

CA-IDMS[®]/Journal Analyzer

User Guide

15.0



Computer Associates

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About This Guide

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

Organization

Chapter	Description
1	This chapter provides an overview of CA-IDMS Journal Analyzer. It provides information on the many capabilities, as well as information on the various reports and displays.
2	This chapter provides descriptions and examples of the Journal Reports, Journal Displays, and the Audit Report created by CA-IDMS/Journal Analyzer.
3	This chapter provides a detailed description of the parameters needed to create the Journal Reports and Journal Displays.
4	This chapter provides examples on the use of the input parameters for the various Journal Reports and Journal Displays.
5	This chapter provides information on the operational procedures of CA-IDMS/Journal Analyzer, including information on user environments, interfaces, and operational instructions.
6	This chapter provides a listing of all informative, error, and processing messages generated by CA-IDMS/Journal Analyzer.
Appendix A	This chapter lists all the major and minor keywords and their value fields.
Appendix B	This chapter describes the Extract file and various extract data formats and report types with which the extracts are associated.
Appendix C	This chapter describes the Display file and the various types with which the records are associated.
Appendix D	This chapter explains and reviews various CA-IDMS specifications that promote optimal use of CA-IDMS/Journal Analyzer.
Appendix E	This chapter describes the OS/390 Journal Concatenation Utility program (USJCNCT) which permits the VSE/ESA user to concatenate multiple Archive Journal files into a single tape file.
Appendix F	This chapter describes the character set for the Subschema view of Program Displays.
Index	This chapter provides an easy to use cross reference of the major topics of CA-IDMS/Journal Analyzer.

Chapter 1. General Information

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CA-IDMS/Journal Analyzer is Computer Associates comprehensive facility that provides reliable management and performance data to a manager and/or an auditor for better utilization of the data resource. A viable solution to this problem is CA-IDMS/Journal Analyzer, which can be used to solve a company's management and performance reporting needs. CA-IDMS/Journal Analyzer is a comprehensive performance analysis facility that gathers and combines reliable management and performance data, and reports it in concise logical formats. CA-IDMS/Journal Analyzer provides three distinct types of printed output for user analysis:

- Journal Reports
- Journal Displays
- Audit Report

1.1 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.

1.2 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

1.3 Processing Environment

CA-IDMS/Journal Analyzer supports CA-IDMS Release 15.0, operating under any of the OS/390, VSE/ESA, or VM/ESA, operating systems.

1.3.1 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.

1.3.2 Journal Reports

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

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

1.3.2.1 Activity Report

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

1.3.2.2 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.

1.3.2.3 Special Reports

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

1.3.2.4 Management Reports

The Management Reports provide summarized highlights and rankings of program performance and resource consumption. fileefer to 1.3.1, “System Output” on page 1-6 for more detailed information on each of these Journal Reports.

1.3.3 Journal Displays

The second class of printed output are 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

1.3.3.1 Record Display

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

1.3.3.2 Database Key Display

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

1.3.3.3 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).

Refer to 1.3.1, “System Output” on page 1-6 for more detailed information on Journal Displays.

1.3.4 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.

Refer to 1.3.1, “System Output” on page 1-6 for more detailed information on Audit Reports.

1.4 Control Parameters

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

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

1.4.1 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

1.4.1.1 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 (see Exhibit 1.1A).

1.4.1.2 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 (see Exhibit 1.1B).

1.4.1.3 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 (see Exhibit 1.2).

1.4.1.4 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 (see Exhibit 1.1C).

1.4.2 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.

1.4.3 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.

1.4.4 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.

1.4.5 DLIMITS Parameter

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

1.4.6 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.

Refer to Chapter 3, “Parameters” on page 3-1 for more detailed information on these Control Parameters and their operands.

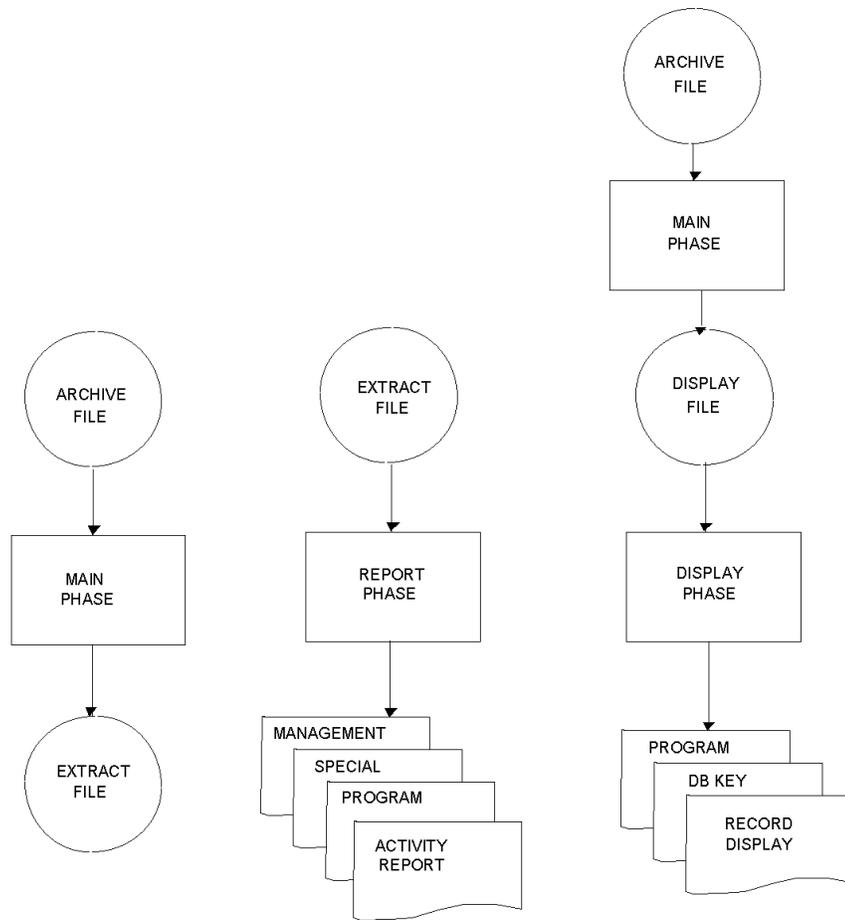


Figure 1.1A
PROCESS = EXTRACTS

Figure 1.1B
PROCESS = REPORTS

Figure 1.1C
PROCESS = DISPLAYS

Exhibit 1.1: PROCESS Parameter Options

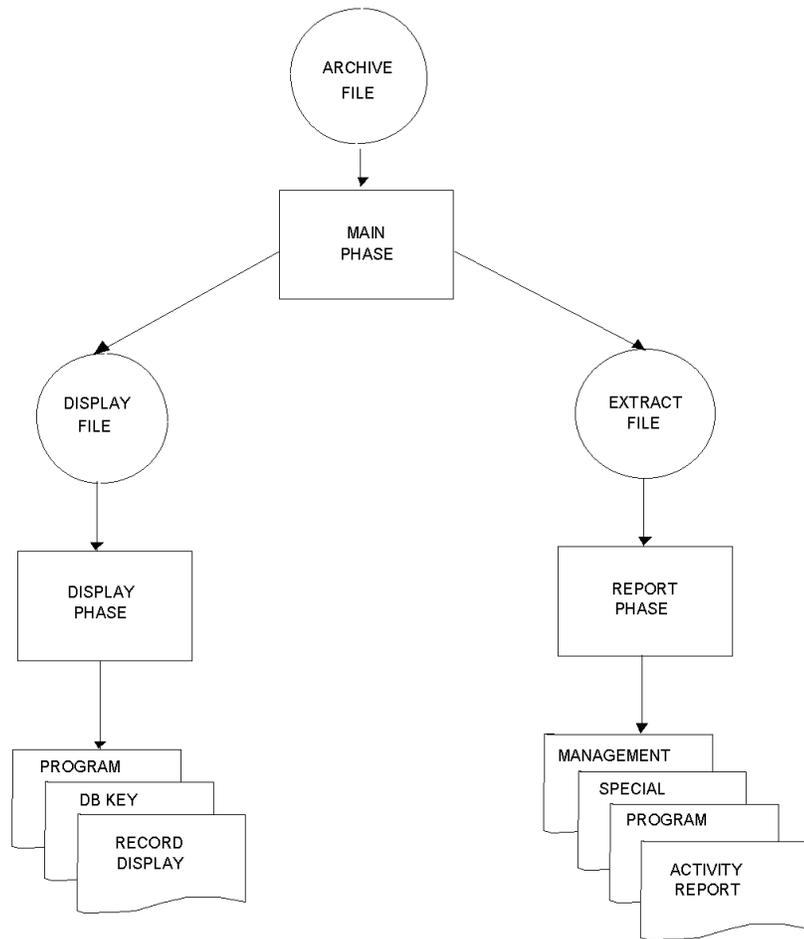


Exhibit 1.2: PROCESS Parameter - ALL Option

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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 provide 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.

2.1 Printed Output

CA-IDMS/Journal Analyzer produces three classes of printed output:

- Journal Reports
- Journal Displays
- Audit Report

2.2 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 of 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.

2.2.1 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.

2.2.2 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 - 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.

2.2.3 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 timewise 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 on a daily basis.

2.2.4 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.).

2.3 Journal Displays

The second class of output generated by CA-IDMS/Journal Analyzer are 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.

2.4 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.

2.4.1 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.

2.4.1.1 ACTIVITY Report Fields

The following is a description of the various fields which make up the ACTIVITY Report (see Exhibit 2.1).

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.

2.4 Audit Report

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER ACTIVITY REPORT					DATE mm/dd/yy	TIME hh:mm:ss	PAGE 2	
		PERIOD	START (BGIN)	COMMIT (COMT)	FINISH (ENDJ)	ABORT (ABRT)				ACTIVE
							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						

Exhibit 2.1: Activity Report

2.4.2 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 the you in selecting the desired time interval.

2.4.2.1 Program Details

Program Details depict selected run unit activity in timewise order for each application program. The majority of the statistics are 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.

2.4.2.2 Program Details Report Fields

The following is a description of the various fields which make up the Program Details Report (see Exhibit 2.2).

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.

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER PROGRAM REPORT	DATE mm/dd/yy	TIME hh:mm:ss	PAGE 2							
mm/dd/yy hh:mm - mm/dd/yy hh:mm												
PROGRAM	START	A DURATION B (SEC) R RUN QUIESCE T UNIT LEVEL	AREAS OPENED	-----PAGES----- READ WRITTEN REQUESTED	---CALC RECORDS--- HOME PAGE OVERFLOW REQUESTED	-----LOCKS----- SELECT UPDATE FRAGMENTS ROOTS/RCDS						
NODE NAME	END		UPDATED	REQUESTED	VIA RECORDS OVERFLOW IDMSDBMS	STORED RELOCATED						
IDMSDDDL	mm/dd/yy mm/dd/yy	hh:mm:ss hh:mm:ss	77.29 1706 2	1 20,594	1,407 25,915	844 8,859	22,902 340	4 528	0 11,546	32,280 29	253 0	15,266 0
IDMSDDDL	mm/dd/yy mm/dd/yy	hh:mm:ss hh:mm:ss	47.45 1708 2	1 7,754	1,018 8,129	938 233	5,533 0	0 0	0 344	14,998 0	154 0	7,948 0
IDMSDDDL	mm/dd/yy mm/dd/yy	hh:mm:ss hh:mm:ss	60.78 1713 2	1 14,658	1,198 20,935	685 8,641	19,724 229	17 670	49 10,958	20,656 34	128 0	7,611 0
IDMSDDDL	mm/dd/yy mm/dd/yy	hh:mm:ss hh:mm:ss	78.83 1724 2	1 20,761	1,441 26,159	901 8,911	23,984 229	0 637	0 11,599	32,577 43	240 0	15,395 0
IDMSDDDL	mm/dd/yy mm/dd/yy	hh:mm:ss hh:mm:ss	73.18 1766 2	1 20,683	1,442 26,159	903 8,911	23,929 229	0 637	0 11,599	32,539 34	221 0	15,378 0
IDMSDDDL	mm/dd/yy mm/dd/yy	hh:mm:ss hh:mm:ss	73.64 1771 2	1 20,681	1,442 26,159	902 8,911	23,927 229	0 637	0 11,599	32,538 34	232 0	15,366 0
IDMSDDDL	mm/dd/yy mm/dd/yy	hh:mm:ss hh:mm:ss	1.80 1803 2	1 1	38 178	1 123	146 0	0 0	0 135	123 0	19 0	2 0
IDMSDDDL	mm/dd/yy mm/dd/yy	hh:mm:ss hh:mm:ss	78.43 1873 2	1 20,682	1,442 26,162	902 8,912	23,929 229	0 637	0 11,601	32,543 34	230 0	15,372 0

Exhibit 2.2: PROGRAM REPORT (Details)

2.4.3 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'.

2.4.3.1 Program Summary/Highlights Report Fields

The following is a description of the various fields which make up the Program Summary Report (see Exhibit 2.3).

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 - (Refer to 2.4.2.1, "Program Details" on page 2-14 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.

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER PROGRAM REPORT							DATE mm/dd/yy	TIME hh:mm:ss	PAGE 2		
SUMMARY = IDMSDDDL BTC mm/dd/yy hh:mm - mm/dd/yy hh:mm													
***** LOWEST *****	START	A	DURATION	AREAS	-----PAGES-----			-----CALC RECORDS-----	-----LOCKS-----				
		B	(SEC)	OPENED	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 mm/dd/yy hh:mm:ss		1.80	1	38	1	146	0	0	0	123	19	2
			1803	2	1	178	123	0	0	135	0	0	
2	mm/dd/yy hh:mm:ss mm/dd/yy hh:mm:ss		47.45	1	1,018	938	5,533	0	0	0	14,998	154	7,948
			1708	2	7,754	8,129	233	0	0	344	0	0	0
3	mm/dd/yy hh:mm:ss mm/dd/yy hh:mm:ss		60.78	1	1,198	685	19,724	17	49	20,656	128	7,611	
			1713	2	14,658	20,935	8,641	229	670	10,958	34	0	0
4	mm/dd/yy hh:mm:ss mm/dd/yy hh:mm:ss		73.18	1	1,442	903	23,929	0	0	32,539	221	15,378	
			1766	2	20,683	26,159	8,911	229	637	11,599	34	0	0
***** HIGHEST *****	START	A	DURATION	AREAS	-----PAGES-----			-----CALC RECORDS-----	-----LOCKS-----				
		B	(SEC)	OPENED	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 mm/dd/yy hh:mm:ss		73.64	1	1,142	902	23,927	0	0	32,538	232	15,566	
			1771	2	20,681	26,159	8,911	229	637	11,599	34	0	0
3	mm/dd/yy hh:mm:ss mm/dd/yy hh:mm:ss		77.29	1	1,407	884	22,902	4	528	32,280	253	15,266	
			1706	2	20,594	25,915	8,859	340	528	11,546	29	0	0
2	mm/dd/yy hh:mm:ss mm/dd/yy hh:mm:ss		78.43	1	1,442	902	23,929	0	0	32,543	230	15,372	
			1873	2	20,682	26,162	8,912	229	637	11,601	34	0	0
1	mm/dd/yy hh:mm:ss mm/dd/yy hh:mm:ss		78.83	1	1,441	901	23,984	0	0	32,577	240	15,395	
			1724	2	20,761	26,159	8,911	229	637	11,599	43	0	0

Exhibit 2.3: PROGRAM Report (Summary/Highlights)

2.4.4 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.

2.4.4.1 Program Summary/Totals Report Fields

The following is a description of the various fields which make up the Program Summary/Totals Report (see Exhibit 2.4).

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 (refer to the 2.4.2.1, "Program Details" on page 2-14 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.

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER PROGRAM REPORT	DATE mm/dd/yy	TIME hh:mm:ss	PAGE 3
SUMMARY = IDMSDDL 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 VALUE	PERCENT OF 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 DDLML	LOW= 60,001 HIGH=	62,000	COUNT= 5	
	SHR UPD DDLML	LOW= 60,001 HIGH=	62,000	COUNT= 1	
	SHR UPD DDLML	LOW= 60,001 HIGH=	62,000	COUNT= 1	
	SHR UPD DDLML	LOW= 60,001 HIGH=	62,000	COUNT= 1	

Exhibit 2.4: PROGRAM Report (Summary/Totals)

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.

2.4.5 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).

2.4.5.1 System Summary Report Fields

The fields of the System Summary Report (see Exhibit 2.5) 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. (Refer to 2.4.2.1, "Program Details" on page 2-14 for definitions.) The ratio of ONLINE or BATCH to SYSTEM is presented for all non-zero counts.

RATIOS - Refer to 2.4.4, "Program Summary/Totals" on page 2-17 Report for definitions.

The ratios are calculated from the appropriate counts.

2.4.6 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 (see Exhibit 2.6).

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

Exhibit 2.5: PROGRAM System Summary Report

2.4 Audit Report

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

Exhibit 2.6: PROGRAM Grand Summary Report

2.4.7 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 IDMSRBCK or the IDMSRFWD utilities.
2. The IDMSRFWD utility is executed with the PRINT parameter to list the before and after images.
3. You search through a stack of IDMSRFWD image reports to establish a quiesce point on which to synchronize the recovery.
4. The IDMSRBCK or IDMSRFWD 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.

2.4.7.1 CHRONOLOGICAL EVENT Report Fields

The following is a description of the various fields that make up the CHRONOLOGICAL EVENT Report (see Exhibit 2.7).

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 LEVEL - Quiesce level at the time of the event, reported as a number of X's. A fully quiesced system is represented by a zero. If the number of concurrent run units exceed 20, that number is reported.

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

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER CHRONOLOGICAL EVENT REPORT				DATE mm/dd/yy	TIME hh:mm:ss	PAGE 2
-----EVENT----- TIME TYPE DURATION	-----IDENT----- RUN UNIT	PROGRAM	---QUIESCE LEVEL---	-----PAGES----- READ WRITTEN	REQUESTED	REQUESTED	-----LOCKS----- SELECT UPDATE	
mm/dd/yy	hh:mm	START*****					*****END hh:mm	
hh:mm:ss	BGIN	1633 RHDCRUAL ONL	X	SHR UPD DDLDCRUN	LOW=	40,001	HIGH= 41,000	
hh:mm:ss	COMT	1633 RHDCRUAL ONL	X	1,234	5	2,703	1,357 3 30	
hh:mm:ss	BGIN	1670 RHDCRUAL ONL	XX	SHR UPD DDLDCRUN	LOW=	40,001	HIGH= 41,000	
hh:mm:ss	ENDJ	0.10 1670 RHDCRUAL ONL	X	3	4	13	10 2 6	
hh:mm:ss	BGIN	1671 RHDCRUAL ONL	XX	SHR UPD DDLDCRUN	LOW=	40,001	HIGH= 41,000	
hh:mm:ss	ENDJ	0.04 1671 RHDCRUAL ONL	X	1	4	12	9 2 5	
→hh:mm:ss	ABRT	19.73 1633 RHDCRUAL ONL	0	0	0	4	4 1 10	
hh:mm:ss	BGIN	1633 RHDCRUAL ONL	X					
hh:mm:ss	COMT	1633 RHDCRUAL ONL	X	1,234	10	2,749	1,388 2 25	
hh:mm:ss	COMT	1633 RHDCRUAL ONL	X	1	0	1	1 1 10	
hh:mm:ss	BGIN	1674 RHDCRUAL ONL	XX	SHR UPD DDLDCRUN	LOW=	40,001	HIGH= 41,000	
hh:mm:ss	ENDJ	0.15 1674 RHDCRUAL ONL	X	0	4	13	10 2 6	
hh:mm:ss	BGIN	1675 RHDCRUAL ONL	XX	SHR UPD DDLDCRUN	LOW=	40,001	HIGH= 41,000	
hh:mm:ss	ENDJ	0.05 1675 RHDCRUAL ONL	X	0	4	12	9 2 5	
→hh:mm:ss	ABRT	59.45 1633 RHDCRUAL ONL	0	1	0	1	1 0 10	
hh:mm:ss	BGIN	1633 RHDCRUAL ONL	X					
hh:mm:ss	COMT	1633 RHDCRUAL ONL	X	1,236	15	2,793	1,417 2 25	
hh:mm:ss	COMT	1633 RHDCRUAL ONL	X	0	0	1	1 1 10	
hh:mm:ss	COMT	1633 RHDCRUAL ONL	X	2	0	3	3 0 10	
hh:mm:ss	COMT	1633 RHDCRUAL ONL	X	2	6	32	55 2 37	
hh:mm:ss	BGIN	1705 USIBLOC2 BTC	XX					

Exhibit 2.7: CHRONOLOGICAL EVENT Report 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.

2.4.8 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.

2.4.8.1 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 (see Exhibit 2.8).

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 (*).

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER ABORT COINCIDENCE REPORT PART 1 mm/dd/yy			DATE mm/dd/yy	TIME hh:mm:ss	PAGE 1
	ABORTED PROGRAM -----	ABORTS -----	COINCIDENT PROGRAM -----	OCCURS -----	COINCIDENCE RATIO -----		
	RHDCRUAL	5					

Exhibit 2.8: ABORT COINCIDENCE Report (Part 1)

2.4.8.2 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 (see Exhibit 2.9).

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".

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER ABORT COINCIDENCE REPORT PART 2 mm/dd/yy			DATE	TIME	PAGE
		COINCIDENT PROGRAM	OCCURS	ABORTED PROGRAM	ABORTS	COINCIDENCE 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

Exhibit 2.9: ABORT COINCIDENCE Report (Part 2)

2.4.9 MANAGEMENT Reports

The MANAGEMENT Reports are grouped into two formats:

Highlights

- Summaries
- Online Response Time
- Buffer Pool Utilization

Rankings

2.4.9.1 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.

2.4.9.2 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.

2.4.9.3 MANAGEMENT Highlights/Program Summary Report Fields

The following is a description of the various fields which make up the MANAGEMENT

Highlights/Program Summary Report (see Exhibit 2.10).

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 (refer to 2.4.2.1, "Program Details" on page 2-14 for definitions) are reported in four values: Lowest, Highest, Mean, and Median.

RATIOS - The Ratios (refer to 2.4.4, "Program Summary/Totals" on page 2-17 for definitions) are calculated for each run unit and are reported in four values: Lowest, Highest, Mean, and Median.

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

Exhibit 2.10: MANAGEMENT HIGHLIGHTS/PROGRAM SUMMARY Report

2.4.10 System Summary Report

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

2.4.10.1 MANAGEMENT Highlights/System Summary Report Fields

The following is a description of the various fields which make up the MANAGEMENT Highlights/System Summary Report (see Exhibits 2.11a and 2.11b).

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.

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

Exhibit 2.11b: MANAGEMENT HIGHLIGHTS/SYSTEM SUMMARY Report

2.4.11 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.

2.4.11.1 MANAGEMENT Highlights/Grand Summary Report Fields

The following is a description of the various fields which make up the MANAGEMENT Highlights/Grand Summary Report (see Exhibits 2.12a and 2.12b).

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 2.4.4, "Program Summary/Totals" on page 2-17 for definitions. The ratios are reported in three values: Lowest, Highest, and Mean.

COUNTS - The CA-IDMS statistics (refer to 2.4.2.1, "Program Details" on page 2-14 for definitions) are reported in three values: Lowest, Highest, and Mean.

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

Exhibit 2.12a: MANAGEMENT HIGHLIGHTS/GRAND SUMMARY Report

2.4 Audit Report

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER MANAGEMENT HIGHLIGHTS/GRAND SUMMARY mm/dd/yy hh:mm - mm/dd/yy hh:mm			DATE mm/dd/yy	TIME hh:mm:ss	PAGE 20
CATEGORY		ONLINE	BATCH	SYSTEM			
COUNTS-----	RECORDS UPDATED	LOWEST 0	0	0	0	0	
		-HIGHEST 424	0	0	424	0	
		--MEAN 98.33	0.00	0.00	98.33	0	
	PAGES READ	LOWEST 0	0	0	0	0	
		-HIGHEST 2,573	0	0	2,573	0	
		--MEAN 330.82	0.00	0.00	330.82	0	
	PAGES WRITTEN	LOWEST 1	0	0	1	0	
		-HIGHEST 224	0	0	224	0	
		--MEAN 22.36	0.00	0.00	22.36	0	
	PAGES REQUESTED	LOWEST 2	0	0	2	0	
		-HIGHEST 14,338	0	0	14,338	0	
		--MEAN 1,789.36	0.00	0.00	1,789.36	0	
	CALC RCDS ON HOME PAGE	LOWEST 0	0	0	0	0	
		-HIGHEST 17	0	0	17	0	
		--MEAN 1.69	0.00	0.00	1.69	0	
	CALC RCDS OVERFLOW	LOWEST 0	0	0	0	0	
		-HIGHEST 3	0	0	3	0	
		--MEAN 0.28	0.00	0.00	0.28	0	
	VIA RCDS ON OWNER PAGE	LOWEST 0	0	0	0	0	
		-HIGHEST 101	0	0	101	0	
		--MEAN 10.72	0.00	0.00	10.72	0	
	VIA RCDS OVERFLOW	LOWEST 0	0	0	0	0	
		-HIGHEST 81	0	0	81	0	
		--MEAN 5.00	0.00	0.00	5.00	0	
	RECORDS REQUESTED	LOWEST 2	0	0	2	0	
		-HIGHEST 14,741	0	0	14,741	0	
		--MEAN 1,802.67	0.00	0.00	1,802.67	0	
	RECORDS BECOMING CURRENT	LOWEST 1	0	0	1	0	
		-HIGHEST 11,076	0	0	11,076	0	
		--MEAN 1,287.69	0.00	0.00	1,287.69	0	
	CALLS TO IDMSDBMS	LOWEST 10	0	0	10	0	
		-HIGHEST 17,063	0	0	17,063	0	
		--MEAN 1,951.64	0.00	0.00	1,951.64	0	
	FRAGMENTS STORED	LOWEST 0	0	0	0	0	
		-HIGHEST 3	0	0	3	0	
		--MEAN 0.41	0.00	0.00	0.41	0	
	ROOTS OR RCDS RELOCATED	LOWEST 0	0	0	0	0	
		-HIGHEST 0	0	0	0	0	
		--MEAN 0.00	0.00	0.00	0.00	0	
	LOCKS REQUESTED	LOWEST 3	0	0	3	0	
		-HIGHEST 10,749	0	0	10,749	0	
		--MEAN 1,591.62	0.00	0.00	1,591.62	0	
	SELECT LOCKS HELD	LOWEST 0	0	0	0	0	
		-HIGHEST 24	0	0	24	0	
		--MEAN 5.44	0.00	0.00	5.44	0	
	SELECT LOCKS HELD	LOWEST 1	0	0	1	0	
		-HIGHEST 329	0	0	329	0	
		--MEAN 61.21	0.00	0.00	61.21	0	

Exhibit 2.12b: MANAGEMENT HIGHLIGHTS/GRAND SUMMARY Report

2.4.12 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 help you gain an understanding of how response time patterns change over periods of time based on system activity.

2.4.12.1 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 (see Exhibit 2.13).

Date of the report.

HOURL - Hour of the day for which reporting occurred. The number of run units whose duration, in seconds, fall 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.

2.4.13 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.

2.4.13.1 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 (see Exhibit 2.14).

Date of the report.

HOURL - Hour of the day for which reporting occurred. The number 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.

2.4 Audit Report

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

Exhibit 2.13: MANAGEMENT HIGHLIGHTS/Online Response Time Report

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

Exhibit 2.14: MANAGEMENT HIGHLIGHTS/Buffer Pool Utilization Report

2.4.14 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 (see Exhibit 2.15 below), 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 ranked program.

MEDIAN - indicates a middle value for all executions of the ranked program.

MEAN - indicates an average value for all executions of the ranked program.

<u>RANKWHAT</u>	<u>RANKITEM</u>	<u>ATTRIBUTE</u>
#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

Exhibit 2.15: Management Ranking Report Attributes

2.4.14.1 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) - see Exhibit 2.16.

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) - see Exhibit 2.17a.

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) - see Exhibit 2.17b.

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.).

Exhibit 2.18 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.

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER MANAGEMENT RANKINGS mm/dd/yy hh:mm - mm/dd/yy hh:mm	DATE mm/dd/yy	TIME hh:mm:ss	PAGE 23
ALL RUN UNITS RANKED HIGHEST (TO LOWEST) BY PAGES READ + WRITTEN					
	RANK	RUN UNIT	PROGRAM	START	VALUE
	----	-----	-----	-----	-----
	1	2805	RHDCSGEN ONL	mm/dd/yy hh:mm:ss	1,569
	2	2781	RHDCSGEN ONL	mm/dd/yy hh:mm:ss	1,567
	3	2652	RHDCRUAL ONL	mm/dd/yy hh:mm:ss	1,388
	4	2715	IDMSDDL ONL	mm/dd/yy hh:mm:ss	112
	5	2729	ADSOGEN1 ONL	mm/dd/yy hh:mm:ss	69
	6	2765	ADSOGEN1 ONL	mm/dd/yy hh:mm:ss	66
	7	2667	RHDCRUAL ONL	mm/dd/yy hh:mm:ss	33
	8	2748	RHDCSGEN ONL	mm/dd/yy hh:mm:ss	15
	9	2796	RHDCSGEN ONL	mm/dd/yy hh:mm:ss	3
	10	2730	ADSOEDIT ONL	mm/dd/yy hh:mm:ss	1
	11	2766	ADSOEDIT ONL	mm/dd/yy hh:mm:ss	1

Exhibit 2.16: MANAGEMENT RANKING Report (ABSOLUTE Value Type)

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER MANAGEMENT RANKINGS mm/dd/yy hh:mm - mm/dd/yy hh:mm	DATE mm/dd/yy	TIME hh:mm:ss	PAGE 32
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	IDMSDDL ONL	1.10	
		5	ADSOEDIT ONL	0.00	

Exhibit 2.17a: MANAGEMENT RANKING Report (MEDIAN Value Type)

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER MANAGEMENT RANKINGS mm/dd/yy hh:mm - mm/dd/yy hh:mm	DATE mm/dd/yy	TIME hh:mm:ss	PAGE 26
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	IDMSDDL ONL	122.00	
		4	ADSOGEN1 ONL	67.50	
		5	ADSOEDIT ONL	1.00	

Exhibit 2.17b: MANAGEMENT RANKING Report (MEAN Value Type)

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER MANAGEMENT RANKINGS mm/dd/yy hh:mm - mm/dd/yy hh:mm	DATE mm/dd/yy	TIME hh:mm:ss	PAGE 29
ALL PROGRAMS RANKED HIGHEST (TO LOWEST) BY %ABORTED					
		RANK ----	PROGRAM -----	VALUE -----	
		1	ADSOEDIT ONL	0.00	
		2	ADSOGEN1 ONL	0.00	
		3	IDMSDDL ONL	0.00	
		4	RHDCRUAL ONL	0.00	
		5	RHDCSGEN ONL	0.00	

Exhibit 2.18: MANAGEMENT RANKING Report (%ABORTED)

2.4.15 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.

2.4.16 Record Display Report Fields (Full Format)

The following is a description of the various fields that make up the Record Display (Full Format) --see Exhibit 2.19.

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 - Appears unless DATA=ONLY is 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 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.

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 - Appears unless DATA=ONLY was specified. 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.

2.4.17.1 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) -- see Exhibit 2.21.

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 - 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 positions within the record.

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 - Appears unless DATA=ONLY was specified. 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.

2.4.18.1 PROGRAM Display Report Fields (Full Format)

The following is a description of the various fields which make up the PROGRAM Display (Full Format) -- see Exhibit 2.23.

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.

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 - Appears unless DATA=ONLY was specified. 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.

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.

2.4.19.1 Subschema Display Report Fields (Full Format)

The following is a description of the various fields which make up the Subschema Display (Full Format) --see Exhibit 2.25.

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 - Appears unless DATA=ONLY was specified. 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.

2.4.19.2 Subschema Display Report Fields (Sparse Format)

The following is a description of the various fields which make up the Subschema Display (Sparse Format) -- see Exhibit 2.26.

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 - Appears unless DATA=ONLY was specified. 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 relation-

2.4 Audit Report

ship; 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.

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER PROGRAM DISPLAY IDMSDDL	DATE mm/dd/yy	TIME hh:mm:ss	PAGE 2
-----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 O0AK-SR	NEXT	61,479:0003	61,479:0003	
	18 MEMBER IN O0AK-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		FULJ002	FULJ002	
	02 REV-BY-036		FULJ002	FULJ002	
	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			

Exhibit 2.25: Subschema Display (Full Format)

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

Exhibit 2.26: Subschema Display (Sparse Format)

2.4.20 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.

2.4.20.1 Report Fields

The following is a description of the various fields that make up the AUDIT Report -- see Exhibit 2.27.

Report title.

Informative messages.

PROCESS parameters.

Error Messages.

Valid parameters.

Extracting phase.

Report phase.

Processing messages.

ID	RELEASE Rnn.nn	CA-IDMS/JOURNAL ANALYZER AUDIT REPORT	DATE mm/dd/yy	TIME hh:mm:ss	PAGE 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=IDMSDDL, LEVEL=DETAIL			
I027 - INPUT PARAMETER STATEMENT		R=PROG, N AME=IDMSDDL, LEVEL=SUMMARY, HIGHLIGHTS=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 ...		A CTIVITY			
I005 - EXTRACT RECORDS WILL BE SUPPRESSED FOR ...		D ATABASE/AREA			
I005 - EXTRACT RECORDS WILL BE SUPPRESSED FOR ...		D ATABASE/RECORD			
I004 - EXTRACT RECORDS WILL BE CREATED FOR ...		P ROGRAM			
I004 - EXTRACT RECORDS WILL BE CREATED FOR ...		C HRONO-EVENT			
I004 - EXTRACT RECORDS WILL BE CREATED FOR ...		A BORT-COINCIDENCE			
I004 - EXTRACT RECORDS WILL BE CREATED FOR ...		M ANAGEMENT			

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

Exhibit 2.27: AUDIT Report

Chapter 3. Parameters

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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 six primary parameter statements: PROCESS, SUPPRESS, REPORT, DISPLAY, DLIMITS, and DSUPPS.

3.1 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

3.1.1 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.

3.1.2 SUPPRESS

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

3.1.3 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.

3.1.4 DISPLAY

The DISPLAY specify 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.

3.1.5 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

3.1.6 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.

Example	Rule
PROCESS	Keywords appear in UPPERCASE. 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.
REPORT = report type	Variables appear in lowercase. You must substitute an appropriate value for each variable.
PROCESS = < DISPLAYS > / ALL \ REPORTS \ / EXTRACTS /	Braces enclose two or more options. You must select only one of the options.
[,DATE=start-date]	Square brackets indicate optional clauses.

Exhibit 3.1: Notation Conventions

Item	Rule
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.

Exhibit 3.2: Parameter Syntax Rules

The remainder of this describes the parameter formats and syntax, as well as all the fields associated with each parameter. For examples illustrating the use of the parameters, refer to Chapter 4, "Examples" on page 4-1.

3.2 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.

$$\begin{aligned} \text{PROCESS} &= \left[\begin{array}{c} / \text{ ALL} \\ < \text{ REPORTS} \\ | \text{ DISPLAYS} \\ \backslash \text{ EXTRACTS} \\ / \end{array} \right] \left[\text{,CONT} = \left[\begin{array}{c} / \text{ Y} \backslash \\ < > \\ \backslash \text{ N} / \end{array} \right] \right] \\ & \left[\text{,FORMAT} = \left[\begin{array}{c} / \text{ FULL} \\ < > \\ \backslash \text{ SPARSE} \\ / \end{array} \right] \right] \\ & \left[\text{,RHDCRUAL} = \left[\begin{array}{c} / \text{ Y} \backslash \\ < > \\ \backslash \text{ N} / \end{array} \right] \right] \left[\text{,IDMSXXXX} = \left[\begin{array}{c} / \text{ Y} \backslash \\ < > \\ \backslash \text{ N} / \end{array} \right] \right] \\ & \left[\text{,NONUNIQ} = \left[\begin{array}{c} / \text{ Y} \backslash \\ < > \\ \backslash \text{ N} / \end{array} \right] \right] \left[\text{,USERDCOM} = \underline{\text{procedure name}} \right] \\ & \left[\text{,ABEND} = \left[\begin{array}{c} / \text{ Y} \backslash \\ < > \\ \backslash \text{ N} / \end{array} \right] \right] \end{aligned}$$

where:

$$\text{PROCESS} = \left[\begin{array}{c} / \text{ ALL} \\ < \text{ REPORTS} \\ | \text{ DISPLAYS} \\ \backslash \text{ EXTRACTS} \\ / \end{array} \right]$$

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.

$$\left[\text{,CONT} = \begin{array}{c} / \text{ Y } \backslash \\ < & & > \\ \backslash \text{ N } / \end{array} \right]$$

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.

$$\left[\text{,FORMAT} = \begin{array}{c} / \text{ FULL } \backslash \\ < & & > \\ \backslash \text{ SPARSE } / \end{array} \right]$$

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.

$$\left[\text{,RHDCRUAL} = \begin{array}{c} / \text{ Y } \backslash \\ < & & > \\ \backslash \text{ N } / \end{array} \right]$$

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.

$$\left[\text{,IDMSXXXX} = \begin{array}{c} / \text{ Y } \backslash \\ < & & > \\ \backslash \text{ N } / \end{array} \right]$$

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.

$$\left[\text{,NONUNIQ} = \begin{array}{c} / \text{ Y } \backslash \\ < & & > \\ \backslash \text{ N } / \end{array} \right]$$

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.

[,USERCOM = 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.

[ABEND = $\begin{matrix} / & \underline{Y} & \backslash \\ < & & > \\ \backslash & \underline{N} & / \end{matrix}$]

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.

3.3 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.

```

SUPPRESS =  $\left\{ \begin{array}{l} \text{ACTIVITY} \\ \text{PROGRAM} \\ \text{CHRONO-EVENT} \\ \text{ABORT-COINCIDENCE} \\ \text{MANAGEMENT} \\ \text{ALL} \\ \text{\#n} \end{array} \right.$ 

```

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.

3.4 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.

3.4.1 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 (refer to 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).

[,INTVL = 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 M MMMM (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.

3.4.2 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.

```

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

```

[,START = start date/time]

[,STOP = stop date/time]

[,INTVL = length]

where:

REPORT = ACTV - specifies the Journal Report type to be printed.

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

```

/ ,SELECT =          / Y \ \
< >                < > >
\ N / /            \ 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.

3.4.3 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.

```

REPORT = PROG
/ ,NAME = name \
<                >
\ ,ALL = Y      /

, LEVEL = / DETAIL
          < SUMMARY [ , HILITITES = < / Y \ > ] \
          \ SYSTEM  \ N / /

[ , START = start date/time ]
[ , STOP = stop date/time ]
[ , INTRVL = length ]

```

where:

REPORT = 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 name begin with ABC will be reported.

```
,LEVEL = / DETAIL \
           < 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.

```
,HILITES = / Y \
             < >
             \ 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.

3.4.4 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:

REPORT = CHRONO

specifies the Journal Report type to be printed.

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

$$,SELECT = \begin{matrix} / & \underline{Y} & \backslash \\ < & & > \\ \backslash & \underline{N} & / \end{matrix}$$

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.

3.4.5 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.

$$\underline{REPORT} = \underline{ABORTC} \begin{matrix} / & & \backslash \\ \left| & ,SELECT = \begin{matrix} / & \underline{Y} & \backslash \\ < & & > \\ \backslash & \underline{N} & / \end{matrix} & \right| \\ < & & > \\ \left| & ,ALL = \underline{Y} & \right| \\ \backslash & & / \end{matrix}$$

[,START = start date/time]

[,STOP = stop date/time]

where:

REPORT = ABORTC

specifies the Journal Report type to be printed.

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

$$,SELECT = \begin{matrix} / & \underline{Y} & \backslash \\ < & & > \\ \backslash & \underline{N} & / \end{matrix}$$

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.

3.4.6 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, [ ,LEVEL =  $\left[ \begin{array}{ccc} / & \text{PROGRAM} & \backslash \\ < & \text{SYSTEM} & > \\ \backslash & \text{GRAND} & / \end{array} \right]$  ]
```

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

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

```
[ ,INTVL = length ]
```

where:

REPORT = HI-SUM

specifies the Journal Report type to be printed.

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

```
,LEVEL =  $\left[ \begin{array}{ccc} / & \text{PROGRAM} & \backslash \\ < & \text{SYSTEM} & > \\ \backslash & \text{GRAND} & / \end{array} \right]$ 
```

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.

3.4.7 Online Response Time

REPORT = HI-ONL
[**,START = start date/time**]
[**,STOP = stop date/time**]
[**,INTVL = length**]

where:

REPORT = 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.

3.4.8 Buffer Pool Utilization

REPORT = HI-BPU
[**,START = start date/time**]
[**,STOP = stop date/time**]
[**,INTVL = length**]

where:

REPORT = 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.

3.4.9 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]

[,RANKPROG = $\frac{\text{/ONL\}}{\text{<BTC>}}$ $\frac{\text{\SYS/}}{\text{>}}$]

**/ ,RANKWHAT = item **
< >
\ ,RANKITEM = nn /

,RANKHOW = $\left(\begin{array}{c} \text{LOW} \\ \text{HIGH} \\ \text{LT: value} \\ \text{LE: value} \\ \text{GT: value} \\ \text{GE: value} \end{array} \right)$

[,RANKVALU = $\frac{\text{/ MEAN \}}{\text{< MEDIAN >}}$ $\frac{\text{\ ABSOLUTE /}}{\text{>}}$]

[,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.

,RANKPROG = $\frac{\text{/ONL \}}{\text{<BTC >}}$ $\frac{\text{\SYS /}}{\text{>}}$

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.

, RANKWHAT = item

specifies the attribute to be ranked in the report (see Exhibit 3.2). This keyword is mutually exclusive from the RANKITEM keyword. There is no default value.

, **RANKITEM = nn**

specifies a numeric identifier (1 to 13) for the attribute to be ranked (see Exhibit 3.2). This keyword is mutually exclusive from the RANKWHAT keyword. There is no default value.

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

Exhibit 3.3: Management Ranking Report Attributes

$$, \text{RANKHOW} = \left\langle \begin{array}{c} / \text{ LOW} \\ | \text{ HIGH} \\ | \text{ LT:value} \\ < \text{ LE:value} \\ | \text{ GT:value} \\ \backslash \text{ GE:value} \end{array} \right\rangle$$

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.

RANKVALU = $\begin{matrix} / \text{MEAN} & \backslash \\ < \text{MEDIAN} & > \\ \backslash \text{ABSOLUTE} & / \end{matrix}$

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.

3.5 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.

```
DISPLAY = 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 (refer to 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.

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.

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).

3.5.1 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.

3.5.2 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.

```

DISPLAY = 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.

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.

3.5.3 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 ]  
[ ,VIEW = < / SUBSC \  
 \ FULL / > ] [ DATA = ONLY ]
```

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.

```
,VIEW = < / SUBSC \  
 \ 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: 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.

3.5.4 DISPLAY LIMITS

The following is the parameter syntax for designating a DISPLAY LIMITS request. Up to 20 DLIMITS requests can be submitted.

$$\underline{\text{DLIMITS}} = \left[\begin{array}{l} / \underline{\text{REC}} \backslash \\ < \underline{\text{DBKEY}} > \\ \backslash \underline{\text{PROG}} / \end{array} \right] \left[\begin{array}{l} / \underline{\text{ONL}} \backslash \\ , \underline{\text{TYPE}} = < \underline{\text{BTC}} > \\ \backslash \underline{\text{SYS}} / \end{array} \right]$$

$$\begin{array}{l} / , \underline{\text{RU}} = \text{run unit ID} \backslash \\ < \underline{\text{#RUS}} = \# \text{ of run units} > \\ \backslash \end{array}$$

$$\begin{array}{l} / , \underline{\text{SETS}} = \# \text{ of before/after sets} \backslash \\ < , \underline{\text{#RUSETS}} = \# \text{ of before/after sets per run unit} > \\ \backslash , \underline{\text{#NTH}} = \text{sampling frequency} / \end{array}$$

where:

$$\underline{\text{DLIMITS}} = \left[\begin{array}{l} / \underline{\text{REC}} \backslash \\ < \underline{\text{DBKEY}} > \\ \backslash \underline{\text{PROG}} / \end{array} \right]$$

specifies the Journal Display type to be limited.

REC - indicates a RECORD display.

DBKEY - indicates a DATABASE/KEY display

PROG - indicates a PROGRAM display.

$$\begin{array}{l} / \underline{\text{ONL}} \backslash \\ , \underline{\text{TYPE}} = < \underline{\text{BTC}} > \\ \backslash \underline{\text{SYS}} / \end{array}$$

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.

, **#RUS** = # 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.

, #SETS = # 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 #RUSSETS and NTH operands.

, #RUSSETS = # 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.

, NTH = 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 #RUSSETS operands. The value of this operand must be 2 or more.

```

/ ,RU = run unit ID      \
<                        >
\ ,#RUS = # of run units /

/ ,#SETS = # of before/after sets          \
< ,#RUSSETS = # of before/after sets per run unit >
\ ,#NTH = sampling frequency                /

```

3.5.5 Program Display Suppression

The following are DSUPPS parameter syntaxes for designating suppression of PROGRAM displays. Multiple DSUPPS requests can be submitted.

Record ID

DSUPPS

```

/ 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 recombination feature. Any requests to suppress SR4's will be ignored.

3.5.6 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.

```

PROCESS = < / ALL
           | REPORTS
           | > [ ,CONT = < / Y \
           | DISPLAYS | > ] [ ,FORMAT = < / FULL \
           | EXTRACTS | > ]
           | >
           | \ N /
           \ /

           [ ,RHDCRUAL = < / Y \
           | > ] [ ,IDMSXXXX = < / Y \
           | \ N / > ]

           [ ,NONUNIQ = < / Y \
           | > ] [ ,USERDCOM = procedure-name ]
           | \ N /

           [ < /
           | ,ABEND Y \
           | > ]
           | \
           | N /

SUPPRESS = < / ACTIVITY
           | PROGRAM
           | 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

```

/
ACTV  / SELECT = / Y \ \
      < \ N / >
      \,ALL=Y
      \
PROG  /,NAME=name \
      < \,ALL=Y / >,LEVEL= / DETAIL \
      \,ALL=Y / \ SUMMARY \ [ ,HILITES < / Y \ \
      \ SYSTEM \ \ N / > ] >
REPORT = <CHRONO < /,SELECT= / Y \ \
          < \ N / > (Do not specify INTVL) >
          \,ALL=Y
          \
ABORTC /,SELECT = / Y \ \
        < \ N / > (INTVL=1440=1 day automatically)
        \,ALL=Y
        \
HI-SUM [ ,LEVEL= / PROGRAM \
         \ SYSTEM \
         \ GRAND / ]
HI-ONL / start time = 0000 \
        | stop time = 2359 |
        \ INTVL = 1440 = 1 DAY /
HI-BPU
RANK  [ ,RANK# = / number-of-items \
         \ 20 > [ ,RANKPROG= / ONL \
         \ 20 > \ BTC >
         \ / \ SYS / ]
        /,RANKWHAT=item \
        < \,RANKITEM=number/ > (see next page for options)
        \,RANKHOW= / LOW \
                   | HIGH |
                   | LT:value |
                   | LE:value |
                   | GT:value |
                   | GE:value |
                   \ > [ ,RANKVALU= / MEAN \
                           | MEDIAN |
                           \ ABSOLUTE / ]

```

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
CALC-RATIO	8
VIA-RATIO	9
#RU	10
#SUCCESS	11
#ABORT	12
%ABORT	13

[,START=mmddyhhmm]

[,STOP=mmffyyhhmm]

[,INTVL=minutes]

```

[
  /
  / ,ALL=Y \
  REC < \ ,RECID=record-id /
  \ / ,ALL=Y /
  DISPLAY= < DBKEY < [ ,LINE=line-number ] > >
  \ \ ,PAGE=page-number /
  / ,ALL=Y \
  PROG < \ ,NAME=name /
  \ / ,VIEW < SUBSC \
  \ FULL /
  [ ,DATA=ONLY ]
]

```

```

[
  / REC \
  DLIMITS < DBKEY > [ ,TYPE= < ONL \ / ,RU=run-unit-id \
  \ PROG / \ BTC > < \
  \ SYS/ \ ,#RUS=#-of-run-units/
  / ,#SETS=#-of-sets \
  < ,#RUSSETS=#-of-sets-per-run-unit > \
  \ ,NTH=sampling-frequency /
]

```

```

[
  /RECID ,ID=record-id \
  DSUPPS= < \
  \RANGE ,LOWID=lowest-record-id ,HIGHID=highest-record-id /
]

```

Exhibit 3.4: CA-IDMS/Journal Analyzer Parameter Summary

Chapter 4. Examples

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This chapter contains examples that show how the various parameter statements can be coded to produce CA-IDMS/Journal Analyzer Reports and Displays.

4.1 Examples

Each example consists of an operational description and a sample of the parameter statement(s) required to produce the desired output. The chart in Exhibit 4.1 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.
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.

Exhibit 4.1: Examples

4.1.1 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.

```
PROCESS=EXTRACTS,  
CONT=N,  
FORMAT=SPARSE,  
RHDCRUAL=N,  
IDMSXXXX=N,  
NONUNIQ=N
```

Exhibit 4.2: Default Values

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.

```
PROCESS=ALL,  
CONT=Y,  
FORMAT=FULL,  
RHDCRUAL=Y,  
IDMSXXXX=Y,  
NONUNIQ=Y,  
USERDCOM=DBMSDCOM
```

Exhibit 4.3: Replacement Values

4.2 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.

4.3 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.

```

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

```

Exhibit 4.4: Journal Reports for Each Archive Journal File

4.4 Example Two

This examples 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.

```
PROCESS=REPORTS, CONT=N, RHDCRUAL=N, IDMSXXX=N, NONUNIQ=Y
*
$           CHRONOLOGICAL REPORT: LIMITED TO + HOUR PERIOD
$
R=CHRONO, ALL=Y, START=0115921015, STOP=0115921044
```

Exhibit 4.5: PROGRAM Report (Activity of One Type)

4.5 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.

```
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
```

Exhibit 4.6: PROGRAM Report for Programs Starting with DBM

4.6 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.

```
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
```

Exhibit 4.7: DATABASE KEY Display

4.7 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.

```
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
```

Exhibit 4.8: PROGRAM Display

4.8 Example Six

This example specifies a PROGRAM Display (Regular View) that displays, 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.

```
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, #RUSSETS=10
```

Exhibit 4.9: PROGRAM Display (Regular View) Names that Begin with DBM

4.9 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.

```
PROCESS=DISPLAYS, CONT=N, FORMAT=SPARSE, RHDCRUAL=N, IDMSXXX=N,  
NONUNIQ=N  
*  
$          PROGRAM DISPLAY: SPARSE FORMAT, LIMITED TO RUN UNIT #551168  
$  
D=PROG, ALL=Y  
DLIMITS=PROG, TYPE=SYS, RU=551168
```

Exhibit 4.10: PROGRAM Display (Regular View) One Run Unit

4.10 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.

```
PROCESS=DISPLAYS, CONT=N, FORMAT=SPARSE, RHDCRUAL=N, IDMSXXX=N,  
NONUNIQ=N  
*  
$           SUBSCHEMA DISPLAY:  SPARSE FORMAT, LIMITED TO 20 RUN UNITS  
$  
D=PROG, NAME=USERPROG, VIEW=SUBSC  
DLIMITS=PROG, TYPE=SYS, #RUS=20
```

Exhibit 4.11: PROGRAM Display with Subschema View

4.11 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.

```
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
```

Exhibit 4.12: Subschema Display

Chapter 5. Operations

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This chapter of the user guide describes operational procedures for the OS/390, VSE/ESA, and VM/ESA environments. It provides execution JCL or EXECs and information on determining the storage requirements for those environments.

5.1 CA-IDMS/Journal Analyzer Control Statements

CA-IDMS/Journal Analyzer produces reports and displays in a large variety of combinations. Chapter 4, "Examples" on page 4-1 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--OS/390, VSE/ESA, or 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
```

5.2 OS/390 Operation

The operation of CA-IDMS/Journal Analyzer in an OS/390 environment can be accomplished in a single job step. CA-IDMS/Journal Analyzer processes display images up to 32K in length.

5.2.1 Execution JCL (OS/390)

An example of the execution JCL for CA-IDMS/Journal Analyzer is shown below and on the next several pages.

Variables (lowercase, bold) are explained in the key opposite the JCL.

```
//JNLA
//STEPLIB      DD      EXEC PGM=USJMAIN,REGION=#K
//SYSIDMS      DD      DSN=your.toolkit.loadlib,
                       DISP=SHR
                       *
                       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
//              //      SYSOUT=r,
//              DCB=BLKSIZE=1330
//SYSLSTR      DD      SYSOUT=d,
//              DCB=BLKSIZE=1330
//SYSLSTD      DD      SYSOUT=a
//SYSUDUMP     DD      UNIT=SYSDA,
//SORTWK01     DD      SPACE=(CYL, (sort-space))
//              //      UNIT=SYSDA,
//SORTWK02     DD      SPACE=(CYL, (sort-space))
//              //      UNIT=SYSDA,
//SORTWK03     DD      SPACE=(CYL, (sort-space))
//              //      UNIT=SYSDA,
//SORTWK04     DD      SPACE=(CYL, (sort-space))
//              //      UNIT=SYSDA,
//SORTWK05     DD      SPACE=(CYL, (sort-space))
//              //      UNIT=SYSDA,
//SORTWK06     DD      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
/*

```

Key:

- **#** — 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.
- **your.toolkit.loadlib** — The dataset name of the library which contain CA-IDMS/Journal Analyzer, and IDMSINTB. If running CA-IDMS in local mode it must also contain the DMCL used by your dictionary subschema, IDMSNWKA.
- **DBNAME** — Supply the DBNAME needed to access the appropriate DDLDDL 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** — Supply 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 DDLDDL 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** — Specify the dataset name of your archive journal file. This file should come from IDMSAJNL, 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** — Specify 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** — Specify 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** — Specify 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** — Specify 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** — Specify 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** — Specify a block size 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, a 76-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. See Chapter 4, “Examples” on page 4-1.

5.3 VSE/ESA Operation

The VSE/ESA operation of CA-IDMS/Journal Analyzer can be accomplished in a single job step. Sample JCL is contained in SAMPJCL library member USJEXEC.S. The JCL and key are shown below.

5.3.1 VSE/ESA 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.

5.3.2 Execution JCL (VSE/ESA)

```
// OPTION PARTDUMP,LOG
*      **** CREATE A SYSIDMS PARAMETER FILE (15.0) ****
// 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=dmc1name
      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
*
/*

```

Key:

- **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 DDLML 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.

- **jnl.rank** — 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 IDMSAJNL, 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 DDL DML 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 DDL DML area of your CA-IDMS dictionary.
- **your-journal-analyzer-control-statements** — Specify a PROCESS statement and other statements as desired.

5.4 Sample VM/ESA 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 VM/CMS environment. The Journal must be archived using the CA-IDMS utility with a file mode of **x4** to indicate OS/390 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 librari(e)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
/* */

```

Key:

- **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 IDMSJANL, or from a batch job that ran in local mode. Do not use the output from IDMSJFIX. 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 6. Messages

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This chapter of the user guide describes the three types of messages generated by CA-IDMS/Journal Analyzer: Error, Informative, and Processing. Each message is followed by a possible cause for the message and suggested action to be taken to correct the problem.

6.1 Messages

As CA-IDMS/Journal Analyzer performs its various processes, it records three types of messages on the Audit Report.

- Error
- Informative
- Processing

6.1.1 Error

Error messages are prefixed by an Ennn message number and report on the following:

- Erroneous parameter data
- Conflicting parameter data
- Invalid archive data
- Incongruous processing conditions

6.1.2 Informative

Informative messages are prefixed by an Innn message number 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)

6.1.3 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

6.1.4 Error Messages

CA-IDMS/Journal Analyzer error messages are prefixed by an Ennn number and include a possible cause for the message and suggested action to be taken to correct the problem.

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: Call Computer Associates Product 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 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: An 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 call Computer Associates Product 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: Call Computer Associates Product 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 call Computer Associates Product 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 call Computer Associates Product 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: Call Computer Associates Product 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: A CA-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 Computer Associates Product Support.

6.1.5 Informative Messages

Informative messages are prefixed by an Innn number and provide processing information on CA-IDMS/Journal Analyzer.

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 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.

6.1.6 Processing Messages

The Processing Messages indicate an internal processing error detected by CA-IDMS/Journal Analyzer. These messages are listed in alphabetical order.

Note: Although the action taken on some of the following messages indicates NONE, if any of these messages is generated, you can call Computer Associates Product 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, call Computer Associates Product 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, call Computer Associates Product 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. See Appendix D, "CA-IDMS Specifications" on page D-1, .

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 Computer Associates Product Support.

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 - GSICVTD ERROR - STATUS CODE IS code

Reason: Routine GSICVTDB has returned a non-zero status code to routine USJDSP0. 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--Call Computer Associates Product 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 - 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 VSE/ESA, 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, call Computer Associates Product 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.

**EXT0 - 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.

**EXT0 - 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.

**EXT0 - 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.

**EXT0 - 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

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 VSE/ESA, 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, call Computer Associates Product 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, call Computer Associates Product Support.

INCOMPLETE SUBSCRIPT STRUCTURE

Reason: During Display processing for subschema view, either invalid or incomplete field descriptions have been encountered for a subscribed 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: Call Computer Associates Product Support.

LOAD - GSSLOAD OF phase FAILED; RETURN CODE IS code

Reason: In the VSE/ESA 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, call Computer Associates Product 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 High-light 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: Refer to 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, call Computer Associates Product 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: See Appendix D, “CA-IDMS Specifications” on page D-1.

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 an AFTR image for a non-ERASE verb.

Action: Produce a DATABASE KEY Display for the record occurrence in question.

Appendix A. Keywords and Synonyms

- A.1 Process Parameter A-4
 - A.1.1 Supress Parameter A-4
 - A.1.2 Report Parameters A-5
 - A.1.3 ACTIVITY Report A-5
 - A.1.4 PROGRAM Report A-5
 - A.1.5 CHRONOLOGICAL EVENT Report A-5
 - A.1.6 ABORT COINCIDENCE Report A-6
 - A.1.7 MANAGEMENT Highlights/Summaries A-6
 - A.1.8 MANAGEMENT Online Response Time A-6
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- A.2 Display Parameter A-8
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 - A.2.4.1 DISPLAY Limits A-9
 - A.2.4.2 PROGRAM DISPLAY Suppression A-9

This chapter 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.

A.1 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.

<u>PROCESS</u>	=	ALL/BOTH REPORTS/REPORT/REPTS/REPT/RPTS/RPT DISPLAYS/DISPLAY//DSPS/DSPL EXTRACTS/EXTRACT/EXTS/EXT/"SPACES"
<u>CONT</u>	=	Y/YES N/NO
<u>FORMAT</u>	=	FULL/FUL/FU/F SPARSE/SPARS/SPAR/SPA/S
<u>DMCL</u>	=	"DMCL name"
<u>RHDCRUAL</u>	=	Y/YES
<u>IDMSXXXX</u>	=	Y/YES N/NO
<u>NONUNIQ</u>	=	Y/YES
<u>USERDCOM</u>	=	procedure name

Exhibit A.1: PROCESS Parameter (valid keywords, value fields, and synonyms)

A.1.1 Suppress Parameter

The following is a listing of the keywords, value fields, and synonyms of the SUPPRESS parameter.

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

Exhibit A.2: SUPPRESS Parameter (keywords, value fields, and synonyms)

A.1.2 Report Parameters

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 Keywords

REPORT = "report type"
ALL = Y/YES
START = "start date/time"
STOP = "stop date/time"
INTVL = "length (minutes)"

Exhibit A.3: REPORT Parameter (keywords, value fields, and synonyms)

A.1.3 ACTIVITY Report

REPORT = ACTV
SELECT = Y/YES
 N/NO

Exhibit A.4: ACTIVITY Report

A.1.4 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

Exhibit A.5: PROGRAM Report

A.1.5 CHRONOLOGICAL EVENT Report

REPORT = CHRONO/CE/EVENTS/EVENT
SELECT = Y/YES
 N/NO

Exhibit A.6: CHRONOLOGICAL EVENT Report

A.1.6 ABORT COINCIDENCE Report

REPORT = **ABORTC/ABRTC/ABRT/AC/COINC/COIN**

SELECT = **Y/YES**
N/NO

Exhibit A.7: ABORT COINCIDENCE Report

A.1.7 MANAGEMENT Highlights/Summaries

REPORT = **HI-SUM/HIGH-S**

LEVEL = **PROGRAM/PROG/PGM/PRG/P**
SYSTEM/SYS/S
GRAND/GR/G

Exhibit A.8: MANAGEMENT Highlights/Summaries

A.1.8 MANAGEMENT Online Response Time

REPORT = **HI-ONL/HIGH-O/HIGH-ORT**

Exhibit A.9: MANAGEMENT Online Response Time

A.1.9 MANAGEMENT Buffer Pool Utilization

REPORT = **HI-BPU/HIGH-B**

Exhibit A.10: MANAGEMENT Buffer Pool Utilization

A.1.10 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"

Exhibit A.11: MANAGEMENT Rankings

A.2 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.

A.2.1 Common Keywords

DISPLAY = "display type"
ALL = Y/YES
START = "start date/time"
STOP = "stop date/time"

Exhibit A.12: Common Keywords

A.2.2 RECORD Display

DISPLAY = REC/RECORD/RECD/RCD
RECID = "record ID"D

Exhibit A.13: RECORD Display

A.2.3 DATABASE KEY Display

DISPLAY = DBKEY/DBK
PAGE = "page"
LINE = "line"

Exhibit A.14: DATABASE KEY Display

A.2.4 PROGRAM Display

DISPLAY = PROG/PROGRAM/PGM/PRG
NAME = "program name"
VIEW = FULL/F/ALL/A
SUBSC/SUBSCH/SUBS/S/PARTIAL/PART/P
DATA = ONLY

Exhibit A.15: PROGRAM Display

A.2.4.1 DISPLAY Limits

DLIMITS = **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"**

#RUSSETS = **"number of before/after sets per run unit"**

NTH = **"sampling frequency"**

Exhibit A.16: DISPLAY Limits

A.2.4.2 PROGRAM DISPLAY Suppression

Record ID

DSUPPS = **RECID**

ID = **"record ID"**

Range of IDs

DSUPPS = **RANGE**

LOWID = **"lowest record ID"**

HIGHID = **"highes record ID"**

Exhibit A.17: PROGRAM DISPLAY Suppression

Appendix B. Extract File Format

B.1 Extract File	B-4
B.2 Extract Record	B-5

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.

B.1 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 has a fixed length of 303 bytes. It contains a 41-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

<u>TYPE</u>	<u>ARCHIVE</u>	<u>RECORD REPORTS</u>
1. Initiation	BGIN	ACTV, PROG, CE, MGMT
2. Checkpoint	COMT/ENDJ/ABRT	ACTV, PROG, CE, AC, MGMT
4. Area	AREA	PROG, CE

Exhibit B.1: Extract Data Formats and Associated Report Types

B.2 Extract Record

The following is a COBOL definition of the extract record.

```

01 JOURNAL-EXTRACT                                SYNC.
   05 JER-REPORT-IDENT
      10 JER-REPORT-TYPE                          PIC      X(2).
          88 JER-ACTIVITY                          VALUE    '11'.
          88 JER-PROGRAM                            VALUE    '31'.
          88 JER-EVENT                              VALUE    '91'.
          88 JER-ABORTC                             VALUE    '92'.
          88 JER-MGMT                               VALUE    '95'.
      EJECT
   05 JES-SORT-DATA                              PIC      X(44).
   05 JES-ACTIVITY-SORT REDEFINES JES-SORT-DATA.
      10 JES-ACTV-DATE                            PIC      X(8).
      10 JES-ACTV-TIME                            PIC      X(8).
      10 JES-ACTV-RUNUNIT-IDENT.
          15 JES-ACTV-RUNUNIT-ID                   PIC      S9(9) COMP.
          15 JES-ACTV-RUNUNIT-SEQ                   PIC      S9(9) COMP.
      10 JES-ACTV-ONLINE-BATCH                     PIC      X(1).
          88 JES-ACTV-ONLINE                        VALUE    '1'.
          88 JES-ACTV-BATCH                         VALUE    '2'.
      10 JES-ACTV-RECORD-TYPE                      PIC      X(1).
          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(6).
      10 JES-ACTV-ARCHIVE-SEQ                       PIC      S9(18) COMP.
          88 JES-ACTV-FLUSH                          VALUE    ZERO.
      EJECT
   05 JES-PROGRAM-SORT-REDEFINES JES-SORT-DATA.
      10 JES-PROG-DATE                            PIC      X(8).
      10 JES-PROG-TIME                            PIC      X(8).
      10 JES-PROG-RUNUNIT-IDENT.
          15 JES-PROG-RUNUNIT-ID                   PIC      S9(9) COMP.
          15 JES-PROG-RUNUNIT-SEQ                   PIC      S9(9) COMP.
      10 JES-PROG-PROGRAM-NAME                     PIC      X(8).
      10 JES-PROG-RECORD-TYPE                      PIC      X(1).
          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'.

```

```

EJECT
05 JES-CHRONO-SORT REDEFINES JES-SORT-DATA.
  10 JES-CE-DATE PIC X(8).
  10 JES-CE-TIME PIC X(8).
  10 JES-CE-ARCHIVE-SEQ PIC S9(18) COMP.
  10 JES-CE-RUNUNIT-IDENT.
      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(1).
      88 JES-CE-ONLINE VALUE '1'.
      88 JES-CE-BATCH VALUE '2'.
  10 JES-CE-RECORD-TYPE PIC X(1).
      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'.

05 JES-ABORTC-SORT REDEFINES JES-SORT-DATA.
  10 JES-ABORTC-DATE PIC X(8).
  10 JES-ABORTC-TIME PIC X(8).
  10 JES-ABORTC-PROGRAM-NAME PIC X(8).
  10 JES-ABORTC-COINCIDENT-NAME PIC X(8).
05 JES-MANAGEMENT-SORT REDEFINES JES-SORT-DATA.
  10 JES-MGMT-KEY.
      15 JES-MGMT-DATE PIC X(8).
      15 JES-MGMT-TIME PIC X(8).
      15 JES-MGMT-PROGRAM-NAME PIC X(8).
      15 JES-MGMT-RUNUNIT-IDENT.
          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(1).
      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'.

EJECT
05 JED-EXTRACT-DATA PIC X(255).
05 JD1-TYPE1-DATA REDEFINES JED-EXTRACT-DATA.
  10 JD1-PROGRAM-NAME PIC X(8).
  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 PIC X(8).

```

```

05 JD2-TYPE2-DATA REDEFINES JED-EXTRACT-DATA.
10 JD2-PROGRAM-NAME PIC X(8).
10 JD2-CHKPT-DATE PIC X(8).
10 JD2-CHKPT-TIME PIC X(8).
10 FILLER PIC X(2)
10 JD2-QUIESCE-LEVEL PIC S9(4) COMP.
10 JD2-TASK-ID PIC X(8).
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.
EJECT
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'.

```

Exhibit B.2: COBOL Definition of the Extract Record

Appendix C. Display File Format

- C.1 Display File C-4
 - C.1.1 Display Record C-4

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.

C.1 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.

C.1.1 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
   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.

```

Exhibit C.1: COBOL Definition of the Display Record

Appendix D. CA-IDMS Specifications

- D.1 CA-IDMS Specifications D-4
 - D.1.1 Program Registration D-4

This appendix explains and reviews various CA-IDMS specifications that promote optimal use of CA-IDMS/CA-IDMS/Journal Analyzer.

D.1 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 an 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 it considers to be a reasonable value by subtracting the value from 1,677,216.

D.1.1 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 compiled 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

E.1 Archive Journal File E-4
E.2 VSE/ESA Journal Concatenation Utility E-5

This appendix describes the VSE/ESA Journal Concatenation Utility program (USJCNCT) which permits the user to concatenate multiple Archive Journal files into a single tape file. Also included are examples of JCL for installing and using the utility.

E.1 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 VSE/ESA environments, a user can execute the DITTO utility to concatenate multiple archive tapes, in lieu of a data management facility or another VSE utility program. One alternative is to use Computer Associates concatenation utility (USJCNCT) to accomplish the concatenation task.

E.2 VSE/ESA Journal Concatenation Utility

The VSE/ESA Journal Concatenation Utility (USJCNCT) program allows the 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
/*
//
```

Exhibit E.1: JCL Required to Install the Concatenation Utility

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

Exhibit F.1: Character Sets

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