALL* = Y

 ,*START* = start date/time

 ,*STOP* = stop date/time

where:

DISPLAY = display type

specifies the Journal Display type to be printed. The values for display type are described with the specific keywords for a particular display (see specific display types in this section).

,ALL = Y

indicates whether all display records for a particular display type are to be included in the production of the Journal Display.

Y - causes start/stop to be ignored, and all display records to be processed.

,START **= start date/time**

defines the start of a selection time period for a single DISPLAY request. If this keyword is omitted, the assumed value is 0701810000. This keyword is mutually exclusive from the ALL keyword for PROGRAM displays.

start date/time - this value must be specified in the MMDDYYHHMM format, where MMDDYY is the Gregorian date and HHMM is the time (24 hr. clock).

Note: Run units are associated with their initiation time (BGIN) and not their termination time (ENDJ, ABRT).

STOP **= stop date/time**

defines the end of a selection time period for a single DISPLAY request. If this keyword is omitted, the assumed value is 1231992359. This keyword is mutually exclusive from the ALL keyword for PROGRAM displays.

stop date/time - this value must be specified in the MMDDYYHHMM format, where MMDDYY is the Gregorian date and HHMM is the time (24 hr. clock).

Note: During DISPLAY processing, the data dictionary is navigated to determine the characteristics of the data records to be displayed. This information is obtained by relating schemas with their associated schema records. Only the highest version schema number for any given schema is processed. Therefore, you must ensure that the definitions in the highest version schema number for a given schema match the data contained in the actual archive journal records.

RECORD Display

The following is the DISPLAY parameter syntax designating a RECORD display.

Note: The following syntax contains all the keywords which can be used for designating this display. However, only the keywords not previously defined are described in detail.

DISPLAY = REC

/ *,ALL = Y* \
\ *RECID* = record ID /

[*,START* = start date/time]

[*,STOP* = stop date/time]

where:

DISPLAY = REC

specifies the Journal Display type to be printed.

REC - indicates that a RECORD display is to be printed.

, *RECID* **= record ID**

allows the user to select a record type by record ID. This keyword is mutually exclusive from the ALL keyword.

record ID - this value must be specified in the RRRR format (numeric record ID). It is **not** necessary to include leading zeros.

DATABASE/KEY Display

The following is the DISPLAY parameter syntax for designating a DATABASE/KEY display.

Note: The following syntax contains all the keywords which can be used for designating this display. However, only the keywords not previously defined will be described in detail.

*D*ISPLAY = *DBKEY*

/ ,ALL = Y   \
\ *PAGE* = page number   [,*LINE* = line-number] /

[,*START* = start date/time]

[,*STOP* = stop date/time]

where:

DISPLAY **=** *DBKEY*

specifies the Journal Display type to be printed.

DBKEY - indicates that a DATABASE/KEY display is to be printed.

, *PAGE* **= page-number**

specifies the page portion of the database key. All Archive Journal BEFORE or AFTER record images which reside on the specified page will be displayed. This keyword is mutually exclusive from the ALL keyword.

Note: Blanks are not a valid option for this parameter.

page-number - the page number can have up to 10 digits. It is not necessary to include leading zeros.

, *LINE* **= line-number**

specifies the line portion of the database key. This option is used when a single database key is specified for display. This keyword is mutually exclusive from the ALL keyword.

line-number - the line number can have up to four digits. It is not necessary to include leading zeros. If this value is omitted and all images with matching database pages are selected for display.

PROGRAM Display

The following is the DISPLAY parameter syntax for designating a PROGRAM display.

Note: The following syntax contains all the keywords that can be used for designating this display. However, only the keywords not previously defined will be described in detail.

```
DISPLAY = PROG

/ ,ALL = Y    \
\ ,NAME = name /

[ ,START = start date/time ]

[ ,STOP = stop date/time ]

┌        / SUBSC \ ┐
| ,VIEW = <       > | [ DATA = ONLY ]
└        \ FULL  / ┘
```

where:

DISPLAY = PROG

specifies the Journal Display type to be printed.

PROG - indicates that a PROGRAM display is to be printed.

, NAME =

allows user to select records that were modified by a certain program.

name - specifies the selected program by name.

Note: If the first character of the name field is an asterisk (*), all programs whose names begin with the remaining characters of the name field will qualify for display. For example, if NAME=*ABC, all programs with names beginning with ABC will be displayed.

```
      / SUBSC \
,VIEW =
      \ FULL  /
```

specifies the scope of the program display.

SUBSC - indicates that the records will be displayed by data fields (i.e., Subschema Display).

Note: All programs selected for the Subschema Display must be registered to a valid subschema.

FULL - indicates that the records will be displayed in a continuous character string. This option is the default value.

Note: Blanks are not a valid option for this parameter.

Note: The VIEW keyword is used in conjunction with the FORMAT keyword of the PROCESS parameter. For example, if VIEW = SUBSC and FORMAT = SPARSE, the PROGRAM display will show after images of data fields that have changed.

, *DATA = ONLY*

indicates that only the data portion of the database records will be displayed for subschema displays.

DISPLAY LIMITS

The following is the parameter syntax for designating a DISPLAY LIMITS request. Up to 20 DLIMITS requests can be submitted.

```
        / REC  \ ┌              ┐
DLIMITS = < DBKEY > |      / ONL \ |
        \ PROG  / | ,TYPE = < BTC >  |
             └        \ SYS /  ┘

/ ,RU = run unit ID    \
\ ,#RUS = # of run units /

/ ,#SETS = # of before/after sets          \
< ,#RUSETS = # of before/after sets per run unit >
\ ,#NTH = sampling frequency             /
```

where:

```
        / REC  \
DLIMITS = < DBKEY >
        \ PROG  /
```

specifies the Journal Display type to be limited.

REC - indicates a RECORD display.

DBKEY - indicates a DATABASE/KEY display.

PROG - indicates a PROGRAM display.

```
         / ONL \
,TYPE  = < BTC >
         \ SYS /
```

specifies the type of programs to be used in the display.

ONL - indicates that only ONLINE programs are to be used.

BTC - indicates that only BATCH programs are to be used.

SYS - indicates ONLINE and BATCH programs are to be used. This option is the default value.

, *RU* **=**

indicates that the display output will be limited to a selected run unit ID. This operand is mutually exclusive from the #RUS operand.

, *#RU***S = # of run units**

indicates that the display output will be limited by the number of run units. This operand is mutually exclusive from the RU operand. This operand applies only to the PROGRAM display.

, *#SET***S = # of before/after sets**

indicates that the display output will be limited by the number of before/after sets. This operand is mutually exclusive from the #RUSETS and NTH operands.

, *#RUSET***S = # of before/after sets per run unit**

indicates that the display output will be limited by the number of before/after sets per run unit. This operand is mutually exclusive from the #SETS, and NTH operands. This operand applies only to the PROGRAM display.

Note: Blanks are not a valid option for this parameter.

, *N*TH = sampling frequency

indicates that the display output will be limited by a sampling of every NTH set. This operand is mutually exclusive of the #SETS and #RUSETS operands. The value of this operand must be 2 or more.

```
/ ,RU = run unit ID     \
<                 >
\ ,#RUS = # of run units /
```

```
/ ,#SETS = # of before/after sets              \
< ,#RUSETS = # of before/after sets per run unit >
\ ,#NTH = sampling frequency             /
```

Program Display Suppression

The following are DSUPPS parameter syntaxes for designating suppression of PROGRAM displays. Multiple DSUPPS requests can be submitted.

Record ID

*DS*UPPS

```
/ RECID ,ID=record ID        \
< RANGE ,LOWID=lowest record ID >
\     HIGHID=highest ID    /
```

where:

DSUPPS

indicates that the PROGRAM display output will be qualified.

RECID - indicates that the display output will be suppressed by record ID.

ID = record ID specifies the record ID to be suppressed in the display output.

RANGE indicates that the display output will be suppressed by a range of record IDs.

,LOWID = lowest record ID

specifies the lowest record ID in the range to be suppressed.

,HIGHID = highest record ID

specifies the highest record ID in the range.

Note: SR4's should not be suppressed because of the automatic fragment recomposition feature. Any requests to suppress SR4's will be ignored.

Parameter Summary

On the following pages is a summary of the Journal Analyzer parameters. Default values are listed at the bottom of a set of options.

Note: Blanks are not a valid option for this parameter.

```
              / ALL       \
             | REPORTS    |            / Y \            / FULL   \
PROCESS =  < |            | >  [,CONT = |   | ] [,FORMAT = |       | ]
             | DISPLAYS   |            \ N /            \ SPARSE / 
              \ EXTRACTS  /


            / Y \                 / Y \
[,RHDCRUAL = |   | ]  [,IDMSXXXX = |   | ]
            \ N /                 \ N /


            / Y \   |            |
[           \ N /   |  ,NONUNIQ = |  [,USERDCOM = procedure-name ]


  / 
 [  \  ,ABEND      Y  \  ]
                   N  /


             / ACTIVITY         \
            | PROGRAM           |
SUPPRESS = < CHRONO-EVENT        >
            | ABORT-COINCIDENCE |
            | MANAGEMENT        |
            | ALL               |
             \ #n               /
```

Suppress Options

1.   Suppress all EXCEPT
       Management
       HI-SUM
       HI-ONL
       RANK

2.   Suppress all EXCEPT
       Program
       Chrono-Event

3. and 4. Suppress all EXCEPT
       Activity
       Abort-Coincidence
       Management

```
4.            Activity
                Abort-Coincidence
                Management
            /            /          / Y \ \                                    \
            |     | SELECT =      |       |                                    |
            | ACTV <            \ N / >                                        |
            |     |,ALL=Y          |                                           |
            |     \                /                                           |
            |                                                                  |
            |      /,NAME=name  \          / DETAIL          / Y \ \           |
            | PROG              ,LEVEL= < SUMMARY [,HILITES        ] >          |
            |      \,ALL=Y     /           \ SYSTEM          \ N / ] /          |
            |                                                                  |
            |                  / Y \                                           |
            |      /,SELECT=          \                                        |
REPORT = <CHRONO <            \ N / >          (Do not specify INTVL)         >
            |      |            |                                              |
            |      \,ALL=Y      /                                             |
            |                                                                  |
            |                  / Y \                                           |
            |      /,SELECT =          \                                       |
            | ABORTC <          \ N / > (INTVL=1440=1 day automatically)      |
            |      \,ALL=Y      /                                              |
            |                                                                  |
            |           / PROGRAM \                                            |
            | HI-SUM [,LEVEL= < SYSTEM  > ]                                   |
            |           \ GRAND   /                                           |
            |                                                                  |
            | HI-ONL          / start time = 0000   \                         |
            |                 | stop time = 2359     |                        |
            |                 \ INTVL = 1440 = 1 DAY /                         |
            |                                                                  |
            | HI-BPU                                                          |
            |                                                                  |
            | RANK   [,RANK# =  / number-of-items \ [,RANKPROG= / ONL \ ]     |
            |                   \ 20              /             < BTC > ]      |
            |                                                    \ SYS /       |
            |      /,RANKWHAT=item  \                                          |
            |                          (see next page for options)            |
            |      \,RANKITEM=number/                                         |
            |                                                                  |
            |                   / LOW      \    [            / MEAN    \ ]     |
            |                   | HIGH     |    | ,RANKVALU= < MEDIAN  > |     |
            |                   | LT:value |    |            \ ABSOLUTE / |    |
            |      ,RANKHOW= < LE:value  >     |                       ] |    |
            |                   | GT:value |    [                         ]    |
            \                   \ GE:value /                                  /
```

REPORT=RANK Options

RANKWHAT	RANKITEM
DURATION	1
REC-UPD	2
PG-READ	3
PG-WRITTEN	4
PG-IO	5
LOCK-REQ	6
PG-RATIO	7

RANKWHAT	RANKITEM
CALC-RATIO	8
VIA-RATIO	9
#RU	10
#SUCCESS	11
#ABORT	12
%ABORT	13

The following example shows the CA IDMS Journal Analyzer Parameter Summary:

[,*START*=mmddyyhhmm]

[,*STOP*=mmddyyhhmm]

[,*INTVL*=minutes]

```
           /                                                          \
          |        / ,ALL=Y              \                             |
          |  REC                                                       |
          |        \ ,RECID=record-id  /                               |
          |          / ,ALL=Y                          \               |
 DISPLAY= < DBKEY <                     [ ,LINE=line-number ] > >       
          |          \ ,PAGE=page-number                /              |
          |                                                            |
          |        / ,ALL=Y        \          / SUBSC \                |
          |  PROG                          [ ,VIEW       ]             |
          |        \ ,NAME=name /             \ FULL  /                |
          |                                                            |
           \                              [ ,DATA=ONLY ]       /
```

```
 [          / REC  \         / ONL\   /,RU=run-unit-id        \        ]
 [ DLIMITS < DBKEY >  [ ,TYPE= < BTC>   \,#RUS=#-of-run-units/        ]
 [          \ PROG /         \ SYS/                                    ]
 [                                                                     ]
 [                                 /,#SETS=#-of-sets           \      ]
 [                                 <,#RUSETS=#-of-sets-per-run-unit>  ]
 [                                 \,NTH=sampling-frequency      /    ]
```

```
 [          /RECID ,ID=record-id                                       \
 [ DSUPPS=
 [          \RANGE ,LOWID=lowest-record-id ,HIGHID=highest-record-id    /
```

Chapter 5: Examples

This chapter contains examples that show how the various parameter statements can be coded to produce CA IDMS Journal Analyzer Reports and Displays.

This section contains the following topics:

Summary of Examples

Each example consists of an operational description and a sample of the parameter statement(s) required producing the desired output. The following table lists the various examples described in this section.

Example	Report/Display	Remarks
1	ACTIVITY ABORT COINCIDENCE MANAGEMENT	Creates a set of Journal Reports to evaluate system performance and resource consumption.
2	CHRONOLOGICAL EVENT	Reports all significant events recorded in a 30 minute period.
3	RECORD Display	Displays the first 20 before/after sets created by online run units using a full format.
4	DATABASE KEY Display	Displays a sampling of every 5th before/after set in a sparse format.
5	PROGRAM Display	Displays one program in sparse format, and suppresses SR1 records.
6	ROGRAM Display	Programs starting with 'DBM' are displayed in the sparse format.
7	PROGRAM Display	Displays one run unit in sparse format.

Example	Report/Display	Remarks
8	SUBSCHEMA Display	PROGRAM Display with a subschema view and limiting the amount of display.
9	SUBSCHEMA Display	PROGRAM Display with a subschema view and suppressing all SR1 records.

PROCESS Parameter

The PROCESS parameter is used to specify the input required, and the output(s) to be created by the execution of CA IDMS Journal Analyzer. It also indicates if processing is to be discontinued if a parameter error is detected. A single valid PROCESS parameter is required as the first request in the Parameter file.

The following is a listing of the default values assigned to the operands associated with the PROCESS parameter statement.

Note: There is *no* default value for the USERDCOM operand.

The following example shows default values:

```
PROCESS=EXTRACTS,
CONT=N,
FORMAT=SPARSE,
RHDCRUAL=N,
IDMSXXXX=N,
NONUNIQ=N
```

The following is a listing of replacement values that can be used in place of the default values assigned to the operands of the PROCESS parameter statement.

Note: There is no default value for the USERDCOM operand, users must specify the appropriate name when this operand and its implied features are required.

The following example shows replacement values:

```
PROCESS=ALL,
CONT=Y,
FORMAT=FULL,
RHDCRUAL=Y,
IDMSXXXX=Y,
NONUNIQ=Y,
USERDCOM=DBMSDCOM
```

Conventions

The examples in this section will consist of a mandatory PROCESS statement and the other parameter statements which are required to attain the desired output. The examples are divided into two groups: Journal Reports and Journal Displays.

Example One

This example creates a set of Journal Reports for each Archive Journal file. The reports include an ACTIVITY Report, an ABORT COINCIDENCE Report, and several MANAGEMENT reports (Highlights and Rankings). These reports will provide measurements with which to evaluate system performance and resource consumption. This set of reports is an example of the types of reports which could be run regularly (e.g., daily) as a means of monitoring the CA IDMS environment.

Note: Records for all other report types are suppressed by using the SUPPRESS=#3 parameter statement. Changes to the SUPPRESS parameter are required if extract records are to be created for other report types. Proper use of the SUPPRESS parameter can significantly reduce the time and cost required to run CA IDMS Journal Analyzer.

The following example shows journal reports for each archive journal file:

```
PROCESS=ALL, CONT=N, RHDCRUAL=N, IDMSXXXX=N, NONUNIQ=N
*
SUPPRESS=#3
$
$                  ACTIVITY AND ABORT COINCIDENCE REPORTS
$
REPORT=ACTV, ALL=Y, I=15, START=0101920000
R=ABORTC, ALL=Y, START=0101820000
$
$                  HIGHLIGHTS:  SUMMARIES, ONLINE RESPONSE,BUFFER POOL UTILIZ
$
R=HI-SUM, LEV=PROGRAM, START=0101920000
R=HI-ONL, START=0101920000
R=HI-BPU, START=0101920000
$
$                  RANKINGS:  HIGHEST BY ABSOLUTE DURATION, PAGE I/O, PAGE RATIO
$
R=RANK, RANKP=SYS, RANKI=05, RANKH=HIGH, RANKV=AB, START=010192000
R=RANK, RANKP=SYS, RANKI=09, RANKH=HIGH, RANKV=AB, START=010192000
R=RANK, RANKP=SYS, RANKI=11, RANKH=HIGH, RANKV=AB, START=010192000


$
$                  RANKINGS:  HIGHEST BY ABSOLUTE #RUN UNITS, #SUCCESSFUL,
$                                                    #ABORTED, %ABORTED
$
R=RANK, RANKP=SYS, RANKI=01, RANKH=HIGH, RANKV=AB, START=010192000
R=RANK, RANKP=SYS, RANKI=02, RANKH=HIGH, RANKV=AB, START=010192000
R=RANK, RANKP=SYS, RANKI=03, RANKH=HIGH, RANKV=AB, START=010192000
R=RANK, RANKP=SYS, RANKI=04, RANKH=HIGH, RANKV=AB, START=010192000
$
$                  RANKINGS:  HIGHEST BY AVERAGE DURATION, PAGE I/O, PAGE RATIO
$
R=RANK, RANKP=SYS, RANKI=05, RANKH=HIGH, RANKV=MN, START=010192000
R=RANK, RANKP=SYS, RANKI=09, RANKH=HIGH, RANKV=MN, START=010192000
R=RANK, RANKP=SYS, RANKI=11, RANKH=HIGH, RANKV=MN, START=010192000
$
$                  RANKINGS:  HIGHEST BY MEDIAN DURATION, PAGE I/O, PAGE RATIO
$
R=RANK, RANKP=SYS, RANKI=05, RANKH=HIGH, RANKV=MD, START=010192000
R=RANK, RANKP=SYS, RANKI=09, RANKH=HIGH, RANKV=MD, START=010192000
R=RANK, RANKP=SYS, RANKI=11, RANKH=HIGH, RANKV=MD, START=010192000
```

Example Two

This example specifies a CHRONOLOGICAL EVENT Report which reports all significant events recorded in a 30 minute period. This type of report can be useful in establishing a quiesce point on which to synchronize a recovery job. For this example, assume that an Extract file was previously created using either PROCESS=EXTRACTS or PROCESS=ALL.

Note: The CHRONOLOGICAL EVENT Report is normally run on a special request basis.

The following example shows the PROGRAM Report (Activity of One Type):

```
PROCESS=REPORTS, CONT=N, RHDCRUAL=N, IDMSXXXX=N, NONUNIQ=Y
*
$                CHRONOLOGICAL REPORT:  LIMITED TO + HOUR PERIOD
$
R=CHRONO, ALL=Y, START=0115921015, STOP=0115921044
```

Example Three

This example specifies a RECORD Display which displays one record type using a full format. The amount of display is limited to the first twenty before/after sets created by online run units. More efficient displays can be realized if the START and STOP operands are specified to indicate a limited time period.

Note: The RECORD Display is normally run on a special request basis and would not be combined with a request for Journal Reports.

The following example shows the PROGRAM Report (Activity of One Type):

```
PROCESS=DISPLAYS, CONT=N, FORMAT=FULL, RHDCRUAL=N, IDMSXXXX=N,
                  NONUNIQ=N
*
$                RECORD DISPLAY:  FULL FORMAT, LIMITED TO ONLINE RUN UNITS,
$                                          LIMITED TO 20 BEFORE/AFTER SETS
$
DISPLAY=REC, RECID=8823
DLIMITS=REC, TYPE=ONL, #SETS=20
```

Example Four

This example specifies a DATABASE KEY Display that selects one record occurrence for display in the sparse format. The amount of display is limited to the modifications performed by batch run units, and by a sampling of every fifth before/after set. More efficient displays can be realized if the START and STOP operands are specified to indicate a limited time period.

Note: The DATABASE KEY Display is normally run on a special request basis and would not be combined with a request for Journal Reports.

The following example shows the DATABASE KEY display:

```
PROCESS=DISPLAYS, CONT=N, FORMAT=SPARSE, RHDCRUAL=N, IDMSXXXX=N,
                 NONUNIQ=N
*
$                DATABASE DISPLAY:  SPARSE FORMAT, LIMITED TO BATCH RUN UNITS,
$                                       SAMPLING EVERY 5TH BEFORE/AFTER SET
$
D=DBKEY, PAGE=19025, LINE=3
DLIMITS=DBKEY, TYPE=BTC, NTH=5
```

Example Five

This example specifies a PROGRAM Display (Regular View) that selects one program for display in the sparse format. All display images for SR1 records are suppressed. More efficient displays can be realized if the START and STOP operands are specified to indicate a limited time period.

Note: The PROGRAM Display is normally run on a special request basis and would not be combined with a request for Journal Reports.

The following example shows the PROGRAM display:

```
PROCESS=DISPLAYS, CONT=N, FORMAT=SPARSE, RHDCRUAL=N,IDMSXXXX=N,
                 NONUNIQ=N
*
$                PROGRAM DISPLAY:  SPARSE FORMAT, SUPPRESSING SR1's
$
D=PROG, NAME=USERPROG
DSUPPS=RECID, id=1
```

Example Six

This example specifies a PROGRAM Display (Regular View) that presents, in the sparse format, all programs whose names begin with 'DBM'. The amount of display is limited to five online run units and to the first ten before/after sets for each run unit. More efficient displays can be realized if the START and STOP operands are specified to indicate a limited time period.

Note: The PROGRAM Display is normally run on a special request basis and would not be combined with a request for Journal Reports.

The following example shows the PROGRAM display (regular view) names that begin with DBM:

```
PROCESS=DISPLAYS, CONT=N, FORMAT=SPARSE, RHDCRUAL=N, IDMSXXXX=N,
                NONUNIQ=N
*
$               PROGRAM DISPLAY:  SPARSE FORMAT, PROGRAMS START WITH 'DBM',
$                                      LIMITED TO 5 ONLINE UNITS AND ONLY
$                                      10 BEFORE/AFTER SETS PER RUN UNIT
$
D=PROG, NAME=*DBM
DLIMITS=PROG, TYPE=ONL, #RUS=5, #RUSETS=10
```

Example Seven

This example specifies a PROGRAM Display (Regular View) which displays one run unit in the sparse format. The amount of display is limited to one run unit.

Note: Multiple DLIMITS parameters can be specified to individually select more than one run unit. The run unit IDs are available from the PROGRAM, CHRONOLOGICAL EVENT, or MANAGEMENT Reports.

The following example shows the PROGRAM display (regular view) one run unit:

```
PROCESS=DISPLAYS, CONT=N, FORMAT=SPARSE, RHDCRUAL=N, IDMSXXXX=N,
                NONUNIQ=N
*
$               PROGRAM DISPLAY:  SPARSE FORMAT, LIMITED TO RUN UNIT #551168
$
D=PROG, ALL=Y
DLIMITS=PROG, TYPE=SYS, RU=551168
```

Example Eight

This example specifies a SUBSCHEMA Display (PROGRAM Display with a subschema view) which displays one program in the sparse format. The amount of display is limited to twenty run units. More efficient displays can be realized if the START and STOP operands are specified to indicate a limited time period.

Note: The SUBSCHEMA Display is normally run on a special request basis and would not be combined with a request for Journal Reports.

The following example shows the PROGRAM display with subschema view:

```
PROCESS=DISPLAYS, CONT=N, FORMAT=SPARSE, RHDCRUAL=N, IDMSXXXX=N,
                 NONUNIQ=N
*
$                   SUBSCHEMA DISPLAY:  SPARSE FORMAT, LIMITED TO 20 RUN UNITS
$
D=PROG, NAME=USERPROG, VIEW=SUBSC
DLIMITS=PROG, TYPE=SYS, #RUS=20
```

Example Nine

This example specifies a SUBSCHEMA Display (PROGRAM Display with a subschema view) which displays one program in the sparse format. The prefix pointers and a range of record IDs are suppressed. Multiple DSUPPS parameters can be specified to suppress more than one range of record IDS. More efficient displays can be realized if the START and STOP operands are specified to indicate a limited time period.

Note: The SUBSCHEMA Display is normally run on a special request basis and would not be combined with a request for Journal Reports.

The following example shows the subschema display:

```
PROCESS=DISPLAYS, CONT=N, FORMAT=SPARSE, RHDCRUAL=N, IDMSXXXX=N,
                 NONUNIQ=N
*
$                   SUBSCHEMA DISPLAY:  SPARSE FORMAT, SUPPRESS PREFIX CHANGES,
$                                                 SUPPRESS SR4015 THRU SR4089
$
D=PROG, NAME=USERPROG, VIEW=SUBSC, DATA=ONLY
DSUPPS=RANGE, LOWID=4015, HIGHID=4089
```

Chapter 6: Operations

This chapter describes operational procedures for the z/OS, z/VSE, and z/VM environments. It provides execution JCL or EXECs and information on determining the storage requirements for those environments.

Note: The Extract record length has changed in IDMS release 15.0. See Appendix B for more information.

This section contains the following topics:

CA IDMS Journal Analyzer Control Statements

CA IDMS Journal Analyzer produces reports and displays in a large variety of combinations. Chapter 5 (see page 115) shows sets of parameter statements that can be used in various situations.

The sample parameter statements provided below are recommended for an evaluation of CA IDMS Journal Analyzer. They can be used in any environment--z/OS, z/VSE, or z/VM.

```
P=ALL,CONT=N,DMCL=DBMSDMCL,F=SPARSE,RHDC=N,NON=Y
R=ACTV,ALL=Y,START=0101820000,I=15
R=PROG,ALL=Y,LEV=SUM,HILITES=Y
R=CHRONO,ALL=Y
R=ABORTC,ALL=Y
R=HI-SUM,LEV=PROG
R=HI-ONL
R=HI-BPU
R=RANK,RANKH=HIGH,RANKW=#RU
R=RANK,RANKH=HIGH,RANKW=DURATION
```

z/OS Operation

The operation of CA IDMS Journal Analyzer in a z/OS environment can be accomplished in a single job step. CA IDMS Journal Analyzer processes display images up to 32K in length.

Execution JCL (z/OS)

The following example shows the execution JCL for CA IDMS Journal Analyzer, where variables (lowercase, bold) are explained in the key opposite the JCL:

```
//JNLA                        EXEC  PGM=USJMAIN,REGION=#K
//STEPLIB        DD           DSN=idms.dba.loadlib,DISP=SHR
//               DD           DSN=idms.custom.loadlib,DISP=SHR
//               DD           DSN=idms.cagjload,DISP=SHR
//SYSIDMS        DD           *
                                  ECHO = ON
                                  JOURNAL = OFF
                                  LOCAL = on-or-off
                                  TESTDBN = on-or-off
                                  DMCL = dmclname
                                  DBN = dbname
//dictdb         dd           dsn=your.idms.dictionary,disp=shr
//SYSOUT         DD           SYSOUT=a
//JASRTMSG       DD           sort-message
//SYSLST         DD           SYSOUT=a,
//                            DCB=BLKSIZE=1330
//SYSLSTR        DD           SYSOUT=r,
//                            DCB=BLKSIZE=1330
//SYSLSTD        DD           SYSOUT=d,
//                            DCB=BLKSIZE=1330
//SYSUDUMP       DD           SYSOUT=a
//SORTWK01       DD           UNIT=SYSDA,
//                            SPACE=(CYL,(sort-space))
//SORTWK02       DD           UNIT=SYSDA,
//                            SPACE=(CYL,(sort-space))
//SORTWK03       DD           UNIT=SYSDA,
//                            SPACE=(CYL,(sort-space))
//SORTWK04       DD           UNIT=SYSDA,
//                            SPACE=(CYL,(sort-space))
//SORTWK05       DD           UNIT=SYSDA,
//                            SPACE=(CYL,(sort-space))
//SORTWK06       DD           UNIT=SYSDA,
//                            SPACE=(CYL,(sort-space))
//ARCHIVE        DD           DSN=your.archive.journal,
//                            DISP=OLD,
//                            DCB=(blksize=archive-blksize,BUFNO=4),
//                            unit=tape,label=(,sl),vol=ser=serial-number
//EXTRACT        DD           dsn=your.extract.file,
//                            UNIT=disk,
//                            SPACE=(CYL,(extract-space),RLSE),
//                            DCB=(LRECL=311,BLKSIZE=6220,BUFNO=4),
//                            disp=extract-disp
```

```
//DISPLAY      DD          UNIT=disk,
//                         SPACE=(CYL,(display-space),RLSE),
//                         DCB=(BLKSIZE=display-blksize,BUFNO=4)
//RANKING      DD          UNIT=disk,
//                         SPACE=(CYL,(ranking-space,RLSE),
//                         DCB=(LRECL=60,BLKSIZE=6120,BUFNO=4)
//sortlib      dd          dsn=sys1.sortlib,disp=shr
//sortcntl     dd          *
  your-sort-control-statements
//SYSIPT       DD          *
  your-journal-analyzer-control-statements
```

The variables in the execution JCL are:

#

Defines the number of kilobytes of storage to be made available. The region size is between 1200K and 1800K, depending on CA IDMS Journal Analyzer's mode of accessing IDMS (Local Mode or CV), the BUFNOs specified for the various files, and the SIZE option of your sort.

idms.dba.loadlib (required for Local Mode)

Defines the dataset name of the library that contains the DMCL used by your dictionary subschema, IDMSNWKA. Omit if running through CV.

idms.custom.loadlib

Defines the dataset name of the library that contains customized load modules.

idms.cagjload

Defines the dataset name of the library that contains CA IDMS Journal Analyzer modules and IDMSINTB.

dbname

Defines the DBNAME needed to access the appropriate DDLDML area of the CA IDMS dictionary for the DMCL name used.

on-or-off

Specify LOCAL=ON if you want Display processing to access the CA IDMS dictionary in LOCAL mode. Specify LOCAL=OFF for Central Version (CV) mode. Specify TESTDBN=ON if you want Display processing to access a secondary dictionary. Specify TESTDBN=OFF for the primary dictionary.

dmclname

Defines the DMCLNAME to be used when Display processing accesses the CA IDMS dictionary.

dictdb dd dsn=your.idms.dictionary,disp=shr   (required for Local Mode)

Specify the correct DDNAME and dataset name of your CA IDMS dictionary's DDLDML area. Omit this statement if running through CV, or if the correct information is supplied in the DMCL.

a

An appropriate SYSOUT class for your installation.

sort-message

To print sort messages, specify SYSOUT=a. To suppress printing of sort messages, specify DUMMY.

r

An appropriate SYSOUT class for Journal Reports. This should be different from **a**. If SYSLSTR is assigned to a file rather than to SYSOUT, specify DISP=MOD to ensure that Management Reports do not overlay other reports.

d

An appropriate SYSOUT CLASS FOR Journal Displays. This should be different from **a**.

sort-space

A space specification appropriate to the number of records to be sorted. If PROCESS=EXTRACTS, provide space to sort the entire extract file. If PROCESS=DISPLAYS, provide space to sort the entire display file. If PROCESS=ALL, provide space to sort the larger of the display file or the extract file. If PROCESS=REPORTS, provide space to sort the extracted records for a single report interval.

your.archive.journal

Defines the dataset name of your archive journal file. This file should come from the FIX ARCHIVE utility, or from a batch job that ran in Local Mode. Do not use the output from IDMSJFIX. (You may specify NULLFILE if PROCESS=REPORTS.)

blksize=archive-blksize

Defines the current block size of your archive journal file. (This parameter may be omitted if your file has standard labels.)

unit=tape,label=(,sl),vol=ser=serial-number

Defines the proper unit, label, and volume-serial information for your archive journal file. (These parameters may be omitted for a cataloged file.)

dsn=your.extract.file

Defines the dataset name of the extract file. This parameter may be omitted, and a temporary file created, if PROCESS=DISPLAY, or if PROCESS=ALL and you do not intend to run PROCESS=REPORTS at a later time. If PROCESS=REPORTS, do not concatenate extract files. Multiple extract files must be sorted or merged on the first 46 bytes of the record before being input to CA IDMS Journal Analyzer.

disk

Defines the device type of the extract, display, and ranking work files. (If this is a tape device, the following SPACE parameter should be omitted.)

extract-space

If PROCESS=ALL or PROCESS=EXTRACTS, CA IDMS Journal Analyzer extracts archive records for each report type that is not suppressed. All reports use the BGIN, AREA, COMT, ABRT, and ENDJ records present for each run-unit. DBAREA and DBRECD reports also use the BFOR and AFTR records present for each run-unit. The amount of space depends on the number of run-units in the archive file, the number of areas readied, and the number of commits issued by those run-units (and if DBAREA and DBRECD reports are not suppressed, the number of database records processed by each run-unit).

disp=extract-disp

Defines a disposition for the extract file. If PROCESS=EXTRACTS, specify DISP=(NEW,CATLG). If PROCESS=REPORTS, specify DISP=OLD. (This parameter should be omitted if the extract dataset name was omitted.)

display-space

If journal displays are specified, CA IDMS Journal Analyzer writes a record to the display file for each BFOR/AFTR record that meets selection criteria for DISPLAY=DBKEY or for DISPLAY=RECORD and for each BFOR/AFTR record for every run-unit that meets selection criteria for DISPLAY=PROGRAM. All ABRT records are also written for the displays specified. The amount of space depends on the number and size of these BFOR/AFTR/ABRT records.

display-blksize

Specifies the BLKSIZE for the DISPLAY file. Specify a value that contains at least one occurrence of your largest DISPLAY record plus a 4-byte block descriptor word. (A DISPLAY record contains a 4-byte record descriptor word, an 84-byte header, and a database record image.)

ranking-space

CA IDMS Journal Analyzer writes a record to the ranking file for every run-unit that meets the selection criteria of each REPORT=RANK specification. The amount of space depends on the number of rank reports specified and the number of run-units that satisfy the selection criteria.

sortlib dd dsn=sysl.sortlib,disp=shr

This statement is optional. Its specification is dependent on your installation.

sortcntl dd *

This statement is optional (see below). Consult the programmer's guide of your sort utility to determine the DDNAME of this file.

your-sort-control-statements

These statements are optional. Include them to override the options of your sort utility. (CA IDMS Journal Analyzer should be run with sort options that specify printing of critical messages, setting a return code of 16 if there is an unsuccessful sort, and sorting into EBCDIC sequence.) You may also want to specify a size different from the default. If you specify maximum size, further ensure that you have the sort use all but 256K (that is, SIZE=MAX-256) so that a BIND RUN-UNIT can be processed while sorting. Consult the programmer's guide of your sort utility to determine the format of these statements.

your-journal-analyzer-control-statements

Specify a PROCESS statement and other statements for the reports and displays that you want generated. You can find more information in .

z/VSE Operation

The z/VSE operation of CA IDMS Journal Analyzer can be accomplished in a single job step. Sample JCL is contained in TOOLJCL library member USJEXEC.S. The JCL and key are shown below.

z/VSE File Assignments

Even if you use a storage management tool such as CA-DYNAM, CA IDMS Journal Analyzer requires an ASSGN statement for every file except SORTWK*nn*. This ASSGN is required because CA IDMS Journal Analyzer has its own device-independent support which dynamically builds a DTF based on the device type indicated by the ASSGN. Unless the ASSIGN specifies VSAM or BDAM, the file may be defined with either DLBL or TLBL.

Execution JCL (z/VSE)

```
// OPTION PARTDUMP,LOG
*      **** CREATE A SYSIDMS PARAMETER FILE  *****
// UPSI  1
// DLBL     anyname,'work.file.sysidms',0,SD
// EXTENT   SYS041,sysidms-extent
// ASSGN    SYS041,DISK,VOL=volser,SHR
// EXEC     DITTO
$$DITTO CSQ FILEOUT=anyname
  ECHO=ON
  JOURNAL=OFF
  LOCAL=ON-OR-OFF
  TESTDBN=ON-OR-OFF
  DMCL=dmclname
  DBN=dbname
/*
/*      CARD AND PRINT FILES
// ASSGN  SYS016,SYSIPT                      PARAMETER FILE
// ASSGN  SYS017,SYSLST                      AUDIT REPORT
// ASSGN  SYS018,printer                     JOURNAL REPORTS
// ASSGN  SYS019,printer                     JOURNAL DISPLAYS
/*
/*      IDMS FILES
// UPSI   upsi-byte
// ASSGN  SYS005,disk
// DLBL   DICTDB,'idms-dictionary',,DA
// EXTENT SYS005,dictionary-extent
// ASSGN  SYS009,ign
/*      SORTWORK FILES FOLLOW
// ASSGN  SYS001,DISK,VOL=volser,SHR
// DLBL   SORTWK1,'sort.work.1',0,SD
// EXTENT SYS001,sort-extent

// ASSGN  SYS002,DISK,VOL=volser,SHR
// DLBL   SORTWK2,'sort.work.2',0,SD
// EXTENT SYS002,sort-extent
// ASSGN  SYS003,DISK,VOL=volser,SHR
// DLBL   SORTWK3,'sort.work.3',0,SD
// EXTENT SYS003,sort-extent
// ASSGN  SYS004,DISK,VOL=volser,SHR
// DLBL   SORTWK4,'sort.work.4',0,SD
// EXTENT SYS004,sort-extent /*
/*      Journal Analyzer WORK FILES
// ASSGN  SYS012,DISK,VOL=volser,SHR
// DLBL   EXTRACT,'jnla.extract',0,SD         EXTRACT FILE - OUTPUT
// EXTENT SYS012,extract-extent
// DLBL   EXTRAC1,'jnla.extract',0,SD         EXTRACT FILE - INPUT
// EXTENT SYS012
// ASSGN  SYS013,DISK,VOL=volser,SHR
```

```
// DLBL   DISPLAY,'jnla.display',0,SD          DISPLAY FILE - OUTPUT
// EXTENT SYS013,display-extent
// DLBL   DISPLA1,'jnla.display',0,SD          DISPLAY FILE - INPUT
// EXTENT SYS013
// ASSGN  SYS014,DISK,VOL=volser,SHR
// DLBL   RANKING,'jnla.ranking',0,SD          RANKING FILE - OUTPUT
// EXTENT SYS014,ranking-extent
// DLBL   RANKIN1,'jnla.ranking',0,SD          RANKING FILE - INPUT
// EXTENT SYS014
/*
/*     ARCHIVE JOURNAL FILE
// ASSGN  SYS011,tape
// TLBL   ARCHIVE,'archive.journal',,volser    ARCHIVE JOURNAL FILE
/*
/*     PRIVATE CORE IMAGE LIBRARY(S)
// DLBL   CILIB1,'your-journal-corelib'        Journal Analyzer LIBRARY
// EXTENT ,VOL=volser
// DLBL   CILIB2,'your-idms-corelib'           IDMS LIBRARY
// EXTENT ,VOL=volser
// LIBDEF CL,SEARCH=(CILIB1,CILIB2),TEMP
/*
// DLBL SYSIDMS,'work.file.sysidms',0,D
// EXTENT SYS041,volser
// ASSGN SYS041,DISK,VOL=volser,SHR
/*
// EXEC USJMAIN,SIZE=(USJMAIN,#k)
*
 your-journal-analyzer-control-statements
*
/*
```

printer

An appropriate unit address/device class for printing reports and displays. This should be different than SYSLST.

anyname

Any suitable name for your SYSIDMS file. The name chosen must be identical to the fileout value in the DITTO copy step.

sysidms-extent

Specify extent information for the SYSIDMS file. One track is adequate.

upsi-byte

The UPSI byte settings appropriate to the IDMSOPTI module that you have linked with CA IDMS Journal Analyzer, and appropriate to whether you will be accessing CA IDMS in local mode or central version.

ASSGN SYS005,disk

Specify the proper ASSGN information for logical unit SYS005, your CA IDMS dictionary, if running in local mode. Omit this statement if running through central version.

idms-dictionary

Required for local mode processing. Specify the filename and file ID of your local CA IDMS dictionary's DDLDML area. Omit this statement if running through central version.

dictionary-extent

Specify the proper extent information for logical unit SYS005, your IDMS dictionary, if running in local mode. Omit this statement if running through central version.

ASSGN SYS009,ign

Specify an ASSGN for logical unit SYS009, your CA IDMS local journal file, if running in local mode. Since CA IDMS Journal Analyzer accesses your CA IDMS dictionary in retrieval mode only, it is necessary to journal that activity. Omit this statement if running through central version.

sort.work.1/sort.work.4

Specify the file ID of your sortwork files. Note that CA IDMS Journal Analyzer should be run with sort options that specify printing of critical messages, not abending if there is an unsuccessful sort and sorting into EBCDIC sequence.

volser

The volume serial number of the disk or tape to be used for the file.

jnla.extract

Specify the file ID of the extract file. This statement may specify 'IGN' if PROCESS=DISPLAY. The retention period for the extract file depends on your use of PROCESS options. Specify a retention period that will allow you to fully generate desired reports from the extract file. If you never intend to specify PROCESS=REPORTS, your retention period may define this as a temporary file. If you specify PROCESS=REPORTS, this file must already exist.

extract-extent

Specify extent information adequate to hold all of the records extracted from the archive journal file. If PROCESS=ALL, or PROCESS=EXTRACTS, is specified, CA IDMS Journal Analyzer extracts archive records for each report type that is not suppressed. All reports use the BGIN, AREA, COMT, ABRT, and ENDJ records present for each run-unit. DBAREA and DBRECD reports also use the BFOR and AFTR records present for each run-unit. The amount of space will depend on the number of run-units on the archive file, the number of areas readied, and the number of COMMITs issued by those run-units (and if DBAREA and DBRECD reports are not suppressed, the number of database records processed by each run-unit).

jnla.display

Specify the file ID of the display file. This statement may specify 'IGN' if you do not request journal displays. The display file is created each time you request journal displays, so the retention period may define this as a temporary file.

display-extent

Specify extent information adequate to hold all of the records selected from the archive journal file. If journal displays are requested, CA IDMS Journal Analyzer writes a record to the display file for each BFOR/AFTR record that meets selection criteria for DISPLAY=DBKEY or for DISPLAY=RECORD and for each BFOR/AFTR record for every run-unit that needs selection criteria for DISPLAY=PROGRAM. Each ABRT record will also be written for each display requested. The amount of space will depend on the number and size of these BFOR/AFTR/ABRT records.

jnla.ranking

Specify the file ID of the ranking file. This statement may specify 'IGN' if you do not request rank reports. The ranking file is created each time you request rank reports, so the retention period may define this as a temporary file.

ranking-extent

Specify extent information adequate to hold all of the records selected from the extract file if REPORT=RANK was specified. CA IDMS Journal Analyzer writes a record to the ranking file for every run-unit that meets the selection criteria for each REPORT=RANK request. The amount of space will depend on the number of requests for rank reports and the number of run-units that satisfy the selection criteria. Since the ranking file is created each time you request REPORT=RANK, the retention period may define this as a temporary file.

archive.journal

Specify the file ID of your archive journal file. This file should come from ARCHIVE JOURNAL utility, or from a batch job that ran in local mode. Do not use the output from IDMSJFIX. This statement may specify 'IGN' if PROCESS=REPORTS.

tape

Specify an appropriate unit address for your archive journal file. This must be a tape device.

your-journal-corelib—Specify the file ID of the core image library containing your IDMSINTB module.

#k

The amount of your partition to reserve for program storage. The remainder of the partition is used for GETVIS. *#k* designates additional program storage to be made available for CA IDMS Journal Analyzer programs (about 800K) and for your sort.

The total partition requirements will be between 1300K and 2100K.

LOCAL ON/OFF — Specify LOCAL=ON if you want journal displays processing to access the CA IDMS dictionary in local mode. Specify LOCAL=OFF for CV mode.

dmclname

Specify the name of the DMCL that should be used when accessing the dictionary for information about records represented by the BFOR and AFTR images of the CA IDMS archive journal being processed.

dbname

Specify the DBNAME needed to access the appropriate DDLDML area of the dictionary for the DMCLNAME used.

your.idms.dictionary

Required for local mode when the correct data set name is not supplied in the DMCL. Specify the correct DDNAME and data set name for the DDLDML area of your CA IDMS dictionary.

your-journal-analyzer-control-statements

Specify a PROCESS statement and other statements as desired.

Sample z/VM EXEC--USJEXEC

A sample EXEC for executing CA IDMS Journal Analyzer is shown below. Variables (lowercase) are explained in the key below the EXEC.

Note: The PROCESS=DISPLAYS option should not be used in a z/VM/CMS environment. The Journal must be archived using the CA IDMS utility with a file mode of **x4** to indicate z/OS file-type simulation, and a DCB of: (RECFM F LRECL 4096.

```
/*  */
TRACE OFF; SIGNAL ON ERROR
/*                                                          */
CA_LOADLIB_FN      = 'yourlib'
IDMS_LOADLIB_FN    = 'idmslib'
SORTLIB_FN         = 'sortlib'
JNLA_ARCHIVE_FN    = 'your.journal.archive'
JNLA_ARCHIVE_FT    = 'filetype'
JNLA_ARCHIVE_FM    = '*'
/*                                                          */
/* Link and access the Minidisks containing the required librarie(s) */
/* and database file(s).                                    */
/*                                                          */
 'CP SPOOL PRINTER NOCONT CLOSE'
 'CP SPOOL PRINTER TO * NOHOLD CONT FORM OFF DIST OFF'
 'GLOBAL  LOADLIB ' CA_LOADLIB_FN IDMS_LOADLIB_FN
 'GLOBAL  TXTLIB ' SORTLIB_FN
/*                                                          */
/* Dictionary and Journal file definitions.                */
/* When running in local mode remove the comments from around the  */
/* next 4 statements.                                       */
/*
 'FILEDEF DICTDB   DISK dictdb_fn dictdb_ft dictdb_fm ( dcb extent'
 'FILEDEF SYSJRNL  DUMMY'
 'FILEDEF J1JRNL   DUMMY'
 'FILEDEF J2JRNL   DUMMY'
*/
/* Files needed for all runs.                               */
/*                                                          */
 'FILEDEF JASRTMSG PRINTER'
 'FILEDEF SYSLST   PRINTER'
 'FILEDEF SYSUDUMP PRINTER'
 'FILEDEF SYSOUT   PRINTER'
 'FILEDEF SYSLSTD  DISK JNLA SYSLSTD fm'
 'FILEDEF SYSLSTR  DISK JNLA SYSLSTR fm'
 'FILEDEF AUDIT    DISK JNLA AUDIT   fm'
 'FILEDEF EXTRACT  DISK JNLA EXTRACT fm'
 'FILEDEF DISPLAY  DISK JNLA DISPLAY fm ( BLKSIZE dddd'
 'FILEDEF RANKING  DISK JNLA RANKING fm ( BLKSIZE rrrr'
/*                                                          */
```

```
/* Archive Journal Disk File                                  */
/*                                                            */
 'FIL ARCHIVE DISK JNLA_ARCHIVE_FN JNLA_ARCHIVE_FT JNLA_ARCHIVE_FM'
/*                                                            */
/* You must create a file 'SYSIDMS INPUT A' containing the SYSIDMS */
/* parameters you use to specify your runtime environment.    */
/*                                                            */
 'FILEDEF SYSIDMS  DISK SYSIDMS INPUT A'
/*                                                            */
/* You must create a file 'USJEXEC SYSIPT A' containing the input */
/* parameter statements prior to executing this EXEC.         */
/* This file must include a PROCESS statement and other statements */
/* for the reports and displays that you want generated. See CA IDMS */
/* Journal Analyzer User Guide for further details.           */
/*                                                            */
 'FILEDEF SYSIPT   DISK USJEXEC SYSIPT   A'
 'FILEDEF SYSCTL   DISK fn SYSCTL fm'
/*                                                            */
/* Insert FILEDEF statements for SORT work space as required by */
/* your SORT product.                                         */
/*                                                            */
SIGNAL OFF ERROR
SAY 'STARTING EXECUTION OF CA IDMS Journal Analyzer'
 'EXECOS OSRUN USJMAIN'
 USJEXEC_RC = RC
 'CP SPOOL PRINTER NOCONT'
 'CP CLOSE PRINTER NAME JNLA LISTING'
 'CP SPOOL PRINTER OFF'
SAY 'USJEXEC FINISHED WITH A RETURN CODE OF' USJEXEC_RC
 'GLOBAL LOADLIB'
 'GLOBAL TXTLIB'
 'FILEDEF * CLEAR'
 EXIT USJEXEC_RC
/*                                                            */
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++ */
ERROR:
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++ */
 ERROR_RC = RC
 TRACE OFF; SIGNAL OFF ERROR
 SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME JNLA LISTING'
'CP SPOOL PRINTER OFF'
 'GLOBAL LOADLIB'
 'GLOBAL TXTLIB'
 'FILEDEF * CLEAR'
 EXIT ERROR_RC
/*                                                            */
```

yourlib

The file name of the load library into which you downloaded CA IDMS Journal Analyzer.

idmslib

The file name of the load library containing your CA IDMS SUBSCHEMA and DMCL modules.

sortlib

The file name of the text library containing your sort modules.

your.journal.archive

The file name of your journal archive file. This file should come from the ARCHIVE JOURNAL utility, or from a batch job that ran in local mode. Do not use the output from the FIX ARCHIVE utility. If you request any Journal Displays, you should pre-sort the archive file so that each record is sequenced on RUNUNIT-ID and ARC-SEQUENCE-NBR. USJSORT may be used for this purpose.

filetype

The file type of your journal archive file.

dictdb_fn

The file name of your CA IDMS dictionary file.

dictdb_ft

The file type of your CA IDMS dictionary file.

dictdb_fm

The file mode of your CA IDMS dictionary file.

fm

The file mode of the relevant file.

fn SYSCTL fm

The file name, file type, and file mode of the SYSCTL file for the Central Version (CV) used during batch processing.

JNLA EXTRACT fm

The EXTRACT file. CA IDMS Journal Analyzer writes extracts of Archive records for each report type that is not suppressed. All reports use the BGIN, AREA, COMT, ABRT, and ENDJ records present for each run-unit. The amount of space needed depends on the number of run-units in the Archive file, the number of Areas readied, and the number of Commits issued by those run-units.

JNLA DISPLAY fm

The DISPLAY file. If Journal Displays are requested, CA IDMS Journal Analyzer writes a record to the Display File for each BFOR/AFTR record that meets the selection criteria for DISPLAY=DBKEY or for DISPLAY=RECORD, and for each BFOR/AFTR record for every run-unit that meets the selection criteria for DISPLAY=PROGRAM. Each ABRT record will also be written for each DISPLAY requested. The amount of space needed depends on the number and size of these records.

JNLA RANKING fm

The RANKING file. CA IDMS Journal Analyzer writes a record to the Ranking File for every run-unit that meets the selection criteria of each REPORT=RANK request. The amount of space needed depends on the number of requests for RANK reports and the number of run-units that satisfy the selection criteria.

JNLA SYSLSTD fm

The file name, file type, and file mode of the Journal Display file. This should be different from PRINTER.

JNLA SYSLSTR fm

The file name, file type, and file mode of the Journal Reports file. This should be different from PRINTER.

dcb extent

The information required for your CA IDMS dictionary file.

rrrr

The BLKSIZE for the Ranking File. Must be a multiple of 60 (LRECL).

dddd

The BLKSIZE for the DISPLAY file. Specify a value that will contain at least one occurrence of your largest DISPLAY record plus a 4-byte block descriptor word. (A DISPLAY record contains a 4-byte record descriptor word, an 84-byte header, and a database record image.)

Chapter 7: Messages

This section contains the following topics:

Overview

CA IDMS Journal Analyzer generates three types of messages on the Audit Report.

- Error

- Informative

- Processing

This chapter describes each type of message followed by a possible cause and suggested action to correct the problem.

Error

Error messages are in the form E*nnn* and report on the following:

- Erroneous parameter data

- Conflicting parameter data

- Invalid archive data

- Incongruous processing conditions

Informative

Informative messages are in the form I*nnn* and report on the following:

- Start and end of each processing phase

- Extract requests

- Journal report requests

- Journal display requests

- Actions taken

- Audit information (that is, status, totals)

Processing

Processing messages are generated during EXTRACT, REPORT, and DISPLAY processing, and report on the following:

- Conflicting parameter data

- Sort errors

- Incongruous archive data

- Incongruous processing conditions

Error Messages

E001

MINOR KEYWORD ERROR

Reason:

1. Invalid minor keyword (or synonym) was submitted.

2. Minor keyword was misspelled.

Action:

Correct keyword and resubmit job.

E002

MAJOR KEYWORD ERROR

Reason:

1. Invalid major keyword (or synonym) was submitted.

2. Major keyword was misspelled.

Action:

Correct keyword and resubmit job.

E003

KEYWORD TABLE MISSING

Reason:

Internal keyword table not found in program.

Action:

Contact Technical Support.

E004

LAST REQUEST CONTINUED...IGNORED

Reason:

Last parameter request card in job indicates continuation.

Action:

1. Include additional parameter phrases after last card.

2. Review last request card and remove continuation delimiter.

E005

PROCESS CARD MISSING OR INVALID

Reason:

1. PROCESS card was not the first card in parameter file.

2. No PROCESS card was included in job.

3. PROCESS card contained syntactical errors.

Action:

1. Check parameter file and make sure PROCESS card is first available card.

2. Add a PROCESS card to Parameter file.

3. Correct the PROCESS card syntax.

Note: Errors E006 through E019 cause processing to terminate if CONT=N in the PROCESS statement. If processing is terminated at the end of the parameter phase, message E020 is also generated.

If CONT=Y in the PROCESS statement, the error message is generated and processing continues, but the parameter in error is ignored.

E006

INVALID PARAMETER REQUEST

Reason:

An invalid parameter (or synonym) was requested.

Action:

Correct parameter (or synonym) and resubmit job.

E007

INVALID REPORT TYPE FOR SUPPRESS

Reason:

An invalid report type (or list number) was requested for suppression.

Action:

Correct report type (or list number) and resubmit job.

E008

EXCESSIVE REPORT REQUEST

Reason:

More than 20 report requests have been validated and accepted.

Action:

Delete excessive report requests and resubmit job.

E009

INVALID REPORT TYPE

Reason:

An invalid report type was requested.

Action:

Correct the report type and resubmit job.

E010

INVALID REPORT OPERAND

Reason:

1. An invalid report operand was specified.

2. A required report minor keyword is missing.

Action:

Correct report operand and resubmit job.

E011

INVALID REPORT DATE/TIME LIMITS

Reason:

1. One of the limit fields is non-numeric.

2. Start value is greater than the stop value.

Action:

Correct limit fields and resubmit job.

E012

PREVIOUS REPORT - ALL IN EFFECT

Reason:

A report request for all records has preceded this request for selected records.

Action:

The report request is ignored.

E013

NO VALID REPORT REQUESTS

Reason:

No valid report requests were accepted at the beginning of the Report phase.

Action:

Report processing is terminated immediately. Review PROCESS options and Report requests.

E014

EXCESSIVE DISPLAY REQUEST

Reason:

More than 20 display requests have been validated and accepted.

Action:

Delete excessive display requests and resubmit job.

E015

INVALID DISPLAY TYPE

Reason:

An invalid display type was requested.

Action:

Correct the display type and resubmit the job.

E016

INVALID DISPLAY OPERAND

Reason:

1.   An invalid display operand was specified.

2.   A required minor keyword is missing.

Action:

Correct display operand and resubmit job.

E017

INVALID DISPLAY DATE/TIME LIMITS

Reason:

1.   Start time, stop time, or interval is non-numeric.

2.   Start value is greater than the stop value.

3.   Month, day, hour, or minute is out of range.

Action:

Correct limit fields and resubmit job.

E018

INVALID DISPLAY - ALL IN EFFECT

Reason:

A display request for all records preceded this request for selected records.

Action:

The Display request is ignored.

E019

ALL OUTPUTS ARE SUPPRESSED

Reason:

At the end of the Parameter phase, a condition was detected where all extract records were suppressed and no valid display requests were accepted.

Action:

Processing is terminated immediately. Review SUPPRESS and Display requests.

E020

PROCESSING DISCONTINUED

Reason:

A parameter error was detected, and CONT=N was specified on the PROCESS card.

Action:

Examine other error messages generated prior to this message; correct problem and resubmit job.

E021

END-OF-FILE BEFORE FIRST BGIN

Reason:

An end-of-file condition was detected before the first BGIN record in the Archive Journal file.

Action:

None. The Archive Journal file is effectively null.

E022

UNKNOWN ARCHIVE RECORD TYPE

Reason:

At least one unknown Archive Journal record type was detected during the Extract phase. An incorrect tape may have been used for processing user journal records.

Action:

Select new tape and resubmit job; or contact Technical Support to report the existence of this situation.

E023

RUN UNIT TABLE ENTRY NOT FOUND

Reason:

Transaction information was not available during Extract phase, as expected. Processing is aborted immediately. This is usually an internal processing error.

Action:

For assistance, contact Technical Support at http://ca.com/support

E024

BGIN MATCHES RUN UNIT ENTRY

Reason:

During the Extract phase, the transaction number in a BGIN record matches that of a concurrently executing run-unit (that is, a second BGIN record was read for a transaction). This is usually due to reading an Archive Journal file that is out of sequence or that contains duplicates. Processing is aborted immediately.

Action:

Select a new tape and resubmit job; or contact Technical Support to report the existence of this problem.

E025

RUN UNIT TABLE OVERFLOW

Reason:

More than 100 concurrent transactions were encountered in the internal transaction table. Processing is aborted immediately. This is an internal limitation of CA IDMS Journal Analyzer.

Action:

Select a new tape and resubmit job; or contact Technical Support to report the existence of this problem.

E026

EXTRACT TABLE ENTRY ERROR

Reason:

An extract was created with an invalid extract type. Processing is aborted immediately. Usually this is due to reading an Extract file that was not created by CA IDMS Journal Analyzer.

Action:

For assistance, contact Technical Support at http://ca.com/support

E027

RELIDMS MUST BE ENTERED AS nn.nn

Reason:

Non-numeric data was entered for the RELIDMS parameter.

Action:

Enter a valid numeric value.

E028

PREVIOUS STEP WAS UNSUCCESSFUL

Reason:

ACA IDMS Journal Analyzer step was unsuccessful, but rather than abending, only a return code of 16 was provided because ABEND=N was specified.

Action:

Resolve error and rerun CA IDMS Journal Analyzer. If the error is not obvious, you may need to rerun CA IDMS Journal Analyzer with ABEND=Y to obtain a dump before calling the Technical Support.

Informative Messages

I001

PROCESSING OPTIONS

Reason:

The processing options are presented as additional lines of information following the listing of the PROCESS statement on the Audit Report. The options are listed in the following order:

1. Processing to be performed.

2. Whether processing is to continue or discontinue after a parameter error is detected.

3. Journal display format.

4. Whether extract and display records are to be produced for program RHDCRUAL.

5. Whether extract and display records are to be produced for programs whose names begin with 'IDMS'.

6. Whether record IDs are uniquely defined or not (i.e., described in multiple schemas and subschemas).

7. The name of the module containing your user-written decompression routine.

8. Whether processing will abend or not abend after a serious error is detected.

Action:

None.

I002

REPORT - ALL SUPERSEDES PRIOR SELECTIONS

Reason:

A request for a report of all records follows prior request(s) for selected records. The ALL parameter is honored, superseding the prior valid request(s).

Action:

Review parameters submitted.

I003

DISPLAY - ALL SUPERSEDES PRIOR SELECTIONS

Reason:

A request for a display of all records follows prior request(s) for selected records. The ALL parameter is honored, superseding the prior valid request(s).

Action:

Review parameters submitted.

I004

EXTRACT RECORDS WILL BE CREATED FOR. . .

Reason:

At the start of the EXTRACT phase, each report type for which extracts are to be created is reported. The report type is listed as additional information.

Action:

None.

I005

EXTRACT RECORDS WILL BE SUPPRESSED FOR . . .

Reason:

At the start of the EXTRACT phase, each report type for which extract records are to be suppressed is reported. The report type is listed as additional information.

Action:

None.

I006

DISPLAY RECORDS WILL BE CREATED FOR . . .

Reason:

At the start of the EXTRACT phase, each valid display request is reported. If the request is for all records of a specific display type, an indicative message is included as additional information. If the display request included selection criteria, the additional information is presented in one of the following formats:

1. RECORD time-range record-ID

2. DBKEY time-range database-key

3. PROGRAM time-range program-name view data

Action:

None.

I007

DISPLAY LIMITS

Reason:

Information pertaining to the limiting of a specific display type. The display type, program type, and display limiter(s) are presented as additional information.

Action:

None.

I008

PROGRAM DISPLAY RECORD ID SUPPRESSION

Reason:

Information pertaining to the suppression of PROGRAM display record IDs. Individual record IDs or a range of record IDs is provided as additional information.

Action:

None.

I009

EXTRACT PROCESSING

Reason:

The start and end of the EXTRACT phase are reported with the date and time of the message as additional information.

Action:

None.

I010

JSEG RECORD - DATE, TIME, # ELEMENTS

Reason:

Information from each JSEG archive record is reported. The date-stamp, time-stamp, and number of elements in the JSEG recovery unit table are reported as additional information.

Action:

None.

I011

ARCHIVE RECORDS BYPASSED TO FIRST BGIN

Reason:

The first BGIN record represents the first transaction recorded on the Archive Journal file. The count as well as the date-stamp and time-stamp of the first BGIN are reported.

Action:

None.

I012

FIRST AND LAST TIME RECORDS

Reason:

After the last archive record is processed, the date and time stamps from the first and last TIME records are presented.

Action:

None.

I013

TOTAL RUN UNITS FORCED TO ABRT

Reason:

If a BGIN record is not matched with an ENDJ or ABRT record, an incomplete transaction condition is realized. An ABRT record is "forced", and the count of these records is presented. All archive records for such incomplete transactions are ignored except for Chronological Event and Abort Coincidence reports.

This condition may occur if:

- Archive does not include normal CV shutdown.

- Multiple archive files are processed in improper sequence.

Action:

None.

I014

ARCHIVE RECORDS BYPASSED AFTER FIRST BGIN

Reason:

A number of Archive Journal records were bypassed after the first BGIN record was encountered. These archive records represent activity for transactions that were initiated before the first BGIN, or whose BGIN has not been processed because multiple archive files were processed out of sequence, or that failed the IDMSXXXX or RHDCRUAL selection specification of the PROCESS parameter.

Action:

None.

I015

ARCHIVE RECORDS PROCESSED FOR THIS TYPE . . .

Reason:

At the end of the EXTRACT phase, a count of each Archive Journal record type that was processed is presented.

Action:

None.

I016

TOTAL ARCHIVE RECORDS PROCESSED

Reason:

The total number of Archive Journal records processed is presented.

Action:

None.

I017

EXTRACT RECORDS WERE CREATED FOR . . .

Reason:

At the end of the EXTRACT phase, a count of the extracts created for each report type is presented.

Action:

None.

I018

TOTAL EXTRACT RECORDS CREATED

Reason:

The total number of extract records created is presented.

Action:

None.

I019

DISPLAY RECORDS CREATED FOR . . .

Reason:

1. At the end of the EXTRACT phase, a count of records written to the DISPLAY file is presented for each Display type. In addition to the BFOR and AFTR records that satisfied each selection criteria, all of the ABRT records (see I013 and I015) are written for each selection criteria. The ABRT records are for internal processing only. They do not appear on a DISPLAY.

2. At the beginning of the DISPLAY phase, each selection criteria and the count of the matching BFOR and AFTR records is presented.

Action:

None.

I020

TOTAL DISPLAY RECORDS CREATED

Reason:

 The total number of display records created is presented.

Action:

None.

I021

TOTAL RUN UNITS PROCESSED

Reason:

The count of transactions processed during the EXTRACT phase is presented. This count should be identical to the number of BGIN records, unless IDMSXXXX=N or RHDCRUAL=N was specified.

Action:

None.

I022

MAXIMUM CONCURRENT RUN UNITS ENCOUNTERED

Reason:

The highest transaction quiesce level recorded in a BGIN, COMT, ENDJ, or ABRT record is reported.

Action:

None.

I023

REPORT PROCESSING

Reason:

The start and end of the REPORT phase are recorded with the date and time of the message as additional information.

Action:

None.

I024

REPORTS WILL BE CREATED FOR . . .

Reason:

At the start of the REPORT phase, each valid report request is recorded. If the request is for all records of a particular report type, an indicative message is included as additional information; otherwise the report type is presented. If the report request included time selection criteria, the additional information is presented in the following format:

```
 report-type    time-range    start    end
```

Action:

None.

I025

(No message text)

Reason:

This message is a continuation of the I024 message and presents the selection criteria for a report request in one of the following formats:

```
1.  program name   reporting level   low-high
2.  rank-program   item number       how        value-type
```

Action:

None.

I026

DISPLAY PROCESSING

Reason:

The start and end of the DISPLAY phase are reported with the date and time of the messages.

Action:

None.

I027

INPUT PARAMETER STATEMENT

Reason:

The parameter statement shown has been entered.

Action:

None.

I028

PREVIEW REPORT TYPE UNAVAILABLE IN RELEASE 12.0

Reason:

The Database Area and Database Record reports have been discontinued as of release 12.0 of CA IDMS Journal Analyzer.

Action:

None.

Processing Messages

Note: Although the action taken on some of the following messages indicates NONE, if any of these messages is generated, you can contact Technical Support for assistance in determining a remedy for the problem.

ABORTC - EXTRACT FILE IS OUT OF SEQUENCE

Reason:

An out-of-sequence file was detected during ABORT COINCIDENCE report processing.

Action:

Rerun the job. If this situation reoccurs, contact Technical Support.

ABORTC - SORT ERROR WAS DETECTED

Reason:

A non-zero sort return code was encountered during ABORT COINCIDENCE report processing.

Action:

Look at JASRTMSG for messages from SORT.

ACTV - COMT ENCOUNTERED WITHOUT ENDJ/ABRT

Reason:

An ENDJ or ABRT was missing for a transaction (COMT extract) during ACTIVITY report processing.

Action:

None.

ACTV - CONFLICTING RUN UNIT DATA

Reason:

A BGIN extract was missing for an ENDJ/ABRT/COMT extract of the same transaction during ACTIVITY report processing.

Action:

None.

ACTV - EXTRACT FILE IS OUT OF SEQUENCE

Reason:

An out-of-sequence condition was detected during ACTIVITY report processing.

Action:

Rerun the job. If this situation reoccurs, contact Technical Support.

ACTV - INCOMPLETE RUN UNIT ENCOUNTERED

Reason:

An ENDJ or ABRT was missing for a transaction (BGIN extract) during ACTIVITY report processing.

Action:

None.

ACTV - MULTIPLE ENDJ/ABRT ENCOUNTERED

Reason:

Multiple ENDJ/ABRT extracts were encountered for the same transaction during ACTIVITY report processing.

Action:

None.

ACTV - SORT ERROR WAS DETECTED

Reason:

A non-zero sort return code was encountered during ACTIVITY report processing.

Action:

Look at JASRTMSG for messages from SORT.

*** AREA TABLE OVERFLOW ***

Reason:

The program being reported had readied more than eight areas. This is a limitation for the current release of Journal Analyzer.

Action:

None.

*** DESCR NOT AVAILABLE ***

Reason:

The program is not registered to any subschema.

Action:

Use IDD or IDMSDDDL to register the program to an appropriate subschema. You can find more information in Appendix D (see page 205).

BYPASS PROGRAM NAME MISSING

Reason:

No program name was indicated in the BYPASS statement.

Action:

Specify a program name to be bypassed during Data Extraction and Reporting phases.

BYPASS PROGRAM COUNT EXCEEDED

Reason:

Only 10 BYPASS Program Names can be specified.

Action:

Remove the extra BYPASS statements.

CALL - OF called name FAILED IN PROGRAM caller-name; STATUS CODE IS

Reason:

A non-zero return code resulted from an attempt to CALL the named program.

Action:

Ensure the named program exists in the STEPLIB or LIBDEF. SEARCH library. Ensure there is adequate memory in the region or partition.

- **4** –– Improper parameter list
- **8** –– Module not found in load/core image library
- **12** –– Not enough storage for internal table or module (DOS only)
- **16** –– GSSANKR could not be loaded.

CHANGE OF PREFIX LEN ENCOUNTERED

Reason:

The prefix length was changed for a particular database record occurrence.

Action:

Investigate the possibility of a change in the schema/subschema.

CONSECUTIVE RECORD TYPES ARE IDENTICAL

Reason:

For a particular database record occurrence, either successive BFOR or AFTR images were encountered.

Action:

Produce a DATABASE KEY Display for the record in question to check for possible integrity error.

DBST - program HAS RECEIVED AN IDMS ERROR. FUNCTION=function

Reason:

A non-zero CA IDMS error status was returned. Possible function codes are:

- **B** —— BIND the transaction to subschema IDMSNWKA.
- **F** —— FINISH the transaction.
- **R** —— Return RELEASE number from OOAK record.
- **1** —— Retrieve record names for selected record id values.
- **4** —— Retrieve the subschema to which a selected program is registered.
- **5** —— Retrieve the element attributes for a selected subschema/record.
- **6** —— Retrieve the element attributes for a selected subschema/record.
- **7** —— Retrieve the prefix attributes for a selected subschema/record.

This message is followed by normal IDMS-STATUS information. Processing terminates with an abend.

Action:

Based upon the particular ERROR-STATUS, resolve the problem according to normal CA IDMS error resolution techniques.

DELT - OF called-name FAILED IN PROGRAM caller-name; STATUS CODE IS code

Reason:

A non zero return code resulted from an attempt to delete the named program from storage.

Action:

This should not occur. If it does, notify Technical Support.

DICT - PRESSPACK SUPPORT FOR BT TYPE ONLY

Reason:

CA IDMS Presspack support is provided only where CA IDMS Presspack is used for both compression and decompression as indicated by a value of 'BT' in the CALL-TIME-040 field of the associated SRCALL-040 record.

Action:

None.

DICT - PRESSPACK SUPPORT FOR BUILTIN DCT ONLY

Reason:

CA IDMS Presspack support is provided only for records using the generic or BUILTIN Data Characteristic Table (DCT).

Action:

None.

DICT - NO PRESSPACK DCT TABLE NAME PROVIDED

Reason:

Either a CUSTOM DCT name or else BUILTIN Presspack compression must be used.

Action:

None.

DSPI - DISPLAY PROCESSING TERMINATED. THE DISPLAY FILE IS EMPTY

Reason:

The display file created during the Extract Phase did not contain any records. Display processing terminates.

Action:

Ensure that your DISPLAY requests will find qualifying BFOR/AFTR records on the archive file.

DSPI - NO RECORDS OUT OF SORT

Reason:

All of the records on the display file were ABRT records. These records are dropped during the first DISPLAY sort.

Action:

Ensure that your DISPLAY requests will find qualifying BFOR/AFTR records on the archive file.

DSPI - SORT ERROR WAS DETECTED

Reason:

A non-zero sort return code was encountered during the initial display sort. DISPLAY processing terminates.

Action:

Look at JASRTMSG for messages from SORT.

DSPM - DISPLAY PROCESSING TERMINATED. THE DISPLAY FILE IS EMPTY

Reason:

The display file created during the EXTRACT phase contained only ABRT records. Display processing is terminated.

Action:

Ensure that your DISPLAY requests will find qualifying BFOR/AFTR records on the archive file.

DSPM - SORT ERROR WAS DETECTED

Reason:

A non-zero sort return code was encountered during the main display sort. DISPLAY processing terminates.

Action:

Look at JASRTMSG for messages from SORT.

DSP0 - AREA NAME NOT FOUND FOR DBKEY= dbkey PAGE GROUP= page group

Reason:

CA IDMS Journal Analyzer could not determine an area name from the DMCL associated with the given dbkey and page group values.

Action:

Review the DMCL to ensure it includes the appropriate area.

DSP0 - GSICVTD ERROR - STATUS CODE IS code

Reason:

Routine GSICVTDB has returned a non-zero status code to routine USJDSPO. Possible status codes are:

- **4** –– Incorrect number of parameters
- **8** –– Invalid function code
- **12** –– Lines per page--bits used mismatch
- **16** –– Line index greater than maximum lines per page
- **20** –– Page number greater than maximum page number
- **24** –– Input db-key page number greater than maximum page number
- **28** –– Input bits used not within min/max bits allowed

Action:

Ensure that the CA IDMS dictionary is for the same release as the archive file.

DSP0 - GSSMOVE ERROR - STATUS CODE IS code

Reason:

Routine GSSMOVE has returned a non-zero status code to routine USJDSP0. Possible status codes are:

- **01** —— Invalid request

- **02** —— Maximum length exceeded.

Action:

Status 01--Contact Technical Support.

Status 02--This can occur when a compressed, fragmented record is written to the journal without its fragments (as when only a pointer was changed) or when CA IDMS Journal Analyzer's recomposition of spanned or fragmented records was unsuccessful for any reason.

DSP0 - NON ZERO RETURN CODE FROM IDMSUNPS - RC= return code

Reason:

A bad return code was received from the IDMSUNPS CA IDMS Presspack decompression routine.

Action:

Review the return code value received and contact Technical Support.

DSP0 - USJDSP1 ERROR - STATUS CODE IS code

Reason:

Routine USJDSP1 has returned a non-zero status code to routine USJDSP0. Possible status codes are:

- **B** — Unsuccessful return from GSICVTDB
- **C** — Unsuccessful call to GSICVTDB
- **E** — Subschema view error; see message on DISPLAY output
- **H** — Unsuccessful call to GSSHXCH
- **L** — Unsuccessful call to GSSLOAD
- **M** — Unsuccessful call to GSSMOVE
- **1** — Invalid request
- **2** — Phase/load module specified for USERDCOM not found

Action:

Ensure that the CA IDMS dictionary is for the same release as the archive file.

DSP0 - USJSEQF ERROR - FUNCTION CODE IS function-code, STATUS CODE IS status-code

Reason:

Routine USJSEQF has returned a non-zero status code to routine USJDSP0.

Possible function codes are:

- **I** —— Open input
- **O** —— Open output
- **R** —— Read
- **W** —— Write
- **C** —— Close

Possible status code is:

- **2** —— Insufficient storage

Action:

Run the job in a larger region/partition. If your environment is z/VSE, make more GETVIS available to the partition.

EVENT - EXTRACT FILE IS OUT OF SEQUENCE

Reason:

An out-of-sequence condition was detected during CHRONOLOGICAL EVENT report processing.

Action:

Rerun the job. If this situation reoccurs, contact Technical Support.

EXTM - SORT ERROR WAS DETECTED

Reason:

A non-zero sort return code was encountered during the extract file sort. EXTRACT process terminates with an abend.

Action:

Look at JASRTMSG for messages from SORT.

EXTO - ARCHIVE FILE SEQUENCE BREAK AT RECORD record-count. CURRENT/PREVIOUS SEQUENCE NUMBERS ARE current/previous

Reason:

The archive file must be in sequence. A record has been read in which the sequence number is less than the number in the previous archive record. The current and previous sequence numbers, as well as a count of records already processed, are shown.

Action:

Extract processing terminates. If multiple archive files have been defined for processing, ensure that they are defined in the sequence in which they were created.

EXTO - THE ARCHIVE FILE WAS PROCESSED ACCORDING TO THE RECORD FORMAT FOR IDMS RELEASE release-number

Reason:

This informative message indicates the release of CA IDMS as entered on the PROCESS statement, or taken as a default. The archive file records were processed according to the format for that release.

EXTO - ERROR OCCURRED DURING ARCHIVE FILE PROCESSING--USJARCF STATUS CODE IS status-code, FUNCTION IS function-code.

Reason:

Function codes are:

- **R** –– Read

- **I** –– Open for input

- **C** –– Close

Status codes are:

- **00** –– No error

- **04** –– End of file (no error)

- **08** –– GETMAIN/GETVIS failure during GET processing

- **12** –– GETMAIN/GETVIS failure during SPAN processing

- **16** –– GETMAIN/GETVIS failure during OPEN processing

- **20** –– GETMAIN/GETVIS failure during OPEN processing

- **24** –– Failure invoking GSSMOVE

Action:

Provide additional MAIN/GETVIS storage and rerun the job.

Status code 24, ensure that GSSMOVE resides in your STEPLIB, and ensure that your region or partition size is sufficient. Correct, then resubmit the job.

EXTO - UNKNOWN RECORD TYPE ENCOUNTERED ON ARCHIVE. RECORD TYPE IS record-type

Reason:

CA IDMS Journal Analyzer is designed to expect these record types on the archive file:

ABRT, AFTR, AREA, BFOR, BGIN, COMT, ENDJ, JSEG, TIME, CKPT, JHDA, JHDR, JHDS, USER, Dxxx Distributed Data Records

Action:

Record types other than those listed are counted (see message E022 and) and ignored.

EXT0 - USJSEQF ERROR - FUNCTION CODE IS function-code, STATUS CODE IS status-code, FILE IS file-name

Reason:

Routine USJSEQF has returned a non-zero status code to routine USJEXT0.

Possible function codes are:

- **I** —— Open input
- **O** —— Open output
- **R** —— Read
- **W** —— Write
- **C** —— Close

Possible status code is:

- **2** —— Insufficient storage

Possible file names are EXTRACT and DISPLAY

Action:

Run the job in a larger region/partition. If your environment is z/VSE, make more GETVIS available to the partition.

HIGH - MATRIX SORT FILE IS OUT OF SEQUENCE

Reason:

The Management Ranking file is out of sequence.

Action:

Rerun the job. If this situation reoccurs, contact Technical Support.

HIGH - SUMMARY SORT FILE IS OUT OF SEQUENCE

Reason:

The Management Ranking file is out of sequence.

Action:

Rerun the job. If this situation reoccurs, contact Technical Support.

INCOMPLETE SUBSCRIPT STRUCTURE

Reason:

During Display processing for subschema view, either invalid or incomplete field descriptions have been encountered for a subscripted group in a program's subschema.

Action:

Review the corresponding schema and subschema; revise as needed, then resubmit the job.

INVALID SUBSCHEMA RESUMPTION

Reason:

During Display processing for subschema view, an inconsistent processing condition has been detected.

Action:

Contact Technical Support.

LOAD - GSSLOAD OF phase FAILED; RETURN CODE IS code

Reason:

In the z/VSE environment, an optional technical Bulletin has been applied to cause CA IDMS Journal Analyzer to run with overlay phases. An attempt to load the indicated phase has failed. Possible codes are:

- **0** —— No error
- **4** —— Phase not found
- **8** —— GETVIS failure
- **12** —— GSSSVHP failure

Action:

Ensure all steps required to run as an overlay have been successfully executed.

MGMT - COMT ENCOUNTERED WITHOUT ENDJ/ABRT

Reason:

An ENDJ or ABRT extract was missing for a transaction (COMT extract) during MANAGEMENT report processing.

Action:

None.

MGMT - CONFLICTING RUN UNIT DATA

Reason:

A BGIN extract was missing for an ENDJ/ABRT/COMT extract of the same transaction during MANAGEMENT report processing.

Action:

None.

MGMT - EXTRACT FILE IS OUT OF SEQUENCE

Reason:

An out-of-sequence condition was encountered during MANAGEMENT report processing.

Action:

Rerun the job. If this situation reoccurs, contact Technical Support.

MGMT - INCOMPLETE RUN UNIT ENCOUNTERED

Reason:

An ENDJ or ABRT extract was missing for a transaction (BGIN extract) during MANAGEMENT report processing.

Action:

None.

MGMT - MULTIPLE ENDJ/ABRT ENCOUNTERED

Reason:

Multiple ENDJ/ABRT extracts were encountered for the transaction during MANAGEMENT report processing.

Action:

None.

MGMT - SORT1 ERROR WAS DETECTED

Reason:

A non-zero sort return code was encountered during MANAGEMENT Highlight Summary report processing.

Action:

Look at JASRTMSG for messages from SORT.

MGMT - SORT2 #A ERROR WAS DETECTED

Reason:

A non-zero sort return code was encountered during MANAGEMENT Rank report processing.

Action:

Look at JASRTMSG for messages from SORT.

MGMT - SORT2 #B ERROR WAS DETECTED

Reason:

A non-zero sort return code was encountered during MANAGEMENT Rank report processing.

Action:

Look at JASRTMSG for messages from SORT.

MGMT - SORT2 #C ERROR WAS DETECTED

Reason:

A non-zero sort return code was encountered during MANAGEMENT Rank report processing.

Action:

Look at JASRTMSG for messages from SORT.

MGMT - UNEXPECTED REPORT PARAMETER ENTRY

Reason:

An invalid MANAGEMENT Table entry was encountered.

Action:

None.

NON-UNIQUE RECORD TYPE

Reason:

This message appears in a record name field on a Journal Display.

Action:

See the NONUNIQ parameter.

OCCURS LEVEL GREATER THAN 3

Reason:

During DISPLAY processing for subschema view, a field with an OCCURS greater than 3 has been encountered. This is a violation of ANS COBOL specifications.

Action:

Review the corresponding schema and subschema for the selected program.

Note: The following PARM errors will cause processing to terminate if CONT=N was specified on the PROCESS card; otherwise, the erroneous parameter is ignored.

PARM - OVERLAP entry1 entry2

Reason:

The time interval present in one report request overlapped the time interval for another request of the same journal report type. All Management reports must be the same time period.

Entry 1 and entry 2 show the report type as well as the time intervals for the overlapping report requests.

Action:

None. (See note above.)

PARM - RECORD TABLE OVERFLOW (ID)

Reason:

The RECORD table, used to convert record IDs into record names, overflowed during extended parameter validation.

Action:

None. (See note above.)

PARM - RECORD TABLE OVERFLOW (NAME)

Reason:

The RECORD table, used to convert record names into record IDs, overflowed during extended parameter validation.

Action:

None. (See note above.)

PREFIX LENGTH NOT A MULTIPLE OF 4

Reason:

The prefix length field of a journal archive record contains a value that is not evenly divisible by 4. This can occur if processing an archive of native VSAM records.

Action:

The prefix is processed as 4 byte db-keys. The odd portion of the prefix is ignored.

PREFIX TABLE OVERFLOW***

Reason:

CA IDMS Journal Analyzer has an internal limit of only being able to DISPLAY 64 record prefix dbkeys in subschema view.

Action:

None.

PROG - COMT/AREA ENCOUNTERED WITHOUT ENDJ/ABRT

Reason:

An ENDJ or ABRT extract was missing for a transaction (COMT/AREA extract) during PROGRAM report processing.

Action:

None.

PROG - CONFLICTING RUN UNIT DATA

Reason:

A BGIN extract was missing for an ENDJ/ABRT/COMT/AREA extract of the same transaction during PROGRAM report processing.

Action:

None.

PROG - EXTRACT FILE IS OUT OF SEQUENCE

Reason:

An out-of-sequence condition was detected during PROGRAM report processing.

Action:

Rerun the job. If this situation reoccurs, contact Technical Support.

PROG - INCOMPLETE RUN UNIT ENCOUNTERED

Reason:

An ENDJ or ABRT extract was missing for a transaction (BGIN extract) during PROGRAM report processing.

Action:

None.

PROG - INVALID PROGRAM LEVEL ENCOUNTERED

Reason:

A probable out-of-sequence condition was detected during PROGRAM report processing.

Action:

None.

PROG - MULTIPLE ENDJ/ABRT ENCOUNTERED

Reason:

Multiple ENDJ/ABRT extracts were encountered for the same transaction during PROGRAM report processing.

Action:

None.

PROG - NOT A LEVEL 1 EXTRACT FOR A NEW PROGRAM

Reason:

A probable out-of-sequence condition was detected during PROGRAM report processing (Program Summary).

Action:

None.

PROG - NOT A LEVEL 2 EXTRACT FOR A LEVEL BREAK

Reason:

A probable out-of-sequence condition was detected during PROGRAM report processing (Program Highlights).

Action:

None.

PROG - SORT ERROR WAS DETECTED

Reason:

A non-zero sort return code was encountered during PROGRAM report processing.

Action:

Look at JASRTMSG for messages from SORT.

RECORD ATTRIBUTES ENTRY MISSING

Reason:

An inconsistent condition has been detected during the building or searching of the Record Attribute Table.

Action:

None.

SUBSCRIPT TABLE OVERFLOW

Reason:

A subscripted structure is greater than can be accommodated by an internal table.

Action:

None.

UNABLE TO BUILD SUBSCHEMA FIELD ATTRIBUTES (x) SUBSCHEMA NAME = name, RECORD-ID = id

Reason:

An inconsistent condition has been detected during the building of the Field Attribute Table. One cause is that the record was not found in the subschema.

Action:

A full view of the AFTR image is displayed.

UNABLE TO LOCATE SUBSCHEMA INFO IN DATA DICTIONARY

Reason:

A program was not registered to a subschema.

Action:

You can find more information in Appendix D (see page 205).

UNEXPECTED DATA CHANGES ENCOUNTERED

Reason:

The data in a BFOR image does not match data in the preceding AFTR image, although both images are for the same database key.

1. The record is fragmented and not all fragments were available for recomposition.

2. Concurrent updating has occurred.

Action:

1. This error can occur if pointers in this record are modified because of the STORE or ERASE of another record. If the modification is unauthorized, produce a DATABASE KEY Display for the record in question.

2. The record was updated by two concurrently executing transactions. Produce a DATABASE KEY Display for the record occurrence in question.

UNMATCHED BFOR RECORD ENCOUNTERED

Reason:

A BFOR image was not followed by a AFTR image for an non-ERASE verb.

Action:

Produce a DATABASE KEY Display for the record occurrence in question.

UTL1 - GSSFILE RETURNED AN ERROR DURING function WITH FILE ARCHIVE, RETURN CODES ARE n1, n2, n3, n4

Reason:

The file handler program GSSFILE encountered an error when attempting an I/O operation on the associated file. The 'function' indicates the specific type of operation either OPEN, CLOSE, READ, or WRITE. The return codes n1, n2, n3, and n4 denotes the specific file return codes.

Action:

Review the file return codes table to determine the reason that the error occurred.

Return Codes:

This message contains the following return codes:

4

Reason: End-of-File

Action: Contact Technical Support.

8

Reason: Open error or file is not open

Action: Look for JCL errors or for the use of improper files.

12

Reason: An I/O error has occurred

Action: Find cause for I/O error.

16

Reason: Request not recognized

Action: Contact Technical Support.

20

Reason: File was already opened

Action: Contact Technical Support.

24

    Reason: Parameter list error

    Action: Contact Technical Support.

28

    Reason: VSAM error:

    n1=R15 return code from VSAM

    n2=low order byte from R0

    GENCB/MODCB type of error

    n3=VSAM feedback byte error in I/O request

    Action: Use n1, n2, and n3 to check for possible user errors. If there are no user errors, contact Technical Support.

32

    Reason: Insufficient storage

    Action: Increase storage for job step.

36

    Reason: SYNAD error occurred:

    n1=byte 1 of DECB

    n2=byte 2 of DECB

    n3=byte 3 of DECB

    Action: Examine your BDAM files.

40

    Reason: BPAM FIND ERROR

    n1=R15

    n2=R0

    Action: Use n1 and n2 (as described in Data Management Macro Instructions) to check for errors.

44

    Reason: BPAM STOW error:

    n1=R15

    n2=0

    Action: Use n1 and n2 (as described in Data Management Macro Instructions) to check for error.

0

    Reason:

    n4=8, use of unopened file

    n4=24, parameter list error

    Action: Contact Technical Support.

1

    Reason: JCL/label overrode parm list

    Action: Remove DCB information from JCL and ensure that the correct files are referenced.

2

    Reason: Parm list overrode JCL/label

    Action: Remove DCB information from JCL and ensure that the correct files are referenced.

3

    Reason: Unrecognized request

    Action: Contact Technical Support.

4

    Reason: OS x13 ABEND trapped at open

    Action: Fix cause for x13 ABEND.

5

    Reason: Tried to update seq. file

    Action: Contact Technical Support.

6

    Reason: VSAM write at other than load

    Action: Contact Technical Support.

7

    Reason: SOS table could not expand

    Action: Contact Technical Support.

8

    Reason: OS DCB open failed

    Action: Contact Technical Support.

9

>**Reason:** SOS table buffer pointer lost
>
>**Action:** Contact Technical Support.

10

>**Reason:** SOS table file CB not built
>
>**Action:** Contact Technical Support.

11

>**Reason:** OS DD statement Missing
>
>**Action:** Supply missing DD **Action:** statement.

12

>**Reason:** VSAM ACB open failed
>
>**Action:** Contact Technical Support.

13

>**Reason:** Record format invalid
>
>**Action:** Contact Technical Support.

14

>**Reason:** Macro format invalid
>
>**Action:** Contact Technical Support.

15

>**Reason:** Record length not numeric
>
>**Action:** Contact Technical Support.

16

>**Reason:** Record length too large
>
>**Action:** Contact Technical Support.

17

>**Reason:** Block size not numeric
>
>**Action:** Contact Technical Support.

18

>**Reason:** Block size too large
>
>**Action:** Contact Technical Support.

19

    Reason: Invalid DOS sysname table

    Action: Assemble a valid sysname table.

20

    Reason: DOS sysname table entry missing

    Action: Assemble a sysname table with an entry for the missing one.

21

    Reason: DOS LU number too large

    Action: Use an LU number within range.

22

    Reason: DOS sysname is not numeric or is misspelled

    Action: Correct to a valid sysname.

23

    Reason: DOS sysname blank

    Action: Do not use blank sysname.

24

    Reason: DOS LU not assigned

    Action: Contact Technical Support.

25

    Reason: DOS DTF prototype missing

    Action: Contact Technical Support.

26

    Reason: DOS logic module missing

    Action: Generate missing logic module.

27

    Reason: DOS CCW mismatch

    Action: Contact Technical Support

28

    Reason: File is not a PDS

    Action: Allocate file to a PDS.

Appendix A: Keywords and Synonyms

This appendix lists all of the major and minor keywords and their value fields. In addition, all valid synonyms for both the keywords and value fields are listed. The listings are grouped by parameter type.

This section contains the following topics:

Process Parameter

The following is a listing of all the valid keywords, value fields, and synonyms of the PROCESS parameter.

Synonyms can be used interchangeably with the normal keyword; however, their use is **not** recommended. The synonyms are supported in Release 3 mainly for compatibility with prior releases.

Note: The recommended keyword and value field (or synonym) is in bold type and will be listed first in the character string.

```
PROCESS      =      ALL/BOTH
                    REPORTS/REPORT/REPTS/REPT/RPTS/RPT
                    DISPLAYS/DISPLAY//DSPS/DSPL
                    EXTRACTS/EXTRACT/EXTS/EXT/"SPACES"

CONT         =      Y/YES
                    N/NO

FORMAT       =      FULL/FUL/FU/F
                    SPARSE/SPARS/SPAR/SPA/S

DMCL         =      "DMCL name"

RHDCRUAL     =      Y/YES

IDMSXXXX     =      Y/YES
                    N/NO

NONUNIQ      =      Y/YES

USERDCOM     =      procedure name
```

Suppress Parameter

The following is a listing of the keywords, value fields, and synonyms of the SUPPRESS parameter.

```
SUPPRESS  =  ACTIVITY
             PROGRAM
             CHRONO-EVENT
             ABORT-COINCIDENCE
             MANAGEMENT
             ALL
             #n
```

Report Parameter

The following are listings of the keywords, value fields, and synonyms of the REPORT parameter. The listings are grouped by report type. The first listing contains the keywords common to all report types.

Common Report Parameter Keywords

```
REPORT   =   "report type"
ALL      =   Y/YES
START    =   "start date/time"
STOP     =   "stop date/time"
INTVL    =   "length (minutes)"
```

ACTIVITY Report

```
REPORT   =   ACTV

SELECT   =   Y/YES
             N/NO
```

PROGRAM Report

```
REPORT   =   PROG/PGM/PRG

NAME     =   "program name"

LEVEL    =   DETAIL /DETAILS/DET/PROG-DET/PGM-DET/PRG-DET
             SUMMARY/SUM/PROG-SUM/PGM-SUM/PRG-SUM
             SYSTEM/SYS/SYS-SUM

HILITES  =   Y/YES
             N/NO
```

CHRONOLOGICAL EVENT Report

```
REPORT   =   CHRONO/CE/EVENTS/EVENT

SELECT   =   Y/YES
             N/NO
```

ABORT COINCIDENCE Report

*R*EPORT   =   **ABORTC**/ABRTC/ABRT/AC/COINC/COIN

*SEL*ECT   =   **Y**/YES
            N/NO

MANAGEMENT Highlights/Summaries

*R*EPORT   =   **HI-SUM**/HIGH-S

*LEV*EL   =   **PROGRAM**/PROG/PGM/PRG/P
            SYSTEM/SYS/S
            GRAND/GR/G

MANAGEMENT Online Response Time

*R*EPORT   =   **HI-ONL**/HIGH-O/HIGH-ORT

MANAGEMENT Buffer Pool Utilization

*R*EPORT   =   **HI-BPU**/HIGH-B

MANAGEMENT Rankings

```
REPORT   =  RANK

RANK#    =  "number of items"

RANKHOW  =  LOW/LOWEST/L
            HIGH/HIGHEST/H
            LT:value
            LE:value
            GT:value
            GE:value

RANKPROG =  ONL/ONLINE/O
            BTC/BATCH/B
            SYS/SYSTEM/S

RANKVALU =  MEAN/MN/AVG/AVE/AV
            MEDIAN/MED/MD
            ABSOLUTE/ABS/AB

RANKITEM =  nn

RANKWHAT =  "item"
```

Display Parameter

The following are listings of the keywords, value fields, and synonyms of the DISPLAY parameter. The listings are grouped by display type. The first listing contains the keywords common to all display types.

Common Display Parameter Keywords

```
DISPLAY  =  "display type"

ALL      =  Y/YES

START    =  "start date/time"

STOP     =  "stop date/time"
```

RECORD Display

*D*ISPLAY = **REC**/RECORD/RECD/RCD

RECID   = **"record ID"**

DATABASE KEY Display

*D*ISPLAY = **DBKEY**/DBK

PAGE   = **"page"**

LINE   = **"line"**

PROGRAM Display

*D*ISPLAY = **PROG**/PROGRAM/PGM/PRG

NAME   = **"program name"**

VIEW   = **FULL**/F/ALL/A
              SUBSC/SUBSCH/SUBS/S/PARTIAL/PART/P

DATA   = **ONLY**

DISPLAY Limits

*DL*IMITS = **REC**/RECORD/RECD/RCD
              DBKEY/DBK
              PROG/PROGRAM/PGM/PRG

TYPE=   **ONL**/ONLINE/O
              BTC/BATCH/B
              SYS/SYSTEM/S/ALL

RU=   **"run unit ID'**

#RUS=   **"number of run units"**

#SETS   = **"number of before/after sets"**

#RUSETS = **"number of before/after sets per run unit"**

NTH   = **"sampling frequency"**

PROGRAM DISPLAY Suppression

Record ID

*DS*UPPS   =   **RECID**

ID   =   **"record ID"**

Range of IDs

*DS*UPPS   =   **RANGE**

LOWID   =   **"lowest record ID"**

HIGHID =   **"highest record ID"**

Appendix B: Extract File Format

This appendix describes the Extract file and the various extract data formats and report types with which the extracts are associated. This file can be used as input to user written Special Purpose reporting programs.

This section contains the following topics:

Extract File

The Extract file is created by the EXTRACT phase and is input to the REPORT phase. It contains reformatted images of the Archive Journal records. The Extract file can be kept as an historical file for future special reporting requirements. The Extract record length was changed in IDMS release 15.0 from 303 to 311.

The extract record has a fixed length of 311 bytes. It contains a 52-byte sort header followed by the extract data. The sort header is defined by the report type for which the extract record is generated. The sort header is also used to sequence the Extract file.

The following are various extract data formats and the report types with which the extracts are associated.

Note: The following abbreviations are used for report type:

ACTV = ACTIVITY

PROG = PROGRAM

CE = CHRONOLOGICAL EVENT

AC = ABORT COINCIDENCE

MGMT = MANAGEMENT

```
TYPE                  ARCHIVE            RECORD REPORTS
1.  Initiation        BGIN               ACTV,PROG,CE,MGMT
2.  Checkpoint        COMT/ENDJ/ABRT     ACTV,PROG,CE,AC,
                                         MGMT
4.  Area              AREA            PROG,CE
```

Extract Record

The following is a COBOL definition of the extract record.

```
      *---------------------------------------------------------- *
      *T                                                          *
      *   EXTRACT RECORD                                          *
      *                                                           *
      *-----------------------------------------------------------*
          SKIP1
      01  JOURNAL-EXTRACT     VALUE LOW-VALUES    PIC X(311).
          SKIP1
      01  FILLER  REDEFINES JOURNAL-EXTRACT                     SYNC.
          05  JER-REPORT-IDENT.
              10  JER-REPORT-TYPE               PIC X(02).
                  88  JER-ACTIVITY              VALUE '11'.
                  88  JER-DB-AREA               VALUE '21'.
                  88  JER-DB-RECORD             VALUE '22'.
                  88  JER-PROGRAM               VALUE '31'.
                  88  JER-EVENT                 VALUE '91'.
                  88  JER-ABORTC                VALUE '92'.
20                88  JER-MGMT                  VALUE '95'.
          05  FILLER                            PIC X(02).
          EJECT
          05  JES-SORT-DATA                     PIC X(52).
          SKIP1
          05  JES-ACTIVITY-SORT REDEFINES JES-SORT-DATA.
              10  JES-ACTV-KEY.
                  15  JES-ACTV-DATE.
                      20  YY                    PIC X(02).
                      20  SLASH1                PIC X(01).
                      20  MM                    PIC X(02).
                      20  SLASH2                PIC X(01).
                      20  DD                    PIC X(02).
                  15  JES-ACTV-TIME.
                      20  HH                    PIC X(02).
                      20  MIN                   PIC X(02).
                      20  SEC                   PIC X(02).
                      20  TTH                   PIC X(02).
                  15  JES-ACTV-RUNUNIT-IDENT.
                      20  JES-ACTV-RUNUNIT-QUAL  PIC X(8).
                      20  JES-ACTV-RUNUNIT-ID    PIC S9(9)  COMP.
                      20  JES-ACTV-RUNUNIT-SEQ   PIC S9(9)  COMP.
              10  JES-ACTV-ONLINE-BATCH         PIC X(01).
                  88  JES-ACTV-ONLINE           VALUE '1'.
                  88  JES-ACTV-BATCH            VALUE '2'.
              10  JES-ACTV-RECORD-TYPE          PIC X(01).
                  88  JES-ACTV-BGIN             VALUE '1'.
                  88  JES-ACTV-ENDJ             VALUE '2'.
```

```
            88  JES-ACTV-ABRT                VALUE '3'.
            88  JES-ACTV-COMT                VALUE '4'.
            88  JES-ACTV-AREA                VALUE '5'.
        10  FILLER                           PIC X(06).
        10  JES-ACTV-ARCHIVE-SEQ             PIC S9(18) COMP.
            88  JES-ACTV-FLUSH               VALUE ZERO.
        10  FILLER                           PIC X(04).
SKIP1
    05  JES-ACTIVITY-RESORT REDEFINES JES-SORT-DATA.
        10  JES-ACTV-RS-ONLINE-BATCH         PIC X(01).
            88  JES-ACTV-RS-ONLINE           VALUE '1'.
            88  JES-ACTV-RS-BATCH            VALUE '2'.
        10  FILLER                           PIC X(03).
        10  JES-ACTV-RS-DURATION             PIC S9(5)V99 COMP-3.
        10  JES-ACTV-RS-RUNUNIT-IDENT.
            15  JES-ACTV-RS-RUNUNIT-QUAL     PIC X(8).
            15  JES-ACTV-RS-RUNUNIT-ID       PIC S9(9)  COMP.
            15  JES-ACTV-RS-RUNUNIT-SEQ      PIC S9(9)  COMP.
        10  JES-ACTV-RS-RECORD-TYPE          PIC X(01).
            88  JES-ACTV-RS-BGIN             VALUE '1'.
            88  JES-ACTV-RS-ENDJ             VALUE '2'.
            88  JES-ACTV-RS-ABRT             VALUE '3'.
            88  JES-ACTV-RS-COMT             VALUE '4'.
            88  JES-ACTV-RS-AREA             VALUE '5'.
        10  JES-ACTV-RS-FORCED-ABRT-SW       PIC X(01).
            88  JES-ACTV-RS-FORCED-ABRT      VALUE '1'.
        10  FILLER                           PIC X(26).
EJECT
    05  JES-DB-AREA-SORT REDEFINES JES-SORT-DATA.
        10  JES-DBAREA-KEY.
            15  JES-DBAREA-DATE.
                20  YY                       PIC X(02).
                20  SLASH1                   PIC X(01).
                20  MM                       PIC X(02).
                20  SLASH2                   PIC X(01).
                20  DD                       PIC X(02).
            15  JES-DBAREA-TIME.
                20  HH                       PIC X(02).
                20  MIN                      PIC X(02).
                20  SEC                      PIC X(02).
                20  TTH                      PIC X(02).
            15  JES-DBAREA-RUNUNIT-IDENT.
                20  JES-DBAREA-RUNUNIT-QUAL PIC X(8).
                20  JES-DBAREA-RUNUNIT-ID   PIC S9(9)  COMP.
                20  JES-DBAREA-RUNUNIT-SEQ  PIC S9(9)  COMP.
        10  JES-DBAREA-ARCHIVE-SEQ           PIC S9(18) COMP.
            88  JES-DBAREA-FLUSH             VALUE ZERO.
        10  JES-DBAREA-PAGE                  PIC S9(9)  COMP.
        10  JES-DBAREA-ONLINE-BATCH          PIC X(01).
```

```
                      88  JES-DBAREA-ONLINE         VALUE '1'.
                      88  JES-DBAREA-BATCH          VALUE '2'.
                  10  FILLER                        PIC X(01).
                  10  JES-DBAREA-RECORD-ID          PIC S9(4)  COMP.
                  10  JES-DBAREA-RECORD-TYPE        PIC X(01).
                      88  JES-DBAREA-BFOR           VALUE '1'.
                      88  JES-DBAREA-AFTR           VALUE '2'.
                  10  FILLER                        PIC X(03).
              SKIP1
              05  JES-DB-AREA-RESORT REDEFINES JES-SORT-DATA.
                  10  JES-DBA-RS-PAGE               PIC S9(9)  COMP.
                  10  JES-DBA-RS-RECORD-ID          PIC S9(4)  COMP.
                  10  JES-DBA-RS-ONLINE-BATCH       PIC X(01).
                      88  JES-DBA-RS-ONLINE         VALUE '1'.
                      88  JES-DBA-RS-BATCH          VALUE '2'.
                  10  FILLER                        PIC X(01).
                  10  JES-DBA-RS-DATE               PIC X(08).
                  10  JES-DBA-RS-TIME               PIC X(06).
                  10  FILLER                        PIC X(02).
                  10  JES-DBA-RS-RUNUNIT-IDENT.
                      15  JES-DBA-RS-RUNUNIT-QUAL   PIC X(8).
                      15  JES-DBA-RS-RUNUNIT-ID     PIC S9(9)  COMP.
                      15  JES-DBA-RS-RUNUNIT-SEQ    PIC S9(9)  COMP.
                  10  JES-DBA-RS-ARCHIVE-SEQ        PIC S9(18) COMP.
                  10  JES-DBA-RS-RECORD-TYPE        PIC X(01).
                      88  JES-DBA-RS-BFOR           VALUE '1'.
                      88  JES-DBA-RS-AFTR           VALUE '2'.
                  10  FILLER                        PIC X(03).
              EJECT
              05  JES-DB-RECORD-SORT REDEFINES JES-SORT-DATA.
                  10  JES-DBRCD-KEY.
                      15  JES-DBRCD-DATE.
                          20  YY                    PIC X(02).
                          20  SLASH1                PIC X(01).
                          20  MM                    PIC X(02).
                          20  SLASH2                PIC X(01).
                          20  DD                    PIC X(02).
                      15  JES-DBRCD-TIME.
                          20  HH                    PIC X(02).
                          20  MIN                   PIC X(02).
                          20  SEC                   PIC X(02).
                          20  TTH                   PIC X(02).
                      15  JES-DBRCD-RUNUNIT-IDENT.
                          20  JES-DBRCD-RUNUNIT-QUAL PIC X(8).
                          20  JES-DBRCD-RUNUNIT-ID  PIC S9(9)  COMP.
                          20  JES-DBRCD-RUNUNIT-SEQ PIC S9(9)  COMP.
                  10  JES-DBRCD-ARCHIVE-SEQ         PIC S9(18) COMP.
                      88  JES-DBRCD-FLUSH           VALUE ZERO.
                  10  JES-DBRCD-RECORD-ID           PIC S9(4)  COMP.
```

```
        10  JES-DBRCD-ONLINE-BATCH        PIC X(01).
          88  JES-DBRCD-ONLINE          VALUE '1'.
          88  JES-DBRCD-BATCH           VALUE '2'.
        10  JES-DBRCD-RECORD-TYPE         PIC X(01).
          88  JES-DBRCD-BFOR            VALUE '1'.
          88  JES-DBRCD-AFTR            VALUE '2'.
        10  FILLER                        PIC X(08).
SKIP1
    05  JES-DB-RECORD-RESORT REDEFINES JES-SORT-DATA.
        10  JES-DBR-RS-RECORD-ID          PIC S9(4)  COMP.
        10  JES-DBR-RS-ONLINE-BATCH       PIC X(01).
          88  JES-DBR-RS-ONLINE         VALUE '1'.
          88  JES-DBR-RS-BATCH          VALUE '2'.
        10  FILLER                        PIC X(05).
        10  JES-DBR-RS-DATE               PIC X(08).
        10  JES-DBR-RS-TIME               PIC X(06).
        10  FILLER                        PIC X(02).
        10  JES-DBR-RS-RUNUNIT-IDENT.
            15  JES-DBR-RS-RUNUNIT-QUAL   PIC X(8).
            15  JES-DBR-RS-RUNUNIT-ID     PIC S9(9)  COMP.
            15  JES-DBR-RS-RUNUNIT-SEQ    PIC S9(9)  COMP.
        10  JES-DBR-RS-ARCHIVE-SEQ        PIC S9(18) COMP.
        10  JES-DBR-RS-RECORD-TYPE        PIC X(01).
          88  JES-DBR-RS-BFOR           VALUE '1'.
          88  JES-DBR-RS-AFTR           VALUE '2'.
        10  FILLER                        PIC X(03).
EJECT
    05  JES-PROGRAM-SORT REDEFINES JES-SORT-DATA.
        10  JES-PROG-KEY.
            15  JES-PROG-DATE.
                20  YY                    PIC X(02).
                20  SLASH1                PIC X(01).
                20  MM                    PIC X(02).
                20  SLASH2                PIC X(01).
                20  DD                    PIC X(02).
            15  JES-PROG-TIME.
                20  HH                    PIC X(02).
                20  MIN                   PIC X(02).
                20  SEC                   PIC X(02).
                20  TTH                   PIC X(02).
            15  JES-PROG-RUNUNIT-IDENT.
                20  JES-PROG-RUNUNIT-QUAL PIC X(8).
                20  JES-PROG-RUNUNIT-ID   PIC S9(9)  COMP.
                20  JES-PROG-RUNUNIT-SEQ  PIC S9(9)  COMP.
        10  JES-PROG-PROGRAM-NAME         PIC X(08).
        10  JES-PROG-RECORD-TYPE          PIC X(01).
          88  JES-PROG-FLUSH            VALUE LOW-VALUES.
          88  JES-PROG-BGIN             VALUE '1'.
          88  JES-PROG-ENDJ             VALUE '2'.
```

```
                        88  JES-PROG-ABRT                VALUE '3'.
                        88  JES-PROG-COMT                VALUE '4'.
                        88  JES-PROG-AREA                VALUE '5'.
                    10  FILLER                       PIC X(11).
SKIP1
05  JES-PROGRAM-RESORT REDEFINES JES-SORT-DATA.
    10  JES-PROG-RS-PROGRAM-NAME     PIC X(08).
    10  JES-PROG-RS-LEVEL            PIC X(01).
        88  JES-PROG-RS-RU               VALUE '1'.
        88  JES-PROG-RS-DUR              VALUE '2'.
    10  FILLER                       PIC X(03).
    10  JES-PROG-RS-DURATION         PIC S9(5)V99 COMP-3.
    10  JES-PROG-RS-RUNUNIT.
        15  JES-PROG-RS-DATE         PIC X(08).
        15  JES-PROG-RS-TIME         PIC X(08).
        15  JES-PROG-RS-RUNUNIT-IDENT.
            20  JES-PROG-RS-RUNUNIT-QUAL PIC X(8).
            20  JES-PROG-RS-RUNUNIT-ID  PIC S9(9)  COMP.
            20  JES-PROG-RS-RUNUNIT-SEQ PIC S9(9)  COMP.
    10  FILLER                       PIC X(04).
EJECT
05  JES-CHRONO-SORT REDEFINES JES-SORT-DATA.
    10  JES-CE-DATE.
            20  YY                   PIC X(02).
            20  SLASH1               PIC X(01).
            20  MM                   PIC X(02).
            20  SLASH2               PIC X(01).
            20  DD                   PIC X(02).
        15  JES-CE-TIME.
            20  HH                   PIC X(02).
            20  MIN                  PIC X(02).
            20  SEC                  PIC X(02).
            20  TTH                  PIC X(02).
        15  JES-CE-TIME-X REDEFINES JES-CE-TIME.
            20  JES-CE-HH            PIC S9(2).
            20  JES-CE-MIN           PIC S9(2).
    10  JES-CE-ARCHIVE-SEQ           PIC S9(18) COMP.
    10  JES-CE-RUNUNIT-IDENT.
        15  JES-CE-RUNUNIT-QUAL      PIC X(8).
        15  JES-CE-RUNUNIT-ID        PIC S9(9)  COMP.
        15  JES-CE-RUNUNIT-SEQ       PIC S9(9)  COMP.
    10  JES-CE-ONLINE-BATCH          PIC X(01).
        88  JES-CE-ONLINE                VALUE '1'.
        88  JES-CE-BATCH                 VALUE '2'.
    10  JES-CE-RECORD-TYPE           PIC X(01).
        88  JES-CE-BGIN                  VALUE '1'.
        88  JES-CE-ENDJ                  VALUE '2'.
        88  JES-CE-ABRT                  VALUE '3'.
        88  JES-CE-COMT                  VALUE '4'.
```

```
                88  JES-CE-AREA                 VALUE '5'.
                88  JES-CE-DPRP                 VALUE 'A'.
                88  JES-CE-DIND                 VALUE 'B'.
                88  JES-CE-DCOM                 VALUE 'C'.
                88  JES-CE-DBAK                 VALUE 'D'.
                88  JES-CE-DPND                 VALUE 'E'.
                88  JES-CE-DFGT                 VALUE 'F'.
                88  JES-CE-DLID                 VALUE 'G'.
            10  FILLER                      PIC X(10).
SKIP1
05  JES-ABORTC-SORT REDEFINES JES-SORT-DATA.
        10  JES-ABORTC-DATE.
            15  YY                          PIC X(02).
            15  SLASH1                      PIC X(01).
            15  MM                          PIC X(02).
            15  SLASH2                      PIC X(01).
            15  DD                          PIC X(02).
        10  JES-ABORTC-TIME.
                20  HH                      PIC X(02).
                20  MIN                     PIC X(02).
                20  SEC                     PIC X(02).
                20  TTH                     PIC X(02).
        10  JES-ABORTC-PROGRAM-NAME         PIC X(08).
        10  JES-ABORTC-COINCIDENT-NAME      PIC X(08).
            88  JES-ABORTC-ABORTED          VALUE LOW-VALUES.
        10  FILLER                          PIC X(20).
SKIP1
05  JES-ABORTC-RESORT REDEFINES JES-SORT-DATA.
        10  JES-ABORTC-RS-COINCIDENT        PIC X(08).
        10  JES-ABORTC-RS-RATIO             PIC S9(3)V99 COMP-3.
        10  FILLER                          PIC X(01).
        10  JES-ABORTC-RS-ABORTED           PIC X(08).
        10  JES-ABORTC-RS-OCCURS            PIC S9(4)  COMP.
        10  JES-ABORTC-RS-ABORTS            PIC S9(4)  COMP.
        10  FILLER                          PIC X(28).
EJECT
05  JES-MANAGEMENT-SORT REDEFINES JES-SORT-DATA.
        10  JES-MGMT-KEY.
            15  JES-MGMT-DATE.
                20  YY                      PIC X(02).
                20  SLASH1                  PIC X(01).
                20  MM                      PIC X(02).
                20  SLASH2                  PIC X(01).
                20  DD                      PIC X(02).
            15  JES-MGMT-TIME               PIC X(08).
            15  JES-MGMT-PROGRAM-NAME       PIC X(08).
            15  JES-MGMT-RUNUNIT-IDENT.
                20  JES-MGMT-RUNUNIT-QUAL   PIC X(8).
                20  JES-MGMT-RUNUNIT-ID     PIC S9(9)  COMP.
```

```
                    20  JES-MGMT-RUNUNIT-SEQ   PIC S9(9)  COMP.
           10  JES-MGMT-RECORD-TYPE         PIC X(01).
              88  JES-MGMT-FLUSH            VALUE LOW-VALUES.
              88  JES-MGMT-BGIN             VALUE '1'.
              88  JES-MGMT-ENDJ             VALUE '2'.
              88  JES-MGMT-ABRT             VALUE '3'.
              88  JES-MGMT-COMT             VALUE '4'.
           10  FILLER                       PIC X(11).
    SKIP1
    05  JED-EXTRACT-DATA                     PIC X(255).
    SKIP1
    05  JD1-TYPE1-DATA REDEFINES JED-EXTRACT-DATA.
           10  JD1-PROGRAM-NAME             PIC X(08).
           10  JD1-PROGRAM-DURATION REDEFINES
               JD1-PROGRAM-NAME             PIC S9(5)V99 COMP-3.
           10  JD1-QUIESCE-LEVEL            PIC S9(4)  COMP.
           10  JD1-TASK-ID.
               15  JD1-TASK-ID-PREFIX       PIC X(04).
                  88  JD1-BATCH             VALUE 'BATC'.
               15  JD1-TASK-ID-SUFFIX       PIC X(04).
           10  JD1-USER-ID                  PIX X(32).
           10  JD1-EXT-USERID               PIX X(32).
           10  FILLER                       PIC X(173).
    EJECT
    05  JD2-TYPE2-DATA REDEFINES JED-EXTRACT-DATA.
           10  JD2-PROGRAM-NAME             PIC X(08).
              88  JD2-PROGRAM-ABORTED       VALUE LOW-VALUES.
           10  JD2-CHKPT-DATE.
               15  YY                       PIC X(02).
               15  SLASH1                   PIC X(01).
               15  MM                       PIC X(02).
               15  SLASH2                   PIC X(01).
               15  DD                       PIC X(02).
           10  JD2-CHKPT-TIME.
               15  HH                       PIC X(02).
               15  MIN                      PIC X(02).
               15  SEC                      PIC X(02).
               15  TTH                      PIC X(02).
           10  FILLER                       PIC X(02).
           10  JD2-QUIESCE-LEVEL            PIC S9(4)  COMP.
           10  JD2-TASK-ID                  PIC X(08).
           10  JD2-AREA-COUNT               PIC S9(5)  COMP.
           10  JD2-BFOR-COUNT               PIC S9(5)  COMP.
           10  JD2-AFTR-COUNT               PIC S9(5)  COMP.
           10  JD2-COMT-COUNT               PIC S9(5)  COMP.
           10  JD2-RECORDS-UPDATED          PIC S9(9)  COMP.
           10  JD2-PAGES-READ               PIC S9(9)  COMP.
           10  JD2-PAGES-WRITTEN            PIC S9(9)  COMP.
           10  JD2-PAGES-TOTAL              PIC S9(9)  COMP.
```

```
            10  JD2-CALC-HOME-PAGE           PIC S9(9)  COMP.
            10  JD2-CALC-OVERFLOW            PIC S9(9)  COMP.
            10  JD2-VIA-OWNER-PAGE           PIC S9(9)  COMP.
            10  JD2-VIA-OVERFLOW             PIC S9(9)  COMP.
            10  JD2-RECORDS-REQUESTED        PIC S9(9)  COMP.
            10  JD2-RECORDS-CURRENT          PIC S9(9)  COMP.
            10  JD2-CALLS-TO-DBMS            PIC S9(9)  COMP.
            10  JD2-FRAGMENTS-STORED         PIC S9(9)  COMP.
            10  JD2-ROOTS-RCDS-RELOC         PIC S9(9)  COMP.
            10  JD2-LOCKS-REQUESTED          PIC S9(9)  COMP.
            10  JD2-SEL-LOCKS-HELD           PIC S9(9)  COMP.
            10  JD2-UPD-LOCKS-HELD           PIC S9(9)  COMP.
            10  JD2-COUNT17                  PIC S9(9)  COMP.
            10  JD2-COUNT18                  PIC S9(9)  COMP.
            10  JD2-COUNT19                  PIC S9(9)  COMP.
            10  JD2-COUNT20                  PIC S9(9)  COMP.
            10  JD2-COUNT21                  PIC S9(9)  COMP.
            10  JD2-COUNT22                  PIC S9(9)  COMP.
            10  JD2-COUNT23                  PIC S9(9)  COMP.
            10  JD2-COUNT24                  PIC S9(9)  COMP.
            10  JD2-COUNT25                  PIC S9(9)  COMP.
            10  JD2-COUNT26                  PIC S9(9)  COMP.
            10  JD2-COUNT27                  PIC S9(9)  COMP.
            10  JD2-COUNT28                  PIC S9(9)  COMP.
            10  JD2-COUNT29                  PIC S9(9)  COMP.
            10  JD2-COUNT30                  PIC S9(9)  COMP.
            10  FILLER                       PIC X(83).
        SKIP1
        05  JD2B-TYPE2-DATA REDEFINES JED-EXTRACT-DATA.
            10  FILLER                       PIC X(52).
            10  JD2B-COUNT OCCURS 30 TIMES   PIC S9(9)  COMP.
            10  FILLER                       PIC X(83).
        EJECT
        05  JD2C-SORT-DATA REDEFINES JED-EXTRACT-DATA.
            10  FILLER                       PIC X(253).
            10  JD2C-SORT-EXTENSION.
                15  JES-PROG-RS-RECORD-TYPE  PIC X(01).
                    88  JES-PROG-RS-BGIN         VALUE '1'.
                    88  JES-PROG-RS-ENDJ         VALUE '2'.
                    88  JES-PROG-RS-ABRT         VALUE '3'.
                    88  JES-PROG-RS-COMT         VALUE '4'.
                    88  JES-PROG-RS-AREA         VALUE '5'.
                15  JES-PROG-RS-FORCED-ABRT-SW  PIC X(01).
                    88  JES-PROG-RS-FORCED-ABRT  VALUE '1'.
        SKIP1
        05  JD3-TYPE3-DATA REDEFINES JED-EXTRACT-DATA.
            10  JD3-VERB                     PIC S9(2)  COMP.
            10  JD3-DISPLACE-CALL            PIC S9(4)  COMP.
            10  JD3-DBK-PAGE                 PIC S9(9)  COMP.
```

```
                        10  JD3-DBK-LINE                 PIC S9(4)  COMP.
                        10  JD3-RECORD-ID                PIC S9(4)  COMP.
                        10  JD3-PAGE-DISPLACE            PIC S9(4)  COMP.
                        10  JD3-RECORD-LENGTH            PIC S9(4)  COMP.
                        10  JD3-PREFIX-LENGTH            PIC S9(4)  COMP.
                        10  JD3-PREFIX  OCCURS 236 TIMES PIC X(01).
                        10  FILLER                       PIC X(01).
                    SKIP1
                    05  JD4-TYPE4-DATA REDEFINES JED-EXTRACT-DATA.
                        10  JD4-AREA-NAME                PIC X(20).
                        10  JD4-LOW-PAGE                 PIC S9(9)  COMP.
                        10  JD4-HIGH-PAGE                PIC S9(9)  COMP.
                        10  JD4-OPEN-MODE                PIC S9(4)  COMP.
                          88  JD4-RETRIEVAL              VALUE +1.
                          88  JD4-UPDATE                 VALUE +2.
                        10  JD4-OPEN-ACCESS              PIC S9(4)  COMP.
                          88  JD4-SHARED                 VALUE +1.
                          88  JD4-EXCLUSIVE              VALUE +2.
                          88  JD4-PROTECTED              VALUE +4.
                        10  FILLER                       PIC X(223).
                    05  JED-DXXX-DATA REDEFINES JED-EXTRACT-DATA.
                        10  JED-DXXX-NODE                PIC X(8).
                        10  JED-DXXX-DTRID               PIC X(24).
                        10  JED-DXXX-FILLER              PIC X(8).
                        10  JED-DXXX-LIDOF               PIC S9(4)  COMP.
                        10  JED-DXXX-LIDNUM              PIC S9(4)  COMP.
                        10  FILLER                       PIC X(211).
                    05  JED-DXXX-LID  REDEFINES JED-EXTRACT-DATA.
                        10  JED-DXXX-PGM-ID              PIC X(8).
                        10  JED-DXXX-LOC-ID              PIC S9(9)  COMP.
                        10  FILLER                       PIC X(243).
```

—

Appendix C: Display File Format

This appendix describes the Display file and the various display record formats and the display types with which the records are associated. This file can be used as input to user written Special Purpose reporting programs.

This section contains the following topics:

Display File

The Display file is created by the EXTRACT phase and is input to the DISPLAY phase. It contains selected before and after images from the Archive Journal file. Normally, the Display file is of a transient nature (passed from the MAIN phase to the DISPLAY phase and then released); however, the Display file can be kept for your own special reporting requirements.

The display record is a variable-length record composed of an 84-byte sort header and a database record image. A 4-byte segment (record descriptor word - RDW) physically precedes each display record but is logically transparent to COBOL programs.

Display Record

The following is a COBOL definition of the display record.

```
01  DISPLAY-RECORD.
    05  DVL-RDW
        10  DVL-LENGTH                      PIC     S9(4)  COMP.
        10  DVL-FILLER                      PIC     X(2).
    05  DDI-DISPLAY-IDENT.
        10  DDI-DISPLAY-TYPE                PIC     X(2).
            88    DDI-RECORD-ID             VALUE   'D1'.
            88    DDI-RECORD-DBKEY          VALUE   'D2'.
            88    DDI-PROGRAM               VALUE   'D3'.
    10 FILLER                               PIC     X(2)
    EJECT
    05  DSD-SORT-DATA                       PIC     X(40).
    05  FILLER REDEFINES DS1-SORT-DATA
        10  DS1-SORT-DATA-1                 PIC     X(8).
        10  DS1-RECORD-ID-SORT REDEFINES DS1-SORT-DATA-1.
            15  DS1-RECORD-ID               PIC     S9(4)  COMP.
        10  DS1-RECORD-DBKEY-SORT REDEFINES DS1-SORT-DATA-1.
            15  DS1-DBK-PAGE                PIC     S9(9)  COMP.
            15  DS1-DBK-LINE                PIC     S9(4)  COMP.
        10  DS1-PROGRAM-SORT REDEFINES DS1-SORT-DATA-1.
            15  DS1-PROGRAM-NAME            PIC     X(8).
        10  DS2-SORT-DATA-2.
            15  DS2-KEY.
                20  DS2-DATE               PIC     X(8).
                20  DS2-TIME               PIC     X(8).
                20  DS2-RUNUNIT-IDENT.
                    25  DS2-RUNUNIT-ID     PIC     S9(9)  COMP.
                    25  DS2-RUNUNIT-SEQ    PIC     S9(9)  COMP.
            15  DS2-ARCHIVE-SEQ            PIC     S9(18) COMP.
                88  DS2-ABORT  VALUE ZERO.

    05  DAD-ADDITIONAL-DATA                 PIC     X(32).
    05  FILLER REDEFINES DAD-ADDITIONAL-DATA.
        10  DAD-PROGRAM-NAME                PIC     X(8).
        10  DAD-DBKEY-FORMAT                PIC     S9(9)  COMP.
        10  DAD-DBKEY.
            15  DAD-DBK-PAGE               PIC     S9(9)  COMP.
            15  DAD-DBK-LINE               PIC     S9(4)  COMP.
        10  DAD-VERB                        PIC     S9(3)  COMP.
        10  DAD-RECORD-ID                   PIC     S9(4)  COMP.
        10  DAD-RECORD-LENGTH               PIC     S9(4)  COMP.
        10  DAD-PREFIX-LENGTH               PIC     S9(4)  COMP.
        10  DAD-TYPE                        PIC     X(1).
            88  DAD-BFOR                    VALUE   '1'.
            88  DAD-AFTR                    VALUE   '2'.
        10  DAD-PROGRAM-VIEWS.
```

```
              15  DAD-SUBSCHEMA-VIEW              PIC     X(1).
                  88  DAD-VIEW                    VALUE   '1'.
              15  DAD-DATA-VIEW                   PIC     X(1).
                  88  DAD-DATA-ONLY               VALUE   '1'.
          10  DAD-ABORT-FLAG                      PIC     X(1).
              88    DAD-ABORT                     VALUE HIGH-VALUES.
          10  DAD-PREFIX-ONLY                     PIC     X.
              88    PREFIX ONLY                   VALUE   'Y'.
          10 FILLER                               PIC     X
      05  DDC-DISPLAY-CHAR                        PIC     X(1).
                      OCCURS 32676 TIMES
                      DEPENDING ON DAD-RECORD-LENGTH.
```

Appendix D: CA IDMS Specifications

This appendix explains and reviews various CA IDMS specifications that promote optimal use of CA IDMS Journal Analyzer.

This section contains the following topics:

CA IDMS Specifications

If CA IDMS Journal Analyzer encounters a run unit whose program name is missing, it substitutes '$-NULL-$' for the name to alert the user of the situation. A possible cause of the missing name is a CA IDMS application program which does not issue 'COPY IDMS SUBSCHEMA-BINDS', but issues its own BINDS. In doing so, the program did not move a literal definition of the program's name to the PROGRAM-NAME field in the SUBSCHEMA-CTRL.

If CA IDMS Journal Analyzer encounters a run unit whose 8-byte task ID is binary zeros, it substitutes 'BATC' for the first four bytes (the environment type). Normally, the environment is signified by values such as 'BATC' and 'CICS'. A zero task ID can be the result of a batch program creating disk journals in a local environment.

If CA IDMS Journal Analyzer deems the SELECT LOCKS HELD count being too large (that is, larger than, 1,677,216-16Meg), CA IDMS Journal Analyzer will adjust the count to what is considers to be a reasonable value by subtracting the value from 1,677,216.

Program Registration

CA IDMS Journal Analyzer is able to produce a PROGRAM DISPLAY in the subschema format (SUBSCHEMA DISPLAY) only when the journaled program is registered to a subschema. A program is associated with a subschema in the data dictionary through one of the following methods:

1. The program is registered to a given subschema for authorized DML processing by the IDMSDDDL utility.

2. The program is complied by a DML processor which automatically maintains compile-time statistics.

If a program is not already registered, the following statements must be processed via IDMSDDDL:

```
/ ADD     \
<         >
\ MODIFY  /

PROGRAM program-name

INCLUDE SUBSCHEMA subschema-name
OF SCHEMA schema-name.
```

Note: This specification can be changed, so that different subschemas are defined for compilation and for the Subschema Display. CA IDMS Journal Analyzer uses the subschema most recently registered for each program.

Program registration will also be required if a user supplied decompression routine has been specified and if this routine requires a valid subschema name in the Applications Control Block (ACB).

Appendix E: Concatenation Utility

This appendix describes the z/VSE Journal Concatenation Utility program (USJCNCT) that lets you concatenate multiple Archive Journal files into a single tape file, including an example of JCL for installing and using the utility.

This section contains the following topics:

Archive Journal File

If several disk journals are offloaded to tape during a processing day, it is possible that run unit information might straddle multiple archive files. If an individual archive file is processed by CA IDMS Journal Analyzer, some run unit statistics may be lost. To avoid this situation, CA IDMS Journal Analyzer accepts concatenated archive files as input. The files must be concatenated in timewise sequence for proper processing.

In z/VSE environments, a user can execute the DITTO utility to concatenate multiple archive tapes, in lieu of a data management facility or another z/VSE utility program. One alternative is to use CAs concatenation utility (USJCNCT) to accomplish the concatenation task.

z/VSE Journal Concatenation Utility

The z/VSE Journal Concatenation Utility (USJCNCT) program allows the z/VSE user to concatenate multiple Archive Journal files into a single tape file. All input tapes are mounted on the SYS011 tape unit, and the output tape is mounted on the SYS012 device.

The CPU operator is prompted with mounting and dismounting messages for the input files. The operator is also queried whether another tape file is available. The valid operator responses are: 'TAPE', 'TAP', 'TA', and 'T'. All other responses cause the termination of the utility program.

The following is an example of the JCL required to install the concatenation utility.

```
// JOB CATALOG*** CATALOG CONCATENATION UTILITY ***
// OPTION CATAL
   PHASE USJCNCT,*
   INCLUDE USJCNCT
// LBLTYP TAPE
// EXEC LNKEDT
/*
/&
```

The following is an example of the USJCNCT JCL.

```
// JOB USJCNCT                    * TAPE CONCATENATION UTILITY*
// TLBL TAPEIN                    INPUT TAPE FILES
// ASSGN SYS011,TAPE
// TLBL TAPEOUT,'ARCHIVE.JOURNAL'   OUTPUT TAPE FILE
// ASSGN SYS012,TAPE
// EXEC USJCNCT
/*
//
```

Appendix F: Character Set

This appendix describes the use for the Subschema View of Program Displays EBCDIC character set is used. If a field contains data not listed here, that field is shown in hexadecimal format.

The following is a listing of the character set used:

```
SPACE
CENT                        _
PERIOD                      .
LESS
LEFT PAREN                  (
PLUS                        +
OR
AMPERSAND                   &
EXCLAMATION                 !
DOLLAR                      $
ASTERISK                    *
RIGHT PAREN                 )
SEMI COLON                  ;
NOT
HYPHEN                      -
SLASH                       /
COMMA                       ,
PERCENT                     %
UNDER                       _
GREATER
QUESTION                    ?
COLON                       :
POUND (NUMBER)              #
AT                          @
APOSTROPHE (single quote)   '
EQUAL                       =
QUOTE (double quote)        "
UPPERCASE English ALPHA     A-Z
NUMBERS                     0-9
```

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