

IBM IMS Performance Analyzer for z/OS  
4.5

*User's Guide*



**Note:**

Before using this information and the product it supports, read the "Notices" topic at the end of this information.

**Second Edition (January 2023)**

This edition applies to Version 4 Release 5 of IBM® IMS Performance Analyzer for z/OS® (product number 5655-R03) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC19-4365-03.

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## About this information

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IBM IMS Performance Analyzer for z/OS (also referred to as IMS Performance Analyzer) is a performance analysis and tuning aid for Information Management System Database (IMS DB) and Transaction Manager (IMS TM) systems.

IBM IMS Performance Analyzer for z/OS (also referred to as IMS Performance Analyzer, or by the abbreviation IMS PA) is a performance analysis and tuning aid for Information Management System Database (IMS DB) and Transaction Manager (IMS TM) systems.

These topics describe how to use the IMS Performance Analyzer dialog and batch commands to generate reports and extracts from IMS Log, Monitor, IMS Connect, and OMEGAMON® for IMS Application Trace Facility (ATF). The report options are also described.

**Related reading:** For a detailed description of the report and extract output, see the *IBM IMS Performance Analyzer for z/OS Report Reference, SC19-4366*.

These topics are designed for managers, database administrators, system programmers, application programmers, and system operators responsible for monitoring and improving the performance of IMS systems.

To use these topics, you should have an understanding of basic IMS concepts and your installation's IMS systems, and a working knowledge of:

- The z/OS operating system
- ISPF
- IMS Database and Transaction Monitor systems
- IMS Connect and IMS Connect Extensions, if applicable

Always check the IMS Tools Product Documentation page for the most current version of this information:

<http://www.ibm.com/software/data/db2imstools/imstools-library.html>



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## Part 1. Introduction and product setup

This part provides you with an overview of IMS Performance Analyzer, its main concepts and components, and how to get started.





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# Chapter 1. IMS Performance Analyzer overview

IBM IMS Performance Analyzer for z/OS (IMS PA) is a performance analysis tool to help you monitor, maintain and tune your Information Management System Database (IMS DB) and Transaction Manager (IMS TM) systems.

**Related reading:** There are several IMS Redbooks® that provide additional performance and tuning information for your IMS systems. The *IBM IMS Version 7 Performance Monitoring and Tuning Update* (SG24-6404) is recommended because it contains additional information on how to interpret many of the IMS Performance Analyzer reports to help you make tuning decisions. This information, although not exhaustive, is generally applicable to later releases of IMS. Supplementary information is provided in *IBM IMS Performance and Tuning Guide* (SG24-7324).

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## What's new in IMS Performance Analyzer

This topic summarizes the technical changes that were introduced in or incorporated into IMS Performance Analyzer 4.5.

New and changed information is indicated by a vertical bar (|) to the left of a change. Editorial changes that have no technical significance are not noted.

When migrating from a previous release of IMS Performance Analyzer, customers should also review [“Upgrading to IMS Performance Analyzer 4.5 from V4.4”](#) on page 53.

### Fifth edition (SC19-4365-06)

#### Enhancements to the IRUR report (APAR PH59018)

The Internal Resource Usage report (IRUR) of IMS Performance Analyzer is enhanced to provide the following additional reports:

- Member OTMA TPIPE Statistics
- Global OTMA TPIPE Statistics

The IMS Internal Resource Usage Member OTMA TPIPE Statistics presents comprehensive information concerning the TPIPEs and YTIBs of each OTMA Member. In contrast, the Global OTMA TPIPE Statistics report provides a consolidated summary of TPIPE and YTIB information for all OTMA Members. See [“Internal Resource Usage reports”](#) on page 267.

#### Data streaming as JSON Lines in Checkpoint Reports (APAR PH58998)

The System Checkpoint report (CKPT) of IMS Performance Analyzer has been enhanced to provide streaming of data extracts as JSON Lines over TCP/IP. See [“Data streaming as JSON Lines”](#) on page 224.

### Fourth edition (SC19-4365-05)

#### IMS Version 15.4 support (APAR PH54443)

IMS Performance Analyzer now supports IMS version 15.4.

### Third edition (SC19-4365-04)

#### IMS Version 15.3 support (APAR PH46483)

IMS Performance Analyzer now supports IMS version 15.3.

#### Data streaming as JSON Lines in Internal Resource Usage reports (APAR PH51237)

The Internal Resource Usage report (IRUR) of IMS Performance Analyzer is enhanced to provide the following capabilities:

- Formatting data extracts as CSV or JSON Lines.
- Writing data extracts directly to z/OS data sets and z/OS Unix files.
- Streaming data extracts as JSON Lines over TCP/IP.

See [“Data streaming as JSON Lines”](#) on page 224.

**Support for False Schedule reporting in form-based reports (APAR PH43942)**

Form-based reports now support False Schedule reporting. You can now use additional fields, **SCHEDTYP** and **MODE** while requesting the form-based reports. See [Chapter 34, “Glossary of Report Form field names,”](#) on page 673.

**Updates to Enqueue/Dequeue report (APAR PH51656)**

The Enqueue/Dequeue report is now updated to correctly report the output messages as dequeued in an IMS Shared Queues environment. See [“Enqueue/Dequeue report”](#) on page 289.

**Second edition (SC19-4365-03)****Form-based reporting enhancements for analytics applications**

The following enhancements facilitate the import of machine readable data produced by IMS Performance Analyzer into third-party analytics platforms.

**New ALLINTERVALS option to explicitly include intervals in extracts where no activity was recorded (APAR PH35307)**

The ALLINTERVALS form-based reporting option explicitly includes intervals in extracts where no activity was recorded. This option is useful for importing extract data into third-party tools and analytics platforms where an explicit value of "0" may be required for periods of system inactivity. For more information, see [“SUMMARY: Transaction Transit Summary report and extract \(Form-based\)”](#) on page 357 and [“SUMMARY: IMS Connect Transaction Transit Summary report and extract \(Form-based\)”](#) on page 533.

**New ALLFIELDS option to explicitly include all fields in extracts (APAR PH35307)**

The ALLFIELDS form-based reporting option explicitly includes all fields in extracts when reporting on multi-value fields from the DATABASE, ESAF, and ODBM categories. For more information, see [“LIST: Transaction Transit List report and extract \(Form-based\)”](#) on page 354 and [“LIST: IMS Connect Transaction Transit List report and extract \(Form-based\)”](#) on page 531.

**New form field DLIUOWSQ (APAR PH38381)**

New form field DLIUOWSQ provides the ODBM UOW relative sequence number. For more information, see [Chapter 34, “Glossary of Report Form field names,”](#) on page 673.

**New Enqueue/dequeue report (APAR PH35027)**

The new enqueue/dequeue report summarizes the number of messages enqueue and dequeue by IMS. For more information, see [“Enqueue/Dequeue report”](#) on page 289.

**Enhancements to the System Checkpoint reports****CSV extract option (APAR PH33880)**

System Checkpoint reports can now be requested in CSV format. For more information, see [“System Checkpoint report”](#) on page 281.

**Transaction Definitions report (APAR PH38149)**

The Transaction Definitions report in the System Checkpoint report has been reformatted to accommodate the new serial (SER) indicator in the Options column.

**Enhancements to Internal Resource Usage reports****CSV extract option (APAR PH32765)**

Internal Resource Usage reports can now be requested in CSV format. For more information, see [“Internal Resource Usage reports”](#) on page 267.

**Virtual Storage Usage report (APAR PH38149)**

The Virtual Storage Usage report now contains a DLI/SAS section.

**Logger Statistics report (APAR PH38149)**

The Logical Logger report has been expanded to include additional statistics.

**First edition (SC19-4365)****Simplified ISPF dialog**

The primary option menu of the IMS Performance Analyzer ISPF dialog has been restructured to improve ease of use. Option 10 Report Forms has been moved to option 2. Other less frequently

used features can now be accessed under option 4. For more information, see [Chapter 5, “Starting the IMS Performance Analyzer ISPF dialog,”](#) on page 63.

### **Form-based reporting enhancements, changes to defaults, and deprecated features**

IMS Performance Analyzer form-based reporting now comes with the following enhancements:

#### **Request a report or CSV extract directly from a report form**

Generate report and CSV extract JCL directly from list of report forms or from the report form itself. With this feature you no longer need to add a report form to a report set for ad hoc reporting. For more information, see [“Producing a report using a sample report form”](#) on page 85.

#### **Report filters**

Add a filter to your form-based report that focuses the report on a specific set of conditions. Report filters can be found in the **Controls** menu under option 4. For more information, see [Chapter 16, “Report Filters,”](#) on page 183.

#### **New sample forms**

Dozens of new sample forms have been added to assist you with common analysis tasks. To add the new samples to your sample library, use the SAMPLES command on the Report Form panel. To view additional information for each sample form, use line action U. For more information, see [“Sample report forms”](#) on page 169.

#### **Field search**

Use the field search facility on a report form or report filter to help you locate form fields related to your area of enquiry. For more information, see [“Producing a report using a sample report form”](#) on page 85 and [“Defining a report filter”](#) on page 184.

#### **Changes to the default precision and digit grouping options**

When not specified, the default time reporting precision for form-based reports has changed from 3 (millisecond precision) to 6 (microsecond precision). The default precision for fields that display count averages in summary reports has changed from 0 decimal places to 2. The default digit grouping has changed from NOGROUP (no 1000s separators in count fields) to SECGROUP (separators applied). To review these settings, or to change your batch syntax to revert this change, see [“LIST: Transaction Transit List report and extract \(Form-based\)”](#) on page 354, [“SUMMARY: Transaction Transit Summary report and extract \(Form-based\)”](#) on page 357, [“LIST: IMS Connect Transaction Transit List report and extract \(Form-based\)”](#) on page 531, and [“SUMMARY: IMS Connect Transaction Transit Summary report and extract \(Form-based\)”](#) on page 533.

#### **Limit the number of lines produced in a summary report form**

Use the report limit option to limit the number of lines in a summary report to a specified value. This is useful, for example, if you want to report the top 10 transactions for your chosen sort fields. For more information, see [“Transaction Transit Summary report and extract”](#) on page 235 and [“IMS Connect Transaction Transit Summary report and extract”](#) on page 507.

#### **New reporting option for program switch sequences initiated from a BMP**

The new PROGRAMSWITCH(BMP) option is similar to PROGRAMSWITCH(YES) but also reports the BMP transaction at the head of the group if the switch sequence was initiated from a BMP. For more information, see [“Transaction Transit \(Form-based\) Options”](#) on page 352.

#### **New form fields for reporting on program switch sequences, Open Database activity, DL/I call counts, and more**

New form fields are now available for reporting. New areas of reporting include Open Database from IMS Connect Extensions journals and DL/I call statistics.

- ALIAS: ODBM alias name.
- CEXHICOD: IMS Connect log code for high return code.
- CEXHIRC: IMS Connect high return code.
- CEXHIRSN: IMS Connect reason code for high return code.
- CEXTYPE: IMS Connect transaction type.
- DBDEQ: Number of DLI/I DB DEQ calls.

- DBGUR: Number of DL/I GUR calls.
- DBIR: Number of DL/I IR calls.
- DBMR: Number of DL/I MR calls.
- DBRLSE: Number of DL/I DB RLSE calls.
- DCAUTH: Number of DL/I message queue AUTH calls.
- DCCHNG: Message queue Change (CHNG) call count.
- DCCMD: Message queue Command (CMD) call count.
- DCGCMD: Message queue Get Command (GCMD) call count.
- DCSETO: Number of DL/I message queue SETO calls.
- DLICOMTM: ODBM UOW commit time.
- DLIDBNM: ODBM DLI call database name.
- DLIDISP: ODBM UOW disposition.
- DLIFROWS: ODBM DLI rows updated count.
- DLIFUNC: ODBM DLI function call.
- DLIFUNCT: ODBM DLI function call count.
- DLIMSGTM: ODBM DLI call message elapsed time.
- DLIPCBNM: ODBM allocate PSB time.
- DSAPSB: Number of DL/I APSB calls.
- DSCCHKP: Number of DL/I CHKP calls.
- DSDPSB: Number of DL/I DPSB calls.
- DSGMSG: Number of DL/I GMSG calls.
- DSICMD: Number of DL/I ICMD calls.
- DSINIT: Number of DL/I INIT calls.
- DSINQY: Number of system service inquiry (INQY) calls.
- DSLOG: Number of system service log (LOG) calls.
- DSRCMD: Number of DL/I RCMD calls.
- DSROLB: Number of DL/I ROLB calls.
- DSROLS: Number of DL/I ROLS calls.
- DSSETS: Number of DL/I SETS calls.
- DSSETU: Number of DL/I SETU calls.
- DSXRST: Number of DL/I XRST calls.
- EXCLDEQ: Number of DL/I exclusive dequeue calls.
- EXCLENQ: Number of DL/I exclusive enqueue calls.
- EXCLWAIT: Number of DL/I waits on DL/I exclusive enqueue calls.
- EXPRESS: Type of Express program.
- FFCHNG: Number of full function Lock Change requests.
- FFLOCK: Number of full function Lock requests.
- FFUNLK: Number of full function Unlock requests.
- FPCHGN: Number of Fast Path Lock Change requests.
- FPCOMB: Fast Path count of combinations logged.
- FPDEQ: Fast Path DEDB Dequeue (DEQ) count.
- FPLGCI: Fast Path count of whole control intervals (Cs) logged.
- FPLOCK: Fast Path lock requests.

- FPRLSE: Fast Path Release Locks (RLSE) call count.
- FPUNLK: Fast Path Unlock requests.
- FPWTNOC: Fast Path IRLM internal suspend count, or suspends not related to lock requests.
- ODBALPSB: ODBM allocate PSB time.
- ODBCORTK: ODBM correlation token.
- ODBDEPSB: ODBM deallocate PSB time.
- ODBMNAME: ODBM name.
- ODBMSGTM: ODBM message elapsed time.
- OLR: Indicates that a batch message processing (BMP) region is scheduled for Online Reorganization.
- ORGRGTYP: Region type of the originating transaction in a program switch sequence.
- OUTALIAS: Target ODBM alias name.
- OUTODBNM: ODBM output name.
- PARRGTYP: Region type of the parent transaction in a program switch sequence.
- PARTOKEN: System where the parent transaction is processed in a program switch sequence. Last 8 bytes of the IMS unit of recovery token.
- PARTOKID: System where the parent transaction is processed in a program switch sequence. First 8 bytes of the IMS unit of recovery token.
- PSBNAME: ODBM PSB name.
- QCMDDEQ: Number of DL/I queue command dequeues.
- QCMDENQ: Number of DL/I queue command enqueues.
- QCMDWAIT: Number of DL/I waits on queue command enqueues.
- REGOCCUP: Region occupancy time.
- SECCHK: ODBM security check code
- SCOTPIPE: Sync Callout tpipe name.
- SOCKETTYPE: Socket type.
- SRBTIME: Program execution SRB time.
- SVRCOD: ODBM severity code.
- TESTDEQ: Number of DL/I test dequeues.
- TESTENQ: Number of DL/I test enqueues.
- TESTWAIT: Number of DL/I waits on test enqueues.
- UPDDEQ: Number of DL/I update dequeues.
- UPDENQ: Number of DL/I update enqueues.
- UPDWAIT: Number of DL/I waits on updates and enqueues.
- XQRYCOPY: Number of XQuery COPY calls.
- XQRYRSTR: Number of XQuery RSTR calls.
- XQRYSAVE: Number of XQuery SAVE calls.

For more information, see [Chapter 34, “Glossary of Report Form field names,”](#) on page 673.

### **Changes to the calculation of syncpoint phase 2 elapsed time**

Previously, the value for syncpoint phase 2 elapsed time for DBCTL and other non-message driven transactions was calculated by measuring the elapsed time between the X'3730' and X'07' log records.

To more accurately reflect syncpoint phase 2 elapsed time in this case, the calculation has changed to report the elapsed time between the X'3730' and X'5612' log records, except when the value in log record X'5937'.SYNCOTHR is greater than 0 in which case the

elapsed time between log records X'3730' and X'5937' is used. The calculation for Fast Path transactions remains unchanged.

This change impacts on the SYNCPH2E and SYNCELAP form fields. For more information, see [Chapter 34, “Glossary of Report Form field names,”](#) on page 673.

#### **Deprecation of NOMATCH parameter in IMS Connect form-based reporting**

The **NOMATCH** parameter of the **IMSPACEX LIST** command has been removed. The default behavior is now to include transactions for which full end-to-end data is available for combined IMS and IMS Connect reporting.

#### **BMP Checkpoint report enhancements**

The BMP Checkpoint report has been enhanced with new options:

##### **Average Checkpoint Frequency**

The Average Checkpoint Frequency is used to establish a desired checkpoint rate. This rate is then compared to the actual rate in the BMP Checkpoint report to determine if BMP jobs are issuing application checkpoints too frequently, or not often enough. This option is only applicable to Summary reports.

##### **Report update activity only**

This option reports only BMP jobs with database update activity. This option is only applicable to Summary reports. List (or Trace) reports will contain events for all BMP jobs.

For more information, see [“BMP Checkpoint report”](#) on page 285.

#### **Open Database enhancements to the IMS Connect transaction index CA20 record**

The IMS Connect transaction index CA20 record has been enhanced to support Open Database workloads. To generate an index, see [“Creating an IMS Connect transaction index”](#) on page 509.

#### **Open Database event trace**

The IMS Connect Transit Event Trace report can now be used to report on Open Database activity recorded in the IMS Connect Extensions journal. To generate this report, see [“IMS Connect Transit Event Trace report”](#) on page 522.

#### **Db2 and extract enhancements**

There are several enhancements related to Db2®.

- You can create an extract directly from a report form using line action J. For more information, see [Exporting from a report form to a delimited file](#).
- You can create extracts with time stamp fields that include time zone information using the ISO 8601 option. For more information, see [Exporting data for Db2 or for third party tools](#).
- You can use a report set to create an extract and load it into Db2 in a single operation, provided the table exists in Db2 to hold the data. For more information, see [Exporting from a report set to Db2](#).
- You can output numerical fields to an extract in decimal format. For more information, see [Exporting data for Db2 or for third party tools](#).

#### **ATF Exception Transaction Extract changes**

The Exception Transaction Extract in an ATF report set now works with IBM OMEGAMON for IMS on z/OS Application Trace Facility (ATF) log stream extracts rather than journals. Consequently, it produces only a single type of extract and the ISPF dialog for Exception Transaction Extract shows only a single extract data name field rather than two. Also, some options that are no longer required have been removed from the IMS Performance Analyzer ISPF dialog. For more information, see [ATF Exception Transaction extract](#).

#### **Inflight data set record changes**

The structure of records stored in inflight data sets has changed. To use the inflight facility, customers must terminate any running report jobs that use inflight processing and restart them with the new release of IMS Performance Analyzer using an empty input data set. Existing inflight data sets created using the previous release can not be used as input.

**Change in length of Fast Path Transaction Exception extract**

The Fast Path Transaction Exception extract has been adjusted to correct for a historical increase in PST size. As a result, the length of a record has increased. Customers who use this facility will need to take this into account when upgrading.

**Deprecation of Transaction Reporting Facility (TRF) of IBM OMEGAMON for IMS on z/OS.**

Removed support for the deprecated Transaction Reporting Facility (TRF) of IBM OMEGAMON for IMS on z/OS. The following form fields are therefore no longer supported and must be removed from your existing report forms or batch reports (where applicable):

- DB2CPU
- PGMSIZE
- PRMEM24
- PRMEM31
- SRBTIME

**Documentation updates**

The documentation updates include the following significant changes:

- The section [Exporting data for Db2 or for third party tools](#) explains all the options for creating extracts whether they are standalone or for Db2.
- The topics about expectation sets, averages, object lists, and distributions have been moved from the Getting Started section to the Reference > Controls section of the user's guide.

## What does IMS Performance Analyzer do?

---

IMS Performance Analyzer (IMS PA) provides a comprehensive suite of reports to help you manage the performance and resource utilization of your IMS systems.

IMS Performance Analyzer processes IMS log, IMS monitor, IMS Connect event data written to IMS Connect Extensions journals, and IBM OMEGAMON for IMS Application Trace Facility (ATF) data to provide comprehensive reports for use by IMS specialists to tune their IMS systems, and managers to verify service levels and predict trends.

**Tip:** Input logs provided to IMS Performance Analyzer may contain sensitive information that may be reproduced in IMS Performance Analyzer report output. Use IBM IMS Problem Investigator for z/OS to assist you in scrubbing sensitive or confidential information from log records before they are processed by IMS Performance Analyzer. For more information, see *Scrubbing sensitive data from log files* in the IMS Problem Investigator User's Guide.

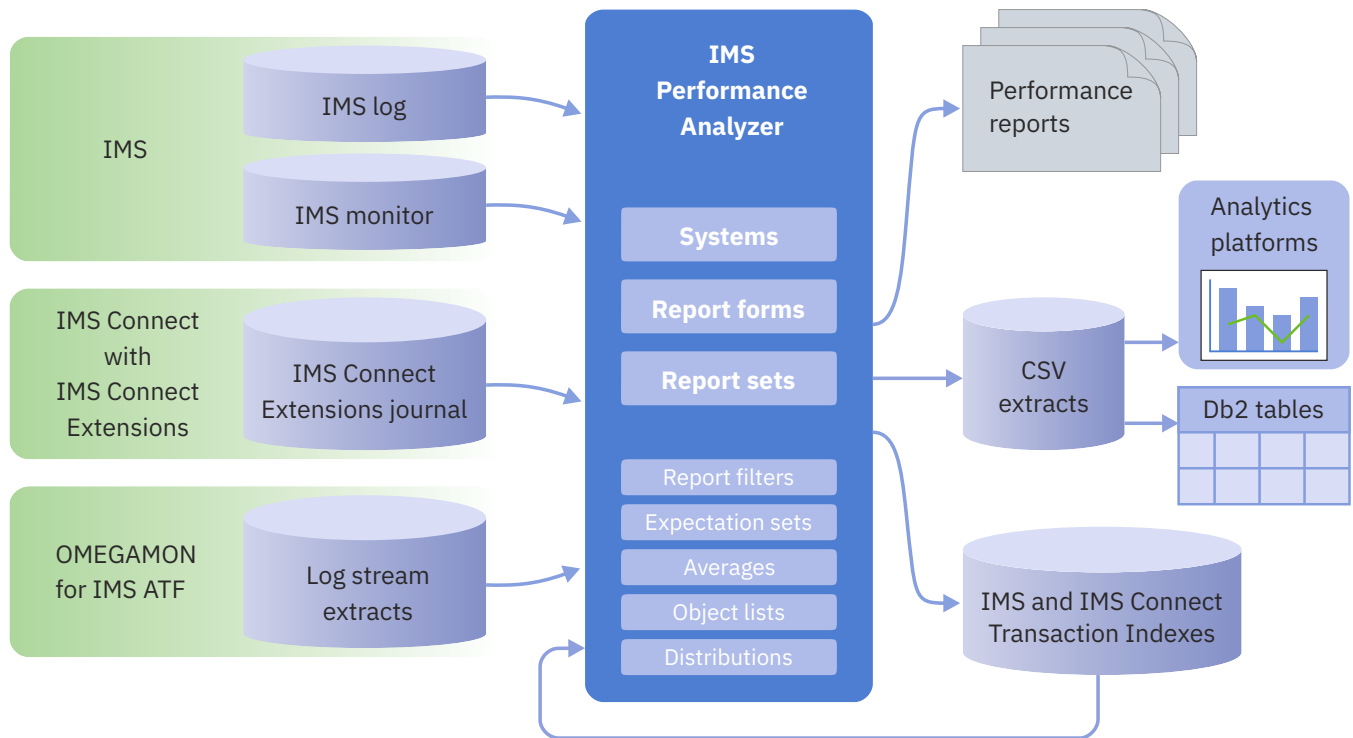


Figure 1. Overview of IMS Performance Analyzer operation

IMS Performance Analyzer provides an ISPF dialog to create your report requests and to generate the JCL to run them using your specified systems and the following types of input data:

### IMS log data

From IMS log data, IMS Performance Analyzer provides comprehensive information about transit times (actual system performance time), and IMS resource usage and availability. IMS Performance Analyzer can process logs from a single IMS system, or from multiple IMS subsystems running in a sysplex and using shared queues. You can specify log files explicitly or let IMS Performance Analyzer use Database Recovery Control (DBRC) and IMS RECON data sets to automatically locate the files for your required reporting interval. User-defined performance thresholds allow you to set goals and report exceptions. A history of transaction performance can be maintained in Transaction History Files.

Extracts of transit time by time interval data can be created from log files then exported using IMS Performance Analyzer facilities. Extracts of total transaction traffic or exception transactions (MSGQ or Fast Path), CPU usage and database update activity can also be created for direct import by external programs such as Db2 or for use in analytics platforms.

Report forms can be used to tailor transit summary and list reports to include only the data fields of interest. Form-based extracts can be created then directly loaded into Db2 tables.

### IMS monitor data

From IMS monitor<sup>1</sup> data, IMS Performance Analyzer creates summary and analysis reports for regions, resources, programs, transactions, databases, and the total system, to analyze your IMS system environment. IMS Performance Analyzer provides comprehensive reporting for the IMS Fast Path monitor, including data entry databases (DEDB), balancing group (BALG), expedited message

<sup>1</sup> In this book, the term *monitor* applies to both the IMS monitor used in the IMS TM environment and the IMS DB monitor used in the IMS DB environment. In cases where information applies to only one of the monitors, the term *IMS monitor* or *DB monitor* is used.



handler (EMH), Fast Path Buffer, OTHREAD processing, and Virtual Storage Options (VSO). External Subsystem (ESS) call activity can be incorporated in applicable reports. Alternative sequencing of reports by region occupancy, calls or delay can be requested to highlight bad performance.

### **IMS Connect data**

IMS Performance Analyzer provides comprehensive reporting from the IMS Connect performance and accounting data collected by IBM IMS Connect Extensions for z/OS (5655-S56). You can specify IMS Connect Extensions journal data sets explicitly, or you can use IMS Performance Analyzer Journal File Selection and the IMS Connect Extensions definitions repository to automatically locate the required IMS Connect Extensions journals. Summary and detailed reports analyze IMS Connect transaction internal and external transit times and latencies, highlighting critical events for message processing. They also provide information about significant processing events with the potential to impact performance, including resource availability and session errors.

You can obtain a complete end-to-end picture of transaction transit performance by using IMS Performance Analyzer to combine and report on both IMS and IMS Connect event data

### **OMEGAMON for IMS ATF data**

IBM OMEGAMON for IMS Application Trace Facility (ATF) reporting provides application-level detailed monitoring of DLI calls and Db2 calls, and also provides information about DLI call times and CPU utilization in each IMS region.

## **IMS Performance Analyzer features and benefits**

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IMS Performance Analyzer helps you to analyze many different types of performance issues in IMS TM and IMS DB.

### **Comprehensive reporting of IMS activity**

Highlights of IMS Performance Analyzer reporting from log data include the following:

- IMS Performance Analyzer produces a comprehensive set of reports, organized by IMS resource type, to give multiple views of transit time, resource usage, and resource availability.
- The following reporting is supported:
  - Message Queue Transaction and Full Function Database
  - Fast Path expedited message handler (EMH) transaction and data entry database (DEDB)/main storage database (MSDB)
- IMS Performance Analyzer supports shared queues in an IMS sysplex; multi-subsystem log input is merged by time stamp sequence to produce either composite reports or reports by subsystem.
- System balance is determined in management exception reports, one for message queue transactions, and another for Fast Path EMH transactions.
- Each transaction is dissected into parts (local or shared input queue, program execution, output queue, output shared queue, output local queue, and program switch time) for analysis of these times to pinpoint response bottlenecks.
- Extract files of transit times by time period can be produced for comparative analysis using IMS Performance Analyzer graphing facilities or to export to third-party analytics platforms.
- Reports on transit time can be ordered by any or several of the following to create multiple views of system response:
  - Logical terminal or User ID
  - Transaction code
  - Transaction code within logical terminal or User ID
  - Line or VTAM® node
  - Message class
  - Time of day
- Reports can illustrate:

- Region use and scheduling efficiency
- Database update activity
- Message queue utilization efficiency
- Buffer pool statistics
- Availability of resources (regions, transactions, programs, lines, VTAM nodes, databases)
- Trace reports can help with detailed analysis of the log data.
- Multiple reports (all activated reports in a Report Set) are produced from a single pass of the IMS log without requiring sorting of the log data.
- List and summary reports and extracts can be constructed using Report Forms, ensuring they are specific and tailored to suit your varied reporting requirements.

### **Customizable reports using forms**

Report Forms provide the following advantages:

- Customizable reporting or extract to data set. Field selection allows you to request only the information you need to see.
- Both IMS log and IMS Connect Extensions transit reporting is supported.
- IMS log and IMS Connect Extensions event data can be merged into a single report, providing end-to-end reporting for IMS Connect transactions.
- Over 300 IMS and IMS Connect transaction information fields are available for selection in reports, providing an improved level of detail for measuring transaction processing and resource usage. For a comprehensive list of these fields, refer to [Chapter 34, “Glossary of Report Form field names,” on page 673](#).
- IMS log reporting provides improved accuracy, additional log record types are used to provide a clearer picture of transaction transit activity.
- Extract data sets can be used as an alternative to reporting, where report data is written to CSV files for importing into Db2 or analytics platforms. For more information, refer to [“Exporting from a report form to Db2” on page 199](#).
- Precision of elapsed and CPU times is customizable, from millisecond (0.001) to microsecond (0.000001). For example use forms to report input queue, processing elapsed and CPU times with microsecond precision.
- Summary reporting allows up to 8 grouping or key fields.
- Statistical functions (average, minimum, maximum, standard deviation, peak percentile, total, count, range) can be requested at the field level.

### **Understand your systems, identify problems, and improve performance**

IMS Performance Analyzer uses the following types of input data to help you analyze your systems:

#### **IMS log**

Examples of ways in which IMS Performance Analyzer IMS log reports can be used:

- Identify transactions involved in slow responses and identify the cause of the slow response.
- Trace certain problems back to their source. For example, an IMS 0801 abend code indicates a database problem. The SMU (Space Management Utilities) feature of DB Tools can be run to find the type of problem (a bad pointer, for example). IMS Performance Analyzer can then analyze the log to determine who caused the problem, and when.
- Detect poor choices in pool sizes and other specifications using the formatted information on pool use in log record 45xx, 02=Queue Pool, 03=Format buffer pool, 04, 05, 08, and 0E. The transactions affected by these choices can also be identified.
- Present statistics on region occupancy to reveal inefficient region scheduling and availability.
- Produce graphic summaries of region use using a histogram.
- Compare performance of different IMS subsystems.

## **IMS monitor**

Highlights of IMS Performance Analyzer reporting from monitor data include the following:

- IMS Performance Analyzer produces a comprehensive set of reports (from management summaries to detailed program traces), organized by level of detail and area of analysis, to meet a broad range of IMS system analysis objectives, such as the following:
  - System performance evaluation. IMS Performance Analyzer features help you monitor and evaluate IMS system performance on a daily basis. Management level summary reports express key values in terms of rates, ratios, and percentages. These reports help you use IMS Performance Analyzer for trend analysis and comparative analysis of systems, and for evaluation of a system against installation standards.
  - System tuning. Reports that help you enhance IMS system performance through system tuning are a key feature of IMS Performance Analyzer. Monitor output is summarized and categorized to help you rapidly identify problem areas. Detail analysis reports help you investigate and evaluate these problem areas and also the effect of changes to the system.
  - Application and program evaluation. IMS Performance Analyzer reports program activity in message processing or batch regions. IMS Performance Analyzer can be a valuable tool for evaluating existing applications and programs, and for validating whether new applications and programs conform to installation standards. Program activity reports and program traces add greatly to system documentation.
- IMS Performance Analyzer produces alphanumerically collated report items in terms of ratios, rates, and percentages to facilitate comparison of results without additional computations.
- External subsystem statistics can be incorporated into Region and Program reports.
- IMS Performance Analyzer provides alternative sequencing of reports by occupancy, calls or delay with the option to limit reporting to the worst performers.
- Schedules in progress, including wait-for-input (WFI), IMS Fast Path (IFP), and batch message processing (BMP) are reported.
- Reports on IMS batch programs are provided.

## **IMS Connect**

IMS Performance Analyzer provides a comprehensive set of reports from the IMS Connect event data collected by IMS Connect Extensions for z/OS. With the combined IMS Connect and IMS log reports, you can trace the lifecycle of an IMS Connect transaction.

## **OMEGAMON for IMS Application Trace Facility**

IBM OMEGAMON for IMS Application Tracing Facility (ATF) provides application-level accounting statistics of DLI, Db2, and MQ calls, call times, and CPU utilization.

The Application Trace Facility provides the following data:

- Application-level detailed monitoring:
  - DLI calls, including segment search arguments (SSA), key feedback area (KFBA), and IO area.
  - Db2 calls.
- DLI call times and CPU utilization (in each IMS region).

The analysis of the data collected by the ATF can be used to:

- Identify transaction response-time components.
- Fine-tune applications.
- Understand how application programs operate.

## **Tools for systems programmers, technical support, and management**

IMS Performance Analyzer is a tool for management as well as for system programmers and technical support personnel. It produces management-oriented reports, and it produces summary and detailed information for those directly involved in improving system performance. When used on a regular basis, IMS Performance Analyzer can help you:

- Improve system performance

- Improve transaction transit time
- Manage your IMS Connect communications and OTMA/ODBM workloads more efficiently
- Use IMS regions and message queues more efficiently
- Reduce virtual and real storage requirements in buffer pools
- Increase the availability of IMS resources
- Evaluate applications and programs against system standards before installation
- Perform ongoing system measurement and management reporting
- Debug IMS applications
- Increase the productivity of analysts and programmers
- Determine future system requirements
- Enhance system and program documentation
- Reduce the need to run IMS utilities
- Reduce the requirement to run the monitor reports supplied with IMS
- Provide auditors with valuable data for a number of potential audit tasks

## Performance management solutions

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IBM solutions help IT organizations maximize their investment in Db2 and IMS databases while staying on top of some of today's toughest IT challenges. Performance management solutions can help maximize the productivity and profitability of your Db2 and IMS databases.

IMS Performance Analyzer is one of several IMS Tools products that help maximize database performance to support service level agreements (SLA), drive higher transaction rates, and ultimately increase profitability.

The following additional IMS Tools products also provide performance management solutions:

- IBM IMS Problem Investigator for z/OS
- IBM IMS Connect Extensions for z/OS
- IBM Transaction Analysis Workbench for z/OS
- IBM IMS Buffer Pool Analyzer for z/OS
- IBM IMS Network Compression Facility for z/OS
- IBM OMEGAMON for IMS on z/OS

IMS Performance Analyzer provides an enhanced level of problem determination services for IMS Transaction Manager (IMS TM) and IMS Database Manager (IMS DB) systems.

IMS Performance Analyzer complements IBM IMS Problem Investigator for z/OS and IBM IMS Connect Extensions for z/OS making the end-to-end analysis of IMS related performance and resource utilization quicker and easier than ever before. The result is improved productivity for problem analysts, more efficient IMS application performance, improved IMS resource utilization, and higher system availability.

## Hardware, software, and storage prerequisites

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IMS Performance Analyzer is installed by using SMP/E and standard RECEIVE, APPLY, and ACCEPT processing.

Complete information about installation requirements, prerequisites, and procedures for IMS Performance Analyzer is located in the *Program Directory for IMS Performance Analyzer*.

### Hardware

IBM IMS Performance Analyzer for z/OS, 4.5 operates on any IBM eServer™ zSeries machine on which a required operating system and other required software are installed and running. If your z/OS

operating system, IMS, and IBM IMS Connect Extensions for z/OS were installed in compliance with their documented minimum hardware requirements, you have only the following additional requirements to consider in installing IMS Performance Analyzer:

- DASD storage required for the IMS Performance Analyzer product. For information on DASD requirements, refer to the Program Directory that is shipped with IMS Performance Analyzer.
- DASD storage for extracts, Transaction History files, and IMS transaction indexes, and IMS Connect transaction indexes.

## Software

Before installing and configuring IMS Performance Analyzer, ensure that the following software requirements are fulfilled:

### Installation requirements and operating system

Use any in-support version of the following software:

- z/OS
- SMP/E for z/OS, V3.6 (5655-G44) or later

### Mandatory operational requirements

IMS Performance Analyzer 4.5 is designed to operate with any in-support version of IMS.

### Conditional operational requirements

You can use an in-support version of the following products for additional features:

#### IBM IMS Connect Extensions for z/OS

To analyze IMS Connect event data, IMS Performance Analyzer requires event information collected by IBM IMS Connect Extensions for z/OS

#### IBM OMEGAMON for IMS on z/OS

To analyze OMEGAMON for IMS Application Trace Facility (ATF) data, IMS Performance Analyzer requires IBM OMEGAMON for IMS on z/OS

#### IBM IMS Problem Investigator for z/OS

You can share IMS Performance Analyzer system and group definitions with any in-support version of IBM IMS Problem Investigator for z/OS

#### IBM Tools Base for z/OS

To offload IMS log reports to the IMS Tools Knowledge Base report repository, IMS Performance Analyzer requires IBM Tools Base for z/OS

#### GDDM Base: GDDM/MVS™ and GDDM Presentation Graphics Facility: GDDM-PGF

To graph Extract by Interval transit data using the IMS Performance Analyzer dialog, IMS Performance Analyzer requires GDDM Base: GDDM/MVS and GDDM Presentation Graphics Facility: GDDM-PGF.

## Storage

IMS Performance Analyzer executes in a virtual storage region. The region size you choose will vary based on your specific report requirements and the amount of log, monitor and other data file input.

Allow at least 512 MB, which includes storage for:

- IMS Performance Analyzer programs
- Access methods and buffers
- Report queues (most are located above the 16 MB line)

Installations with large numbers of transactions, programs, and databases may experience greater virtual storage and CPU requirements. GDDM requirements are additional.

Larger region sizes reduce CPU utilization due to IMS Performance Analyzer memory management process. With smaller region sizes, more CPU is utilized because flushing of buffers is required when there is not enough storage to accumulate complete information for transaction transit processing in

report queues. When buffers are flushed during transaction transit processing, message IPI0333W is issued. With larger region sizes, the buffer flushing process is sometimes not required, thus less CPU is utilized.

There are two ways to control the amount of virtual storage IMS Performance Analyzer consumes; the specification for regions size, and EXEC PARM parameters NOMEMLIMIT (No Memory Limit) and MEMLIMIT (Memory Limit).

The following is the format of the specifications available, where *x* is the number of megabytes and *nnn* is the version of IMS that created the log files being processed.

```
//EXEC PGM=IPIMAIN,REGION=xM,PARM='Vnnn,NOMEMLIMIT'  
//EXEC PTM=IPIMAIN,REGION=xM,PARM='Vnnn,MEMLIMIT'
```

The default region size that IMS Performance Analyzer uses is 512M. The region size can be restricted or extended with the following example specifications:

```
//EXEC PGM=IPIMAIN,REGION=256M,PARM='V154,MEMLIMIT'
```

This example specifies that the version of the IMS Logs is IMS V15.4, and no more than 256 megabytes of virtual storage will be used by IMS Performance Analyzer, as opposed to the 512M default limit.

```
//EXEC PGM=IPIMAIN,REGION=1024M,PARM='V154,NOMEMLIMIT'
```

This EXEC statement specifies that IMS Performance Analyzer can use all the available above the line storage, but use of below the line storage is restricted by system definitions.

```
//EXEC PGM=IPIMAIN,REGION=0M,PARM='V154,NOMEMLIMIT'
```

This EXEC statement specifies that IMS Performance Analyzer can use all the available above the line storage and all available below the line storage. The amount of above the line storage is also restricted by system definitions.

With insufficient memory, IMS Performance Analyzer can run out of storage and terminate without completing the report, or it can abnormally terminate if there is not enough memory for the buffer flushing process to free storage.

## IMS Performance Analyzer concepts

IMS Performance Analyzer produces comprehensive reports and extracts from IMS log data, IMS monitor data, IMS Connect Extensions journals, and IBM OMEGAMON for IMS Application Trace Facility (ATF) data. The IMS Performance Analyzer ISPF dialog is used to create and maintain your report and extract requests in report sets according to the type of input data and generates the JCL to run them using your specified systems and data files.

### Report forms

Report forms provide a quick way for you to define a Transaction Transit report with only the fields you need, and then run that report. You can also use a report form in a report set, either to produce a list or summary report with the fields you need, or to produce an extract with the same information. For more information, see [“Producing a report using a sample report form” on page 85](#).

### Report sets

An IMS Performance Analyzer report set defines a selection of reports and extracts and their associated options.

There are four types of report set that correspond to the type of input data that it is designed to process:

#### LOG

Reports based on IMS logs

#### MON

Reports based on IMS monitor

## **CEX**

Reports based on IMS Connect Extensions journal data with the option of combining it with IMS log data

## **ATF**

Reports based on IBM OMEGAMON for IMS Application Trace Facility (ATF) data

Any number of report sets can be defined, but a separate batch job is required for each type. One batch job runs one report set or runs a selection of reports and extracts from one type of report set. The reports and extracts in a report set, including multiple program traces, are produced as a group from one pass of the input data sets, without sorting. For shared queue reporting, IMS Performance Analyzer merges the logs from multiple IMS subsystems.

A report set can be run on a one-off basis, or run repeatedly against different input each time. Changes can be made to report sets using the ISPF dialog, and immediately affect the next run of the report set. Optionally, an IMS log report set includes the specification of extract files and the transaction index. These are executed concurrently with IMS Performance Analyzer reports in the same pass of the log data set.

The data to be analyzed by a report set can be restricted by date and time. Then for each report, further filtering of the data can be defined by a date-time range or time slot, and by Selection Criteria to restrict reporting to only the objects that you are interested in (such as particular programs, databases, user IDs, LTERMs, and IMS subsystem IDs).

## **Report filters**

A report filter is a set of criteria that you can apply to a form-based report so that the report shows only the records you want. Report filters are available in the Controls menu in the ISPF dialog. For more information, see [Chapter 16, "Report Filters," on page 183](#).

## **Object lists**

Selection Criteria for reports and extracts can be specified as a single value or a list of values. Lists of values are specified in object lists.

Each object list is a particular type (for example, Database, Program, Transaction Code). IMS Performance Analyzer verifies that the object list content and context (for example, numeric or character, maximum value or length) are appropriate to the type.

Object lists can be defined hierarchically, eliminating duplication, and thereby reducing list maintenance effort and improving the integrity of lists. For example, to define the production databases object list DBPROD, you could specify the object list as containing only the names of three other object Lists PAYROLL, FINANCE and SALES. These three object lists could then contain the actual database names for those applications. This can be done for all types of object lists and to any depth of hierarchy.

## **Distributions**

IMS Performance Analyzer can produce a large variety of graphs from log and monitor data, showing the distribution of performance measures (such as IWAITS per Call). The graphs can be customized using parameter members called "distributions" that specify the limit values and titles for the vertical axis. The graphs are all produced in the same pass of the input data.

## **Expectations and averages**

Expectation sets and averages data sets can optionally be specified for use by the Management Exception report to list log records that are beyond expected limits and calculate accumulated averages. Limits can be defined as absolute values, or defined relative to accumulated averages.

Expectation sets can optionally be specified for use by the Transaction (MSGQ) Exception and Fast Path (EMH) Transaction Exception reports to identify transactions that perform outside user-defined expectations.

The expectations and averages data are presented by the ISPF dialog in a tabular format for viewing, maintenance, and adjustment.

## **System, group, and data file definitions**

Use dialog options 1.1 **System Definitions** and 1.2 **Groups** to define the systems, groups, and files that contain the data for reporting.

IMS Performance Analyzer supports IMS systems with IMS log, IMS monitor, and OMEGAMON for IMS ATF files, and IMS Connect systems with active or archive IMS Connect Extensions journal data sets, and groups of these systems. For IMS log reporting on shared queues or data sharing, you can specify groups of IMS subsystems. For combined IMS and IMS Connect reporting, you can specify groups of IMS subsystems and IMS Connect systems.

When you submit a report set for batch processing, you specify the system or group to be used for that run. IMS Performance Analyzer builds the JCL using the eligible data sets for that system or group ("excluded" data sets are ignored). For IMS log reporting, you can use the more convenient method of DBRC Log Selection which automatically selects the log files for the specified report interval using facilities provided. Similarly, for IMS Connect reporting, you can use IMS Connect Extensions Automated File Selection to automatically select the IMS Connect Extensions journals for the specified report interval. For combined IMS and IMS Connect reporting, automated file selection employs both these utilities.

To report on IMS Connect event data, you must first identify the IMS Connect systems to IMS Performance Analyzer.

To specify the name of the default IMS Connect Extensions definitions repository, use ISPF dialog option 0.5 **IMS Connect Extensions Definitions Data Set**. This is the usual data set that defines the IMS Connect systems and event data that you want to report on. If an IMS Connect system is maintained in a different repository, it can be specified on the **Connect System Definition** panel. You can then submit your report requests in one of the following ways:

- Run a CEX Report Set, specifying the IMS Connect system at run time.
- Select an IMS Connect system or archive data set for reporting, specifying the CEX Report Set at run time.

System definitions in the IMS Connect Extensions definitions repository are managed by IMS Connect Extensions. However, IMS Performance Analyzer provides facilities to maintain IMS Connect system definitions and groups. The IMS Performance Analyzer definitions remain "local" to IMS Performance Analyzer and do not affect the IMS Connect Extensions definitions repository.

### Shared queues reporting

An IMS Performance Analyzer report set produces reports and extracts from one or more input data sets. For IMS log reporting, these data sets can be from a group of IMS subsystems running in a sysplex environment and using shared queues managed by a Common Queue Server (CQS).

IMS Performance Analyzer merges the multi-subsystem log input by time stamp sequence to produce either composite reports or reports by subsystem.

### Extracts and history data sets

IMS Performance Analyzer can produce extract data sets in the form of delimited text files for processing by external programs such as Db2 or by third-party analytics platforms.

The Transaction History File is used to collect historical performance data, useful for long-term trend analysis and capacity planning.

### Related concepts

#### Report Forms

A report form is a user-defined template for the design of a report. The batch equivalent is the **FIELDS** operand. You can use Report Forms to tailor the format and content of the Transaction Transit reports in IMS log and IMS Connect Report Sets.

#### Report Filters

A report filter is a set of criteria that you can apply to a form-based report so that the report shows only the records you want.

#### Report Sets



To run one or more reports in a single job and single pass of the input data files, you need to use the IMS Performance Analyzer ISPF dialog to create a Report Set. When you submit a Report Set for batch processing, IMS Performance Analyzer generates a one-step JCL deck to run the report requests.

#### **Related tasks**

[Defining IMS and IMS Connect systems in IMS Performance Analyzer](#)

To report on IMS and IMS Connect systems using IMS Performance Analyzer, you must first define them using the IMS Performance Analyzer **System Definitions** panel.

#### **Related reference**

[Controls](#)

IMS Performance Analyzer includes various filtering and formatting features that are available from the Controls menu.

## **Complementary IBM products**

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IMS Performance Analyzer complements the following IBM products in the investigation of transaction performance related problems.

#### **IBM IMS Performance Solution Pack**

IMS Performance Solution Pack provides a comprehensive portfolio of IBM IMS performance management tools that combine IBM IMS Problem Investigator, IMS Performance Analyzer, and IMS Connect Extensions into a single offering.

#### **IBM IMS Connect Extensions for z/OS (5655-S56)**

IMS Connect Extensions provides instrumentation for IMS Connect. The tool continuously records IMS Connect events, which you can analyze with IMS Performance Analyzer using the suite of reports provided in **CEX** Report Sets. The input data for reporting is provided by explicitly specifying IMS Connect Extensions journal data sets, or by requesting the IMS Performance Analyzer automated file selection utility to automatically select the journal data sets for your specified systems and report period.

#### **IBM IMS Problem Investigator for z/OS (5655-R02)**

IMS Problem Investigator (IMS PI) allows you to interactively investigate IMS and related logs. It helps you pinpoint the cause of problems highlighted by IMS Performance Analyzer. Transaction tracking is facilitated by using the IMS transaction index (X'CA01' record) and IMS Connect transaction index (X'CA20' record) created by IMS Performance Analyzer. To make the two products easier to use together, they share definitions for systems and groups: you only need to maintain the definitions in one of the tools.

The following diagram illustrates the cooperation between IMS Performance Analyzer, IMS Problem Investigator, and IMS Connect Extensions. When IMS Connect event details in IMS Connect Extensions journals are merged with IMS (and related) logs, IMS Performance Analyzer and IMS Problem Investigator can provide a comprehensive insight into the lifecycle of IMS transactions.

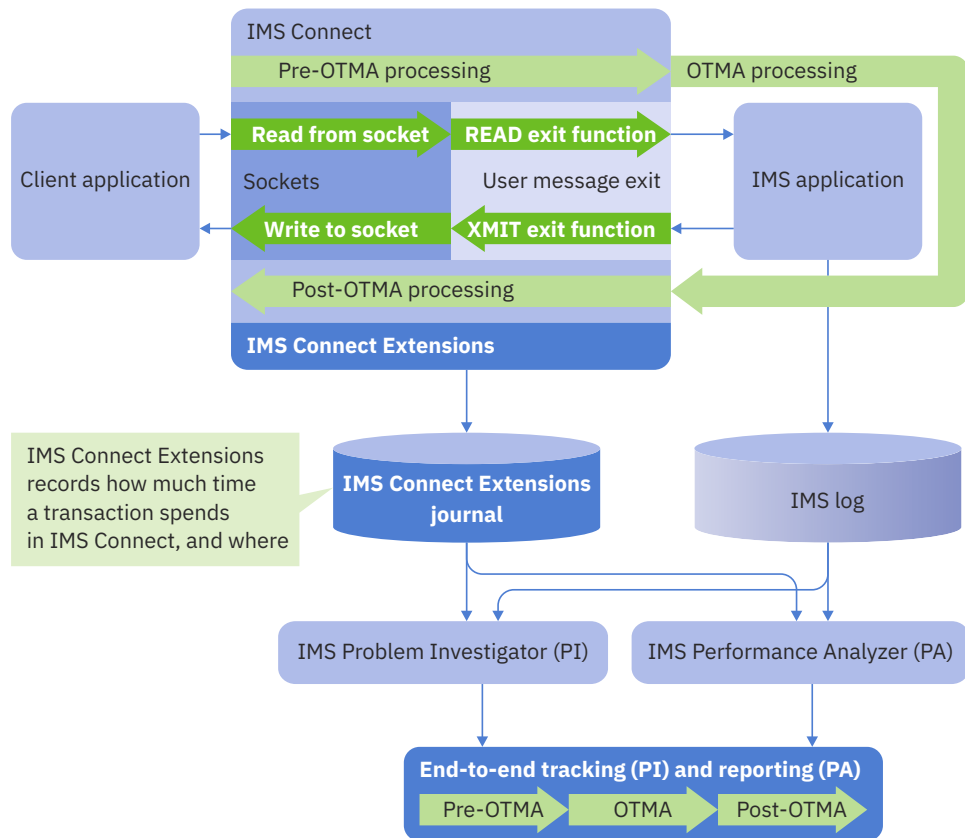


Figure 2. IMS Performance Analyzer, IMS Problem Investigator, and IMS Connect Extensions cooperation

IMS Performance Analyzer can highlight problem transactions which can then be investigated in detail using IMS Problem Investigator.

Because IMS processes large workloads, records from the same transaction can be separated by thousands of records from other transactions, making it difficult to trace the flow of only one of those transactions. Moreover, different record types have different fields that relate them to a transaction, making them inaccessible using conventional filtering and searching techniques. With the IMS Problem Investigator tracking facility, you can find a record from the relevant transaction, and then display just the records from that transaction. IMS Problem Investigator tracks all transaction records, finding the related IMS log and monitor, CQS, IMS Connect, ATF, Db2, IBM MQ, and SMF records, hiding others that are not part of the transaction.

### IBM OMEGAMON for IMS on z/OS (5698-A34)

IMS Performance Analyzer provides reporting on transaction activity data collected by the Application Trace Facility (ATF). OMEGAMON Application Trace Facility (ATF) collects data on external subsystem events (Db2, IBM MQ), BMP and MPP scheduling and termination events, the region where a transaction is executed, occurrence of DLI DB, IMS TM, and message queue calls. The ATF application-level accounting statistics are written to an ATF log stream. IMS Performance Analyzer provides a suite of reports and extracts in **ATF Report Sets**.

### IBM Transaction Analysis Workbench for z/OS

Transaction Analysis Workbench is a tool for analyzing problems with the performance or behavior of z/OS-based transactions. Transaction Analysis Workbench provides a platform for investigating logs and other historical data collected during transaction processing and system operations. Transaction processing is often complex. Modern applications frequently interact with external subsystems and use system services. Pinpointing the cause of a problem can be difficult. Transaction Analysis Workbench extends the scope of traditional transaction analysis techniques, enabling you to more easily identify problems caused by external events. You can use Transaction Analysis Workbench with the following IBM tools:

- IMS Performance Analyzer - to look outside of IMS for the cause of problems, in particular Db2 and IBM MQ
- CICS® Performance Analyzer - to bridge the gap between CICS and IMS for CICS-DBCTL

## Service updates and support information

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Service updates and support information for this product, including software fix packs, PTFs, frequently asked questions (FAQs), technical notes, troubleshooting information, and downloads, are available from the web.

To find service updates and support information, see the following website:

[http://www.ibm.com/support/entry/portal/Overview/Software/Information\\_Management/IMS\\_Tools](http://www.ibm.com/support/entry/portal/Overview/Software/Information_Management/IMS_Tools)

## Product documentation and updates

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IMS Tools information is available at multiple places on the web. You can receive updates to IMS Tools information automatically by registering with the IBM My Notifications service.

### Information on the web

The IMS Tools Product Documentation web page provides current product documentation that you can view, print, and download. To locate publications with the most up-to-date information, refer to the following web page:

<https://www.ibm.com/support/pages/ims-tools-product-documentation>

You can also access documentation for many IMS Tools from IBM Documentation:

<https://www.ibm.com/docs/en>

IBM Redbooks publications that cover IMS Tools are available from the following web page:

<http://www.redbooks.ibm.com>

The IBM IMS Tools Solutions web page shows how IBM solutions can help IT organizations maximize their investment in IMS databases while staying ahead of today's top data management challenges:

<https://www.ibm.com/it-infrastructure/z/ims/tools/>

### Receiving documentation updates automatically

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1. Go to <https://www.ibm.com/support/mysupport>
2. Enter your IBM ID and password, or create one by clicking **register now**.
3. When the My Notifications page is displayed, click **Subscribe** to select those products that you want to receive information updates about. The IMS Tools option is located under **Information Management**.
4. Click **Continue** to specify the types of updates that you want to receive.
5. Click **Submit** to save your profile.

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- Send your comments by email to [comments@us.ibm.com](mailto:comments@us.ibm.com). Include the name of the book, the part number of the book, the version of the product that you are using, and, if applicable, the specific location of the text you are commenting on, for example, a page number or table number.

## Accessibility features

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Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use a software product successfully.

The major accessibility features in this product enable users to perform the following activities:

- Use assistive technologies such as screen readers and screen magnifier software. Consult the assistive technology documentation for specific information when using it to access z/OS interfaces.
- Customize display attributes such as color, contrast, and font size.
- Operate specific or equivalent features by using only the keyboard. See the following publications for information about accessing ISPF interfaces:
  - *z/OS ISPF User's Guide, Volume 1*
  - *z/OS TSO/E Primer*
  - *z/OS TSO/E User's Guide*

These guides describe how to use the ISPF interface, including the use of keyboard shortcuts or function keys (PF keys), include the default settings for the PF keys, and explain how to modify their functions.

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## Chapter 2. Reports produced by IMS Performance Analyzer

IMS Performance Analyzer provides a comprehensive suite of reports to help you to manage transaction performance and to monitor resource utilization in IMS TM and DB systems. Reports and extracts can be produced from IMS logs, IMS monitor files, IMS Connect Extensions journals, and IBM OMEGAMON for IMS Application Trace Facility (ATF) data.

### IMS log reports

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IMS Performance Analyzer provides a variety of fixed-format reports that use IMS log data as a source of information, as well as the ability to design your own reports using report forms.

### Message Queue transaction and Full Function database reports

IMS Performance Analyzer can be used to report on IMS Message Queue (MSGQ) transaction and Full Function database activity.

#### Form-based transaction transit reports

IMS Performance Analyzer form-based reporting provides you with the ability to customize your reports using report forms. To request reports using form-based reporting, see [“IMS and IMS Connect reporting using report forms”](#) on page 85. For a comprehensive list of fields that you can add to a report form, see [Chapter 34, “Glossary of Report Form field names,”](#) on page 673.

The following sample forms produce a list of IMS transactions for the desired reporting period:

#### **ALLLIST: Transaction list report**

List all IMS transactions in the reporting period with their performance characteristics, database call counts, and VSAM and OSAM read and write counts. Both general performance information and Fast-path specific information is included. Transactions are identified by a number of characteristics, including IMS transaction arrival time, transaction code, program name, IMS completion level, queue type, region type and PSD ID, transaction class and priority, user ID, and Output LTERM.

#### **BMPCHKPT: BMP Checkpoint Detail list report**

This report shows transaction details, including the batch messaging processing checkpoint ID, of individual transactions.

#### **BMPCPDBD: BMP Job Checkpoint by Database list report**

This report shows which transactions, job names, and programs accessed databases, the names of those databases and the database access method.

#### **ESAF: Transaction Transit Log DBD/ESAF list report**

This report shows details of individual transactions including details of interactions with databases and other external subsystems.

#### **ESAFLIST: Transaction Transit Log with ESAF call count list report**

This report shows originating LTERM, DB call count, and ESAF call count for individual transactions.

#### **INFLIGHT: List Inflight data set list report**

This report lists the transactions in the inflight data set. See also the related sample member IPIIFLST, which contains JCL to report the contents of the inflight data set.

#### **OLRLIST: HALDB online reorganization list report**

This report shows HALDB Online Reorganization (OLR) statistics. To limit the report output to the relevant programs, you must apply a report filter of Program INC 0\* to the report in the report set. The reason for this requirement is that during online reorganization, IMS dynamically builds a PSB whose name is constructed using the 7-byte HALDB partition name and prefixed with a numeric character zero ('0').

**Tip:** You can further limit the filter by adding the partition id after the zero (for example, Program INC OPART1\*).

**PRGREG: Transactions with region, class, and priority list report**

This report lists transactions in the reporting period together with their region PST ID, transaction code, program or PSB name, transaction class, and priority.

**SMQLIST: SMQ Transaction Transit Log list report**

The SMQ Transaction Transit Log report lists all transactions processed in a shared queues sysplex environment. The report highlights standard transit information, information specific to sysplex processing including the originating and processing systems, and time spent by the input and output messages on the shared message queue.

**SWITLIST: Program-Switch list report**

This report examines program switches in transactions processed by IMS.

**Note:** To track transactions involved in program switch sequences, ensure the Transaction Transit option for program switches is set to 2. For more information, see [“Transaction Transit \(Form-based\) Options” on page 225](#).

**SYNCCOUT: Synchronous Callout list report**

The Synchronous Callout List report provides a detailed analysis of synchronous callout activity in regions and by application programs.

**SYNCPTL: Transaction Syncpoint list report**

This report lists transactions in the reporting period with a component breakdown for syncpoint elapsed times. Also shown is the CPU time, processing time, DB call count, ESAF call count, and the IMS completion level.

**TRANLIST: Transaction Transit Log list report**

This report lists all transactions processed by IMS systems including shared queues sysplexes. The report provides identification information including transaction code, user id and start time, as well as a breakdown of IMS response time into its transit time components.

**TRNELAPS: Transaction Elapsed Time list report**

This report provides a list of transactions with the transaction's start time, transaction code, elapsed time, and response time.

**TRNLIST2: Transaction Transit Log list report**

This report provides a performance overview for each transaction in the reporting period and indicates OTMA transaction source and completion level.

**VRMLIST: Version Transaction list report**

This report provides a list of transactions with arrival time, transaction class and priority, DC and DB call counts, and essential performance information.

The following reports provides summarized information on IMS transaction activity:

**ALLSUMM: Transaction summary report**

The Transaction Summary report provides a summary of transaction activity grouped by time and transaction code. For each transaction, the report includes a transaction count and averages for CPU time, input queue time, processing time, and output queue time.

**ALLSUMMX: Transaction Extract summary report**

The Transaction Summary extract provides a transaction summary grouped by date, time and transaction code suitable for an extract. It provides transaction counts, and CPU time averages.

**BADRESP: Bad Transaction Response Time summary report**

The Bad Transaction Response Time report provides an analysis of transaction response time by reporting the longest response times first. Instead of reporting in the usual transaction code sequence, the report is sorted in descending response time sequence so those transactions with the worst response time can be easily identified. The breakdown of transit time is provided to identify the reasons for the long response time.

**BMPDTL: BMP Checkpoint Detail summary report**

This report shows BMP checkpoint count, average CPU time, and average DB call and wait counts summarized by transaction code, program name, and BMP user checkpoint ID.

**BMPSTAT: BMP Statistics summary report**

This report shows DB call count, CPU time, DB wait count, and database IO elapsed and locking times summarized by transaction code, program name, and region type.

**CHARGE: Transactions by User ID summary report**

This report shows transaction count summarized by user ID and transaction code.

**CNTOTMA: Count of OTMA Transactions summary report**

This report provides a transaction count summarized by transaction code and OTMA client type (if known).

**CNTTMEMB: Transaction Rates by Tmember summary report**

This report provides a transaction count with rates per second and per minute summarized by the originating OTMA Tmember name.

**COMPLVL: Transaction Completion summary report**

The Transaction Completion Summary report provides a breakdown of transaction activity on the IMS log for each region type, such as MPP, or BMP. The breakdown by completion level indicates for each type of transaction, how far they progressed towards completing. For more information on IMS completion levels, see [COMPLVL](#).

**CPUHEAVY: CPU heavy hitters summary report**

Report on IMS transaction CPU usage, processing times, and transaction counts summarized by program name.

**CPUHIGH: High CPU Usage Transactions summary report**

The High CPU Usage Transactions report provides an analysis of transaction CPU usage by reporting the highest CPU times first. Instead of reporting in the usual transaction code sequence, the report is sorted in descending CPU time sequence so those transactions with the highest CPU usage can be easily identified.

**DASH: Transaction Dashboard summary report**

The Transaction Dashboard report provides a high-level overview of the type of activity in your IMS environment. Transaction activity is broken down by region type (such as MPP, or BMP) and transaction type (OTMA, IMS Connect, or APPC MSC).

**DASHRATE: Transaction Dashboard with rates summary report**

This dashboard-style report shows transaction rates, counts, and performance averages broken down by component, ESAF and DB calls counts, database update rates, and abend counts summarized by transaction code.

**DBDCALLS: Database Calls by Transaction/DBD summary report**

Reports on IMS database calls summarized by transaction code and database.

**ESAFCALL: ESAF Calls for Transaction summary report**

Reports on ESAF calls summarized by transaction code

**FINDIMSL: IMS level and Basic DB Calls summary report**

Summarizes basic IMS activity by region, IMS ID, and IMS version.

**HISTGRAM: Region Histogram by Class summary report**

Summarizes region activity by class.

**LOGQUICK: Quick Look Transaction Evaluation summary report**

Provides a quick overview of transaction activity summarized by interval with basic performance criteria.

**LTERMOUT: Output LTerm by Transaction summary report**

Provides an interval summary of transaction activity by originating terminal.

**MSGLEN: Message Length Analysis summary report**

The Message Length Analysis report shows for each transaction code, statistical information about the number and length of all input and output messages.

**OLRSUMM: HALDB Online Reorg summary report**

The HALDB Online Reorganization (OLR) report summarizes the number of high availability large database (HALDB) updates and inserts performed by transactions, which programs were called, and the average total IMS time for each program in the time period you specify. To limit the report output

to the relevant programs, you must add selection criteria of Program INC 0\* to the report in the report set. The reason for this requirement is that during online reorganization, IMS dynamically builds a PSB whose name is constructed using the 7-byte HALDB partition name and prefixed with a numeric character zero('0').

**Tip:** You can further limit the program selection criteria by adding the partition id after the zero (for example, 'OPART1\*').

**ORIGID: Transaction by Originating Term and Processing IMS ID summary report**

Report on transaction counts summarized by originating LTERM, transaction code, program or PSB name, and processing IMS ID.

**OTMATYPE: Transaction count by OTMA type summary report**

Report on whether transactions originated from OTMA, and whether their origin is via IMS Connect, IBM MQ, or via an unknown client.

**QTYPE: Queue-type summary report**

The Queue Type Summary report provides a breakdown of how transactions are processed in a shared queues sysplex environment. For each region type, you can see at a glance the performance characteristics of transactions processed globally versus those processed locally in a shared queues environment. You can compare input queue times for transactions that were processed locally against those that required putting onto the CQS shared queue for processing on the back-end system.

**REGOCCUP: Transaction Count by Region summary report**

For each time interval and region, this report shows the count of transactions and the total transaction processing time.

**RESPDIST: Response Time Distribution summary report**

The Response Time Distribution % report shows the percentage of transactions within a series of pre-defined ranges. You can use this form to create your own report that, for example, shows the percentage of transactions with a response time within a required service level. Range values (distributions) can be reported as counts or percentages.

**RGBYCLPR: Region by Class and Priority summary report**

This report shows transaction counts for each time, region, class, and priority combination, and minimum, average, and maximum input queue times and processing times. When you see an unexpectedly input queue time or processing time value, it can be useful to know the region, class, priority and time, when trying to identify the cause of poor performance.

**RGBYTRAN: Transaction by Region with Input Queue summary report**

This report highlights which transaction codes had high input queue times and what percentage of occurrences of that transaction count were within each range of input queue times.

**RGBYTRN1: Transaction by Region summary report**

This report shows details of each transaction codes for each region and time interval, including details about input queue times, CPU times, processing times, DB call counts and Fast Path call counts.

**SMQTCOD: SMQ Transaction Analysis summary report**

The SMQ Transaction Analysis report summarizes transaction activity in a shared queues sysplex environment. For each transaction code, the number of transactions processed and standard transit information is reported. Information specific to sysplex processing including originating and processing systems, as well as time spent by the input and output messages on the shared message queue is also reported.

**SWITSUMM : Program Switch Summary summary report**

The Program Switch Summary report provides an analysis of transaction transit performance by transaction code. The report form uses field ORGTRAN to group all program switch transactions by their originating transaction code.

**SYNCSUMM: Syncpoint Summary by Transaction summary report**

Provides a syncpoint summary by transaction code.

**TRANCLAS: Transit Analysis by Class summary report**

The Transit Analysis by Class report provides a breakdown of transaction transit performance by transaction class, as specified by the TRANSACT macro MSGTYPE parameters.



**TRANDIST: Transaction Distribution by Input Queue/Total Time summary report**

This report summarizes transaction distributions by input queue time and by total transaction time.

**TRANINTV: Interval Transaction Analysis summary report**

The Interval Transaction Analysis report summarizes transaction activity for each user-specified time interval. For example, the performance characteristics of each transaction is reported for every 15 minute interval during the day so that you can identify how transaction performance varies over time.

**TRANPRTY: Transit Analysis by Priority summary report**

The Transit Analysis by Priority report provides a breakdown of transaction transit performance by transaction priority, as specified in the TRANSACT macro PRTY parameter.

**TRANRESU: Transaction Resource Usage DLI Call summary report**

The Transaction Resource Usage DLI Call Report provides, for each transaction code, a summary of IMS database (DB) and data communications (DC) calls, together with resource usage including CPU time.

**TRANRESU: Transaction Resource Usage summary report**

The Transaction Resource Usage report provides, for each transaction code, a breakdown of IMS response time together with resource usage including CPU time and DB/DC DLI call activity.

**TRANRES1: Transaction Resource Usage summary report**

The Transaction Resource Usage report provides, for each transaction code, an analysis of IMS response time together with resource usage including CPU time, and database (DB) and data communications (DC) call activity.

**TRANSUMM: Transaction Transit summary report**

Transaction Transit Summary.

**TRANTCOD: Transit Analysis by Trancode summary report**

The Transit Analysis by Trancode report provides a breakdown of transaction transit performance by transaction code. For each transaction code, you can see at a glance how the transaction performed, and if necessary identify the phase of processing that caused excessive response time.

**TRNBGRGN: Transaction by Region summary report**

Report on average and maximum input queue, processing time, and total transaction elapsed time summarized by transaction start time, region PST ID, transaction priority, transaction code, and region type.

**TRNBGRGR: Transaction by Region (ranges) summary report**

Report on average and maximum processing time and breakdown input queue time based on pre-defined ranges.

**TRNBGRGS: Transaction by Region (short interval) summary report**

Reports on input queue and processing time based on pre-defined ranges.

**TRNBUID: Transaction by User ID summary report**

Summarize transaction code and program by user id.

**TRNESAF: Transactions by ESAF Calls summary report**

Report on ESAF calls, input queue and processing time by interval, region PST ID, call and transaction code.

**TRNRANGE: Transaction Response by Range summary report**

Report on input queue and processing times based on pre-defined ranges.

**VRMCOMP: Compare IMS Systems/Versions summary report**

This report summarizes basic transaction transit statistics by IMS version. Intended for performance comparisons between IMS releases.

## Management reports

Management reports let managers know whether IMS is working within expected limits.

**“Dashboard report” on page 257**

The IMS Dashboard report provides a quick overview of critical system performance indicators, including transaction throughput and IMS system resources. Use this IMS Performance Analyzer

report to highlight potential performance problems quickly, providing a springboard to other reports that provide more detailed information.

**“Management Exception report” on page 257**

The IMS Management Exception report shows whether critical values are within specified limits, and it gives summary values of indicative information. Use this IMS Performance Analyzer report to measure today's transaction performance against agreed benchmarks, such as service level agreements and benchmark averages. Then, when a problem occurs, you can go to other IMS Performance Analyzer reports for additional, more detailed information.

**“Transaction Transit Graphic Summary report” on page 249**

The IMS Transaction Transit Graphic Summary report generates a set of character-based graphs, summarizing daily transaction processing for mean transit time, user-specified percentile transit time, transaction response count, and responses per second.

**“Transaction Transit Extract by Interval” on page 249**

The IMS Transaction Transit Extract by Interval allows creation of extract files of transaction transit time by time interval data. You can use this IMS Performance Analyzer extract to get pictures of system performance by exporting for manipulation by external programs.

**“Transaction Exception report and extract” on page 251**

The IMS Transaction Exception report and extract shows transaction performance information that affects response time. This IMS Performance Analyzer report can be ordered by Transaction Code, User ID, Message Class, or Time of Input, optionally with a breakdown by transaction code. Optionally, two extract files can be produced containing detail records of all transaction activity, or exception transactions only.

## **Analysis reports**

Analysis reports are intended for administrators and analysts who want operating information in easy-to-read, summary format.

**“Transaction Transit Analysis report” on page 244**

The IMS Transaction Transit Analysis report shows the components of transaction transit time ordered by transaction code, LTERM, transaction code within LTERM, message class, line or VTAM node, or time of day. This IMS Performance Analyzer report reveals transaction input queue time (local or CQS), processing time, output queue time, output shared queue (CQS) time, output local queue time and program switch time. The display of transit time by time period helps you identify periods of poor response.

**“Transaction Transit Statistics report” on page 247**

The Transaction Transit Statistics report is a graphical representation of the information in the Transaction Transit Analysis report.

**“Transaction Resource Usage report” on page 262**

The IMS Transaction Resource Usage report provides a comprehensive overview of transaction resource usage. The resources reported on by IMS Performance Analyzer include scheduling statistics (including WFI), CPU usage, DL/I call statistics, enqueue statistics, and DBCTL DB and I/O usage.

**“Resource Availability report” on page 263**

The IMS Resource Availability report indicates the relative amount of time a specific resource is active, idle, or unavailable. Use this report to get general availability information, a summary of how frequently each resource is used, to plan more efficient scheduling, and to identify when remedial action is required. Resource Availability reports can be generated in IMS Performance Analyzer for any combination of regions, programs (PSBs), transaction codes, databases, or lines or VTAM nodes.

**“CPU Usage report and extract” on page 265**

The IMS CPU Usage report gives statistics for CPU time and elapsed time during a specified period for regions, transactions, and programs. It can help you determine who is using too much CPU time or, conversely, what programs or transactions in which regions are in a wait state too long. The report can optionally be written by IMS Performance Analyzer to an extract data set as a CSV file.

#### **“Internal Resource Usage reports” on page 267**

The IMS Internal Resource Usage reports provide statistics on the use of various IMS pools and resources. From the statistics produced by IMS Performance Analyzer, you can determine how they are being used and where inefficiencies exist.

#### **“MSC Link Statistics report” on page 274**

The IMS MSC Link Statistics report provides summary information on the overall usage of MSC links and a detailed breakdown of Send and Receive data for each MSC link. The MSC Link Statistics report can help you validate and tune MSC links bandwidth.

#### **“Message Queue Utilization report” on page 275**

The IMS Message Queue Utilization report contains information on the use of message queues. This IMS Performance Analyzer report can help you balance the I/O between long and short message data sets and adjust record and buffer sizes for the most efficient use of these two data sets. Thus this report helps you reduce storage and minimize I/O.

#### **“Database Update Activity report and extract” on page 276**

The IMS Database Update Activity report can help you determine the cost of database calls. It indicates the number of purge writes at sync point time to a database and provides a count of actual updates made to each database in the time period being reported. If your database is a HALDB, you can also report on specific HALDB partitions because the name of the partition is found on the database name field of the various records used in this report. This IMS Performance Analyzer report can optionally be written to an extract data set as a CSV file.

#### **“OSAM Sequential Buffering report” on page 279**

The IMS OSAM Sequential Buffering report provides detailed I/O and buffer-usage statistics that allow you to assess the benefit of OSAM sequential buffering. You should use the OSAM Sequential Buffering report to determine whether sequential buffering is providing a benefit to each application that uses it.

#### **“Deadlock report” on page 280**

The IMS Deadlock report provides a comprehensive analysis of deadlock events. In addition the report summarizes deadlock activity to show the frequency of each losing transaction/database combination and the associated winning transaction/database combinations. This IMS Performance Analyzer report is a useful aid for tuning applications and adjusting scheduling parameters to avoid this expensive overhead. Deadlocks involving Db2 are also reported.

#### **“System Checkpoint report” on page 281**

The IMS System Checkpoint report provides a detailed analysis of IMS internal checkpoint activity. This IMS Performance Analyzer report provides details of your IMS resources, including databases (with system definition information), transactions (with system definition information and basic usage indicators), and terminals (with system definition information and basic usage indicators). The report also provides a summary of checkpoint activity, including breakdown of checkpoint records by type, and frequency and overhead of internal checkpoint processing.

#### **“BMP Checkpoint report” on page 285**

The IMS BMP Checkpoint report provides an analysis of BMP checkpoint frequency that can affect online performance and system restartability. The detailed List report provides a breakdown of individual BMP checkpoint activity. The Summary report provides an overview of each BMP program.

#### **“Log Gap Analysis report” on page 286**

The IMS Log Gap Analysis report shows periods of time where log records are not being cut, potentially highlighting an external system event that may have caused IMS to slow down.

#### **“Cold Start Analysis report” on page 288**

The IMS Cold Start Analysis report provides a snapshot of in-train activity in the event of a cold start to determine what transactions were lost from the IMS message queue, what were the incomplete units of work, what database changes were made and not backed-out, and what external subsystem activity was left in doubt.

#### **“Enqueue/Dequeue report” on page 289**

The IMS Enqueue/Dequeue report shows IMS message enqueue/dequeue activity. The Outstanding Messages List report provides detail of input messages queued, but not processed and bended or otherwise requeued to the IMS message queue, and output messages enqueued to a destination

but not dequeued and/or deleted from the IMS message queue. The Dequeue Messages List report provides details for each message counted in the destination summary report. The Destination Summary report provides an overview of the volume of input and output messages which have been queued to each destination (SMB/CNT).

#### **“ESAF Trace report” on page 321**

The External Subsystem Attach Facility (ESAF) Trace report provides a chronological listing of all external subsystem connects and disconnects for the specified time period. Use this IMS Performance Analyzer report to determine when external subsystems were connected.

## **Detail reports**

Detail reports help analysts and programmers solve problems.

#### **“Transaction Transit Log report” on page 248**

The IMS Transaction Transit Log report shows the transit activity of each message originating from a logical terminal and shows any program-to-program switches caused by the input message and all output messages resulting from the input. This IMS Performance Analyzer report provides shared queue reporting for multiple IMS subsystems. For multi-subsystem log input, IMS Performance Analyzer assumes shared queue processing and produces a composite report by merging data from all subsystems in the sysplex.

#### **“Region Histogram report” on page 278**

The IMS Region Histogram report is a graphic display of region activity. It shows the times a region is active or idle, and the patterns of transaction scheduling in each region. The Region Histogram report highlights parallel scheduling issues. It lets you see which transactions are scheduled into which regions and when. You can quickly tell whether some regions are heavily scheduled while others are relatively idle. You can also tell which transactions are waiting on which other transactions.

#### **“DC Queue Manager Trace report” on page 316**

The IMS DC Queue Manager Trace report shows a time-sequenced list of each TM event, such as input, message enqueue, get unique, output, and free device relative record number (DRRN). This IMS Performance Analyzer report also shows the content of each input message. The DC UOW Tracker report option allows you to trace transaction message flow using the IMS tracking UOW.

#### **“Database Trace (Full Function) report” on page 318**

The IMS Database Trace (Full Function) report provides a record of all database changes by application programs as recorded on the IMS log. Backout changes caused by emergency restart are also reported and identified separately, but changes due to the reorganization utilities are not reported. Log records created by pseudo-abends are included in the report. This IMS Performance Analyzer report shows the content of segments, prefix pointers, and free space elements, and shows both the *before* and *after* versions of these as appropriate. The report also identifies the time of the change and the name of the program (PSB) making the change.

## **Transaction History**

#### **“Transaction History File” on page 254**

The IMS Transaction History File is used to collect historical performance data, useful for long-term trend analysis and capacity planning. Information is summarized for each transaction code over a short time interval, including transaction transit, response and CPU times, as well as DLI call statistics. Data is provided in a format suitable for loading directly into Db2, from where you can run queries or produce reports.

## Fast Path EMH transaction and Fast Path database reports

The Fast Path EMH transaction and Fast Path database reports are grouped by intended audience into Management reports, Analysis reports, and Detail reports.

### Form-based transaction transit reports

IMS Performance Analyzer form-based reporting provides you with the ability to customize your reports using report forms. To request reports using form-based reporting, see [“IMS and IMS Connect reporting using report forms”](#) on page 85. For a comprehensive list of fields that you can add to a report form, see Chapter 34, [“Glossary of Report Form field names,”](#) on page 673.

The following samples forms produce a list of IMS Fast Path transactions for the desired reporting period:

#### **FPLOG: Fast Path Transaction Transit Log list report**

List all IMS Fast Path transactions in the reporting period with their performance characteristics and database call counts. Both general performance information and Fast-path specific information is included. Transactions are identified by a number of characteristics, including IMS transaction syncpoint time, transaction code, Fast Path routing code, originating Lterm, user ID, IMS ID and region PST ID.

#### **FPTRANX: Fast Path Transaction list report**

List all IMS Fast Path transactions and IMS message queue transactions that use Fast Path databases together with general performance characteristics and database call counts.

#### **FPTRANXD: Fast Path Transaction Exception Detailed list report**

List all IMS Fast Path transactions and IMS message queue transactions that use Fast Path databases together with detailed information on Fast Path call counts and buffer usage.

The following reports provides summarized information on IMS Fast Path transactions:

#### **FPANAL: Fast Path Transit Analysis by Transaction Code summary report**

Report on IMS Fast Path transaction activity summarized by transaction code and Fast Path routing code.

#### **FPBUFUSE: Fast Path Buffer Usage summary report**

Report on IMS Fast Path buffer usage summarized by transaction code, Fast Path routing code, and region job name.

#### **FPDBCALL: Fast Path Database Calls summary report**

Report on IMS Fast Path database call activity summarized by transaction code, Fast Path routing code, and region job name.

#### **FPMMSG: Fast Path Message Statistics summary report**

Report on IMS Fast Path message statistics summarized by transaction code and Fast Path routing code.

#### **FPRESUSE: Fast Path Resource Usage summary report**

Report on IMS Fast Path resource usage summarized by transaction code, Fast Path routing code, and region job name. Resources reported include VSO, buffers, GET and UPDATE counts.

### Management reports

Management reports let managers know whether IMS is working within expected limits.

#### **“Fast Path Transit Extract by Interval” on page 296**

The IMS Fast Path Transit Extract by Interval report allows creation of extract files of Fast Path transit data by time interval. You can use the CSV extracts produced by IMS Performance Analyzer for further analysis in third-party tools.

### Analysis reports

Analysis reports are intended for administrators and analysts who want operating information in easy-to-read, summary format.

### **“Fast Path Transit Analysis report” on page 293**

The IMS Fast Path Transit Analysis report shows the times for the components of transaction transit time: Input queue time, Processing Time, Output queue time, and Global input and output queue times. The transaction code and routing code reports show areas in application design and region availability that may require attention. The userid report shows whether the distribution of service among system users is adequate. The time of sync point report notes performance problems caused by momentary surges of transaction input. The display of transit time by time period is useful in isolating time periods of high response.

### **“Fast Path Resource Usage and Contention report” on page 300**

The IMS Fast Path Resource Usage and Contention report provides detailed statistics on the Fast Path resources used by IFP transactions and non-IFP programs. Use this report to view information on DEDB databases, area data sets, VSO, common buffers, locks, logging, sync point failures, and transaction throughput. Use this IMS Performance Analyzer report to gauge the performance of transactions that use DEDB databases. This report identifies transactions that issue excessive DL/I calls that cause area data set I/O, use excessive resources (including buffers and VSO), cause excessive contention, cause excessive logging, or fail during sync point processing.

### **“Fast Path Database Call Statistics report” on page 302**

The IMS Fast Path Database Call Statistics report provides a breakdown of DL/I call function codes by transaction code, identifying transaction that issue excessive DL/I calls. After identifying transactions with poor response time (using the IMS Performance Analyzer Fast Path Transit Analysis report), or transactions using excessive resources (using the Fast Path Resource Usage and Contention report), use the Fast Path Database Call Statistics report to identify the DL/I call function codes most frequently used by the transactions. If your database is a HALDB, you can also report on specific HALDB partitions because the name of the partition is found on the database name field of the various records used in this report.

### **“IFP Region Occupancy report” on page 303**

The IFP Region Occupancy report provides approximate region occupancy rates for IFP regions. You can use this IMS Performance Analyzer report to determine if an appropriate number of IFP regions is available for processing the workload.

### **“EMH Message Statistics report” on page 304**

The EMH Message Statistics report contains information on the number and length of EMH messages that are processed by balancing groups and shared EMH queues. This IMS Performance Analyzer report can be used to gauge the size and frequency of transaction messages processed by IFP regions and the ratio of transactions processed locally versus those processed globally.

### **“DEDB Update Activity report” on page 305**

The IMS DEDB Update Activity report can help you determine the cost of data entry database (DEDB) calls, and shows the rate of processing against your DEDB databases. This IMS Performance Analyzer report can be used to determine the most highly used DEDB databases (and their areas), allowing you to prioritize their tuning, reorganization, and other database administration tasks, and to view DEDB database update activity when diagnosing application performance problems. The report shows the number of sequential dependent (SDEP) and direct dependent (DDEP) segments updated, the segment update rate, the number of database opens, and the number of database errors.

### **“VSO Statistics report” on page 306**

The IMS VSO Statistics report provides detailed statistics on VSO resource usage. This IMS Performance Analyzer report can be used to determine how well VSO is performing by comparing Data Space I/O with Area data set I/O, for SHARELVL 0/1, comparing Coupling Facility I/O with Area data set I/O, for SHARELVL 2/3, by checking the Lookaside hit rate, for SHARELVL 2/3, and by ensuring that Castout frequency and elapsed times are within expectations. The VSO resources include data spaces for SHARELVL 0/1, coupling Facility for SHARELVL 2/3, lookaside Buffers for SHARELVL 2/3, and DEDB Area data set I/O.

## **Detail reports**

Detail reports help analysts and programmers solve problems.



### **“Fast Path Transit Log report” on page 295**

The Fast Path Transit Log report is a chronological listing of all IFP transactions processed during the reporting interval. This report can help you diagnose problem areas and to isolate and diagnose problem transactions. It shows transit activity and DL/I call details of each IFP transaction. For multi-subsystem log input, IMS Performance Analyzer assumes global (shared EMHQ) processing, and produces a composite report by merging log data from all subsystems in the sysplex.

### **“Fast Path Transaction Exception report and extract” on page 298**

The Fast Path Transaction Exception reports provide detailed and summary information about IFP transactions, as well as message queue transactions that use Fast Path databases. The series of reports provide detailed and summary information about IFP transactions, as well as message queue transactions that use Fast Path databases. Optionally, two extract files can be produced containing detail records of all IFP transaction activity, or exception transactions only.

### **“DEDB Update Trace report” on page 320**

The IMS DEDB Update Trace report provides a record of all data entry database (DEDB) changes by application programs as recorded on the IMS log. Use this report to debug DEDB database problems and application program problems, and to diagnose performance problems and tune your applications. For example, you can monitor individual program or user updates to a particular database. This IMS Performance Analyzer report shows all DEDB segment updates (including the relative byte address (RBA) and contents of the modified data), DEDB Area data set Open and Close events, creation of Error Queue Elements (EQEs), and application sync points for all transactions that updated reported DEDBs.

## **IMS Database Control (DBCTL) log reports**

IMS Database Control (DBCTL) has neither transactions nor terminal end users in the traditional IMS sense. It does, however, work on behalf of transactions entered by coordinator controller (CCTL) terminal users. DBCTL generates log data when a CCTL transaction schedules a program to access DBCTL databases.

Select from a form-based report (where you select the fields you wish to report on), or a number of "fixed-format" reports.

### **Form-based**

IMS Performance Analyzer form-based reporting provides you with the ability to customize your reports using report forms. To request reports using form-based reporting, see [“IMS and IMS Connect reporting using report forms” on page 85](#). For a comprehensive list of fields that you can add to a report form, see [Chapter 34, “Glossary of Report Form field names,” on page 673](#).

The following samples forms produce a list of IMS DBCTL transactions for the desired reporting period:

#### **DBCLIST: DBCTL Transaction list report**

List all IMS DBCTL transactions in the reporting period, together with their performance characteristics and CICS identification information.

The following reports provides summarized information on IMS DBCTL transaction activity:

#### **DBCDBUPD: DBCTL Database Updates by PSB summary report**

Report on IMS DBCTL database updates summarized by PSB and database DBD name.

#### **DBCRRATES: Transaction Rates per Minute/second summary report**

The Rates report shows the number of CICS transactions of each transaction code that were enqueued onto the IMS message queue during a particular interval via CICS-DBCTL. The interval start time is shown, and the rate at which transactions were enqueued per minute or per second.

#### **DBCSSUMM: DBCTL Transaction summary report**

Report on IMS DBCTL transaction activity summarized by program or PSB name. Activity reported includes average processing and CPU times, full function and Fast Path database call counts broken down by type, as well as OSAM and VSAM call counts.

## Fixed-format

The following reports provided information in a fixed format:

### **“Transaction Resource Usage report” on page 262**

The IMS Transaction Resource Usage report provides a comprehensive overview of transaction resource usage. The resources reported on by IMS Performance Analyzer include scheduling statistics (including WFI), CPU usage, DL/I call statistics, enqueue statistics, and DBCTL DB and I/O usage.

### **“Resource Availability report” on page 263**

The IMS Resource Availability report indicates the relative amount of time a specific resource is active, idle, or unavailable. Use this report to get general availability information, a summary of how frequently each resource is used, to plan more efficient scheduling, and to identify when remedial action is required. Resource Availability reports can be generated in IMS Performance Analyzer for any combination of regions, programs (PSBs), transaction codes, databases, or lines or VTAM nodes.

### **“CPU Usage report and extract” on page 265**

The IMS CPU Usage report gives statistics for CPU time and elapsed time during a specified period for regions, transactions, and programs. It can help you determine who is using too much CPU time or, conversely, what programs or transactions in which regions are in a wait state too long. The report can optionally be written by IMS Performance Analyzer to an extract data set as a CSV file.

### **“Internal Resource Usage reports” on page 267**

The IMS Internal Resource Usage reports provide statistics on the use of various IMS pools and resources. From the statistics produced by IMS Performance Analyzer, you can determine how they are being used and where inefficiencies exist.

### **“Database Update Activity report and extract” on page 276**

The IMS Database Update Activity report can help you determine the cost of database calls. It indicates the number of purge writes at sync point time to a database and provides a count of actual updates made to each database in the time period being reported. If your database is a HALDB, you can also report on specific HALDB partitions because the name of the partition is found on the database name field of the various records used in this report. This IMS Performance Analyzer report can optionally be written to an extract data set as a CSV file.

### **“Fast Path Resource Usage and Contention report” on page 300**

The IMS Fast Path Resource Usage and Contention report provides detailed statistics on the Fast Path resources used by IFP transactions and non-IFP programs. Use this report to view information on DEDB databases, area data sets, VSO, common buffers, locks, logging, sync point failures, and transaction throughput. Use this IMS Performance Analyzer report to gauge the performance of transactions that use DEDB databases. This report identifies transactions that issue excessive DL/I calls that cause area data set I/O, use excessive resources (including buffers and VSO), cause excessive contention, cause excessive logging, or fail during sync point processing.

### **“Fast Path Database Call Statistics report” on page 302**

The IMS Fast Path Database Call Statistics report provides a breakdown of DL/I call function codes by transaction code, identifying transaction that issue excessive DL/I calls. After identifying transactions with poor response time (using the IMS Performance Analyzer Fast Path Transit Analysis report), or transactions using excessive resources (using the Fast Path Resource Usage and Contention report), use the Fast Path Database Call Statistics report to identify the DL/I call function codes most frequently used by the transactions. If your database is a HALDB, you can also report on specific HALDB partitions because the name of the partition is found on the database name field of the various records used in this report.

### **“DEDB Update Activity report” on page 305**

The IMS DEDB Update Activity report can help you determine the cost of data entry database (DEDB) calls, and shows the rate of processing against your DEDB databases. This IMS Performance Analyzer report can be used to determine the most highly used DEDB databases (and their areas), allowing you to prioritize their tuning, reorganization, and other database



administration tasks, and to view DEDB database update activity when diagnosing application performance problems. The report shows the number of sequential dependent (SDEP) and direct dependent (DDEP) segments updated, the segment update rate, the number of database opens, and the number of database errors.

**“VSO Statistics report” on page 306**

The IMS VSO Statistics report provides detailed statistics on VSO resource usage. This IMS Performance Analyzer report can be used to determine how well VSO is performing by comparing Data Space I/O with Area data set I/O, for SHARELVL 0/1, comparing Coupling Facility I/O with Area data set I/O, for SHARELVL 2/3, by checking the Lookaside hit rate, for SHARELVL 2/3, and by ensuring that Castout frequency and elapsed times are within expectations. The VSO resources include data spaces for SHARELVL 0/1, coupling Facility for SHARELVL 2/3, lookaside Buffers for SHARELVL 2/3, and DEDB Area data set I/O.

**“Database Trace (Full Function) report” on page 318**

The IMS Database Trace (Full Function) report provides a record of all database changes by application programs as recorded on the IMS log. Backout changes caused by emergency restart are also reported and identified separately, but changes due to the reorganization utilities are not reported. Log records created by pseudo-abends are included in the report. This IMS Performance Analyzer report shows the content of segments, prefix pointers, and free space elements, and shows both the *before* and *after* versions of these as appropriate. The report also identifies the time of the change and the name of the program (PSB) making the change.

**“DEDB Update Trace report” on page 320**

The IMS DEDB Update Trace report provides a record of all data entry database (DEDB) changes by application programs as recorded on the IMS log. Use this report to debug DEDB database problems and application program problems, and to diagnose performance problems and tune your applications. For example, you can monitor individual program or user updates to a particular database. This IMS Performance Analyzer report shows all DEDB segment updates (including the relative byte address (RBA) and contents of the modified data), DEDB Area data set Open and Close events, creation of Error Queue Elements (EQEs), and application sync points for all transactions that updated reported DEDBs.

## **OMEGAMON ATF summary reports**

The OMEGAMON for IMS ATF Summary reports contain statistics gathered from IBM OMEGAMON for IMS Application Trace Facility (ATF) summary records written to the IMS log. Analysis reports are intended for administrators and analysts who want operating information in an easy-to-read, summary format.

**“ATF Summary Extract” on page 308**

The OMEGAMON for IMS ATF Summary Extract creates comma separated values (CSV) file extracts of the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. The CSV extract created by IMS Performance Analyzer contains a HEADER section and optional repeating sections for DATABASE, DLI DB, DLI TM, Db2, MQ, and OTHER.

**“ATF Summary Transaction Analysis report” on page 310**

The OMEGAMON for IMS ATF Summary Transaction Analysis report shows performance by transaction or by database using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. The report created by IMS Performance Analyzer is available in both List and Summary format.

**“ATF Summary DLI Call Analysis report” on page 312**

The OMEGAMON for IMS ATF Summary DLI Call Analysis report shows database activity within transactions using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. With IMS Performance Analyzer, you can produce a list report that breaks down database activity within each transaction by call type, or a summary report.

**“ATF Summary Db2 Call Analysis report” on page 313**

The OMEGAMON for IMS ATF Summary Db2 Call Analysis report is useful for showing Db2 SQL call activity within transactions using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. With IMS Performance Analyzer, you can produce a list report that breaks down Db2 activity within each transaction by call type, or a summary report.

### **“ATF Summary MQ Call Analysis report” on page 315**

The OMEGAMON for IMS ATF Summary MQ Call Analysis report is useful for showing MQ activity within transactions using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. With IMS Performance Analyzer, you can produce a list report that breaks down MQ activity within each transaction by call type, or a summary report.

## **IMS monitor reports**

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IMS Performance Analyzer monitor reports use IMS Monitor data to produce region activity reports, system analysis reports, resource usage reports, Fast Path analysis reports, and monitor data analysis reports.

Reporting options let you tailor reports to your needs. They include:

- **ESAF Integration.** External Subsystem calls are integrated into all Region and Program/Trancode reports. When activated, ESAF call statistics are reported for each subsystem and contribute to the total call and IWAIT counts for regions and program/trancodes.
- **Alternate Sequencing.** Summarized monitor reports can be ordered in an alternate sequence. By default, the reports are ordered by name, such as Region ID, Program name, Transaction Code and Database name. Alternatively, you can request that the reports be ordered (in descending sequence) by any one of the following:
  - **Occupancy.** The elapsed time that the resource is scheduled or in use. For example, the busiest regions or programs.
  - **Calls.** The time spent by the resource performing DL/I or other types of calls. For example, transactions with the most DL/I call activity.
  - **Delay.** The time spent by the resource waiting for IWAIT events to complete. For example, the databases which had to wait the longest for I/O to complete.

When Alternate Sequencing is requested, a limit can also be specified to restrict the number of resources reported. You can specify a fixed number, for example the 10 worst performing databases, or you can specify a percentage, for example the top 10% busiest regions.

- **Report Interval.** Time ranges let you select a specific part of the monitor trace data. You can specify a time range which applies globally to all IMS Performance Analyzer monitor reports, and to restrict this time period further, you can specify a time range individually for the Transaction by Time Period, Region Histogram, and Program Trace reports.
- **Time Interval.** Reports can be printed for each *nn* minutes of trace, for each trace, or for the cumulative activity of multiple traces.
- **Reporting of VSAM IWAITs.** VSAM IWAITs with an elapsed time that is less than a specified value are not reported as I/O IWAIT activity. This lets you exclude VSAM IWAITs that do not result in actual I/O activity.
- **Distributions.** Optionally, distribution graphs can be produced by applicable reports. Distribution titles and intervals can be modified as required.
- **Application and DDgroup Selection.** Sets of PSB names can be reported separately as application groups. Likewise, sets of DDnames can be reported as DDgroups; for example, DDnames could be grouped by data set type (VSAM or OSAM) or data set placement (VOLSER), or application.
- **Program and I/O Performance Thresholds.** Thresholds can be set for monitoring three important program and I/O performance indicators: number of IWAITs per call, DL/I call elapsed time, and I/O IWAIT elapsed time. An Exception Listing report is printed each time a threshold value is exceeded.
- Defaults are provided to satisfy typical reporting requirements.

## **Region Activity Summary reports**

IMS Performance Analyzer Region Activity Summary reports summarize and correlate region, program, transaction, and database activity for the IMS system using IMS Morton data. These reports provide an overview of system activity and a means of identifying problem areas for further investigation with

system and program level reports. Use these IMS Performance Analyzer monitor reports for trend analysis and day-to-day monitoring of the system is facilitated because reporting is in terms of rates, ratios, percentages, and elapsed times per event.

**“Schedule/Transaction Summary report” on page 440**

The IMS Schedule/Transaction Summary report presents a compact summary of total schedulings and transaction counts over all regions for the entire trace period.

**“Region Summary report” on page 440**

The IMS Region Summary report is an analysis of schedule, transaction, call, and IWAIT activity as well as an analysis of region idle time for each active MPP region. Summary distribution graphs of activity can also be provided. The report contains the same details as the Region Detail report (part of the Region Analysis report). The Region Summary report groups data by type (for example, schedule data for all regions) to provide convenient comparison of one measure across all regions. The Region Detail report groups data by region, to allow all the measures for a region to be viewed together.

**“Program Summary report” on page 440**

The IMS Program Summary report is an analysis of schedule, transaction, and call activity for each PSB-transaction code and each specified application group. A percentage comparison of the activities for each PSB-transaction code is also provided.

**“Database IWAIT Summary report” on page 440**

The IMS Database IWAIT Summary report is a summary of IWAIT activity for each data set and specified DDgroup. The report includes number of IWAITs, average elapsed time per IWAIT, and IWAITs per call. Only database and message queue IWAITs directly associated with dependent region activity are included in this report; the Total System IWAIT Summary report includes all IWAITs.

**“Transactions by Time Period Options” on page 434**

The IMS Transactions by Time Period report presents for each PSB-transaction code (or application-transaction code if application groupings are active) the number or percentage of transactions occurring in the specified time periods. The overall transaction rate for each time period is also reported.

## **Region Activity Analysis reports**

IMS Performance Analyzer Region Activity analysis reports analyze program activity for each active MPP, IFP, or BMP region and for specified application and data set groups. A Database IWAIT Analysis report gives details of program related IWAIT activity. Exception Listing report entries are provided when certain performance monitoring thresholds are exceeded. An Enqueue/Dequeue Trace report identifies program isolation bottlenecks. The Region Histogram report graphically presents the interrelationship of region activity. Optionally, distributions are used extensively throughout the reports.

**“Region Analysis report” on page 441**

The Region Analysis reports are a set of reports (Region Detail, Program Summary, Transactions by Time Period, Database IWAIT Summary) for each dependent region. These IMS Performance Analyzer reports are in the same format as the corresponding Summary reports described in the Region Activity Summary reports, except that they apply to each dependent region. The Summary reports group data by type to provide convenient comparison of one measure across all regions; for example, schedule data for the total system. The Region Analysis reports group data by region, to allow all the characteristics of a region to be viewed together.

**“Application Detail report” on page 441**

A separate Application Detail report is produced for each specified application (PSB) group. This IMS Performance Analyzer report can provide an analysis of program activity for each program group, including details for each PSB name that comprises the group, in the same format as the Program Summary report. Also provided are distribution graphs for the elapsed time per schedule, elapsed time per call, elapsed time per IWAIT, and number of IWAITs per call for each group and for each PSB within the group. You can also see the number or percent of transactions occurring, and overall transaction rate for specified time periods, in the same format as the Transactions by Time Period report.

#### **“Database IWAIT Analysis report” on page 442**

The Database IWAIT Analysis report produces IWAIT distribution graphs and IWAIT activity analysis by DDname and DDname Group for each dependent region. The report can be obtained from both IMS Monitor and DB Monitor data.

#### **DDgroup via “DDname Grouping Options” on page 437**

The DDgroup report presents for each specified DDgroup, an analysis of database IWAIT activity for the group and for each data set in the DDgroup. The IMS Performance Analyzer DDgroup report is available from DB Monitor traces.

#### **“Performance Exception reports” on page 443**

The Performance Exception reports provide a list report of performance exceptions, and summary reports of intent failures, pool space failures, or deadlock events.

#### **“Enqueue/Dequeue Trace report” on page 445**

The Enqueue/Dequeue Trace report is a detailed trace of the database enqueue conflicts occurring during the reporting interval. A detail line is printed for each enqueue IWAIT interval recorded on the monitor data set. The PSB names active in the IMS region during the interval are displayed.

#### **“Region Histogram report” on page 446**

The Region Histogram report traces region activity by time interval. Activity for up to 13 regions is presented graphically in side-by-side format. Periods of region activity and inactivity can be seen at a glance from the visual presentation.

## **System Analysis reports**

The System Analysis (Total System IWAIT) reports provide a summary and detailed account of the IWAIT activity of the entire IMS system. These IWAIT events include system data sets, databases (Full Function and Fast Path), ACBLIB Block loading, Message Format services, Scheduler, Checkpoints, Line/VTAM node, Storage Pools, and MSC.

#### **“Total System IWAIT reports” on page 447**

The Total System IWAIT Summary report describes the IWAIT activity for the entire IMS system including system data sets, databases (full function and Fast Path), block loading, format services, scheduler, checkpoints, line/node IWAITs, pools, multiple system transfers. Elapsed time per IWAIT distribution graphs for each category can be requested. The Total System IWAIT Detail report is a detailed breakdown of IWAIT activity for the entire IMS system. IWAIT activity is reported for Databases (full function and Fast Path), Block loading, Format services, Line/Node IWAITs. Elapsed time per IWAIT distributions for each detail line are optionally reported.

## **Program Analysis reports**

The Program Analysis reports provide detailed information on all aspects of application processing. With these reports you can obtain a detailed analysis and documentation of the database activity of each MPP, IFP, or BMP, and the program activity against each database and data set, a trace of specified program schedules, and a breakdown of VSAM activity for IMS batch jobs.

#### **“Program Activity Detail reports” on page 448**

The Program Activity Detail reports provide a detailed breakdown of the database activity of each PSB name by PCB name, function code, DDname, and segment name feedback. Alternate report formats present the data organized by PCB name. No sorting of the input data is required to obtain the reports and they can be produced from either IMS Monitor or DB Monitor data.

#### **“Program Trace report” on page 449**

The Program Trace report is a detailed trace of the events associated with a program schedule. There is a detail line of information for each call and, optionally, each IWAIT occurring during the program schedule. There is also a summary of schedule activity. The Program Trace report is produced from DB Monitor and IMS Monitor traces. It can be used for problem isolation, to determine database use, and for program documentation.

#### **“Batch VSAM Statistics report” on page 451**

The Batch VSAM Statistics report provides VSAM usage statistics for batch applications, and is only produced for DB Monitor files built during the execution of the IMS batch system. VSAM Statistics are

based on a specific application program PCB, a data set the application program is using, and the type of DL/I call the application program issued.

## Resource Usage reports

The IMS Monitor Resource Usage reports provide a detailed analysis of the usage of IMS resources such as Buffer Pools (including Message Queue, OSAM, VSAM, and Message Formatting), Latches, Communication, Multiple Systems Coupling (MSC), External Subsystems, and Synchronous Callouts.

### **“Buffer Pool and Latch Statistics reports” on page 452**

The Buffer Pool and Latch Statistics reports consist of the set of Buffer Pool Statistics reports, which show IMS buffer usage statistics for the Message Queue Pool, Database Buffer Pool, VSAM Buffer Pool, and Message Format Buffer Pool, and the Latch Statistics report which shows IMS latch usage counters. When requested, the Buffer Pool and Latch Statistics reports are always produced regardless of the global (or run-time) report interval specified as they provide summary statistics in the monitor start (90) and monitor end (91) records.

### **“Communication reports” on page 452**

The IMS Monitor Communication reports consist of the Communication Summary report, the Communication IWAIT report, and the Communication Line Functions report. The Communication Summary report provides a summary of line or VTAM node activities. The Communication IWAIT report provides detailed information on IWAITs occurring while dispatching communication subtask to lines or VTAM nodes. The Communication Line Functions report provides the functions of lines and VTAM nodes.

### **“MSC reports” on page 454**

The Multiple Systems Coupling (MSC) reports are the MSC Summary, MSC Traffic, and MSC Queuing Summary. The MSC Summary report provides summary information on the number of cross-system messages. The MSC Traffic report provides detailed information on local system IDs and cross-system traffic. The MSC Queuing Summary report provides detailed information on the cross-system message queue.

### **“ESAF report” on page 455**

The IMS Monitor External Subsystem (ESAF) report provides a detailed analysis of external subsystem activity in regions and by application programs. This IMS Performance Analyzer report provides individual subsystem activity broken down by Region and Program, with statistics of ESAF activity per Transaction.

### **“Synchronous Callout report” on page 456**

The Synchronous Callout report provides a detailed analysis of sync callout activity in regions and by application programs. This IMS Performance Analyzer report shows individual subsystem activity is broken down by Region and Program, with statistics of sync callout activity per Transaction.

## Fast Path Analysis reports

The Fast Path analysis reports provide an analysis of all Fast Path resources and functions, including Fast Path buffers, balancing group (BALG) and shared EMHQ, output threads (OTHEADs), DEDB IWAITs, DEDB resource contention, and Virtual Storage Option (VSO). The reports are not available from DB Monitor data.

### **“DEDB Resource Contention report” on page 456**

The DEDB Resource Contention report provides summary information about IWAITs on data entry database (DEDB) locks of various types, including CI, unit of work (UOW), segment level, area, buffer overflow, main storage database (MSDB), non-DBRC DB, command and dummy locks.

### **“Fast Path Buffer Statistics report” on page 457**

The Fast Path Buffer Statistics report provides statistical information on activities in the Fast Path buffers, for all regions combined and for each region.

### **“BALG/Shared EMHQ Analysis report” on page 458**

The BALG/Shared EMHQ Analysis report provides statistical information on Balancing Group (BALG) activities and the shared Expedited Message Handler queue (EMHQ).



**“OThread Analysis report” on page 459**

The OThread Analysis report is a summary analysis of activities in the output thread (OThread) queue.

**“VSO Summary report” on page 460**

The DEDB VSO Summary provides summary information on Virtual Storage Option (VSO) activity including VSO preload, VSO I/O activities for the various data base share levels, VSO Write IWAITS, VSO area castout operations, and VSO Coupling Facility I/O Waits.

## Monitor Data Analysis report

The IMS Monitor Data Analysis report contains the Monitor Record Trace report.

**“Monitor Record Trace report” on page 460**

The Monitor Record Trace report formats the records on the monitor input file to produce a chronological listing of the data. The Monitor Record Trace can be used to understand the flow of internal IMS events (and the information that is recorded by IMS), retrieve more information from your monitor records not available from the standard reports and diagnosing problems with your IMS subsystem.

## Batch Program reports

Although the entire collection of IMS Performance Analyzer monitor reports could conceivably be obtained from processing a DB Monitor trace, only a subset of the reports are meaningful for DB analysis. The rest of the reports are IMS TM related and would provide little or no relevant information about DB.

The following subset is available for analysis of DB Monitor data:

**“Region Summary report” on page 440 and “Region Analysis report” on page 441 (Region 1)**

Statistics and distributions for database calls and IWAITS. Most of this information is also available with the “Program Activity Detail reports” on page 448, however Calls/sec and IWTs/sec are unique values in this report.

**“Database IWAIT Summary report” on page 440 (Region 1)**

A summary of IWAIT activity for each data set and specified DDgroup.

**“Database IWAIT Analysis report” on page 442 with distributions**

A report of IWAIT activity by DDname or by Ddname for each user-defined DDgroup. This report can be used in place of, or in addition to, the “System Analysis reports” on page 38.

**“Performance Exception reports” on page 443**

Use the Exception Listing to obtain a listing of performance threshold violations. The other reports included in the suite of Performance Exception reports are applicable only to TM.

**“Total System IWAIT reports” on page 447 with distributions**

A complete accounting of IWAIT activity by data set type (OSAM, VSAM, DEDB, MSDB) and DDname.

**“Program Activity Detail reports” on page 448**

A comprehensive collection of reports for database call analysis, plus a detailed trace of batch program IWAIT and CALL events for analysis of program design problems.

**“Program Trace report” on page 449**

A detailed trace of the events associated with a program schedule.

**“Batch VSAM Statistics report” on page 451**

A detailed breakdown of VSAM activity for IMS batch jobs.

**“Buffer Pool and Latch Statistics reports” on page 452**

A report on the access status of IMS buffers and the contents of the IMS latch counters.

**“ESAF report” on page 455**

A summary of the external subsystem activity of IMS programs.

**“Monitor Record Trace report” on page 460**

The monitor input records are formatted and reported chronologically.

You should decide which reports best suit your requirements. The following reports are often the most useful:

- [“Database IWAIT Analysis report” on page 442](#) and distributions.
- [“Database IWAIT Analysis report” on page 442](#) with DDgroup Detail and distributions.
- [“Program Analysis reports” on page 38](#) (either PSB Details or PSB-Tran Code Analysis provide the same information).

**Note:** CPU time is not collected for DB Monitor so CPU shows as 0.000 (zero).

- If a program or database problem requires more detail, you can do a separate run to obtain the [“Program Trace report” on page 449](#). Use the From and To date and time report options to control the duration of the Program Trace.

## DBCTL monitor reports

Database control (DBCTL) has neither transactions nor terminal end users in the traditional IMS sense. It does, however, work on behalf of transactions entered by coordinator controller subsystem (CCTL) terminal users. DBCTL monitoring provides data about the processing that occurs when a CCTL transaction accesses DBCTL databases.

The IMS Monitor reports that apply to DBCTL are:

- [“Region Activity Summary reports” on page 36](#)
- [“Region Activity Analysis reports” on page 37](#)
- [“System Analysis reports” on page 38](#)
- [“Program Activity Detail reports” on page 448](#)
- [“Program Trace report” on page 449](#)
- [“Buffer Pool and Latch Statistics reports” on page 452](#)
- [“Fast Path Analysis reports” on page 39](#)
- [“Monitor Record Trace report” on page 460](#)

## IMS Connect reports

---

IMS Performance Analyzer can be used to report on IMS Connect using the IMS Connect Extensions journal. You can also combine this data with IMS log data to get a complete end-to-end picture of your IMS Connect transactions. The IMS Connect reports supplied with IMS Performance Analyzer are grouped into Transaction Transit reports, Resource Usage reports, and the Trace report.

Reporting options let you tailor reports to your needs. They include:

- Time Interval. Some reports can be summarized by time interval.
- Selection Criteria. You can filter the data based on field values thereby focusing your reports on the information that you are interested in.
- Report Interval. Time ranges let you select a specific part of the IMS Connect data. At run-time, you can specify a time range which applies to all the IMS Connect reports.
- Defaults are provided to satisfy typical reporting requirements.

### IMS Connect transaction transit reports

IMS Connect transaction transit reports provide performance statistics to measure the performance of your IMS Connect OTMA transactions. Transaction Transit (response) time can be broken down into its components; Input, Processing (by OTMA), Acknowledgment from the client and Output. They can help identify any bottlenecks in transaction flow, and are used for monitoring system performance, gathering diagnostic information, and tuning IMS. Select from a form-based report (where you select the fields you wish to report on), or a number of "fixed-format" reports.

## Form-based

IMS Performance Analyzer form-based reporting provides you with the ability to customize your reports using report forms. To request reports and CSV extracts using form-based reporting, see [“IMS and IMS Connect reporting using report forms”](#) on page 85. For a comprehensive list of IMS and IMS Connect-based fields that you can add to a report form, see [Chapter 34, “Glossary of Report Form field names,”](#) on page 673.

**Tip:** IMS Performance Analyzer allows to create a report form that contains both IMS and IMS Connect fields. If you use this form for reporting on a group of IMS and IMS Connect systems, you can get a complete end-to-end transit picture of IMS Connect transactions.

The following sample forms produce a list of IMS Connect transactions for the desired reporting period:

### **CEXIPA: Connect Transaction by IP address list report**

List all IMS Connect transactions in the reporting period showing the start time, transaction code, client IP address, socket, target IMS data store, TCP/IP port number, response time, pre-OTMA input time, input read socket time, read message exit time, and SAF security call time. To produce a summary report, see CEXIPAS.

### **CEXLIST: Connect Transit Log list report**

List all IMS Connect transactions in the reporting period highlighting identification information including transaction code, target IMS data store, transaction start time, as well as a breakdown of response time into its transit time components (pre-OTMA, OTMA, and post-OTMA).

### **COMBLIST: Combined IMS and IMS Connect list report**

List all IMS Connect transactions in the reporting period, providing IMS Connect and IMS log information in a single report. For each transaction you can identify both IMS Connect and IMS system latencies that may be the cause of excessive response time. Only transactions identified in the IMS Connect Extensions journal with the associated transaction from the IMS log are reported. The combined information is reported as a single IMS Connect transaction instance.

### **SAFSGNON: Connect SAF Signon Time list report**

List all IMS Connect transactions in the reporting period showing the start time, the associated user ID, and time spent in SAF calls.

The following reports provides summarized information on IMS Connect transactions:

### **CEXBYDST: Connect by IMS destination ID summary report**

Report on average response times with a breakdown into transit time components (pre-OTMA, OTMA, post-OTMA) summarized by the IMS destination ID received in the client IMS request message (IRM).

### **CEXCLNT: Connect Count by Client ID summary report**

Report on transaction counts summarized by IMS Connect client ID.

### **CEXIPAS: Connect Transaction by IP address/Socket summary report**

Report on IMS Connect transaction performance summarized by client IP address and socket number. To produce a transaction list, see CEXIPA.

### **CEXNACK: Connect ACK/NAK summary report**

Report on IMS Connect transaction performance and counts summarized by both IMS and IMS Connect client response (positively or negatively acknowledged). Acknowledgment must be provided by IMS to indicate that the transactions was either successfully processed (ACK) or failed to complete successfully (NAK). For SYNCLEVEL=CONFIRM only, the IMS Connect client must either accept the transaction response (ACK) or reject it (NAK).

### **CEXPLEX: Connect PLEX Usage summary report**

Report on IMS Connect transaction performance and counts summarized by IMS Connect system name and target IMS data store, providing a high-level breakdown of IMS Connect transaction activity across all your IMS Connect systems and IMS data stores.

### **CEXRATE: Connect Transaction Rate by Interval summary report**

Report on IMS Connect transaction processing rates per minute and per second summarized by transaction code.



**CEXROUTE: Connect Datastore Routing summary report**

Report on IMS Connect Extensions OTMA workload routing. Shows transaction counts summarized by original IMS data store (IMS destination ID supplied in the client IRM) and the target IMS data store (the final destination as determined by IMS Connect Extensions routing rules).

**CEXSESS: Connect Sessions by Port/Interval summary report**

Report on IMS Connect transaction counts summarized by IMS Connect TCP/IP port number and socket.

**CEXSONLY: Connect Send-only Transactions summary report**

Report on IMS Connect transaction performance summarized by client ID and transaction code.

**CEXSUMM: Connect Analysis by Transaction Code summary report**

Report on IMS Connect transaction performance summarized by transaction code.

**CEXSUMM1: Connect Analysis by Transaction Code summary report**

Report on minimum, maximum, and average IMS Connect transaction response times, counts, and other performance averages summarized by transaction code.

**CEXTCODE: Connect Analysis by Transaction Code summary report**

Report on IMS Connect transaction performance summarized by transaction code. For each transaction code, you can see at a glance how the transaction performed, and if necessary identify the phase of processing that caused excessive response time in IMS Connect, including socket IO, message exit and SAF processing, OTMA, and client acknowledgment.

**CEXTMOUT: Connect Count of Time-outs summary report**

Report on IMS Connect transaction performance and counts summarized by the transaction time-out status and transaction code.

**CEXUSER: Connect Tran by User ID summary report**

Report on IMS Connect transaction counts summarized by user ID, client ID, and transaction code.

**CEXXML: Connect XML Transaction summary report**

Report on IMS Connect transaction performance and counts summarized by the name of the XML adapter passed by the SOAP gateway and the transaction code.

**COMBSUMM: Combined IMS and IMS Connect summary report**

Report on IMS and IMS Connect transaction activity in a single report. For each transaction code, the number of transactions processed is reported enabling you to identify both IMS Connect and IMS system latencies that may be the cause of excessive response time. Only transactions identified in the IMS Connect Extensions journal with the associated transaction from the IMS log are reported. The combined information is reported as a single IMS Connect transaction instance.

**COMBSUM1: Connect and IMS Summary by Transaction summary report**

Report on IMS and IMS Connect transactions summarized by transaction code.

**SAFSUMM: Connect SAF Analysis by Client ID summary report**

Report on IMS and IMS Connect transactions and SAF performance and usage summarized by Client ID.

**TIMEOUTS: Connect Timeouts by Original IMS data store and Target IMS data store summary report**

Report on IMS Connect transaction timeouts summarized by original IMS data store (IMS destination ID supplied in the client IRM) and the target IMS data store (the final destination as determined by IMS Connect Extensions routing rules).

**TRNBYLTM: Connect Count by Lterm and Tpipe summary report**

Report on IMS Connect transaction counts and output messages dequeued summarized by input Lterm and IMS Connect Tpipe name.

**Fixed-format**

The following reports provided information on OTMA transactions in a fixed format:

**“IMS Connect Transit Analysis report” on page 511**

The IMS Connect Transit Analysis report provides a summary of IMS Connect OTMA transaction performance. Performance data can be summarized by one or two sort keys including Time of

Day, Transaction Code, User ID, IMS data store (original and target), Port number, and Connect Client ID. Performance statistics are provided as averages, and optionally, peak percentiles. For example, you can use IMS Performance Analyzer to report on the elapsed time within which 90% of transactions completed.

**“IMS Connect Transit Log report” on page 512**

The IMS Connect Transit Log report provides performance details about every OTMA transaction processed by IMS Connect using event records captured in the IMS Connect Extensions journal. The order of transactions in this IMS Performance Analyzer report is based on when they end, and not when they start.

**“IMS Connect Transit Extract” on page 514**

The IMS Connect Transit Extract provides performance details about every OTMA transaction processed by IMS Connect. You can request a List or Summary Extract, or both. The List Extract provides similar details to the Connect Transit Log report, while the Summary Extract summarizes these details over a specified time interval. The extract data produced by IMS Performance Analyzer is suitable for importing into Db2 or third-party tools from where you can run queries or produce reports and graphs.

## **IMS Connect resource usage reports**

IMS Connect resource usage reports contain detailed and summary information on the use and availability of various IMS Connect resources including TCP/IP Ports and Tpipes.

**“IMS Connect Port Usage report” on page 516**

The IMS Connect Port Usage report provides a summary of the TCP/IP ports used by the IMS Connect system. For each port, average statistics are provided for port depth, message processed count, and ACCEPT, READ and WRITE Socket counts. IMS Performance Analyzer provides peak percentile statistics for Input READ and ACK/NAK READ Socket counts.

**“IMS Connect Resume Tpipe report” on page 517**

The IMS Connect Resume Tpipe report provides a summary of RESUME TPIPE command activity. The standard version of the report provides command statistics, including command count, and a breakdown by command type: Auto (with timeout), No Auto and Single. Command statistics produced by IMS Performance Analyzer include count of commands issued, IMS messages received, Negative responses (Tpipe queue empty), NAK and timeout interval. The extended version of this IMS Performance Analyzer report supports all of the different resume tpipe types and options.

**“IMS Connect ACK/NAK report” on page 519**

The IMS Connect ACK/NAK report provides a summary of acknowledgment activity for transactions that use Sync Level=CONFIRM. Positive acknowledgment (ACK) and negative acknowledgment (NAK) statistics are reported by IMS Performance Analyzer for each transaction code. NAK is further broken down as negative acknowledgment from either OTMA (NAK sense code) or from the Client.

**“IMS Connect Exception Events report” on page 520**

The IMS Connect Exception Events report provides details about events that cause transactions to fail or that signal critical resources are no longer available. This IMS Performance Analyzer report comes in two formats: List and Summary. The List report provides a list of all exception events in chronological order. The Summary report provides a recap of each exception event encountered and a count of the number of times it occurred.

**“IMS Connect Gap Analysis report” on page 521**

The IMS Connect Gap Analysis report searches for time periods where IMS Connect Extensions journal records are not being cut, potentially highlighting an external system event that may have caused IMS Connect to slow down. You can adjust this IMS Performance Analyzer report by specifying your desired gap threshold.

## **IMS Connect trace reports**

IMS Connect trace reports provide detailed analysis of individual IMS Connect event records.

### **“IMS Connect Transit Event Trace report” on page 522**

The IMS Connect Transit Event Trace report provides a list of transactions, each with detailed information about every event in the life of that transaction. At a glance, this IMS Performance Analyzer report allows you to see when a transaction starts, followed by all the events associated with the transaction in the order they occurred.

## **OMEGAMON for IMS ATF reports**

---

IBM OMEGAMON for IMS Application Trace Facility (ATF) provides application-level accounting statistics of DLI, Db2, and MQ calls, call times, and CPU utilization. The analysis of the data collected by the ATF can be used by IMS Performance Analyzer to identify transaction response-time components, fine-tune applications, and understand how application programs operate. The ATF-based reports supplied with IMS Performance Analyzer are grouped into Transaction Transit reports, Trace reports, and Extracts.

### **ATF Transaction Transit reports**

The OMEGAMON for IMS ATF transaction transit reports provide application-level accounting.

#### **“ATF Transit List report” on page 553**

The OMEGAMON for IMS ATF Transaction Transit List report provides a chronological list of transactions with their processing and CPU times from the ATF log stream data.

#### **“ATF Transit Summary report” on page 554**

The OMEGAMON for IMS ATF Transaction Transit Summary report provides a statistical analysis of transaction activity with average and maximum processing and CPU times, and number of abends from ATF log stream data.

### **ATF Trace reports**

#### **“ATF Record Trace report” on page 555**

The OMEGAMON for IMS ATF Record Trace provides detailed application DLI, Db2, and MQ call analysis for selected transactions using ATF log stream data. There are three levels of trace that provide increasing level of detail: Trace Overview, Trace Detail, and Trace Detail (Expanded) with additional application call detail.

### **ATF Extracts**

#### **“ATF Exception Transaction extract” on page 557**

The OMEGAMON for IMS ATF Exception Transaction extract produced by IMS Performance Analyzer is an ATF data reduction process. It creates a new ATF data set from ATF log stream data that contains only those records associated with transactions that generated an exception (abend or long response time).

## **Report command format**

---

IMS PA provides both a dialog and batch interface. The IMS PA commands are used to request reports and extracts. The dialog generates the JCL and commands when you run (submit) a Report Set.

The standard command format for producing reports and extracts is:

```
-----1-----2-----3-----4-----5-----6-----7-----8
NAME      COMMAND      OPERANDS                      comments                      ignored
*
*  comments
*
```

### **NAME**

The name field labels the command statement. It contains 1 to 8 alphanumeric characters and must start in column 1. The name is only used by the **DISTRIBUTION** command, and it enables the Distribution to be used by its associated report.

## COMMAND

The command is required and is one of the following:

### IMSPALOG

Requests Log reporting.

### IMSPAMON

Requests Monitor reporting.

### IMSPACEEX

Requests IMS Connect reporting or combined IMS and IMS Connect Form-based reporting.

### IMSPAATF

Requests OMEGAMON ATF reporting.

### DISTRIBUTION

Defines a Distribution for use by monitor or log reporting. Distributions must appear at the end of command input, after the **EXECUTE** statement.

### COPY

Reads precoded commands from the CMDLIB DD command library.

**IMSPALOG**, **IMSPAMON**, **IMSPACEEX**, and **IMSPAATF** commands cannot coexist; they must be specified in separate jobs.

## OPERANDS

Operands request specific reports or processing by IMS PA, and one or more operands are required for most commands. Operands must start on the same line as the command. Operands for the one command must be separated by commas, and may be continued across several lines. When operands have values, they can be specified in parentheses or with an equate sign. For example: DDNAME(RPTOUT) or DDNAME=RPTOUT

Most operands can be abbreviated by using the first few characters of the operand name. For example: DD for DDNAME

Some operands are common to many reports and have common characteristics. For example:

### FROM(*date,time*), TO(*date,time*) or START(*date,time*), STOP(*date,time*)

The report period. Date is in the format *yyyy/mm/dd*. Time is in the format *hh:mm:ss:th*.

### DDNAME(*ddname*)

The DDname of the report output file. For some reports, the DDname is individually specified, whereas others use a global specification. The DDname will always default if not specified. To segregate report output, the DDnames should be unique within the job. For report output and extract data sets, avoid using DDnames starting with L or CEX as they are reserved for input file DDnames.

### INCLUDE(*list*) | EXCLUDE(*list*)

The list of values to include in or exclude from the report. The format of the list is:

```
(value1,value2,...,(from,to),...)
```

where *value1,value2,...* represent specific values or masks (using \* for generic positions), and (*from,to*),... represents a range of values.

## comments

Text trailing the last operand on the line, separated by at least one space, is treated as a comment. Also, lines with an asterisk \* in column 1 are treated as comments.

Columns 72 to 80 are ignored.

---

## Chapter 3. Extracts and CSV files in IMS Performance Analyzer

IMS Performance Analyzer can create various types of extract data set and CSV files for further processing and analysis by third-party analytics.

The following types of output can be produced:

### Extract data sets (CSV)

Data formatted as a comma-separated values (CSV) file (or another delimiter of your choice) for use with external programs such as Db2 or third-party analytics platforms.

To load form-based extracts into Db2 tables or import into a charting application, see [Chapter 18, “Exporting data for Db2 or for third party tools,”](#) on page 197.

The following reports support exporting to this format:

### IMS log reports

- [“Transaction Transit List report and extract”](#) on page 228
- [“Transaction Transit Summary report and extract”](#) on page 235
- [“Transaction Exception report and extract”](#) on page 251 (MSGQ)
- [“CPU Usage report and extract”](#) on page 265
- [“Internal Resource Usage reports”](#) on page 267
- [“Database Update Activity report and extract”](#) on page 276
- [“System Checkpoint report”](#) on page 281
- [“Enqueue/Dequeue report”](#) on page 289
- [“Fast Path Transaction Exception report and extract”](#) on page 298
- [“ATF Summary Extract”](#) on page 308

### IMS Connect

- [“Transaction Transit List report and extract”](#) on page 228
- [“Transaction Transit Summary report and extract”](#) on page 235
- [“IMS Connect Transit Extract”](#) on page 514

### OMEGAMON for IMS Application Trace Facility (ATF)

- [“ATF Summary Extract”](#) on page 308

### IMS transaction index and IMS Connect transaction index data sets

The IMS transaction index contains an X'CA01' record for each transaction in the IMS log, accumulating all the information in the log about the transaction. The index is used to improve reporting efficiency in IMS Performance Analyzer and to streamline problem diagnosis in IMS Problem Investigator and Transaction Analysis Workbench.

The IMS Connect transaction index contains an X'CA20' record for each transaction in an IMS Connect Extensions journal, accumulating all the information in the journal about the transaction. The index can be used in IMS Problem Investigator to streamline problem analysis.

### OMEGAMON for IMS Application Trace Facility (ATF) Exception Transaction extracts

The [“ATF Exception Transaction extract”](#) on page 557 can be processed subsequently by IMS Performance Analyzer in a similar but more efficient way to the original log stream extracts.

### IMS log extract by interval data sets

Proprietary format for input to option 4.6 **Graphing & Export** of the IMS Performance Analyzer primary option menu can be created by the following reports in IMS log report sets:

- [“Transaction Transit Extract by Interval” on page 249](#)
- [“Fast Path Transit Extract by Interval” on page 296](#)

For more information on processing IMS log extracts by interval data, see [“Extract by Interval graphing and export” on page 322](#).

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## Chapter 4. Installation and setup

These topics describe the supplied component libraries, how to get started using the IMS Performance Analyzer dialog, what to consider if upgrading from a previous product release, and the recommended ISPF settings.

### IMS Performance Analyzer libraries

---

The components of the IMS Performance Analyzer dialog are delivered in these libraries.

**SIPIEXEC**

REXX EXECs

**SIPILINK**

Link/Load modules

**SIPIMENU**

ISPF messages

**SIPIPENU**

ISPF panels

**SIPISENU**

ISPF skeletons

**SIPITENU**

ISPF input tables

where ENU is for U.S. English.

In addition, sample JCL for running batch reports and extracts is supplied in the **SIPISAMP** library.

### Starting IMS Performance Analyzer with IPIOREXX

---

To start the IMS Performance Analyzer ISPF dialog, run the IPIOREXX REXX exec supplied in the SIPIEXEC library.

#### About this task

The IMS Performance Analyzer initialization module IPIOREXX accepts the following parameters:

**qual**

The data set high level qualifier for IMS Performance Analyzer data sets. For example, IMSPA.V4R5M0. NODYNAM specifies that IMS Performance Analyzer is to use the existing allocation settings.

**lang**

Identifies the national language. The default is ENU (U.S. English). Currently, IMS Performance Analyzer only supports U.S. English.

**PASSAPPL**

Optional. Overrides the enforcement of the default IMS Performance Analyzer application NEWAPPL (IPI5). IMS Performance Analyzer uses the invoking application's APPL specification. See [“Overriding the default application” on page 51](#).

**low level qualifiers**

Optional. Overrides the default low level qualifiers for IMS Performance Analyzer data sets. The qualifiers must be specified in the correct order, enclosed in brackets and separated by commas. For example: (EXEC, LINKLIB, MSG, PNL, SKL, TBL). See [“Overriding the data set low level qualifiers” on page 51](#).

You can either install the IMS Performance Analyzer libraries statically within your ISPF library setup, or allow them to be set up dynamically when the IMS Performance Analyzer ISPF dialog is used. Then you can optionally add IMS Performance Analyzer to an ISPF menu.

## Dynamic setup

The simplest way to start the IMS PA dialog is to allow the startup REXX exec, IPIOREXX, to dynamically allocate the IMS PA libraries. This is known as *dynamic setup*.

To enable the IMS PA libraries to be dynamically set up when the IMS PA dialog is used, do the following:

1. On the TSO command processor panel, enter:

```
EX ' qual.SIPIEXEC(IPIOREXX)' 'qual lang'
```

2. To add IMS PA to an ISPF menu, set &ZSEL to:

```
CMD(EX ' ' qual.SIPIEXEC(IPIOREXX)' ' 'qual lang'') NOCHECK
```

NOCHECK is specified to support entry of concatenated commands via the direct option (trail). Also specify on the calling panel:

```
&ZTRAIL=. TRAIL
```

**Note:** Dynamic setup requires that the supplied library names are retained.

## Static setup

If you prefer not to have the IMS PA libraries dynamically allocated each time you start the dialog, you can instead add the libraries to the appropriate ISPF concatenations in your TSO logon procedure. This is known as *static setup*.

To install the IMS PA libraries statically within your ISPF library setup, do the following:

1. Include the library *qual.SIPIEXEC* in your SYSEXEC or SYSPROC concatenation. This library contains the required EXECs.
2. Add the remaining libraries to your ISPF library setup:
  - Include the link/load module library *qual.SIPILINK* in the ISPLLIB concatenation.
  - Include the message library *qual.SIPIMxxx* in the ISPMLIB concatenation.
  - Include the panel library *qual.SIPIPxxx* in the ISPPLIB concatenation.
  - Include the skeleton library *qual.SIPISxxx* in the ISPSLIB concatenation.
  - Include the table library *qual.SIPITxxx* in the ISPTLIB concatenation.
3. On the TSO command processor panel, enter:

```
%IPIOREXX 'NODYNAM lang'
```

4. To add IMS PA to an ISPF menu, set &ZSEL to:

```
CMD(%IPIOREXX ' 'NODYNAM lang'') NOCHECK
```



## Overriding the default application

To override the default IMS Performance Analyzer application, use the **PASSAPPL** parameter in the ISPF menu &ZSEL setting.

### Example

If you enter the following command, IMS Performance Analyzer will use IMSA as the application rather than the default.

```
CMD(EX '' qual.SIPIEXEC(IPIOREXX)'' ''qual lang PASSAPPL'') NOCHECK NEWAPPL(IMSA)
```

## Overriding the data set low level qualifiers

To override the default IMS PA data set low level qualifiers, specify the six data set low level qualifiers as the last parameter in the ISPF menu &ZSEL setting.

### Example

```
CMD(EX '' qual.SIPIEXEC(IPIOREXX)'' ''qual lang (EXEC,LNK,MSG,PNL,SKL,TBL)'')
```

where IMS PA will use:

'qual.EXEC' as the REXX EXEC library  
'qual.LNK' as the Link/Load library  
'qual.MSG' as the ISPF messages library  
'qual.PNL' as the ISPF panels library  
'qual.SKL' as the ISPF skeletons library  
'qual.TBL' as the ISPF input tables library

## Other setup options

The IMS PA dialog requires no special customization or setup. Reporting can commence immediately. However, there are some setup considerations for allocating data sets, tape devices for shared queue processing, and GDDM graphing.

You may choose to bypass these setup options if:

- You are satisfied with IMS PA automatically allocating data sets with default characteristics as needed.
- Tape devices for shared queue processing and GDDM graphing are not relevant to the way you intend to work with IMS PA.

## Setting up IMS PA data sets (optional)

IMS PA uses various data sets to store information. When it requires them, IMS PA can allocate the data sets using default characteristics. Therefore you can bypass this section entirely. However, if you want to do the set up yourself, read on.

### About this task

The IMS PA dialog uses the following data sets:

- Control Data Sets for Report Sets, Expectation Sets, Object Lists, Distributions, Report Forms, and Report Filters
- Averages
- History Files
- Extracts
- Export Files

- Trace Statistics

To specify the default allocation settings for these data sets, use option 0.2 **Reporting Allocation Settings** from the IMS Performance Analyzer primary option menu or from **Options** in the action bar. The IMS PA dialog uses ISPF tables to store some user data, such as the specification of the IMS subsystems, groups, and input log and monitor data sets. Allocate and catalog the data set to be used for this purpose, or use the default data set allocated by IMS PA. It must be a partitioned data set (PDS or PDSE) with fixed-block 80 record format. As it contains user-specific data, it should be setup for exclusive update by that user. See [“IMS PA Settings” on page 66](#) for specification of the Permanent ISPF Table Library.

## Procedure

Setting up the data sets involves the following steps:

1. For the Report Sets, Expectation Sets, Object Lists, Distributions, Report Forms, and Report Filters:
  - a) Decide on whether they will be contained in the one data set or separate data sets. It is recommended that a separate data set be used for each type, mainly to avoid conflict with member names.
  - b) Allocate and catalog the desired number of data sets. They must be partitioned data sets (PDS or PDSE) with fixed-block 80 record format. Standard facilities such as ISPF option 3.2 **Data Set Utility** can be used to do this.
  - c) Define the data sets to the dialog. If not previously allocated and cataloged, they may be created dynamically by the dialog using default allocation attributes. See [“Specifying IMS PA control data sets” on page 72](#).
2. Allocate and catalog the Averages Data Sets, and define default allocation details for the output Averages Data Sets. The input and output Averages Data Sets are optional requirements for the Management Exception report. See [“Averages Data Sets” on page 631](#) for a description of how the dialog is used to maintain these data sets, and [“Transaction Averages data sets specification” on page 261](#) for specification of the data sets to the Management Exception report.
3. Allocate and catalog the Extract Data Sets, and define default allocation details for the output Extract Data Sets.
  - For Extract by Interval processing, an input data set is optional, and an output data set is mandatory. See [“Transaction Transit Extract by Interval” on page 249](#) and [“Fast Path Transit Extract by Interval” on page 296](#).
  - The Transaction (MSGQ/FP) Exception reports optionally produce up to two extract data sets, one for all transaction traffic and one for exceptions. See [“Transaction Exception report and extract” on page 251](#) and [“Fast Path Transaction Exception report and extract” on page 298](#).
  - For the Transaction History File, you need to specify an output data set that will hold the historical records. See [“Transaction History File” on page 254](#).
  - The CPU Usage report optionally produces an extract data set. See [“CPU Usage report and extract” on page 265](#).
  - The Database Update Activity report optionally produces an extract data set. See [“Database Update Activity report and extract” on page 276](#).
  - The Connect Transit Extract requires an output data set. See [“IMS Connect Transit Extract” on page 514](#).
4. Allocate and catalog Export Data Sets if export processing of Extract by Interval data is required. The allocation attributes of the Export Data Sets should be compatible with the Extract Data Sets from where the data is being exported.
5. Allocate and catalog the Monitor Trace Data Sets, and define default allocation details. The Trace Data Set is optional. It is used to capture statistics from the monitor trace for later processing by the IMS print utilities DFSUTR20 and DFSUTR30. See [“Monitor Global Options” on page 428](#) for specification of the Trace Data Set to the dialog.

## Setting up for shared queue processing

For IMS shared queue processing, if there is a restriction on tape devices for log file merging, specify the number of tape devices available to the IMS PA batch report processors and the data set allocation attributes for the Merge Work Files.

### About this task

For details, see [“Shared Queue Settings” on page 71](#).

## Setting up for GDDM graphing

IMS PA requires GDDM-PGF for displaying and printing graphs of Extract by Interval data.

### Procedure

Include the library containing the GDDM and PGF executable modules in the system LNKST, or as follows:

- In the ISPLLIB concatenation for online execution under ISPF.
- In the STEPLIB concatenation of the IMS PA job for batch processing. See [“IMS PA Settings” on page 66](#) for specification of the **GDDM-PGF Load Library**.

Alternatively, IMS PA provides an optional export and download facility for Extract by Interval data to enable graphs to be produced by external programs.

## Upgrading to IMS Performance Analyzer 4.5 from V4.4

---

All objects created in previous releases of IMS Performance Analyzer are upwardly compatible with IMS Performance Analyzer 4.5 and automatically converted, where required, by the IMS Performance Analyzer ISPF dialog. Reverting to previous releases with objects created or modified using a later release, is *not* supported.

### Before you begin

- Review the information supplied in [“What's new in IMS Performance Analyzer” on page 3](#).
- Before commencing the installation of the new release of IMS Performance Analyzer, it is recommended that you obtain backups of your current **IMS PA Load Library** and **Permanent ISPF Table Library** (as shown in 0.1 **IMS PA Settings**).
- The structure of records stored in inflight data sets has changed. If you are using inflight processing, customers must terminate any running report jobs that use inflight processing and restart them with the new release of IMS Performance Analyzer using an empty input data set. Existing inflight data sets created using the previous release can not be used as input.

### Procedure

When upgrading to IMS Performance Analyzer 4.5:

1. Install IMS Performance Analyzer 4.5 as described in the *Program Directory*. To complete the installation of the IMS Performance Analyzer ISPF dialog, follow the [installation and setup instructions](#).
2. Start the IMS Performance Analyzer ISPF primary option menu.  
For more information, see [“Starting IMS Performance Analyzer with IPIOREXX” on page 49](#).
3. If this is your first time starting IMS Performance Analyzer 4.5, you will be prompted to backup your existing control data sets containing your report forms and report sets. Submit the generated JCL to continue.

**Important:** It is highly recommended that you either use the supplied JCL to create the backup data sets, or manually backup and retain a copy of your existing IMS Performance Analyzer control data

sets. IMS Performance Analyzer 4.5 will upgrade your existing Report Set and Report Form data sets to support the new report filters feature. These upgraded data sets will then become **incompatible** with previous releases of IMS Performance Analyzer. To see a list of these data sets, go to option 0.4 **IMS PA Control Data Sets**. Only the Report Set and Report Form data sets cannot be used between releases, and Report Filters are exclusive to IMS Performance Analyzer 4.5.

4. Using the IMS Performance Analyzer ISPF dialog primary option menu, review and change the following settings:
  - a) Select option 0.1 **IMS PA Settings** and then change the name specified in the **IMS PA Load Library** field to refer to the location of the new load library for IMS Performance Analyzer V4R5.  
For more information about this panel, see [“IMS PA Settings” on page 66](#).
  - b) To use the new report filters feature, you will need to allocate a control data set to store the associated definitions. To do this, select option 0.4 **IMS PA Control Data Sets**.  
For more information on this panel, see [“Specifying IMS PA control data sets” on page 72](#).
  - c) To use the new method of creating a CSV file directly from a report form, you will need to specify the default settings IMS Performance Analyzer will use when creating CSV files. To do this, select option 0.6 **CSV Extract Settings** and complete the fields on this panel.  
For more information, see [“Specifying the default CSV extract settings for form-based reporting” on page 74](#).

## ISPF dialog features

---

IMS PA has been designed to follow CUA conventions, while also accommodating established ISPF conventions. The dialog contains these features for enhanced usability.

### Prompt (F4)

Some entry fields have a Prompt action that allows you to fill in the field by selecting a value from a pop-up list of valid values.

Prompt fields are indicated by a + (plus sign) to the right of the field or column heading. To display the pop-up list, move the cursor to the field and press the **Prompt (F4)** key. A list of available values is displayed from which you can select one or more depending on the circumstance.

Prompt fields are "automatically completed" if you enter enough characters to make the value unique. For example, a field with allowed values YES, NO, NEVER, is automatically completed if you enter Y, NO, NE.

### Action bar

An action bar is available at the top of panels to assist with navigation and function. To select an option in the action bar, position the cursor on it and press Enter. A pull-down menu of choices is displayed. To choose one, either position the cursor on it or type the number of your choice, then press Enter.

The standard action bar options in IMS PA are:

#### File

Allows new, save, saveas, run, cancel, or exit. Not all choices are available on all panels.

#### Options

Change your IMS PA Profile Options without having to return to the Primary Menu.

#### Edit/View

Manipulate the way items are displayed on the panel. Allows reset, refresh, sort, locate. Not all choices are available on all panels.

#### Sysdefs

Change your system and group definitions without having to return to the Primary Menu.

#### Controls

View or define report filters, expectation sets, averages, object lists, distributions, or IMS Connect system definitions, or use the graphing and export facility.

**Samples**

Populate the Report Forms data set with sample forms.

**Help**

Displays product help information, described in [“Online help” on page 56](#).

## Function keys

IMS PA uses function keys extensively and displays the settings at the bottom of each panel.

To display function key labels, enter the ISPF command PFSHOW ON. To hide labels, enter PFSHOW OFF.

It is recommended that you set PFSHOW ON until you are familiar with using IMS PA.

### Function keys in dialog panels

The default function key assignments for IMS PA dialog panels are:

**Help (F1)**

Help for field or panel depending on cursor position.

**Split (F2)**

Split the screen at the cursor position.

**Exit (F3)**

Leave the panel and save changes if applicable.

**Prompt (F4)**

List all available choices for the entry field.

**Rfind (F5)**

Repeat FIND to locate next occurrence of search string.

**Resize (F6)**

Remove or restore window border.

**Backward (F7)**

Scroll backwards.

**Forward (F8)**

Scroll forwards.

**Swap (F9)**

Switch active screen in split screen mode.

**Left (F10)**

Scroll left for more information when More: < > is displayed.

**Actions (F10)**

Switch cursor between action bar and body of panel.

**Right (F11)**

Scroll right for more information when More: < > is displayed.

**Cancel (F12)**

Leave the panel and do not save changes.

**Return (F16)**

Return to the underlying panel.

**Cretriev (F24)**

Retrieve the last command.

### Function keys in help panels

The default function key assignments for IMS PA help panels are:

**Help for help (F1)**

How to navigate help.

**Exit (F3)**

Leave help and return to the dialog panel.

**Resize (F4)**

Remove or restore window border.

**Keys help (F6)**

List the function key assignments.

**PrvPage (F7)**

Scroll backwards to previous page when More: - is displayed.

**NxtPage (F8)**

Scroll forwards to next page when More: + is displayed.

**Cancel (F12)**

Remove the help panel and return to the underlying (help) panel.

## Online help

IMS PA help is context-sensitive, that is, the information displayed is appropriate to the position of the cursor when you request help.

### F1 function key

Function key F1 is the default key to request Help.

Extended Help is available from the command line of every panel. Position the cursor in the command line and press F1 or enter the **HELP** command. The line actions and primary commands that apply to the current panel are always listed in the Extended Help.

Field Help is available on every input field and some output fields. Position the cursor in the field and press F1.

Message Help is available. When a short message is displayed at the top right, press F1 to see the long message in a pop-up window. This occurs if, in ISPF Settings, you have selected **Long message in pop-up**.

Reference phrases are used to indicate that more information is available on a topic. You can use the ISPF command **SETTINGS** to change the attributes of reference phrases to ensure that they are easily distinguished from the surrounding text. When a help window is displayed, press the Tab key to position the cursor on a reference phrase (typically white) then press F1. A pop-up window displays additional information on the topic.

### Action bar help

Help in the action bar provides the following types of information to help you use IMS PA:

**Extended Help**

The help information for the currently displayed panel. This describes what you can do from the panel and the fields that appear on the panel.

**Commands Help**

The commands available on this panel.

**Keys Help**

The function keys available on this panel. The list shows the default function key assignments, but you can reassign them using the ISPF **KEYS** and **KEYLIST** commands.

**Tutorial**

Invoke the online tutorial.

### Online tutorial

The online tutorial is available from anywhere in the dialog. To invoke the tutorial, select **Help > Tutorial** from any action bar.

The tutorial is also available from the Primary Option Menu when you press F1 or enter **HELP** in the command line, or select **Help > Extended Help** from the action bar.

## Recommended ISPF setup

---

The IMS PA dialog is an ISPF application following CUA conventions. You might wish to set up your ISPF environment so that you can use the IMS PA dialog efficiently.

### Panel size and scrolling

IMS PA panels are optimized for 32 lines, but accommodate 24 lines using scrolling with the **Backward (F7)** and **Forward (F8)** function keys. Help windows have a maximum size of 24 lines.

### CUA attribute settings

The dialog is designed to use the default CUA attributes. It is recommended that the following panel element default settings are honored. Use the **CUAATTR** command to check these:

1. Data entry fields (Choice Entry, List Entry, and Normal Entry) have the USCORE (underscore) Highlight attribute set. This will allow you to easily identify the input fields on each panel.
2. Data entry fields, List Items, and Normal and Descriptive Text fields have their attributes set differently. This will allow you to easily distinguish between input and output data fields and instructions.
3. Normal Text, Emphasized Text and Reference Phrase have their color and intensity attributes set differently. To easily distinguish Reference Phrases is particularly relevant for the online Help and Tutorial. See [“Online help” on page 56](#).

### Point-and-Shoot fields

Point-and-shoot fields perform an action when you select them. For example, when you select a column heading in a list of system definitions, IMS PA sorts the list by that column.

### Tabbing to point-and-shoot fields

To make it easier to select point-and-shoot fields, you can include them in the tabbing order when you press the Tab key to skip between fields:

1. Enter the ISPF **SETTINGS** command to display the ISPF Settings panel.
2. Select **Tab to point-and-shoot fields** as shown in [Figure 3 on page 58](#).

### Highlighting point-and-shoot fields

The dialog is designed to use the default CUA attributes. However, we recommend that you set the color of point-and-shoot fields to distinguish them from other fields:

1. Enter the ISPF **CUAATTR** command.
2. Scroll to the **Point-and-Shoot** panel element, and then enter a color name (for example, YELLOW).

To make these fields even more distinct, you could also set their highlight attribute to REVERSE (reverse video).

CUA Attribute Change Utility				Defaults
Command ===>				
Panel Element	Color	Intensity	Highlight	
			More:	- +
List Items . . . . .	WHITE	LOW	NONE	
Normal Entry Field . . . . .	TURQ	LOW	USCORE	
Normal Text . . . . .	GREEN	LOW	NONE	
Panel ID . . . . .	BLUE	LOW	NONE	
Panel Instruction . . . . .	GREEN	LOW	NONE	
Panel Title . . . . .	BLUE	LOW	NONE	
<b>Point-and-Shoot . . . . .</b>	<b>YELLOW</b>	HIGH	NONE	
PD Available Choices . . . . .	WHITE	LOW	NONE	
PD Unavailable Choices . . . . .	BLUE	LOW	NONE	

Figure 3. Recommended CUAATTR settings: differentiate point-and-shoot fields

## Using your mouse as a lightpen

The IMS PA Report Set panel is a tree structure of report categories and reports. The report categories act as folders that can expand (to show) and collapse (to hide) the reports contained within them. If your terminal emulation permits, configure your **Mouse Options** to activate the lightpen function. You can then use the left-button of your mouse to click on the + to expand and - to collapse the report categories. This is an alternative to entering line action S. Use of your mouse as a lightpen may vary depending on your terminal emulation software.

## Displaying long messages

IMS PA uses both long and short messages. ISPF displays short messages display at the top right of a panel, next to the panel title. ISPF usually displays long messages in a pop-up window. However, if a long message is less than the screen width, then, by default, ISPF displays it just below or above the command line.

1. Enter the ISPF **SETTINGS** command to display the **ISPF Settings** panel.
2. Ensure **Long message in pop-up** is selected.

ISPF Settings	
Command ===>	
Options	Print Graphics
Enter "/" to select option	Family printer type 2
Command line at bottom	Device name . . . .
[ Panel display CUA mode	Aspect ratio . . . 0
[ <b>Long message in pop-up</b>	
Tab to action bar choices	
[ <b>Tab to point-and-shoot fields</b>	General
[ Restore TEST/TRACE options	Input field pad . . N
Session Manager mode	Command delimiter . ;
[ Jump from leader dots	
Edit PRINTDS Command	
[ Always show split line	
- Enable EURO sign	

Figure 4. Recommended ISPF settings: Tab to point-and-shoot fields

To move messages displayed in a window to another location:

1. Position the cursor on the top or bottom border of the message window, and press Enter.
2. Position the cursor at the location on the panel to which you wish to move the message, then press Enter.



## **GDDM graphing**

IMS PA provides optional graphing capability using GDDM-PGF. To display or print graphs of extract by interval transit data, this facility must be available to the dialog.



---

## Part 2. Getting started

This part describes how to use the IMS PA dialog to request reports and extracts and submit them for batch processing.



# Chapter 5. Starting the IMS Performance Analyzer ISPF dialog

The IMS Performance Analyzer ISPF dialog provides a menu-driven facility to generate reports and CSV extracts from IMS Log, IMS Monitor, IMS Connect, and IBM OMEGAMON for IMS Application Trace Facility (ATF) data to aid in analyzing and tuning the performance of your IMS Database and Transaction Monitor systems. IMS Performance Analyzer validates your requests and automatically creates the JCL to produce the reports and extracts in batch.

## Before you begin

For instructions on how to install the IMS Performance Analyzer ISPF dialog, see [“Starting IMS Performance Analyzer with IPIOREXX”](#) on page 49. Dynamic setup is the simplest and quickest approach.

## About this task

The IMS Performance Analyzer ISPF dialog allows you to:

- Specify your IMS subsystems and log and monitor data sets that you want to use for reporting.
- Specify Groups of IMS subsystems for shared queue reporting.
- Create and customize reports and CSV extracts and tailor them to suit your requirements.
- Create an IMS transaction index containing records that summarize IMS transaction performance.
- Create an IMS Connect transaction index containing records that summarize IMS Connect transaction performance.
- Create report filters, expectation sets, averages, object lists, and distributions to customize your output.
- Specify runtime options to control the report period and input data used.
- Edit and save the JCL and commands generated by IMS Performance Analyzer to run your reports and extracts.
- Submit your report and extract requests.

## Procedure

1. From the ISPF primary menu, select option 6 **Command**.
2. Enter the following command:

EX 'IPI.V4R5M0.SIPIEXEC(IPIOREXX)' 'IPI.V4R5M0 ENU'. If the qualifier for your IMS PA installation data sets is not IPI.V4R5M0, then alter the command accordingly.

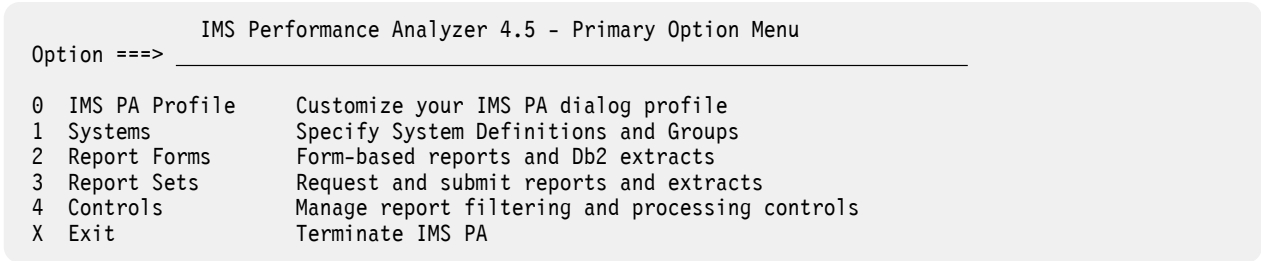


Figure 5. IMS Performance Analyzer primary option menu

3. To navigate the ISPF dialog, you can use the following actions:
  - Select menu options, for example, by entering 0 on the command line. Alternatively, you can "jump" to any of the options on the primary option menu from any panel in the product by typing = followed by the number (for example, =2 to access Report Forms).

- Enter line actions (one- to three-letter commands) next to items in lists.
- Enter primary commands on the command line.
- Press function keys.
- Select an option from the action bar menu.

To see additional help within the product, the following options are available:

- To display a popup menu of available line actions, enter / (a forward slash) next to a list item.
- To get help on the available commands, open the **Help** menu, and then select **Command Help**.
- To get help on the available function keys, open the **Help** menu, and then select **Keys Help**.

**Tip:** “Recommended ISPF setup” on page 57 gives the ISPF settings that help you use the IMS Performance Analyzer ISPF dialog more efficiently.

## What to do next

- Set up your profile by selecting option 0 **IMS PA Profile**. For more information, see [Chapter 6, “Setting up your IMS PA ISPF profile options,”](#) on page 65.
- To learn more about day-to-day use of IMS Performance Analyzer, see [Chapter 7, “Working with the IMS Performance Analyzer ISPF dialog,”](#) on page 77.
- Take the [Chapter 8, “Guided tour,”](#) on page 79. This walks you through the main functions to help you become familiar with using the IMS Performance Analyzer ISPF dialog.

## Chapter 6. Setting up your IMS PA ISPF profile options

This facility allows you to customize your IMS Performance Analyzer user profile. Defaults are set initially so you can start using IMS Performance Analyzer, but you can change these at any time to suit the particular way you want to interact with the IMS Performance Analyzer ISPF dialog. Typically you would set the profile options just once.

To display the IMS PA Profile Options Menu, select option 0 **IMS PA Profile** from the IMS Performance Analyzer primary option menu, or from any IMS Performance Analyzer panel, select **Options** from the action bar.

```

                IMS PA Profile Options Menu
Option ==> _____
1  IMS PA Settings
2  Reporting Allocation Settings
3  Shared Queue Settings
4  IMS PA Control Data Sets
5  IMS Connect Extensions Definitions Data Set
6  CSV Extract Settings
X  Exit
```

Figure 6. IMS PA Profile Options Menu

Select from the following options:

### IMS PA Settings

Use this panel to customize aspects of the IMS PA dialog and the job card it uses when generating report JCL.

### Reporting Allocation Settings

Use this panel to specify the allocation attributes of data sets that may need to be created during Report Set processing. The IMS Performance Analyzer ISPF dialog uses these settings when generating report JCL.

### Shared Queue Settings

Use this panel to specify options that affect the generation of JCL to merge log files for processing IMS shared queue log data from multiple IMS subsystems.

### IMS PA Control Data Sets

Use this panel to tell the IMS Performance Analyzer ISPF dialog which data sets to use to store information about the following product features:

- Report Sets
- Report Forms
- Report Filters
- Expectation Sets
- Object Lists
- Distributions

You can also use this panel to allocate these data sets.

### IMS Connect Extensions Definitions Data Set

If you own IBM IMS Connect Extensions for z/OS, you can use this panel to specify the data set name of the IMS Connect Extensions definitions repository that contains your IMS Connect system definitions. The IMS Performance Analyzer ISPF dialog will use these definitions to show you IMS Connect systems that are available for reporting.

## CSV Extract Settings

Use this panel to specify the default options to be used when generating JCL for a CSV extract from form-based reporting.

## IMS PA Settings

This facility allows you to specify settings to customize the IMS Performance Analyzer ISPF dialog and batch JCL for running Report Sets.

To display the IMS PA **Settings** panel, select dialog option 0.1 **IMS PA Settings**.

Specify settings to customize the IMS PA dialog and batch JCL for running reports and extracts.

```

                                     IMS PA Settings
Command ==> _____

Specify settings:

Delete Confirmation . . . . . YES      (Yes or No)
Warning Confirmation . . . . . NO      (Yes or No)
Automatic Save on Exit . . . . . YES    (Yes, No or Prompt)
Reports in Upper Case . . . . . NO      (Yes or No)
Preferred Date Format . . . . . 1       1. Sorting (YYYY/MM/DD)
                                         2. US (MM/DD/YYYY)
                                         3. European (DD/MM/YYYY)
DASD Work File Unit Name . . . . .      (Blank for System Default)
Permanent ISPF Table Library . . . . . IPITABL
IMS PA Load Library . . . . . 'IMSPA.SIPILINK'
GDDM-PGF Load Library . . . . . 'SYS1.SADMMOD'
ITKB Load Library . . . . .
User Program Load Library . . . . .

Job Statement Information:
==> //userid JOB (ACCOUNT),'NAME'
==>
==>
==>

JES2 Control Statements (DBRC Log Selection only):
==> /*XEQ
==> /*JOBPARM SYSAFF=
==> /*ROUTE PRINT
```

Figure 7. The **IMS PA Settings** panel in IMS Performance Analyzer

All options have initial settings so you can start using IMS PA immediately. You can change the settings at any time to suit the way you use IMS PA.

**DASD Work File Unit Name** can be left blank to take the system default. The Load Libraries for IMS PA, GDDM-PGF and User Programs need not be specified if they are included in the system LNKLIST concatenation. Values are expected for all other options.

The options are:

### Delete Confirmation

Initial Setting: YES

This option applies *only* to requests to delete IMS PA "primary objects" (Report Sets, Report Forms, Expectation Sets, Object Lists, and Distributions).

Specify YES to request IMS PA to prompt you for confirmation of a Delete request.

Specify NO to have IMS PA action Delete requests immediately without prompting for confirmation.

### Warning Confirmation

Initial Setting: NO



The IMS PA dialog may issue a warning if you specify a field value which is acceptable at the time of input but may later cause an error or unexpected result if further action is not taken to resolve the cause of the warning. For example, Data Set not cataloged.

Specify YES to display a confirmation window if you attempt to Save or Exit when a warning is outstanding. This is to ensure that you are aware that a field has been set to a value that has caused a warning.

Specify NO for no confirmation of warnings.

### **Automatic Save on Exit**

Initial Setting: YES

This option applies *only* to IMS PA "primary objects" (Report Sets, Report Forms, Expectation Sets, Averages, Object Lists, and Distributions) when changes during an edit session have been made. It applies only on panels at the top level of the function hierarchy, that is, panels where the SAVE command is available.

Specify YES to automatically save changes on Exit.

Specify NO to automatically cancel changes on Exit.

Specify PROMPT to display a confirmation pop-up on Exit that allows you to choose whether to save changes or discard changes on that occasion.

### **Reports in Upper Case**

Initial Setting: NO

Specify NO to receive reports in upper and lower case characters.

Specify YES to translate all reports to upper case characters only. This is particularly for printers which cannot handle mixed case.

### **Preferred Date Format**

Initial Setting: 1 (YYYY/MM/DD)

The IMS PA dialog can accept and present dates in the following formats:

1. YYYY/MM/DD
2. MM/DD/YYYY
3. DD/MM/YYYY

Enter either 1, 2 or 3 for the date format you prefer.

**Note:** This option does *not* apply to the format of dates presented on batch reports. Further, there are exceptions within the dialog where the functionality dictates the date format. For example, the Changed time stamp field of component lists (Report Sets, Report Forms, Expectation Sets, Object Lists, Distributions) always presents as YYYY/MM/DD HH:MM to allow the lists to be sorted on this field.

### **DASD Work File Unit Name**

Initial Setting: Blank (for System Default)

Specify the device type or group name to be used by the IMS PA batch interface to allocate temporary data sets as required by facilities such as DBRC Log Selection.

The name must represent a device that is defined as DASD in the Eligible Device Table of the current processor. For example, SYSDA, SYSALLDA, 3390.

If not specified, the system default is used.

### **Permanent ISPF Table Library**

Initial Setting: IPITABL, which translates to 'xxxx.IPITABL', where xxxx is determined by your TSO prefix and userid.

The IMS PA dialog uses the Permanent ISPF Table Library to save your System Definitions and Groups. Specify the name of the data set to be used for this purpose.

If the specified data set does not exist, IMS PA allocates it for you when it is required.

### IMS PA Load Library

Initial Setting: 'xxxx.SIPILINK', where xxxx is the qualifier for your IMS PA installation data sets. For example: 'IPI.V4R5M0.SIPILINK' or if not specified for dynamic setup, the default is 'IMSPA.SIPILINK'.

Specify the name of the library that contains the IMS PA link/load modules. This is used by the IMS PA dialog when generating the JCL for executing Report Sets. It need not be specified if the modules reside in the system LNKST.

### GDDM-PGF Load Library

Initial Setting: None.

Specify the name of the library that contains the load modules for GDDM and GDDM-PGF. This is substituted into the JCL built by the dialog to process graphing requests in batch. It is only required for producing graphs in batch mode, and only if the library is not included in the system LNKST concatenation.

### ITKB Load Library

Initial Setting: None.

Specify the name of the library that contains the IMS Tools Knowledge Base (ITKB) executable load modules. The specified library data set name is substituted into Report Set JCL generated by the IMS PA dialog. The ITKB modules are not referenced unless the IMS PA report output is to be written to the IMS Tools Knowledge Base repository.

### User Program Load Library

Initial Setting: None.

Specify the name of the library that contains the load modules of the user-written record processors that you wish to run under IMS PA. This is substituted into the JCL built by the IMS PA dialog for executing Report Sets. It is only required if **User-Written Reports** is activated in the Log Report Set being submitted, and only if the library is not included in the system LNKST concatenation.

### Job Statement Information

Specify the JOB card to be used by the IMS PA dialog when building JCL. Multiple cards can be provided and are taken as is. Embedded and trailing null cards are ignored.

Initial Setting: `//userid JOB (ACCOUNT), 'NAME'` from the ISPF Log and List JCL job statement information. To review this, use the **SETTINGS** command to display the ISPF **Settings** panel, then select **Log/List > JCL** from the action bar.

### JES2 Control Statements

Specify one or more JES2 Control Statements for your DBRC Log Selection requests. IMS PA accepts any control statement, but performs special processing for `/*XEQ`, `/*JOBPARM`, and `/*ROUTE`.

Initial Setting:

```
/*XEQ
/*JOBPARM SYSAFF=cccc
/*ROUTE PRINT node
```

The statement will always be inserted into the JCL. If the System or Group has Node and/or SYSAFF specified, then it will be substituted, overriding your default.

## Reporting Allocation Settings

To display the **Reporting Allocation Settings** panel, select IMS Performance Analyzer ISPF dialog option 0.2 **Reporting Allocation Settings**.

```
Reporting Allocation Settings

Command ==> _____

Specify data set allocation settings:

Management Exception Averages:
==> //          UNIT=SYSDA,SPACE=(TRK,(5,5),RLSE),
==> //          DCB=(DSORG=PS,RECFM=VB,LRECL=4092,BLKSIZE=4096)
==> _____

Transit Extract by Interval:
==> //          UNIT=SYSDA,SPACE=(TRK,(5,5),RLSE),
==> //          DCB=(DSORG=PS,RECFM=VB,LRECL=4092,BLKSIZE=4096)
==> _____

Transaction (MSGQ/FP/Connect) Transit Total Traffic:
==> //          UNIT=SYSDA,SPACE=(CYL,(5,5),RLSE)
==> _____
==> _____

Transaction (MSGQ/FP) Transit Exception Traffic:
==> //          UNIT=SYSDA,SPACE=(CYL,(5,5),RLSE)
==> _____
==> _____

Summary (CPU Usage, Database Update Activity and Connect) Extracts
==> //          UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE)
==> _____
==> _____

Monitor Trace:
==> //          UNIT=SYSDA,SPACE=(TRK,(15,15),RLSE),
==> //          DCB=(DSORG=PS,RECFM=VB,LRECL=2044,BLKSIZE=2048)
==> _____
```

Figure 8. The **Reporting Allocation Settings** panel in IMS Performance Analyzer

This facility is used to specify the allocation details for the output data sets that may need to be created during batch processing of Report Sets. IMS Performance Analyzer provides default settings for the data sets which you see when you first invoke this panel or when you clear a setting. [Figure 8 on page 69](#) shows the default allocation settings.

When the IMS Performance Analyzer ISPF dialog builds the Report Set JCL for a new output data set, the corresponding allocation details are appended to a statement of the form:

```
//DDname DD DSN=Dsname,DISP=(NEW,CATLG),
```

The data set characteristics, *DDname*, and *Dsname* are as follows:

### Management Exception Averages

Sequential data set, VB record format, LRECL of 4092 with an appropriate BLKSIZE of 4096 or higher. Optionally created by the Management Exception report. *DDname* is IPIAVGO. *Dsname* is the **Output Data Set** name on the **Transaction Averages Data Sets** subpanel.

### Transit Extract by Interval

Sequential data set, VB record format, LRECL of 4092 with an appropriate BLKSIZE of 4096 or higher. Used to extract Transaction (MSGQ) or Fast Path (EMH) Transit details by time interval from the log files for subsequent graphing or export. *DDname* is IPIXTRTO (MSGQ) or IPIFPXTO (FP). *Dsname*

is the **Output Extract Data Set** name on the **Transaction Transit** or **Fast Path Transit Extract by Interval** panels.

Also used for the Transaction History File which contains summarized history data for loading into Db2. *DDname* is IPITHIST. *Dsname* is the **Transaction History DSN** on the **Transaction History File** panel.

### Transaction Transit Total Traffic

Sequential data set, FB record format. IMS Performance Analyzer will set the DCB attributes at Extract run time.

#### MSGQ

LRECL of 263 or less. Optionally created by the Transaction Exception report to contain detail records for all MSGQ transactions. *DDname* is IPITXUT1. *Dsname* is the **Total Traffic Extract Data Set** name on the **Transaction Exception** panel.

#### FP

LRECL of 143. Optionally created by the Fast Path Transaction Exception report to contain detail records for all FP transactions. *DDname* is IPIFXUT1. *Dsname* is the **Total Traffic Extract Data Set** name on the **Fast Path Transaction Exception** panel.

#### Connect

LRECL of 177. Created when the List Transit Extract is requested to contain detail records of all IMS Connect transactions. *DDname* is IPICTRLS. *Dsname* is the **List Extract DSN** on the **IMS Connect Transaction Transit Extract** panel.

### Transaction (MSGQ/FP) Transit Exception Traffic

Sequential data set, FB record format, LRECL of 263 or less (MSGQ), or 252 (FP); IMS Performance Analyzer will set the DCB attributes at Extract run time. See [“Traffic data set allocation settings” on page 70](#). Optionally created by the Transaction Exception or Fast Path Transaction Exception reports to contain a record for each MSGQ or FP exception transaction. *DDname* is IPITXUT2 (MSGQ) or IPIFXUT2 (FP). *Dsname* is the **Exception Traffic Extract Data Set** name on the **Transaction Exception** or **Fast Path Transaction Exception** panels.

### Summary Extracts

Sequential data set, FB record format. IMS Performance Analyzer will set the DCB attributes at Extract run time. Appropriate for summary extracts such as those optionally created by:

#### CPU Usage report

See [Figure 128 on page 265](#). LRECL of 132. *DDname* is CPURXTRO. *Dsname* is the **Extract Data Set** name on the **CPU Usage** panel.

#### Database Update Activity report

See [Figure 132 on page 277](#). LRECL of 132. *DDname* is DBUAXTRO. *Dsname* is the **Extract Data Set** name on the **Database Update Activity** panel.

#### Connect Transit Extract

LRECL of 228. Created when a Summary Transit Extract is requested to contain details of all IMS Connect transactions summarized by time interval. *DDname* is IPICTRSU. *Dsname* is the **Summary Extract DSN** on the **IMS Connect Transaction Transit Extract** panel.

### Monitor Trace

Sequential data set, VB record format, recommended LRECL of 2044 with an appropriate BLKSIZE of 2048 or higher. Optionally used during Monitor Report Set processing to output records from the monitor trace for subsequent processing by the IMS Monitor or DB Monitor Report Print programs DFSUTR20 and DFSUTR30. *DDname* is IPISTOUT. *Dsname* is the **Trace Data Set** name on the **Monitor Global Options** panel.

### Traffic data set allocation settings

The Transaction (MSGQ) Transit Total and Exception Traffic Extract Data Sets have the same DCB requirements, being sequential data sets, with FB record format, and a maximum LRECL of 263. IMS Performance Analyzer will honor an LRECL less than 263 by truncating the extract records. For example, you may set the record length to 164 if shared queue elapsed times and the queue time stamps are not

required. Refer to the assembler macro IPITRDR in the SIPIMAC library for the layout of these extract records.

The Fast Path Transit Total and Exception Traffic Extract Data Sets are sequential data sets, with FB record format, and LRECL of 143 and 252 respectively. The record layout is defined by the assembler macro IPIFPDR in the SIPIMAC library and is consistent with DBFULTA0:

- The Total Traffic record is the first 143 bytes of the FPTDR.
- The Exception Traffic record is the entire 252 bytes of the FPTDR.

On the **Reporting Allocation Settings** panel, you may omit specifying DCB attributes for the extract data sets as IMS Performance Analyzer sets the appropriate DCB at Extract run time. However, if you specify the DCB, IMS Performance Analyzer sets an appropriate BLKSIZE as follows:

- If you omit the BLKSIZE or specify a BLKSIZE less than the LRECL, then IMS Performance Analyzer sets the BLKSIZE to LRECL\*10
- If you specify a BLKSIZE that is a multiple of the LRECL, the BLKSIZE is unchanged
- If you specify a BLKSIZE that is not a multiple of the LRECL, then the BLKSIZE is rounded down.  
For example, if you specify LRECL=263 and BLKSIZE=27998, then IMS Performance Analyzer sets BLKSIZE=27878

## Shared Queue Settings

To display the Shared Queue Settings panel, select dialog option 0.3 **Shared Queue Settings**.

The following figure shows the initial settings when you invoke the panel for the first time.

```
Shared Queue Settings

Command ===> _____

Specify settings for merging log files.

Maximum Tape Units Available for Shared Queue Merge  __ (1 to 35)

Shared Queue Merge Work File Allocation Details:
===> //          UNIT=SYSDA,SPACE=(CYL,(100,20),RLSE)
===> _____
===> _____
```

Figure 9. Shared Queue Settings

This panel supports fields that affect the way the IMS PA dialog generates JCL to run log Report Sets against IMS shared queue log input.

If a group of IMS subsystems is specified, the Report Set JCL generation process assumes that the subsystems run in a sysplex using shared queues. The IMS PA batch processing then merges the log input from the specified IMS subsystems. See [“Shared Queue merge processing” on page 341](#) for a description of three styles of merge processing for the three different types of IMS PA reports.

When such IMS subsystems log to direct access devices, or when there are sufficient tape units available to concurrently allocate a unit for each IMS subsystem which has logged to tape, IMS PA batch processing merges directly from the input logs. Otherwise, it first copies some log input information to Shared Queue Merge Work Files which are then included in the merge processing.

The dialog builds JCL that minimizes the use of Shared Queue Merge Work Files. This JCL build process is dynamic, based on the Log Input specification and the maximum number of tape units that can be allocated to an IMS PA job for log input. See [“Pre-Merge Copy Processing” on page 343](#) for further details of this process.

The fields are:

### Maximum Tape Units Available for Shared Queue Merge

Initial Setting: Blank; unlimited.

Specify the maximum number of tape units available to log Report Set batch processing when shared queue merge processing is required. This value is applied at the time the Report Set JCL is built to determine if the number of log input data sets on tape exceeds the number of tape units available. If no maximum is specified, then the JCL generation process assumes there are sufficient tape units and no Shared Queue Merge Work Files are used.

### Shared Queue Merge Work Files Allocation Details

Initial Setting: // UNIT=SYSDA,SPACE=(CYL,(100,20),RLSE)

Specify the data set allocation details for the Shared Queue Merge Work File temporary data sets. They must be single volume sequential DASD data sets.

The specified details are substituted directly into the Report Set JCL at the time it is built, appended to a DD statement of the form:

```
//DDname DD DISP=(NEW,DELETE,DELETE),
```

where *DDname* is generated by the dialog.

Multiple DD statements for Shared Queue Merge Work Files may be required. These will be generated with the same allocation details, but each with a unique DDname.

## Specifying IMS PA control data sets

---

To work with report sets, report forms, report filters, expectation sets, object lists or distributions, you must first specify the names of the data sets containing them in the IMS Performance Analyzer ISPF dialog.

### About this task

These data sets must be cataloged, partitioned data sets (PDS or PDSE) with RECFM=FB and LRECL=80. Standard facilities, such as ISPF option 3.2 **Data Set Utility**, can be used to create and catalog the data sets. Alternatively, you can let IMS PA allocate the data sets for you using the default attributes of LRECL=80, BLKSIZE=6160, SPACE=(CYL,(1,1,50)).

You can use the same data set for all components. However, it is recommended that each type of component is stored in a separate data set to avoid conflict with member names.

### Procedure

To specify the data set names:

1. Select dialog option 0.4 **IMS PA Control Data Sets**.

The **IMS PA Control Data Sets** panel is displayed.

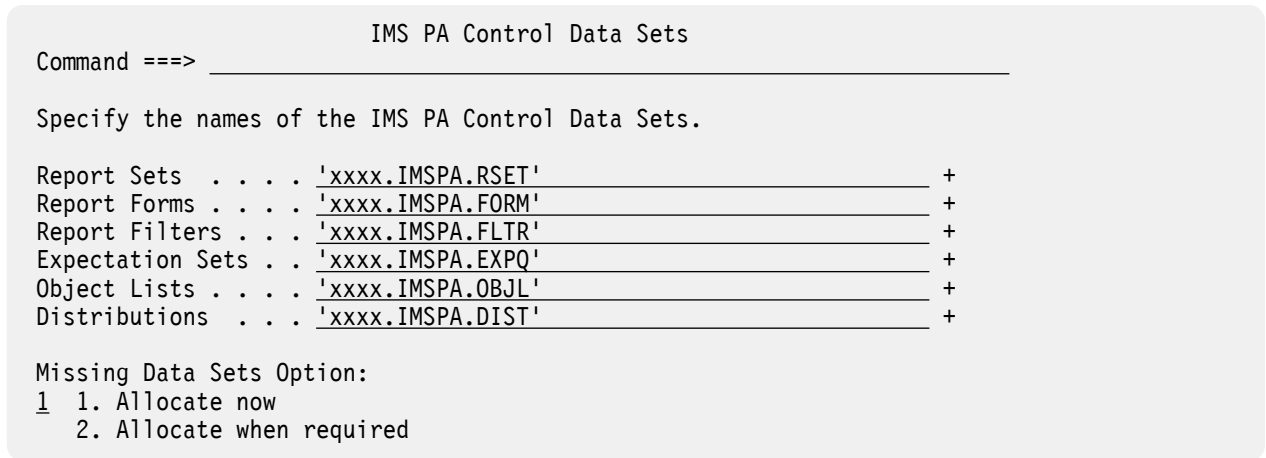


Figure 10. IMS PA Control Data Sets

2. Enter the required data set names for:

- Report Sets
- Report Forms
- Report Filters
- Expectation Sets
- Object Lists
- Distributions

Standard TSO conventions apply. For example, if the TSO option `PROFILE PREFIX` is in effect, the userid will be appended as the high-level qualifier unless the data set name is enclosed in quotes.

3. For any data sets that are not allocated, you can choose to let IMS PA allocate them now or allocate them at the time that you try to perform functions that require them. For example, when you choose option 3 **Report Sets** from the Primary Option Menu, the Report Sets data set can be allocated at that time.
4. If you choose to allocate now and press Enter, for each data set in turn that is not cataloged, a Confirm Create popup is displayed to give you the opportunity to let IMS PA create the data set for you using default allocation attributes.

**Note:** The IMS PA Control Data Sets are partitioned data sets. The directory is used to save status information. You can use the operating system utility `IEHMOVE` and data set utility `IEBCOPY` for maintenance purposes.

However, IMS PA creates members in these data sets in a special format. Members must *not* be created or modified using facilities other than IMS PA as this may cause them to become unusable by IMS PA. Should this occur, IMS PA displays a message when it attempts to access those members. For example, if accessing the Report Sets data set, you might see the following message, where `xxxxxxxx` is the name of the first offending member encountered.

Only Report Set members in the data set are included in the list.  
At least one member has been excluded - `xxxxxxxx`

Ensure that you specified the correct data set name. If correct, you can use ISPF to determine the offending member or members. For example, use ISPF option 3.1 to display the list of members in the Report Sets data set. Members created by IMS PA will display with no modification details, whereas those edited using ISPF will show their modification details. Then to correct the situation, either:

- Use ISPF to remove (move or delete) the offending members from the data set.
- Use IMS PA facilities. When the **Report Sets** panel is displayed, choose **File > Select** from the action bar, or enter **SELECT** in the command line, and specify the name of the offending member. If the contents of the member are valid Report Set details, they will display on the **EDIT Report Set** panel.

Save the Report Set and the member will appear in the list of Report Sets in the specified sort order. If it is not a valid Report Set, an error message is displayed.

## Specifying the IMS Connect Extensions definitions repository data set

If you own IBM IMS Connect Extensions for z/OS, you can use the data collected in the IMS Connect Extensions journal to gain insights into IMS Connect. To allow IMS Performance Analyzer to learn more about your IMS Connect environment, you can specify the data set name of your IMS Connect Extensions definitions repository in the IMS Performance Analyzer ISPF dialog.

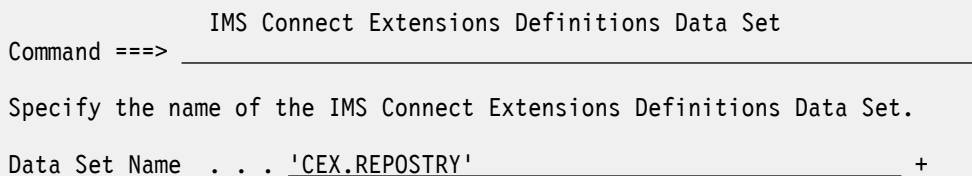
### About this task

The data set contains IMS Connect system definitions that are required for running IMS Connect report sets in IMS Performance Analyzer. The following figure shows the window where you can enter the data set name.

### Procedure

1. Specify the name of the data set that contains the IMS Connect Extensions definitions that you want IMS Performance Analyzer to work with in the **IMS Connect Extensions Definitions Data Set** panel.

**Note:** When you specify the name of the data set, normal ISPF data set conventions apply. Fully qualified data set names must be enclosed in quotes unless PROFILE NOPREFIX is set.



Command ===> IMS Connect Extensions Definitions Data Set

Specify the name of the IMS Connect Extensions Definitions Data Set.

Data Set Name . . . 'CEX.REPOSTRY' +

Figure 11. The **IMS Connect Extensions Definitions Data Set** panel in IMS Performance Analyzer

2. Press the Exit function key (F3) to save and exit.

## Specifying the default CSV extract settings for form-based reporting

The **CSV Extract File Defaults** panel allows you to specify the default CSV extract settings to use when generating JCL for form-based reporting.

### Procedure

1. Specify the name of the default extract data set and the disposition you wish to use when exporting CSV data.

**Note:** When you specify the name of the data set, normal ISPF data set conventions apply. Fully qualified data set names must be enclosed in quotes unless PROFILE NOPREFIX is set. To select from a list of recently used CSV data sets, press the Prompt function key (F4).

2. Specify a character you wish to use as a delimiter between values in the CSV extract in the **Delimiter** field. To activate the delimiter, enter a slash (/) next to the **Include Delimiter** option.

**Note:** To specify a space, simply leave the **Delimiter** option blank.

3. To include a header row in your CSV output that contains the names of the fields used in your report form, enter a slash (/) next to the **Include Field Labels** option.
4. Clear **Numeric Fields in Db2 Float Format**, and select **Numeric Fields in Db2 Decimal Format**. Use this option to enable the extract to store large values without truncating them.



The **Decimal** option enables the extract store large values without truncating them. Only use the **Float** option when outputting to Db2 and you know you specifically need the data in Db2 FLOAT format.

5. To output date/time values in ISO 8601 format (recommended), enter a slash (/) next to the **ISO 8601 timestamps** option.

```

                                CSV Extract File Defaults
Command ===> _____
Specify the default options to be used for CSV Extract

Extract Data Set Name          Disp
'MY.EXTRACT.CSV'              +  OLD

Extract Options:
Delimiter . . . _ (blank is valid)

/ Include Delimiter
/ Include Field Labels (Not supported for Db2 load)
- Numeric Fields in Db2 Float Format
/ Numeric Fields in Db2 Decimal Format
/ ISO 8601 timestamps
```

*Figure 12. The **CSV Extract File Defaults** panel in IMS Performance Analyzer*

6. Press the Exit function key (F3) to save and exit.



---

## Chapter 7. Working with the IMS Performance Analyzer ISPF dialog

The IMS Performance Analyzer ISPF dialog helps you generate JCL that can be used to run reports from IMS log, IMS monitor, IMS Connect, and OMEGAMON for IMS Application Trace Facility (ATF) data.

The general workflow for using the ISPF dialog is as follows:

1. Specify input data for reporting.

- Define your IMS subsystems and associated input data. For log data, specify the RECON or MDA data sets to enable DBRC Log Selection. Alternatively, you can specify the log files explicitly.
- Define groups to enable shared queue sysplex reporting.

2. Define and run a Report Form.

- Report Forms allow you to personalize the format and content of Transaction Transit reports and extracts to include only the information that interests you.
- Select a sample form that suits your reporting requirements. If you wish, you can modify the form by adding, removing, or changing form fields as desired.
- Optionally, you can create and apply a report filter to a report form. A report filter allows you to focus your report on specific criteria. For more information, see [Chapter 16, “Report Filters,” on page 183](#).
- After you have finished making changes, you can run this report form directly to produce either a text-based report or a CSV extract. This can be useful for ad hoc reporting, or for trialling a new report form before adding the form to a Report Set.
- View or print the report output using your usual method, such as SDSF or ISPF option 3.8 Outlist Utility.
- Process any CSV extract data you have produced (for example, from form-based log reports, the CSV Transaction (MSGQ/FP) Traffic, or the CPU Usage and Database Update Activity reports) using external programs such as analytics platforms.

3. Define and run a Report Set.

- Create a new Report Set.
- Specify any options applicable to the reports you wish to include in the Report Set. The Global Options apply to all reports within the Report Set.
- Select and tailor the form-based Transaction Transit reports and fixed format reports that you require. Modified reports will automatically be activated within the Report Set. For details of all report options, see:
  - [Chapter 20, “Requesting Log reports,” on page 209](#)
  - [Chapter 22, “Requesting Monitor reports,” on page 421](#)
  - [Chapter 24, “Requesting IMS Connect reports,” on page 497](#)
  - [Chapter 26, “Requesting OMEGAMON ATF reports,” on page 549](#)
- Define any Object Lists needed to support record selection or report grouping.
- Define new Distributions if you wish to customize the distribution graphs produced by some reports. Sample Distributions are provided for all distribution graphs.
- Run the Report Set to generate the reports and extracts. Use the RUN command to prompt you for runtime options including system selection, report interval and the execution mode. Alternatively, you can use the SUBMIT (SUB), JCL and JCLCMD (JCM) commands to set the execution mode and optionally bypass the runtime prompt. SUB and JCL execute the Report Set whereas JCM executes a command deck. SUB submits the job directly whereas JCL and JCM allow you to edit the JCL before you submit it. Optionally, the JCL can be stored in an external library to edit and submit independently of the IMS Performance Analyzer ISPF dialog so that you can run this job on a daily or

weekly basis for performance comparison purposes. See [“Producing reports from a Report Set” on page 191](#).

- View or print the report output using your usual method, such as SDSF or ISPF option 3.8 Outlist Utility.
- Use the IMS Performance Analyzer ISPF dialog to view or print GDDM graphs of the Extract by Interval data, export the data for use by external programs such as Db2.
- Process any CSV extract data you have produced (for example, from form-based log reports, the CSV Transaction (MSGQ/FP) Traffic, or the CPU Usage and Database Update Activity reports) using external programs such as analytics platforms.

**Notes:**

- If requesting the Management Exception (log) report, then you will need to consider defining [Expectation Sets](#) and [Averages Data Sets](#). You may also use Expectation Sets for the Transaction (MSGQ or FP) Exception reports and extracts.
- If requesting an Extract by Interval of transaction transit data for subsequent graphing or export, you will need to consider defining the extract and export data sets. See [“Transaction Transit Extract by Interval” on page 249](#).
- If requesting the Transaction (MSGQ or FP) Exception, CPU Usage or Database Activity reports, then you will need to consider defining extract data sets, although IMS Performance Analyzer can allocate them for you at the time they are required.
- An alternative way to run IMS Connect reports is to view the IMS Connect systems and archive data sets, then use the RUN command to select one for reporting.

---

## Chapter 8. Guided tour

This guided tour is for both experienced and first-time users of IMS Performance Analyzer. It leads you step-by-step through many of the features of the ISPF dialog and highlights the major features new to this version. The tour is split into five sessions: each session is designed to be completed in a single sitting in under 20 minutes. Subsequent parts assume that you have completed the previous parts.

**Tip:** Throughout the tour, you will need to view report output using SDSF or other program of choice. For instructions on how to use SDSF, see [“Viewing IMS Performance Analyzer report output”](#) on page 195.

---

### Setting up your environment

In this first tutorial, you will set up your IMS Performance Analyzer environment in preparation for reporting.

### Configuring your profile in the IMS Performance Analyzer ISPF dialog

To use IMS Performance Analyzer, you must first set up your profile in the IMS Performance Analyzer ISPF dialog.

#### Procedure

1. [Start the IMS Performance Analyzer ISPF dialog.](#)  
The IMS Performance Analyzer primary option menu is displayed.
2. Open the **IMS PA settings** panel.  
You can do this by selecting **0 IMS PA Profile > 1 IMS PA Settings** or by typing 0.1 on the primary option menu.  
The **IMS PA Settings** panel is displayed.
3. Review the following settings:
  - a) Ensure that your IMS PA load library correctly specifies the name of the library that contains the IMS PA link/load modules.
  - b) Customize your **Job Statement Information** so you can easily find your report output.

IMS PA Settings

Command ==> \_\_\_\_\_

Specify settings:

Delete Confirmation . . . . . YES (Yes or No)  
Warning Confirmation . . . . . NO (Yes or No)  
Automatic Save on Exit . . . . . YES (Yes, No or Prompt)  
Reports in Upper Case . . . . . NO (Yes or No)  
Preferred Date Format . . . . . 1 1. Sorting (YYYY/MM/DD)  
2. US (MM/DD/YYYY)  
3. European (DD/MM/YYYY)  
DASD Work File Unit Name . . . . . (Blank for System Default)  
Permanent ISPF Table Library IPITABL  
IMS PA Load Library . . . . . 'IMSPA.SIPILINK'  
GDDM-PGF Load Library . . . . . 'SYS1.SADMMOD'  
ITKB Load Library . . . . .  
User Program Load Library . . . . .

Job Statement Information:

==> //userid JOB (ACCOUNT),'NAME'  
==> \_\_\_\_\_  
==> \_\_\_\_\_  
==> \_\_\_\_\_

JES2 Control Statements (DBRC Log Selection only):

==> /\*XEQ  
==> /\*JOBPARM SYSAFF=  
==> /\*ROUTE PRINT

Figure 13. The **IMS PA Settings** panel

4. Press the Exit function key (F3) until you return to the IMS Performance Analyzer primary option menu.
5. If you own IBM IMS Connect Extensions for z/OS, you can use it to gain insights into IMS Connect. To work with this feature:
  - a) Select option 0.5 **IMS Connect Extensions Definitions Data Set**.
  - b) Specify the fully qualified data set name (enclosed in quotes) of your IMS Connect Extensions definitions repository in the **Data Set Name** field.

This will identify your IMS Connect systems to IMS Performance Analyzer.

## Defining IMS subsystems to be reported

Before requesting reports in IMS Performance Analyzer you must first define your IMS subsystems.

### About this task

Use this procedure to define your IMS systems. After your systems are defined, you will need to assign them to groups for shared queues (sysplex) reporting. For more information, see [“Assigning subsystems to a group for shared queues reporting”](#) on page 83.

### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 1.1 **System Definitions**.
2. To add a new system definition, type **NEW** and press Enter.

**Tip:** To create an IMS Connect definition, use the **NEWC** command.

The **IMS Subsystem** panel is displayed. The panel contains the following sections:

#### IMS Subsystem definition

Contains general information about the subsystem.

#### Specify required view

Allows you to change the information displayed in the lower section of the panel. There are several views to choose from, depending on which set of settings you wish to define. To change the view,

enter the number corresponding to the view you want, or alternatively, you can press the Left function key (F10) or the Right function key (F11) to scroll through the different views.

### View-specific information

Located at the bottom of the panel, this section contains information corresponding to the view you have selected in the **Specify required view** section.

3. Use the **IMS Subsystem definition** section of the **IMS Subsystem** panel to enter basic information about your system.

In this example we will define an IMS V15 system called PR01. To do this, enter your IMS Subsystem ID, IMS version, description, and RESLIB data set. To select your IMS version, simply place your cursor on the **IMS Version (VRM)** field and press the Prompt function key (F4).

**Tip:** To start reporting, you only need to specify the IMS Subsystem ID. However, for completeness, we will enter the entire definition of this system in this tutorial.

Command ==>
IMS Subsystem
More: < >

IMS Subsystem definition:

IMS Subsystem ID . . . . PR01 IMS Version (VRM) . . . 154 +

Description . . . . . IMS Production System 1

RESLIB Data Set . . . . . IMS.V154.SDFSRESL

---

Specify required view . . 1

1. DBRC Settings	4. Groups
2. Log Files	5. OMEGAMON ATF Files
3. Monitor Files	

---

Specify DBRC Settings for automated log file selection:

DBRC Subsystem ID . . . \_\_\_\_\_ (Specify RSENAME for XRF)

DBRC IMSplex name . . . \_\_\_\_\_ (RECON Loss Notification)

DBRC Sharing Group ID . \_\_\_\_\_ (Parallel RECON Access)

RECON Data Set 1 . . . \_\_\_\_\_

2 . . . \_\_\_\_\_

3 . . . \_\_\_\_\_

MDA Data Set . . . . . \_\_\_\_\_

Enter "/" to select option

— Log Data Sets are Cataloged

— Use OLDS that are not Archived

— Use Secondary Log Data Sets

— Use Recovery Log Data Sets

JES2 options:

(DBRC) Node . . \_\_\_\_\_ SYSAFF . . \_\_\_\_\_

(SLDS) Node . . \_\_\_\_\_ SYSAFF . . \_\_\_\_\_

Figure 14. The **IMS Subsystem** panel with the **DBRC Settings** view selected in IMS Performance Analyzer

4. Enter your DBRC settings for this IMS subsystem.

To do this, ensure that the **DBRC settings** view has been selected, and then enter the details required. The **MDA Data Set** field is used by DBRC Log Selection to dynamically allocate the RECON data sets. Alternatively use the **RECON Data Set** field to add the names of your RECON data sets.

5. In the **Specify required view** section, select option **2 Log Files**.

Use this view to specify any additional log files that contain data required for your current Log reporting requirements. At Log report run time, you can choose whether to use the log files you have specified here or to use DBRC Log Selection.

**Important:** Additional data sets must be specified in time sequence, as this is the order in which IMS Performance Analyzer will process them.

```

                                IMS Subsystem                Row 1 of 2 More: < >
Command ===> _____ Scroll ===> PAGE

IMS Subsystem definition:
IMS Subsystem ID . . . . PR01 IMS Version (VRM) . . . 154 +
Description . . . . . IMS Production System 1
RESLIB Data Set . . . . IMS.V154.SDFSRESL
-----
Specify required view . . 2  1. DBRC Settings      4. Groups
                             2. Log Files          5. OMEGAMON ATF Files
                             3. Monitor Files
-----
Specify the Log Files (in time sequence) for this subsystem:

/  Exc          Data Set Name (DSN)                UNIT + SEQ VOLSER +
X  *  'PR01.V154.SLDSP.PR01.D17231.T1413081.VD2'      _____
-    'PR01.V154.SLDSP.PR01.D17231.T1413081.VD3'      _____
***** Bottom of data *****

```

Figure 15. The **IMS Subsystem** panel with the **Log Files** view selected in IMS Performance Analyzer. You can exclude a file from reporting using line action X.

6. In the **Specify required view** section, select option **3 Monitor Files**.

Use this view to specify any IMS Monitor files that contain data required for reporting.

```

                                IMS Subsystem                Row 1 of 1 More: < >
Command ===> _____ Scroll ===> PAGE

IMS Subsystem definition:
IMS Subsystem ID . . . . PR01 IMS Version (VRM) . . . 154 +
Description . . . . . IMS Production System 1
RESLIB Data Set . . . . 'IMS.V154.SDFSRESL'
-----
Specify required view . . 3  1. DBRC Settings      4. Groups
                             2. Log Files          5. OMEGAMON ATF Files
                             3. Monitor Files
-----
Specify the Monitor Files (in time sequence) for this subsystem:

/  Exc          Data Set Name (DSN)                UNIT + SEQ VOLSER +
-    'PR01.MONITOR'      _____
***** Bottom of data *****

```

Figure 16. The **IMS Subsystem** panel with the **Monitor Files** view selected in IMS Performance Analyzer.

7. In the **Specify required view** section, select option **4 Groups**.

Groups is a facility that enables you to group IMS subsystems together for reporting purposes. From the Groups View, specify a meaningful name to describe your group of systems. For example, here we have specified that this system belongs to a Group called PRODPLEX. At report run time, you can select either an individual system or a Group to be reported.



```

                                IMS Subsystem                      Row 1 of 1 More: < >
Command ===> _____ Scroll ===> PAGE

IMS Subsystem definition:
IMS Subsystem ID . . . . PR01 IMS Version (VRM) . . . 154 +
Description . . . . . IMS Production System 1
RESLIB Data Set . . . . 'IMS.V154.SDFSRESL'
-----
Specify required view . . 4  1. DBRC Settings      4. Groups
                             2. Log Files          5. OMEGAMON ATF Files
                             3. Monitor Files
-----
Specify the Groups that this subsystem belongs to:

/ Group + Description
_ PRODPLEX Production Sysplex
***** Bottom of data *****
```

Figure 17. The **IMS Subsystem** panel with the **Groups** view selected in IMS Performance Analyzer.

For more information on maintaining group definitions, see [“Assigning subsystems to a group for shared queues reporting”](#) on page 83.

- 8. Press the Exit function key (F3) to save your system definition.
  - 9. To see additional columns, use the Left function key (F10) or the Right function key (F11) keys.
- The **Files** section indicates what type of report processing is available for each subsystem depending on what you specify in the system definition. A value of "Yes" under **Files** indicates that you have defined Log, or Monitor details for the system, or CEX Journal data sets, or IBM OMEGAMON for IMS Application Trace Facility (ATF) log stream extracts.

```

                                System Definitions                  Row 1 of 2 More: < >
Command ===> _____ Scroll ===> PAGE

Select to specify input files.
----- Files ----- Auto_File
/ System  Type   VRM  Log  Mon  CEX  ATF  DBRC  CEX
I PR01    IMS    154  Yes  Yes      No   Yes
_ PR02    IMS    154  Yes  Yes      No   Yes
***** Bottom of data *****
```

Figure 18. The **System Definitions** panel in IMS Performance Analyzer

**What to do next**

If you wish, you can define a second IMS subsystem called PR02. If system PR02 is similar to PR01, use line action R to repeat PR01, then select PR02 to update it.

**Assigning subsystems to a group for shared queues reporting**

In this section, we will assign subsystems to a group for shared queues (sysplex) reporting in IMS Performance Analyzer.

**Procedure**

- 1. From the IMS Performance Analyzer primary option menu, select option 1.2 **Groups**.  
The **Groups** panel is displayed.

```

                                Groups                                Row 1 to 1 of 1
Command ==> NEW                                Scroll ==> PAGE

Specify Groups of IMS and Connect systems.

/ Group          Description          ---- IMS ----  -- Connect --
_ PRODPLEX Production IMS Sysplex    # Auto Files  # Auto Files
                                0 No   No       0 No   No
***** Bottom of data *****

```

Figure 19. The **Groups** panel in IMS Performance Analyzer

In this example, production sysplex group PRODPLEX is already defined. When we defined our IMS system PR01, we assigned it to this group. IMS Performance Analyzer recognized PRODPLEX as a new group and automatically registered it for us. Group PRODPLEX has two IMS subsystems that belong to it.

The **Files** indicators have special significance for groups:

- DBRC value of Yes indicates that all IMS subsystems in the group are eligible for DBRC Log Selection.
- Log value of Yes indicates all IMS subsystems in the group have Log Files specified.

**Tip:** Use DBRC Log Selection for group reporting to ensure that the Log Files for all subsystems in the group contain data for the required reporting time interval.

2. To define a new group, type **NEW** and press Enter.
3. Enter a name for the group and a description for it.

In this example, we have named our group TESTPLEX.

```

                                Group of Systems                        Row 1 to 1 of 1
Command ==>                                Scroll ==> PAGE

Group . . . . . TESTPLEX
Description . . . IMS Test Sysplex

DBRC options:                                JES2 options:
IMSPLEX . . . . _____ (DBRC) Node . . _____ SYSAFF . . _____
DBRCGRP . . . . _____ (SLDS) Node . . _____ SYSAFF . . _____

/ System + Type    VRM Description          --- IMS -- - Connect-
Auto Files Auto Files
***** Bottom of data *****

```

Figure 20. The **Group of Systems** panel in IMS Performance Analyzer

4. To save and exit this panel, press the Exit function key (F3).  
The new group has been added, but has no IMS or IMS Connect systems defined to it.
5. To add IMS or IMS Connect systems to a group, enter line action S to edit the definition.
  - a) To insert a new line in the system list, enter line action I.
  - b) On the empty line, tab to the **System** field and press the Prompt function key (F4). A pick list displays, containing all IMS and IMS Connect systems you have defined in IMS Performance Analyzer. Select a system from this list and press the Exit function key (F3) to save your selection.
  - c) To replace a system in your group, you can enter line action S next to it. A pick list appears for you to make your selection.

```

Command ==> _____ Group of Systems All Systems selected
Scroll ==> PAGE

Group . . . . . TESTPLEX
Description . . . IMS Test Sysplex

DBRC options: JES2 options:
IMSPLEX . . . _____ (DBRC) Node . . _____ SYSAFF . . _____
DBRCGRP . . . _____ (SLDS) Node . . _____ SYSAFF . . _____

/ System + Type VRM Description --- IMS -- - Connect-
_ PR01 _____ IMS 151 IMS Production System 1 Auto Files Auto Files
_ PR02 _____ IMS 151 IMS Production System 2 Yes Yes
***** Bottom of data *****

```

Figure 21. The **Group of Systems** panel with systems added in IMS Performance Analyzer

- When you have finished, press the Exit function key (F3) until you return to the IMS Performance Analyzer primary option menu.

## IMS and IMS Connect reporting using report forms

This tutorial shows you how to work with report forms to generate reports and CSV extracts that highlight IMS and IMS Connect activity using the IMS log, and optionally the IMS Connect Extensions journal.

### Producing a report using a sample report form

IMS Performance Analyzer report forms allow you to personalize the format and content of Transaction Transit reports and CSV extracts to include only the information that interests you. In this tutorial, we will use a sample report forms supplied with IMS Performance Analyzer to produce a series of ad-hoc reports which can be viewed in the traditional text-based format or in a CSV format for use in third-party analytics.

#### Procedure

- From the IMS Performance Analyzer primary option menu, select option 2 **Report Forms**.
- To view a list of sample forms supplied with IMS Performance Analyzer, type **SAMPLES** and then press Enter.
- Select a **SUMMARY** sample form from the list provided.

To do this, enter line action S next to the name of the form and press the Exit function key (F3). Alternatively, you can select all the samples by typing **S \*** on the **Command** line.

**Tip:** To search for a specific form, use the **FIND** command to locate a form related to your area of enquiry. For example, type **FIND TRANRESU** to locate the IMS Transaction Resource Usage summary report sample. For more information on the sample forms supplied with IMS Performance Analyzer, see [“Sample report forms” on page 169](#). Note that if you select a sample form that contains fields sourced from IMS Connect, you will need to specify the data set name of your IMS Connect Extensions definitions repository. For more information, see [“Setting up your environment” on page 79](#)

The sample report form has been added to your Report Forms Data Set and can now be accessed on the **Report Forms** panel.

- To run the report, enter line action J next to the name of the form in the **Report Forms** panel.

**Tip:** To quickly locate a form in the list by name, type its name in space above the **Name** column.

```

Report Forms
Command ==> Row 89 from 101
Scroll ==> PAGE

Report Forms Data Set . . : USR.IMSPA45.FORM

Field Search . .

TRANRESU * * *
/ Name Type Cat Description Changed ID
J TRANRESU SUMM IMS Transaction Resource Usage 2020/03/01 00:00 IPI450
***** Bottom of data *****

```

Figure 22. Running a report from the **Report Forms** panel in IMS Performance Analyzer

5. Enter your runtime options in the submit panel and press Enter.

For more information on each field, place the cursor on the corresponding field and press the Help function key (F1).

**Remember:** You can also produce CSV formatted output by selecting the necessary options on this panel.

After your job completes successfully, you can view the results using SDSF or you can import your CSV extract into third-party tools as required

IMS Performance Analyzer Transaction Resource Usage							
SUMM0001 Printed at 14:59:20 28Nov2019				Data from 11.20.16 12Feb2018 to 10.09.54 16Feb2018			
IMS Tran	Tran	Avg	Avg	Avg	Avg	Avg	Avg
Start	Trancode	Count	InputQ	Process	OutputQ	Total	CPU
			Time	Time	Time	IMS Time	Time
11.15.00	IVTCV	4	0.001811	0.003238	0.000000	0.005049	0.001526
11.15.00	IVTNO	4	0.000500	0.002608	0.054972	0.058080	0.000864
11.15.00	IVTNV	4	0.001384	0.002030	0.000068	0.003482	0.000669
06.30.00	IVTCM	3	1216.59593	0.228980	-	1216.82491	0.012139
06.30.00	IVTFD	4	0.000085	0.000672	0.000715	0.001472	0.000187
:							

Figure 23. A text-based form-based summary report produced by IMS Performance Analyzer

6. To view a list of transactions that correspond to the same report interval (time period), repeat the same submission process using a **LIST** report form sample.

To do this, return to the **Report Forms** panel and type **SAMPLES**. You could, for example, use the TRANLIST sample form (type **FIND TRANLIST** and press Enter).

If you need to make a change to your report output, you can alter the report form:

7. On the **Report Forms** panel, enter line action S next to the name of the report form.

A list of fields that are displayed as column in your report are displayed. The resulting text-based report will include the fields that are listed down to the EOR field. A CSV extract will include the fields listed down to the EOX field.

8. Modify the fields in the report form as desired.

- To replace a field, simply select the field name and press the Prompt function key (F4).
- To insert a new column into your report, place the cursor on the field that corresponds to the location you desire and use line action I to create a new line. Place the cursor in the resulting blank field name and press the Prompt function key (F4).

**Tip:** To locate a field in the **Field Selection** panel, you can use the **Field Search** facility as well as the **FIND** command. For more information about a field, use line action H to open the help panel. For a complete list of fields that can be used in a Report Form, see [Chapter 34, "Glossary of Report Form field names,"](#) on page 673. For a more in-depth look at report forms, see [Chapter 15, "Report Forms,"](#) on page 165.

9. Optional: To further focus the report on a specific area of interest, add a report filter to your form.

To learn more about report filters, see [Chapter 16, "Report Filters,"](#) on page 183.

10. To run your report directly from the report form, type **RUN** and press enter.

11. To save changes to your report form, press the Exit function key (F3).

### Related reference

#### Sample report forms

A set of sample report forms is provided with IMS Performance Analyzer. The IMS Performance Analyzer reports and extracts produced using these sample report forms provide a detailed picture of the many aspects affecting IMS system performance.

## Creating a report set that uses list and summary report forms

A report set in IMS Performance Analyzer defines a set of reports, CSV extracts, and their associated configuration options. In this tutorial, we will create a report set that uses a report forms.

### Before you begin

Create report forms to include in your report set. For more information, see [“Producing a report using a sample report form”](#) on page 85.

### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**
2. To define a new Report Set, type **NEW** and then press Enter. Complete the following information:
  - a) Enter a name for the report set.
  - b) Specify a type.
    - If your report forms contain only IMS fields, select option **1 Log**.
    - If your report forms contain both IMS and IMS Connect fields, select option **3 IMS Connect**.
  - c) When you are finished making changes, press Enter to create the report set.

The **Report Set** panel is displayed.

To add a report form to the report set:

3. Enter line action S to open the **Transaction Transit Reports (Form-based)** category.
4. Select one of the following categories:
  - To add a LIST report form, enter line action S next to the **List** option.
  - To add a SUMMARY report form, enter line action S next to the **Summary** option.

Depending on your choice, either the **Transit List** panel or the **Transit Summary** panel is displayed.

5. To generate a text-based report, select option **1 Report**. To generate a CSV extract, select option **2 Extract**.

**Note:** You can switch between these views using the Left function key (F10) and the Right function key (F11).

6. Enter a time range in the **Report Interval** section.

For help with these fields, place the cursor on the field and press the Help function key (F1).

7. Enter details in the **Reports Required** section:

- a) Enter REPORT or EXTRACT in the type field.
- b) Select the **Form** field and press the Prompt function key (F4). Select a report form from the list and then press Enter.
- c) Optional: To further focus the report on a specific area of interest, add a report filter to your form.  
To learn more about report filters, see [Chapter 16, “Report Filters,”](#) on page 183.
- d) If you are generating a CSV extract, enter the output data set name in the **Extract Data Set Name** field.

IMSRSET - Transit List More: < >

Command ==> \_\_\_\_\_

Specify required view: Report Interval \_\_\_\_\_

1	1. Report	From	YYYY/MM/DD	HH:MM:SS:TH
	2. Extract	To	2019/12/24	08:59:00:00
	3. Transit options		2019/12/25	09:01:00:00

Reports Required:

Type	Form +	Filter +	Output Messages	Precision	Digit Grouping	Tran Mix	Report Width
1. REPORT	TRANLIST	_____	NO	6	SEC	1	133
2. EXTRACT	TRANLIST	_____	NO	6	SEC	1	
3. _____	_____	_____	NO	6	SEC	1	
4. _____	_____	_____	NO	6	SEC	1	
5. _____	_____	_____	NO	6	SEC	1	

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code	_____	_____	_____	_____	_____
Program	_____	_____	_____	_____	_____
LTERM	_____	_____	_____	_____	_____
VTAM Node	_____	_____	_____	_____	_____
Class	_____	_____	_____	_____	_____
User ID	_____	_____	_____	_____	_____

Figure 24. The Transit List panel in IMS Performance Analyzer

8. When you are finished making changes, press the Exit function key (F3) to save your changes.

The **Report Set** panel is displayed. To add another report type, simply select it using line action S.

**Note:** When you create a new Report Set, the status of all reports is initially set to **No**. Because the report options have been changed, they now have an Active status of **Yes**.

9. Press the Exit function key (F3) to return to the **Report Sets** selection panel.

To run the reports in the report set:

10. Enter line action RUN next to the name of the report set in the **Reports Sets** panel.

Report Sets Member IMSCONN saved

Command ==> \_\_\_\_\_ Scroll ==> PAGE

Report Sets Data Set . . . : USER.IMSPA.RSET

/	Name	Type	Description	Changed	ID
<u>RUN</u>	IMSRSET	LOG	IMS PA Report Set	2021/07/15 10:48	USER
___	SAMPLOG	LOG	Sample Log Report Set	2021/06/25 14:22	USER
___	SAMPMON	MON	Sample Monitor Report Set	2021/06/25 14:22	USER

\*\*\*\*\* Bottom of data \*\*\*\*\*

Figure 25. Selecting a report set to run in IMS Performance Analyzer

11. Enter your runtime options in the submit panel and press Enter.

For more information on each field, place the cursor on the corresponding field and press the Help function key (F1).

After your job completes successfully, you can view the results using SDSF for the text-based reports and import your CSV extract into third-party tools as required.

# Fixed-format reporting from IMS log data

This tutorial shows you how to request fixed-format reports to run against IMS log data for systems defined in IMS Performance Analyzer. You will run individual log reports, create and run sets of log reports, and view report output.

## Running individual reports in IMS Performance Analyzer

In this session, we will submit report requests to run in batch and view the report output.

### Procedure

1. Select option 3 **Report Sets** from the IMS Performance Analyzer primary option menu.  
The first time you enter, you will be prompted to create your Report Sets data set. This is where IMS PA will save your report requests. Press Enter to create the data set using default settings.  
You can change the Report Sets data set name using option 0.4 **IMS PA Control Data Sets** from the IMS Performance Analyzer primary option menu.

#### Report Sets

Report Sets reside as members in the Report Sets data set, as defined in option 0.4 **IMS PA Control Data Sets**. When the Report Sets data set is empty, IMS PA automatically inserts two sample Report Sets: SAMPLOG for Log reporting and SAMPMON for Monitor reporting. These Report Sets request some of the more common IMS PA reports and can be used as a model when creating new Report Sets. Later in this session, we will look at how Report Sets can be used.

You can run reports individually or you can run a series of reports as a Report Set. Let's run some individual log reports using the sample Report Set.

2. Enter line action S next to the SAMPLOG Report Set.

```

                                Report Sets                                Row 1 to 2 of 2
Command ==> _____ Scroll ==> PAGE

Report Sets Data Set . . . : USER.IMSPA.RSET

/   Name      Type      Description      Changed      ID
S   SAMPLOG   LOG       Sample Log Report Set      2023/08/13 16:45 USR
_   SAMPMON   MON       Sample Monitor Report Set    2023/12/19 09:59 USR
***** Bottom of data *****
```

Figure 26. Report Sets

The SAMPLOG Report Set is displayed, showing a list of all available reports in a tree structure format.

3. Use line action S next to a report category to expand or contract the selection. Expand the **Resource Usage & Availability Reports** category.

In the next few steps, we will run two log reports from this category.

```

EDIT                                     Log Report Set - SAMPLOG                               Line 1 of 33
Command ==> _____ Scroll ==> PAGE

Description . . . Sample Log Report Set

Enter "/" to select action.

___  ** Reports **                               Active
-   ___ Options                               Yes
    ___ Log Global                             Yes
-   ___ Transaction Transit Reports             Yes
    ___ Transit Options                         Yes
    ___ Analysis                               Yes
    ___ Statistics                             Yes
    ___ Log                                     No
    ___ Graphic Summary                         No
    ___ Extract by Interval                     Yes
    ___ Transaction Exception                   Yes
    ___ Transaction History File                 Yes
+   ___ Transaction Transit Reports (Form-based) No
-   ___ Resource Usage & Availability Reports    Yes
    ___ Dashboard                             Yes
    ___ Management Exception                   Yes
    ___ Transaction Resource Usage              No
    ___ Resource Availability                   Yes
    ___ CPU Usage                             Yes
    ___ Internal Resource Usage                 Yes
    ___ MSC Link Statistics                     No
    ___ Message Queue Utilization               No
    ___ Database Update Activity                 Yes
    ___ Region Histogram                       No
    ___ OSAM Sequential Buffering                 No
    ___ Deadlock                               Yes
    ___ System Checkpoint                       Yes
    ___ BMP Checkpoint                         No
    ___ Gap Analysis                           No
    ___ Cold Start Analysis                     No
+   ___ Fast Path Transit Reports                No
+   ___ Fast Path Resource Usage Reports          No
+   ___ ATF Summary Reports                     No
+   ___ Trace Reports                           No
    ___ User-Written Reports                     No
    ** End of Reports **

```

Figure 27. Report Set: SAMPLOG

4. Enter RUN in the line action field next to **Dashboard**.

Prior to the generation of Report Set JCL, the **Run Report Set** panel is displayed. This panel prompts you to check or change your runtime options before IMS PA generates the JCL to run your report.



```

Run Report Set SAMPLOG

Command ==> _____

Specify run options then press Enter to continue submit.

System Selection:          _____ Report Interval _____
System or Group . . . PR01 +   YYYY/MM/DD HH:MM:SS:TH
                                From -1      10:00:00:00
                                To  -1      11:00:00:00

File Selection Options:
1 1. Use specified log files
2 2. Use DBRC to select log files

Unresolved Data Set Options:
1 1. Issue error message
2 2. Edit unresolved JCL

Execution Mode:
3 1. Submit Report Set
2 2. Edit JCL before submit
3 3. Edit JCL with command input

Enter "/" to select option
_ Bypass run-time options prompt

IMS Tools Knowledge Base
_ Write to the ITKB repository
ITKB Server . . . . _____

```

Figure 28. Report Set: SAMPLOG

**Report Interval** specifies the time period that you wish to report against. Notice the use of relative dates. Specify 0 for today, -1 for yesterday, and so on.

**System Selection** specifies the IMS system or Group you wish to report against. You can type in the system name directly, for example PR01, or you can press **Prompt (F4)** to select a system from a prompt list.

Additional runtime options include:

- **Log Selection Options** to request that IMS PA use our specified Log file data sets in preference to DBRC Log Selection.
  - **Execution Mode** to request that IMS PA generate JCL with command input.
  - To redirect output to the IMS Tools Knowledge Base, select **Write to the ITKB repository** and specify the ITKB server name.
5. Press Enter to generate the Report Set JCL. If required, the JCL can be edited prior to submission.

```

//IMSPA JOB (ACCOUNT),'NAME'
//*
/* IMS PA Report Set SAMPLLOG - Sample Log Report Set
/*
//IPI      EXEC PGM=IPIMAIN,PARM='V154'
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
/* Input Data Set(s)
//LIMS1001 DD DSN=IMSPA.IMS154.SMQIMS1.LOG,
//          DISP=SHR
//LIMS2001 DD DSN=IMSPA.IMS154.SMQIMS2.LOG,
//          DISP=SHR
/* Expectation Sets
//IPIEXPQ DD DSN=USER.IMSPA.EXPQ,
//          DISP=SHR
/* Report run-time options
//IPIOPTS DD *
* Reporting Time Range
IMSPALOG START(-1,10:00:00:00),STOP(-1,11:00:00:00)
/* SYSOUT Data Set
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
/* Report Set Command Input
//IPICMD DD *
* IMS PA Log Report
* Report Set Name - SAMPLLOG
* Description - Sample Log Report Set
* Log Report Global Options
*   Log Input - LOGIN
*   Report Output - RPTOUT
*   Print Lines per Page - 60
*   When Reports are written - STOP
*   Source of IMS Processing ID - DDNAME
          IMSPALOG      INPUTDD(LOGIN),
                        OUTPUTDD(RPTOUT),
                        PAGESIZE(60),
                        PRINTAT(STOP),
                        SETIMSID(DDNAME)

* Dashboard Report
*   Report Output File - DASH
          IMSPALOG      DASHBOARD(
                        DDNAME(DASH))
          IMSPALOG      EXECUTE
/*

```

Figure 29. Dashboard report: JCL

6. Enter **SUB** on the command line to submit the JCL.

IMS PA automatically assigns each report a unique DDname. This allows you to view the reports separately in SDSF by using the ? action character in the **NP** column.

The Dashboard report provides a quick overview of critical system performance indicators. View your report and consider this question:

Do any critical system performance indicators suggest a potential performance problem?

For further information on interpreting report output, see "Dashboard Report" in the *IMS Performance Analyzer Report Reference*.

7. Press **Exit (F3)** to return to the Report Set list.
8. Enter line action S next to **Message Queue Utilization**.

The report options for the Message Queue Utilization report are displayed.

SAMPLOG - Message Queue Utilization

Command ==> \_\_\_\_\_

Specify report options.

Report Options:		Report Interval _____
Record Size Interval	<u>10</u> Bytes	YYYY/MM/DD HH:MM:SS:TH
		From _____
		To _____
<input type="checkbox"/> Only Enqueued Messages		Report Output DDname <u>MQURDD</u>
<input type="checkbox"/> Record length (not message)		

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
IMS Subsystem ID	_____	_____	_____	_____

Figure 30. Message Queue Utilization report

Here you can specify options to tailor the report according to criteria you specify. If you do not specify any options here, all report data is included.

**Report Options and Selection Criteria**

Report Options and Selection Criteria are available for most reports.

Use Report Options to specify report output DDnames, report intervals, selection criteria, and other options specific to the type of report.

Selection Criteria allows you to filter your report. For example, you may wish to restrict reporting to specific IMS subsystems.

9. To run the report:
    - a) Type **RUN** on the command line and press Enter.
    - b) When the Run Report Set dialog appears, check your runtime options and then press Enter.
    - c) Review your JCL, then type **SUB** on the command line and press Enter.
  10. Press **Exit (F3)** and return to the IMS Performance Analyzer primary option menu.
- [View report output]
- The Message Queue Utilization report contains information on the use of message queues. View your report and consider this question:
- Are the message queue lengths evenly distributed?
- To answer this question, seek out the 50% line in the report. For further information on interpreting report output, see "Message Queue Utilization Report" in the IMS Performance Analyzer *Report Reference*.

## Running a Management Exception report: expectations and averages

In this session we will define an Expectation Set and run a Management Exception report.

### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 4.2 **Expectation Sets**.
2. Type **NEW** on the command line and press Enter.
3. Specify the name for a new default expectation set. For example, Quarter1. Press Enter to create the Expectation Set.
4. Enter some values for the Expectation Set. Press **Help (F1)** on each field to see the values you can enter.

```

                                EDIT Expectation Set - QUARTER1
Command ==> _____ Row 1 to 1 of 1
                                Scroll ==> PAGE

Specify the threshold values.

Description . . . . IMS PA Expectation Set

/ TranCode  %    ---- Transit Time ----  DB   DC   DB   CPU   Proc
              % Total Input Proc  Outpt Calls Calls Waits Time Rate
              -  -----
-----
- *DEFAULT  -  121  5    50    2.1  2    20  0.2
              150  99   120  30.1  5    50  2
***** Bottom of data *****

```

Figure 31. Expectation Set

5. Type **SAVE** on the command line to save your values, then **Exit (F3)** and return to the IMS Performance Analyzer primary option menu.

Before we run the Management Exception report, let's consider the Averages data set. If you are upgrading from a previous version, you probably already have one defined. You can use this for the tour, or if you prefer, you can create a new averages data set and call it AVERAGES.

To create an Averages data set, use ISPF option 3.2 to allocate and catalog a sequential data set with VB format, a logical record length of 4092, and a physical sequential (PS) data set name type, such as BASIC.

Let's now run our Management Exception report.

6. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**, and then select the SAMPLOG Report Set.
7. Tab to the **Resource Usage & Availability Reports** category and enter line action S next to **Management Exception**.
8. Enter S next to all the options for **Reports Required**.

A / character appears beside each selected option.

```

                                SAMPLOG - Management Exception
Command ==> _____

Specify report options.

Reports Required:                ----- Report Interval -----
/ Transaction Exception/Average  YYYY/MM/DD HH:MM:SS:TH
Error Conditions Log:           From _____
/ Program Abend                 To _____
/ Backout Failure               Report Output DDname MGRXDD__
/ Security Violation
/ I/O Error
/ Snap Trace

Report Options                   Select to Modify:
Processing Type:                 _ Exception Report Options
2 1. Exception Report            S Averages Data Sets Specification
2 2. Print Averages Data Set
_ Exclude "OTHERS" from report

                                Validation Warning
Expectation Set QUARTER1 +

```

Figure 32. Management Exception report

9. Tab to **Expectation Set** and press **Prompt (F4)** and select an Expectation Set from the list.
10. Enter S next to **Averages Data Sets Specification** and press Enter.
11. Specify an **Input Data Set** and an **Output Data Set**. You can use the same data set for both.

```

SAMPLOG - Transaction Averages Data Sets
Command ==> _____

Specify the Averages Data Sets for this Report Set, optionally
indicating whether you want to Edit or View either data set.

Input Data Set:                               E/V
'IMSPA.AVERAGES.IN'                           -

Output Data Set:
'IMSPA.AVERAGES.OUT'                          -

```

*Figure 33. Transaction Averages Data Sets*

12. Press **Exit (F3)** to return to the Management Exception options.
13. Under **Report Options**, select option 2 **Print Averages Data Set**.
14. Run the report and submit your JCL.
15. Press **Exit (F3)** and return to the IMS Performance Analyzer primary option menu.

[View report output]

The Management Exception report shows which operands are outside the boundaries specified in Expectation Sets. View your report and consider these questions:

- Which performance indicators are outside specified boundaries?
- Did any transactions or programs abend in a deadlock?
- Which other reports would you use to investigate these problems?

For further information on interpreting the report output, see "Management Exception Report" in the IMS Performance Analyzer *Report Reference*.

## Obtaining extracts and querying with Db2

In this session we will obtain a log extract and use it as the basis for a Db2 query.

### Procedure

1. Select option 3 **Report Sets** from the IMS Performance Analyzer primary option menu.
2. Enter line action S next to the SAMPLOG Report Set.
3. Tab to the Transaction Transit Reports category, and enter line action S next to **Transit Options**.

Transit Options affect the data that is included in the Transaction Transit reports and extracts. Check the options and change them where appropriate. For example, you may want to change Processing Limits to 60 seconds, and Time Interval to 15 minutes. Also select your required report options.

```

                                SAMPLOG - Transaction Transit Options
Command ==> _____

Specify Transit options.

Processing Options:
  Peak Transaction Time Percentage   75      (50-100%)

Report Options:
  _ Include MSC Transactions
  _ Include BMP Transactions
  _ Include APPC/OTMA Transactions
  _ Include Message Switches
  _ Report All Transactions

Processing Limits:
  Input Queue Time (INMAX) . . . . . 60      Seconds
  Output Queue Time (OUTMAX) . . . . . 60      Seconds
  Transaction Set Size . . . . . 32767 (1-32767)

Interval Options:
  Time Interval . . . . . 15      Minutes
  Align Time Interval to Even Hour NO      (Yes or No)

Selection Criteria:
  Object Type      Inc/Exc  Object +  List      Validation Warning
  Transaction Code      _      _      _      -

Note: INMAX/OUTMAX is ignored if BMPs or Message Switches are included.

```

Figure 34. Transaction Transit Options

Let's do the extract.

4. Press **Exit (F3)** to return to the Report Set.
5. Enter line action S next to Transaction History File in the Transaction Transit Reports category.

```

                                SAMPLOG - Transaction History File
Command ==> _____

Specify extract options.

Interval Options:
  Time Interval  00:15:00 (hh:mm:ss)      ----- Report Interval -----
                                           YYYY/MM/DD HH:MM:SS:TH
                                           From _____
                                           To   _____

                                           Recap Report DDname  TRANHIST

Transaction History DSN:
  Data Set Name . . . 'IMSPA.EXTRACT.TRANHIST'

Selection Criteria:
  Object Type      Inc/Exc  Object +  List      Validation Warning
  Transaction Code      _      _      _      -

```

Figure 35. Transaction History File

To produce an extract, you must enter the name for the **Transaction History DSN**. For example, 'IMSPA.EXTRACT.TRANHIST'. We will later query this extract using Db2.

**Note:** If the data set has not already been cataloged, IMS PA will automatically catalog it for you.

6. Run the report, then press **Exit (F3)** until you have returned to the IMS Performance Analyzer primary option menu.

We will now query the extract in Db2 using QMF.

7. From the SIPISAMP library supplied with IMS PA, copy the following members to your working library:
  - IPITHDDL
  - IPITHLOD
  - IPITHQM2
8. Run the IPITHDDL and IPITHLOD jobs using the settings described in [“Understanding the Transaction History File”](#) on page 659.
9. From ISPF, invoke QMF.
10. Press F6 to commence an SQL query.
11. Copy and paste the SQL in IPITHQM2 into your QMF screen and press F2 to run the query.

[View report output]

The Transaction History File is used to collect historical performance data. View the results of your query and consider how you might use this to assist with long term capacity planning.

For further information on interpreting report output, see "Transaction History File" in the IMS Performance Analyzer *Report Reference*.

## Creating and running Report Sets

A Report Set contains a series of report requests. When you submit a Report Set for batch processing, IMS PA generates a one-step JCL deck to run the report requests.

### About this task

In the following procedures we create a Report Set that enables us to analyze transit patterns. We will include the following reports: Graphic Summary, Transit Analysis, Transit Statistics, and Region Histogram.

### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**.  
A list of Report Sets stored in the Report Sets Data Set is displayed.
2. Enter **NEW** on the command line to create a new Report Set.

```

New Report Set

Specify the name of the new Report Set and the type or model.

Name . . . PATTERNS

Type . . . 1  1. Log
              2. Monitor
              3. IMS Connect (includes combined)
              4. OMEGAMON ATF
              5. MODEL (specified below)

Model _____

Press Enter to create the Report Set.
Enter Exit or Cancel to cancel the request.
```

*Figure 36. New Report Set*

3. Create a Report Set named PATTERNS and request that it analyze Log data. Press Enter to create the new Report Set.  
The Report Set edit panel is displayed.

```

EDIT                                     Report Set - PATTERNS                               Line 1 of 52
Command ==> _____ Scroll ==> PAGE

Description . . . Pattern analysis reports

Enter "/" to select action.

___      ** Reports **                                Active
-   ___  Options                                       Yes
      ___  Log Global                                   Yes
-   ___  Transaction Transit Reports                 Yes
      ___  Transit Options                             Yes
      A   Analysis                                    Yes
      A   Statistics                                   Yes
      ___  Log                                         No
      A   Graphic Summary                             Yes
      ___  Extract by Interval                         No
      ___  Transaction Exception                       No
      ___  Transaction History File                    No
-   ___  Transaction Transit Reports (Form-based)     No
      ___  Transit Options                             No
      ___  List                                         No
      ___  Summary                                     No
      ___  Transaction Index                           No
-   ___  Resource Usage & Availability Reports        Yes
      ___  Dashboard                                   No
      ___  Management Exception                       No
      ___  Transaction Resource Usage                  No
      ___  Resource Availability                       No
      ___  CPU Usage                                   No
      ___  Internal Resource Usage                     No
      ___  MSC Link Statistics                         No
      ___  Message Queue Utilization                  No
      ___  Database Update Activity                    No
      A   Region Histogram                             Yes
      ___  OSAM Sequential Buffering                    No
:

```

Figure 37. Report Set

Notice the column heading **Active**. When you create a new report, they are all initially set to **No**. To include a report in a Report Set, you need to activate it.

4. Use line action A to activate the following reports: **Analysis**, **Statistics**, and **Graphic Summary** in the **Transaction Transit Reports** category; and **Region Histogram** in the **Resource Usage & Availability Reports** category.

**Note:** When you activate a report, any relevant options are also activated, such as **Log Global** and **Transit Options**. Log Global options apply to every report and the Transit Options apply to reports in the Transaction Transit category only.

5. Use line action S to review and edit the report options for the Transaction Transit Analysis report.

This report summarizes end-user response time by various criteria, such as by Transaction Code or User ID. You can change the initial default report settings to meet your requirements. For example, you may wish to restrict reporting to transaction codes whose name starts with TR.



```

PATTERNS - Transaction Transit Analysis
Command ==> _____

Specify report options.

Report Required:
/ Transaction code
- LTERM
- LTERM-TRANCODE
- Line or VTAM Node
- Class
- Time (Interval: 15 Minutes)

----- Report Interval -----
YYYY/MM/DD HH:MM:SS:TH
From _____
To _____

Transaction Source:
1 1.LTERM
2 User ID

Report Options:
- Report All Transactions

Selection Criteria:
Object Type    Inc/Exc  Object +  List    Validation Warning
Transaction Code  INC      TR*      -
LTERM           -
Line            -
VTAM Node       -
Class           -
User ID         -

```

Figure 38. Transaction Transit Analysis

6. After completing your review of the options, press **Exit (F3)** to return to the Report Set.
7. Use line action S to review and edit the report options for the Transaction Transit Statistics report.

This report is a graphical representation of the information in the Transaction Transit Analysis report. You can produce graphic representations of transit time statistics based on Transaction Code, Logical Terminal, User ID, Transaction Code within Logical Terminal or User ID, Line or VTAM Node, Message Class, and Time of Input.

```

PATTERNS - Transaction Transit Statistics
Command ==> _____

Specify report options.

Reports Required:
/ Transaction code
/ User ID
/ User ID-TRANCODE
/ Line or VTAM Node
/ Class
/ Time (Interval: 15 Minutes)

----- Report Interval -----
YYYY/MM/DD HH:MM:SS:TH
From _____
To _____

Transaction Source:
2 1. LTERM
2 User ID

Report Options:
- Report All Transactions

Graph Distribution _____ + Validation Warning

Selection Criteria:
Object Type    Inc/Exc  Object +  List    Validation Warning
Transaction Code  -
LTERM           -
Line            -
VTAM Node       -
Class           -
User ID         -

```

Figure 39. Transaction Transit Statistics

- After completing your review of the options, press **Exit (F3)** and return to the Report Set.
8. Save the Report Set using the **SAVE** command.

9. Run the Report Set using the **RUN** command. Only the active reports (in active report categories) will be included.
10. If required, the JCL can be edited prior to submission. Submit the JCL using the **SUB** command.
11. Press **Exit (F3)** and return to the Primary Option Menu.

[View report output]

The Transaction Transit reports are stored in the DDname you specified in the Transit Options. The default is RPTOUT. The Region Histogram is stored, by default, in HISTDD. View your reports and consider these questions:

- Are there any spikes in transit times?
- Why did these spikes occur?
- Is there a pattern between different times?
- What is the pattern of transaction scheduling in each region?

For further information on interpreting the report output, see "Transaction Transit Analysis Report", "Transaction Transit Statistics Report", "Transaction Transit Graphic Summary", and "Region Histogram Report" in the IMS Performance Analyzer *Report Reference*.

This is the end of the second session of the tour.

## Fixed-format reporting from IMS monitor data

---

This tutorial examines monitor reporting and shows you how to create distributions from which you can build customized graphical reports.

### Specifying a distribution and building a graph for communication reporting

This session describes how to create a distribution we can use to customize our graphical reports.

#### About this task

For a list of reports that can produce distribution graphs, see [“Distribution and Report cross-reference” on page 649](#). The table also lists applicable sample distributions supplied with IMS Performance Analyzer. We will use our Distribution to create a Communication report.

#### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 4.5 **Distributions**.

```

                                Distributions
Command ==> _____ Data set created
                                Scroll ==> PAGE

Distributions Data Set . . : USR.IMSPA.DIST

/   Name                Description                Changed                ID
_   $IPDIST1             CPU Report Processing Time    2023/12/18 16:41    USR
_   $IPDIST2             CPU Report Elapsed Time      2023/12/18 16:41    USR
_   COMMELP              Communication Line elapsed    2023/12/18 16:41    USR
_   COMMIWE              Communication Line IWAIT elapsed 2023/12/18 16:41    USR
_   COMMLFI              Line Func - Turnaround interval 2023/12/18 16:41    USR
_   COMMLFR              Line Received blksize per block 2023/12/18 16:41    USR
_   COMMLFT              Line Transmitted blksize per blk 2023/12/18 16:41    USR
_   DDIWELAP             Elapsed Time per IWAIT Analysis 2023/12/18 16:41    USR
_   ELAPCAL              Elapsed Time per Call          2023/12/18 16:41    USR
_   ELAPIWT              Elapsed Time per IWAIT         2023/12/18 16:41    USR
_   ELAPSCH              Elapsed Time per Schedule      2023/12/18 16:41    USR
_   FPBGELP              FP BALG Queue Time per Message 2023/12/18 16:41    USR
_   FPBGQLN              FP BALG Queue Length per Message 2023/12/18 16:41    USR
_   FPBSCNT              FP Buffer Statistics           2023/12/18 16:41    USR
_   FPOTACT              FP OTHREAD - Active counts     2023/12/18 16:41    USR
_   FPOTBOQ              FP OTHREAD - Buffers on Queue  2023/12/18 16:41    USR
_   FPOTWTA              FP OTHREAD - Waiting Area      2023/12/18 16:41    USR
_   FPRCLIW              FP Lock IWAIT Elapsed time     2023/12/18 16:41    USR
_   IWTSCAL              IWAITs per Call               2023/12/18 16:41    USR
_   IWTSUMMY             Elapsed Time per System IWAIT 2023/12/18 16:41    USR
_   LOGIN                Transit Time Statistics        2023/12/18 16:41    USR
_   MSCQELP              MSC Queue time per message     2023/12/18 16:41    USR
_   MSCQLEN              MSC Queue length per message   2023/12/18 16:41    USR
_   SYSCKPT              Checkpoint Duration            2023/12/18 16:41    USR
***** Bottom of data *****

```

Figure 40. IMS Performance Analyzer sample distributions

2. Type **NEW** on the command line to create a new Distribution.

Let's model this Distribution on one of the samples.

3. On the **New Distribution** panel enter a name for the new Distribution. Let's call it WAITANA and let's model it on the DDIWELAP sample Distribution.

```

                                New Distribution

Specify the name of the new Distribution and optional model.

Name . . . . WAITANA

Default or MODEL . . . . 2  1. Default
                           2. MODEL (specified below)

Model DDIWELAP

Press Enter to create the Distribution.
Press Exit or Cancel to cancel the request.

```

Figure 41. New Distribution

4. Press Enter to create the Distribution.

The **Edit Distribution** panel is displayed with all of the fields set to the values specified in the Distribution we used as a model.

Set the limit values from 1 through 10 and set the multiplier to 10. This will allow us to explore the distribution at the low end of the range.

```

                                EDIT Distribution - WAITANA
Command ==> _____

Specify distribution options.

Description . . . . Database IWAIT Analysis _____

Limit Values . . . . . (1) 1      (2) 2      (3) 3
                       (4) 4      (5) 5      (6) 7
                       (7) 8      (8) 9      (9) 10

Limit Values Title . . . . . Sc Mil Mic _____
Limit Value Multiplier . . . . 1000
Limit Value Edit Mask . . . . ZZZ.ZZ9.999

```

Figure 42. Edit Distribution

5. Type **SAVE** on the command line to save your Distribution, and press **Exit (F3)** to return to the IMS Performance Analyzer primary option menu.
6. Select option 3 **Report Sets** and enter line action S next to SAMPMON. This is the sample Monitor Report Set supplied with IMS PA.
7. Tab to the **Region Activity Analysis Reports** category and enter line action S next to the **Database IWAIT Analysis** report to select it.
8. Select the **Print Distributions** option, and specify WAITANA as the distribution for the Elapsed Time per IWAIT graph.

```

                                SAMPMON - Database IWAIT Analysis
Command ==> _____

Specify report options.

Report Options:
_ Print Distributions

Graph Distributions:
Elapsed Time per IWAIT   WAITANA + Validation Warning

```

Figure 43. Database IWAIT Analysis

9. Run the report and submit the JCL.
  10. Press **Exit (F3)** and return to the IMS Performance Analyzer primary option menu.
- [View report output]

The Database IWAIT Analysis report produces IWAIT distribution graphs and IWAIT activity analysis by DDname and DDname Group for each dependent region. Scroll to the bottom of the report to view your graphs and consider this:

Can you identify any inefficient seek patterns? Hint: look for widely dispersed times and long elapsed times accompanied by a large standard deviation.

For further information on interpreting the report output, see "Database IWAIT Analysis report" in the IMS Performance Analyzer *Report Reference*.

## Investigating contention issues

In this section we will construct a new Monitor Report Set that is designed to investigate contention issues.

### Procedure

1. Select option 3 **Report Sets** from the IMS Performance Analyzer primary option menu.  
The **Report Sets** panel is displayed.
2. Type **NEW** on the command line and press Enter.

The **New Report Set** panel is displayed.

3. Enter the name for your new Report Set. Let's call it CONTENTM.
4. Select **Type 2** to create a Monitor Report Set and press Enter.
5. Enter a suitable description for the Report Set, such as "Contention Monitor reports".
6. Tab to the **Options** category and enter line action S next to **Monitor Global**.

This is where you can establish some general options for the reports in this Report Set. Select **Include Distributions in Reports** because we want all of our reports to include the distributions we have specified. Note the report output DDnames; you will need to refer to these later to read your reports. When you have finished, press **Exit (F3)** to return to the Report Set.

7. Select the **Alternate Sequencing** option.

Here we can specify a different ordering for some of our reports. For the **Required Sequence**, specify option 4 **Delay**. This orders the columns by time spent by the resource waiting for IWAIT events to complete. For example, the databases which had to wait the longest for I/O to complete. Press **Exit (F3)** to return to the Report Set.

Let's now activate our reports.

8. Enter line action A next to the following reports: Region Summary, Performance Exceptions, Enqueue/Dequeue Trace, and DEDB Resource Contention.

**Note:** The Alternate Sequencing option specified in step "7" on page 103 applies only to the Region Summary report and the DEDB Resource Contention report.

9. Next, you may wish to specify some report options. Enter line action S next to the activated reports to select any specific options you wish to set. Note that the Region Summary report does not contain any options.
  10. When you have finished specifying your report options, return to the Report Set and type **SAVE** on the command line to save your settings.
  11. Type **RUN** on the command line to run your reports. The Run Report Set options panel displays.
  12. Enter the name of your IMS system that contains monitor files. You can use **Prompt (F4)** to select from a pick list.
  13. For **Execution Mode**, you can select option 1 to simply submit your job without viewing the JCL, or if you wish you can edit the JCL before you submit the job.
  14. When you have submitted your Report Set, press **Exit (F3)** and return to the Primary Option Menu.
- [View report output]

Our Report Set generates four reports:

- SUMMRPT contains the Region Summary and Region Detail reports and the Region Distributions.
- EXCPTRPT contains the Exception Listing.
- ENQDD contains the Enqueue-Dequeue Summary.
- FPRSCONT contains the Fast Path DEDB Resource Contention Summary and the Fast Path DEDB Lock Analysis.

View the reports and consider these questions: Is there any I/O data set contention? Which storage pools failed, how many times did they fail, and how much storage did they need? Were there any enqueue conflicts? Which area had the longest average DEDB lock wait time?

For further information on interpreting the report output, see "Region Summary Report", "Performance Exception Report", "Enqueue/Dequeue Trace Report", and "Fast Path DEDB Resource Contention Report" in the IMS Performance Analyzer *Report Reference*.

This is the end of the third session of the tour.

## Fixed-format reporting from IMS Connect data

This tutorial shows you how to define an Object List and create fixed-format IMS Connect reports. To complete this tutorial, you must have specified your IMS Connect Extensions definitions data set in “Setting up your environment” on page 79.

### Defining an Object List for transit reporting

An Object List is a reusable set or range of values that you can use as selection criteria for transit reporting.

#### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 4.4 **Object Lists**.
2. Type **NEW** on the command line to create a new Object List.

The **New Object List** panel is displayed.

```

                                New Object List

Specify the name of the new Object List and the type or model.

Name . . . . TCP3000

List Type or MODEL
25  1. Application Group    11. Line                21. User ID
    2. Block ID            12. Line/Terminal      22. User-Defined
    3. Class               13. LTERM              23. VTAM Node
    4. Database            14. Message ID
    5. DDname              15. Program Name       24. Connect Client ID
    6. DDname Group        16. Record Code        25. TCP/IP Port
    7. DEDB Area           17. Region ID by PST   26. Tpipe
    8. External SSID       18. Region Jobname     27. Socket
    9. IMS Subsystem ID    19. Routing Code
   10. Key                 20. Transaction Code   28. MODEL (see below)

Model . . . . _____

Press Enter to create the Object List, Exit or Cancel to leave.
```

Figure 44. New Object List

Let's define an Object List to specify only port numbers ranging from 3000 to 3999.

3. In the **New Object List** panel, type the name for your Object List. For example, TCP3000.
4. Specify Type 25 (TCP/IP Port), and then press Enter.

The **Edit Object List** panel is displayed.

```

                                EDIT PORT Object List - TCP3000
                                Row 1 to 1 of 1
Command ==> SAVE                                Scroll ==> PAGE

Specify the TCP/IP Port values.

Description . . . . TCP/IP Ports 3000-3999

Enter "/" to select action.

- Range (or sublist) -
Sublist From:      To:      Validation Warning
-      - 3000      3999
***** Bottom of data *****
```

Figure 45. Edit Object List

5. Enter a description for this object. For example, "TCP/IP Ports 3000–3999".

6. Enter 3000 in the **Range From** field and enter 3999 in the **Range To** field.
7. Type **SAVE** on the command line to save the list. Press **Exit (F3)** and return to the IMS Performance Analyzer primary option menu.
8. Select option 3 **Report Sets**.
9. On the command line, enter **NEW SAMPCEX**.
10. Select **IMS Connect** in the **Type** field.
11. Press Enter to create the report set.
12. In the **Transaction Transit Reports** category, enter line action S next to the **Log** report.  
The **Transit Log** report is displayed.
13. In the Selection Criteria for **Transaction Code**, exclude the object PART.  
This excludes all transaction codes named "PART".

SAMPCEX - Transit Log

Command ==> \_\_\_\_\_

Specify report options.

Report Options: Report Output DDname LOG  
/ Additional identification

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	<u>EXC</u>	<u>PART</u>	<u>-</u>	
User ID	<u>---</u>	<u>---</u>	<u>-</u>	
Datastore (IMS ID)	<u>---</u>	<u>---</u>	<u>-</u>	
Client ID	<u>---</u>	<u>---</u>	<u>-</u>	
TCP/IP Port Number	<u>INC</u>	<u>TCP3000</u>	<u>/</u>	
Socket Number	<u>---</u>	<u>---</u>	<u>-</u>	

*Figure 46. Communication report*

14. In the TCP/IP Port Number Selection Criteria, include the Object List TCP3000. You can do this by positioning the cursor on the **Object** field and pressing **Prompt (F4)**. Select the Object List from the pick list and press Enter. Using the Prompt key automatically fills in the rest of the columns.
15. Type **RUN** on the command line, specify your Connect system, and enter an appropriate report interval. Press Enter and submit your JCL.
16. Press **Exit (F3)** and return to the IMS Performance Analyzer primary option menu.

[View report output]

The IMS Connect Transit Log provides performance details about every transaction processed by IMS Connect. View the report and consider this question:

What are the performance details of transactions processed through port 3000?

For further information on interpreting the report output, see "Connect Transit Log Report" in the IMS Performance Analyzer *Report Reference*.

## Investigating IMS Connect resource usage

This session shows you how to create a Report Set that is designed to investigate IMS Connect resource usage.

### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**.
2. Type **NEW** on the command line. Create a new Report Set named CONRESRC of type IMS Connect and press Enter.
3. Enter an appropriate description for the Report Set, such as "Connect resource tracking".
4. Use line action A to activate the following reports: Port Usage, ACK/NAK, and Transit Event Trace.

5. If you wish, specify some report options by entering line action S next to the active reports.
6. Type **SAVE** on the command line to save the Report Set.

You can run the Report Set in the typical manner from the Report Sets list, but let's try a different method this time.

7. Press **Exit (F3)** twice, and return to the IMS Performance Analyzer primary option menu.
8. Select option 4.7 **IMS Connect**.

The **IMS Connect System Definition** panel is displayed, listing all your systems in the IMS Connect Extensions data set you specified in session 1 using option 0.5 **IMS Connect Extensions Definitions Data Set**.

9. Type line action **RUN** next to any system in your list.

The **Run Connect Report Set** panel is displayed.

10. Position your cursor on the **Report Set** field and press **Prompt (F4)**. A pick list of your Connect Report Sets appears. Select CONRESRC from the list and press Enter.
11. Submit your JCL and press **Exit (F3)** to return to the IMS Performance Analyzer primary option menu.  
[View report output]

The IMS Connect Port Usage Report provides a summary of the TCP/IP ports used by the IMS Connect system. The IMS Connect ACK/NAK Report provides a summary of acknowledgment activity for transactions that use Sync Level=CONFIRM. The IMS Connect Trace provides a list of detailed information about every event in the life of a transaction.

View the reports and consider these questions:

- What TCP/IP ports were used by the IMS Connect system?
- What acknowledgment activity occurred for each transaction?
- What other events occurred during the life of a particular transaction?

For further information on interpreting the report output, see "Port Usage Report", "Connect ACK/NAK Report", and "Connect Trace Report" in the IMS Performance Analyzer *Report Reference*.

This is the end of the fourth session of the tour.



## Part 3. Specifying input data for reporting

To identify the input data for reporting, you must first define your IMS and IMS Connect systems in IMS Performance Analyzer.

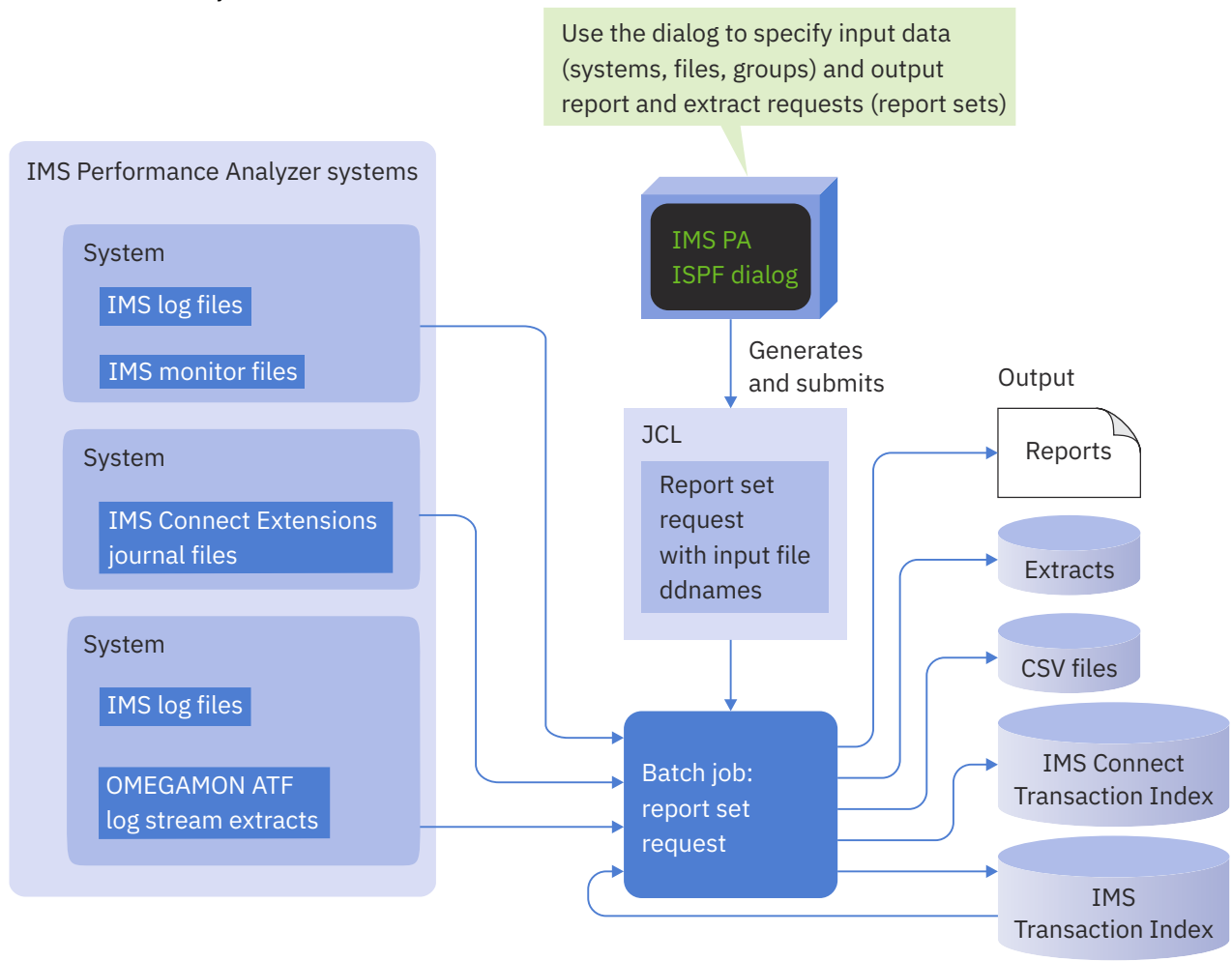


Figure 47. Reporting on system performance using IMS Performance Analyzer

Specifying IMS Log files or IMS Connect files explicitly is optional as IMS PA can use Automated File Selection to locate them. See [Chapter 13, "Automated File Selection,"](#) on page 137. For shared queues log reporting, you must use Groups to define the IMS subsystems in a sysplex.

At run time, specify the system or Group that the Report Set is to process. IMS PA automatically generates the JCL that contains the required files (or DBRC settings).

For log reporting, the IMS version is also included in the JCL as the log data and reports are release-dependent.



# Chapter 9. Defining IMS and IMS Connect systems in IMS Performance Analyzer

To report on IMS and IMS Connect systems using IMS Performance Analyzer, you must first define them using the IMS Performance Analyzer **System Definitions** panel.

## About this task

IMS subsystems participating in a sysplex must be defined in a Group. A Group is simply a list of IMS subsystems and Connect systems that you wish to group together for reporting purposes. At Report Set run time, you can request reporting for an individual system or a Group. If your previous Log Input specified more than one IMS system that was not excluded, then IMS Performance Analyzer will define them to a Group called SYSPLEX1. You can assign IMS subsystems to a Group from System Definitions. To maintain your Group definitions, use option 1.2 **Groups** from the IMS Performance Analyzer primary option menu.

## Procedure

Select option 1.1 **System Definitions** from the IMS Performance Analyzer primary option menu.

The **Systems Definitions** panel is displayed. This panel lists the systems that are available for Log, Monitor, and IMS Connect reporting.

```

                                     System Definitions                               Row 1 of 3 More: < >
Command ===> _____ Scroll ===> PAGE

Specify IMS and Connect systems.

/ System  Type   VRM      Description
-  I151    IMS     151     IMS V15 subsystem
-  I154    IMS     154     IMS V15 subsystem
-  IMSPAHWS Connect  IMS PA Test HWS
***** Bottom of data *****
```

Figure 48. The **System Definitions** panel in IMS Performance Analyzer

Scroll **Left (F10)** and **Right (F11)** to view all columns. Each listed system has the following attributes.

### System

The unique identifier of an IMS subsystem or IMS Connect system:

- IMS subsystem ID is a 1-4 alphanumeric character name. IMS subsystem definitions are shared by IMS Performance Analyzer and IMS PI (IMS Problem Investigator) and can be created or changed by both.
- IMS Connect system name is a 1-8 alphanumeric character name. Connect system definitions are maintained by IBM IMS Connect Extensions for z/OS in the Definitions Data Set (see option 0.5 **IMS Connect Extensions Definitions Data Set**). New or changed system details are maintained in IMS Performance Analyzer System Definitions and Groups only, they do not affect the Definitions Data Set.

The order in which the systems are specified on the panel is not relevant to IMS Performance Analyzer. You may list them in the order that is convenient for you.

### Type

**Type** refers to whether the system is an IMS subsystem (IMS) or an IMS Connect system (Connect).

### VRM

**VRM** is the version, release, and modification number of the IMS subsystem.

**Note:** **VRM** is not applicable to IMS Connect systems.

## Description

**Description** contains up to 36 characters of text to describe the system. IMS Performance Analyzer insert this text as a comment into your Report Set JCL.

## Files

IMS Performance Analyzer sets the **Files** indicator to Yes or No as follows:

### Log

Yes indicates that the IMS Subsystem has Log files explicitly specified.

### Mon

Yes indicates that the IMS Subsystem has Monitor files explicitly specified.

### CEX

Yes indicates that the IMS Connect system has Journal data sets (archive or active) explicitly specified.

### ATF

Yes indicates that the IMS subsystem has one or more extracts from OMEGAMON for IMS Application Trace Facility (ATF) log streams specified.

## Auto\_File Selection

Reports the status of automatic log file selection.

### DBRC

Yes indicates that RECON or MDA data sets have been specified for the IMS Subsystem making it eligible for Log Selection using DBRC. If no data sets have been specified, No is displayed.

### CEX

Yes indicates that the IMS Connect system is defined in the IMS Connect Extensions definitions repository and is eligible for Journal File Selection.

## Line actions:

The valid line actions for the list of systems are:

**/**

Display the menu of line actions

**S**

Select to modify or review the system details

**I**

Insert a blank row to define a new system of the same type

**R**

Repeat this row

**C**

Copy this row

**M**

Move this row

**A**

Move/Copy after this row

**B**

Move/Copy before this row

**D**

Delete this row

## Note:

- a. If an IMS Connect system is deleted and it is from the IMS Connect Extensions Definitions Data Set (select option 0.5 **IMS Connect Extensions Definitions Data Set**), then the system is removed from IMS Performance Analyzer System Definitions and Groups, but it is still available to IMS Performance Analyzer to be reassigned to a group for combined reporting (option 3 **Report Sets**) or for IMS Connect reporting (option 4.7 **IMS Connect**).
- b. If an IMS subsystem is deleted, it is completely removed from IMS Performance Analyzer.

- c. A row command on this panel applies to the system and all its related information. For example, copying a system will copy the system details and related files and groups.

### Primary commands

The following primary commands are available:

#### **NEW *name type***

This command defines a new system. You can also select this from **File** in the action bar.

- To define a new IMS subsystem, enter **NEW *name* IMS** or **NEW *name*** or **NEW**.
- To define a new IMS Connect system, enter **NEW *name* CONNECT** or **NEWC *name***.

#### **RESET**

This command (or **RES**) removes all pending line actions and deletes any blank rows. Reset is also available from **Edit** in the action bar.

#### **SORT *System|Type|Vrm|Description***

This command sorts the list of systems on the specified column. The default is **System**. The order is retained on exit.

You can also sort by selecting a point-and-shoot column heading.

#### **SAVE**

Save all changes to system definitions.

**Note:** The **Save** command is available from the **System Definitions** panel, being the top in the hierarchy of panels. **Exit (F3)** from a subordinate panel only temporarily retains changes. No changes are permanently saved until **Save** or **Exit** is entered into the top panel. **Cancel (F12)** discards all unsaved changes on this and subordinate panels.

## IMS Subsystem

---

To define a new IMS Subsystem, type **NEW** on the command line of the **System Definition** panel.

The **IMS Subsystem** panel is used to specify the attributes of an IMS subsystem, its DBRC settings, log and monitor files, and groups that it belongs to. IMS Performance Analyzer uses this information to generate the JCL to run your Report Sets.

The panel has multiple views (affecting the bottom half of the display only):

1. **DBRC Settings**
2. **Log Files**
3. **Monitor Files**
4. **Groups**
5. **OMEGAMON ATF Files**

You can switch between the views by entering the number of your choice, scrolling **Right (F11)**, or scrolling **Left (F10)**. DBRC Settings is the initial view. For each IMS subsystem, IMS Performance Analyzer remembers its last view and returns there next time.

```

Command ==> IMS Subsystem                                     More: < >

IMS Subsystem definition:
IMS Subsystem ID . . . I154   IMS Version (VRM) . . . 154 +
Description . . . . . IMS version 15 subsystem
RESLIB Data Set . . . 'IMS.V154.SDFSRESL'
-----
Specify required view . . 1 1. DBRC Settings      4. Groups
                          2 2. Log Files          5. OMEGAMON ATF Files
                          3 3. Monitor Files
-----
Specify DBRC Settings for automated log file selection:

DBRC Subsystem ID . . . _____ (Specify RSENAME for XRF)
DBRC IMSplex name . . . _____ (RECON Loss Notification)
DBRC Sharing Group ID . . _____ (Parallel RECON Access)
RECON Data Set 1 . . . 'I154.V15.RECON1'
                  2 . . . 'I154.V15.RECON2'
                  3 . . . 'I154.V15.RECON3'
MDA Data Set . . . . . 'I154.V15.USERLIB'

Enter "/" to select option      JES2 options:
- Log Data Sets are Cataloged   (DBRC) Node . . _____ SYSAFF . . ____
- Use OLDS that are not Archived (SLDS) Node . . _____ SYSAFF . . ____
- Use Secondary Log Data Sets
- Use Recovery Log Data Sets

```

Figure 49. System Definitions in IMS Performance Analyzer: IMS Subsystem (with DBRC Settings)

The IMS subsystem details are:

#### IMS Subsystem ID

Specify the IMS subsystem identifier. An IMS ID is a 1–4 alphanumeric character name and must be unique.

#### IMS Version (VRM)

VRM is the release of the IMS subsystem. IMS Performance Analyzer uses the VRM to perform release-dependent batch report processing when required as IMS log record formats can change from version to version.

#### Description

Description is free-format text up to 36 characters to describe the IMS subsystem. This is only for your reference. IMS Performance Analyzer does not use it to identify the system.

#### RESLIB Data Set

RESLIB data set name. For DBRC Log Selection, the RESLIB data set must contain the DBRC API routine DSPAPI00. You do not need to specify the RESLIB data set name if the modules reside in the system link list (LNKLST).

The RESLIB data set can also be used to determine the IMS version if it contains module DFSVRM00 or DFSVC000. IMS Performance Analyzer will use this IMS version instead of the VRM specified explicitly.

## DBRC Settings for an IMS Subsystem

To specify the DBRC Settings that allow you to use DBRC Log Selection for Log reporting, use view 1 **DBRC Settings** of the **IMS Subsystem** panel.

DBRC Log Selection is a facility that you can use when submitting your report requests. It automatically selects the required Log files from DBRC for the required reporting time period, saving you the effort of manually entering the Log file data set names.

Figure 49 on page 112 shows an example of the panel used to specify DBRC settings for an IMS subsystem.

The DBRC Settings details are:

### DBRC Subsystem ID

The DBRC Subsystem ID defines the DBRC Subsystem (SSID) that owns the SLDS entries. Specify DBRC Subsystem ID when the DBRC Subsystem ID is longer than 4 characters, or different to the IMS Subsystem ID.

- For IMS and DBCTL subsystems, the DBRC Subsystem ID is the IMSID value from IMSCTRL SYSGEN macro (four characters). In this case, DBRC Subsystem ID need not be specified. DBRC Log Selection uses the IMS Subsystem ID as the DBRC Subsystem ID.
- For Batch and Utility subsystems, specify the job name.
- For XRF, specify the RSENAME (Recovery Service Element) of the IMS systems (active and alternate).

### DBRC IMSplex name

Specify the name of the IMSplex.

DBRC Log Selection JCL is generated with the IMSPLEX parameter:

```
// EXEC PGM=IPIDBRC,PARM='IMSPLEX=name'
```

The Group IMSplex specification is used for reporting on a group of systems.

The System IMSplex specification is used for reporting on a system, and is ignored when reporting on a group.

### DBRC Sharing Group ID

Specify the DBRC group ID defined in the RECON data set used by the DBRC group.

DBRC Log Selection JCL is generated with the DBRCGRP parameter:

```
//IPIDBRC EXEC PGM=IPIDBRC,PARM='IMSPLEX=name,DBRCGRP=grp'
```

Specify IMSPLEX and DBRCGRP as you would when using the Database Recovery Control utility (DSPURX00):

```
EXEC PGM=DSPURX00,PARM='IMSPLEX=plexname,DBRCGRP=xxx,READONLY'
```

The Group DBRCGRP specification is used for reporting on a group of systems.

The System DBRCGRP specification is used when reporting on a system, and is ignored when reporting on a group.

### RECON Data Set

Specify the names of the two or three RECON data sets used by this IMS subsystem. If specified, and DBRC log selection is requested, IMS PA will use DBRC to determine from the RECON data sets the log files for input to the report processors.

The RECON data sets may be omitted if the MDA data set is specified. However, if both are specified, IMS PA will use the RECON specification after validating it against the information in the MDA.

Specification of the RECON or MDA data sets is only required for DBRC Log Selection which is an optional feature of IMS PA.

### MDA Data Set

Specify the name of the MDA (MVS Dynamic Allocation) data set for this IMS subsystem.

If the RECON data set names are not specified, and DBRC log selection is requested, IMS PA will use the MDA data set to determine the RECON data set names, and in turn use DBRC to select the log files for input to the report processors.

If RECON data sets are specified, they will be validated against the MDA information.

Specification of the RECON or MDA data sets is only required for DBRC log selection which is an optional feature of IMS PA.

**Log Data Sets are Cataloged**

Enter / if the SLDS data sets are cataloged. IMS PA then omits UNIT, VOLSER, and LABEL parameters from the Report Set JCL. This prevents JCL failures when the log files are SMS-managed cataloged data sets.

Default: Not selected; Log data sets are not cataloged. IMS PA will include UNIT, VOLSER, and LABEL parameters in the Report Set JCL.

**Use OLDS that are not Archived**

Enter / to allow IMS PA to select OLDS log files that cover the requested reporting period when SLDS log files are not yet available. OLDS data sets will only be considered for selection if they are eligible for archive, but are yet to be archived.

Default: Not selected; OLDS data sets will not be used.

**Use Secondary Log Data Sets**

Enter / to use secondary SLDS data sets if they are available, instead of primary SLDS data sets.

Default: Not selected; primary SLDS data sets will be used.

**JES2 options**

Specify JES2 Control Statement options to run DBRC Log Selection jobs on the system where the RECONs and SLDS Log files are available.

Default: Not selected.

**DBRC Node and SYSAFF**

Specify JES2 Control Statement options to run DBRC Log Selection jobs on the system where the RECONs Log files are available.

Node is the network node where the job must execute, generating: /\*XEQ *Node* and /\*ROUTE PRINT *Node*.

SYSAFF is the system name to process the job, generating: /\*JOBPARM SYSAFF=*name*.

**SLDS Node and SYSAFF**

Specify JES2 Control Statement options to run report jobs on the system where the SLDS Log files are available.

*Node* is the network node where the job must execute, generating: /\*XEQ *Node* and /\*ROUTE PRINT *Node*.

SYSAFF is the system name to process the job, generating: /\*JOBPARM SYSAFF=*name*.

**Note:** The JES2 Control Statements will only be generated if they are specified in your IMS PA Settings (option 0.1 **IMS PA Settings**).

For more information on preparing for DBRC log selection, see [Chapter 13, “Automated File Selection,”](#) on page 137.

## Log Files for an IMS Subsystem

To specify the IMS log data sets associated with an IMS subsystem, use View 2 of the **IMS Subsystem** panel. This data is used by the IMS PA dialog in the generation of JCL to run log Report Sets.

However, if DBRC Log Selection is requested, the files specified on this panel are ignored as IMS PA will use DBRC to locate them based on a specified time period. See [“Running reports using DBRC Log Selection”](#) on page 141.



```

Command ==> _____ IMS Subsystem Row 1 of 3 More: < >
                                   Scroll ==> PAGE

IMS Subsystem definition:
IMS Subsystem ID . . . I151  IMS Version (VRM) . . . 151  +
Description . . . . . IMS V15 subsystem
RESLIB Data Set . . . . 'IMS.V151.RESLIB'
-----
Specify required view . . 2  1. DBRC Settings      4. Groups
                             2. Log Files          5. OMEGAMON ATF Files
                             3. Monitor Files
-----
Specify the Log Files (in time sequence) for this subsystem:

/  Exc      Data Set Name (DSN)                UNIT +  SEQ VOLSER +
-  *        'I151.V151.SLDS.LOG01'              SYSDA    000001 +
V  *        'I151.V151.SLDS.LOG02'              SYSDA    000002 +
-  *        'I151.V151.SLDS.LOG03'              SYSDA    000002
***** End of list *****

```

Figure 50. System Definitions: IMS Subsystem (with Log Files)

Each listed data set has the following attributes:

#### Exc

The data set is marked by a \* if it is to be excluded from Log reporting. Excluded data sets are not eligible for Report Set JCL generation.

Enter the line action X to change (reverse) the exclude status of the data set.

#### Data Set Name (DSN)

Specify the name of the data set in TSO format. Data sets that are not excluded are concatenated in the Report Set JCL in the order in which they are specified on the panel.

For a report to span more than one data set, the data sets must be specified in time sequence with no large time gaps between them; otherwise for single subsystem reporting, IMS PA would build multiple reports, and for multi-subsystem shared queue reporting, the results would be unpredictable.

If the data set is not cataloged or you wish to establish overriding data set characteristics, then specify:

#### UNIT

The device type or group name associated with the data set, such as 3390, SYSALLDA, or CART. This must represent a device that is defined in the Eligible Device Table of the current processor as either TAPE or DASD. To select one from a list of possible Units, position the cursor on the **UNIT** field and press **Prompt (F4)**.

**UNIT** may be specified without a **VOLSER**, in which case the explicitly specified device type will be honored in the process of generating JCL but the UNIT parameter will not be included in the generated JCL. In this way the JCL generation process can be made aware of the device type of a data set that is yet to be cataloged, or is cataloged on another system. The device type is needed to generate the JCL for unit affinity. It also is needed to generate the JCL for shared queue merge processing when not enough tape devices are available to concurrently open the log files from all subsystems.

#### SEQ

Data set sequence number; identifies the relative position of the data set on a tape volume. Omit, or code 0 or 1 to indicate the first data set on the tape volume.

#### VOLSER

The volume serial number of the data set. It is only required for uncataloged data sets.

A + sign indicates that the data set spans multiple volumes.

To display up to 16 volumes of the VOLSER list, do one of the following:

- Place the cursor on the + sign and press Enter.

- Place the cursor on the **VOLSER** field and press **Prompt (F4)**.
- Enter the line action V.

#### **Line actions:**

The following line actions are valid for a data set in the list:

- /**  
Display the menu of line actions
- I**  
Insert a null row after this row
- R**  
Repeat this row
- C**  
Copy this row
- M**  
Move this row
- A**  
Move/Copy after this row
- B**  
Move/Copy before this row
- D**  
Delete this row
- U**  
Select a Unit from a list
- V**  
Display the VOLSER list for this data set
- X**  
Reverse this row's exclude status (Excluded/Included)

#### **Primary commands:**

The following primary command is available:

##### **RESET**

This command (or **RES**) removes all pending line actions and deletes any blank rows. You can also select Reset from **Edit** in the action bar.

**Note:** The **SAVE** command is not available from this panel. Changes are saved only on **Save** or **Exit (F3)** from the **System Definitions** panel.

## Monitor Files for an IMS Subsystem

To associate monitor data sets with an IMS subsystem, use view **3 Monitor Files** of the **IMS Subsystem** panel. This data is used by the IMS Performance Analyzer ISPF dialog in the generation of JCL to run monitor Report Sets.

```

                                     IMS Subsystem                Row 1 of 3 More: < >
Command ==> _____ Scroll ==> PAGE

IMS Subsystem definition:
IMS Subsystem ID . . . I151  IMS Version (VRM) . . . 151  +
Description . . . . . IMS V15 subsystem _____
RESLIB Data Set . . . . 'IMS.V151.RESLIB' _____
-----
Specify required view . . 3  1. DBRC Settings      4. Groups
                             2. Log Files          5. OMEGAMON ATF Files
                             3. Monitor Files
-----
Specify the Monitor Files (in time sequence) for this subsystem:

/  Exc          Data Set Name (DSN)                UNIT +  SEQ VOLSER +
*  'I150.V151.SLDS.MON01' _____
X  *  'I151.V151.SLDS.MON02' _____ SYSDA _____ 000001 +
-  *  'I151.V151.SLDS.MON03' _____ SYSDA _____ 000002
***** End of list *****
```

Figure 51. IMS Performance Analyzer System Definitions: IMS Subsystem with Monitor files

This panel is similar to the **Log Files** panel (see [Figure 50 on page 115](#)) with the same fields, line actions, and action bar choices.

## Groups for an IMS Subsystem

To specify the groups that an IMS subsystem belongs to, use View 4 of the **IMS Subsystem** panel. A group contains the IMS subsystems of a sysplex for shared queue processing. This data is used by the IMS PA dialog in the generation of JCL to run log Report Sets.

For further information on groups, see [Chapter 10, “Defining Groups,” on page 125](#).

```

                                     IMS Subsystem                Row 1 of 1 More: < >
Command ==> _____ Scroll ==> PAGE

IMS Subsystem definition:
IMS Subsystem ID . . . I151  IMS Version (VRM) . . . 151  +
Description . . . . . IMS V15 subsystem _____
RESLIB Data Set . . . . 'IMS.V151.RESLIB' _____
-----
Specify required view . . 4  1. DBRC Settings      4. Groups
                             2. Log Files          5. OMEGAMON ATF Files
                             3. Monitor Files
-----
Specify the Groups that this subsystem belongs to:

/  Group +          Description
-  PRODPLEX      Production IMS Sysplex _____
***** End of list *****
```

Figure 52. System Definitions: IMS Subsystem (with Groups)

Each group has the following attributes:

### Group

A Group name is an arbitrary name used to identify a group of related IMS subsystems for reporting purposes, such as systems belonging to a sysplex. For example, specify a Group name of PRODPLEX

to identify all IMS subsystems in your production IMS sysplex. Group names can be up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters.

**Description**

Description is free format text up to 36 characters to describe the group of IMS subsystems. This is for your reference only, although IMS PA inserts it as a comment in your Report Set JCL.

**Line actions:**

The following line actions are valid against entries in the groups list:

- /** Display the menu of line actions
- S** Select one or more groups from a list
- I** Insert a null row after this row
- R** Repeat this row
- C** Copy this row
- M** Move this row
- A** Move/Copy after this row
- B** Move/Copy before this row
- D** Delete this row

**Primary commands:**

The following primary commands are available:

**RESET**

This command (or **RES**) removes all pending line actions and deletes any blank rows. Reset is also available from **Edit** in the action bar.

**SORT Group|Description**

This command sorts the list of groups on the specified column. The default is Group. The order is retained on Exit.

You can also sort by selecting a point-and-shoot column heading.

**Note:** The **SAVE** command is not available from this panel. Changes are saved only on **SAVE** or **Exit (F3)** from the **System Definitions** panel.

## ATF extracts for an IMS subsystem

To associate extracts from IBM OMEGAMON for IMS Application Trace Facility (ATF) log streams with an IMS subsystem, use view 5 of the **IMS Subsystem** panel. This data is used by the IMS Performance Analyzer ISPF dialog in the generation of JCL to run ATF Report Sets.

Specify the data set names of the OMEGAMON ATF extracts in a similar way to IMS Connect journal files. The data sets must be cataloged. For a description of the fields, available line actions, and action bar choices, see [“Journal Files for a Connect System”](#) on page 121.

```

                                IMS Subsystem          Row 1 of 1 More: < >
Command ==> _____ Scroll ==> PAGE

IMS Subsystem definition:
IMS Subsystem ID . . . . IZDX  IMS Version (VRM) . . . 154  +
Description . . . . . System with ATF tracing
RESLIB Data Set . . . . . IMS.V1540.SDFSRESL
-----
Specify required view . . 5  1. DBRC Settings      4. Groups
                             2. Log Files          5. OMEGAMON ATF Files
                             3. Monitor Files
-----
Specify the Log Files (in time sequence) for this subsystem:

/  Exc      Data Set Name (DSN)          UNIT +  SEQ VOLSER +
-   * 'IZDX.OMEGATF.EXTRACT1'
***** Bottom of data *****

```

**Note:** ATF files are not involved in automated file selection. ATF files can contain data from multiple systems in an IMSplex.

## IMS Connect systems and data sets

Prior to using IMS PA for IMS Connect reporting, you must implement IMS Connect Extensions Event Collection.

For information about how to set up and activate Event Collection, see the *IBM IMS Connect Extensions for z/OS User's Guide* (SC27-9517).

IMS PA analyzes and reports against the Event Collection data contained in Archive Journal data sets. To report this data, you must first identify the IMS Connect systems and data sets to IMS PA, and specify your report requests in IMS Connect Report Sets.

Note that IMS Connect systems and their Archive data sets are defined by IMS Connect Extensions, not IMS PA. IMS PA reports the event data recorded by IMS Connect Extensions, but does not provide maintenance functions for IMS Connect Extensions system definitions and Archive data sets.

To request Connect reports and extracts using the IMS PA dialog:

1. Use option 0.5 **IMS Connect Extensions Definitions Data Set** from the IMS Performance Analyzer primary option menu to specify the name of the IMS Connect Extensions Definitions Data Set that defines the IMS Connect Systems and Archive Data Sets that you want to report on.

```

                                IMS Connect Extensions Definitions Data Set

Command ==> _____

Specify the name of the IMS Connect Extensions Definitions Data Set.

Data Set Name . . . 'CEX.REPOSTRY'

```

*Figure 53. IMS Connect Extensions Definitions Data Set*

2. Use option 3 **Report Sets** from the IMS Performance Analyzer primary option menu to specify your IMS Connect report requests in Report Sets of type CEX. You can enter line action RUN to select a Report Set, a category or an individual report for batch execution. For more information, see [Chapter 24, “Requesting IMS Connect reports,”](#) on page 497.
3. Use option 4.7 **IMS Connect** from the IMS Performance Analyzer primary option menu to view the list of IMS Connect Systems and Archive Data Sets. You can enter line action RUN to select a system or a data set for batch reporting.

The remainder of this topic explains the functionality available from primary menu option 4.7 **IMS Connect**.

When you select option 4.7 **IMS Connect**, the list of IMS Connect systems defined in the IMS Connect Extensions Definitions Data Set is displayed.

IMS Connect System Definitions					Row 1 to 4 of 4
Command ==> _____					
Definitions Data Set . . : CEX.REPOSTRY					
/	Name	Description	Changed	ID	
___	F1	Stats collection system 1	2023/03/25 13:46:02	PXN	
___	HWSD	Test1	2023/03/28 14:37:10	PXN	
___	QA01	Test2	2023/01/20 16:44:42	PXN	
S___	TRICKLE	Stats collection system 2	2023/03/29 10:36:41	PXN	

Figure 54. IMS Connect Systems

Two line actions are available:

- Enter line action RUN to run a Report Set against a particular system. The runtime options are displayed as shown in “Run Connect Report Set” on page 500. Archive Selection will be used to locate the data sets in a reporting interval that you specify at run time.
- Enter line action S to display the list of Archive Data Sets for the system as shown in the following panel.

```

Archive Data Sets for TRICKLE
Row 1 to 16 of 16

Command ==> _____ Scroll ==> PAGE

Select Archive data set to run report.

Data Set Name
----- From ----- To
CEX310.TEST.TRICKLE.D230323.T143727 2023-03-23 13.51 14.37
CEX310.TEST.TRICKLE.D230324.T095211 2023-03-23 14.37 09.52
CEX310.TEST.TRICKLE.D230324.T111624 2023-03-24 09.54 10.13
CEX310.TEST.TRICKLE.D230324.T113311 2023-03-24 11.16 11.33
CEX310.TEST.TRICKLE.D230324.T115845 2023-03-24 11.33 11.58
CEX310.TEST.TRICKLE.D230324.T120450 2023-03-24 11.58 12.04
CEX310.TEST.TRICKLE.D230324.T121311 2023-03-24 12.05 12.13
S CEX310.TEST.TRICKLE.D230324.T121656 2023-03-24 12.13 12.16
CEX310.TEST.TRICKLE.D230324.T125935 2023-03-24 12.17 12.59
CEX310.TEST.TRICKLE.D230324.T130328 2023-03-24 12.59 13.03
CEX310.TEST.TRICKLE.D230324.T132657 2023-03-24 13.04 13.26
CEX310.TEST.TRICKLE.D230324.T133926 2023-03-24 13.27 13.39
CEX310.TEST.TRICKLE.D230324.T134154 2023-03-24 13.40 13.41
CEX310.TEST.TRICKLE.D230324.T140219 2023-03-24 13.45 14.02
CEX310.TEST.TRICKLE.D230324.T142133 2023-03-24 14.09 14.21
CEX310.TEST.TRICKLE.D230324.T142936 2023-03-24 14.22 14.29
***** End of list *****

```

Figure 55. IMS Connect System Archive Data Sets

Enter line action S (or RUN or /) to run a Report Set for a particular data set. The runtime options are displayed as shown in the following figure.

```

                                Run Report Set
Command ==> _____

Specify run options then press Enter to continue submit.

System Selection:                ----- Report Interval -----
System . . . . TRICKLE          YYYY/MM/DD  HH:MM:SS:TH
                                From 2021/03/24 12:13:32:05
Report Selection:                To 2021/03/24 12:16:27:88
Report Set . . CEXAMPLE +

Execution Mode:                  Unresolved Data Sets Options:
3 1. Submit Report Set           1 1. Issue error message
2. Edit JCL before submit        2. Edit unresolved JCL
3. Edit JCL with command input

                                Enter "/" to select option
                                _ Bypass run-time options prompt

```

Figure 56. Run Connect Report Set for selected Archive Data Set

Notice that the selected **System** is already specified for you.

When reporting on a selected Archive data set, the **Report Interval** is optional. It defaults to the time period that is spanned by the data in that data set, but you can overtype these values, or leave blank. If blank, the entire file is processed.

When reporting on an IMS Connect System, the **Report Interval** is required so that IMS Connect Extensions Automated File Selection can locate the data sets that are relevant to that time period.

Specify the **Report Set** that you wish to run. Press **Prompt (F4)** from the Report Set field to select from a list of available CEX Report Sets.

## Journal Files for a Connect System

To specify the Journal Files (active or archive) for a Connect system, use the **IMS Connect Extensions Journal Files** view of the **Connect System** panel.

This data is used by the IMS PA dialog in the generation of JCL to run Connect Report Set and select **Use specified journal files**. However, if automated file selection with DBRC Log Selection is requested, the files specified on this panel are ignored as IMS PA will use Connect Journal File Selection to locate them based on a specified time period. See [“Combined IMS Log and Connect reporting” on page 137](#).

Each listed data set has the following attributes:

### Exc

The data set is marked by a \* if it is to be excluded from Connect reporting. Excluded data sets are not eligible for Report Set JCL generation.

Enter the line action X to change (reverse) the exclude status of the data set.

### Data Set Name (DSN)

Specify the name of the data set to be used as input for reporting. IMS PA uses these data set names in the JCL generation when you run a Connect Report Set and select **Use specified journal files**. The data sets must be cataloged. Data sets that are not excluded are concatenated in the Report Set JCL in the order in which they are specified on the panel.

For a report to span more than one data set, the data sets must be specified in time sequence with no large time gaps between them; otherwise for single subsystem reporting, IMS PA would build multiple reports, and for multi-subsystem shared queue reporting, the results would be unpredictable.

Specify the data set names in TSO format. Enclose fully-qualified names in quotes, otherwise your prefix will be added as the high-level qualifier.

### Line actions:

The following line actions are valid for a data set in the list:

- / Display the menu of line actions
- I** Insert a null row after this row
- R** Repeat this row
- C** Copy this row
- M** Move this row
- A** Move/Copy after this row
- B** Move/Copy before this row
- D** Delete this row
- X** Reverse this row's exclude status (Excluded/Included)

#### Primary commands:

The following primary command is available:

#### RESET

This command (or **RES**) removes all pending line actions and deletes any blank rows. You can also select Reset from **Edit** in the action bar.

**Note:** The **SAVE** command is not available from this panel. Changes are saved only on **SAVE** or **Exit (F3)** from the **System Definitions** panel.

## Groups for a Connect System

To specify the groups that a Connect system belongs to, use the **Groups** view of the **Connect System** panel.

This data is used by the IMS PA dialog in the generation of JCL to run CEX Report Sets for Connect or combined IMS and Connect reporting.

For further information on groups, see [Chapter 10, “Defining Groups,” on page 125.](#)

```

                                Connect System          Row 1 of 1 More: < >
Command ===> _____ Scroll ===> PAGE

Connect System definition:
Connect System ID . . . . HWSID9
Description . . . . .
Repository . . . . .
-----
Specify required view . . 2  1. IMS Connect Extensions Journal Files
                             2. Groups
-----
Specify the Groups that this system belongs to:

/  Group + _____ Description
-
***** Bottom of data *****

```

Figure 57. System Definitions: Connect System (with Groups)



For a description of the attributes, line actions, and primary commands, see [“Groups for an IMS Subsystem” on page 117](#).



# Chapter 10. Defining Groups

Groups is a facility that allows you to group IMS subsystems and IMS Connect systems for reporting purposes. All IMS subsystems participating in a shared queues sysplex environment must be defined in a Group. This enables IMS PA to report end-to-end response time for your shared queues transactions. IMS PA merges the Log Files from each system and "connects" the originating system's log records to the processing system's log records to obtain a complete picture of each transaction's life cycle.

## About this task

Groups are used for Log and combined (Log and Connect) reporting. Monitor and OMEGAMON ATF reporting can only process a single IMS subsystem at a time.

Groups allow you to:

- Connect IMS subsystems participating in a sysplex. Reporting on the Group can produce end-to-end response time statistics for shared queue transactions.
- Connect IMS subsystems that use data sharing. Reporting on the Group can produce consolidated database reporting.
- Connect IMS subsystems for periodical or ad hoc reporting. Reporting on the Group can produce reports for each IMS subsystem in a single run.
- Connect IMS subsystems and Connect systems to produce combined IMS and Connect Form-based reports.

## Procedure

On the IMS Performance Analyzer primary option menu, select option 1.2 **Groups**. (Alternatively, you can select **SysDefs** in the action bar of a Report Set panel.)

The **Groups** panel is displayed.

This is where you maintain your Group definitions. You can:

- Create, delete or rename a Group.
- Assign IMS systems to a Group
- Remove old systems from a Group

Groups				Row 1 to 2 of 2	
Command ==> _____				Scroll ==> <u>PAGE</u>	
Specify Groups of IMS and Connect systems.					
		---- IMS ----		-- Connect --	
/ Group	Description	#	Auto Files	#	Auto Files
<u>_ PRODPLEX</u>	<u>Production IMS Sysplex</u>	3	Yes Yes	0	No No
<u>_ TESTPLEX</u>	<u>Test IMS Sysplex</u>	2	Yes No	1	Yes Yes

Figure 58. Groups

The Group details are:

### Group

A Group name is an arbitrary name used to identify a group of related IMS subsystems for reporting purposes, such as systems belonging to a sysplex. For example, specify a Group name of PRODPLEX to identify all IMS subsystems in your production IMS sysplex. Group names can be up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters.

**Description**

Description is free format text up to 36 characters to describe the group of IMS subsystems. This is for your reference only, although IMS PA inserts it as a comment in your Report Set JCL.

**IMS**

Details of the IMS subsystems defined to the Group.

**# (Count)**

The number of IMS subsystems defined to the Group.

**Auto**

Yes indicates that all IMS Subsystems in the group are eligible for DBRC Log Selection. RECON or MDA data sets have been specified.

**Tip:** Use DBRC Log Selection for Group reporting. DBRC Log Selection will ensure that the Log Files for all subsystems in the Group contain data for the required reporting time interval. Refer to [“Running reports using DBRC Log Selection” on page 141](#) to learn why using DBRC makes reporting easier.

**Files**

Yes indicates that all IMS Subsystems in the Group have Log Files eligible for inclusion in Report Set JCL.

**Connect**

Details of the Connect systems defined to the Group.

**# (Count)**

The number of IMS Connect systems defined to the Group.

**Auto**

Yes indicates that all IMS Connect systems in the Group are in the IMS Connect Extensions Definitions Data Set and eligible for Journal File Selection. This applies when **Use automated file selection** is requested at run time.

**Files**

Yes indicates that all IMS Connect systems in the Group have journal data sets specified in System Definitions and eligible for inclusion in report JCL. This applies when **Use specified journal files** is requested at run time.

**Line actions:**

The valid line actions for the list of groups are:

**/**

Display the menu of line actions

**S**

Select to modify or review the IMS Subsystems in the Group

**I**

Insert a Group

**R**

Repeat this row

**C**

Copy this row

**M**

Move this row

**A**

Move/Copy after this row

**B**

Move/Copy before this row

**D**

Delete this row

**Note:** A row command on this panel applies to the Group and its associated information on the subordinate panels. That is, repeating a group row also repeats the IMS subsystems for that group.

**Primary commands:**

The following primary commands are available:

**NEW *name***

This command defines a new group. You can also select this from **File** in the action bar.

**RESET**

This command (or **RES**) removes all pending line actions and deletes any blank rows. Reset is also available from **Edit** in the action bar.

**SORT Group|Description**

This command sorts the list of groups on the specified column. The default is **Group**. The order is retained on exit.

You can also sort by selecting a point-and-shoot column heading.

**SAVE**

Save all changes to groups.

**Note:** The **SAVE** command is available from the Groups panel, being the top in the hierarchy of panels.

**Exit (F3)** from a subordinate panel only temporarily retains changes. No changes are permanently saved until **SAVE** or **Exit (F3)** from the top panel. **Cancel (F12)** discards all unsaved changes on this and subordinate panels.



## Chapter 11. Assigning Systems to a Group

You can assign both IMS subsystems and Connect systems to a Group by editing an existing Group or defining a new group.

- To define a new Group, select option 1.2 **Groups** on the IMS Performance Analyzer primary option menu, and then type **NEW** on the command line of the **Groups** panel.
- To edit an existing Group, select option 1.2 **Groups** on the IMS Performance Analyzer primary option menu, and then enter line action S against a row on the **Groups** panel.

Both actions display the Group of Systems panel.

Group of Systems		Row 1 to 3 of 3
Command ===>		Scroll ===> <u>PAGE</u>
Group . . . . . <u>PRODPLEX</u>		
Description . . . <u>IMS Sysplex</u>		
DBRC options:		
IMSPLEX . . . . .	JES2 options:	
DBRCGRP . . . . .	(DBRC) Node . . . . .	SYSAFF . . . . .
	(SLDS) Node . . . . .	SYSAFF . . . . .
--- IMS -- - Connect-		
/ System + Type	VRM Description	Auto Files Auto Files
- IMSA IMS	151 IMS Production System A	Yes Yes
- IMSB IMS	151 IMS Production System B	No Yes
- IMSC IMS	151 IMS Production System C	No Yes
***** End of list *****		

Figure 59. Group of Systems

From this panel, you can define a new Group by specifying a unique 1-8 character name and a description. To rename a Group, over-type the existing name.

For each Group, you can specify DBRC and JES2 options:

### IMSPLEX

Specify the name of the IMSplex. DBRC Log Selection JCL is generated with the IMSPLEX parameter:

```
// EXEC PGM=IPIDBRC,PARM='IMSPLEX=name'
```

The Group IMSplex specification is used for Group report requests. The System IMSplex specification is used for System report requests, and is ignored when the System is part of a Group report request.

If multiple RECONS use this IMSplex, also specify the DBRC Sharing Group ID (**DBRCGRP**).

### DBRCGRP

Specify the name of the DBRCGRP when multiple RECONS will be using the same IMSplex name.

DBRC Log Selection JCL is generated with the DBRCGRP parameter:

```
//IPIDBRC EXEC PGM=IPIDBRC,PARM='IMSPLEX=name,DBRCGRP=grp'
```

The Group DBRCGRP specification is used for reporting on a group of systems.

The System DBRCGRP specification is used when reporting on a system, and is ignored when reporting on a group.

### (DBRC) Node and SYSAFF

Specify JES2 Control Statement options to run DBRC Log Selection jobs on the system where the RECONS Log files are available.

Node is the network node where the job must execute, generating: /\*XEQ Node and /\*ROUTE PRINT Node.

**SYSAFF** is the system name to process the job, generating: /\*JOBPARM SYSAFF=name.

#### **(SLDS) Node and SYSAFF**

Specify JES2 Control Statement options to run report jobs on the system where the SLDS Log files are available.

Node is the network node where the job must execute, generating: /\*XEQ Node and /\*ROUTE PRINT Node.

**SYSAFF** is the system name to process the job, generating: /\*JOBPARM SYSAFF=name.

**Note:** The JES2 Control Statements will only be generated if they are specified in dialog option 0.1 **IMS PA Settings**.

To specify the IMS subsystems and IMS Connect systems that belong to the Group, enter the system in the **System** field or select one or more from a list of available systems. To select from a list, position the cursor on the **System** field and press **Prompt (F4)** or enter line action S.

Each system in the list has the following attributes:

#### **System**

Specify the IMS subsystem or IMS Connect system identifier.

The order in which the systems are specified on the panel is not relevant to IMS Performance Analyzer. You may list them in the order that is convenient for you.

#### **Type**

Type of system. The associated system can be an IMS subsystem or an IMS Connect system.

#### **VRM**

**VRM** is the release of the IMS subsystem. IMS Performance Analyzer uses the **VRM** to perform release-dependent batch report processing. **VRM** is only applicable to IMS subsystems.

#### **Description**

Description of the IMS subsystem for your reference only.

A group can contain IMS subsystems, IMS Connect systems, or both.

#### **IMS**

For IMS systems in the group, Yes/No indicators are set as follows:

##### **Auto**

Yes indicates that the IMS system is eligible for DBRC Log Selection, that is, it has DBRC settings (RECON or MDA data sets) specified.

##### **Files**

Yes indicates that the IMS system has explicitly-specified log files.

#### **Connect**

For IMS Connect systems in the group, Yes/No indicators are set as follows:

##### **Auto**

Yes indicates that the Connect system is eligible for automated journal file selection. That is, it is defined in the IMS Connect Extensions definitions repository and has at least one archive journal.

##### **Files**

Yes indicates that the Connect system has explicitly-specified journal data sets.

**Note:** Although an indicator is shown for explicitly specified files, they are not used for group reporting. Group reporting is only available using batch processing when automated file selection is used to locate the files covering the requested report interval.



# Chapter 12. IMS Connect systems and data sets

Prior to using IMS PA for IMS Connect reporting, you must implement IMS Connect Extensions Event Collection.

For information about how to set up and activate Event Collection, see the *IBM IMS Connect Extensions for z/OS User's Guide* (SC27-9517).

IMS PA analyzes and reports against the Event Collection data contained in Archive Journal data sets. To report this data, you must first identify the IMS Connect systems and data sets to IMS PA, and specify your report requests in IMS Connect Report Sets.

Note that IMS Connect systems and their Archive data sets are defined by IMS Connect Extensions, not IMS PA. IMS PA reports the event data recorded by IMS Connect Extensions, but does not provide maintenance functions for IMS Connect Extensions system definitions and Archive data sets.

To request Connect reports and extracts using the IMS PA dialog:

1. Use option 0.5 **IMS Connect Extensions Definitions Data Set** from the IMS Performance Analyzer primary option menu to specify the name of the IMS Connect Extensions Definitions Data Set that defines the IMS Connect Systems and Archive Data Sets that you want to report on.

IMS Connect Extensions Definitions Data Set

Command ==> \_\_\_\_\_

Specify the name of the IMS Connect Extensions Definitions Data Set.

Data Set Name . . . 'CEX.REPOSTRY' \_\_\_\_\_

Figure 60. IMS Connect Extensions Definitions Data Set

2. Use option 3 **Report Sets** from the IMS Performance Analyzer primary option menu to specify your IMS Connect report requests in Report Sets of type CEX. You can enter line action RUN to select a Report Set, a category or an individual report for batch execution. For more information, see [Chapter 24, “Requesting IMS Connect reports,”](#) on page 497.
3. Use option 4.7 **IMS Connect** from the IMS Performance Analyzer primary option menu to view the list of IMS Connect Systems and Archive Data Sets. You can enter line action RUN to select a system or a data set for batch reporting.

The remainder of this topic explains the functionality available from primary menu option 4.7 **IMS Connect**.

When you select option 4.7 **IMS Connect**, the list of IMS Connect systems defined in the IMS Connect Extensions Definitions Data Set is displayed.

IMS Connect System Definitions					Row 1 to 4 of 4	
Command ==> _____						
Definitions Data Set . . : CEX.REPOSTRY						
/	Name		Description	Changed		ID
___	F1	Stats	collection system 1	2023/03/25	13:46:02	PXN
___	HWSD	Test1		2023/03/28	14:37:10	PXN
___	QA01	Test2		2023/01/20	16:44:42	PXN
S___	TRICKLE	Stats	collection system 2	2023/03/29	10:36:41	PXN

Figure 61. IMS Connect Systems

Two line actions are available:

- Enter line action RUN to run a Report Set against a particular system. The runtime options are displayed as shown in “Run Connect Report Set” on page 500. Archive Selection will be used to locate the data sets in a reporting interval that you specify at run time.
- Enter line action S to display the list of Archive Data Sets for the system as shown in the following panel.

```

Archive Data Sets for TRICKLE
Row 1 to 16 of 16

Command ==> _____ Scroll ==> PAGE

Select Archive data set to run report.

Data Set Name
----- From ----- To
CEX310.TEST.TRICKLE.D230323.T143727 2023-03-23 13.51 14.37
CEX310.TEST.TRICKLE.D230324.T095211 2023-03-23 14.37 09.52
CEX310.TEST.TRICKLE.D230324.T111624 2023-03-24 09.54 10.13
CEX310.TEST.TRICKLE.D230324.T113311 2023-03-24 11.16 11.33
CEX310.TEST.TRICKLE.D230324.T115845 2023-03-24 11.33 11.58
CEX310.TEST.TRICKLE.D230324.T120450 2023-03-24 11.58 12.04
CEX310.TEST.TRICKLE.D230324.T121311 2023-03-24 12.05 12.13
S CEX310.TEST.TRICKLE.D230324.T121656 2023-03-24 12.13 12.16
CEX310.TEST.TRICKLE.D230324.T125935 2023-03-24 12.17 12.59
CEX310.TEST.TRICKLE.D230324.T130328 2023-03-24 12.59 13.03
CEX310.TEST.TRICKLE.D230324.T132657 2023-03-24 13.04 13.26
CEX310.TEST.TRICKLE.D230324.T133926 2023-03-24 13.27 13.39
CEX310.TEST.TRICKLE.D230324.T134154 2023-03-24 13.40 13.41
CEX310.TEST.TRICKLE.D230324.T140219 2023-03-24 13.45 14.02
CEX310.TEST.TRICKLE.D230324.T142133 2023-03-24 14.09 14.21
CEX310.TEST.TRICKLE.D230324.T142936 2023-03-24 14.22 14.29
***** End of list *****

```

Figure 62. IMS Connect System Archive Data Sets

Enter line action S (or RUN or /) to run a Report Set for a particular data set. The runtime options are displayed as shown in the following figure.

Run Report Set	
Command ==> _____	
Specify run options then press Enter to continue submit.	
System Selection:	----- Report Interval -----
System . . . . TRICKLE	YYYY/MM/DD HH:MM:SS:TH
Report Selection:	From 2021/03/24 12:13:32:05
Report Set . . CEXAMPLE +	To 2021/03/24 12:16:27:88
Execution Mode:	Unresolved Data Sets Options:
3 1. Submit Report Set	1 1. Issue error message
2. Edit JCL before submit	2. Edit unresolved JCL
3. Edit JCL with command input	
	Enter "/" to select option
	_ Bypass run-time options prompt

Figure 63. Run Connect Report Set for selected Archive Data Set

Notice that the selected **System** is already specified for you.

When reporting on a selected Archive data set, the **Report Interval** is optional. It defaults to the time period that is spanned by the data in that data set, but you can overtype these values, or leave blank. If blank, the entire file is processed.

When reporting on an IMS Connect System, the **Report Interval** is required so that IMS Connect Extensions Automated File Selection can locate the data sets that are relevant to that time period.

Specify the **Report Set** that you wish to run. Press **Prompt (F4)** from the Report Set field to select from a list of available CEX Report Sets.

## Run Connect Report Set

The IMS PA dialog generates the JCL for batch report processing. From the **IMS Connect System Definitions** panel, enter the **RUN** command to select an IMS Connect System or Archive data set for reporting.

### About this task

The following figure shows an example of how to request System reporting.

IMS Connect System Definitions					Row 1 to 4 of 4	
Command ==> _____						
Definitions Data Set . . : CEX.REPOSTRY						
/	Name	Description	Changed		ID	
___	F1	Stats collection system 1	2023/03/25 13:46:02		PXN	
<u>RUN</u>	HWSD	Test1	2023/03/28 14:37:10		PXN	
___	QA01	Test2	2023/01/20 16:44:42		PXN	
___	TRICKLE	Stats collection system 2	2023/03/29 10:36:41		PXN	

Figure 64. RUN Connect System

Before IMS PA generates the JCL, the **Run Report Set** panel is displayed to prompt you to specify runtime options.

Run Report Set	
Command ==> _____	
Specify run options then press Enter to continue submit.	
System Selection:	----- Report Interval -----
System . . . . HWSD	YYYY/MM/DD HH:MM:SS:TH
Report Selection:	From _____
Report Set . . _____ +	To _____
Execution Mode:	Unresolved Data Sets Options:
3 1. Submit Report Set	1 1. Issue error message
2. Edit JCL before submit	2. Edit unresolved JCL
3. Edit JCL with command input	
	Enter "/" to select option
	_ Bypass run-time options prompt

Figure 65. Run Connect Report Set for selected IMS Connect System

Specify your desired runtime options. When the specification is complete, press Enter to proceed with JCL generation.

Note that the selected Connect System is already specified for you. Specify the Report Set that you want to report against. Press **Prompt (F4)** from the **Report Set** field to select from a list of available CEX Report sets.

The fields on the **Run Report Set** panel are:

## System Selection

The IMS Connect System that you want to report on. IMS PA builds the JCL using the Archive Data Sets defined for this system in the IMS Connect Extensions Definitions Data Set that you specified in your Profile Options.

When the run request is invoked from an IMS Connect System or Archive Data Set, the system name is protected and cannot be overtyped.

## Report Selection

Specify the name of a Connect Report Set that defines the report requests that you want to run.

Type the name directly or press Prompt (F4) to select from a list of available CEX Report Sets.

## Report Interval

When reporting on an IMS Connect System, the Report Interval is required so that IMS Connect Extensions Automated File Selection can locate the data sets that are relevant to that time period. When reporting on a specific Archive Data Set, the Report Interval is optional.

Default: As previously saved. However, if reporting on a specific Archive Data Set, the From and To date/time fields are primed with the time stamps of the first and last records of the data set. You can overtype these values or leave blank. If blank, the entire file is processed.

The Report Interval allows selection of a subset of the input data for passing to the report processors. Records with time stamps on or after the From date/time and before the To date/time are selected for processing. Reducing the time period can significantly reduce processing time for generating the reports in the Report Set.

Date can be either a calendar date or a relative date. Calendar dates must conform to your **Preferred Date Format** in Profile Options. Relative dates are specified as 0, -1, -2, ... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both From and To dates are specified, they must be in the same format.

Time is optional. If From time is not specified, it defaults to the start of the day. If Stop time is not specified, it defaults to the end of the day. Time is expressed as *hh:mm:ss:th* for hours, minutes, seconds, tenths and hundredths of a second using colon delimiters.

The date/time range is generated as parameter input in the JCL:

- For IMS Connect Extensions Automated File Selection:

```
//IPIPARM DD *  
FROM=(yyyy/mm/dd, hh:mm:ss:th)  
TO=(yyyy/mm/dd, hh:mm:ss:th)
```

or

```
//IPIPARM DD *  
FROM=(-nnn, hh:mm:ss:th)  
TO=(-nnn, hh:mm:ss:th)
```

- For IMS Connect Extensions Automated File Selection and Report Set processing:

```
//IPIOPTS DD *  
IMSPACEX START(yyyy/mm/dd, hh:mm:ss:th),  
          STOP(yyyy/mm/dd, hh:mm:ss:th)
```

or

```
//IPIOPTS DD *  
IMSPACEX START(-nnn, hh:mm:ss:th),  
          STOP(-nnn, hh:mm:ss:th)
```

## Execution Mode

Specify whether to execute the Report Set or generated commands, and whether you want to edit the JCL before submit. Editing JCL before submit will enable you to save the JCL in an external data set for automated job scheduling or ad hoc report requests.

Default: Set by the command (**RUN**, **SUB**, **JCL**, **JCM**) that invoked this panel.

The options are:

1. Submit the Report Set. Same as the **SUBMIT** or **SUB** command. This directly submits a batch job to execute the Report Set. The Report Set JCL contains the statements:

```
//IPIRSET DD DSN=ReportSets.DSN(ReportSetName),DISP=SHR
//IPIOBJL DD DSN=ObjectLists.DSN,DISP=SHR
//IPIFORM DD DSN=ReportForms.DSN,DISP=SHR
```

2. Edit JCL before submit. Same as the **JCL** command. This generates the same JCL as **SUBMIT**, but allows you to edit it.
3. Edit JCL with command input. Same as the **JCLCMD** or **JCM** command. This generates JCL in which the Report Set, and any Object Lists and Distributions it uses, are converted to a stream of commands and displayed to allow you to edit them. For a Connect Report Set, the JCL contains the statements:

```
//IPICMD DD *
        IMSPACEX          INCL|EXCL(...),...
        IMSPACEX          EXECUTE
```

Note that when you enter **RUN** at the report-level as a line action or override, option 3 is the only option available to you.



## Chapter 13. Automated File Selection

DBRC Log Selection is a facility of IMS Performance Analyzer that uses DBRC to automate the selection of the log files for report processing.

This facility offers an alternative to having to explicitly specify log input files. Simply specify the time period for which log reporting is required, and IMS Performance Analyzer will use DBRC to select the SLDS files covering that time period.

DBRC Log Selection can be used as:

- An alternative to specifying log input file names prior to report submission
- A facility to generate report JCL for submission by an automated job scheduler

### Related concepts

Automated job scheduling

IMS PA reports can be run on a daily basis using an automated job scheduler.

## Combined IMS Log and Connect reporting

By reporting against a Group of IMS and Connect systems, you can get a complete end-to-end transit picture of IMS Connect transactions. This facility is only available to Form-based Connect List and Summary reports and extracts.

Figure 66 on page 137 illustrates how IMS PA uses automated file selection to locate the files that are relevant to the specified systems and report period.

Disk or tape:

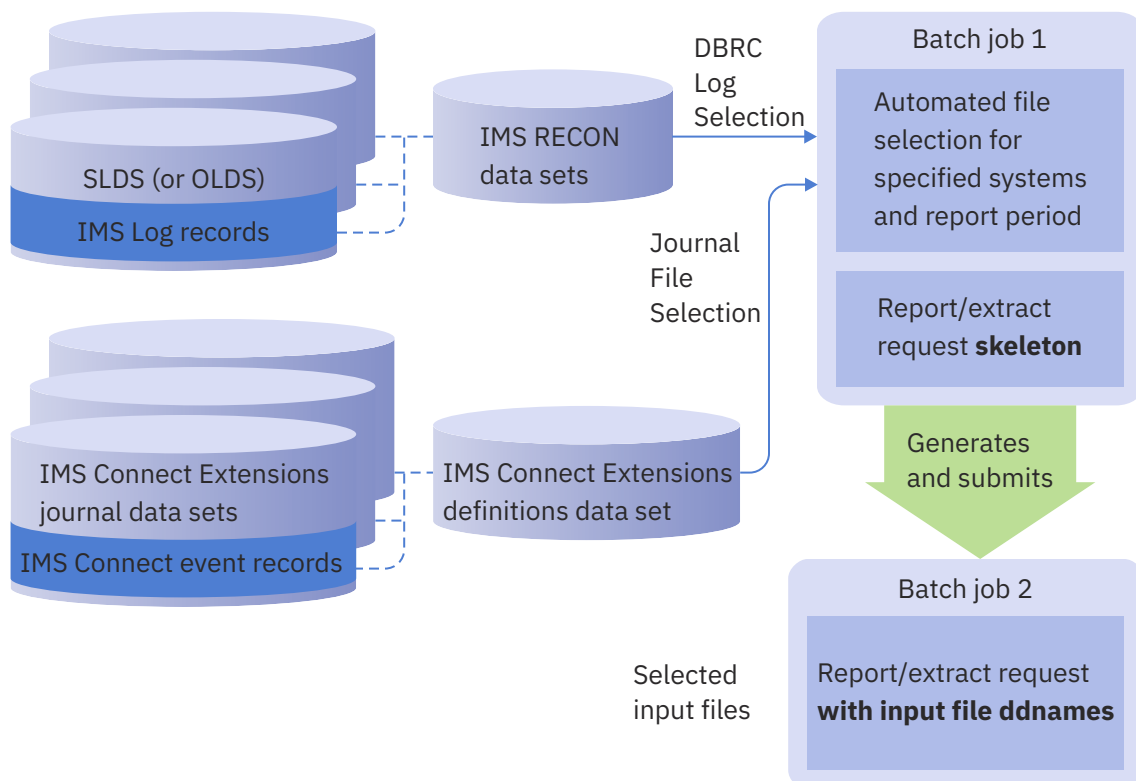


Figure 66. Automated file selection for reports and extracts

Automated file selection employs the following utilities:

1. DBRC Log Selection to locate the relevant log files for the specified IMS systems. For more information, see Chapter 13, “Automated File Selection,” on page 137.
2. IMS Connect Extensions Automated File Selection to locate the relevant journal data sets (archive or active) for the specified IMS Connect systems. For more information, see “[IMS Connect Extensions Journal File Selection](#)” on page 148.

## Sample JCL: Combined IMS and Connect reporting

This JCL is produced when you run a CEX Report Set against a group of IMS and Connect systems.

```
//IMSPA JOB (ACCOUNT), 'NAME'
//IPIDBRC EXEC PGM=IPIDBRC
//STEPLIB DD DSN=IMSPA.V450.SIPILINK, DISP=SHR
//SYSUDUMP DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//IPIPRINT DD SYSOUT=*
//IPIRDR DD SYSOUT=(A, INTRDR)
//IPIWRK1 DD SPACE=(CYL, (1, 1, 1)), UNIT=SYSDA
//IPIWRK2 DD SPACE=(CYL, (3, 1)), UNIT=SYSDA
//CEXDEF DD DSN=CEX.REPOSTRY, DISP=SHR 1
//SYSIN DD SPACE=(CYL, (1, 1)), UNIT=SYSDA
//IPIPARM DD *
FROM=(2023/01/10,02:24:00:00)
TO=(2023/02/15,02:59:00:00)
IMSID=ICD0
VRM=154
CAT=YES
OLDS=YES 2
RESLIB=IMS.V154.SDFSRESL
RECON1=ICD0.V154.RECON1.D180106
RECON2=ICD0.V154.RECON2.D180106
RECON3=ICD0.V154.RECON3.D180106
IMSID=ICD1
VRM=154
CAT=YES
OLDS=YES 2
RESLIB=IMS.V154.SDFSRESL
RECON1=ICD1.V154.RECON1.D180106
RECON2=ICD1.V154.RECON2.D180106
RECON3=ICD1.V154.RECON3.D180106
HWSID=HWSCEX1 3
HWSID=HWSCEXA 3
/*
//IPI SKEL DD DATA, DLM=$$
//IMSPA JOB (ACCOUNT), 'NAME'
//IPI EXEC PGM=IPI MAIN, PARM='V154'
//STEPLIB DD DSN=IMSPA.V450.SIPILINK, DISP=SHR
//SYSPRINT DD SYSOUT=*
//IPI CMD DD *
IMSPALOG IGNORE SEQ, LOG, EXEC
/*
//IPI SMQW1 DD DISP=SHR, DSN=IPI.$$$$.PUNCH
$$
```

Figure 67. JCL for automated file selection: combined reporting

**1**

The CEXDEF DD statement is required to obtain the IMS Connect Extensions journal data set names. Only one IMS Connect Extensions definitions data set is allowed.

**2**

OLDS=YES identifies that OLDS data sets may be required for this IMS subsystem. This must be specified for each IMSID where OLDS selection is being requested.

**3**

HWSID=cccccccc identifies an IMS Connect system within the CEXDEF repository. Multiple HWSID systems can be specified, but they must be contained in the CEXDEF repository. IMS Connect Extensions Automated File Selection utility will locate the journal files for this system that are applicable to the requested report period.



## Preparing for DBRC Log Selection

Before you can use DBRC Log Selection, you need to define IMS subsystems to IMS PA. After this step, you can submit reports without having to return to System Definitions to specify log input files.

### Before you begin

For the first time user, no IMS subsystems will be defined. To define systems, see Chapter 9, “Defining IMS and IMS Connect systems in IMS Performance Analyzer,” on page 109. For a user upgrading from an earlier IMS Performance Analyzer release, your IMS subsystems should already be defined.

### About this task

**Security note:** The IMSPLEX authorization exit IPIUAUTH ensures that the DBRC Log Selection utility IPIDBRC always uses the correct IMSPLEX identification settings. An incorrect EXEC PARM= 'IMSPLEX=xxxxx, DBRCGRP=xxx' specification can inadvertently cause DBRC to change control information in the RECON data sets and disrupt IMS. As a safeguard, consider installing the Request Authorization Exit for IMSPLEX security. See the authorization exit and associated install JCL supplied in the sample library, and Chapter 31, “IMS Performance Analyzer sample library,” on page 653.

### Procedure

To prepare for DBRC Log Selection:

1. From the Primary Option menu, select option 1.1 **System Definitions** to display the table of your IMS subsystems.
2. Enter the line action S against the IMS subsystem that is to use DBRC Log Selection. To go to the IMS Subsystem view that displays the DBRC Settings, enter View number 1 or use the Right or Left function keys.

```

                                IMS Subsystem                                More: < >
Command ===> _____

IMS Subsystem definition:
IMS Subsystem ID . . . I154  IMS Version (VRM) . . . 154  +
Description . . . . . IMS version 15 subsystem
RESLIB Data Set . . . . 'IMS.V154.SDFSRESL'
-----
Specify required view . . 1  1. DBRC Settings      4. Groups
                           2. Log Files           5. OMEGAMON ATF Files
                           3. Monitor Files
-----
Specify DBRC Settings for automated log file selection:

DBRC Subsystem ID . . . _____ (Specify RSENAME for XRF)
DBRC IMSplex name . . . _____ (RECON Loss Notification)
DBRC Sharing Group ID . . _____ (Parallel RECON Access)
RECON Data Set 1 . . . 'I154.V15.RECON1'
                  2 . . . 'I154.V15.RECON2'
                  3 . . . 'I154.V15.RECON3'
MDA Data Set . . . . 'I154.V15.USERLIB'

Enter "/" to select option      JES2 options:
- Log Data Sets are Cataloged   (DBRC) Node . . _____ SYSAFF . . _____
- Use OLDS that are not Archived (SLDS) Node . . _____ SYSAFF . . _____
- Use Secondary Log Data Sets
- Use Recovery Log Data Sets
```

3. Enter the IMS subsystem details.

For detailed information, refer to “DBRC Settings for an IMS Subsystem” on page 112.

#### IMS Subsystem ID

The unique identifier of the IMS subsystem.

## IMS Version (VRM)

IMS Version.

## RESLIB Data Set

RESLIB data set name. For DBRC Log Selection, the RESLIB data set must contain the DBRC API routine DSPAPI00. You do not need to specify the RESLIB data set name if the modules reside in the system link list (LNKLST).

The RESLIB data set can also be used to determine the IMS version if it contains module DFSVC000. IMS Performance Analyzer will use the IMS version from information in module DFSVC000 instead of the VRM specified explicitly.

## DBRC Subsystem ID

The DBRC Subsystem ID defines the DBRC Subsystem (SSID) that owns the SLDS entries.

Specify DBRC Subsystem ID when the SSID is longer than 4 characters or different to the IMS Subsystem ID.

- For IMS and DBCTL subsystems, the DBRC Subsystem ID is the IMSID value from IMSCTRL SYSGEN macro (four characters). In this case, DBRC Subsystem ID need not be specified. DBRC Log Selection uses the IMS Subsystem ID as the DBRC Subsystem ID.
- For Batch and Utility subsystems, specify the job name.
- For XRF, specify the RSENAME (Recovery Service Element) of the IMS Subsystems (active and alternate).

## DBRC IMSplex name

Specify the name of the IMSplex.

DBRC Log Selection JCL is generated with the IMSPLEX parameter:

```
//IPIDBRC EXEC PGM=IPIDBRC,PARM='IMSPLEX=name'
```

The Group IMSplex specification is used for reporting on a group of systems.

The System IMSplex specification is used for System report requests, and is ignored when the System is part of a Group report request.

If multiple RECONs use this IMSplex, also specify the DBRC Sharing Group ID (DBRCGRP).

## DBRC Sharing Group ID

Specify the DBRC group ID defined in the RECON data set used by the DBRC group.

DBRC Log Selection JCL is generated with the DBRCGRP parameter:

```
//IPIDBRC EXEC PGM=IPIDBRC,PARM='IMSPLEX=name,DBRCGRP=grp'
```

Specify IMSPLEX and DBRCGRP as you would when using the Database Recovery Control utility (DSPURX00):

```
EXEC PGM=DSPURX00,PARM='IMSPLEX=plexname,DBRCGRP=xxx,READONLY'
```

The Group DBRCGRP specification is used for reporting on a group of systems.

The System DBRCGRP specification is used when reporting on a system, and is ignored when reporting on a group.

## RECON Data Set 1,2,3

The DBRC RECON data set names used by this IMS subsystem. DBRC requires at least two RECON data set names to be specified. For example, RECON1=*dsname first RECON data set name* and RECON2=*dsname second RECON data set name*. The RECON data set names can be omitted if the MDA data set is specified.

This is the standard practice for the DBRC Utility DSPURX00 and the DBRC API. IMS Performance Analyzer uses the DBRC API to read the RECONs.

### MDA Data Set

The IMS MDA (MVS Dynamic Allocation) data set for this IMS subsystem. MDA=*dsname MDA (MVS Dynamic Allocation) data set name*. The RECON MDA members must reside in this data set. If the RECON data set names are not specified, IMS Performance Analyzer uses the MDA data set to determine the RECON data set names.

**Note:** If RECON1, RECON2, and MDA are specified, the data set names identified in the MDA library's dynamic allocation members must match the data set names specified with RECON1 and RECON2.

### Log Data Sets are Cataloged

If the SLDS data sets are not cataloged, IMS Performance Analyzer will include UNIT, VOLSER, and LABEL parameters in the Report Set JCL. If cataloged, the parameters will be omitted.

It is recommended that if your IMS online systems use MDA to dynamically allocate the RECON data sets, then MDA should also be used for IMS Performance Analyzer.

IMS Performance Analyzer ensures RECON data set integrity by:

- Using the DBRC API routine DSPAPI00.
  - Ensuring that there is no data set name conflicts between RECON and MDA specifications.
4. After you have completed updating the subsystem information, exit the IMS Subsystem panel. You will notice that the DBRC indicator for the subsystem is set to Yes. This indicates that the IMS subsystem is eligible for report submission using DBRC Log Selection.
  5. Repeat steps “2” on page 139 to “4” on page 141 for each IMS subsystem that will use DBRC Log Selection.
  6. Optionally, specify the DASD Work File Unit name. If your system does not have a default DASD Unit Name, such as SYSDA, then you will need to specify a unit name in your settings, otherwise you can use the system default. DBRC Log Selection uses temporary DASD work files when retrieving Log file details via DBRC. From the Primary Option menu, select option 0.1 **IMS PA Settings**. Specify the DASD Work File Unit Name for your system.

This completes the setup for DBRC Log Selection, and you are now ready to submit extract, CSV, or report JCL using this facility.

## Running reports using DBRC Log Selection

---

After you have specified your IMS subsystem DBRC definitions in System Definitions, you can submit report JCL using DBRC Log Selection. Submitting Report Sets using DBRC Log Selection is the same as when using explicit Log files, except you must specify a date/time range for reporting. This enables IMS PA to select the correct Log files for this time period.

### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**. Prepare your Report Sets in the usual way. For details on how to do this, see [Chapter 17, “Report Sets,” on page 187](#).
2. Enter the **RUN** command to run your Report Set.  
The **Run Report Set** panel is displayed.
3. From the **Run Report Set** panel, specify the required **Report Interval**.

The date can be specified as a relative date to the current date. This indicates that when DBRC is asked to select the Log files for processing, files will be selected for the day relative to the current date. Thus, 0 means select Log files for today, -1 yesterday, -2 two days ago, and so on. By using relative dates, report JCL can be saved into a data set for automated job scheduling, and the JCL will never need to be updated.

The date/time range specified here at submission time overrides the Global Report Interval time range specified in the Report Set or batch commands.

4. Optionally, change your **System Selection** to report against another IMS subsystem or Group.
5. For Log Selection Options, select 2 **Use DBRC to select log files**.
6. Optionally, change **Unresolved Data Set Options** to issue an error message or continue to create the JCL with missing files marked <unresolved>.
7. Optionally, change **Execution Mode** to instruct IMS PA how to build the report JCL.  
Editing JCL before submit will enable you to save the JCL in an external data set for automated job scheduling, or ad hoc report requests.
8. To redirect output to the IMS Tools Knowledge Base, select **Write to the ITKB repository** and specify the ITKB server name.
9. Press Enter to complete the request. IMS PA constructs the JCL according to your requirements.  
For the SUBMIT command, IMS PA submits the Report JCL (assuming no missing data sets). For the **JCL** or **JCLCMD** commands, IMS PA presents the Report JCL in ISPF edit.

## DBRC Log Selection utility

---

IMS PA DBRC Log Selection is performed in batch by the DBRC Log Selection Utility, IPIDBRC. Report JCL built by the dialog when DBRC Log Selection is used differs from Report JCL for explicitly specified log files.

Using DBRC Log Selection causes IMS PA to execute two jobs:

1. The DBRC Log Selection Utility, which invokes DBRC to select Log files.
2. Report processing, submitted by the DBRC Log Selection Utility.

The DBRC Log Selection JCL is a single step job whose JCL is constructed from the options specified in the dialog.

The DBRC Log Selection Utility performs the following tasks:

- Selects the Log files for processing, by invoking DBRC.
- Constructs the Report JCL, appending Log file DD statements at the end of the Report JCL skeleton or after a work file (IPISMQW1) DD card. This allows the JCL skeleton to be multistep. The dialog generates the JCL with the IPISMQW1 DD statement. DBRC log selection discards it if no merge is required, or replicates it, incrementing the last character if multiple merge work data sets are required.
- Submits the constructed Report JCL.

The execution of the Report Set (or batch commands) takes place in a second job, submitted by the DBRC Log Selection Utility.

Splitting Log selection and Report processing into two jobs enables IMS PA to avoid dynamic allocation of Log files on tape devices. Leaving allocation of tape devices to JES or the initiator avoids potential job failures.

## Report Set JCL using DBRC Log Selection

---

The JCL built by IMS Performance Analyzer for the batch execution of DBRC Log Selection and Reporting is based on the sample library member IPILDBRC.

DBRC Log Selection performs the following tasks:

- Selects the Log files for processing, by invoking DBRC
- Constructs the Report JCL
- Submits the Report JCL

Execution parameters are passed to the DBRC Log Selection utility in DDname IPIPARM:

**FROM=(yyyy/mm/dd,hh:mm:ss:th)**

Reporting start date/time. Date is required, and can be an actual date specification, or a relative date. Relative dates are specified as 0, -1, -2,... and signify a date relative to the current date. 0 represents

today, -1 yesterday, -2 two days ago, and so on. Time is optional, and if not specified, defaults at run time to the start of the day.

**TO=(yyyy/mm/dd, hh:mm:ss:th)**

Reporting end date/time. Date is required, and must be in the same format as the **FROM** specification. Time is optional, and if not specified, defaults to the end of the day.

**TAPES=nn**

Number of tape/cartridge devices available to IMS Performance Analyzer for report processing. **TAPES** is only required when processing log input for multiple IMS subsystems in a sysplex, and only then when there are more IMS subsystems than tape devices available. IMS Performance Analyzer supports up to 35 tape devices.

**HWSID=ccccccc**

IMS Connect system ID. The name of an IMS Connect system submitted for reporting. Multiple statements may be specified for reporting on a group of systems

**IMSID=ssss**

IMS subsystem ID.

For sysplex processing, multiple subsystems may be specified. The following parameters must be preceded by an **IMSID** specification, and apply to that subsystem:

**SSID=subsysid**

The DBRC subsystem (SSID) that owns the SLDS entries. Specify the DBRC subsystem ID when the SSID is longer than 4 characters or different to the IMS subsystem ID.

For IMS and DBCTL subsystems, the DBRC subsystem ID is the IMSID value from the IMSCTRL SYSGEN macro. In this case, you can leave the DBRC subsystem ID blank, then IMS Performance Analyzer DBRC Log Selection will use the IMS subsystem ID as the DBRC subsystem ID.

For batch and utility subsystems, specify the job name.

For XRF, specify the RSENAME of the IMS subsystems.

**VRM=vrn**

IMS version.

**CAT=YES|NO**

Whether the log data sets are cataloged. If not, IMS Performance Analyzer will include UNIT, VOLSER, and LABEL parameters in the Report Set JCL.

**OLDS=NO|YES**

Whether to use OLDS data sets in the event that SLDS files are not available for the requested reporting time period.

**SLDS=SEC|PRI**

Specify SEC to use secondary SLDS data sets (if they are available) instead of primary SLDS data sets. Specify PRI to only use primary SLDS data sets.

**RESLIB=dsname**

IMS RESLIB data set. The DBRC API routine DSPAPI00 must reside in this data set.

**RECON1=dsname**

First RECON data set name.

**RECON2=dsname**

Second RECON data set name. DBRC requires at least two RECON data sets to be specified.

**RECON3=dsname**

Third RECON data set name.

**MDA=dsname**

MDA (MVS Dynamic Allocation) data set name. The RECON MDA members must reside in this data set. Explicit RECON data set name specification is not required if MDA is specified.

IMS PA builds the JCL to execute the DBRC Log Selection utility IPIDBRC using the following options specified from the dialog.

## **JOB**

**Job Statement Information** in IMS PA Settings.

**EXEC PGM=IPIDBRC[,PARM='IMSplex=name[,DBRCGRP=grp]]'**

Execute the DBRC Log Selection utility.

If the RECON data sets that you want to use belong to an IMSplex:

- Specify the name of the IMSplex in the **PARM** parameter. This is generated from the IMS Subsystem **DBRC IMSplex name**.
- The structured call interface (SCI) address space must be running on the system on which you want to run the automated file selection utility.

Specify the **DBRC Sharing Group ID** (DBRCGRP) defined in the RECON data set used by the DBRC group.

## **STEPLIB DD**

**IMS PA Load Library** and optionally **User Program Load Library** in IMS PA Settings.

## **SYSPRINT DD**

Message output file for the DBRC API routine DSPAPI00.

## **IPIPRINT DD**

IMS Performance Analyzer DBRC Log Selection message output file.

## **IPIRDR**

Internal Reader file. IMS Performance Analyzer submits Report Set JCL to this file after DBRC Log Selection has completed.

## **IPIWRK1**

Work file PDS.

## **IPIWRK2**

Work file data set.

## **SYSIN DD**

Work file data set.

## **IPIPARM DD \***

DBRC Log Selection parameter input.

## **IPISKEL DD**

Log Report JCL skeleton. IPISKEL contains the Report Set JCL, without the log input files specified.

## **CEXDEF DD**

**IMS Connect Extensions Definitions Data Set** specified in your Profile Options. This data set contains the IMS Connect Extensions system definitions.

## **Sample JCL with DBRC Log Selection: Log Report Set**

The following JCL is produced when you run a Report Set using DBRC to select the log files.

```

//IMSPA JOB (ACCOUNT),'NAME'
//*
//* IMS PA Report Set SAMPLLOG - Sample Log Report Set
//*
//IPIDBRC EXEC PGM=IPIDBRC
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//IPIPRINT DD SYSOUT=*
//IPIRDR DD SYSOUT=(A,INTRDR)
//IPIWRK1 DD SPACE=(TRK,(1,1,1)),UNIT=SYSDA
//IPIWRK2 DD SPACE=(TRK,(3,1)),UNIT=SYSDA
//SYSIN DD SPACE=(TRK,(3,1)),UNIT=SYSDA
//IPIPARM DD *
FROM=(2023/02/25,09:00:00:00)
TO=(2023/02/25,16:00:00:00)
IMSID=IMSB
VRM=154
CAT=NO
OLDS=NO 1
RESLIB=IMS.V152.SDFSRESL
RECON1=IMSB.V152.RECON1.D180114
RECON2=IMSB.V152.RECON2.D180114
RECON3=IMSB.V152.RECON3.D180114
MDA=IMS.MDALIB
/*
//IPISKEL DD DATA,DLM=$$
//IMSPA JOB (ACCOUNT),'NAME'
//*
//* IMS PA Report Set SAMPLLOG - Sample Log Report Set
//*
//IPI EXEC PGM=IPIMAIN,PARM='V152'
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//* Sysout data set
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//IPICMD DD *
IMSPALOG IGNORESEQ,LOG,EXEC
//* Report Set
//IPIRSET DD DSN=IMSPA.V450.RSET(SAMPLLOG),DISP=SHR
//IPIQMOW1 DD DISP=(NEW,DELETE,DELETE),
// UNIT=SYSDA,SPACE=(CYL,(100,20),RLSE) 2
$$

```

Figure 68. JCL for DBRC Log Selection: Log Report Set

**1**

OLDS=YES added to the sub parameters of an IMSID identifies that OLDS data sets may be required. This must be specified for each IMSID where OLDS selection is being requested.

OLDS=YES is used when the date and time specified in the **TO** parameter is beyond the last IMS log available. The selection process then looks for OLDS data sets that are eligible for archive (but are yet to be archived) and that are within the time range, and adds them to the created JCL.

OLDS=NO specifies that the OLDS data sets will not be selected even if the IMS logs do not cover the complete time range requested. This is the default.

**2**

Specify the DCB attributes for allocating the Shared Queue Merge Work File in your profile options 0.3 **Shared Queue Settings**. For more information, see [Figure 9 on page 71](#).

## DBRC Log Selection using RECON copy data sets

IMS PA uses the standard DBRC interfaces.

DBRC Log Selection uses the DBRC API service DSPAPI00, only requiring READ access intent with the READONLY=YES option.

However, some installations do not allow you to access the online RECON data sets, for reasons such as:

- User batch jobs can cause IMS systems to wait, holding up critical transaction workload.
- Prior to IMS version 10, update intent to the RECONS was required.

In such installations, DBRC Log Selection cannot be used against active RECON data sets. An alternative is to use copies of the RECON data sets.

## Creating copies of the active RECON data sets

This JCL creates copies of the active RECON data sets.

```
//IMSPA      JOB ,NOTIFY=&SYSUID
//*
//DELETE     EXEC PGM=IDCAMS
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD  *
DELETE ('OFFLINE.IMSP.RECON1' -
       'OFFLINE.IMSP.RECON2' -
       'OFFLINE.IMSP.RECON3')
SET MAXCC=0
/*
//DEFINE     EXEC PGM=IDCAMS
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD  *
DEFINE CLUSTER (NAME('OFFLINE.IMSP.RECON1') -
               MODEL('IMSP.RECON1'))
DEFINE CLUSTER (NAME('OFFLINE.IMSP.RECON2') -
               MODEL('IMSP.RECON2'))
DEFINE CLUSTER (NAME('OFFLINE.IMSP.RECON3') -
               MODEL('IMSP.RECON3'))
/*
//REPRO      EXEC PGM=IDCAMS
//SYSPRINT  DD  SYSOUT=*
//I1         DD  DISP=SHR,DSN=IMSP.RECON1
//O1         DD  DISP=SHR,DSN=OFFLINE.IMSP.RECON1
//I2         DD  DISP=SHR,DSN=IMSP.RECON2
//O2         DD  DISP=SHR,DSN=OFFLINE.IMSP.RECON2
//I3         DD  DISP=SHR,DSN=IMSP.RECON3
//O3         DD  DISP=SHR,DSN=OFFLINE.IMSP.RECON3
//SYSIN     DD  *
REPRO IFILE(I1) OFILE(O1)
SET MAXCC=0
REPRO IFILE(I2) OFILE(O2)
SET MAXCC=0
REPRO IFILE(I3) OFILE(O3)
SET MAXCC=0
/*
```

Figure 69. JCL for creating copies of the active RECON data sets

**1**

Active RECON data set names: IMSP.RECONn

**2**

Copied RECON data set names: OFFLINE.IMSP.RECONn

Note that one of the REPRO requests may fail. This can occur against the spare RECON data set, but this is not a problem and can be ignored.

You will need to repeat this step periodically so that the copies contain the most recent SLDS data sets.

## Changing the system definition

The IMS PA system definitions must be modified to specify the RECON data set copies.

The following system definition for IMS subsystem IMSP demonstrates how to specify the alternate RECON data set names.



IMS Subsystem

More: < >

Command ===>

IMS Subsystem definition:

IMS Subsystem ID . . . . IMSP IMS Version (VRM) . . . 154 + 1

Description . . . . . IMS Production

RESLIB Data Set . . . . . 'IMSP.SDFSRESL' 2

Specify required view . . 1 1. DBRC Settings 4. Groups

2. Log Files 5. OMEGAMON ATF Files

3. Monitor Files

Specify DBRC Settings for automated log file selection:

DBRC Subsystem ID . . . (Specify RSENAME for XRF)

DBRC IMSplex name . . . (RECON Loss Notification)

DBRC Sharing Group ID . . (Parallel RECON Access)

RECON Data Set 1 . . . 'OFFLINE.IMSP.RECON1' 3

2 . . . 'OFFLINE.IMSP.RECON2'

3 . . . 'OFFLINE.IMSP.RECON3'

MDA Data Set . . . . . 4

Enter "/" to select option JES2 options:

Log Data Sets are Cataloged (DBRC) Node . . SYSAFF . .

Use OLDS that are not Archived (SLDS) Node . . SYSAFF . .

Use Secondary Log Data Sets

Use Recovery Log Data Sets

Figure 70. Specify the alternate RECON data set names

**Note:**

- 1** Ensure that the IMS version is correct. Both DBRC Log Selection and batch reporting need this information to execute their correct version-dependent processors.
- 2** The RESLIB data set must contain the DBRC utility or API module.
- 3** Specify the data set names of the RECON copies.
- 4** The MDA data set specification must be blank to ensure that the RECON copies are used.

### Requesting DBRC Log Selection using the copies

There is no difference in the way you request DBRC Log Selection when using RECON copies. The following Report Set runtime panel shows the settings required to request DBRC Log Selection.

```

                                Run Report Set SAMPLLOG
Command ====> _____

Specify run options then press Enter to continue submit.

System Selection:                ----- Report Interval -----
System or Group . . . IMSP    +      YYYY/MM/DD  HH:MM:SS:TH
                                   From -1         10:00:00:00
                                   To   -1         11:00:00:00

File Selection Options:
2 1. Use specified log files
  2. Use DBRC to select log files

Unresolved Data Set Options:
2 1. Issue error message
  2. Edit unresolved JCL

Execution Mode:
3 1. Submit Report Set
  2. Edit JCL before submit
  3. Edit JCL with command input

Enter "/" to select option      IMS Tools Knowledge Base
_ Bypass run-time options prompt - Write to the ITKB repository
                                ITKB Server . . . . _____

```

Figure 71. Run Log Report Set requesting DBRC Log Selection

The generated JCL refers to the RECON copies.

```

//IMSPA    JOB ,NOTIFY=&SYSUID
//*
//* IMS PA Report Set SAMPLLOG - Sample Log Report Set
//*
//IPIDBRC  EXEC PGM=IPIDBRC
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//IPIPRINT DD SYSOUT=*
//IPIRDR   DD SYSOUT=(A,INTRDR)
//IPIWRK1  DD SPACE=(CYL,(1,1,1)),UNIT=SYSDA
//IPIWRK2  DD SPACE=(CYL,(3,1)),UNIT=SYSDA
//SYSIN    DD SPACE=(CYL,(1,1)),UNIT=SYSDA
//IPIPARM  DD *
FROM=(-1,10:00:00:00)
TO=(-1,11:00:00:00)
IMSID=IMSP
VRM=121
CAT=NO
OLDS=NO
RESLIB=IMSP.SDFSRESL
RECON1=OFFLINE.IMSP.RECON1
RECON2=OFFLINE.IMSP.RECON2
RECON3=OFFLINE.IMSP.RECON3
/*
//IPISKEL DD DATA,DLM=$$
...

```

Figure 72. JCL for DBRC Log Selection using the RECON copies

## IMS Connect Extensions Journal File Selection

IMS Connect Extensions Journal File Selection is an IMS PA facility that automatically selects the Journal files for report processing.

This facility is similar to DBRC Log Selection. It offers an alternative to having to explicitly specify or select the Journal input files. Simply specify the time period for which IMS Connect reporting is required, and IMS PA will select the Journal files covering that time period.

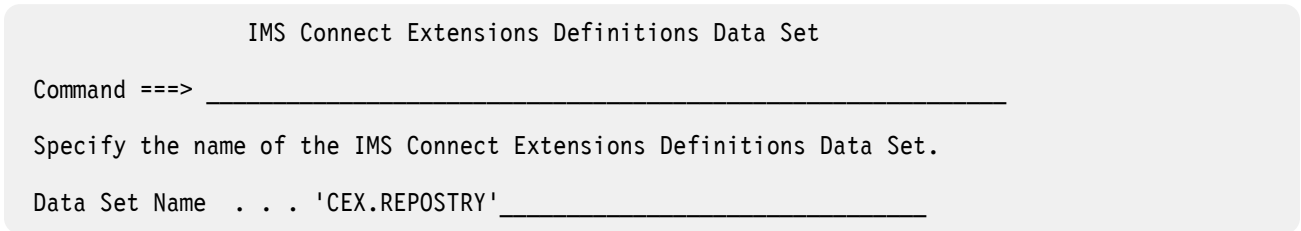
Journal File Selection can be used as:

- An alternative to specifying or selecting Journal input file names prior to report submission
- A facility to generate report JCL for submission by an automated job scheduler

## Preparing for Journal File Selection

To prepare for using Journal File Selection, you need to first specify the IMS Connect Extensions Definitions Data Set.

From the IMS Performance Analyzer primary option menu, select option 0.5 **IMS Connect Extensions Definitions Data Set** to display the panel where you can enter the name of the IMS Connect Extensions data set.



IMS Connect Extensions Definitions Data Set

Command ==> \_\_\_\_\_

Specify the name of the IMS Connect Extensions Definitions Data Set.

Data Set Name . . . 'CEX.REPOSTRY' \_\_\_\_\_

Figure 73. IMS Connect Extensions Definitions Data Set

## Running reports using Journal File Selection

After you have specified your IMS Connect Extensions Definitions Data Set, you can submit report JCL using Journal File Selection. This enables IMS PA to select the correct Journal files for the time period.

### Procedure

To use Journal File Selection:

1. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**. Prepare your CEX Report Sets in the usual way.
2. Issue the **RUN** command to run your Report Set. The **Run Connect Report Set** panel is displayed.
3. From the **Run Report Set** panel, specify the required **Report Interval**.
4. Specify the required IMS Connect system in **System Selection**.
5. Select **File Selection Option 2, Automated file selection**.
6. Optionally, change **Execution Mode** to instruct IMS PA how to build the report JCL.  
Editing JCL before submit will enable you to save the JCL in an external data set for automated job scheduling, or ad hoc report requests.
7. Press Enter to complete the request.

IMS PA constructs the JCL according to your requirements. For the SUBMIT command, IMS PA submits the Report JCL (assuming no missing data sets). For the **JCL** or **JCLCMD** commands, IMS PA presents the Report JCL in ISPF edit.

## Journal File Selection

Connect Journal File Selection is performed in batch by the Automated File Selection utility, IPIDBRC. Report JCL built by the dialog when Journal File Selection is used differs from Report JCL for explicitly specified Journal files.

Using Automated File Selection causes IMS PA to execute two jobs:

1. The Automated File Selection utility to select the required Journal files and build then submit the Report JCL
2. Report processing, as submitted by the Automated File Selection utility

The Automated File Selection JCL is a single step job whose JCL is constructed from the options specified in the dialog.

The Automated File Selection utility performs the following tasks:

- Selects the required Connect Journal files for processing
- Constructs the Report JCL, appending Journal file DD statements at the end of the Report JCL skeleton
- Submits the constructed Report JCL

The execution of the Report Set (or batch commands) takes place in a second job, submitted by the Automated File Selection utility.

Splitting Journal selection and Report processing into two jobs enables IMS PA to avoid dynamic allocation of Journal files on tape devices. Leaving allocation of tape devices to JES or the initiator avoids potential job failures.

## Report Set JCL using Automated File Selection

IMS PA uses options that you specify in the dialog to build JCL that invokes the Automated File Selection utility before running a Report Set.

IMS Connect Extensions Automated File Selection performs the following tasks:

1. Selects the Connect Journal files for processing by invoking IPIDBRC
2. Constructs the Report JCL
3. Submits the Report JCL

IMS PA builds the JCL to execute the Automated File Selection utility IPIDBRC using the following options specified from the dialog.

### **JOB**

**Job Statement Information** in IMS PA Settings.

### **STEPLIB DD**

**IMS PA Load Library** in IMS PA Settings.

### **SYSPRINT DD**

IPIDBRC utility message output file.

### **CEXDEF DD**

**IMS Connect Extensions Definitions Data Set** specified in your Profile Options. This data set contains the IMS Connect Extensions system definitions.

### **IPIRDR DD**

Internal Reader file. IMS PA submits Report Set JCL to this file after Automated File Selection has completed.

You can also specify a Data Set or SYSOUT class instead of the Internal Reader. If you do so, IPIDBRC will write the Report Set JCL to the nominated destination but will not submit the JCL. This facility allows you to generate and save the required JCL, including required Journal files, for editing without having the job submitted.

### **IPIPARM DD \***

Automated File Selection parameter input.

Execution parameters are passed to the Automated File Selection utility in DDname IPIPARM:

#### **FROM=(yyyy/mm/dd, hh:mm:ss:th)**

Reporting start date/time. Date is required, and can be an actual date specification, or a relative date. Relative dates are specified as 0, -1, -2, ..., and signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. Time is optional, and if not specified, defaults at run time to the start of the day.

#### **TO=(yyyy/mm/dd, hh:mm:ss:th)**

Reporting end date/time. Date is required, and must be in the same format as the FROM specification. Time is optional, and if not specified, defaults to the end of the day.

#### **HWSID=cccccccc**

IMS Connect system ID. The name of the IMS Connect system against which you want to run the CEX reports.

## IPISKEL DD

CEX Report JCL skeleton. IPISKEL contains the Connect Report Set JCL similar to that shown in “[IMS Connect Report Set JCL](#)” on page 525 or “[Connect JCL with command input](#)” on page 526.

```
//IMSPA    JOB (ACCOUNT),'NAME'
//*
//* IMS PA Report Set CEXAS01 - IMS PA Report Set
//*
//IPICEX   EXEC PGM=IPIDBRC
//STEPLIB DD DISP=SHR,DSN=IMSPA.V450.SIPILINK
//SYSUDUMP DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//IPIPRINT DD SYSOUT=*
//IPIRDR   DD SYSOUT=(A,INTRDR)
//IPIWRK1  DD SPACE=(TRK,(1,1,1)),UNIT=SYSDA
//IPIWRK2  DD SPACE=(TRK,(3,1)),UNIT=SYSDA
//SYSIN    DD SPACE=(CYL,(1,1)),UNIT=SYSDA
//CEXDEF   DD DSN=CEX.REPOSTRY,
//          DISP=SHR
//IPIPARM  DD *
FROM=(-1,10:00:00.00)
TO=(-1,12:00:00.00)
HWSID=IMS_Connect_System_ID
/*
//IPISKEL  DD DATA,DLM=$$
//IMSPA    JOB (ACCOUNT),'NAME'
//*
//* IMS PA Report Set CEXAS01 - IMS PA Report Set
//*
//IPI      EXEC PGM=IPIMAIN
//STEPLIB DD DISP=SHR,DSN=IMSPA.V450.SIPILINK,
//* Sysout data set
//SYSPRINT DD SYSOUT=*
//IPIDIAGS DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//* IMS Connect List Extract File
//IPICTRLS DD DISP=SHR,DSN=IPI.CEXLIST.EXTRCT
//* IMS Connect Summary Extract File
//IPICTRSU DD DISP=SHR,DSN=IPI.CEXSUMM.EXTRCT
//* Report Set
//IPIRSET  DD DISP=SHR,DSN=IMSPA.V450.RSET(CEXAS01)
$$
```

Figure 74. JCL for Connect Extensions Automated File Selection



---

## Part 4. Form-based transit reporting

Report Forms allow you to personalize the format and content of Transaction Transit reports and extracts to include only the information that interests you. This part describes how to request and run Form-based reports and extracts using the dialog and batch commands.

Form-based reports support False Schedule reporting. You can activate the False Schedule by selecting option 2 in the **Transaction Transits Options**. By default, the False Schedule option is disabled. You must use the **IMSPALOG FALSESCHD(YES)** command to enable the False Schedule reporting.





## Chapter 14. Principles of form-based transit reporting

IMS Performance Analyzer form-based transit reports use a report form to tailor the format and content of the resulting report. A report form is a user-defined template for the design of a report that specifies a list of IMS or IMS Connect fields (or both) to be reported (for example, transaction code, user ID, response time, and CPU time), summarization options for grouping purposes (for example, summarize by transaction code or by transaction code within each 5 minute time interval), and statistical functions including average, minimum, and maximum values. With form-based reports and extracts you can print report output or view it using SDSF, export to Db2, or produce CSV extracts that you can then analyze in third-party analytics.

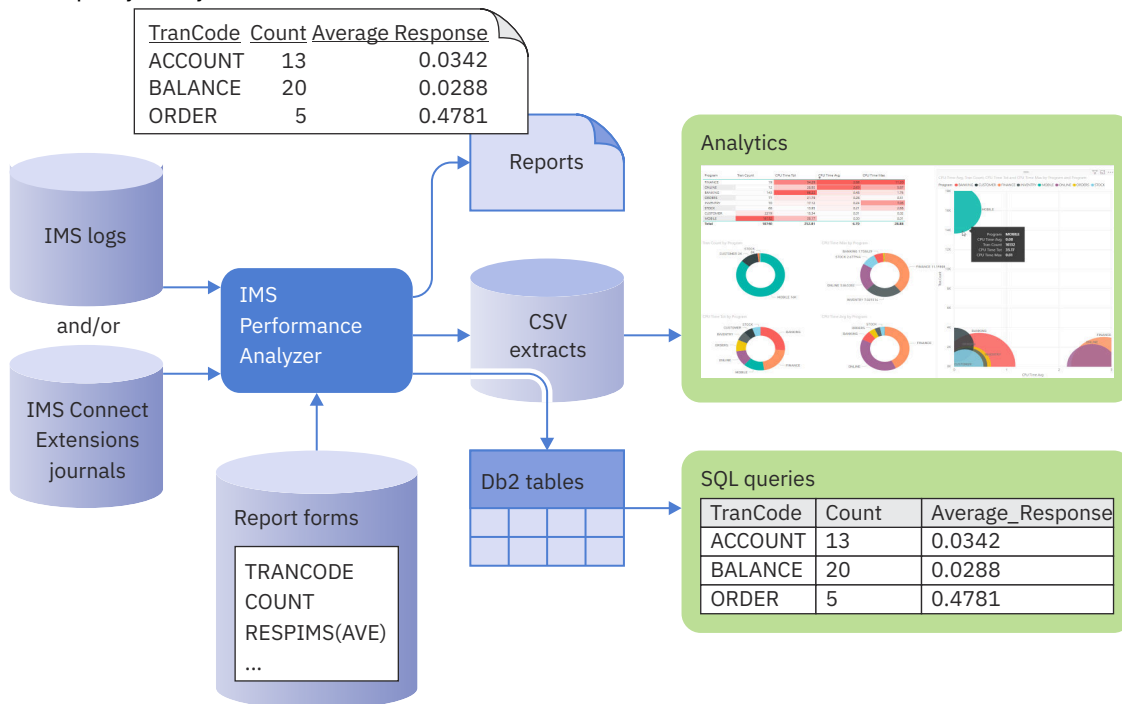


Figure 75. IMS Performance Analyzer form-based transit reporting overview

Form-based reporting can be requested from the dialog, or by using batch commands specifying the **FIELDS** keyword in the **LIST** and **SUMMARY** report commands.

### Features and benefits

Compared to standard transit reporting, Form-based reporting is distinguished by its usability and coverage.

#### Usability

The usability features of Form-based reporting include:

- Customizable reporting. You can design your own reports, select what you want to see and how you want to see it:
  - Batch command syntax is complicated, so you can use the Form editor in the dialog to design your report formats, or select from supplied samples.
  - Focus on a specific set of conditions using report filters.
  - Reference the Form in a Report Set.
  - Submit the Report Set to generate the JCL.

- Save the JCL in your library, then review or modify for subsequent report requests.
- Two reporting styles:
  - List – Chronological list of transactions with performance details.
  - Summary – Statistical analysis based on any key field combination.
- For summarization, you can fold transaction activity by any means:
  - For a dashboard effect, summarize by:
    - Region type – MPP, BMP, JAVA, IFP, ...
    - Input source – OTMA (IMS Connect and MQ), APPC, VTAM, ...
    - Time interval – show performance for each hour of the day.
  - For a more in-depth analysis, summarize by transaction code.
  - Specify up to 8 keys to group information as you need to see it.
- Report output options:
  - Print the report or view it in SDSF.
  - Extract to a CSV file for analysis.
  - Export to Db2 tables for SQL-based analysis.
- More information, more reliable. Form-based transit reporting exploits additional log record types to provide:
  - More transit time details, for example the type 5612 record that signals end of transaction processing provides more reliable processing elapsed time values.
  - Additional resource usage information, for example type 5937 provides Fast Path database usage statistics.
- Up to microsecond precision for transit and CPU times – formerly millisecond.
- Statistical functions – average, maximum, minimum, stand deviation, peak percentile, total.
- Distributions or service levels – "What percentage of transactions had a response time greater than 1 second?"
- Improved reporting accuracy, both in terms of coverage and response time breakdown – more log record types analyzed:
  - Processing time is now very accurate, where before it was an estimate.
  - All transaction activity accounted for.
  - Use STARTLVL=2 to report all transactions, even when the 01 input record is in a previous log file – input queue time is extrapolated. Use STARTLVL=3 to report on non-message driven BMPs.
  - Use the BMPSYNC option to control the treatment of BMPs. You can treat each BMP syncpoint interval as a single transaction or to treat the BMP as a single transaction.
- Run as many reports as you want in a single pass of the data – each with a different focus.
- Create an IMS transaction index that contains a record for each IMS transaction, together with cumulative information from the IMS log about that transaction:
  - Use the index in IMS Performance Analyzer to run additional reports, bypassing the SLDS log files and saving time.
  - Use the index in IMS Problem Investigator for intelligent diagnosis, for example *"Locate all transactions with response time greater than 1 second"*.
- Wide reports – no 132 character page width restriction.

## Coverage

Form-based reporting provides better coverage. All transactions in the IMS log are reported. The standard style reports may have omitted some transactions due to not analyzing all log record types that affect transit activity. Incomplete transactions (not reported in the standard style reports) can

also be reported in Form-based reporting by specifying a reporting completion level, so that no transactions slip through the reporting net.

- Integrated MPP and IFP support – all transaction types now supported:
  - See your entire transaction workload in a single report.
- Fast Path database support – for MPP and IFP transactions alike:
  - DEDB calls, Area I/O, FP buffer usage and contention, VSO.
- End-to-end MSC
  - Merge the front and back end logs to get the complete response time breakdown.
- Support for 56FA transaction-level accounting – accurate CPU time, VSAM and OSAM DB IO and lock analysis.
- IMS Connect reporting, including end-to-end IMS and Connect analysis:
  - Create a form that contains both IMS Connect and IMS events.
  - Merge the IMS log with the IMS Connect Extension journal.
  - View the resulting report that shows IMS Connect and IMS event latencies together.

## List reporting

---

The List Report Form defines the columns to be included in a Transit List report or extract. Each line in the list represents one transaction, typically used for the detailed analysis of recent transaction events.

The following is an example of a List Report Form. You can delete fields you do not want reported, insert fields that you do want reported, or move fields in the Form to suit your preferred order. You can use line action H against fields in the Form to display additional help information about the fields.

```

EDIT                               List Report Form - ALLLIST                Row 1 to 29 of 43
Command ==>                        Scroll ==> PAGE

Description . . . Transaction List          Category . . . IMS      +
                                           Page Width . . 398
                                           Precision . . . 6
                                           Digit Grouping SEC
                                           Tranmix . . . . 1
                                           Report Filter   _____ +

Field
/ Name + Func Len Description
-- STARTIMS TIME 15 IMS transaction arrival time
-- ORGLTERM _____ 8 Originating LTERM
-- TRANCODE _____ 8 Transaction Code
-- PROGRAM _____ 8 Program or PSB name
-- COMPLVL _____ 5 IMS Completion Level
-- QTYPE _____ 6 Queue type
-- REGTYPE _____ 3 Region type
-- PSTID _____ 4 Region PST ID
-- CLASS _____ 3 Transaction Class
-- PRIORITY _____ 2 Transaction priority
-- USERID _____ 8 User ID
-- LTERMOUT _____ 8 Output LTERM
-- CPUTIME _____ 8 CPU time
-- INPUTQ _____ 8 Input queue time
-- PROCESS _____ 8 Processing time
-- OUTPUTQ _____ 8 Output queue time
-- OUTPUTG _____ 8 SMQ global output queue time
-- OUTPUTL _____ 8 SMQ local output queue time
-- TOTALTM _____ 8 Total transaction elapsed time
-- UORTIME _____ 8 Unit-of-recovery time
-- RESPIMS _____ 8 IMS response time
-- DBCALLS _____ 10 DB call count
-- DBGETS _____ 10 DB get call count
-- DBUPDATS _____ 10 DB update call count
-- DBWAITS _____ 10 DB wait count
-- DCCALLS _____ 10 DC call count
-- FPCALLS _____ 10 Fast Path DB call count
-- FPGETS _____ 10 Fast Path DB get call count
-- FPUUPDATS _____ 10 Fast Path DB update call count

```

Figure 76. List Report Form: all transit information

This Report Form produces a report like the following that lists all transactions and their performance metrics.

IMS Performance Analyzer													
List all performance indicators													
LIST0001 Printed at 11:37:35 13Sep2021				Data from 10.40.00 26Jun2021									
Org	Trancode	Program	Proc	Queue	Reg	Cls	Pr	IMS Tran	CPU	Output	InputQ	Process	
LTERM			IMS ID	PST Type	Typ			Start	Time	Userid	LTERM	Time	Time . . .
WH000110	TPCCS	PSBSL	IM2A	18 LOCAL	MPP	5	1	10.40.00.203	21	WH000110	WH000110	4	60
WH000302	TPCCS	PSBSL	IM2A	19 LOCAL	MPP	5	1	10.40.00.747	22	WH000302	WH000302	2	79
WH001106	TPCCS	PSBSL	IM2A	19 LOCAL	MPP	5	1	10.40.01.671	24	WH001106	WH001106	2	65
WH000309	TPCCS	PSBSL	IM1A	9 LOCAL	MPP	5	1	10.40.00.191	18	WH000309	WH000309	3	68
WH001303	TPCCS	PSBSL	IM1A	9 LOCAL	MPP	5	1	10.40.00.355	12	WH001303	WH001303	1	51
WH001007	TPCCS	PSBSL	IM1A	9 LOCAL	MPP	5	1	10.40.01.201	26	WH001007	WH001007	1	47

Figure 77. Form-based Transaction List report

## Summary reporting

The Summary Report Form defines the columns to be included in a Transit Summary report or extract. Each line in the summary represents transaction activity summarized by the specified grouping or key fields, for example statistics for each transaction over the entire reporting period or time interval.

The following is an example of a Summary Report Form, so transaction activity is summarized according to the key fields. Notice the fields marked with K at the top of the Form. Key fields determine how transaction activity is summarized. In this case, STARTIMS and TRANCODE indicate summarization by transaction code with a specified time interval.

```

EDIT          Summary Report Form - ALLSUMM      Row 1 of 33 More: <>
Command ===>                                     Scroll ===> PAGE

Description . . . Transaction Summary              Category . . . IMS      +
                                                    Page Width . . . 305
                                                    Precision: Time 6
                                                    Precision: Cnt 2
                                                    Digit Grouping SEC
                                                    Tranmix . . . . 1
                                                    Report Filter      +

Field  Sort
/ Name + K 0 Func Len Description
--- STARTIMS K * TIME      8 IMS transaction arrival time
--- TRANCODE K A          8 Transaction Code
--- TRANCNT      -          10 Transaction count
--- CPUTIME      - AVE      8 CPU time
--- INPUTQ       - AVE      8 Input queue time
--- PROCESS      - AVE      8 Processing time
--- OUTPUTQ      - AVE      8 Output queue time
--- OUTPUTG      - AVE      8 SMQ global output queue time
--- OUTPUTL      - AVE      8 SMQ local output queue time
--- TOTALTM      - AVE      8 Total transaction elapsed time
--- UORTIME      - AVE      8 Unit-of-recovery time
--- RESPIMS      - AVE      8 IMS response time
--- DBCALLS      - AVE     10 DB call count
--- DBGETS       - AVE     10 DB get call count
--- DBUPDATS     - AVE     10 DB update call count
--- DBWAITS      - AVE     10 DB wait count
--- DCCALLS      - AVE     10 DC call count
--- FPCALLS      - AVE     10 Fast Path DB call count
--- FPGETS       - AVE     10 Fast Path DB get call count
--- FPUPDATS     - AVE     10 Fast Path DB update call count
--- FPWAITS      - AVE     10 Fast Path DB wait count
--- MSGLIN       - AVE     10 Input Message length
--- MSGLOUT      - AVE     10 Output Message length
--- DBIOCALL     - AVE     10 Total OSAM and VSAM database IO count
--- DBIOTIME     - AVE      8 Database IO elapsed time
--- LOCKTIME     - AVE      8 Database Locking elapsed time
--- VSAMREAD     - AVE     10 VSAM read IO count
--- VSAMWRIT     - AVE     10 VSAM write IO count

```

Figure 78. Summary Report Form: all transit information

The Transaction Summary report provides a statistical summary of transaction activity and related performance metrics. Each line in the summary represents transaction activity summarized by the specified grouping or key fields, for example statistics for each transaction over the entire reporting period or time interval.

IMS Performance Analyzer																
Summarize all performance data																
SUMM0500 Printed at 15:49:10 13Jul2008				Data from 14.27.59 12Jun2007 to 15.32.38 12Jun2007								Page 1				
Trancode	Tran Count	Avg CPU Time	Avg InputQ Time	Avg Process Time	Avg OutputQ Time	Avg SMQ OutQTime	Avg Glob OutQTime	Avg SMQ Locl OutQTime	Avg IMS Time	Avg Total Time	Avg UOR Time	Avg IMS Time	Avg Resp Time	Avg DB Call Count	Avg DB Get Count	Avg DB Updat Count
CEXSNONC	8	8	25	950	0	20	0	0	0	960	4358	81	3	1	2	
CEXTNONC	12	13	13	548	0	18	0	0	0	556	61837	1104	4	1	2	
DFSIVP4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
IVTCV	32	2	13	305	11	92	0	0	0	330	308	142	1	1	0	
IVTNO	9	1	30	302	0	28	0	0	0	332	7157	112	1	1	0	
IVTNV	12	1	10	309	14	182	0	0	0	333	5876	211	1	1	0	
PART	3	14	93	613	0	38	0	0	0	705	616	489	1	1	0	
Total	78	5	19	424	8	84	0	0	0	447	11489	275	2	1	1	

Figure 79. Form-based Transaction Summary report

Note that summarization is by transaction code, but this can be changed to any key field defined in the Form. The Transaction Count represents the number of transactions in the statistical range for the row.

The level of summarization can be varied depending on the number of key fields. You can specify up to 8 key fields to summarize and sort by, and you can request up to 7 levels of subtotalling.

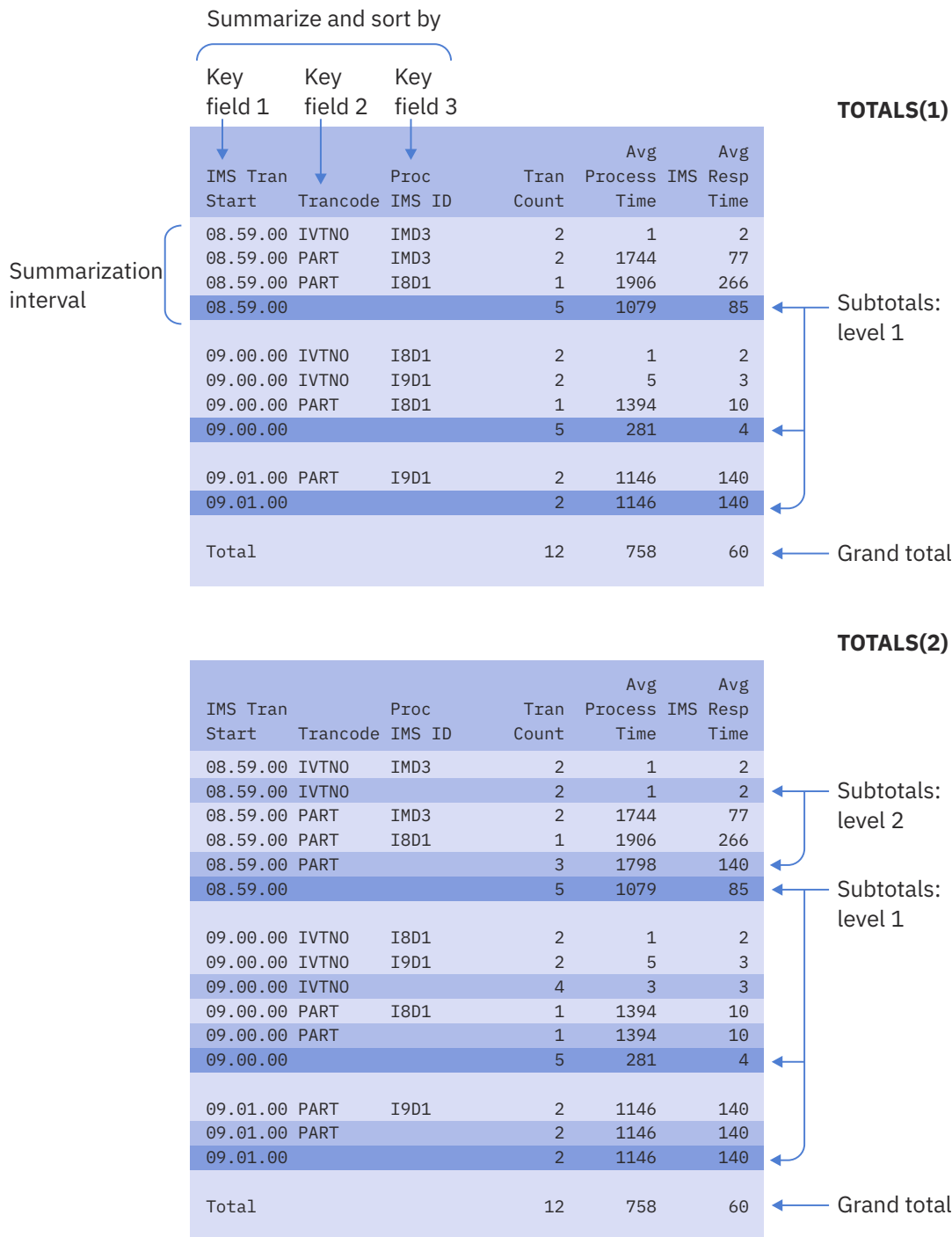


Figure 80. Form-based Summary report showing different levels of totaling

## Transaction information provided by report forms

IMS Performance Analyzer form-based reporting is available for event data supplied in IMS logs and in IMS Connect Extensions journals. You can use form-based reporting to combine these data sources into a single report for end-to-end reporting of IMS Connect to IMS and back.

### IMS

The following information is supplied by IMS Performance Analyzer form fields that have been derived from IMS log records:

**Identification**

- Transaction code, User ID, logical terminal (LTERM), terminal
- Originating and processing tracking unit of work IDs
- Recovery token

**Run-time attributes**

- Transaction type including Multiple Systems Coupling (MSC), advanced program-to-program communication (APPC), Open Transaction Manager Access (OTMA), and IMS Connect
- Response mode, conversational, recoverable
- Locally or globally processed on the shared queue
- Transaction class and priority

**Completion**

Completion level, including abend code

**Message**

Including input and output message lengths and counts

**Performance**

- Response time
- Transit time broken down into input queue, processing and output queue times
- WFI
- Scheduling and syncpoint latencies

**Resource usage**

- CPU time
- CPU service units
- Full Function database call and wait activity
- Fast Path database call and wait activity

**Fast Path**

Fast Path (IFP) transactions

**IMS Connect**

The following information is supplied by IMS Performance Analyzer form fields that have been derived from IMS Connect Extensions journal records:

**Identification**

- Transaction code, User ID, LTERM
- Client ID, Port number, Socket number, Tpipe name
- Logon (event) token

**Run-time attributes**

- Commit mode and SYNCH level

**Completion**

- ACK and NAK, timeout and other failure indicators

**Performance**

- Response time
- Transit time broken down into TCP/IP, message exit, SAF and OTMA components



## Combined IMS and IMS Connect

Combined IMS Connect and IMS reporting can be requested directly from a report form or from a CEX report set. Input from the IMS log and IMS Connect Extensions journal is merged to provide an end-to-end picture of IMS Connect transactions. Combined reporting allows you to select performance information from both the IMS log and IMS Connect environments. A single report provides end-to-end IMS Connect analysis. You can see at a glance where transaction performance is adversely affected, for example IMS Connect TCP/IP socket activity, IMS input queue, or IMS transaction execution in a message processing region.

### Related reference

[Glossary of Report Form field names](#)

This glossary lists all the fields available to IMS Performance Analyzer form-based list and summary reports.



---

## Chapter 15. Report Forms

A report form is a user-defined template for the design of a report. The batch equivalent is the **FIELDS** operand. You can use Report Forms to tailor the format and content of the Transaction Transit reports in IMS log and IMS Connect Report Sets.

There are two types of Report Form, matching the two Transaction Transit reports:

- To tailor a Transaction Transit List report, you use a List Report Form.
- To tailor a Transaction Transit Summary report, you use a Summary Report Form.

Both reports are "tabular": they display lines of data under column headings.

Both types of Report Form define:

- The report title.
- The fields displayed in the report columns.
- The order of the columns.

However, while each line in a list report contains data for a single transaction, each line in a summary report can summarize data for many transactions. To do this, Summary Report Forms specify a key consisting of up to 8 fields. Transactions with the same key appear on a single line with average values for the non-key fields. If an average value is not appropriate for a field, you can select another statistical function, such as max, min, or total.

**Note:** Report form definitions are stored in a control data set. Use option 0.4 **IMS PA Control Data Sets** to specify which data set to use to store report forms.

Summary reports can contain three types of line:

### Summary

These lines summarize transactions with the same key.

Summary lines will always be included in the report.

### Subtotal

These lines summarize transactions at the level of each key field, up to a "totals level" that you specify when you request the report (not in the Report Form).

For example, if you specify a totals level of 3, then your summary report will contain 3 types of subtotal line:

- For each unique combined value of key fields 1, 2, and 3.
- For each unique combined value of key fields 1 and 2.
- For each unique value of key field 1.

Subtotal lines appear in the report between summary lines, as the values of the key fields change. Specifying a totals level that is greater than the number of key fields has the same effect as specifying the number of key fields: the report will contain subtotals for each key field.

Subtotal lines will only be included when a "totals level" in the range 1–7 is specified when you request the report.

### Grand total

This single line appears at the bottom of the report, and groups transactions for the entire report interval.

A grand total line will only be included in the report when it is:

- Requested explicitly by specifying a "totals level" of 0 (the default).
- Requested implicitly by specifying a "totals level" in the range 1–7.

No totals are included if you do not specify a “totals level” (leave it blank) or if you specify the batch report operand **NOTOTALS**.

When requesting a summary report, in addition to specifying a Report Form, you can specify a summary time interval. This causes the report to summarize data at regular intervals within the overall report interval, for example, if you request a summary report for 12 noon to 1 p.m., and you specify a summary time interval of 15 minutes.

**Note:** The summary time interval is only relevant when the fields STARTIMS or STARTCON are specified in the Report Form key.

The following figure shows the structure of a summary report where 3 key fields have been selected in the Report Form and a “totals level” of 2 was specified when the report was requested.

Key				Non-key fields	
Key field 1	Key field 2	Key field 3			
<b>STARTIMS</b>	<b>TRANCODE</b>	<b>IMSID</b>	<b>RESPIMS</b>	...	Column headings
12:00:00	ABC	IMS1	1.1	...	Summary lines
12:00:00	ABC	IMS2	1.5	...	
12:00:00	ABC	2	1.2	...	Subtotal for ABC in this interval
12:00:00	DEF	IMS1	3.3	...	Summary lines
12:00:00	DEF	IMS2	2.4	...	
12:00:00	DEF	IMS3	3.6	...	Subtotal for DEF in this interval
12:00:00	DEF		3.2	...	
12:00:00			1.8	...	Subtotal for this interval
12:15:00	ABC	IMS1	1.4	...	Summary lines
12:15:00	ABC		1.4	...	
12:15:00	DEF	IMS1	3.6	...	Summary lines
12:15:00	DEF	IMS3	3.5	...	
12:15:00	DEF		3.6	...	Subtotal for DEF in this interval
12:15:00			2.1	...	
Data for summary intervals at 12:30, 12:45					
			1.9	...	Grand total line

Figure 81. Structure of a summary report

**1** You specify these items when you request the report, not in the Report Form: the report interval, the summary interval, and the totals level.

**2** Subtotal lines contain one or more blank key fields, indicating the subtotal level.

**Note:** the 1.2 "subtotal" value shown here is not simply an average of the values 1.1 and 1.5 shown in the previous summary lines. Instead, this "subtotal" is calculated by averaging the IMS response

time of every ABC transaction that ran across all IMSIDs included in the report within the summary interval.

**3**

In this summary interval, the ABC transaction ran only on IMS1. However, the report still contains a subtotal line at the IMSID key field level (even though the subtotal is identical to the summary line).

## Maintaining Report Forms

To maintain (create, edit, delete) Report Forms, select option 2 **Report Forms** from the IMS Performance Analyzer primary option menu.

### Procedure

Select option 2 **Report Forms** from the IMS Performance Analyzer primary option menu.

The **Report Forms** panel is displayed, which lists the Report Forms in the nominated Report Forms data set.

You can enter values in the column headings to filter the list of report forms that are displayed.

Report Forms
Row 4 from 37

Command ==> \_\_\_\_\_
Scroll ==> PAGE

Report Forms Data Set . . : JXW.IMSPA.FORM

Field Search . . : \_\_\_\_\_

*	SUMM	IMS	*	Changed	ID
/ Name	Type	Cat	Description		
AB5	SUMM	IMS	Connect Analysis by TranCode	2019/11/14 11:00	JXW
ALLSUMM	SUMM	IMS	Transaction Summary	2019/11/14 11:01	JXW
ALLSUMMX	SUMM	IMS	Transaction Summary Extract	2020/03/01 00:00	IPI450
CONNTCOD	SUMM	IMS	Connect Analysis by Trancode	2018/04/24 00:00	IMSPA
OTMATYPE	SUMM	IMS	Tran count by OTMA Type	2019/11/07 14:53	JXW
RATES	SUMM	IMS	Tran Rates per Minute/second	2019/11/12 10:05	JXW
REGOCCUP	SUMM	IMS	Tran Count by Region	2019/09/27 09:39	JXW
RGBYCLPR	SUMM	IMS	Region by Class and Priority	2019/09/27 09:53	JXW
RGBYTRAN	SUMM	IMS	Tran by Region with InputQ	2019/09/27 10:24	JXW
RGBYTRN1	SUMM	IMS	Transaction by Region	2020/03/01 00:00	IPI450
SWITSUMM	SUMM	IMS	Program-Switch Summary	2020/03/01 00:00	IPI450
SYNCSUMM	SUMM	IMS	Syncpoint Summary by Transaction	2020/03/01 00:00	IPI450
S001	SUMM	IMS	Transaction Resource Usage	2019/08/28 10:06	JXW

Figure 82. Report Forms

The current Report Forms data set is one of the Control Data Sets in your profile settings. To change it, use **Options** in the action bar.

From the list of Report Forms, you can select one at a time to view or modify, or you can create new Report Forms.

You can also add a selection of sample Report Forms by selecting **Samples** in the action bar or entering the **SAMPLES** command. See [“Sample report forms” on page 169](#).

The Report Forms are listed with the following user-defined attributes:

#### Name

1–8 character name in ISPF member name format, used to uniquely identify the Report Form within the Report Forms data set. By default, the panel is sorted on the Name field.

#### Type

The type of Report Form, either LIST or SUMMARY.

#### Cat

Report form category.

**IMS**

Generic IMS reports (but may include data from other categories).

**IFP**

IMS Fast Path specific reports.

**DBC**

DBCTL specific reports.

**CEX**

IMS Connect Extensions specific reports.

**Description**

Free format text up to 32 characters that describes the contents and purpose of the Report Form. The description is used in the report subheading.

In addition, the Report Forms are listed with the following system-generated attributes:

**Changed**

Date and time when last updated.

**ID**

The userid that last updated the Report Form.

**Line actions:**

The following line actions can be entered against any row in the Report Forms list:

/

Display the menu of line actions.

**E**

Edit the Report Form.

**S**

Select the Report Form (same as Edit).

**V**

View the Report Form. This looks like the Edit panel but has no 'hold' on the data and has no save capability.

**R**

Rename the Report Form.

**D**

Delete the Report Form.

**J**

Generate JCL containing the IMSPALOG batch command and the fields of this Report Form, so that you can create a report or an extract from IMS log data.

**X**

Export data to a Db2 table from a Form-based extract data set created from this Report Form.

**Note:** The format of the extract data set and the corresponding Db2 table are both defined by this Report Form. Ensure that the Form does not change between extract and export processing.

**F**

Format the form as JCL command input. This option provides a preview to the command input generated by IMS PA when you submit a form-based report or extract that uses this form.

**U**

Modify User Notes to be associated with the Report Form. Text that you enter as a user note is stored with the report form for anyone to see by using line action **U**.

**Primary commands:**

The following primary commands are valid for this panel:

**NEW name type**

This command creates a new Report Form with the specified *name*. The *type* can be one of:

**LIST**

List Report Form

**SUMMARY**

Summary Report Form

**MODEL**

Model on an existing Report Form

It displays the **New Report Form** window populated with values from your entered command or from the last Report Form you created, and prompts you for further details to define the new Report Form.

Also available from **File** in the action bar.

See “Creating new Report Forms” on page 170 for information on how to proceed.

**SELECT *name***

This command (or **S**) selects the specified Report Form for editing.

Also available from **File** in the action bar.

**SORT *Name|Type|Description|Changed|Id***

This command sorts the list of Report Forms on one or two columns. The default sort field is **Name**. The sort disregards upper and lower case, and is ascending for all but the **Changed** column which is descending. The sort order is retained only until Exit or another **SORT** command is issued.

**LOCATE *string***

This command (or **L** or **LOC**) is used to locate an entry in the list based on the primary sort field. By default, **LOCATE** operates on the **Name** field. The string should be no longer than the primary sort field and not enclosed in quotes. The display will scroll to the entry which matches the string, or the entry preceding it if an exact match is not found.

**SAMPLES**

This command displays the list of Sample Report Forms. You can select one or more Forms from the list to populate your Report Forms data set.

Also available from **Samples** in the action bar.

## Sample report forms

---

A set of sample report forms is provided with IMS Performance Analyzer. The IMS Performance Analyzer reports and extracts produced using these sample report forms provide a detailed picture of the many aspects affecting IMS system performance.

To add the samples to your report forms data set, select **Samples** in the action bar of the Report Forms panel or enter **SAMPLES** on the command line.

Enter line action S (or any non-blank character) to select one or more sample report forms. Alternatively, enter S \* on the command line to select all the samples. The **RESET** command will clear all line actions. You can use the **FIND** command and **Rfind (F5)** to search for a specified character string in any column.

```

Sample Report Forms
Command ==> S * Scroll ==> PAGE
Select one or more sample Report Forms then press Exit.

Name      Type      Cat      Description
. CEXBYDST SUMMARY CEX      Connect by Destid
. CEXCLNT  SUMMARY CEX      Connect Count by Client ID
. CEXIPA   LIST      CEX      Connect Tran with IPAddr
. ALLSUMM  SUMMARY IMS      Transaction Summary
. BADRESP  SUMMARY IMS      Bad Transaction Response Time
. BMPCHKPT LIST      IMS      BMP Checkpoint Detail
. BMPCPDBD LIST      IMS      BMP Job Checkpoint by Database
. BMPDTL   SUMMARY IMS      BMP Checkpoint Detail
. BMPSTAT  SUMMARY IMS      BMP Statistics
.

```

Figure 83. Browsing report form samples in IMS Performance Analyzer

To complete your selection, press **Exit (F3)**.

**Note:** You can add the sample report forms to your report forms data set at any time regardless of its current contents. A sample report form will not be available for selection if a report form of the same name already exists.

For more information on the purpose of each sample form, select dialog option 2 **Report Forms** to display the list of sample forms and then enter line action U. For more information on the fields generated in the sample reports, select the form you are interested in and then enter line action H for help information on any field.

### Related tasks

Producing a report using a sample report form

IMS Performance Analyzer report forms allow you to personalize the format and content of Transaction Transit reports and CSV extracts to include only the information that interests you. In this tutorial, we will use a sample report forms supplied with IMS Performance Analyzer to produce a series of ad-hoc reports which can be viewed in the traditional text-based format or in a CSV format for use in third-party analytics.

### Related reference

Glossary of Report Form field names

This glossary lists all the fields available to IMS Performance Analyzer form-based list and summary reports.

## Creating new Report Forms

If you want to create a form-based report or extract that contains your choice of fields, you need to create a Report Form.

### Procedure

To create a Report Form:

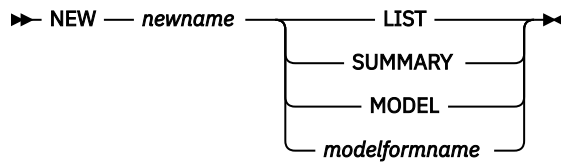
1. On the IMS Performance Analyzer primary option menu, select option 2 **Report Forms**.

The **Report Forms** panel is displayed, showing the list of existing Report Forms.

2. Either:

- On the command line, enter **NEW** followed by the name of the new Report Form and initialization details using the following syntax:





- On the action bar, select **File > New**. A pop-up dialog window is displayed.

This panel prompts you for details of the new Report Form.

The options are:

#### **Name**

The name of the new Report Form. A 1–8 character name in ISPF member name format. The name must be unique within the Report Forms data set.

#### **Type**

Select the type of Report Form or model which dictates how the new Form is to be initialized (such as the fields, order, sort sequence). Type is important since a Form can only be used by reports and extracts of compatible type:

##### **1. List**

Can be used for the Transaction Transit List report or extract in a LOG, or CEX Report Set.

##### **2. Summary**

Can be used for the Transaction Transit Summary report or extract in a LOG, or CEX Report Set.

##### **3. Model**

Can be used to model your new Report Form on an existing one.

#### **Model options:**

If you selected the new Report Form is to be modelled on an existing one, specify the name of the model Report Form and data set where it is stored. **Prompt (F4)** is available for both the Report Form data set name and the Report Form member name. The new Report Form will be the same type (List or Summary) and initialized with the same data fields as the model.

#### **List or Summary options:**

If you chose not to model on an existing form, but selected either type **1. List** or **2. Summary**, you must specify which fields to include in the new Report Form. The choices are:

- Include IMS fields – for LOG reporting
- Include Connect fields – for CEX Connect-only reporting
- Include IMS fields and Connect fields – for CEX Combined reporting

#### **Specify Field Categories**

To help you specify IMS fields in your new Report Form, you can select the fields by category.

With this option selected, the user is prompted to select one or more field categories after pressing Enter to create the report form. The following pop-up dialog window is displayed.

### Select Field Categories

Select one or more categories then press Exit.

Transaction (TM and CICS-DBCTL):

- / Identification
- / Response Time
- / Resource Usage
- \_ Run-time Attributes
- \_ Fast Path (IFP)

Database:

- \_ DLI Call breakdown
- \_ Fast Path (DEDB)
- \_ Update Activity

Subsystem:

- \_ ESAF
- \_ OTMA and Connect

*Figure 84. New Report Form: selecting field categories*

Select the desired field categories, then press **Exit (F3)**. The fields in the selected categories are then available in the Report Form. The default field categories are the selection shown in [Figure 84 on page 172](#): Transaction Identification, Response Time, and Resource Usage.

3. When you have specified all required details, press Enter to create the Report Form.

## List report form

An IMS Performance Analyzer list report form allows you to produce a list of transactions containing the specified fields.

The report form defines the fields to be included, the order of the columns, and a title for the report.

When you select option 2 **Report Forms** from the IMS Performance Analyzer primary option menu, and then select a summary report form to edit or view, the following view is displayed.

```

EDIT                               List Report Form - COMBLIST                Row 1 to 22 of 22
Command ==>> _____ Scroll ==>> PAGE

Description . . . Connect and IMS List          Category CEX  +

Tranmix . . . 1          Page Width . . . 180      Precision: Time . . 6
Report Filter CPUFILT + Digit Grouping . SEC

Field
/ Name + Func Len Description
--- STARTCON TIME 15 Connect transaction start time
--- TRANCODE _____ 8 Transaction Code
--- PREOTMA _____ 8 Total pre-OTMA input time
--- POSTOTMA _____ 8 Total post-OTMA output time
--- PROCOTMA _____ 8 OTMA processing time
--- RESPCON _____ 8 Connect response time
--- STARTIMS TIME 15 IMS transaction arrival time
--- INPUTQ _____ 8 Input queue time
--- PROCESS _____ 8 Processing time
--- TOTALTM _____ 8 Total transaction elapsed time
--- OUTPUTQ _____ 8 Output queue time
--- PROGRAM _____ 8 Program or PSB name
--- PSTID _____ 4 Region PST ID
--- CLASS _____ 3 Transaction Class
--- PRIORITY _____ 2 Transaction priority
--- DBCALLS _____ 10 DB call count
--- CPUTIME _____ 8 CPU time
--- USERID _____ 8 User ID
--- LTERMOUT _____ 8 Output LTERM
--- RESPIMS _____ 8 IMS response time
--- EOR _____ ----- End of Report -----
--- EOX _____ ----- End of Extract -----
***** Bottom of data *****

```

Figure 85. A sample list report form in IMS Performance Analyzer

The list report form contains the following fields:

### Description

Specify up to 32 characters of text to describe the purpose of the Report Form and help you distinguish it from others.

**Note:** IMS Performance Analyzer uses the description as the report title.

### Category

Each report form has a category whose purpose is to describe the primary data focus of the report form. You can then filter the list of report forms by category. The categories are as follows:

#### IMS

IMS transactions and data

#### DBC

DBCTL transactions and data

#### IFP

IMS Fast Path transactions and data

#### CEX

IMS Connect Extensions transactions and data

### Tranmix

The Tranmix value specifies the type of transactions to be reported. The following Tranmix values are valid:

#### 1

All transactions. This is the default value.

#### 2

All transactions excluding IMS Fast Path.

- 3 IMS Fast Path transactions only.
- 4 Transactions that use IMS Fast Path, either expedited message handler (EMH) or data entry databases (DEDB).
- 5 All transactions, excluding batch message processing (BMP).
- 6 Non-message driven BMP only.

#### **Report Filter**

In this field you can specify a filter to use. You can see the list of filters and create new ones using option 4.1 **Filters** on the primary option menu, or by using the **Report Filters** point-and-shoot field. For more information, see [Chapter 16, “Report Filters,” on page 183](#).

#### **Page Width**

Page width of the report, in the range 80 to 8000.

When you increase the page width, you can include more fields in the report. Move EOR down the list or move fields above EOR to include the fields of interest. IMS Performance Analyzer automatically adjusts the EOR marker when the fields overflow the page width.

When you view the report output (using SDSF), scroll right to see the additional fields. Note that when you print the report, data that exceeds the maximum printer page width will be truncated.

#### **Digit Grouping**

Digit grouping affects the formatting of time and count fields. Specify the digit grouping as follows:

##### **YES**

Digit grouping will include the separator character to delineate each group of three digits, aligned to milliseconds for time and 1000 for count. For time fields, the separator is . (period). For count fields, the separator is , (comma).

##### **NO**

No digit grouping. Count and time fields will be displayed as whole numbers with no separators.

##### **SEC**

The separator character will delineate the decimal point only. SEC applies to time fields only and assumes YES for count fields. Use SEC for extracts when time fields must be in seconds and fractions of seconds when importing data into a database. This is the default.

#### **Precision: Time**

The precision of time-based fields can be formatted to either 3, 4, 5, or 6 decimal places.

For example, if the field value is 10.123456 seconds:

- 3 decimal places is 10.123 precision
- 4 decimal places is 10.1235 precision
- 5 decimal places is 10.12346 precision
- 6 decimal places is 10.123456 precision

**Note:** Rounding occurs for elapsed and CPU time values.

Precision and digit grouping affect how the field values are represented in the report. Precision and digit grouping can be specified in the Report Form and the Report Set. The Report Set takes precedence.

#### **Field Name**

The IMS Performance Analyzer name for the IMS or IMS Connect field. Press Prompt (F4) to select from a list of fields applicable to this Form type. For the list of available field names, refer to the [Chapter 34, “Glossary of Report Form field names,” on page 673](#).

**EOR** and **EOX** are special entries:

- **EOR** is managed by IMS Performance Analyzer. It signals the end of the report line. The fields listed above **EOR** fit on the report line and are included in the report in the same order as they appear in the list. Those below **EOR** will not be reported and are ignored.

IMS Performance Analyzer automatically sets **EOR** when the Report Form is created and resets it if necessary when the Form is changed to ensure that the maximum page width as specified in the **Page Width** field is not exceeded. In positioning **EOR**, IMS Performance Analyzer allows for one blank separator between each field.

To produce a report line shorter than the specified **Page Width**, move **EOR** towards the top of the Form, delete unwanted fields, or move them below **EOR**.

- **EOX** signals the end of the extract record. There are no restrictions on record length so **EOX** can be positioned anywhere in the list. **EOX** is initially positioned just below **EOR**. Fields above **EOX** are included in the extract, those below are ignored. If **EOX** is not specified, **EOR** is used.

#### Func

Function. For time stamp fields STARTIMS and STARTCON, specify the output format:

##### ISO

Full time stamp in the format *yyyy-mm-dd hh.mm.ss.thmiju* where the sub-second format depends on the precision.

##### DATE

Date in the format *yyyy-mm-dd*

##### TIME

Time in the format *hh.mm.ss.thmiju* where the subsecond format depends on the precision. Time is the default applied at run time.

For any field, you can specify HIDE to omit it from the report or extract.

#### Len

The length of the field in the report or extract. This is used to calculate the width of the print line.

#### Description

This is a short description of the field. Enter line action H (Help) to see a more detailed description.

#### Line actions:

The following line actions are valid on this panel:

/

Display the menu of line actions.

**S**

Select a field name from a list of all fields appropriate to the type of Report Form.

**I**

Insert a blank row after this row for entry or selection of another field.

**R**

Repeat this row.

**RR**

Repeat a block of rows bounded by two RRs.

**C**

Copy this row.

**CC**

Copy a block of rows bounded by two CCs.

**M**

Move this row.

**MM**

Move a block of rows bounded by two MMs.

**A**

Move/Copy after this row.

- B** Move/Copy before this row.
- D** Delete this row.
- DD** Delete a block of rows bounded by two DDs.
- H** Field Help. Display a detailed explanation of the field.

**Note:** Line operations can span the **EOR** and **EOX** rows. IMS Performance Analyzer will reset **EOR** after the operation has completed to ensure the page width is not exceeded. Only one **EOR** and one **EOX** is retained, that closest to the top of the list. If **EOX** is deleted, **EOR** is assumed to define the length of the extract.

#### Primary commands:

The following primary commands are valid for the LIST and SUMMARY Report Form panels:

##### **FIND** *string*

This command (or **F**) looks for the specified character string in all columns of displayed data. The string is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data.

To find more occurrences, use F5 or the **RFIND** command repeatedly.

If there is no match but the search did not begin at the top of the list, the screen does not change and the message \*Bottom of data reached\* is displayed. Press F5 or enter **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and a String not found message is displayed.

##### **SAVE**

This command is only available from Edit mode and saves any changes you have made. To save any changes made in View mode, use **SAVEAS**.

Also available from **File** in the action bar.

##### **SAVEAS** *formname|datasetname(formname)*

This command is available from both Edit and View mode to save the contents of this Report Form under another name, either in the current data set (assumed if no data set name is provided) or in another suitable data set (if the name of a valid PDS is provided).

Also available from **File** in the action bar.

##### **RESET**

This command (or **RES**) removes all outstanding line actions and deletes any blank rows.

Also available from **Edit** in the action bar.

#### Related reference

[Transaction Transit List report and extract](#)

The options for the IMS Performance Analyzer Transaction Transit List report and extract are described here.

[LIST: Transaction Transit List report and extract \(Form-based\)](#)

The **LIST** operand of the **IMSPALOG** batch command requests the Transaction Transit List report or extract for IMS fields.

[IMS Connect Transaction Transit List report and extract](#)

The IMS Connect Form-based Transit List report in the CEX Report Set is similar to the Form-based Transit List report in the **Log** Report Set.

[LIST: IMS Connect Transaction Transit List report and extract \(Form-based\)](#)

The **LIST** operand of the **IMSPACEX** batch command requests the IMS Connect Transaction Transit List report or extract for both IMS and IMS Connect fields.

## Summary report form

An IMS Performance Analyzer summary report form allows you to produce a summary of transaction activity reporting on only the fields that you specify.

The summary report form defines the fields to be included, the order of the columns, sort sequence, and a title for the report.

When you select option 2 **Report Forms** from the IMS Performance Analyzer primary option menu, and then select a summary report form to edit or view, the following view is displayed.

```

EDIT                               Summary Report Form - SAMPSUMM      Row 1 of 14 More: < >
Command ===>                      Scroll ===> PAGE

Description . . . Connect Analysis by TranCode      Category IMS +

Tranmix . . . 1                Page Width . . . 132      Precision: Time . . 6
Report Filter _____ + Digit Grouping . SEC      Precision: Count . . 2

  Field  Sort
/ Name + K 0 Func Len Description
---
TRANCODE K A      8 Transaction Code
STARTCON K * TIME  Connect transaction start time
TRANCNT   -      10 Transaction count
RESPCON   - AVE    8 Connect response time
PREOTMA   - AVE    8 Total pre-OTMA input time
INREAD    - AVE    8 Input read Socket time
READEXIT  - AVE    8 Read message Exit time
SAFTIME   - AVE    8 SAF security call time
PROCOTMA  - AVE    8 OTMA processing time
CONFIRM   - AVE    8 Client Confirm time
POSTOTMA  - AVE    8 Total post-OTMA output time
XMITEXIT  - AVE    8 Transmit message Exit time
EOR        -      ----- End of Report -----
EOX        -      ----- End of Extract -----
***** Bottom of data *****

```

Figure 86. A sample summary report form in IMS Performance Analyzer

The summary report form consists of the following:

### Description

Specify up to 32 characters of text to describe the purpose of the Report Form and help you distinguish it from others.

**Note:** IMS Performance Analyzer uses the description as the report title.

### Category

Each report form has a category whose purpose is to describe the primary data focus of the report form. You can then filter the list of report forms by category. The categories are as follows:

#### IMS

IMS transactions and data

#### DBC

DBCTL transactions and data

#### IFP

IMS Fast Path transactions and data

#### CEX

IMS Connect Extensions transactions and data

## Tranmix

The Tranmix value specifies the type of transactions to be reported. The following Tranmix values are valid:

- 1** All transactions. This is the default value.
- 2** All transactions excluding IMS Fast Path.
- 3** IMS Fast Path transactions only.
- 4** Transactions that use IMS Fast Path, either expedited message handler (EMH) or data entry databases (DEDB).
- 5** All transactions, excluding batch message processing (BMP).
- 6** Non-message driven BMP only.

## Report Filter

In this field you can specify a filter to use. You can see the list of filters and create new ones using option 4.1 **Filters** on the primary option menu, or by using the **Report Filters** point-and-shoot field. For more information, see [Chapter 16, "Report Filters," on page 183](#).

## Page Width

Page width of the report, in the range 80 to 8000.

When you increase the page width, you can include more fields in the report. Move **EOR** down the list or move fields above **EOR** to include the fields of interest. IMS Performance Analyzer automatically adjusts the **EOR** marker when the fields overflow the page width.

When you view the report output (using SDSF), scroll right to see the additional fields. Note that when you print the report, data that exceeds the maximum printer page width will be truncated.

## Digit Grouping

Digit grouping affects the formatting of time and count fields. Specify the digit grouping as follows:

### YES

Digit grouping will include the separator character to delineate each group of three digits, aligned to milliseconds for time and 1000 for count. For time fields, the separator is . (period). For count fields, the separator is , (comma).

### NO

No digit grouping. Count and time fields will be displayed as whole numbers with no separators.

### SEC

The separator character will delineate the decimal point only. SEC applies to time fields only and assumes YES for count fields. Use SEC for extracts when time fields must be in seconds and fractions of seconds when importing data into a database.

## Precision: Time

The precision of numeric fields. Numeric fields can be formatted to either 3, 4, 5, or 6 decimal places. For example, if the field value is 10.123456 seconds:

- 3 decimal places is 10.123 precision
- 4 decimal places is 10.1235 precision
- 5 decimal places is 10.12346 precision
- 6 decimal places is 10.123456 precision

**Note:** Rounding occurs for elapsed and CPU time values.



Precision and digit grouping affect how the field values are represented in the report. Precision and digit grouping can be specified in the Report Form and the Report Set. The Report Set takes precedence.

**Precision: Cnt**

The precision of count fields to which the average function is applied. These fields can be formatted to either 0, 1, or 2 decimal places. Values are rounded up where necessary.

**Field Name**

The IMS Performance Analyzer field name for the IMS or MS Connect field. Use **Prompt (F4)** to select from a list of fields applicable to this Form type.

**EOR** and **EOX** are special entries:

- **EOR** is managed by IMS Performance Analyzer. It signals the end of the report line. The fields listed above **EOR** fit on the report line and are included in the report in the same order as they appear in the list. Those below **EOR** will not be reported and are ignored.

IMS Performance Analyzer automatically sets **EOR** when the Report Form is created and resets it if necessary when the Form is changed to ensure that the maximum page width as specified in the **Page Width** field is not exceeded. In positioning **EOR**, IMS Performance Analyzer allows for one blank separator between each field.

To produce a report line shorter than the specified **Page Width**, either move **EOR** towards the top of the Form, delete unwanted fields, or move them below **EOR**.

- **EOX** signals the end of the extract record. There are no restrictions on record length so **EOX** can be positioned anywhere in the list. **EOX** is initially positioned just below **EOR**. Fields above **EOX** are included in the extract, those below are ignored. If **EOX** is not specified, **EOR** is used.

**Sort**

Sort sequence. SUMMARY Sort fields are identified by **K** in the **SORT K** column. The report can be ordered in ascending or descending sequence, as specified in the **SORT O** column, A and D respectively.

Sort fields identify the grouping required for summarization and can be any key field.

A Sort Order of \* (asterisk) identifies a candidate sort field, and is ignored for reporting purposes.

To activate a candidate sort field, move it to the top of the Form and set Sort Sequence to A or D.

Key fields above **EOR** must appear first in the list of fields. Key fields below **EOR** are ignored. Up to 8 key fields can be specified, and at least one must be specified. The order of the key fields in the list defines the sort and summarization precedence, with the first key field being the major sort field.

**Sort Order**

In addition to the Sort Key fields, one numeric field can be selected as Ascending or Descending to activate Alternate Sequencing. This will change the order of report lines from Sort Key to numeric field sequence. For example, specify Alternate Sequencing of D for RESPIMS to see the IMS transactions with the highest response time at the top of the report. Note that grouping by Sort Key for summarization remains unaffected.

**Func**

Function. The required summary statistical function for time and count fields. The valid functions are:

**AVE**

Average value (this is the default).

**DEV**

Standard deviation.

**MAX**

Maximum value.

**MIN**

Minimum value.

**RANGE**

Distribution (count or percent) in specified range.

**TOTAL**

Sum total.

**nnn**

Peak percentile *nn*% (for example, 85%).

**COUNT**

Number of transactions with a valid field value.

Note: Completion Level affects whether the field value is available and the disparity (if any) between COUNT and TRANCNT. For example, transaction TRANA executed 1000 times (TRANCNT=1000), but of those transactions, CPU time was only available for 500 of them (CPUTIME COUNT=500). COUNT is used in the calculation of statistics (AVE, DEV, %) so that reported values are not skewed by transactions that do not complete.

For time stamp fields STARTIMS and STARTCON, specify the output format:

**TIME**

Time in the format *hh.mm.ss*. Time is the default applied at run time.

**DATE**

Date in the format *yyyy-mm-dd*

**ISO**

Date and time in the format *yyyy-mm-dd hh.mm.ss*

For any field, you can specify HIDE to omit it from the report or extract.

If specified for a field with A or D sort order, typically ordering fields such as PGMSWIT, the output is sorted on this field but the field itself is not reported. If specified for TRANCNT, the value is calculated but not reported.

**Len**

The length of the field in the report or extract. This is used to calculate the width of the print line.

**Field Description**

This is a short description of the field. Enter line action H (Help) for a more detailed description.

Scroll **Left (F10)** or **Right (F11)** to see the second view.

```

EDIT                               Summary Report Form - COMBSUM1      Row 1 of 15 More: < >
Command ==>                        Scroll ==> PAGE

Description . . . Connect and IMS Summary by Tran  Category CEX  +

Tranmix . . . 1                    Page Width . . . 132                Precision: Time . . 6
Report Filter _____ + Digit Grouping . SEC          Precision: Count . . 2

Field  Sort  Range
/ Name + K  O Func Len From + To Report
---
TRANCODE K  A      8
TRANCNT      10
RESPCON      COUNT 10
RESPCON      AVE    8
TOTALTM      COUNT 10
TOTALTM      AVE    8
RESPIMS      AVE    8
CPUTIME      AVE    8
PREOTMA      AVE    8
INPUTQ       AVE    8
PROCESS      AVE    8
OUTPUTQ      AVE    8
POSTOTMA     AVE    8
EOR
EOX
***** Bottom of data *****

```

Figure 87. SUMMARY Report Form: Second view

For fields with the RANGE function, the options are:

#### Range From

For count and time fields, specify a limit value consisting of either a comparison operator followed by a value, or a single value with no operator. For example, specify  $\geq 1$  for a comparison of greater than or equal to 1. Allowed operators are: = >  $\geq$  <  $\leq$

Time fields can be specified in seconds or milliseconds. Use a decimal point to indicate seconds. For example, 1.0 and 1000 represent the same value; 1.0 (1 second) is equal to 1000 milliseconds. The unit of measure (Seconds, Milliseconds) is displayed at the right-hand end of the row.

Count fields are defined as integer fields. That is, only whole numbers are allowed.

For character fields, specify a single value for this field (no operator). Press **Prompt (F4)** for a list of valid values. Where a blank or null value is valid, this is selected by the use of the hyphen (-) symbol. The character fields for which the RANGE function is valid are: APPC, CLIACK, COMMITMD, COMPLVL, COMPLVLC, CONVERS, DBACMETH, DBORGTYP, FAILED, FPPRCTYP, IMSACK, MSC, OTMA, QTYPE, RECOVER, REGTYPE, REJECT, RESPMODE, RESUMETP, STARTLVL, SYNCLEV, TIMEOUT.

#### Range To

Specify a single upper limit value (no operator). It is required for count and time fields where a lower limit (no operator) has been specified as a From value. It is not allowed when the From value is preceded by a comparison operator. Where From and To values are specified, the range check assumes greater than or equal to ( $\geq$ ) the From value and less than (<) the To value.

It is not valid for character fields.

#### Report

Whether the reported value is a COUNT or a PERCENT.

#### Line actions:

For the list of valid line actions for the SUMMARY Report Form panel, see [“List report form” on page 172](#).

#### Primary commands:

For the list of valid primary commands for the SUMMARY Report Form panel, see [“List report form” on page 172](#).

## **Related reference**

### Transaction Transit Summary report and extract

The IMS Performance Analyzer Transaction Transit Summary report and extract options are described here.

### SUMMARY: Transaction Transit Summary report and extract (Form-based)

The **SUMMARY** operand of the **IMSPALOG** batch command requests the Transaction Transit Summary Report or Extract for IMS fields.

### IMS Connect Transaction Transit Summary report and extract

The IMS Connect Form-based Transit Summary report is similar to the IMS Connect Form-based Transit List report.

### SUMMARY: IMS Connect Transaction Transit Summary report and extract (Form-based)

The **SUMMARY** operand of the **IMSPACEX** batch command requests an IMS Connect Transaction Transit Summary Report or Extract for both IMS and IMS Connect fields.

# Chapter 16. Report Filters

A report filter is a set of criteria that you can apply to a form-based report so that the report shows only the records you want.

Each filter consists of one or more rows where each row specifies a field name, an operand, and a value. Condition statements are evaluated from top to bottom. When there are two or more condition statements, the general rule is that a boolean AND operator is applied between the statements. However, an OR operator applies between condition statements in the following circumstances:

- When a blank line specifies an operator of OR, a boolean OR operator exists between the conditions preceding it and the conditions after it.
- When two adjacent conditions specify the same field name and operator (and the operator is EQ, GT, GE, LT, or LE), a boolean OR operator is applied between the conditions.

**Note:** When two adjacent conditions have the same field name and both use the NE operator, an AND operator is applied between the conditions.

For example, when you apply the following filter to a report, the report shows records for which the transaction code begins with MQ, except for MQ1, and the CPU time is greater than 0.05 seconds. The report also includes all records for which the USERID field's value is JOHN.

```
EDIT                               Report Filter - TRAN01                Row 1 of 4 More: < >
Command ==>                        Scroll ==> PAGE

Description . . . MQ transactions with high CPU Time

Field
/ Name +   Oper Value +
- TRANCODE EQ  MQ*
- TRANCODE NE  MQ1
- CPUTIME  GT  0.05
-          OR
- USERID  EQ  JOHN
***** Bottom of data *****
```

Figure 88. Example of a report filter

**Note:** Report filters are stored in a control data set. If you have not specified a report filters data set, IMS PA allocates a data set for you with a set of default filters. Use option 0.4 **IMS PA Control Data Sets** to see which data set is the current report filters control data set, or to change it.

To see the list of existing report filters, select option 4.1 **Filters** from the primary option menu.

Select a report filter to see the following details of the filter.

**Description**

Text that describes what the filter does.

**Field name**

The name of the field whose value is tested. You can press **Prompt (F4)** to display a list of fields, and then select the one you need.

**Note:** You cannot filter on any of the derived fields: TRANCNT, RATEMIN, RATESEC, DBUPRATE and ABENDCNT.

**Oper**

The operators are as follows:

**EQ**  
Equal to

**NE**  
Not equal to

**GT**

Greater than

**GE**

Greater than or equal to

**LT**

Less than

**LE**

Less than or equal to

**OR**

Forces a boolean OR condition to exist between the conditions that precede the row containing the OR and the rows after it. Leave the **Field name** and **Value** fields empty when the **Operator** is OR.

**Value**

The value against which field values are tested.

Some fields have a set of pre-defined values. For these fields, you can press **Prompt (F4)** to see the list of valid values.

For character fields, you can use the asterisk (\*) symbol to represent zero or more characters of the value, or the percent (%) symbol to represent a single character of the value. These symbols are particularly useful when used with the EQ operator. If the value is a space or includes a space, enclose the value in single quote characters. For example, the filter condition PARTRAN NE ' ' returns the records that have a parent transaction.

For numeric fields, a valid value is a number with 6 or fewer decimal places, and 9 or fewer digits before any decimal point that is present.

For date/time fields, a value in the following format is valid: YYYY/MM/DD, hh:mm:ss.thmi.ju, for example 2019/01/01, 15:25:00.000000. Date values are mandatory; time values are optional. Time values are padded with zeros if you do not specify them.

## Defining a report filter

---

Using a report filter you can make a report show only the results that match the criteria you specify.

### About this task

You can define a filter using the **NEW** command, or you can save an existing filter and then edit it.

**Note:** You cannot filter on any of the derived fields: TRANCNT, RATEMIN, RATESEC, DBUPRATE and ABENDCNT. An error message is displayed if you try to define a report filter that includes a derived field.

### Procedure

1. Select option 4.1 **Filters** from the primary option menu.
2. Enter primary command **NEW**.
3. Enter a name for the new filter.
4. Make sure the **Default or MODEL** field is set to 1 Default.

The Model option is useful when you already know the name of a filter on which to base this new filter.

**Tip:** Another way of creating a filter from an existing filter is to use the SAVEAS primary command.

5. Press Enter.
6. For the first row of the filter either type the field name if you know it, or press F4 and select it from a list.
7. Enter an operand and a value.

For example, a valid filter is `TRANCODE EQ MQ*`, which would return records whose transaction code begins with MQ.

8. Enter line action I beside this row to insert a new row, and enter a field name, operand, and value.

9. Enter a new row for each additional limiting statement you want to add to the filter.

The general rule is that an AND boolean operator applies between rows. To apply an OR operator, see [Chapter 16, “Report Filters,” on page 183](#)

10. Edit the **Description** field so the description is meaningful to you.

11. Enter primary command **SAVE**.

The following figure shows some simple examples of report filters.

The figure displays three overlapping screenshots of the 'EDIT Report Filter' dialog box, each showing a different filter configuration:

- Top-left screenshot (Report Filter - PATTERN2):**  
Command ==>  
Description . . . Pattern filter using \* and %  
Field  
/ Name + Oper Value  
\_ PROGRAM EQ \*3%
- Top-right screenshot (Report Filter - CPUFILT):**  
Command ==>  
Description . . . Simple filter on CPUTIME >0.05  
Field  
/ Name + Oper Value +  
\_ CPUTIME GT 0.05
- Bottom screenshot (Report Filter - PARTRANY):**  
Command ==>  
Description . . . Has parent transaction  
Field  
/ Name + Oper Value +  
\_ PARTRAN NE ' '

Figure 89. Examples of report filters

## Producing a report or CSV extract using a report filter

To filter a report, you apply an existing report filter to the report.

### Before you begin

Create a report filter. For more information, see [“Defining a report filter” on page 184](#).

### About this task

You can apply a filter to a report form or to a report set. If you apply a filter to both, the filter on the report set takes precedence.

### Procedure

- To produce a single form-based report, do the following steps:
  - Select option 2 **Report Forms** from the primary option menu.
  - Enter line action S beside the report form to select it.

**Tip:** You can use **Field Search** to find a report form that contains a particular field.

- In the **Report Filter** field, press **Prompt (F4)**.

- d) Select the report filter.
- e) Enter **RUN** on the command line.
- f) Change any of the run options you want, and press Enter.
- To produce a form-based report in a report set, do the following steps:
  - a) Select option 3 **Report Sets** from the primary option menu.
  - b) Select the report set.
  - c) In the **Transaction Transit Reports (Form-based)** section, select List or Summary.
  - d) In the **Reports Required** section, in the **Filter** field for the report, either type the filter name or press **Prompt (F4)** and select it from the list.
  - e) Make sure the **Selection Criteria** section is empty.

**Note:** **Selection Criteria** and **Filter** should not be used together.
  - f) Enter the primary command **RUN**.
  - g) Change any of the run options you want, and press Enter.



# Chapter 17. Report Sets

To run one or more reports in a single job and single pass of the input data files, you need to use the IMS Performance Analyzer ISPF dialog to create a Report Set. When you submit a Report Set for batch processing, IMS Performance Analyzer generates a one-step JCL deck to run the report requests.

There are several different types of report sets.

## LOG

LOG report sets allow you to select from IMS Performance Analyzer reports and CSV extracts that use the IMS Log as input. This includes form-based reports, fixed format reports, and the IMS transaction index.

## MON

MON report sets allow you to select from IMS Performance Analyzer reports that use the IMS Monitor as input.

## CEX

CEX report sets allow you to select from IMS Performance Analyzer reports and CSV extracts that use the IMS Connect Extensions journal as input. You can also use this type of Report Set to produce reports that combine IMS Connect event data with IMS Log data. This report set type includes form-based reports, fixed format reports, and the IMS Connect transaction index.

## ATF

ATF report sets allow you to select from IMS Performance Analyzer reports that use log streams produced by IBM OMEGAMON for IMS on z/OS Application Trace Facility (ATF) as input.

The different types of Report Set (LOG, MON, CEX, ATF) are specified and run separately, but can coexist in the same Report Sets data set.

Option 3 **Report Sets** on the IMS Performance Analyzer primary option menu displays the Report Sets panel, which lists the Report Sets in the nominated Report Sets data set.

**Note:** If you have not specified a Report Sets data set, IMS PA will allocate a data set for you with default characteristics. To change the Report Sets data set, you can use **Options > IMS PA Control Data Sets** in the action bar or option 0.4 **IMS PA Control Data Sets** from the IMS Performance Analyzer primary option menu.

If the data set contains no user-defined Report Sets, IMS Performance Analyzer will provide several sample Report Sets.

Report Sets					Row 1 to 2 of 2	
Command ==> <u>NEW</u>					Scroll ==> <u>PAGE</u>	
Report Sets Data Set . . . : IMSPA.RSET						
/	Name	Type	Description	Changed	ID	
___	SAMPLLOG	LOG	Sample Log Report Set	2019/11/12 14:44	IMSPA	
___	SAMPMON	MON	Sample Monitor Report Set	2019/10/01 15:58	IMSPA	
***** Bottom of data *****						

Figure 90. A list of report sets in IMS Performance Analyzer

## Primary commands

From the **View** menu on the action bar, or by direct entry on the command line, the following panel-level actions are available:

### NEW

Create a new report set. For more information, see [“Creating a Report Set” on page 188](#)

### Refresh (REFR)

Repopulate the list of Report Sets by re-accessing the Report Sets data set.

### Sort

To sort the list on any one, or a combination of columns. The default sort field is Name. The sort sequence disregards upper and lower case, and can be ascending (ASC) or descending (DESC), with ascending the default for all but the Changed column. The sort order is retained only until Exit or another SORT command is issued.

The **LOCATE (L or LOC)** command, also available from the **File** menu on the action bar, allows you to locate an entry in the list based on the primary sort field.

### Line actions

The following line actions can be performed against Report Sets:

**/**

Display the menu of line actions

**E**

Edit the Report Set

**S**

Select the Report Set (same as Edit)

**V**

View the Report Set (Edit without Save)

**R**

Rename the Report Set

**SUB**

Submit the Report Set

**JCL**

Build JCL to run the Report Set via the Report Set member

**JCM**

Build JCL to run the Report Set via command input

**RUN**

Run the Report Set with prompt for runtime options. For more information, see [“Producing reports from a Report Set” on page 191](#).

**D**

Delete the Report Set

## Creating a Report Set

---

Use the IMS Performance Analyzer ISPF dialog to generate JCL to run multiple reports in a Report Set.

### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**.

A list of Report Sets already defined in IMS Performance Analyzer is displayed.

**Tip:** To browse or modify an existing Report Set, enter line action S. For a complete list of actions, use line action /.

2. To create a new Report Set, type the **NEW** command and then press Enter.

```

Command ==> NEW
Report Sets
Row 1 to 2 of 2
Scroll ==> PAGE

Report Sets Data Set . . . : IMSPA.RSET

/   Name      Type      Description      Changed      ID
___ SAMPLOG   LOG   Sample Log Report Set    2019/11/12 14:44 IMSPA
___ SAMPMON   MON   Sample Monitor Report Set  2019/10/01 15:58 IMSPA
***** Bottom of data *****

```

Figure 91. A list of sample report sets in IMS Performance Analyzer

3. On the **New Report Set** panel, type a name for this report set in the **Name** field.  
The name must be a 1–8 character name in ISPF member name format, used to uniquely identify the Report Set within the Report Sets data set.
  4. Report Sets have a **Type** attribute that corresponds to the type of input data that the Report Set can process:
    - To create an empty Report Set for a specific type of input data, select one of the following report types:
      - Log**  
Contains IMS log reports generated from specified IMS log data input.
      - Monitor**  
Contains IMS monitor reports generated from specified IMS Monitor or DB Monitor data input.
      - IMS Connect**  
Contains IMS Connect (and combined IMS and IMS Connect) reports generated from event data in the IMS Connect Extensions journal and the IMS log.
      - OMEGAMON ATF**  
Contains reports generated from IBM OMEGAMON for IMS on z/OS Application Trace Facility (ATF) log stream input.
    - To model a Report Set from an existing one, specify a type of **MODEL**, and then enter the member name of the Report Set if the Report Set is in the current Report Sets Data Set, or the PDS and member name if it is not. The new Report Set will be of the same type as the existing one with the same report settings.
- Tip:** For more information on the reports available in each type of Report Set, refer to the following topics:
- [“Log Report Sets” on page 209](#)
  - [“Monitor Report Sets” on page 421](#)
  - [“Connect Report Sets” on page 497](#)
  - [“ATF Report Set” on page 550](#)
5. When you have finished making changes, press Enter to create the Report Set.  
The **Report Set** panel shows a hierarchical representation of reports that can be requested in IMS Performance Analyzer organized by category.
  6. Optional: On the **Report Set** panel, enter a description for the report in the **Description** field.
  7. To see the full list of reports and options available in the Report Set menu tree, enter line action S next to the category you wish to view.
- Tip:** The plus (+) character indicates that a category can be expanded. Similarly, the minus (-) character indicates that the category can be collapsed.

```

EDIT                                     Report Set - SAMPLOG                               Line 1 of 24
Command ==> _____ Scroll ==> PAGE _____

Description . . . Sample log report set

Enter "/" to select action.

___  ** Reports **                               Active
+   Options                                     Yes
+   Transaction Transit Reports                 Yes
+   Transaction Transit Reports (Form-based)    No
-   Resource Usage & Availability Reports       Yes
    Dashboard                                 Yes
    Management Exception                      Yes
    Transaction Resource Usage                No
    Resource Availability                     Yes
    CPU Usage                                Yes
    Internal Resource Usage                   Yes
    MSC Link Statistics                       No
    Message Queue Utilization                 No
    Database Update Activity                  Yes
    Region Histogram                         No
    OSAM Sequential Buffering                 No
    Deadlock                                 Yes
    System Checkpoint                        Yes
    BMP Checkpoint                           No
    Gap Analysis                             No
    Cold Start Analysis                       No
+   Fast Path Transit Reports                 No
+   Fast Path Resource Usage Reports           No
+   ATF Summary Reports                       No
+   Trace Reports                            No
    User-Written Reports                     No
    ** End of Reports **

```

Figure 92. The **Report Set** menu tree showing the **Resource Usage & Availability Reports** category expanded in a LOG Report Set

8. To see the options associated with a particular report, enter line action S next to the name of the report.

To learn more about each report, press the Help function key (F1). More information about each report is also available in the *IMS Performance Analyzer Report Reference*. When you have finished making changes, press the Exit function key (F3).

**Note:** To create a report that uses a report form, a category of reports called **Transaction Transit Reports (Form-based)** is available in the LOG and CEX Report Set types:

- The LOG Report Set requests IMS transaction transit reporting from the IMS log.
- The CEX Report Set requests Connect transaction transit reporting from the IMS Connect Extensions journal.
- Optionally the CEX Report Set can request combined Connect and IMS reports by merging IMS Connect Extensions journal and IMS log file data to provide an end-to-end picture of the Connect transaction lifecycle.

9. The **Active** column indicates if JCL will be generated for this report. To activate a report, enter line action A. To deactivate a report, enter line action D.

**Tip:** You can also generate JCL for individual reports by entering line action RUN next to the name of the report.

10. When you have finished making changes, press the Exit function key (F3).

## What to do next

Generate JCL that can be used to run the Report Set. For more information, see [“Producing reports from a Report Set” on page 191.](#)

## Producing reports from a Report Set

You can use the IMS Performance Analyzer ISPF dialog to generate JCL for batch report processing.

### Before you begin

- Define IMS systems and groups. For more information, see [Part 3, “Specifying input data for reporting,” on page 107.](#)
- Create a Report Set. For more information, see [“Creating a Report Set” on page 188.](#)

**Note:** When you run a report set, you can also produce an extract. See [Exporting from a report set to a delimited file](#) for more information.

### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**.
2. You can run a report set in the following ways:
  - Enter line command RUN next to the name of the report set.

Report Sets				Row 1 to 4 of 4	
Command ==> _____				Scroll ==> _____	
Report Sets Data Set . . . : IMSPA.RSCTL					
/	Name	Type	Description	Changed	ID
	LRS00001	LOG	IMS PA Log Report Set 1	2023/03/27 13:25	DVM05
<u>RUN</u>	LRS00002	LOG	Modelled on Log Report Set 1	2023/03/27 16:45	JCH09
---	MRS00001	MON	IMS PA Monitor Report Set	2023/03/27 15:12	DVM05
---	XCONNECT	CEX	IMS PA Connect Report Set	2023/06/25 10:00	JCH06
***** End of list *****					

Figure 93. Using line command RUN next to the name of a report set in IMS Performance Analyzer

- Enter line action S next to the name of the report set and then enter the **RUN** command on the **Command** line of the **Report Form** panel.

**Tip:** The **RUN** command can also be used as a line action at the report category and individual report level. To run multiple reports, simply type **RUN** next to each report or category you wish to run before pressing Enter. You can also run the entire report set and one or more additional reports by mixing the **RUN** command entered on the **Command** line with one or more **RUN** line commands entered next to the additional reports you want to run.

```

EDIT                                     Report Set - SAMPLOG                               Line 1 of 29
Command ==> _____ Scroll ==> PAGE

Description . . . Sample Log Report Set

Enter "/" to select action.

_____ ** Reports **                                     Active
+ _____ Options                                     Yes
+ _____ Transaction Transit Reports                 Yes
+ _____ Transaction Transit Reports (Form-based)    No
- _____ Resource Usage & Availability Reports      Yes
  _____ Dashboard                                   Yes
  _____ Management Exception                       Yes
  RUN _____ Transaction Resource Usage            No
  _____ Resource Availability                       Yes
  _____ CPU Usage                                   Yes
  _____ Internal Resource Usage                     Yes
  _____ MSC Link Statistics                         No
  _____ Message Queue Utilization                  No
  _____ Database Update Activity                   Yes
  _____ Region Histogram                           No
  _____ OSAM Sequential Buffering                   No
  _____ Deadlock                                    Yes
  _____ System Checkpoint                          Yes
  _____ BMP Checkpoint                             No
  _____ Gap Analysis                               No
  _____ Cold Start Analysis                        No
- RUN _____ Fast Path Transit Reports             Yes
  _____ Transit Options                             Yes
  _____ Analysis                                    Yes
  _____ Log                                          No
  _____ Extract By Interval                       No
  _____ Transaction Exception                     No
+ _____ Fast Path Resource Usage Reports           No
+ _____ ATF Summary Reports                      No
+ _____ Trace Reports                             No
  _____ User-Written Reports                       No
  _____ ** End of Reports **

```

Figure 94. Using the **RUN** line action to request the **Transaction Resource Usage** report and all active reports in the **Fast Path Transit Reports** category in IMS Performance Analyzer

**Note:** Alternatively, you can use the **SUBMIT**, **JCL**, and **JCLCMD** commands to run reports. These commands are considered to be specialized **RUN** requests that predetermine the execution mode. For more information on these options, see the in-product help.

### 3. Review the options provide on the **Run Report Set** panel:

#### a) Select a system or group for reporting.

To do this, position the cursor on the **System or Group** field and press the Prompt function key (F4). Use line action S to select a single system for reporting, or a group of systems (such as a group containing both IMS and IMS Connect systems, or one containing all IMS subsystems participating in a shared queues sysplex environment) and then press Enter.

**Remember:** If you don't see your system or group, you'll need to define it. For more information, see Part 3, "Specifying input data for reporting," on page 107.

#### b) Select a report interval.

The Date can be either an actual date or it can be a relative date. Relative dates are specified as 0 (today), -1 (yesterday), -2 (two days ago), etc. to signify a date relative to the current date.

**Tip:** To create JCL that can be saved and then used in an automated job scheduler library, use relative dates. Used in conjunction with DBRC Log Selection, the same JCL can run every day without change.

Time is optional. If **From** time is not specified, it defaults to the start of the day. If **To** time is not specified, it defaults to the end of the day.

c) If you are running a report set of type LOG or CEX, choose a file selection option.

- If you want to use specific log files that you have identified in your system definition, select option 1.
- If you want to use IMS Performance Analyzer DBRC Log Selection to automatically select the required log files from Database Recovery Control (DBRC) for the required reporting time period (thus saving you the effort of manually entering the log file data set names), select option 2.

**Tip:** Use this option to generate JCL that can be run over and over without change and is suitable for scheduling IMS Performance Analyzer reports on a daily or weekly basis.

d) Select an execution mode.

- To submit your JCL immediately without review, select option 1.
- To edit and review your JCL before you submit it, select option 2.
- To edit with command input, select option 3.

**Tip:** If you choose to edit your JCL, you can save it to a data set for later use.

e) The **Unresolved Data Set Options** is a useful feature that provides more flexibility when IMS Performance Analyzer is unable to generate complete report JCL. Unresolved data sets occur when the IMS system or Group that you have selected for report processing has missing information in its System Definition. For Log Report Sets this means that either log files or DBRC settings are not specified, depending on your Log Selection Options. For Monitor Report Sets this means that monitor files are not specified.

Select from one of the following options:

- Instruct IMS Performance Analyzer to issue an error message when this occurs. In this case you must return to System Definitions and complete the specifications for the required IMS systems. You can do this without leaving your Report Set by using the **SysDefs** action bar choice or issuing the **SYSDEFS** command.
- Instruct IMS Performance Analyzer to leave the data set names unresolved in the JCL. The missing data set names are substituted with a token of <unresolved>. In this case, IMS Performance Analyzer forces you to edit the JCL where you can specify the data set names manually, prior to submitting the JCL.

f) If you are running a report set of type LOG or CEX, you can choose to redirect output to the IMS Tools Knowledge Base. To do this, select **Write to the ITKB repository** and specify the ITKB server name.

g) The **Bypass run-time options prompt** allows you to bypass the **Run Report Set** panel for quick submission.

**Note:** The **Run Report Set** panel is never bypassed if:

- This option is not set.
- The **RUN** command is used to run the Report Set. Only **SUBMIT**, **JCL**, and **JCLCMD** can bypass the runtime prompt. If you have set this option to bypass, then it can only be reset by using the **RUN** command.
- Required runtime options have not been specified. For example, System Selection is required before report JCL can be generated.
- Report Interval is specified. IMS Performance Analyzer insists that you are aware of and have the opportunity to change the time period for which reporting is to occur.
- DBRC Log Selection is used, but only because this option requires the Report Interval to be specified.

```

                                Run Report Set SAMPLOG
Command ===> _____

Specify run options then press Enter to continue submit.

System Selection:                ----- Report Interval -----
System or Group . . . SYSPLEX1 +      YYYY/MM/DD  HH:MM:SS:TH
                                      From -1_____ 09:00:00:00
                                      To  -1_____ 16:30:00:00

File Selection Options:
1 1. Use specified log files
2 2. Use DBRC to select log files

Unresolved Data Set Options:
1 1. Issue error message
2 2. Edit unresolved JCL

Enter "/" to select option
_ Bypass run-time options prompt

Execution Mode:
3 1. Submit Report Set
2 2. Edit JCL before submit
3 3. Edit JCL with command input

IMS Tools Knowledge Base
_ Write to the ITKB repository
ITKB Server . . . . _____

```

Figure 95. Specifying log report set runtime options in IMS Performance Analyzer

- h) When you are finished making changes, press Enter.
4. Review and submit the generated JCL.
- Alternatively, save the JCL so it can be reused (for example, by a job scheduler for daily reporting).

## What to do next

Schedule reports on a daily or weekly basis. For more information, see [“Automated job scheduling”](#) on page 194.

## Automated job scheduling

IMS PA reports can be run on a daily basis using an automated job scheduler.

To do this, you need to create JCL than can run every day without modification. This requires that you use:

1. DBRC log selection to automatically select the required SLDS log files. See [“Preparing for DBRC Log Selection”](#) on page 139.
2. Relative dates in the **Report Interval** that consistently identify today (0) or yesterday (-1)

The **Run Report Set** panel in [Figure 96 on page 194](#) shows the options required to create automated JCL.

```

                                Run Report Set DAILY
Command ===> _____

Specify run options then press Enter to continue submit.

System Selection:                ----- Report Interval -----
System or Group . . . WORKPLEX +      YYYY/MM/DD  HH:MM:SS:TH
                                      From 0_____ 09:00:00:00
                                      To  0_____ 17:00:00:00

File Selection Options:
2 1. Use specified log files
2 2. Use DBRC to select log files

Unresolved Data Set Options:
2 1. Issue error message
2 2. Edit unresolved JCL

Enter "/" to select option
_ Bypass run-time options prompt

Execution Mode:
2 1. Submit Report Set
2 2. Edit JCL before submit
3 3. Edit JCL with command input

IMS Tools Knowledge Base
_ Write to the ITKB repository
ITKB Server . . . . _____

```

Figure 96. Specifying runtime options for automated JCL



The resultant JCL can be saved into a library that is used by an automated job scheduler.

### **Related concepts**

Automated File Selection

DBRC Log Selection is a facility of IMS Performance Analyzer that uses DBRC to automate the selection the log files for report processing.

## **Viewing IMS Performance Analyzer report output**

---

To view or print the generated reports, use standard facilities such as SDSF or ISPF option 3.8 **Outlist Utility**.

### **Procedure**

To use SDSF:

1. Press the **Split (F2)** key to split your dialog.
2. Select **SDSF** from the ISPF Primary Option Menu.
3. Enter ST on the command line.
4. Enter ? next to your Job Id.
5. Enter S next to the reports you wish to view.



## Chapter 18. Exporting data for Db2 or for third party tools

The IMS Performance Analyzer form-based extract feature allows you to extract transaction performance data into files suitable for import into Db2 tables, or other analytics tools. You can then run reports and charts on the data.

The extract options that are appropriate depend on the application, such as Db2 .

### Extract options for Db2

When requesting List or Summary extracts for exporting to Db2, specify these extract options.



**CAUTION:** After you have set the extract options and created an extract, ensure you use the same extract options when loading data into Db2; otherwise the load might fail or corrupt the data that was loaded to Db2.

```
Extract Options:
Delimiter . . . _ (blank is valid)

_ Include Delimiter
_ Include Field Labels (Not supported for Db2 load)
_ Numeric Fields in Db2 Float Format
/ Numeric Fields in Db2 Decimal Format
_ ISO 8601 timestamps
```

#### Delimiter

The delimiter is used only if **Include Delimiter** is selected. You can use a delimiter if you wish, or you can leave this blank.

#### Include Delimiter

If you wish to use a delimiter, select this option. Otherwise, leave this option blank.

#### Include Field Labels

No. Omit labels for Db2 because the load utility treats the labels as raw data, rather than as column headings.

#### Numeric Fields in Float Format

Typically no unless you have different advice from your Db2 administrator. Float format means that numeric data is written in hexadecimal S390 FLOAT format.

#### Numeric Fields in Decimal Format

Typically yes. Decimal format enables a numeric field to store numbers as large as  $10^{31}$ , not including the fractional part of the number. That is, a field in decimal format could store a number with a value as large as 2147483648.999999 when precision is set to 6. If you select both the Float and Decimal options, a message alerts you that your selection is not valid.

#### ISO 8601 timestamps

Optional. When selected, time fields are produced in the format *YYYY-MM-DDT.MM.SS.THMIJU±HH:MM*. The number of digits of precision depends on the precision values you have specified. The final *HH* and *MM* values identify the time zone as a time offset from Coordinated Universal Time (UTC).

**Note:** Db2 **TIMESTAMP** fields can store time zone information. Whether or not you can view the time zone information in Db2 depends on the method of viewing the data.

## Exporting from a report form to a delimited file

You can use a variety of third party applications to open a delimited file and display its data.

### Before you begin

When you have a report form set up with the fields you are interested in, and optionally a report filter, you can submit the form with the extract option selected to create a delimited extract. Then you can use third party applications to open the extract, view the data and potentially create charts on the data.

The following figure shows a graphical illustration of the important steps.

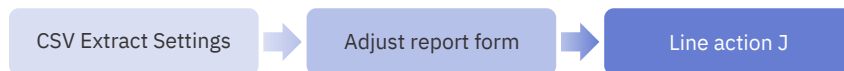


Figure 97. Exporting from a report form to a delimited file

### Procedure

1. Set extract options.
  - a) From the IMS Performance Analyzer primary option menu, select option 0.6 **CSV Extract Settings**.
  - b) Enter the character you want to be the delimiter, such as a comma, in the **Delimiter** field.
  - c) Select **Include Delimiter**.
  - d) Select **Include Field Labels**.
  - e) Select **Numeric Fields in Db2 Decimal Format**, and clear **Numeric Fields in Db2 Float Format**.  
**Numeric Fields in Db2 Decimal Format** can output large values without truncating them. **Numeric Fields in Db2 Float Format** is intended for Db2 only, and only when you specifically want the data in hexadecimal S390 FLOAT format.
2. Set the report form options.
  - a) From the IMS Performance Analyzer primary option menu, select option 2 **Report Forms**.
  - b) Enter line action S beside the report form that contains the fields you want.
  - c) Adjust the **Precision Time** value you have specified in the report form if necessary. A value of 6 can produce reported time values with seconds to a precision of 6 decimal places (microseconds).
  - d) If it is a summary form, adjust the **Precision Count** field if necessary. A value of 2 can produce average count fields with 2 decimal places.
  - e) In the **Report Filter** field, if you want to return only a subset of records, press **Prompt (F4)** and select the filter you want.  
See [Report Filters](#) if you need to create a new report filter.
  - f) Adjust other report form options if required.
  - g) Press **Exit (F3)**.
3. Produce the extract.
  - a) Enter line action J beside the report form.
  - b) Select the **Submit CSV Extract** option.
  - c) Ensure the **Extract Data Set Name** is set to the name you want.  
You might choose to name the extract so that it includes the report form name.
  - d) Ensure that **System or Group** is set to the system or groups of systems that you want to report on.
  - e) Ensure that the **Report Interval** is set to the time period that you want to report on.
  - f) Press Enter and submit the job.

## Exporting from a report form to Db2

Using this procedure, you can use IMS Performance Analyzer to export a set of list or summary data, with the fields you choose, into Db2 .

### About this task

The first time you do this task, you need either the assistance of your Db2 database administrator, or to have Db2 database administration skills yourself. To successfully export to Db2, you will need to know the correct Db2 settings.

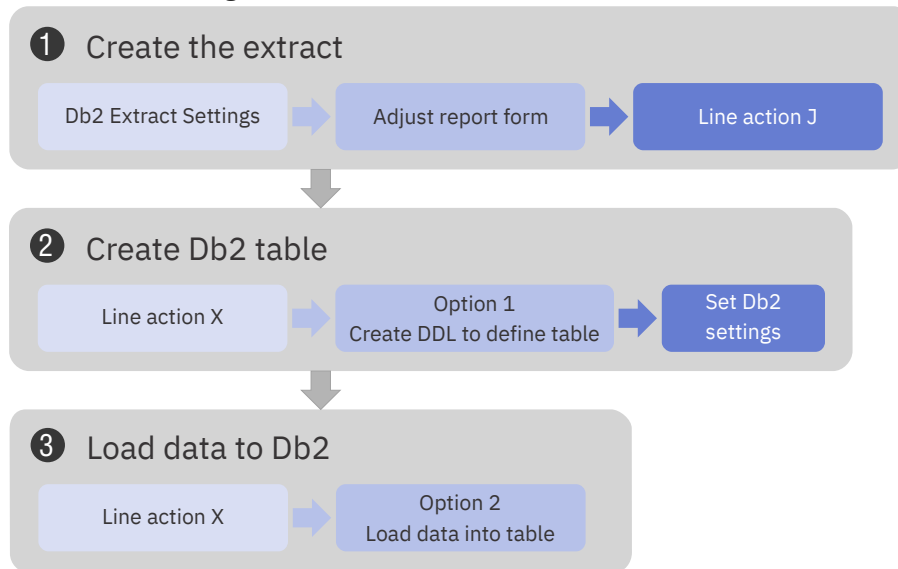


Figure 98. Exporting from a report form to Db2

The following procedure shows the steps most users typically perform. You can vary these steps if you know that you need different options.

### Procedure

1. Set extract options.
  - a) From the IMS Performance Analyzer primary option menu, select option 0.6 **CSV Extract Settings**.
  - b) Ensure **Include Field Labels** is not selected.
  - c) Clear **Numeric Fields in Db2 Float Format**, and select **Numeric Fields in Db2 Decimal Format**.
2. Set the report form options.
  - a) From the IMS Performance Analyzer primary option menu, select option 2 **Report Forms**.
  - b) Enter line action S beside the report form that contains the fields you want.
  - c) In the first time stamp field of the report, in the **Func** column, enter ISO.  
You cannot export to Db2 without at least one time stamp field in ISO format.
  - d) Adjust the **Precision Time** field if necessary. A value of 6 can produce time values with seconds to a precision of 6 decimal places (microseconds).
  - e) If it is a summary form, adjust the **Precision Count** field if necessary. A value of 2 will produce average count fields to a precision of 2 decimal places.  
Precision Count applies to summary extracts only. It is not applicable for list reports because counts are integer values for list entries.
  - f) In the **Report Filter** field, if you want to return only a subset of records, press **Prompt (F4)** and select the filter you want.  
See [Report Filters](#) if you need to create a new report filter.

- g) Adjust other report form options if required.
  - h) Press **Exit (F3)**.
3. Produce the extract.
- a) Enter line action J beside the report form.
  - b) Select the **Submit CSV Extract** option.
  - c) Ensure the **Extract Data Set Name** is set to the name you want.  
You might choose to name the extract so that it includes the report form name.
  - d) Ensure that **System or Group** is set to the system or groups of systems that you want to report on.
  - e) Ensure that the **Report Interval** is set to the time period that you want to report on.
  - f) Press Enter and submit the job.
4. Create the required table in the Db2 database.
- If you have already created the table, for example by exporting the same report form to Db2 previously, you do not need to do this step.
- a) Enter line action X beside the report form.
  - b) Select option **1 Create DDL to define table**.
  - c) If the Db2 database or Db2 storage group do not exist yet, select the options to create them.
  - d) Fill in the Db2 Settings.  
For this step, you need the help of the person who knows your Db2 system so that you can correctly identify your Db2 database, storage group, and other settings.
  - e) Set the precision options.
  - f) Optional: If this is a summary report form and you want to use the IMS PA utility IPIUTILB to load records, specify the plan name for the JCL to use IPIUTILB.  
This option is typically used when there is an overlapping time interval from one IMS log to the next, causing duplicate keys. You can press F1 to read the field help for IPIUTILB or see [Export to Db2: Bind Db2 Plan](#) for more information.
  - g) Press Enter and submit the job.
5. Check that the table was created.
- You can omit this step if you have exported successfully previously, and you are confident that the table was created.
- a) Check the job output.  
The return code should be zero if the job has completed successfully.
  - b) Verify that the table has been created successfully.
6. Load the data from the extract to Db2.
- a) Enter line action X beside the report form.
  - b) Select option **2 Load data into table**.
  - c) Select load option **1. Resume** if you do not want to overwrite data in the table, or **2. Replace** to replace data.
  - d) Ensure none of the Db2 settings, or Extract options, displayed in this dialog have changed.
  - e) Press Enter and submit the job.
7. Check that the data was loaded correctly.
- a) Check the job output, looking at the return code in particular.
  - b) Verify that the Db2 table contains the data you expect in the columns you expect.

## Exporting from a report set to a delimited file

---

You might have a report set that already produces several reports you want. The report set can also output one or more extracts.

### Before you begin

The following figure shows a graphical illustration of the important steps.

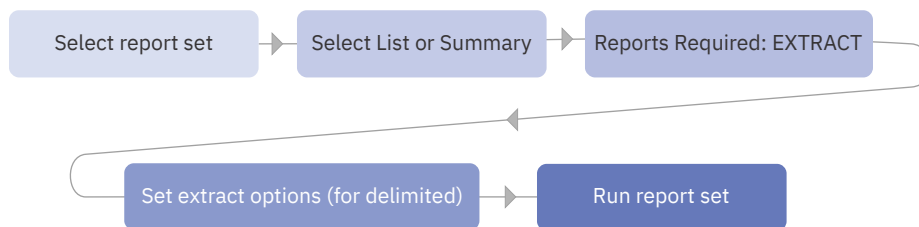


Figure 99. Exporting from a report set to a delimited file

### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**.
2. Enter line action S beside the report set.
3. In the Transaction Transit Reports (Form-based) section, enter line action S beside either List or Summary, depending on whether you want a list or summary extract.
4. In the Report Interval section, specify the date range you are interested in.
5. On the first empty row in the Reports Required section, enter a Type of EXTRACT, enter the report form that specifies the fields to be extracted, specify a report filter if you want one, and change any of the other details on the row if required.
6. For Specify required view, enter **2. Extract**.
7. Set the extract options to be appropriate for a delimited file.  
An example of some valid settings for a delimited file are as follows:
  - **Include Delimiter** selected
  - **Delimiter** set to the comma character
  - **Include Field Labels** selected
  - **Numeric Fields in Float Format** cleared and **Numeric Fields in Decimal Format** selected
8. Press **Exit (F3)**.
9. Run the report set, for example by entering line action RUN beside it, and submit the job.
10. Check that the extract has been created.

## Exporting from a report set to Db2

---

If a table to hold the data is already defined in Db2, you can use this procedure to create an extract and load it into Db2 in a single operation.

### Before you begin

The following figure shows a graphical illustration of the important steps.

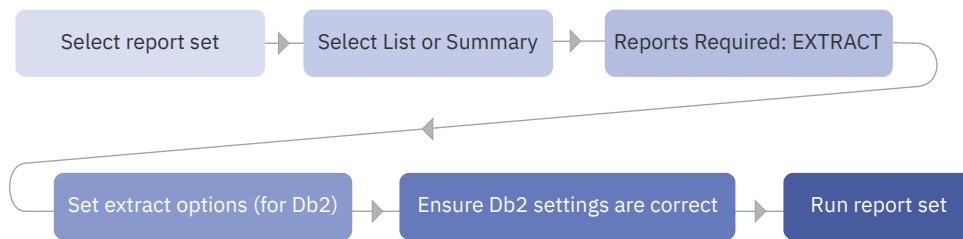


Figure 100. Exporting from a report set to Db2

## Procedure

1. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**.
2. Enter line action S beside the report set.
3. In the Transaction Transit Reports (Form-based) section, enter line action S beside either List or Summary, depending on whether you want a list or summary extract.
4. In the Report Interval section, specify the date range you are interested in.
5. On the first empty row in the Reports Required section, enter a Type of EXTRACT, enter the report form that specifies the fields to be extracted, specify a report filter if you want one, and change any of the other details on the row if required.
6. For Specify required view, enter **2. Extract**.
7. Ensure that **Extract Data Set Name** is set to the extract name you want.  
You might choose to make the name of the report form part of the extract name.
8. Set the extract options to be appropriate for Db2.  
For example:
  - **Export to Db2** selected
  - **Include Field Labels** cleared
  - **Numeric Fields in Float Format** cleared
  - **Numeric Fields in Decimal Format** selected
  - **ISO 8601 timestamps** selected if you want to include time zone information
9. Press Enter to view the Db2 settings.
10. Fill in the Db2 settings.  
For this step, you need the help of the person who knows your Db2 system so that you can correctly identify your Db2 database, storage group and other settings. The Db2 settings persist, so you can omit this step if you are running this procedure a second or subsequent time.
11. Continue pressing F3 until the Report Sets panel is displayed.
12. Enter line action RUN beside the report set, specify run options, press Enter, and submit the job.



## Chapter 19. IMS transaction index

The IMS transaction index is a specialized extract file created by IMS Performance Analyzer batch reporting. Each record in the index represents an IMS transaction and contains cumulative information from the IMS log about that transaction.

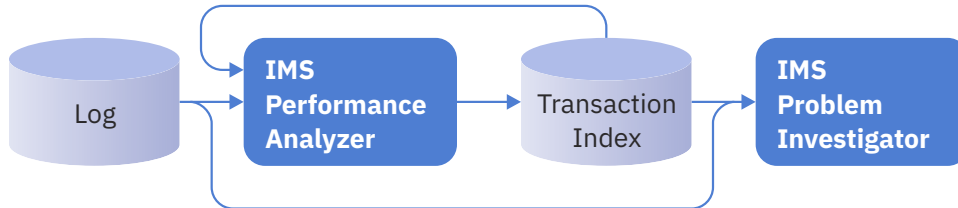


Figure 101. Creating and using the IMS transaction index

The IMS transaction index contains summarized transaction records that have been generated from IMS log records. These transaction summary records can be used in a variety of ways to facilitate problem analysis and to improve system performance monitoring.

### IMS Performance Analyzer form-based transit reporting

The IMS transaction index can replace the IMS log (SLDS) files as input for transit reporting. This significantly reduces the time and overhead of running IMS Performance Analyzer transit reports. It is recommended that you create the index once, either:

- At the end of the day in preparation for the next day.
- When the SLDS is created by the OLDS archive process for more timely analysis.

All subsequent transit report requests can use the index in place of the original IMS log files. The index will create reports in far less time because:

- The index is much smaller than the original log files, typically less than 10% in size.
- The IMS log records have already been interpreted, and all transaction report fields and performance metrics have been calculated and stored in the index.

### IMS Problem Investigator transaction analysis and intelligent problem detection

The IMS transaction index can be processed on its own or merged with the associated IMS log files in an interactive diagnosis session to provide improved levels of problem detection. For example, “Locate all transactions with response time greater than 1 second”.

### On or off-host analysis using exported transaction summary data

Transaction summary data in the IMS transaction index can be exported so that you can generating your own reports using z/OS or you can export the data to analytics platforms for advanced historical analysis.

The IMS transaction index record has the format of an IMS user log record, with a record code of X'CA01'. The record mapping is provided by macro IPILCA01 in the IMS Performance Analyzer macro library.

To review the contents of the index record, use IMS Problem Investigator. The index record contains the information required to report all supported IMS Performance Analyzer report form fields, including:

#### 1. Transaction identification

- Transaction code, terminal, and other identifying names
- Time stamp of when the transaction started or entered the system
- All transaction types are comprehensively supported; including MPP, BMP, Fast Path, MSC (end-to-end), APPC (including CPI-CI), OTMA (including IMS Connect and MQ)

#### 2. Tracking tokens

- Tracking, unit of work, OTMA, Connect and other identifying tokens

#### 3. Event time stamps

#### 4. Performance metrics

- Transit and response time breakdown
- Processing delays, including Commit Mode 0 and 1 delays incurred while waiting for client acknowledgment
- Additional response time components, including Resume Tpipe elapsed time delays
- ABEND and other processing failure indicators

#### 5. Resource usage

- CPU time
- Full Function and Fast Path database calls
- Database buffer, IO and locking
- Fast Path buffer, VSO and contention
- External subsystem
- Input and output message count and lengths

The inherent restrictions of form-based reporting still apply when using the IMS transaction index:

1. The type 07 application termination accounting record is required to provide resource usage estimates. In a WFI environment, these records may not be available in the log.
2. IMS V15+ type 56FA transaction-level accounting records are required for accurate and complete resource usage statistics.

## Creating an IMS transaction index

The IMS transaction index is requested from an IMS Performance Analyzer LOG report set.

### Procedure

1. From the IMS Performance Analyzer primary option menu, select option 3 **Report Sets** and then define a new log report set or edit an existing one.
2. Select **transaction index** in the form-based transit reports category.

```
EDIT                                     Report Set - SAMPLOG                               Line 1 of 12
Command ==> _____ Scroll ==> CSR

Description . . . Sample Log Report Set

Enter "/" to select action.

___  ** Reports **                               Active
+   Options                                     Yes
+   Transaction Transit Reports                 No
-   Transaction Transit Reports (Form-based)    Yes
    ___ Transit Options                         Yes
    ___ List                                   No
    ___ Summary                               No
    s Transaction Index                       Yes
+   Resource Usage & Availability Reports       No
+   Fast Path Transit Reports                  No
+   Fast Path Resource Usage Reports           No
+   Trace Reports                             No
    ___ User-Written Reports                   No
    ** End of Reports **
```

Figure 102. IMS PA Log Report Set: Select **transaction index**

3. Specify the name and disposition of the transaction index output data set. Optionally, select additional data sections to include in the index.

4. Enter the **RUN** command to proceed with the request. When prompted, specify run-time options and press Enter to generate the JCL.

The JCL is displayed in the ISPF editor.

5. Batch requests to create the IMS transaction index are submitted and processed in the same way as all other Report Set requests.

For example, the following JCL generates the index file, writes it to data set JCH.WORKSHOP.INDEX, and also runs three additional reports:

```
//IMSPA    JOB ,NOTIFY=&SYSUID
//*
//IPI      EXEC PGM=IPIMAIN,PARM='V152'
//STEPLIB DD DSN=IMSPA.V450.SIPLINK,DISP=SHR
//* Input IMS log files
//LIZDE001 DD DISP=SHR,DSN=JCH.WORKSHOP.IZDE.SLDS
//LIZDF001 DD DISP=SHR,DSN=JCH.WORKSHOP.IZDF.SLDS
//* Transaction Index extract file
//IPITXOUT DD DSN=JCH.WORKSHOP.INDEX, 1
//          DISP=(NEW,CATLG), UNIT=SYSDA,SPACE=(TRK,(1,1),RLSE)
//TXRECAP DD SYSOUT=* 2
//SYSPRINT DD SYSOUT=*
//* Report Set Command Input
//IPICMD DD *
          IMSPALOG INDEX( 3
                        [ESAF,] 4
                        [DBUPDATE,]
                        [ABEND,] 5
                        [PROCESS(9999),] default 0.50 seconds
                        [TOTAL(9999),] default 1.00 seconds
                        [PGMSWI,]
                        [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),] 6
                        [INCL(LTERM(list))|EXCL(LTERM(list)),]
                        [INCL(LINE(list))|EXCL(LINE(list)),]
                        [INCL(VTAMNODE(list))|EXCL(VTAMNODE(list)),]
                        [INCL(CLASS(list))|EXCL(CLASS(list)),]
                        [INCL(USERID(list))|EXCL(USERID(list))])
          IMSPALOG LIST,SUMMARY,IRUR 7
          IMSPALOG EXECUTE
/*
```

- 1 DDname IPITXOUT must be specified in the JCL to define the data set that will contain the IMS transaction index.

- 2 Optional: Specify DDname TXRECAP for the Recap report output. If not specified, TXRECAP is allocated automatically.

- 3 The INDEX batch command requests that the IMS transaction index is to be created.

- 4 Specify **ESAF** or **DBUPDATE** or both to request that the index include additional information for external subsystems or database update activity or both.

- 5 You can specify exception criteria so the index contains only problem transactions:

- Specify **ABEND** to only include transactions that abended.
- Specify one or both of the following options to only include transactions that exceed the specified elapsed time threshold (0.01 to 9999 seconds).
  - Specify **PROCESS** to only include transactions that have a processing elapsed time in the dependent region that exceeds the threshold (default 0.50 seconds).
  - Specify **TOTAL** to only include transactions that have a total transit time that exceeds the threshold (default 1.00 second).
- Specify **PGMSWI** to include all transactions in the program switch sequence when at least one of them is an exception. This allows you to analyze the complete transaction set that resulted in the exception.

**6**

Specify selection criteria to filter the input file by including or excluding records based on transaction code, LTERM, line, VTAM node, class, or user ID.

**7**

Optional additional report requests.

6. Check or change the JCL, then on the ISPF editor command line, enter **SUB** to submit the job.

## What to do next

- When the IMS Performance Analyzer batch job has completed successfully, the Recap report gives the name of the IMS transaction index data set and the number of records written.
- Use IBM IMS Problem Investigator for z/OS to browse the contents of the index records which are processed in the same way as any other log record.

## Using the index for performance reporting

After creating an IMS transaction index, you can use it in place of the IMS log (SLDS) files for subsequent form-based transit report requests.

### Procedure

Edit the report set JCL to refer to the IMS transaction index instead of the IMS log files.

For example, the following JCL shows the IMS log input files replaced by the IMS transaction index file (ddname LOGIN). The form-based SUMMARY and LIST report requests will use the index.

```
//IMSPA    JOB ,NOTIFY=&SYSUID
//*
//IPI      EXEC PGM=IPIMAIN,PARM='V152'
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//* IMS transaction index
//LOGIN    DD DISP=SHR,DSN=JCH.WORKSHOP.INDEX
//SYSPRINT DD SYSOUT=*
//* Report Set Command Input
//IPICMD   DD *
//IMSPALOG SUMMARY(SECGROUP,PRECISION(6),
//                  FIELDS(TRANCODE,TRANCNT,
//                  INPUTQ,PROCESS,OUTPUTQ,TOTAL,CPU))
//IMSPALOG LIST(SECGROUP,PRECISION(6),
//              FIELDS(LTERM,TRANCODE,STARTIMS,
//              INPUTQ,PROCESS,OUTPUTQ,TOTAL,CPU))
//IMSPALOG EXECUTE
/*
```

The resulting reports will contain the same information as if they were created from the original IMS log files.

**Note:** The additional information for external subsystems or database update activity will only be available for reporting if the corresponding options (**ESAF**, **DBUPDATE**) were specified when the IMS transaction index was created.

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## Part 5. Log reporting

IMS PA provides both an online dialog and a batch interface. This part describes how to request and run Log reports and extracts using the dialog and batch commands.



# Chapter 20. Requesting Log reports

You can use the IMS PA ISPF dialog to specify and request reports generated from IMS log data.

## Log Report Sets

IMS Performance Analyzer Log reports are specified in a Report Set of type LOG.

Report Sets are stored in a Reports Sets data set. If you have not specified a Report Sets data set, IMS Performance Analyzer will allocate a data set for you with default characteristics. To change the Report Sets data set, you can use **Options** in the action bar or option 0.4 **IMS PA Control Data Sets** from the IMS Performance Analyzer primary option menu.

To work with Report Sets, select option 3 **Report Sets** from the IMS Performance Analyzer primary option menu. For more information, see [“Creating a Report Set” on page 188](#).

Report Sets				Row 1 to 2 of 2	
Command ==> _____				Scroll ==> <u>PAGE</u>	
Report Sets Data Set . . . : IMSPA.RSET					
/	Name	Type	Description	Changed	ID
<u>S</u>	SAMPLOG	LOG	Sample Log Report Set	2023/07/17 12:02	IMSPA
<u>  </u>	SAMPMON	MON	Sample Monitor Report Set	2023/07/02 14:22	IMSPA
***** Bottom of data *****					

Figure 103. Selecting a Log Report Set in IMS Performance Analyzer

A panel is then displayed for you to view or modify the description of the Report Set and the reports it contains. [Figure 104 on page 210](#) shows the sample Log Report Set which IMS Performance Analyzer provides if there are no user-defined Report Sets in the Report Set data set.

The list of reports in the Report Set is presented in a tree structure (folder style). The reports are grouped by category.

The Log Report Set Edit panel shows the list of all available log reports options in a tree structure.

The Tree View is a hierarchical representation of the report categories and reports. This is similar to the way some PC tools display folders and files. The + or - character to the left of each report category shows its current status, expanded (-) or collapsed (+). This allows you to view only the reports that you are currently interested in, and has no affect on which reports are run when the Report Set is submitted.

```

EDIT                                     Report Set - SAMPLOG                               Line 1 of 52
Command ==> _____ Scroll ==> PAGE

Description . . . Sample Log Report Set

Enter "/" to select action.

___  ** Reports **                               Active
-   ___ Options                               Yes
    ___ Log Global                             Yes
-   ___ Transaction Transit Reports             Yes
    ___ Transit Options                         Yes
    ___ Analysis                              Yes
    ___ Statistics                             No
    ___ Log                                    No
    ___ Graphic Summary                        No
    ___ Extract by Interval                    No
    ___ Transaction Exception                  Yes
    ___ Transaction History File               No
-   ___ Transaction Transit Reports (Form-based) No
    ___ Transit Options                         No
    ___ List                                  No
    ___ Summary                               No
    ___ Transaction Index                     No
-   ___ Resource Usage & Availability Reports   Yes
    ___ Dashboard                             Yes
    ___ Management Exception                  Yes
    ___ Transaction Resource Usage             No
    ___ Resource Availability                  Yes
    ___ CPU Usage                             Yes
    ___ Internal Resource Usage                Yes
    ___ MSC Link Statistics                    No
    ___ Message Queue Utilization              No
    ___ Database Update Activity               Yes
    ___ Region Histogram                      No
    ___ OSAM Sequential Buffering               No
    ___ Deadlock                             Yes
    ___ System Checkpoint                     Yes
    ___ BMP Checkpoint                        No
    ___ Gap Analysis                          No
    ___ Cold Start Analysis                    No
-   ___ Fast Path Transit Reports               No
    ___ Transit Options                         No
    ___ Analysis                              No
    ___ Log                                    No
    ___ Extract By Interval                    No
    ___ Transaction Exception                  No
-   ___ Fast Path Resource Usage Reports        No
    ___ Resource Usage & Contention             No
    ___ Database Call Statistics               No
    ___ IFP Region Occupancy                   No
    ___ EMH Message Statistics                 No
    ___ DEDB Update Activity                   No
    ___ VSO Statistics                         No
-   ___ ATF Summary Reports                    No
    ___ Transit Options                         No
    ___ Extract                               No
    ___ Transaction Analysis                   No
    ___ DLI Call Analysis                      No
    ___ Db2 Call Analysis                      No
    ___ MQ Call Analysis                       No
-   ___ Trace Reports                          No
    ___ DC Queue Manager Trace                 No
    ___ Database Trace (Full Function)         No
    ___ DEDB Update Trace                     No
    ___ ESAF Trace                            No
    ___ User-Written Reports                   No
    ___ ** End of Reports **

```

Figure 104. Editing a Log Report Set in IMS Performance Analyzer



You can flip the status by selecting the **+** or **-** character with the mouse (or lightpen) or cursor select key. Selecting the category with the S line action also flips its status.

**Tip:** If your terminal emulation allows, it is recommended that you configure your Mouse Options to activate the lightpen function. This allows you to left button click on the **+** or **-** characters to Expand and Collapse the Report Categories. The use of your mouse as a lightpen may vary depending on your terminal emulation software.

Each report can be activated (sets the **Active** column value to Yes) or deactivated (No). If any changes are made to a report, the dialog will mark the report as active automatically. Each Report Category can be activated or deactivated. Only active reports in active report categories are included in the Report Set at submit time.

A Report Set can be submitted for processing only if there is at least one active report in an active report category. However, you can use the RUN line action to temporarily override the inactive status of a report or report category.

## Line actions

The line actions that you can enter on the Log **Report Set** panel depend on the type of item that you enter the line action next to.

The available line actions depend on whether they are acting on either:

- The top of the Report Set menu tree (whole of Report Set)
- A Report or Option Category
- The Global or Transit Options
- A Report or Extract

### **\*\* Reports \*\***

The available line actions for **\*\* Reports \*\*** at the top of the menu tree are:

**/**

Display the menu of line actions.

**S**

Expand all categories that are not already expanded, or collapse all categories if they are all expanded.

**A**

Activate all categories that contain one or more active reports. This does not affect the status of the individual reports. If there are no active reports in the category, it cannot be activated. Only the active reports in active report categories will be run when the Report Set is submitted.

**AA**

Activate all categories, all reports, all options.

**D**

Deactivate all categories. This does not affect the status of the individual reports. When a report category is deactivated, no reports in that category will be run when the Report Set is submitted.

**DD**

Deactivate all categories, all reports, all options.

**RUN**

Also R. Run the report category. Run-time options will display.

## Report Categories

The available line actions for a Report Category are:

**/**

Display the menu of line actions.

## **S**

Expand or Collapse the report category.

## **A**

Activate the report category (sets the **Active** column value to Yes). Alternatively, you can type Y in the **Active** column. This does not affect the status of the individual reports. If there are no active reports in the category, it cannot be activated. Only the active reports in active report categories will be run when the Report Set is submitted.

## **AA**

Activate the report category and all the reports and options within it.

## **D**

Deactivate the report category (sets the **Active** column value to No). Alternatively, you can type N in the **Active** column. This does not affect the status of the individual reports. When a report category is deactivated, no reports in that category will be run when the Report Set is submitted.

## **DD**

Deactivate the report category and all the reports and options within it.

## **RUN**

Also R. Run the report category. Run-time options will display.

## **Options**

There are three sets of Options: Log Global Options, Transaction (MSGQ) Transit Options and Fast Path Transit options. The Options can be edited by selecting with line action S. They cannot be explicitly activated or deactivated.

## **Reports**

The available line actions for a report are:

### **/**

Display the menu of line actions.

## **S**

Select (Edit) the report.

## **A**

Activate the report (Active=Yes). Alternatively, you can type Y in the **Active** column.

## **D**

Deactivate the report (Active=No). Alternatively, you can type N in the **Active** column.

## **RUN**

Also R. Run the report. Run-time options will display.

Not available on the submenu of 21 User-Written Record Processors.

## **RUN command**

The **RUN** command runs the Report Set and prompts you for entry of runtime options, such as System Selection and Report Interval, before generating the JCL.

**SUB**, **JCL**, and **JCM** are special **RUN** requests that preset the Execution Mode (see [“Run Log Report Set” on page 213](#)) and allow you to bypass the runtime prompt:

- The **SUBMIT** or **SUB** command directly submits the Report Set for execution.
- The **JCL** command builds the JCL to execute the Report Set and allows you to edit the job before you submit it or save it in your JCL library.
- The **JCLCMD** or **JCM** command builds the JCL, converts the Report Set to a command stream, and allows you to edit the job before you submit it or save it in your JCL library.

The **RUN** command does not reset the Execution Mode. For example, if you **SUB** a Report Set, the Execution Mode is set to 1. If next time you **RUN** a Report Set, the Execution Mode will default to 1.

**RUN** is also available as a line action to run individual reports or report categories and override the Active status. When entered as a line action, only Execution Mode 3 is available. SUB, JCL, and JCM can be entered as a line action, however in this case they act the same as the RUN line action.

## Specifying Report Options

The IMS PA dialog stores the report options that you specify in the Report Sets data set.

For additional information about the report options and examples of the reports, see the chapter "Analyzing Log reports and extracts" in the *IMS Performance Analyzer for z/OS: Report Reference*.

### Saving your changes

If an active report is deactivated, its specified options are retained. To return to the default options for a report, edit the report in the Report Set, then select **File > Reset To Defaults** from the action bar or enter **DEFAULTS** on the command line. To return to the default value for a single field (excluding flags, selection fields, or fields in a dependent set), just erase the value in the field.

Any changes to a Report Set's options and activated reports are saved *only* by issuing a **SAVE**, **SAVEAS**, or **Exit (F3)** command from the **EDIT Report Set** panel.

**Note:** **Exit (F3)** discards changes if **Automatic Save on Exit** in your IMS PA Profile Options is set to NO.

Saving of changes made on a subordinate panel (for example, a subpanel of the Management Exception Report) is as follows:

- If **Exit (F3)** from the subpanel, then changes are retained pending **SAVE**, **SAVEAS**, or **Exit (F3)** from the **EDIT Report Set** panel.
- If **CANCEL** from the subpanel, then changes just entered on the subpanel are discarded.

## Run Log Report Set

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The IMS PA dialog generates the JCL for batch report processing. Enter the **RUN** command to run your Report Set, Report Category or individual reports.

### About this task

One way to do this is shown in [“Log Report Sets” on page 209](#).

Before IMS PA generates the JCL, the Run Report Set panel is displayed to prompt you to specify runtime options. You can request to bypass this prompt, except in the following circumstances:

- When the **RUN** command is used. The prompt for runtime options can only be bypassed if **SUB**, **JCL**, or **JCM** commands are used.
- When a Report Interval is specified, for example, for DBRC Log Selection.

Run Report Set SAMPLOG

Command ==>

Specify run options then press Enter to continue submit.

System Selection:

System or Group . . . PR01 +

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From -1 10:00:00:00

To -1 11:00:00:00

File Selection Options:

1 1. Use specified log files

2. Use DBRC to select log files

Unresolved Data Set Options:

1 1. Issue error message

2. Edit unresolved JCL

Execution Mode:

2 1. Submit Report Set

2. Edit JCL before submit

3. Edit JCL with command input

IMS Tools Knowledge Base

Write to the ITKB repository

ITKB Server . . . .

Enter "/" to select option

Bypass run-time options prompt

Figure 105. Run Log Report Set

Specify your desired runtime options. When the specification is complete, press Enter to proceed with JCL generation.

The options on the Run Report Set panel are:

### System Selection

Specify the IMS Subsystem or Group to run the Report Set against. IMS PA includes in the JCL the log files specified for this subsystem or group.

You can type the system or group name or press **Prompt (F4)** to select one from a list of available systems and groups.

If you want to change your system definition or group specification, you can link there by selecting **SysDefs** in the action bar.

The generated JCL specifies the release of the IMS system on the EXEC IPIMAIN, PARM='Vvrm' statement. However, if you specified a group with IMS systems at different release levels, they are listed under //IPIOPTS DD \* as follows:

```
IMSPALOG SYSTEM(ims1,Vvrm)
IMSPALOG SYSTEM(ims2,Vvrm)
```

### Report Interval

Default: Blank initially, but thereafter your specification is remembered.

Specify a date/time range. This date/time specification overrides at run time the Global Report Interval specified within the Report Set. Date is required for DBRC Log Selection, but otherwise the date/time fields may be left blank.

Date can be either an actual date specification with the same edit rules as the Global Report Interval (see “Log Global Options” on page 216), or it can be a relative date. Relative dates are specified as 0, -1, -2,... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both From and To dates are specified, they must be in the same format.

Time is optional. If From time is not specified, it defaults to the start of the day. If To time is not specified, it defaults to the end of the day.

The specified date/time range is included as parameter input in the generated JCL.

For Log File input, under //IPIOPTS DD \*

```
IMSPALOG START(yyyy/mm/dd, hh:mm:ss:th),
STOP(yyyy/mm/dd, hh:mm:ss:th)
```

For DBRC Log Selection, under //IPIPARM DD \*

```
FROM=(yyyy/mm/dd, hh:mm:ss:th)
TO=(yyyy/mm/dd, hh:mm:ss:th)
```

### Log Selection Options

Select **1** to instruct IMS PA to use the log files explicitly specified in your System Definitions.

Select **2** to instruct IMS PA to use DBRC Log Selection to identify the relevant log files. See [Chapter 13, “Automated File Selection,”](#) on page 137 for further details of this process.

### Unresolved Data Set Options

This option allows you to control what IMS PA does when it strikes a problem with JCL generation because the system or file definitions for your System Selection are incomplete. Select one of the following actions:

1. **Issue error message.** IMS PA aborts JCL generation and reports the errors in a window titled Report Set JCL Generation Failure. This allows you to link to System Definitions or Groups and correct your file specifications.
2. **Edit unresolved JCL.** IMS PA proceeds with JCL generation creating DD statements with DSN=<unresolved> where the files are not known. Regardless of your JCL or SUB request, the JCL is edited to allow you to specify the DSNs before submission.

You can use **SysDefs** in the action bar to link to System Definitions to make changes, or you can edit the JCL and make changes that apply to this run only.

### Execution Mode

Default: According to the command entered.

Specify whether to execute the Report Set or generated commands, and whether you want to edit the JCL before submit. Editing JCL before submit will enable you to save the JCL in an external data set for automated job scheduling or ad hoc report requests.

The options are

1. Submit Report Set. This is equivalent to the **SUBMIT** or **SUB** command.

The Report Set JCL contains the statements:

```
//IPIRSET DD DSN=ReportSets.DSN(ReportSetName),DISP=SHR
//IPIOBJL DD DSN=ObjectLists.DSN,DISP=SHR
//IPIDIST DD DSN=Distributions.DSN,DISP=SHR
//IPIFORM DD DSN=ReportForms.DSN,DISP=SHR
```

2. Edit JCL before submit. This is equivalent to the **JCL** command. It generates the same JCL as SUBMIT, but allows you to edit it.
3. Edit JCL with command input. This is equivalent to the **JCLCMD** or **JCM** command.

This generates JCL in which the Report Set, and any Object Lists and Distributions it uses, are converted to a stream of commands and displayed to allow you to edit them. The Log JCL contains the statements:

```
//IPICMD DD *
IMSPALOG          ....
                  INCL|EXCL(...),...
IMSPALOG          EXECUTE
Distname DISTRIBUION
```

Note that when you enter **RUN** at the report-level as a line action or override, option 3 is the only option available to you.

### Bypass run-time options prompt

Default: Not selected.

This controls the display of the prompt for runtime options, the **Run Report Set** panel.

Enter / to bypass the runtime options prompt. This is useful when you have specified your System Selection and you want to run your Report Sets from hereon using the **SUB**, **JCL**, or **JCM** commands without having the prompt intervene each time. Note that the runtime prompt cannot be bypassed if you use the **RUN** command to run your Report Set or you have specified a Report Interval (for example, for DBRC Log Selection).

### IMS Tools Knowledge Base

Default: Not selected.

To redirect output to the IMS Tools Knowledge Base:

1. Set up the [IMS Tools Knowledge Base for IMS Performance Analyzer reports](#).
2. Select **Write to the ITKB repository** and specify the ITKB server name.

### Related concepts

#### [Report command format](#)

IMS PA provides both a dialog and batch interface. The IMS PA commands are used to request reports and extracts. The dialog generates the JCL and commands when you run (submit) a Report Set.

#### [IMS Tools KB setup for IMS Performance Analyzer reports](#)

IMS Performance Analyzer is registered as a product (PRODUCTID=IP). All fixed-format reports are registered. Also, generic report definitions are registered for ten LIST and ten SUMMARY form-based reports and five user-written log reports.

### Related reference

#### [Log batch interface](#)

The IMS PA dialog generates the JCL and commands for executing your report requests in batch. The JCL and commands for Log report requests are described here. Sample jobs are supplied in the SIPISAMP Library.

#### [IMS Performance Analyzer sample library](#)

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## Log Global Options

---

The IMS Performance Analyzer Log Global Options define general control information which applies to all active reports within the Report Set.

To view and edit **Log Global Options** for a Report Set:

1. Select the Log Report Set.
2. Expand the **Options** category using line action S.
3. Select the **Log Global** category using line action S.

```

                                SAMPLOG - Log Global Options
Specify Log Global options.
Extract Options:
- Include Field Headings
- Use Comma as Delimiter Character
- Activate Streaming
- Exclude Null fields
                                Report Interval
                                YYYY/MM/DD HH:MM:SS:TH
                                From
                                To
                                Report Output DDname RPTOUT
Connection Options:
- Define Connection Settings
Processing Options:
- Ignore Log Sequencing Errors
Report Options:
Report Break Points . . . STOP (HOUR, STOP, EOF or nnnn Minutes)
Print Lines per Page . . 60 (1-255)
Jobname . . . . .
- Print "%" sign in Report output
Run-time Options:
- Activate inflight processing
Inflight DSN . . .
Outflight DSN . . .
User Exit:
Transaction Substitution . .
Source of IMS Processing ID:
1 1. Log input file DDname
2. Log records
Command ==>

```

Figure 106. The **Log Global Options** panel in the IMS Performance Analyzer ISPF dialog

The options are as follows:

### Report Interval

Default: Not specified. All records are included.

This allows you to specify a time period for selecting a subset of the input file data for passing to the report processors. Records with time stamps on or after the From Date/Time and before the To Date/Time are selected for processing. Reducing the time period can significantly reduce processing time and virtual storage requirements for generating the reports.

A Report Interval can be specified for some individual reports, and is applied within the context of the Global Report Interval.

You can specify one of the following:

#### Date/time pairs or dates only

This indicates a *date-time range* (for example, 2023/06/25 8:00 to 2023/06/25 17:00). Input records between the From Date/Time and To Date/Time are selected for report processing. Any records at the start or end of the input file that are outside the specified range are bypassed. The From Date/Time must be before the To Date/Time.

#### Times only

This indicates a particular *time slot* (for example, 9:00 to 10:00 each day). Input records whose time stamp is within the specified time slot, irrespective of the date, are selected for report processing. Any records throughout the input file whose time of day is not within the specified time slot are bypassed. The From and To Times must be different. Specifying the From Time greater than the To Time indicates a time slot across midnight.

#### Neither date/time pair

All input records are selected.

Rules governing the date:

- A date is expected in a format consistent with your **Preferred Date Format** specified in your Profile Options. See [Figure 7 on page 66](#).
- If the year of the date is specified as \*\*\*\* (four asterisks), the current year is substituted at the time the Report Set is executed.

- If the From Date is omitted, it will default at run time to the start of the input file.
- If the To Date is omitted, it will default at run time to the end of the input file.

Rules governing the time:

- Time is expressed as *hh:mm:ss.th* for hours, minutes, seconds, tenths and hundredths of a second. Colon delimiters separate the parts of the time.
- If the **From** Time is omitted, it will default at run time to 00:00:00:00.
- If the **To** Time is omitted, it will default at run time to 23:59:59:99.

**Note:** If producing Transit reports for shared queues log input data, the efficiency of the batch report processing can be significantly improved by specifying a global Report Interval which defines the intersecting time period for the multiple IMS subsystems. See [“Specifying the Time Period for Transit Reports”](#) on page 223 for further details.

### Report Output DDname

Default: RPTOUT

Specify the DDname to be used for the output of the following Transaction Transit reports:

- Analysis
- Statistics
- Graphic Summary
- Extract by Interval

### Include Field Headings

Default: Not selected.

Select with a / to include field headings as the first record in the extract file. If not selected, the field headings are omitted.

This option applies to the Total and Exception Traffic Extract Data Sets optionally produced by the Transaction (MSGQ) Exception and Fast Path (EMH) Transaction Exception reports.

### Use Comma as Delimiter Character

Default: Not selected.

Select with a / to use a comma as the delimiter between fields in extract file records. If not selected, a space is used. If any extract data fields are null or have embedded spaces, the space delimiter may confuse subsequent processing by external programs.

This option applies to the Total and Exception Traffic Extract Data Sets optionally produced by the Transaction (MSGQ) Exception and Fast Path (EMH) Transaction Exception reports.

### Activate Streaming

Default: Not selected.

Select with a / to include all Extracts in the Report Set that are defined to use Streaming, which will use the Log Global default values. This option generates the **CONNECTION** operand

### Exclude Null fields

Default: Includes all fields in the output.

This field pertains to the inclusion or exclusion of fields that have been selected for output but possess null reportable values.

**Note:** This field applies only to Streaming JSON Lines.

### Define Connection Settings

Default: Not selected.

Select a / to define connection settings for a host listening on a TCP port for a JSON extract file.

**Remember:** You must provide the values for the **Host** and **Port** fields in the **Connection Settings** panel to activate the **Streaming** option.



The other fields and their description in the **Connection Settings** panel are as follows:

Fields	Description
Host	Enter the host name or IP address of the destination. For example, <a href="http://analytics.host.com/">http://analytics.host.com/</a>
Port	Enter the default port number of the destination. For example, 5044
Timeout	The amount of time to wait before timing out. You can enter any of the following values: <ul style="list-style-type: none"> <li>• An integer numbers in seconds.</li> <li>• A value of 0 indicates no timeout, which means to wait indefinitely.</li> </ul> The default value is 0.
Security	Select any of the following options: <ul style="list-style-type: none"> <li>• <b>1. None:</b> IMS Performance Analyzer attempts to open a connection without SSL/TLS.</li> <li>• <b>2. TLS:</b> IMS Performance Analyzer attempts to open a connection with SSL/TLS.</li> </ul> The TLS option generates the SECURITY(TLS*) operand in the JCL. TLS* represents the list of all supported versions of TLS, starting with the latest version. The default value is option 1.
FIPS	Enter Y or N to enable or disable the z/OS System SSL Federal Information Processing Standards (FIPS) mode.
Key ring	Specifies a collection of certificates that includes the certificates required for the connection. The value of Key ring can be one of the following: <ul style="list-style-type: none"> <li>• <b>SAF key ring</b> Specified in the format <i>owner_user_id/key_ring_name</i> or <i>key_ring_name</i>, if the current user owns the key ring. An example of a valid SAF key ring is <i>my/imspa_keyring</i>. If the current user owns the key ring, the current user must have READ access to the <b>IRR.DIGTCERT.LISTRING</b> resource in the <b>FACILITY</b> class. If other user owns the key ring, the current user must have <b>UPDATE</b> access to that resource. <b>Note:</b> Certificate private keys are not available when you use a <b>SAF key ring</b> owned by other user, except for SITE certificates where <b>CONTROL</b> authority is given to <b>IRR.IGTCERT.GENCERT</b> in the <b>FACILITY</b> class or for user certificates where <b>READ</b> or <b>UPDATE</b> authority is given to <i>ring_owner.ring_name.LST</i> resource in the <b>RDATALIB</b> class.</li> <li>• <b>Key database</b></li> </ul>

Fields	Description
	<p>A key database created by the z/OS gskkyman utility. The key database is specified as a z/OS UNIX file path, for example <i>/u/my/sslcerts/imspa.kdb</i>.</p> <p><b>PKCS #12 file</b></p> <p>This file is specified as a z/OS UNIX file path, for example <i>/u/my/sslcerts/imspa.p12</i>.</p> <p><b>PKCS #11 token</b></p> <p>This file is specified in the format <i>TOKEN/token_name</i>, for example <i>TOKEN/imspa.pkcs11.token</i>.</p> <p>The <b>TOKEN</b> qualifier indicates that the value refers to a PKCS #11 token rather than a SAF key ring.</p> <p>If you specify a key database or PKCS #12 file, but you do not specify either <b>Stash file</b> or <b>Password</b>, IMS Performance Analyzer looks for a stash file in the same directory as the key database or PKCS #12 file, and with the same base file name, but a <i>.sth</i> extension.</p> <p>For example, if the <b>Key ring</b> field specifies the following z/OS UNIX file path:</p> <p><i>/u/my/sslcerts/imspa.db</i> or <i>/u/my/sslcerts/imspa</i> (with no extension), then IMS Performance Analyzer looks for a stash file at the following path:</p> <p><i>/u/my/sslcerts/fuw.sth</i>.</p>
Stash file	<p>Specifies the z/OS UNIX path for the stash file that contains the password for the key database or PKCS #12 file.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• If <b>Key ring</b> specifies a SAF key ring or PKCS #11 token and the <b>Password</b> field is filled, then <b>Stash file</b> is ignored.</li> <li>• The stash file name must have a <i>.sth</i> extension. If the specified file name has a different extension, that extension is ignored and replaced with the <i>.sth</i> extension.</li> </ul>
Password	<p>Specifies the password for the key database or PKCS #12 file. If <b>Key ring</b> specifies a SAF key ring or PKCS #11 token, then the <b>Password</b> field is ignored.</p>
Ciphers	<p>Specifies a list of candidate cipher suites to try, in order.</p> <p>The list is a concatenation of 4-digit hexadecimal cipher suite numbers supported by z/OS System SSL, for example <i>000A000D001000130016</i>.</p> <p>If you do not specify <b>Ciphers</b>, IMS Performance Analyzer uses the system default list of cipher suites. That list changes depending on FIPS mode.</p>
Label	<p>Specifies the label of the client certificate that is used to authenticate IMS Performance Analyzer (the client) to the destination host (server).</p> <p>The client certificate, and its private key, must be in the collection that is specified by the <b>Key ring</b>. The label is used only if the destination host requires client authentication. If the destination host requires client authentication, but you omit the label, IMS Performance Analyzer uses the default certificate from the collection that is specified by the <b>Key ring</b>.</p>

### **Ignore Log Sequencing Errors**

Default: Not selected; do not ignore.

Select with a / if you want IMS Performance Analyzer to ignore log sequencing errors which might occur, for example, if running from a subset of the records from the original log files.

Usually, if log sequence errors are encountered, IMS Performance Analyzer forces end of data processing and initiates reporting. Instead, if this option is selected, information messages are produced, processing continues, and reporting occurs at log end of file.

### **Report Break Points**

Default: STOP

Specify when reports are to be written, as follows:

#### **HOURL**

Write reports every hour.

#### **STOP**

Write reports at the end of the specified interval, or end of the job if no defined interval.

#### **EOF**

Write reports at the end of the job.

#### **nnnn**

Write reports every *nnnn* minutes. The maximum value is 9999.

All times refer to log times.

### **Print Lines per Page**

Default: 60

Specify the number of print lines per page. The specified value applies to all log reports except the Transaction Transit Graphic Summary and Extract by Interval.

Valid values are from 1 to 255.

This option generates the PAGESIZE (*nnn*) global operand.

### **Jobname**

Optional. Specify the Jobname to be associated with this Report Set. If specified, the Jobname will be substituted in the JCL used for submitting the Report Set, providing consistency for a report that may be submitted multiple times, or on a regularly scheduled basis.

### **Print "%" sign in Report output**

Print the percent sign % in percentage values in report output. This is the default, and applies only to some form-based reporting output.

If not selected, this option generates the NOPCTSIGN global operand.

### **Activate inflight processing**

Default: Selected.

Select with a / if you want IMS Performance Analyzer to perform inflight transaction processing.

IMS produces its logs (SLDS data sets) at regular intervals as the online log data dataset (OLDS). As such, some transactions may still be in progress at the end of the log. These incomplete transactions are called inflight transactions.

When **Activate inflight processing** is selected, IMS Performance Analyzer does not report incomplete transactions. Instead it writes their details so far to a work dataset. This data set is then input into the next IMS Performance Analyzer job as a list of transactions pending completion.

Inflight processing requires both an input and output data set, either consecutive generations of a generation data group (GDG), or two explicitly-named data sets:

### Inflight DSN

The name of the input data set that contains incomplete transactions from the previous run. The inflight data set is read at the start of report processing. Incomplete transactions will resume and presumably complete within the current journal.

### Outflight DSN

The name of the output data set that is to contain incomplete transactions from the current run. The outflight data set is written at the end of report processing and automatically becomes the inflight data set for the next run.

There are two data set options when using inflight processing. Both options ensure you will never have to change your report JCL:

- **Fixed data set names:** IMS Performance Analyzer writes to the data set specified in **Outflight DSN**. The **Inflight DSN** and **Outflight DSN** data sets are then switched in an IDCAMS post step after reporting has completed successfully (RC=0). For an example, see [“Log Global Options” on page 350](#).
- **Generation Data Set Group (GDG):** Use the following IDCAMS command to define the GDG base:

```
DEFINE GDG (NAME('IMSPA.LOG.INFLIGHT') NOEMPTY SCRATCH LIMIT(3))
```

The GDG limit is set to 3, even though only 2 data sets are required. This will ensure that in the event of a reporting failure, corrective action can be taken (delete the generation 0 data set and re-run the job).

To allocate inflight data sets, see [Chapter 31, “IMS Performance Analyzer sample library,” on page 653](#).

Inflight processing affects the following reports:

- [“Form-based Transaction Transit reports” on page 225](#)
- [“IMS transaction index” on page 239](#)
- [“Internal Resource Usage reports” on page 267](#)

### Notes:

- Use inflight processing to run IMS Performance Analyzer against every newly created SLDS data set.
- A transaction is considered to be complete if, at log end-of-file, its completion level is greater than or equal to 5, i.e. the transaction has completed processing and the type 56FA or 07 log record is available to provide its accounting details.
- It is recommended that you activate TRANSTAT=YES to collect type x'56FA' transaction accounting statistics record. This ensures that CPU usage and DLI call activity per transaction is accurate. Without 56FA these statistics are estimated – apportioned from the 07 schedule termination record. In WFI and pseudo-WFI environments where many transactions are processed per schedule, the reported statistics for a problem transaction may be misleading.
- It is recommended when using inflight to build the IMS transaction index as you go. The IMS transaction index will keep a detailed record of every transaction processed, providing input for further reporting or problem investigation using IBM IMS Problem Investigator for z/OS.
- Do not change the BMPSYNC option while inflight processing is active. If IMS Performance Analyzer detects a mismatch in the BMPSYNC option the job is terminated and message [“IPI0358E” on page 595](#) is issued.
- For Internal Resource Usage reports, type x'45' IMS statistics log records are also cut to the out-flight data set, and then used as the initial interval for the next run.

### User Exit

Default: Not specified.

Optionally, specify the name of a Transaction Substitution Exit. The Exit enables you to change the Transaction Code name that is reported by selected Transit reports. The affected reports are the Transit Analysis, Statistics and Transaction Exception reports.

For sample JCL that illustrates how to use the Transaction Substitution Exit facility, see [Chapter 31](#), “IMS Performance Analyzer sample library,” on page 653.

### Source of IMS Processing ID

Default: 1.

Controls how IMS Performance Analyzer sources the IMS Processing ID reported in the Transaction Transit Reports (fixed format and form-based).

#### 1

Select 1 to use the subsystem name taken from the log input ddname in the format *Lxxxxunn* where *xxxx* is the IMSID, for example *//LIMSA001 DD DSN=IMSA.SLDS*.

#### 2

Select 2 to derive the subsystem name from the IMS log records. Field TPCPOSSN in any type 56 record associated with the transaction is typically used.

This option generates the SETIMSID (LOG) batch operand.

### Related reference

[Log Global Options](#)

The Log Global Options define output and general control information for the log reports.

[IMS Performance Analyzer sample library](#)

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## Specifying the Time Period for Transit Reports

When IMS PA merges shared queue log input from multiple IMS subsystems, the Transaction Transit record processors build in-storage queues of individual transaction details. In a shared queue environment, these details may be obtained from the logs of several IMS subsystems. IMS PA cannot complete individual transaction processing until all log records pertaining to the transaction are read.

Missing log data can cause IMS PA to accumulate these transaction queues without them being flushed when the transactions complete. When these queues become too large, IMS PA recognizes that log input may be missing and flushes the oldest transactions automatically without reporting on them.

Specifying a global Report Interval can significantly reduce the CPU and virtual storage requirements of shared queue log input Transaction Transit processing. By specifying a time period within the intersection of the log input from all the IMS subsystems in the sysplex, IMS PA will only accumulate transaction information that is complete and accounted for in reporting.

### Example

Consider the following three IMS subsystems with log input for January 4, 2023:

IMSA, from 10:25 to 17:50

IMSB, from 10:06 to 16:20

IMSC, from 11:08 to 16:20

For reporting aligned to a ten minute interval, the intersecting time period is January 4, 2023 from 11:10 to 16:20. This is specified using the **Report Interval** on the **Log Global Options** panel (see [“Log Global Options”](#) on page 216).

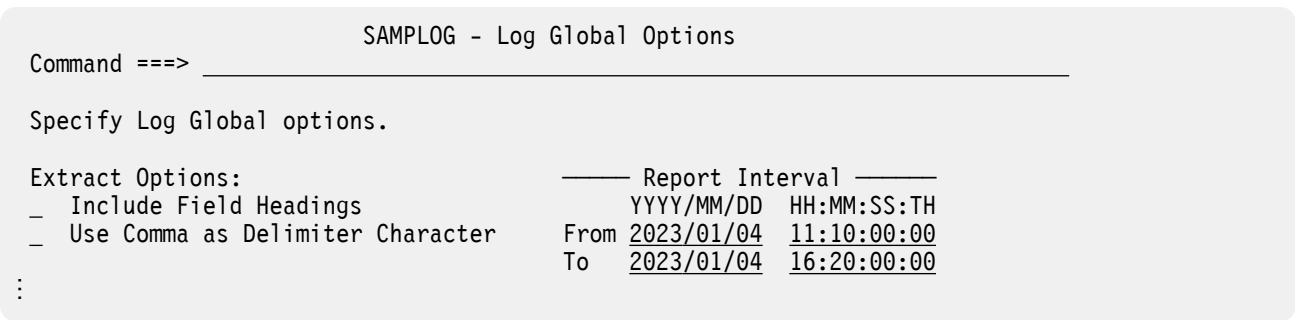


Figure 107. Global Report Interval specification

When you run the Report Set, the **Run Report Set** panel can optionally be displayed to allow you to update the Report Interval and other options. The Report Interval specified at run time overrides that specified on the Global Options panel. See [“Run Log Report Set” on page 213](#) for further details of this facility.

The IMS PA Report Set batch run log (in SYSPRINT) details the individual IMS subsystem log input start and end times, as well as the IMS PA reporting period:

03Feb2023 14.31.35	IMS Performance Analyzer 4.5.0	Page 2
04Jan2023 10:25:37:62	IPI0300I System IMSA Log Started, DDname=LIMSA001	
04Jan2023 10:06:42:96	IPI0300I System IMSB Log Started, DDname=LIMSB001	
04Jan2023 11:08:43:49	IPI0300I System IMSC Log Started, DDname=LIMSC001	
04Jan2023 11.10.15.92	IPI0002I Reporting starts within specified time range	
04Jan2023 16:10:16:69	IPI0310I Transit processing started	
04Jan2023 16:17:27:27	IPI0303I System IMSC Log Ended, DDname=LIMSC001	
04Jan2023 16:19:25:17	IPI0303I System IMSB Log Ended, DDname=LIMSB001	
04Jan2023 16:20:00:26	IPI0303I System IMSA Log Ended, DDname=LIMSA001	
04Jan2023 16.19.59.80	IPI0003I Reporting stopped: Elapsed time is 5.09.43.870.912	
04Jan2023 16.19.59.80	IPI0004I End of File signalled to Report Processors	
04Jan2023 16:19:24:69	IPI0311I Transit processing ended, Transaction Sets processed=127234	

Figure 108. SYSPRINT Run Log from Shared Queue report processing

## Data streaming as JSON Lines

You can configure an analytics platform like Elastic to stream (or forward) the data extracts as JSON Lines. Alternatively, you can configure some log forwarding tools, such as Logstash from Elastic, to listen on a TCP port and stream data to various destinations. For example, you can configure Logstash to receive JSON Lines as input over TCP and stream the data in a different platform-specific output format over HTTP to Elasticsearch or other destinations.

You can stream data extracts as JSON Lines over TCP/IP for the following reports:

- [“Internal Resource Usage reports” on page 267](#)
- [“System Checkpoint report” on page 281](#)

You must perform the following tasks to stream data extracts as JSON Lines over TCP/IP:

Tasks	More information
Install Elastic dashboards and sample JSON data OR Install your choice of log-forwarding tools.	<a href="#">IMS Performance Analyzer Elastic samples.</a>
Enable the Activate streaming option and configure the connection settings using the ISPF dialog.	<a href="#">“Configure the connection settings” on page 225.</a>

Tasks	More information
Configure any of the following reports to define extract types and options based on your requirements: <ul style="list-style-type: none"> <li>• Internal Resource Usage reports</li> <li>• System Checkpoint report</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">“Configuring the Internal Resource Usage report” on page 270</a></li> <li>• <a href="#">“Configuring the System Checkpoint report” on page 283</a></li> </ul>

## Configure the connection settings

You must activate the streaming option and configure the connection settings to stream (forward) data extracts as JSON Lines over TCP/IP.

### Procedure

1. Enter 3 to select the **Report Sets** option from the **Primary Option Menu** of IMS Performance Analyzer.
2. Select an existing **LOG Report Set** or create a **LOG Report Set**.
3. Select **Log Global** and then select the **Activate Streaming** option from the **Log Global Options** panel.
4. Enter / for the **Exclude Null fields** option to specify whether to include or exclude fields selected for output but for which the reportable value is null.
5. Select the **Define Connection Settings** option.
6. Provide the details about the host that is listening on a TCP port for JSON Lines from IMS Performance Analyzer by referring to [“Define Connection Settings” on page 218](#).
7. Exit the **Connection Settings** panel by using the **F3** key.

### Results

You have activated the streaming option to transmit data extracts as JSON Lines over TCP/IP.

### What to do next

You can configure any of the following reports to define extract types and options based on your requirements:

- [“Configuring the Internal Resource Usage report” on page 270](#)
- [“Configuring the System Checkpoint report” on page 283](#)

## Form-based Transaction Transit reports

The options for each IMS Performance Analyzer form-based Transaction Transit reports are described here.

The IMS Performance Analyzer Transaction Transit (Form-based) reports are:

- Transaction Transit List report and extract
- Transaction Transit Summary report and extract

They use IMS logs as input.

## Transaction Transit (Form-based) Options

The IMS Performance Analyzer Form-based Transaction Transit Options define control information that applies to the Form-based Transaction Transit reports within the Report Set.

The Form-based Transaction Transit Options apply to the following reports:

- [“Transaction Transit List report and extract” on page 228](#)
- [“Transaction Transit Summary report and extract” on page 235](#)

- [“Fixed-format Transaction Transit reports” on page 240](#)

SAMPLOG - Transaction Transit Options

---

Command ==>

Specify Form-based Transit options:

BMPs:

2 1. Treat each BMP syncpoint interval as a transaction  
 2. Treat the BMP as a single transaction. All syncpoint intervals are accumulated and reported at job end.

Shared queues:

2 1. Only report transactions that were processed on subsystems whose logs were input.  
 2. Report all transactions, even those processed on other subsystems whose logs were not input.

Program switches:

2 1. Report all transactions separately. Program switch sequences are not reported as a group.  
 2. Track transactions involved in program switch sequences. Program switch sequences are reported as a group.  
 3. Track transactions involved in program switch sequences. If the sequence is initiated from a BMP, include the BMP transaction at the head of the group.

False schedules:

1 1. Do not report False schedules.  
 2. Report each False schedule as a transaction.

Figure 109. The **Transaction Transit Options** panel for form-based reporting in IMS Performance Analyzer

The options are as follows:

#### **BMP treatment option**

Default: 2.

This option is only applicable to non-message driven BMPs.

Specify one of the following options:

**1**

Report each BMP syncpoint interval as a single transaction. With this option, BMP activity can be analyzed in greater detail. Each database checkpoint is analyzed to provide a cross-reference of databases (read-only and updated) against the BMPs that access them.

When using this option, it is recommended that you collect type x'56FA' transaction accounting log records (TRANSTAT=YES) to analyze CPU usage and DLI call activity in more detail for each BMP syncpoint interval.

**2**

Treat and report each BMP schedule as a single transaction. All syncpoint intervals are accumulated and reported at job end.

#### **Shared queues option**

Default: 2, except when inflight processing has been activated. See [“Log Global Options” on page 216](#).

Specify one of the following options:

**1**

Only report transactions that were processed on subsystems whose logs were input.

**2**

Report all transactions regardless of where they were processed.



### Program switches

Default: 2, except when inflight processing has been activated. See [“Log Global Options” on page 216](#).

Specify one of the following options:

- 1**  
Report all transactions independently. Program switch sequences are not reported as a group.
- 2**  
Group transactions associated with a program switch sequence for reporting purposes, allowing you to visualize the transaction flow in a program switch sequence, as well as measure end-user response time when a later transaction in the sequence eventually responds back to the end-user.
- 3**  
Track transactions involved in program switch sequences. If the sequence is initiated from a BMP, include the BMP transaction at the head of the group.

### False schedules

Default: 1.

IMS Performance Analyzer supports **False schedules** reporting in form-based reports. You can activate the **False schedules** by selecting option 2 in the **Transaction Transits Options** panel. Enabling the **False schedules** generates the **IMSPALOG FALSESCHD (YES)** command. By default, the **False schedules** option is disabled.

Specify one of the following options:

- 1**  
Do not report False schedules.
- 2**  
Report each False schedule as a transaction.

### Related reference

[Transaction Transit \(Form-based\) Options](#)

Form-based Transaction Transit Options define general control information for the Form-based Transaction Transit reports.

[IMS Performance Analyzer sample library](#)

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## Transaction Transit List report and extract

The options for the IMS Performance Analyzer Transaction Transit List report and extract are described here.

### Report options

IMSRSET - Transit List

More: < >

Command ==>

Specify required view:

1. Report

2. Extract

3. Transit options

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From 2019/12/24 08:59:00:00

To 2019/12/25 09:01:00:00

Reports Required:

Type	Form +	Filter +	Output Messages	Precision	Digit Grouping	Tran Mix	Report Width
1. REPORT	TRANLIST		NO	6	SEC	1	133
2. EXTRACT	TRANLIST		NO	6	SEC	1	
3.			NO	6	SEC	1	
4.			NO	6	SEC	1	
5.			NO	6	SEC	1	

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code			-		
Program			-		
LTERM			-		
VTAM Node			-		
Class			-		
User ID			-		

Figure 110. The Transit List panel in IMS Performance Analyzer

The report options are:

#### Specify required view

Default: **1**

To request Form-based reports and extracts, there are too many details for a single view. Specify the required view as follows:

##### 1

The Report view is used to specify details of your report request. These details are relevant when the **Type** of output is either REPORT or EXTRACT.

##### 2

The Extract view is used to specify additional details for an extract. These details are relevant only when the **Type** is EXTRACT.

##### 3

The Transit options view is used to specify additional details for a report or extract.

Enter the number of your choice, or scroll **Left (F10)** or **Right (F11)** to switch views. **More: < >** is displayed in the top right corner to indicate that more details are available in another view.

#### Report Interval

Default: Not specified.

Specify the reporting interval. Within the context of the Global Report Interval, records with time stamps on or after the **From** Date/Time and to the **To** Date/Time are included in the report.

You can specify either:

- Date/time pairs or dates only. This indicates a *date-time range* (for example, 2023/06/25 7:00 to 2023/06/25 16:30). The From Date/Time must be before the To Date/Time.
- Times only. This indicates a particular *time slot* (for example, 9:00 to 10:00 each day). Specifying the From Time greater than the To Time indicates a time slot across midnight.
- Neither date/time pair. *All* input records are selected.

### Type

Default: REPORT

Specify whether the output is to be a REPORT or an EXTRACT file.

### Form

Default: Not specified.

The name of a LIST Report Form used to tailor the format and content of the report or extract. If a Form is not specified, an internally defined default Form will be used.

### Filter

In this field you can specify a report filter to use. You can see the list of filters and create new ones using option 4.1 **Filters** on the primary option menu, or by using the **Report Filters** point-and-shoot field. For more information, see [Chapter 16, “Report Filters,” on page 183](#).

### Output Messages

Default: NO

Specify whether to include transaction output messages in the report as follows:

#### YES

Report all output messages from the transaction.

#### NO

Report only the first output message for the transaction.

### Precision

Default: 6

The precision of numeric fields. Numeric fields can be formatted to either 3, 4, 5, or 6 decimal places.

For example, if the field value is 10.123456 seconds:

- 3 decimal places is 10.123 precision
- 4 decimal places is 10.1235 precision
- 5 decimal places is 10.12346 precision
- 6 decimal places is 10.123456 precision

**Note:** Rounding occurs for elapsed and CPU time values.

Precision and Digit Grouping affect how the field values are represented in the report. Precision and Digit Grouping can be specified in the Report Form and the Report Set. The Report Set takes precedence.

An indicator shows whether the options you select in the Report Set make the report width different from the Report Form width. The < symbol indicates that the report precision is less than the Report Form precision. The > symbol indicates that the report precision is greater than the Report Form precision.

### Digit Grouping

Default: SEC

Digit grouping affects the formatting of count and time-based fields.

**Note:** Extracts will not contain thousands separators to allow for simpler integration with analytics.

#### SEC

Use thousands separators for count-based fields. Display time-based values in seconds with a precision specified in the **Precision** field.

**NO**

Do not use thousands separators for count-based fields. Display time-based values in the unit of measure implied by the **Precision** field.

**YES**

Use thousands separators for count-based fields and time-based fields. Display time-based values in the unit of measure implied by the **Precision** field.

**Tran Mix**

Default: **1**

Specify the mix of transactions to be reported. The transaction mixes are:

**1**

All transactions.

**2**

All transactions, excluding IFP.

**3**

IFP transactions only.

**4**

Transactions that use Fast Path (EMH and/or DEDB).

**5**

All transactions, excluding BMP.

**6**

Non-message driven BMP only.

**Report Width**

Report Forms allow you to request reports wider than the standard 132 character page width. The width of the report depends on the fields requested in the Form. The default format of the report is no more than 132 characters wide, but the report width is impacted by changes to the Report Form, Precision, or Digit Grouping. The Report Form defines the fields in the report. Precision and Digit Grouping affect how the field values are represented in the report. Precision and Digit Grouping can be specified in the Report Form and the Report Set. The Report Set takes precedence.

An indicator shows whether the options you select in the Report Set make the report width different from the Report Form width. The < symbol indicates that the report width is less than the Report Form width as calculated at **EOR**. The > symbol indicates that the report width is greater than the Report Form width as calculated at **EOR**.

Note that you can view reports in full using SDSF, but when you print wide reports, data that exceeds the maximum printer page width will be truncated.

For an extract, report width is not an issue and is not displayed.

**Selection Criteria**

Default: Not specified.

Records can be included in or excluded from the report based on their Transaction Code, LTERM, Line or VTAM Node, Message Class, and User ID values. You can also filter on PROGRAM by editing the JCL. This allows you to focus on the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

## Extract options

Command ==>

SAMPLOG - Transit List

More: < >

Specify required view:

2

1. Report

2. Extract

3. Transit options

----- Report Interval -----

YYYY/MM/DD HH:MM:SS:TH

From

To

Extract Data Sets:

	Type	Form +	Extract Data Set Name	Disp
1.	EXTRACT			
2.				
3.				
4.				
5.				

Extract Options:

/

Export to Db2

Delimiter . . \_ (blank is valid)

-

Include Delimiter

-

Include Field Labels

-

Numeric Fields in Float Format

/

Numeric Fields in Decimal Format

-

ISO 8601 timestamps

-

All Fields

Figure 111. LOG Transaction Transit List (View 2 of 3): Extract options

The additional extract options are:

### Extract Data Set Name

Default: Not specified.

The name of the data set where the extract records are written. If IMS Performance Analyzer is to create the data set at run time, the default allocation attributes specified for **Transaction (MSGQ/FP/Connect) Transit Total Traffic in Reporting Allocation Settings** will be used when generating the JCL. If the data set is already cataloged, then IMS Performance Analyzer will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set. Alternatively, you can use a generation data group (GDG) to create a new data set each time the extract is run. When generating the JCL, IMS Performance Analyzer assigns a default DDname of LISXnnnn where nnnn is a sequential number 0001–9999 to ensure DDnames are unique.

When specifying the data set name, standard TSO conventions apply. For example, if the TSO option PROFILE PREFIX is in effect, the prefix will be appended as the high-level qualifier unless the data set name is enclosed in quotes.

### Disp

Default: Not specified

Specify a disposition of OLD to overwrite the data set contents with the new extract data or MOD to append the new extract data.

### Export to Db2

When this option is selected and you press Enter, an additional panel appears where you can specify the Db2 settings.

### Include Delimiter

Default: /

Select / to use your specified delimiter to separate fields in the extract records. Leave this option blank if you do not want to use a delimiter to separate fields in the extract records.

### Delimiter

Default: , (comma)

The field delimiter used to separate the data fields in the extract records. The same delimiter is used to separate the field labels, if present.

### Include Field Labels

Default: /

Select / to include field labels as the first record written to the extract data set. Use field labels when importing extracts into spreadsheets, to identify the columns and to aid reporting. Leave this option blank if you do not want field labels.

### Numeric Fields in Float Format

Default: Not specified.

Select / to write numeric fields in the extract in FLOAT format. Use FLOAT format only if you plan to import the extract into a Db2 table, and only if you specifically require FLOAT format. Typically you would use DECIMAL format.

### Numeric Fields in Decimal Format

Default: Not specified.

Select the decimal format option rather than the float option unless you have a specific reason for selecting float. Decimal format enables a numeric field to store numbers as large as  $10^{31}$ , not including the fractional part of the number. That is, a field in decimal format could store a number with a value as large as 2147483648.999999 when precision is set to 6. If you select both the Float and Decimal options, a message alerts you that your selection is not valid.

### ISO 8601 timestamps

Default: Not specified.

Optional. When selected, time fields are produced in the format *YYYY-MM-DDT.MM.SS.THMIJU±HH:MM*. The number of digits of precision depends on the precision values you have specified. The final *HH* and *MM* values identify the time zone as a time offset from Coordinated Universal Time (UTC).

### All Fields

Explicitly includes all fields in extracts when reporting on multi-value fields from the DATABASE, ESAF, and ODBM categories. This option produces a more verbose extract data set for easier ingestion into analytics platforms.

## Transit options

Command ==>
SAMPLELOG - Transit List
More: < >

Specify required view:

- 3 1. Report
2. Extract
3. Transit options

----- Report Interval -----

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Reports Required:

	Type	Form +	DDname	Start Level	Completion Level
1.	REPORT	_____	LIST0001	<u>2</u>	<u>3</u>
2.	_____	_____	LIST0002	2	3
3.	_____	_____	LIST0003	<u>2</u>	<u>3</u>
4.	_____	_____	LIST0004	2	3
5.	_____	_____	LIST0005	<u>2</u>	<u>3</u>

Figure 112. LOG Transaction Transit List (View 3 of 3): Transit options

The additional transit options are:

## DDname

Default: IMS Performance Analyzer assigns a default DDname of LIST $nnnn$  where  $nnnn$  is a sequential number 0001–9999 to ensure each report has a unique DDname.

The DDname for the report output. Specify 1–8 alphanumeric characters starting with an alphabetic character. The DDname is mandatory and should be unique to separate the output of multiple reports. Multiple reports of the same type can use the same DDname without consequence, however a mix of reports using the same DDname may interleave the print lines.

In the event of the output being an extract file, the DDname is used for the Extract Recap report output. The Extract Recap report contains information regarding the extract output including extract file name and record count.

## Start Level

Default: 2

Start level is an attribute that IMS Performance Analyzer assigns to every transaction reported in the IMS log. It is an indicator of how far the transaction lifecycle has already progressed at the start of the IMS log. Together with Completion level, Start level is an indicator of the completeness of information collected about the reported transaction. For example, you may choose to report only those transactions that started and ended with the IMS log to guarantee complete performance metrics.

Specify Start level to instruct form-based reporting to report only those transactions with a Start level less than or equal to the required value. For example: Specify 1 to report start level 1 transactions only; specify 2 to report start level 1 and 2 transactions, and so on. This option generates the **STARTLVL** operand.

The IMS transaction start levels are:

### 1

The transaction first arrives in this log.

For message driven transactions, the type 01 input message is available indicating the transaction has arrived onto the message queue. For non-message driven transactions (BMP, DBCTL, ODBM), the type 08 program start record is available indicating the start of processing. Use start level 1 when analyzing input message arrival rates and lengths.

### 2

The transaction starts processing in this log.

For message driven transactions only, the type 01 input message is not available, but the type 31 DLI record is available indicating that transaction dependent region processing starts in this IMS log. The complete transit time breakdown is available, including input queue time (which is derived). Use Start level 2 when analyzing transaction dependent region processing time.

### 3

Dependent region processing is already in progress at the start of this log.

The type 08 application start record is not available for long running BMP or thread processes that commenced processing prior to this log. Processing start time is derived from the first log event for the Job. Processing elapsed time is calculated from this time to the job end (type 07). Use Start level 3 when analyzing all activity that occurred in the IMS log.

## Completion Level

Default: 3

Enter a value between 0 and 6 to specify the minimum IMS transaction completion level for reporting.

IMS Performance Analyzer assigns a completion level to every transaction. Form-based reporting can specify a minimum completion level, instructing IMS Performance Analyzer to report only those transactions that have reached this level of completion.

The IMS transaction completion levels are:

- 0** Transaction message received. IMS message is a message switch or generated output message, not a transaction. Use this value to analyze all message queue activity, not when transaction transit information is required.
- 1** Transaction input message enqueued onto the IMS message queue. Use this value to analyze transaction message queue activity, not when transaction transit information is required.
- 2** Transaction has started processing in the dependent region but has not completed processing. Only input queue time is available for reporting.
- 3** Transaction has finished processing in the dependent region but has not sent the output message to the destination LTERM. Input queue and processing times are available for reporting.
- 4** Transaction has ended but resource utilization statistics (from the type 07 application termination record) are not available, possibly due to WFI processing (schedule not ended). Input queue, processing, output queue and total times are available for reporting.
- 5** Transaction has ended and resource utilization statistics are available, but approximations only. Type 07 application termination record statistics are apportioned equally amongst all transactions processed by the program schedule. All application statistics fields are available for reporting.
- 6** Transaction has ended and accurate resource utilization statistics are available. For Unit-of-Recovery (UOR) transactions, resource utilization statistics are derived from the type 56FA transaction-level accounting record. This record provides accurate and reliable information for each UOR. Resource statistics for transactions reported over the entire schedule are taken from the type 07 record. This includes DBCTL, ODBM and non-message driven BMP transactions.

#### **Related concepts**

##### List report form

An IMS Performance Analyzer list report form allows you to produce a list of transactions containing the specified fields.

#### **Related reference**

[LIST: Transaction Transit List report and extract \(Form-based\)](#)



The **LIST** operand of the **IMSPALOG** batch command requests the Transaction Transit List report or extract for IMS fields.

## Transaction Transit Summary report and extract

The IMS Performance Analyzer Transaction Transit Summary report and extract options are described here.

SAMPLOG - Transit Summary More: < >

Command ===> \_\_\_\_\_

Specify required view:

1 1. Report

2. Extract

3. Transit options

Report Interval \_\_\_\_\_

YYYY/MM/DD HH:MM:SS:TH

From 2019/12/01 15:01:00:00

To 2019/12/01 15:02:00:00

Reports Required:

	Type	Form +	Filter +	Time Interval	Tot Lvl	Rept Limit	Precision Time Cnt	Digit Group	Tran Mix	Rept Width
1.	REPORT	ALLSUMM	CPUFILT	00:01:00	0	20	6 2	SEC	1	305
2.	EXTRACT	ALLSUMM		00:01:00	0		6 2	SEC	1	
3.				00:01:00	0		6 2	SEC	1	
4.				00:01:00	0		6 2	SEC	1	
5.				00:01:00	0		6 2	SEC	1	

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code	___	_____	-		
Program	___	_____	-		
LTERM	___	_____	-		
VTAM Node	___	_____	-		
Class	___	_____	-		
User ID	___	_____	-		

Figure 113. Log Transaction Transit Summary (View 1 of 3): Report options

Like the Form-based List, the Form-based Summary has three views. The extract and transit option views are the same for the List and the Summary. Most of the report options are the same for the List and Summary. For a description of these, see [“Transaction Transit List report and extract”](#) on page 228.

The report options that are different for the Summary report are:

### Type

Default: REPORT

Specify whether the output is to be a REPORT or an EXTRACT file.

### Form

Default: Not specified.

The name of a SUMMARY Report Form used to tailor the format and content of the extract. If a Form is not specified, an internally defined default Form will be used.

### Filter

In this field you can specify a report filter to use. You can see the list of filters and create new ones using option 4.1 **Filters** on the primary option menu, or by using the **Report Filters** point-and-shoot field. For more information, see [Chapter 16, “Report Filters,”](#) on page 183.

### Time Interval

Default: 00:01:00

The time interval applies when you want to summarize activity over time. It is used when you specify a SUMMARY Report Form which has one or both sort fields STARTIMS or STARTCON included. When reporting, IMS PA accumulates the data for each interval in the report period and writes a report line

for each. Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). A time interval under an hour must fit evenly into the hour. IMS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data. A time interval over an hour must fit evenly into the day. IMS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data. Minutes take precedence for an abbreviated entry. For example: 1 becomes 00:01:00, 1.1 becomes 00:01:00 (rounded down from 00:01:01), and 1.1.1 becomes 01:00:00 (rounded down from 01:01:01).

### **Tot Lvl**

Totals Level. Specify the grand total and subtotal levels required for reporting as follows:

#### **blank**

No totals.

#### **0**

Grand totals only, no subtotals. This is the default.

#### **1-7**

Grand total and subtotals to the corresponding key level.

### **Rept Limit**

Report Limit.

#### **1-255**

Limit the number of report lines to the specified value. Can only be used when **Tot Lvl** is set to blank or 0. Excludes the grand total line when **Tot Lvl** is set to 0.

#### **blank**

No limit.

### **Precision**

#### **Time**

Default: 6

The precision of numeric fields. Numeric fields can be formatted to either 3, 4, 5, or 6 decimal places.

For example, if the field value is 10.123456 seconds:

- 3 decimal places is 10.123 precision
- 4 decimal places is 10.1235 precision
- 5 decimal places is 10.12346 precision
- 6 decimal places is 10.123456 precision

**Note:** Rounding occurs for elapsed and CPU time values.

Precision and Digit Grouping affect how the field values are represented in the report. Precision and Digit Grouping can be specified in the Report Form and the Report Set. The Report Set takes precedence.

An indicator shows whether the options you select in the Report Set make the report width different from the Report Form width. The < symbol indicates that the report precision is less than the Report Form precision. The > symbol indicates that the report precision is greater than the Report Form precision.

#### **Cnt**

Default: 2

Count. Specifies the precision of count fields, applicable only when reported as average, from 0 to 2 decimal places.

### **Digit Grouping**

Default: SEC

Digit grouping affects the formatting of count and time-based fields.

**Note:** Extracts will not contain thousands separators to allow for simpler integration with analytics.

**SEC**

Use thousands separators for count-based fields. Display time-based values in seconds with a precision specified in the **Precision** field.

**NO**

Do not use thousands separators for count-based fields. Display time-based values in the unit of measure implied by the **Precision** field.

**YES**

Use thousands separators for count-based fields and time-based fields. Display time-based values in the unit of measure implied by the **Precision** field.

**Tran Mix**

Default: **1**

Specify the mix of transactions to be reported. The transaction mixes are:

**1**

All transactions.

**2**

All transactions, excluding IFP.

**3**

IFP transactions only.

**4**

Transactions that use Fast Path (EMH and/or DEDB).

**5**

All transactions, excluding BMP.

**6**

Non-message driven BMP only.

**Report Width**

Report Forms allow you to request reports wider than the standard 132 character page width. The width of the report depends on the fields requested in the Form. The default format of the report is no more than 132 characters wide, but the report width is impacted by changes to the Report Form, Precision, or Digit Grouping. The Report Form defines the fields in the report. Precision and Digit Grouping affect how the field values are represented in the report. Precision and Digit Grouping can be specified in the Report Form and the Report Set. The Report Set takes precedence.

An indicator shows whether the options you select in the Report Set make the report width different from the Report Form width. The < symbol indicates that the report width is less than the Report Form width as calculated at **EOR**. The > symbol indicates that the report width is greater than the Report Form width as calculated at **EOR**.

Note that you can view reports in full using SDSF, but when you print wide reports, data that exceeds the maximum printer page width will be truncated.

For an extract, report width is not an issue and is not displayed.

**Extract Data Set Name**

Default: Not specified.

The name of the data set where the extract records are written. If IMS PA is to create the data set at run time, the default allocation attributes specified for **Transaction (MSGQ/FP/Connect) Transit Total Traffic** in **Reporting Allocation Settings** will be used when generating the JCL. If the data set is already cataloged, then IMS PA will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set. Alternatively, you can use a generation data group (GDG) to create a new data set each time the extract is run. When generating the JCL, IMS PA assigns a default DDname of LISXnnnn where nnnn is a sequential number 0001–9999 to ensure DDnames are unique.

When specifying the data set name, standard TSO conventions apply. For example, if the TSO option PROFILE PREFIX is in effect, the prefix will be appended as the high-level qualifier unless the data set name is enclosed in quotes.

**Disp**

Default: Not specified

Specify a disposition of OLD to overwrite the data set contents with the new extract data or MOD to append the new extract data.

**DDname**

Default: IMS PA assigns a default ddname of SUMMnnnn where nnnn is a sequential number 0001–9999 to ensure each report has a unique ddname.

The ddname for the report output. Specify 1–8 alphanumeric characters starting with an alphabetic character. The ddname is mandatory and should be unique to separate the output of multiple reports. Multiple reports of the same type can use the same ddname without consequence, however a mix of reports using the same ddname may interleave the print lines.

In the event of the output being an extract file, the ddname is used for the Extract Recap report output. The Extract Recap report contains information regarding the extract output including extract file name and record count.

**Start Level**

Default: 2

Start level is an attribute that IMS PA assigns to every transaction reported in the IMS log. It is an indicator of how far the transaction lifecycle has already progressed at the start of the IMS log. Together with Completion level, Start level is an indicator of the completeness of information collected about the reported transaction. For example, you may choose to report only those transactions that started and ended with the IMS log to guarantee complete performance metrics.

Specify Start level to instruct form-based reporting to report only those transactions with a Start level less than or equal to the required value. For example: Specify 1 to report start level 1 transactions only; specify 2 to report start level 1 and 2 transactions, and so on. This option generates the **STARTLVL** operand.

The IMS transaction start levels are:

**1**

The transaction first arrives in this log.

For message driven transactions, the type 01 input message is available indicating the transaction has arrived onto the message queue. For non-message driven transactions (BMP, DBCTL, ODBM), the type 08 program start record is available indicating the start of processing. Use start level 1 when analyzing input message arrival rates and lengths.

**2**

The transaction starts processing in this log.

For message driven transactions only, the type 01 input message is not available, but the type 31 DLI record is available indicating that transaction dependent region processing starts in this IMS log. The complete transit time breakdown is available, including input queue time (which is derived). Use Start level 2 when analyzing transaction dependent region processing time.

**3**

Dependent region processing is already in progress at the start of this log.

The type 08 application start record is not available for long running BMP or thread processes that commenced processing prior to this log. Processing start time is derived from the first log event for the Job. Processing elapsed time is calculated from this time to the job end (type 07). Use Start level 3 when analyzing all activity that occurred in the IMS log.

**Completion Level**

Default: 3

Enter a value between 0 and 6 to specify the minimum IMS transaction completion level for reporting.

IMS PA assigns a completion level to every transaction. Form-based reporting can specify a minimum completion level, instructing IMS PA to report only those transactions that have reached this level of completion.

The IMS transaction completion levels are:

**0**

Transaction message received. IMS message is a message switch or generated output message, not a transaction. Use Completion level 0 to analyze all message queue activity, not when transaction transit information is required.

**1**

Transaction input message enqueued onto the IMS message queue. Use Completion level 1 to analyze transaction message queue activity, not when transaction transit information is required.

**2**

Transaction has started processing in the dependent region but has not completed processing. Only input queue time is available for reporting.

**3**

Transaction has finished processing in the dependent region but has not sent the output message to the destination LTERM. Input queue and processing times are available for reporting.

**4**

Transaction has ended but resource utilization statistics (from the type 07 application termination record) are not available, possibly due to WFI processing (schedule not ended). Input queue, processing, output queue and total times are available for reporting.

**5**

Transaction has ended and resource utilization statistics are available, but approximations only. Type 07 application termination record statistics are apportioned equally amongst all transactions processed by the program schedule. All application statistics fields are available for reporting.

**6**

Transaction has ended and accurate resource utilization statistics are available. For Unit-of-Recovery (UOR) transactions, resource utilization statistics are derived from the type 56FA transaction-level accounting record. This record provides accurate and reliable information for each UOR. Resource statistics for transactions reported over the entire schedule are taken from the type 07 record. This includes DBCTL, ODBM and non-message driven BMP transactions.

### **All Intervals**

In extract output only, include the summary intervals in which no activity was reported. Use this feature when charting to reveal gaps where the transaction count is zero. This option is useful for importing extract data into third-party tools such as analytics platforms where an explicit value of "0" may be required for periods of system inactivity.

### **Related concepts**

#### Summary report form

An IMS Performance Analyzer summary report form allows you to produce a summary of transaction activity reporting on only the fields that you specify.

### **Related reference**

#### SUMMARY: Transaction Transit Summary report and extract (Form-based)

The **SUMMARY** operand of the **IMSPALOG** batch command requests the Transaction Transit Summary Report or Extract for IMS fields.

## **IMS transaction index**

The IMS transaction index is a specialized extract file created by IMS Performance Analyzer batch reporting. Each record in the index represents an IMS transaction and contains cumulative information from the IMS log about that transaction.

For details, see [Chapter 19, "IMS transaction index," on page 203](#).

### Related reference

INDEX: IMS transaction index

The **INDEX** operand of the **IMSPALOG** batch command requests the IMS transaction index.

## Fixed-format Transaction Transit reports

---

The options for each IMS Performance Analyzer fixed-format Transaction Transit report are described here.

The fixed-format Transaction Transit reports are:

- Analysis
- Statistics
- Log
- Graphic Summary
- Extract by Interval
- Transaction Exception
- Transaction History File

## Transaction Transit Options

The IMS PA Transaction Transit Options define control information that applies to the Transaction Transit reports within the Report Set.

The Transaction Transit Options apply to the following reports:

- Transaction Transit Analysis
- Transaction Transit Statistics
- Transaction Transit Log
- Transaction Transit Graphic Summary
- Transaction Transit Extract by Interval
- Transaction Exception
- Transaction History File

SAMPLOG - Transaction Transit Options

Command ==>

Specify Transit options.

Processing Options:  
Peak Transaction Time Percentage 90 (50-100%)

Report Options:  
/ Include MSC Transactions  
- Include BMP Transactions  
- Include APPC/OTMA Transactions  
- Include Message Switches  
- Report All Transactions

Processing Limits:  
Input Queue Time (INMAX) . . . . . 60 Seconds  
Output Queue Time (OUTMAX) . . . . . 60 Seconds  
Transaction Set Size . . . . . 32767 (1-32767)

Interval Options:  
Time Interval . . . . . 15 Minutes  
Align Time Interval to Even Hour YES (Yes or No)

Selection Criteria:  
Object Type Inc/Exc Object + List Validation Warning  
Transaction Code INC TL000001 /

Note: INMAX/OUTMAX is ignored if BMPs or Message Switches are included.

Figure 114. Transaction Transit Options

The options are as follows:

Processing Options

Peak Transaction Time Percentage  
Default: 90

Specify a percentile *nnn* between 50 and 100 to report the transit time within which *nnn*% of the transactions complete. Computations assume a normal distribution. Thus, 50 gives the median transit time for the sample.

Specify 90 or greater to determine the response time for most transactions. This is useful, for example, when monitoring a service level agreement which states that 95% of transactions must complete within *nn* milliseconds.

This percentile calculation is applicable to the following Transaction Transit reports:

- Analysis
- Graphic Summary
- Transaction Exception

It does not apply to the Extract by Interval during Report Set processing. However, a percentile calculation can be applied to extracted data at a later stage of IMS PA processing via the Graphing and Export facility.

Report Options

Include MSC Transactions  
Default: Not selected; do not include MSC transactions.

Select with a / to include MSC transactions that originated on another system.

**Include BMP Transactions**

Default: Not selected; do not include BMP transactions.

Select with a / to include BMP transactions.

**Include APPC/OTMA Transactions**

Default: Not selected; do not include APPC and OTMA transactions.

Select with a / to include APPC and OTMA transactions.

APPC/IMS has three types of application programs:

- Standard
- Modified
- CPI Communications (CPI-C) driven

OTMA transactions use the APPC message prefix.

**Include Message Switches**

Default: Not selected; do not include message switches.

Select with a / to include message switches.

Message switches include MSC transactions that originated in the specified system and have been sent to another system for processing.

**Report All Transactions**

Include all transactions, regardless of whether there was a response to the originating LTERM.

This option will automatically include all MSC, BMP, and APPC and OTMA transactions unless one of **Include MSC Transactions**, **Include BMP Transactions**, or **Include APPC/OTMA Transactions** has been selected. In this scenario, the remaining un-selected options are not included, even if **Report All Transactions** has been selected.

Selecting **Report All Transactions** alone will not report Message Switches. To include Message Switches, select the **Include Message Switches** option.

**Processing Limits****Input Queue Time (INMAX)**

Defaults: 60

Specify the number of seconds a message can remain in the input queue before being discarded by the Transaction Transit reports. When such a message is discarded, all other measurements for that transaction are also discarded. This eliminates the abnormally long times caused by conditions like hardware failures.

Valid values are from 0 to 99999 seconds. Zero (0) has special meaning:

**0**

No messages will be discarded and all will be reported.

**Note:** **INMAX** is ignored if BMP Transactions or Message Switches are included.

**Output Queue Time (OUTMAX)**

Defaults: 60

Specify the number of seconds a message can remain in the output queue before being discarded by the Transaction Transit reports. When such a message is discarded, all other measurements for that transaction are also discarded. This eliminates the abnormally long times caused by conditions like hardware failures.

Valid values are from 0 to 99999 seconds, some with special meaning:

**0**

No messages will be discarded and all will be reported.

**88888**

For all transactions, report output queue time as zero.



## 77777

For all transactions, except MSC transactions, report output queue time as zero.

**Note:** **OUTMAX** is ignored if BMP Transactions or Message Switches are included.

### Transaction Set Size

Default: 32767

Specify the maximum number of transactions in a transaction set to be processed by the IMS PA transaction transit time functions. The purpose of this limit is to ensure that IMS PA doesn't run out of storage and abend.

Valid values are from 1 to 32767. In cases where large transaction sets exist on a log data set, setting the Transaction Set Size to a minimum value decreases the likelihood of an 80A abend.

If an 80A abend occurs, a diagnostic message is printed just before the end-of-file record counts. The message states the size of the largest transaction set and the storage that it required. If the required storage was a significant amount, specify a value for **Transaction Set Size** to restrict the transaction set size; or if it has already been specified, lower its value. Then rerun the job.

### Interval Options

#### Time Interval

Default: 15

Specify the value *nnnn*, in minutes, of the reporting interval for transit time by time of day reports, graphs, and extracts. Data is accumulated every *nnnn* minutes from the start of the log input for the following Transaction Transit reports:

- Analysis (by Time of Input)
- Statistics (by Time of Input)
- Graphic Summary
- Extract by Interval
- Transaction Exception (by Time of Input)

The data included in the first reported interval is that from the first record whose time stamp is on or after the specified Start/From date/time. However, the specified Stop/To date/time may fall within the last reported interval, and in order to complete the interval, data whose time stamp is after the Stop/To date/time may therefore be included.

**Note:** If **Align Time Interval to Even Hour** is selected, it is recommended that you specify a value that is a factor or a multiple of 60 to achieve consistent alignment to the hour.

#### Align Time Interval to Even Hour

Default: YES

Applies to the following Transaction Transit reports:

- Analysis (by Time of Input)
- Statistics (by Time of Input)
- Graphic Summary
- Extract by Interval
- Transaction Exception (by Time of Input)

Specify YES to align the reporting interval to the hour. Data is accumulated according to the specified **Time Interval** starting from the hour of the first log input record, but with printing commencing from the first time interval containing data.

For example, if the time of the first record is 10:37:05, the accumulation starts at 10:00:00. If the specified time interval is 30 minutes, the reported start times of the intervals are then 10.30.00, 11.00.00, 11.30.00, 12.00.00, and so on; whereas for a time interval of 25 minutes, the reported times are 10.25.00, 10.50.00, 11.15.00, 11.40.00, 12.05.00, and so on. In both cases, 10.00.00 does not appear in the report as the interval contains no data.

**Note:** To achieve alignment on every hour, specify a time interval which is exactly divisible into an hour. This is recommended if merging of input logs is required, to ensure that time intervals are aligned and the validity of results is retained.

Specify N0 for no time interval alignment. For example, if the time of the first record is 10:37:05, and the specified time interval is 30 minutes, the reported start times of the intervals are then 10.37.05, 11.07.05, 11.37.05, and so on; and for a time interval of 25 minutes, the reported times are 10.37.05, 11.02.05, 11.27.05, and so on.

### Selection Criteria

Default: None specified. Include all records without filtering.

Specify transaction codes to be included in or excluded from all Transaction Transit reports in the Report Set. Within this primary filtering of transaction codes, a further filtering is available on the following Transaction Transit reports:

- Analysis
- Statistics
- Log
- Extract by Interval
- Transaction Exception

This enables you to include in your report only the information that you are interested in. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

For example, to include only transaction codes listed in Object List TL000001 specify:

Selection Criteria:					
Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code	INC	TL000001	/		

To exclude transaction code PAY specify:

Selection Criteria:					
Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code	EXC	PAY	—		

### Related reference

Transaction (MSGQ) Transit Options

Transaction Transit Options define general control information for the Transaction Transit reports.

## Transaction Transit Analysis report

The IMS Transaction Transit Analysis report shows the components of transaction transit time ordered by transaction code, LTERM, transaction code within LTERM, message class, line or VTAM node, or time of day. This IMS Performance Analyzer report reveals transaction input queue time (local or CQS), processing time, output queue time, output shared queue (CQS) time, output local queue time and program switch time. The display of transit time by time period helps you identify periods of poor response.

IMS Performance Analyzer generates the report command:

```
IMSPALOG ANALYSIS(...)
```

SAMPLOG - Transaction Transit Analysis

Command ==>

Specify report options.

Reports Required:

/ Transaction Code

- LTERM

- LTERM-TRANCODE

- Line or VTAM Node

- Class

- Time (Interval: 15 Minutes)

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

To

Transaction Source:

1 1. LTERM

2. User ID

Report Options:

- Report All Transactions

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code			-		
LTERM			-		
Line			-		
VTAM Node			-		
Class			-		
User ID			-		

Figure 115. The **Transaction Transit Analysis** report options panel in IMS Performance Analyzer

These reports are written to the data set defined by the log global option **Report Output DDname**.

The options are:

### Reports Required

Report options:

- Transaction Code
- LTERM or User ID
- LTERM-TRANCODE or User ID-TRANCODE
- Line or VTAM Node
- Class
- Time (Interval is *nnn* minutes)

Default: Transaction Code (single report ordered by Transaction Code)

Select with a / to produce any combination of six reports ordered by Transaction Code, LTERM, Transaction Code within LTERM, Line or VTAM Node, Message Class, or Time. This is the default choice of reports when Transaction Source is set to LTERM. Transaction transit (response) times will be summarized by LTERM.

If Transaction Source is set to User ID, the six available reports are ordered by Transaction Code, User ID, Transaction Code within User ID, Line or VTAM Node, Message Class, or Time. Transaction transit (response) times will be summarized by User ID.

For reporting by Time, the interval of reporting is specified in minutes by the **Time Interval** option, and interval alignment is specified by the **Align Time Interval to Even Hour** option on the **Transaction (MSGQ) Transit Options** panel.

### Report Interval

Default: Not specified.

Specify the reporting interval. Within the context of the Global Report Interval, records with time stamps on or after the **From** Date/Time and before the **To** Date/Time are included in the report.

You can specify one of:

**Date/time pairs or dates only**

This indicates a *date-time range* (for example, 2023/06/25 7:00 to 2023/06/25 16:30). The From Date/Time must be before the To Date/Time.

**Times only**

This indicates a particular *time slot* (for example, 9:00 to 10:00 each day). Specifying the From Time greater than the To Time indicates a time slot across midnight.

**Neither date/time pair**

All input records are selected.

Rules governing the date and time are the same as those for the Global Report Interval (see [“Log Global Options”](#) on page 216).

**Transaction Source**

Transaction Source specifies what the report uses to identify the originating source of a transaction.

1. Specify **LTERM** to see transaction transit (response) times summarized by LTERM. This is the default.
2. Specify **User ID** to see transaction transit (response) times summarized by User ID.

**Report All Transactions**

Default: Not selected; the reports show only transactions that are directly involved in end-to-end response.

Select with a / to report all transactions. By default, the Transit Analysis and Statistics reports only report transactions that are directly involved in end-to-end response. IMS PA tracks the flow of each transaction, across its program switches to the point where it responds back to the originating LTERM. Only then is the transaction considered for reporting.

If this option is selected the requested report will include all transactions regardless of whether there was a response to the originating LTERM. This aligns the report results more closely with the Transaction Exception and Management Exception reports.

**Selection Criteria**

Default: None specified. However, Transaction Code Selection Criteria specified on the **Transaction (MSGQ) Transit Options** panel is applied at run time.

Selection Criteria enable you to include in your report only the information that you are interested in. Records can be included in or excluded from the report based on their Transaction Code, LTERM, Line or VTAM Node, Message Class, and User ID values. For Transaction Codes, this panel provides a secondary filter within the primary filter specified on the **Transaction (MSGQ) Transit Options** panel.

The reports are filtered only by the selection criteria that apply to that report. For example:

- Transaction Code report uses the Transaction Code filter
- Message class report uses the Class filter
- User ID report uses the User ID filter
- User ID-TRANCODE report uses the User ID and Transaction Code filters

You can specify a single value, a masking pattern, or an Object List that specifies many values. Masking is not supported for Line or Message Class objects. See [“Object Lists”](#) on page 635 for information on how to define Object Lists.

**Related reference**

[ANALYSIS: Transaction Transit Analysis report](#)

The **ANALYSIS** operand of the **IMSPALOG** batch command requests the Transaction Transit Analysis report.

## Transaction Transit Statistics report

The Transaction Transit Statistics report is a graphical representation of the information in the Transaction Transit Analysis report.

IMS PA generates the report command:

```
IMSPALOG STATS(...)
```

SAMPLOG - Transaction Transit Statistics

Command ==> \_\_\_\_\_

Specify report options.

<b>Reports Required:</b> / Transaction Code - LTERM - LTERM-TRANCODE - Line or VTAM Node - Class - Time (Interval: 15 Minutes)	_____ Report Interval _____ YYYY/MM/DD HH:MM:SS:TH From _____ To _____  <b>Transaction Source:</b> 1 1. LTERM 2. User ID
--	---

**Report Options:**  
 - Report All Transactions

**Graph Distribution** \_\_\_\_\_ + **Validation Warning**

**Selection Criteria:**

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	_____	_____	-	
LTERM	_____	_____	-	
Line	_____	_____	-	
VTAM Node	_____	_____	-	
Class	_____	_____	-	
User ID	_____	_____	-	

Figure 116. Transaction Transit Statistics Report

These reports are written to the data set defined by the log global option **Report Output DDname**.

The options are the same as those for the Analysis Report (see [“Transaction Transit Analysis report”](#) on page 244) with the following additional option:

### Graph Distribution

Default: If no Distribution is specified, the following defaults are applied at run time:

Ranges (Limits) = 2,4,6,8,10,15,20,30,60  
 Title = Sc Mil (for seconds and milliseconds)  
 Multiplier = 1  
 Edit Mask = ZZZ,ZZZ.ZZ9

Specify the name of a Distribution to define the attributes of the graph. The sample Distribution LOGIN is provided. It defines:

Ranges (Limits) = 25,50,75,100,150,200,300,500,1000  
 Title = Sc Mil (for seconds and milliseconds)  
 Multiplier = 1  
 Edit Mask = ZZZ,ZZ9.999

See [“Distributions”](#) on page 645 for information on how to define a Distribution.

## Related reference

STATS: Transaction Transit Statistics report

The **STATS** operand of the **IMSPALOG** batch command requests the Transaction Transit Statistics report.

## Transaction Transit Log report

The IMS Transaction Transit Log report shows the transit activity of each message originating from a logical terminal and shows any program-to-program switches caused by the input message and all output messages resulting from the input. This IMS Performance Analyzer report provides shared queue reporting for multiple IMS subsystems. For multi-subsystem log input, IMS Performance Analyzer assumes shared queue processing and produces a composite report by merging data from all subsystems in the sysplex.

**Tip:** For a similar report you can customize using form-based reporting, use TRANLIST: Transaction Transit Log list report. For more information, see [“Sample report forms”](#) on page 169.

IMS Performance Analyzer generates the report command:

```
IMSPALOG LOG(...)
```

SAMPLOG - Transaction Transit Log

Command ==> \_\_\_\_\_

Specify report options.

Queue Limits (INMAX/OUTMAX)

1

1. Only Messages Within Limits

2

2. Only Messages Exceeding Limits

3

3. All Messages

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Report Output DDname LOGDD

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	___	_____	-	
LTERM	___	_____	-	
User ID	___	_____	-	

Note: INMAX/OUTMAX refer to the Input and Output Queue Time values set in Transit Options, which are 0 and 0 seconds respectively.

Figure 117. The **Transaction Transit Log** report options panel in IMS Performance Analyzer

The options are as follows:

### Queue Limits

Default: **1. Only Messages Within Limits**

Select **1** to include those messages with times less than the values specified by the Transaction (MSGQ) Transit Options **INMAX**, **OUTMAX**. See [“Transaction Transit Options”](#) on page 240.

Select **2** to include those messages with times greater than the values specified by the Transaction (MSGQ) Transit Options **INMAX**, **OUTMAX**.

Select **3** to include all messages.

### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### Report Output DDname

Default: LOGDD

Specify the DDname to be used for the report output.

### Selection Criteria

Default: **Transaction Code Selection Criteria** on the **Transaction (MSGQ) Transit Options** panel, applied at run time.

Records can be included in or excluded from the report based on their Transaction Code, LTERM, and User ID. This panel provides a secondary filter within the primary filter specified on the **Transaction (MSGQ) Transit Options** panel. This allows you to focus on the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

LOG: Transaction Transit Log report

The **LOG** operand of the **IMSPALOG** batch command requests the Transaction Transit Log report.

## Transaction Transit Graphic Summary report

The IMS Transaction Transit Graphic Summary report generates a set of character-based graphs, summarizing daily transaction processing for mean transit time, user-specified percentile transit time, transaction response count, and responses per second.

The output is written to the data set defined by **Report Output DDname** on the **Log Global Options** panel.

The time values on the vertical axis of the graphs are defined by **Time Interval** and **Align Time Interval to Even Hour** on the **Transaction (MSGQ) Transit Options** panel. The layout of the graphs is not controlled by a Distribution.

### Related reference

GRAPH: Transaction Transit Graphic Summary report

The **GRAPH** operand of the **IMSPALOG** batch command requests the Transaction Transit Graphic Summary report.

## Transaction Transit Extract by Interval

The IMS Transaction Transit Extract by Interval allows creation of extract files of transaction transit time by time interval data. You can use this IMS Performance Analyzer extract to get pictures of system performance by exporting for manipulation by external programs.

IMS PA generates the report command:

```
IMSPALOG EXTRACT(...)
```

This panel provides a second level of control for extract processing. Values specified on the Log Global Options and Transaction (MSGQ) Transit Options panels provide a primary level of control.

**Note:** If merging extracted data files, check that the specified values for the filters (such as Transaction Code Selection Criteria, MSC, BMP, and APPC/OTMA Transactions, and Message Switches) and the interval options (Time Interval, Align Time Interval to Even Hour) are consistent for all the extracts to ensure that the results of the merge are meaningful.

SAMPLOG - Transaction Transit Extract by Interval

Command ==> \_\_\_\_\_

Specify extract options.

Extract Data Required:	_____ Report Interval _____
/ By Transaction Within Interval	YYYY/MM/DD HH:MM:SS:TH
/ By Interval	From _____
	To _____

Extract Data Sets:

Input \_\_\_\_\_

Output \_\_\_\_\_

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	_____	_____	_____	

Note: The extract time interval, set in Transit Options, is 15 minutes and is aligned to even hours.

Figure 118. Transaction Transit Extract by Interval Options

The report summarizing the extract processing is written to the data set defined by **Report Output DDname** on the **Log Global Options** panel.

The options are as follows:

#### Extract Data Required

Options:

- **By Transaction Within Interval**
- **By Interval**

Default: Both selected.

Select with a / to produce the required extract.

Ensure that you select as a minimum criteria, the data you may wish to graph or export. For example:

- *To graph or export by interval, you must first extract by interval.*
- *To graph or export by transaction, you must first extract by transaction within interval.*

For more information, see [Chapter 3, “Extracts and CSV files in IMS Performance Analyzer,” on page 47.](#)

Select **By Transaction Within Interval** to accumulate data for individual transaction codes within each time interval.

For example, if during a particular time interval there are, on the input log file, 3 records for transaction A, 2 records for transaction B, and no records for transaction C, the extract processing writes 2 records to the extract file, 1 with the aggregate data for transaction A, and 1 with the aggregate data for transaction B.

Select **By Interval** to accumulate data for all transactions in each time interval.

For example, in the previous scenario, for the particular interval only 1 record is written to the extract file with the aggregate data for both transactions A and B.

Select both to obtain by time interval, the aggregate data for the individual transaction codes and their totals.

#### Report Interval

Default: Not specified.



Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### Extract Data Sets: Input and Output

Defaults: None.

Extract processing uses the input data set, if it is specified, for reading previously extracted data, merging it with the data extracted from the current log, and writing it to the output data set. The extracted data is stored in a format suitable for further IMS PA processing, and is not directly readable by external programs. To view or print GDDM graphs of Extract by Interval data, export the data for use by external programs, or select 4.6 **Graphing & Export** from the IMS Performance Analyzer primary option menu.

The input data set is optional, but if specified, it must exist.

The output data set must be specified. If it does not exist, IMS PA will create the data set at the time the extract is run using the allocation details specified for the **Transit Extract by Interval Data Set** in **Reporting Allocation Settings** from the action bar **Options** menu. If the output data set exists, the JCL is built with DISP=MOD and the new extract data is appended to the end. To overwrite the contents, edit the JCL and specify DISP=OLD.

The same data set may be specified for input and output, although this is not recommended. You may specify the input and output data sets as generations (0) and (+1) respectively of the same generation data group (GDG) and thereby avoid the need to update the specification between runs.

### Selection Criteria

Default: **Transaction Code Selection Criteria** on the **Transaction (MSGQ) Transit Options** panel, applied at run time.

Records can be included in or excluded from the extract based on their Transaction Code. This panel provides a secondary filter within the primary filter specified on the **Transaction (MSGQ) Transit Options** panel. This enables you to include in your report only the information that you are interested in. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists.

Ensure that your selection contains the transaction codes you may wish to export or graph. See Chapter 3, [“Extracts and CSV files in IMS Performance Analyzer,”](#) on page 47.

### Related reference

[EXTRACT: Transaction Transit Extract by Interval](#)

The **EXTRACT** operand of the **IMSPALOG** batch command requests the Transaction Transit Extract by Interval.

## Transaction Exception report and extract

The Transaction Exception report shows transaction performance information that affects response time.

IMS PA generates the report command:

```
IMSPALOG TRANEXC(...)
```

SAMPLEG - Transaction Exception

Command ==> \_\_\_\_\_

Specify report options.

Reports Required:

/ Transaction Code

\_ User ID

\_ Class

\_ Time (Interval: 15 Minutes)

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Report Output DDname TRANEXC

Report Options:

\_ Transaction Totals Only

\_ Shared Queue Details

\_ Print Expectations

\_ Extended format

Transaction Limits:

Expectation Set \_\_\_\_\_ +

Validation Warning

Extract Data Sets:

Total Traffic \_\_\_\_\_

Exception Traffic \_\_\_\_\_

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	_____	_____	-	
User ID	_____	_____	-	
Class	_____	_____	-	

Figure 119. Transaction Exception Report and Extract Options

The options are as follows:

Reports Required

Options:

- Transaction Code
- User ID
- Class
- Time (Interval is *nnn* minutes)

Default: Single report ordered by Transaction Code.

Select with a / to produce any combination of four Transaction Exception reports ordered by Transaction Code, User ID, Message Class, or Time of Input Message.

The Transaction Exception Recap report is always produced at the end to give a summary of the processing of the selected reports and requested extracts.

For reporting by Time, the interval of reporting is specified in minutes by the **Time Interval** option, and interval alignment is specified by the **Align Time Interval to Even Hour** option on the **Transaction (MSGQ) Transit Options** panel.

Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see “Transaction Transit Analysis report” on page 244).

Report Output DDname

Default: TRANEXC

Specify the DDname to be used for the report output.

Report Options

Select to include accumulated transaction totals or shared queue details.

### **Transaction Totals Only**

Default: Not selected.

This option applies to the Transaction Exception reports by User ID, by Message Class, and by Time of Input Message which, by default, show a further breakdown of the data by Transaction Code.

Select with a / to show only the accumulated totals of transaction activity by User ID, Message Class, and Time.

### **Shared Queue Details**

Default: Not selected.

This option is applicable when processing shared queue data.

Select with a / to include shared queue information in the report. If not selected, shared queue details will not be reported.

This option does not apply to the extract files which will include shared queue details whenever present in the log data.

### **Print Expectations**

Default: Not selected; do not report expectation details.

Select with a / to include the values from the Expectation Set in the report in addition to the actual values. This will help you relate exceptions to expectations.

This option generates the PRINTEXP report operand.

### **Extended format**

Default: Not selected.

The Transaction Exception report has two formats: original and extended. The default is the original format (FORMAT1 report operand).

Select with a / to produce the extended format report (FORMAT2 report operand).

Transaction performance statistics are reported in three parts: \*Total = \*Exception + \*OK.

- \*Total: the overall performance of transactions in the sample (summary grouping)
- \*Except: transactions that failed to meet the performance exception criteria as defined in the Expectation Set
- \*OK: transactions with acceptable performance

The two report formats look similar but the report lines have different meanings:

#### **FORMAT1**

For the transaction code report, the three report lines (in order) are \*Exception, then \*OK, then \*Total.

For user ID, class, and time breakdown, the single report line is \*Exception only. Transactions with acceptable performance are omitted.

#### **FORMAT2**

The transaction code report, as well as the user ID, class, and time reports, all have the same three report lines: \*Total, then \*Exception, then \*OK.

This is the recommended format because all reports have the same consistent format. Exception transactions are always reported on the \*Except row and all reports give the complete breakdown of \*Total = \*Exception + \*OK.

### **Transaction Limits: Expectation Set**

Default: None.

Specify the name of an Expectation Set which contains user-supplied expected values for any of the following transaction attributes:

- Input queue time

- Processing time
- Output queue time
- Total transit time
- DB DL/I calls
- DC DL/I calls
- DB waits
- CPU time

[“Specifying Expectations”](#) on page 628 describes how to specify expected values in an Expectation Set.

The report will show a transaction as an exception if it is outside the range for any of the values defined in the Expectation Set. If the Expectation Set is not specified, then the report shows all transactions as exceptions.

To print the Expectation Set with the report, select the **Print Expectations** option.

### Extract Data Sets

Extract options:

- **Total Traffic**
- **Exception Traffic**

Defaults: None.

Specify the names of either or both of the following optional extract data sets:

- The Total Traffic data set. All transactions have a detail record written to this data set.
- The Exception Traffic data set. Only exception transactions have an exception record written to this data set.

If the data set does not exist, IMS PA will create it at the time the report and extract are run using the allocation details specified in option 0.2 **Reporting Allocation Settings** from the IMS Performance Analyzer primary option menu.

If the data set exists, the new extract data will be appended to the end (DISP=MOD). To overwrite the contents of the extract data set, edit the JCL and specify DISP=OLD.

You may specify the extract data set as a generation of a Generation Data Group (GDG) and thereby avoid the need to update the specification between runs.

### Selection Criteria

Default: None specified. However, the Transaction Code Selection Criteria specified on the **Transaction (MSGQ) Transit Options** panel is applied at run time.

Records can be included in or excluded from the report based on their Transaction Code, User ID, and Message Class values. For Transaction Codes, this panel provides a secondary filter within the primary filter specified on the **Transaction (MSGQ) Transit Options** panel. This enables you to include in your report only the information that you are interested in. You can specify a single value, a masking pattern (but not for Message Class objects), or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists.

### Related reference

[TRANEXC: Transaction Exception report and extract](#)

The **TRANEXC** operand of the **IMSPALOG** batch command requests the Transaction Exception reports.

## Transaction History File

The IMS Transaction History File is used to collect historical performance data, useful for long-term trend analysis and capacity planning. Information is summarized for each transaction code over a short time interval, including transaction transit, response and CPU times, as well as DLI call statistics. Data is

provided in a format suitable for loading directly into Db2, from where you can run queries or produce reports.

Data is provided in a format suitable for loading directly into Db2 databases, from where you can run queries or produce reports. For a description of the data, refer to [“Understanding the Transaction History File”](#) on page 659. Sample Db2 jobs are supplied in the SIPISAMP library to help you load the data into Db2 tables and run queries:

- Sample DDL job IPITHDDL to create the Db2 tables
- Sample Load job IPITHLOD to populate the Db2 tables with the history data
- Sample SQL query jobs IPITHQM1, IPITHQM2, IPITHQM3, IPITHQM4

IMS PA generates the report command:

```
IMSPALOG TRANHIST(...)
```

SAMPLLOG - Transaction History File

Command ==> \_\_\_\_\_

Specify extract options.

Interval Options: \_\_\_\_\_ Report Interval \_\_\_\_\_

Time Interval 00:15:00 (hh:mm:ss)      YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Recap Report DDname TRANHIST

Transaction History DSN:

Data Set Name . . . \_\_\_\_\_

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	_____	_____	_____	_____

Figure 120. Transaction History File options

The options are:

### Time Interval

Default: 00:15:00 (15 minutes)

Specify the time interval over which transaction activity is summarized. For each interval, IMS PA accumulates the data by transaction code and writes a history record for each.

Note that this is a required field, so always overrides the Transit Global Options time interval.

Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). A time interval under an hour must fit evenly into the hour. IMS Performance Analyzer will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval records for each hour of data. A time interval over an hour must fit evenly into the day. IMS Performance Analyzer will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval records for each day of data. Minutes take precedence for an abbreviated entry. For example:

**1**

becomes 00:01:00

**1.1**

becomes 00:01:00 (rounded down from 00:01:01)

**1.1.1**

becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL (*hh:mm:ss*) operand.

#### **Report Interval**

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

#### **Report Output DDname**

Default: TRANHIST

Specify the DDname to be used for the Recap report output.

This option generates the DDNAME (*ddname*) operand.

#### **Transaction History DSN:**

Defaults: Not specified; DSN is required.

Specify the name of the Transaction History File data set.

If the data set does not exist, IMS PA will create it at run time using the Extract by Interval allocation details specified in **Reporting Allocation Settings** in your Profile Options.

If the data set exists, the new extract records will be appended to the end (DISP=MOD). To overwrite the contents of the data set, edit the JCL before submission and specify DISP=OLD.

You can specify the extract data set as a generation of a generation data group (GDG) and thereby avoid the need to update the specification between runs.

#### **Selection Criteria**

Default: None specified; include all.

Log records can be included or excluded from the history file based on their Transaction Code values. This enables you to include in your report only the transactions that you are interested in. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

For further information, see Chapter 31, [“IMS Performance Analyzer sample library,” on page 653](#), [“Understanding the Transaction History File” on page 659](#), and [“Transaction History File” in the IMS Performance Analyzer Report Reference](#).

#### **Related reference**

TRANHIST: Transaction History File

The **TRANHIST** operand of the **IMSPALOG** batch command requests the Transaction History File.

## **Resource Usage and Availability reports**

---

The options for each Resource Usage and Availability report are described here.

The Resource Usage and Availability Reports are:

- Dashboard
- Management Exception
- Transaction Resource Usage
- Resource Availability
- CPU Usage
- Internal Resource Usage
- MSC Link Statistics
- Message Queue Utilization
- Database Update Activity
- Region Histogram
- OSAM Sequential Buffering

- Deadlock
- System Checkpoint
- BMP Checkpoint
- Gap Analysis
- Cold Start Analysis

## Dashboard report

The IMS Dashboard report provides a quick overview of critical system performance indicators, including transaction throughput and IMS system resources. Use this IMS Performance Analyzer report to highlight potential performance problems quickly, providing a springboard to other reports that provide more detailed information.

IMS PA generates the report command:

```
IMSPALOG DASHBOARD(...)
```



Command ==> SAMPLOG - Dashboard

Specify report options.

Report Output DDname DASH

*Figure 121. Dashboard report options*

The only option is:

### Report Output DDname

Default: DASH

Specify the DDname to be used for the report output.

### Related reference

[DASHBOARD: Dashboard report](#)

The **DASHBOARD** operand of the **IMSPALOG** batch command requests the Dashboard report.

## Management Exception report

The IMS Management Exception report shows whether critical values are within specified limits, and it gives summary values of indicative information. Use this IMS Performance Analyzer report to measure today's transaction performance against agreed benchmarks, such as service level agreements and benchmark averages. Then, when a problem occurs, you can go to other IMS Performance Analyzer reports for additional, more detailed information.

The following figure shows the components that comprise the Management Exception report. The report processes Log data that can be filtered by specifying Selection Criteria. Object lists help you specify Selection Criteria more efficiently. The report can highlight performance outside thresholds that you define in expectation sets. It can also calculate averages and save them in averages data sets.

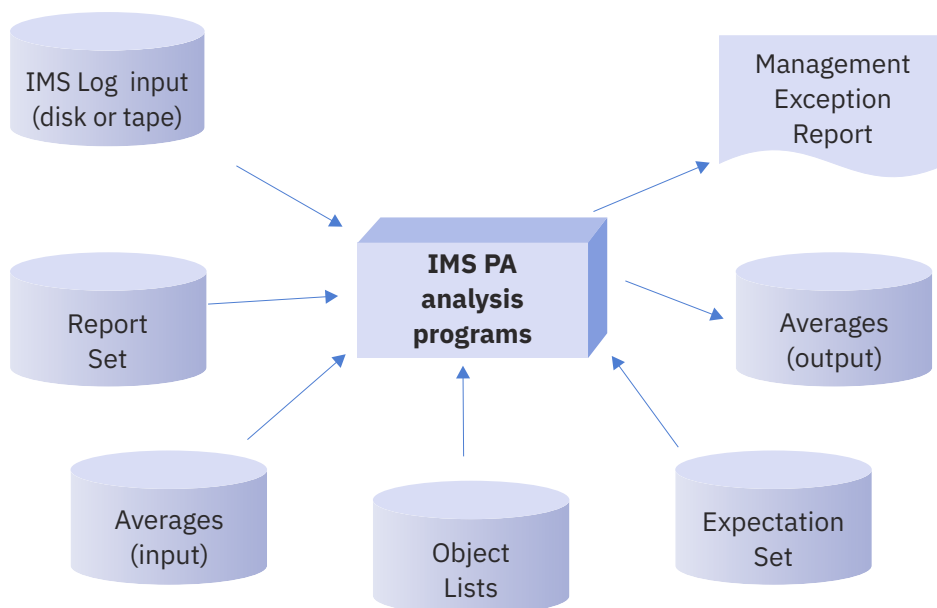


Figure 122. IMS Performance Analyzer Management Exception report components

IMS Performance Analyzer generates the report command:

```
IMSPALOG MGREX(...)
```

SAMPLOG - Management Exception

Command ==> \_\_\_\_\_

Specify report options.

Reports Required: <input checked="" type="checkbox"/> Transaction Exception/Average Error Conditions Log: <input checked="" type="checkbox"/> Program Abend <input checked="" type="checkbox"/> Backout Failure <input checked="" type="checkbox"/> Security Violation <input checked="" type="checkbox"/> I/O Error <input checked="" type="checkbox"/> Snap Trace	_____ Report Interval _____ YYYY/MM/DD  HH:MM:SS:TH From _____ To     _____ Report Output DDname <u>MGRXDD</u>
--	--

Report Options Processing Type: <input checked="" type="checkbox"/> 1. Exception Report <input checked="" type="checkbox"/> 2. Print Averages Data Set <input type="checkbox"/> Exclude "OTHERS" from report	Select to Modify: <input type="checkbox"/> Exception Report Options <input type="checkbox"/> Averages Data Sets Specification
--	---

Validation Warning

Expectation Set \_\_\_\_\_ +

Figure 123. The **Management Exception** report options panel in IMS Performance Analyzer

The options are as follows:

#### Reports Required

Option: **Transaction Exception/Average Error Conditions Log:**

- **Error Conditions Log**
- **Program Abend**
- **Backout Failure**
- **Security Violation**



- **I/O Error**
- **Snap Trace**

Default: All selected.

Select with a / to produce the required reports.

To produce the Management Exception Summary report, select **Transaction Exception/Average** and specify options in the **Transaction Exception/Average Report Options** area at the bottom of the panel.

To produce the Error Conditions log, select one or more of the five types of errors listed below **Error Conditions Log**. Only those selected are included in the report. If none of the five are selected, then the Error Conditions log is not produced.

### **Report Interval**

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

### **Report Output DDname**

Default: MGRXDD

Specify the DDname to be used for the report output.

### **Related reference**

MGREX: Management Exception report

The **MGREX** operand of the **IMSPALOG** batch command requests the Management Exception report.

## **Transaction Exception/Average report options**

These options only have effect if the Transaction Exception/Average report is selected. They do not affect the Error Conditions Log.

### **Processing Type**

Options:

1. **Exception Report**
2. **Print Averages Data Set**

Default: 1 (Produce the Management Exception Summary report and don't print the Averages Data Set)

Select **1** to produce the Management Exception Summary report showing by Transaction Code, information for "This Run", and if requested, the Average and Expectation.

Select **2** to produce the Management Exception Summary showing only the contents of the input Averages Data Set.

### **Exclude "OTHERS" from report**

Default: Not selected. "OTHERS" are reported.

This option is used in conjunction with transaction code selection criteria.

By default, transaction codes that are excluded by filtering are reported in a group called \*OTHERS\*, and included in the final \*SYSTEM\* total.

Enter / to select this option so that transaction codes that are excluded by filtering are not reported, and consequently not included in the final \*SYSTEM\* total.

This option generates the N00OTHERS operand. For example, IMSPALOG  
MGREX(N00OTHERS, INCL (TRAN ( . . . ) ) )

### **Expectation Set**

Default: None.

Specify the name of an Expectation Set which contains user-supplied expected values to be used in producing the exception report. The report will flag occurrences which fall outside the specified expected values. “[Specifying Expectations](#)” on page 628 describes how to specify expected values in an Expectation Set.

If no Expectation Set is specified, there are no performance expectations with which to compare the log data, in which case the report shows "This Run" but contains no Expectation information.

### Exception Report Options

Select with an E or S to display the **Transaction Exception Options** panel where you can view or edit additional report options and qualifiers. See [Figure 124 on page 260](#).

### Averages Data Sets Specification

Select with an E or S to display the **Transaction Averages Data Sets** panel where you can specify the Averages Data Sets, and optionally view or edit their contents. See “[Transaction Averages data sets specification](#)” on page 261.

## Transaction Exception report options

This panel defines further options and qualifiers for the Management Exception report. They only apply if **Transaction Exception/Average** is selected on the **Management Exception** panel.

```
SAMPLELOG - Transaction Exception Options
Command ==> _____

Specify Transaction Exception report options.

Exception Processing Queues:
Number of Queues      ____ (0-255)
Omit Message After    ____ Minutes

Report Options:
_ List All Transactions (not just exceptions)

Selection Criteria:
Object Type           Inc/Exc  Object +  List  Validation Warning
Transaction Code      ____      _____  -
```

*Figure 124. Management Exception Report: Transaction Exception Options*

The options are as follows:

### Number of Queues

Default: None.

The number of exception processing queues used in processing the Management Exception report. Varying the number of queues may improve performance when you are doing high-volume processing. The maximum number of queues that can be specified is 255.

### Omit Message After *nnn* Minutes

Default: None; messages are not omitted.

The number of minutes after which a message is deleted from the management exception processing queue. (Deletion occurs at checkpoint record processing.) This may improve performance when transactions are held on IMS message queues for a long time. The maximum number of minutes that can be specified is 999.

### List All Transactions

Default: Not selected; only list exceptions.

Select with a / to list all transactions on the report, not just the exceptions.

### Selection Criteria

Default: None specified. Include all.

Records can be included or excluded based on their Transaction Code. This enables you to report only the transactions of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

By default, transaction codes and programs that are excluded by filtering are reported in a line item called \*OTHERS\*, and included in the final \*SYSTEM\* total. If you do not want the excluded transaction codes included in the \*SYSTEM\* total, you can omit it from the report by selecting the option **Exclude "OTHERS" from report**.

## Transaction Averages data sets specification

This panel specifies the input and output data sets to be used for calculating and storing the accumulated averages for the Management Exception report. The data sets are only used if **Transaction Exception/Average** is selected on the **Management Exception** panel.

[“Averages Data Sets” on page 631](#) describes how to allocate Averages Data Sets and how to modify their contents.

```
SAMPLOG - Transaction Averages Data Sets
Command ==> _____

Specify the Averages Data Sets for this Report Set, optionally
indicating whether you want to Edit or View either data set.

Input Data Set: _____ E/V
                                     -
Output Data Set: _____
                                     -
```

Figure 125. Management Exception Report: Transaction Averages Data Sets

The options are as follows:

### Input Data Set

### Output Data Set

Defaults: None.

Specify the name of the input and output Averages Data Sets. If no input data set is specified, then averages are not applied. If no output data set is specified, then updated averages are not saved. If no input is specified, an output data set can still be created.

Management exception processing uses the input data set, if it is specified, for reading accumulated totals and averages. Each time management exception processing is invoked, it does the following:

- Extracts the total from the input Averages Data Set
- Calculates averages by dividing by the number of occurrences represented by the totals
- Compares these averages with the current values to identify exceptions to be reported (where expectations are specified in terms of averages)

When processing finishes, the current values are added to those in the input Averages Data Set, and the results are stored in the output Averages Data Set if it is specified. If you specify the input and output data sets as generations (0) and (+1) respectively of the same generation data group (GDG) then the specification need not be updated between report runs.

### E/V

Default: None.

Enter E or V to edit or view the data set.

**Note:** If characteristics of your IMS installation change, such as installing a faster processor, the contents of the Averages Data Set should be modified to make the historic values with the slower processor comparable to the current values with the new processor.

## Transaction Resource Usage report

The IMS Transaction Resource Usage report provides a comprehensive overview of transaction resource usage. The resources reported on by IMS Performance Analyzer include scheduling statistics (including WFI), CPU usage, DL/I call statistics, enqueue statistics, and DBCTL DB and I/O usage.

IMS Performance Analyzer generates the report command:

IMSPALOG TRANRESU(...)

```

SAMPLOG - Transaction Resource Usage
Command ==> _____

Specify report options.

Reports Required:
- Long List
/ Long Summary
- Short (DLI Call) Summary

Report Interval
YYYY/MM/DD HH:MM:SS:TH
From
To

Long Report Options:
/ Include DB Calls
/ Include DC Calls
- Include Other DLI Calls
- Include ENQ/DEQ Counts

Report Output DDnames:
Long List . . . . . TRANRESU
Long Summary . . . . TRANRESU
DLI Call Summary . . TRANRESU

Selection Criteria:
Object Type      Inc/Exc  Object +  List      Validation Warning
Region ID        _____ -
Transaction Code _____ -
Program (PSB)    _____ -
IMS Subsystem ID _____ -

```

Figure 126. The **Transaction Resource Usage** report options panel in IMS Performance Analyzer

The report options are as follows:

## Reports Required

Default: **Long Summary**

Enter / to request any combination of reports:

## Long List

This report lists statistics for each selected transaction using the IMS Transaction Terminate Accounting Log Record (type 07). It is similar in format to the Long Summary report with the exclusion of averages. The report provides additional transaction information such as Program name and Completion Codes. This report is used to review the performance of individual transactions.

## Long Summary

This is a two-part report generated using the IMS Transaction Terminate Accounting Log Record (type 07). Each part consists of two sections, Totals and call group statistics. The first part is a summary of statistics by region type (such as BMP, MPP, CPI-C) giving an overall view of region performance. The second part provides a breakdown by transaction for each region giving an overall view of transaction performance.

### Short (DLI Call) Summary

This report lists the transaction code, the total number of messages for each transaction, CPU, DB and DC call averages per message for each transaction using the IMS Transaction Terminate Accounting Log Record (type 07). The report also provides a total line that includes the total number of messages for all selected transactions and the average CPU, DB & DC calls per message.

### Long Report Options

Default: **Include DB Calls** and **Include DC Calls** selected.

Enter / to include any combination of the following types of data in the Long Summary and List reports:

- **Include DB Calls**
- **Include DC Calls**
- **Include Other DLI Calls**
- **Include ENQueue/DEQueue Counts**

### Report Interval

Default: Not specified; no further filtering on date/time.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### Report Output DDname

Default: TRANRESU

Specify the DDname to be used for each of the reports.

### Selection Criteria

Default: No values specified; include all records without filtering.

Records can be included in or excluded from the report based on their Region ID, Transaction Code, Program (PSB), and IMS Subsystem ID values. This enables you to include in your report only the information that you are interested in. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists. Region ID may be specified by PST Number, or by Message Region Jobname. Masking is not supported for Region ID by PST objects.

### Related reference

[TRANRESU: Transaction Resource Usage report](#)

The **TRANRESU** operand of the **IMSPALOG** batch command requests the Transaction Resource Usage report.

## Resource Availability report

The IMS Resource Availability report indicates the relative amount of time a specific resource is active, idle, or unavailable. Use this report to get general availability information, a summary of how frequently each resource is used, to plan more efficient scheduling, and to identify when remedial action is required. Resource Availability reports can be generated in IMS Performance Analyzer for any combination of regions, programs (PSBs), transaction codes, databases, or lines or VTAM nodes.

IMS Performance Analyzer generates the report command:

```
IMSPALOG AVAIL(...)
```

SAMPLOG - Resource Availability

Command ==>

Specify report options.

Reports Required:

/ Region

/ Transaction Code

/ Program (PSB)

/ Database

\_ Line or VTAM Node

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

To

Report Output DDname

AVALDD

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Region ID	---	-----	-	
Transaction Code	---	-----	-	
Program (PSB)	---	-----	-	
Database	---	-----	-	
Line	---	-----	-	
VTAM Node	---	-----	-	
IMS Subsystem ID	---	-----	-	

Figure 127. The **Resource Availability** report options panel in IMS Performance Analyzer

The options are as follows:

#### Reports Required

Options:

- **Region**
- **Transaction Code**
- **Program (PSB)**
- **Database**
- **Line or VTAM Node**

Default: All except Line/Node.

Select with a / to produce a separate report ordered by, respectively, Region, Transaction Code, Program, Database, and Line or VTAM Node.

Reports not selected will not be produced.

#### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by **Start** and **Stop** Date/Time on the **Log Global Options** panel. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

#### Report Output DDname

Default: AVALDD

Specify the DDname to be used for the report output.

#### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their Region ID, Transaction Code, Program (PSB), Database, Line, VTAM Node and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists. Region ID may be specified by PST Number, or by Message Region Jobname. Masking is not supported for Region ID by PST or Line objects.

## Related reference

AVAIL: Resource Availability report

The **AVAIL** operand of the **IMSPALOG** batch command requests the Resource Availability report.

## CPU Usage report and extract

The IMS CPU Usage report gives statistics for CPU time and elapsed time during a specified period for regions, transactions, and programs. It can help you determine who is using too much CPU time or, conversely, what programs or transactions in which regions are in a wait state too long. The report can optionally be written by IMS Performance Analyzer to an extract data set as a CSV file.

IMS Performance Analyzer generates the report command:

```
IMSPALOG CPUR(...)
```

SAMPLOG - CPU Usage

Command ==> \_\_\_\_\_

Specify report options.

Reports Required:  
--- Ordering Operands ---  
Level-1 Level-2 Level-3  
1. REGN PROG TRAN  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_  
5. \_\_\_\_\_

Report Interval \_\_\_\_\_  
YYYY/MM/DD HH:MM:SS:TH  
From \_\_\_\_\_  
To \_\_\_\_\_  
Report Output DDname CPURDD  
Report Options:  
\_ Exclude "OTHERS" from report

Extract Data Set:  
Data Set Name . . . \_\_\_\_\_

Graph Distributions:  
Processing Time (CPU) \_\_\_\_\_ +  
Elapsed Time \_\_\_\_\_ +

Validation Warning

Selection Criteria:  
Object Type Inc/Exc Object + List Validation Warning  
Region ID \_\_\_\_\_ -  
Transaction Code \_\_\_\_\_ -  
Program (PSB) \_\_\_\_\_ -  
IMS Subsystem ID \_\_\_\_\_ -

Figure 128. The **CPU Usage** report options panel in IMS Performance Analyzer

The options are as follows:

### Reports Required (ordered by Region, Program, Transaction Code):

Default: Single report in the order REGN PROG TRAN

Up to 5 different reports can be requested, using the keywords REGN (region), PROG (program), and TRAN (transaction code) to specify their sequence. For each report, either one, two, or three of the keywords can be specified to represent up to three levels of nesting. Duplicate report requests are ignored.

### Exclude "OTHERS" from report

Default: Not selected.

This option is used in conjunction with Transaction Code and Program (PSB) Selection Criteria. By default, transaction codes and programs that are excluded by the qualifiers are reported in a group called \*OTHERS\*, and included in the report subtotals and totals.

Enter / to select this option so that transaction codes and programs that are excluded by the qualifiers are not reported, and not included in the report subtotals and totals.

### Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### Report Output DDname

Default: CPURDD

Specify the DDname to be used for the report output.

### Extract Data Set

Default: Not specified; extract is not produced.

To extract CPU Usage details to an output file, specify a name for the extract data set that is generated in the Report Set JCL with DDname CPURXTR0. Note that you can specify global options to include column headings in the extract file and to use a comma as the field delimiter.

### Graph Distributions

Defaults: If no Distribution is specified, the corresponding sample Distribution is applied at run time:

- \$IPDIST1 for the **Processing Time (CPU)** graph
- \$IPDIST2 for the **Elapsed Time** graph

Specify the name of the Distributions to define the attributes of the graphs.

For the **Processing Time (CPU)** graph, the sample Distribution \$IPDIST1 is provided. It specifies:

Ranges (Limits) = 25,50,75,100,150,200,300,500,1000

Title = Sc Mil (for seconds and milliseconds)

Multiplier = 1

Edit Mask = ZZZ,ZZZ.ZZ9

For the **Elapsed Time** graph, the sample Distribution \$IPDIST2 is provided. It specifies:

Ranges (Limits) = 300,600,900,1200,1500,2000,3000,5000,10000

Title = Sc Mil (for seconds and milliseconds)

Multiplier = 1

Edit Mask = ZZZ,ZZZ.ZZ9

See [“Distributions”](#) on page 645 for information on how to define a Distribution.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their Region ID, Transaction Code, Program (PSB), and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists. Region ID may be specified by PST Number, or by Message Region Jobname. Masking is not supported for Region ID by PST objects.

Data excluded by the selection criteria are reported as one group labeled \*OTHERS\* and included in report subtotals and totals. If you don't want the excluded data included in the totals, you can omit the \*OTHERS\* category by selecting **Exclude "OTHERS" from report**.

### Related reference

[CPUR: CPU Usage report and extract](#)



The **CPUR** operand of the **IMSPALOG** command requests the CPU Usage report and optionally an extract file.

## Internal Resource Usage reports

The IMS Internal Resource Usage reports provide statistics on the use of various IMS pools and resources. From the statistics produced by IMS Performance Analyzer, you can determine how they are being used and where inefficiencies exist. You can configure an analytics platform, and then stream (or forward) the data extracts as JSON Lines. You can also write data extracts directly to z/OS data sets and z/OS Unix files. Thereby, you can bypass writing data to temporary files on z/OS.

IMS Performance Analyzer generates the report command:

```
IMSPALOG IRUR(...)
```

SAMPLOG - Internal Resource Usage

Specify report options.

Report Options:  
Minimum CHKP Interval 0 Minutes

Report Interval             
YYYY/MM/DD HH:MM:SS:TH  
From             
To

More: +

☐ Include Fast Path Transactions  
☐ Print Report after each CHKP  
☐ Define Extract Options  
☒ Extract Selected Reports

Report Output DDname

Extract Type:  
3 1. z/OS Data Set    2. z/OS UNIX File    3. Streaming

Reports Required:  

<input checked="" type="checkbox"/> Message Queue Pool	<input checked="" type="checkbox"/> IRLM System
<input checked="" type="checkbox"/> Message Format Buffer Pool	<input checked="" type="checkbox"/> IRLM Subsystem
<input checked="" type="checkbox"/> OSAM Buffer Pool	<input checked="" type="checkbox"/> RACF
<input checked="" type="checkbox"/> VSAM Buffer Pool	<input checked="" type="checkbox"/> Virtual Storage usage
<input checked="" type="checkbox"/> Variable Pools	<input checked="" type="checkbox"/> IMODULE Statistics
<input checked="" type="checkbox"/> Application Scheduling Statistics	<input checked="" type="checkbox"/> EWLM Statistics
<input checked="" type="checkbox"/> Program Isolation Statistics	<input checked="" type="checkbox"/> 64-bit Cache Statistics
<input checked="" type="checkbox"/> Latch Statistics	<input checked="" type="checkbox"/> Fast Path 64-bit Buffer Statistics
<input checked="" type="checkbox"/> DL/I Call Statistics	<input checked="" type="checkbox"/> User Exit Statistics
<input checked="" type="checkbox"/> Miscellaneous Statistics	<input checked="" type="checkbox"/> Individual TCB Statistics
<input checked="" type="checkbox"/> Storage Statistics	<input checked="" type="checkbox"/> 64-bit Storage Statistics
<input checked="" type="checkbox"/> Fixed Pool Usage Statistics	<input checked="" type="checkbox"/> Global OTMA TPIPE Statistics
<input checked="" type="checkbox"/> Dispatcher/Dynamic SAP Statistics	<input checked="" type="checkbox"/> Member OTMA TPIPE Statistics
<input checked="" type="checkbox"/> Logical Logger Statistics	

Command ==>

Figure 129. The **Internal Resource Usage** report options panel in IMS Performance Analyzer

The options are as follows:

### Minimum CHKP Interval (in minutes)

Default: 0 (zero)

Checkpoints occurring less than this interval after the preceding checkpoint are excluded from the report. Valid values are 0 to 9999.

### Include Fast Path Transactions

Default: Not selected; Fast Path transactions are not included.

Enter / to include the Fast Path transaction count in the Miscellaneous Statistics report.

### Print Report after each CHKP

Default: Not selected. Print report only at the end of the run.

Enter / to print a report after each system checkpoint encountered during log processing.

This options takes precedence over the Global Option **Report Break Points** for this report. However, if **Report Break Points** is specified as anything other than STOP or blank, unpredictable results may occur.

**Define Extract Options**

Configure the extract options for IRUR data by referring to the table in Step [“3”](#) on page 270.

**Extract Selected Reports**

Defaults: Not specified.

Select this option to extract the selected report.

**Extract Type**

Defaults: Not specified.

Use this option to specify the extract type.

You can choose any of the following options:

**1. z/OS Data Set**

Select 1 to data extract directly into the z/OS data set.

**2. z/OS UNIX File**

Select 2 to data extract directly into the z/OS UNIX File.

**3. Streaming**

Select 3 to stream the data extracts as JSON Lines over TCP/IP.

**Report Interval**

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

**Report Output DDname**

Default: IRURDD

Specify the DDname to be used for the report output.

**Reports Required**

Default: All selected.

Select with a / the reports that are required. Reports not selected will not be produced.

A description of the Internal Resource Usage reports follows:

**Message Queue Pool**

This report provides information related to the activity and I/O associated with IMS message queues. This activity is a key indicator as to the performance of your IMS system.

**Message Format Buffer Pool**

This report provides information related to the activity associated with message formatting.

**OSAM Buffer Pool**

This report provides information related to the activity in each OSAM subpool. Subpools which have no activity in the reporting period are not reported on. The final report contains cumulative statistics for all of the OSAM buffer pools.

**VSAM Buffer Pool**

This report provides information related to the activity in each VSAM subpool. Subpools which have no activity in the reporting period are not reported on. The final report contains cumulative statistics for all of the VSAM buffer pools.

**Variable Pools**

This report provides information as to the size and utilization of the various DMB and PSB pools. Shortages in these pools, particularly the DMB pool, can cause scheduling delays. Use this report to detect over or under specification of the pool sizes.

**Application Scheduling Statistics**

This report provides information relating to the various types of scheduling failures and scheduling activity during the report period.

**Program Isolation Statistics**

This report provides information about the size and usage of the PI pool.

**Latch Statistics**

This report provides information regarding each IMS latch and the activity associated with that latch.

**DL/I Call Statistics**

This report provides a count of all programs scheduled, transactions processed, and DL/I calls issued by call type.

**Miscellaneous Statistics**

This report provides information on the highest PST used, the highest and current number of conversations in use, transaction counts by transaction type (conversational, WFI, non-recoverable and response mode), RECANY buffer usage, and IMS and statistics record versions. Optionally, the report includes Fast Path transactions.

**Storage Statistics**

This report provides information about the various storage pools used by IMS. Pools not used in the reporting period are not reported on.

**Fixed Pool Usage Statistics**

This report provides information about the fixed pools used by IMS. A number of statistics are provided for each buffer size in the pool; these include size, high water marks, and a number of other performance related statistics associated with each buffer.

**Dispatcher/Dynamic SAP Statistics**

This report provides performance related information for the various IMS TCBs.

**Logical Logger Statistics**

This report provides various statistics describing the performance of the IMS log and WADS. I/O counts and buffer wait counts can be used to see if any system performance problems are being caused by bad logger or WADS I/O times.

**IRLM System**

This report provides information on the performance of the IRLM system. Counts of the various IRLM activities, as well as buffer and CSA usage, deadlock frequency and VTAM sends are reported.

**IRLM Subsystem (User)**

This report provides information on the performance of the IRLM that relates to a particular IMS subsystem. Counts of the various IRLM activities are reported.

**RACF**

This report provides information related to the performance of the RACF® TCBs, such as counts of the various RACF activities, and the CPU and elapsed time used by these RACF activities.

**Virtual Storage usage**

This report provides information related to general storage use in the system and in the IMS control region.

**IMODULE Statistics**

This report provides information related to IMODULE services. Statistics are provided for IMODULE requests that obtained or deleted common storage. Statistics are also provided for IMODULE requests by call type.

**EWLM Statistics**

This report provides statistics for EWLM correlator token table.

**64-bit Cache Statistics**

This report provides statistics for the 64-bit cache storage manager.

**Fast Path 64-bit Buffer Statistics**

This report provides statistics for the Fast Path 64-bit buffer manager.

**User Exit Statistics**

This report provides statistics for User Exit modules.

**Individual TCB Statistics**

This report provides performance related information for individual IMS TCBs which are aggregated in the **x'450F'** dispatcher statistics log record.

### 64-bit Storage Statistics

This report provides information about the various 64-bit storage pools used by IMS.

### Global OTMA TPIPE Statistics

This report provides global statistics for OTMA TPIPEs and YTIBs.

### Member OTMA TPIPE Statistics

This report provides member statistics for OTMA TPIPEs and YTIBs

### Related reference

[IRUR: Internal Resource Usage report](#)

The **IRUR** operand of the **IMSPALOG** batch command requests the IMS Internal Resource Usage reports.

## Configuring the Internal Resource Usage report

You must configure the options in the Internal Resource Usage Report Set to generate the JCL required for streaming the data extracts as JSON Lines over TCP/IP.

### Procedure

1. Expand the **Resource Usage & Availability Reports** option, and then select **Internal Resource usage**.
2. Select **Define Extract Options** from the **Internal Resource Usage** panel.
3. Configure the extract options by referring to the following table:

Sections	Fields	Description
----------	--------	-------------

<b>General options</b>	<b>UTC Timezone</b>	<p>Select this field to export ISO 8601 timestamps as Coordinated Universal Time (UTC) rather than Local time obtained from the IMS input log.</p> <p>The default value is Local time.</p> <p>This field applies to both write data extracts and stream data extracts as JSON Lines.</p>
	<b>ASCII Encoding</b>	<p>Select this field to set the encoding for data extracts.</p> <p>The default encoding is EBCDIC when you select data extracts, and ASCII when you select stream data extracts as JSON Lines.</p>
	<b>Output JSON Lines</b>	<p>Select this field to set the format of the data extract as JSON Line format.</p> <p>The default format is CSV.</p>
	<b>Exclude Null fields</b>	<p>Select this field to specify whether to include or exclude fields that are selected for output but for which the reportable value is "null".</p> <p>You must select this field only when the output is in JSON Line format.</p> <p>This field applies to both data extracts and stream data extracts as JSON Lines.</p>
	<b>Label Case</b>	<p>Select this field to specify how to write the field labels.</p> <p>You can choose any of the following options:</p> <ul style="list-style-type: none"> <li>• <b>1 - As is:</b> Write labels same as how they are originally encoded.</li> <li>• <b>2 - Upper:</b> Write labels in uppercase letters.</li> <li>• <b>3 - Lower:</b> Write labels in lowercase letters.</li> <li>• <b>4 - Snake:</b> Write labels in snake case so that the words are separated with an underscore symbol ( <code>_</code> ) instead of a space.</li> </ul> <p>The default value is <b>1 - As is</b>.</p> <p>This field applies to both data extracts and stream data extracts as JSON Lines.</p>

<b>Z/OS Data Set extract options</b>	<b>z/OS Data Set Prefix</b>	<p>Enter a fully qualified prefix for the data set where extract records are to be written to a z/OS sequential file.</p> <p>IMS Performance Analyzer appends the specified prefix with a low-level qualifier of IIII.XX.</p> <p>Where IIII is the IMS subsystem ID and XX is the unique POOL ID for each selected report.</p> <p><b>Note:</b> Separate files are created as IIII.XXSAP and IIII.XXTCB for the Dispatcher/Dynamic SAP and individual TCB statistics extracts.</p> <p>IMS Performance Analyzer creates the data set at run time with default space allocation attributes of (CYL,(1,1),RLSE) if data set is not previously allocated.</p> <p>IMS Performance Analyzer dynamically assigns a default DDname of IRURXX where XX is the unique POOL ID for each selected report.</p> <p><b>Note:</b> For the Dispatcher/Dynamic SAP and individual TCB statistics extracts, the DDnames are IRURXXSA and IRURXXTC.</p>
--	---------------------------------	--

<b>z/OS UNIX File extract options</b>	<b>z/OS UNIX Directory Path</b>	<p>Enter the z/OS UNIX directory path where the CSV extract files or JSON extract files results are written.</p> <p>This field is a scrollable field, and you can enter an absolute path name up to 240 characters in length.</p> <p><b>Note:</b> The &gt; symbol at the end of the field indicates a scrollable field. You can use the F4 key to display this field in a scrollable dynamic area in a pop-up window.</p>
	<b>EOL Char</b>	<p>Use this field to specify the end of line (EOL) delimiter.</p> <p>When you use this field, it appends one or more bytes to the end of each output record.</p> <p>The actual bytes appended depend on the options that you selected for <b>EOL Char</b> and <b>ASCII Encoding</b> fields.</p> <p>You can choose any of the following options:</p> <ul style="list-style-type: none"> <li>• <b>1 - None:</b> No line delimiter.</li> <li>• <b>2 - LF (Line feed):</b> (\n) gets added to each record in the output.</li> <li>• <b>3 - CR Carriage return:</b> (\r) gets added to each record in the output.</li> <li>• <b>4 - CRLF Carriage return and line feed:</b> (\r\n) gets added to each record in the output.</li> <li>• <b>NL – Newline:</b> each record in the output displayed in the new line. This option is applicable only when you set <b>ASCII Encoding</b> as EBCDIC.</li> </ul> <p>The default value is 1 None no delimiter for EBCDIC encoding.</p> <p>If you select UNIX File extract or Streaming JSON Lines option, then the default value is 2 LF.</p> <p>When you write to a z/OS UNIX file, the appropriate EOL delimiter depends on whether you want to write output encoded in ASCII or EBCDIC.</p> <p>To write ASCII-encoded output to a z/OS UNIX file:</p> <p>Select the <b>ASCII Encoding</b> option and <b>EOL Char</b> as: CR, CRLF, or LF.</p> <p>To write EBCDIC-encoded output to a z/OS UNIX file:</p> <p>Select <b>EOL Char</b> as NL or None.</p> <p>The default output EBCDIC code page is 1047.</p>
	<b>Disp</b>	<p>Specifies if any CSV or JSON Line extract data set with the specified prefix is already cataloged or not.</p> <p><b>Note:</b> If the data set is not cataloged then <b>Disp</b> value is set to New regardless of <b>Disp</b> setting.</p> <p>You can specify one of the following values for the <b>Disp</b> option:</p> <ul style="list-style-type: none"> <li>• <b>OLD:</b> Overwrites the data set contents with the new extracted data from the beginning of the data set along with the headers, if any. This is the default behavior.</li> <li>• <b>MOD:</b> Appends the new extracted data to the end of the data set. If the new extracted data contains any headers, those are not appended to the data set.</li> </ul>

<b>Streaming options</b>	<b>Port Override</b>	Enter the port number of the host to override the one you specified in <b>Log Global Options</b> .  This field applies only when you want to stream data as JSON Lines over TCP/IP.
--------------------------	----------------------	---

4. Exit the **Extract Options** panel by using the **F3** key.
5. Select the **Extract Selected Report** option.
6. Enter any of the following values to choose the **Extract Type** option:  
You can choose any of the following options:
  - **1**: Enter 1 to data extract directly into the z/OS data set.
  - **2**: Enter 2 to data extract directly into the z/OS UNIX File.
  - **3**: Enter 3 to stream the data extracts as JSON Lines over TCP/IP.
7. Select the required reports from the **Report Required** field.
8. Enter SUB in the **Command** field, and then press the Enter key to generate the JCL.

## Results

You have configured and generated the JCL for streaming the data extracts over TCP/IP.

## What to do next

You can run the **IRUR** operand of the **IMSPALOG** batch command to request the IMS Internal Resource Usage reports. See [“IRUR: Internal Resource Usage report”](#) on page 379.

## MSC Link Statistics report

The IMS MSC Link Statistics report provides summary information on the overall usage of MSC links and a detailed breakdown of Send and Receive data for each MSC link. The MSC Link Statistics report can help you validate and tune MSC links bandwidth.

IMS PA generates the report command:

```
IMSPALOG MSCLSTAT(...)
```

SAMPLOG - MSC Link Statistics

Command ==> \_\_\_\_\_

Specify report options.

<b>Reports Required:</b> / General Statistics / Send/Receive Statistics	<b>Report Interval</b> _____ YYYY/MM/DD HH:MM:SS:TH <b>From</b> _____ <b>To</b> _____										
<b>Report Options:</b> _ Print Report after each CHKP	<b>Report Output DDname</b> <u>MSCLSTAT</u>										
<b>Selection Criteria:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Object Type</td> <td style="text-align: center;">Inc/Exc</td> <td style="text-align: center;">Object +</td> <td style="text-align: center;">List</td> <td style="text-align: center;">Validation Warning</td> </tr> <tr> <td style="text-align: center;">IMS Subsystem ID</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> </table>		Object Type	Inc/Exc	Object +	List	Validation Warning	IMS Subsystem ID	_____	_____	_____	_____
Object Type	Inc/Exc	Object +	List	Validation Warning							
IMS Subsystem ID	_____	_____	_____	_____							

Figure 130. MSC Link Statistics Report Options

The options are as follows:

### Reports Required

Default: Both selected; produce both reports.

Select with a / to request one or both reports:



### General Statistics

This report provides summary information on the overall usage of each MSC link.

### Send/Receive Statistics

This report provides summary information for each MSC link with a more detailed breakdown of Send and Receive traffic.

### Print Report after each CHKP

Default: Not selected. Print report only at the end of the run.

Enter / to print a report after each system checkpoint encountered during log processing.

This options takes precedence over the Global Option **Report Break Points** for this report. However, if **Report Break Points** is specified as anything other than STOP or blank, unpredictable results may occur.

### Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

### Report Output DDname

Default: MSCLSTAT

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their IMS Subsystem ID values. This enables you to report only the systems of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

[MSCLSTAT: MSC Link Statistics report](#)

The **MSCLSTAT** operand of the **IMSPALOG** batch command requests the MSC Link Statistics report.

## Message Queue Utilization report

The IMS Message Queue Utilization report contains information on the use of message queues. This IMS Performance Analyzer report can help you balance the I/O between long and short message data sets and adjust record and buffer sizes for the most efficient use of these two data sets. Thus this report helps you reduce storage and minimize I/O.

IMS PA generates the report command:

```
IMSPALOG MSGQ(...)
```

SAMPLOG - Message Queue Utilization				
Command ==> _____				
Specify report options.				
Report Options:		_____ Report Interval _____		
Record Size Interval	<u>10</u>	Bytes	YYYY/MM/DD	HH:MM:SS:TH
			From	_____
			To	_____
<input type="checkbox"/>	Only Enqueued Messages		Report Output DDname <u>MQURDD</u>	
<input type="checkbox"/>	Record length (not message)			
Selection Criteria:				
Object Type	Inc/Exc	Object +	List	Validation Warning
IMS Subsystem ID	_____	_____	-	

Figure 131. Message Queue Utilization Report Options

The options are as follows:

**Record Size Interval**

Default: 10

Specify the record size interval, in bytes, to be reported on each line of the report. Valid values are from 0 to 999 inclusive. 0 is set to the default at run time.

**Only Enqueued Messages**

Default: Not specified. Include messages that are not enqueued.

Include in the report only those messages which are enqueued in message data sets.

**Record length (not message)**

Default: Not selected. Complete messages are reported.

Report individual records, not complete messages. This option may be used for shared queues where OBJAVGSZ is determined based on individual records, not complete messages which may span multiple records.

**Report Interval**

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

**Report Output DDname**

Default: MQURDD

Specify the DDname to be used for the report output.

**Selection Criteria**

Default: None specified; include all.

Records can be included in or excluded from the report based on their IMS Subsystem ID values. This enables you to report only the systems of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists.

**Related reference**

[MSGQ: Message Queue Utilization report](#)

The **MSGQ** operand of the **IMSPALOG** batch command requests the Message Queue Utilization report.

## Database Update Activity report and extract

The IMS Database Update Activity report can help you determine the cost of database calls. It indicates the number of purge writes at sync point time to a database and provides a count of actual updates made to each database in the time period being reported. If your database is a HALDB, you can also report on specific HALDB partitions because the name of the partition is found on the database name field of the various records used in this report. This IMS Performance Analyzer report can optionally be written to an extract data set as a CSV file.

IMS Performance Analyzer generates the report command:

```
IMSPALOG DBUPDATE(...)
```

SAMPLOG - Database Update Activity

---

Command ==> \_\_\_\_\_

Specify report options.

Report Options: Format . . . <u>1</u> (1 or 2) Uncommitted Block Updates Limit <u>10000</u>  _ Order by Database and Program Name	<div style="text-align: center;">_____ Report Interval _____</div> <div style="text-align: center;">YYYY/MM/DD HH:MM:SS:TH</div> From _____ To _____  Report Output DDname <u>DBUADD</u>
---	---

Extract Data Set:  
 Data Set Name . . . \_\_\_\_\_

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Database	_____	_____	-	
IMS Subsystem ID	_____	_____	-	

Figure 132. Database Update Activity Report Options

The options are as follows:

### Format

Default: 1

Specify the format of the report (1 or 2). Format 2 is the recommended report option as reports generated using format 2 provide a faster, more concise breakdown of database update activity.

### Uncommitted Block Updates Limit

Default: 10000

Specify a limit on the number of uncommitted block updates to track for the Database Update Activity report. The purpose of this limit is to ensure that IMS PA doesn't run out of storage and abend.

The maximum value that can be specified is 32000. When the maximum number of uncommitted block updates for a database is reached, IMS PA flushes the update queues and reports \*\*\*\*\* for the block update count for that database.

If there is not enough storage to continue processing, IMS PA flushes all block update queues for subsequent database updates. Message IPI0050E is issued stating, by database, the highest uncommitted block update count at flush time.

### Order by Database and Program Name

Default: Not selected.

If selected, the program name is included in the report and the report is ordered by database and program name.

If not selected, the report is ordered by database name only, and the program name is not reported.

### Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### Report Output DDname

Default: DBUADD

Specify the DDname to be used for the report output.

### Extract Data Set

Default: Not specified; extract is not produced.

To extract Database Update Activity details to an output file, specify a name for the extract data set. This will be included in the Report Set JCL with DDname DBUAXTR0. Note that you can specify global options to include column headings in the extract file and to use a comma as the field delimiter.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their Database name and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

DBUPDATE: Database Update Activity report and extract

The **DBUPDATE** operand of the **IMSPALOG** batch command requests the Database Update Activity report.

## Region Histogram report

The IMS Region Histogram report is a graphic display of region activity. It shows the times a region is active or idle, and the patterns of transaction scheduling in each region. The Region Histogram report highlights parallel scheduling issues. It lets you see which transactions are scheduled into which regions and when. You can quickly tell whether some regions are heavily scheduled while others are relatively idle. You can also tell which transactions are waiting on which other transactions.

IMS PA generates the report command:

```
IMSPALOG HISTGRAM(...)
```

SAMPLOG - Region Histogram

Command ==> \_\_\_\_\_

Specify report options.

\_\_\_\_\_ Report Interval \_\_\_\_\_  
 YYYY/MM/DD HH:MM:SS:TH  
 From \_\_\_\_\_  
 To \_\_\_\_\_

Report Output DDname HISTDD

Regions to Include:

Object Type	Object +	List	Validation Warning
Region ID	_____	—	
IMS Subsystem ID	_____	—	

Figure 133. Region Histogram (Log) Report Options

The options are as follows:

### Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

### Report Output DDname

Default: HISTDD

Specify the DDname to be used for the report output.

### Regions to Include

Default: First 13 active regions encountered in the input data.

Specify a Region ID or the name of a Region ID Object List to nominate which regions to include in the report, up to a maximum of 13 regions. Region ID can be specified by PST Number or by Message Region Jobname. The included Region IDs will apply to each included IMS Subsystem, up to a maximum of 13 regions. You can specify a masking pattern for IMS Subsystem ID. Masking is not supported for Region ID, however a range of values can be specified in an Object List. If a requested region is not found in the input data, a report column will still be created for it.

If you specify an Object List, you can enter the name directly, or to select one from a list of the appropriate type, position the cursor in the Object field and press **Prompt (F4)**. Select **List** with a / to denote that it is an Object List and not a single value.

#### Related reference

HISTGRAM: Region Histogram (Log) report

The **HISTGRAM** operand of the **IMSPALOG** batch command requests the Region Histogram report.

## OSAM Sequential Buffering report

The IMS OSAM Sequential Buffering report provides detailed I/O and buffer-usage statistics that allow you to assess the benefit of OSAM sequential buffering. You should use the OSAM Sequential Buffering report to determine whether sequential buffering is providing a benefit to each application that uses it.

IMS PA generates the report command:

```
IMSPALOG SB(...)
```

SAMPLOG - OSAM Sequential Buffering

Command ==> \_\_\_\_\_

Specify report options.

Reports Required: <input checked="" type="checkbox"/> Activity Log <input checked="" type="checkbox"/> Program (PSB) Summary	_____ Report Interval _____ YYYY/MM/DD HH:MM:SS:TH From _____ To _____  Report Output DDname <u>SBDD</u>
--	---

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Program (PSB)	___	_____	-	
Database	___	_____	-	
IMS Subsystem ID	___	_____	-	

Figure 134. OSAM Sequential Buffering Report Options

The options are as follows:

#### Reports Required

Options:

- **Activity Log**
- **Program (PSB) Summary**

Default: Both selected.

Select **Activity Log** with a / to produce the following reports:

- Sequential Buffering Summary for Region, a one-page summary of buffer pool status and activity
- SB Detail Statistics, a three-part report for each buffer pool

Select **Program (PSB) Summary** with a / to produce the OSAM SB Program Summary, a summary of activity by PSB.

### Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

### Report Output DDname

Default: SBDD

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Log records can be included in or excluded from the report by their Program (PSB), Database and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

SB: OSAM Sequential Buffering report

The **SB** operand of the **IMSPALOG** batch command requests the OSAM Sequential Buffering report.

## Deadlock report

The IMS Deadlock report provides a comprehensive analysis of deadlock events. In addition the report summarizes deadlock activity to show the frequency of each losing transaction/database combination and the associated winning transaction/database combinations. This IMS Performance Analyzer report is a useful aid for tuning applications and adjusting scheduling parameters to avoid this expensive overhead. Deadlocks involving Db2 are also reported.

IMS PA generates the report command:

```
IMSPALOG DEADLOCK(...)
```

```

                                     SAMPLOG - Deadlock
Command ==> _____

Specify report options.

Reports Required:                    _____ Report Interval _____
  List                               YYYY/MM/DD  HH:MM:SS:TH
  / Summary                          From _____
                                     To   _____

                                     Report Output DDnames:
                                     List . . . . DEADLOCK
                                     Summary . . DEADLOCK
```

Figure 135. Deadlock Report Options

The options are as follows:

### Reports Required:

Default: **Summary**

Enter / to select one or both of the **List** or **Summary** reports.

### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

## Report Output DDnames

Default: DEADLOCK (for both List and Summary reports)

Specify the DDname to be used for the List and Summary report output. You can use different DDnames for each report type.

If both List and Summary reports are selected, and their DDnames are the same, then only one report will be produced, containing both the List and Summary reports.

## Related reference

[DEADLOCK: Deadlock report](#)

The **DEADLOCK** operand of the **IMSPALOG** batch command requests the Deadlock report.

## System Checkpoint report

The IMS System Checkpoint report provides a detailed analysis of IMS internal checkpoint activity. This IMS Performance Analyzer report provides details of your IMS resources, including databases (with system definition information), transactions (with system definition information and basic usage indicators), and terminals (with system definition information and basic usage indicators). The report also provides a summary of checkpoint activity, including breakdown of checkpoint records by type, and frequency and overhead of internal checkpoint processing. You can extract results to a z/OS data set in CSV format or stream them in JSON format to a TCP listener with ASCII encoding.

IMS Performance Analyzer generates the report command:

```
IMSPALOG CHECKPOINT(...)
```

SAMPLELOG - System Checkpoint

Specify report options.

More: +

Reports Required:

Database Definitions

Transaction Definitions

Terminal:

Sorted by LTERM

Sorted by PTERM

Record Events

Define Extract Options

Extract Selected Reports

Extract Type:

1. z/OS Data Set

2. Streaming

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

To

Report Output DDname

CHECKPT

Graph Distribution:

Checkpoint Duration +

Validation Warning

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Database				
Transaction Code				
LTERM				
VTAM Node				
Line/Terminal				
IMS Subsystem ID				

Command ==>

Figure 136. System Checkpoint report options panel

The options are:

### Reports Required:

Options:

- **Database Definitions:** shows a list of databases and is produced from data in the DDIR blocks.
- **Transaction Definitions:** provides a list of transactions and is created from data contained in the SMB and PDIR blocks.

- **Terminal:** produces a list of terminals from data contained in the CNT, CTB, and SPQB blocks. You can request the report by LTERM, by PTERM, or both.
- **Record Events:** shows the details of each individual checkpoint.

You can enter / to select any combination of reports.

### Define Extract Options

Enter / to configure the extract options for System Checkpoint by referring to the table in Step “3” on [page 283](#).

### Extract Selected Reports

Default: Not selected.

Enter / to generate an extract for each of the selected System Checkpoint Database, Transaction, or Terminal reports. You can write extracts to a z/OS data set in CSV format or stream to a TCP listener in JSON Lines format, depending on the **Extract Type** selected.

### Extract Type

Default: Not specified.

Use this option to specify the destination for the generated extracts.

You can choose any of the following options:

#### 1. z/OS Data Set

Select 1 to extract data in CSV format directly into the z/OS data set. This option forces **EBCDIC** encoding and **EOL(NONE)**.

#### 2. Streaming

Select 2 to stream the extract data as JSON Lines over TCP/IP. This option forces **ASCII** encoding and **EOL(LF)**.

### Checkpoint Duration

Default: Not specified.

Produce a checkpoint duration distribution graph.

### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see “[Transaction Transit Analysis report](#)” on page 244).

### Report Output DDname

Default: CHECKPT

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Log records can be included in or excluded from the report by their Database, Transaction Code, LTERM, VTAM Node, Line/Terminal, and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See “[Object Lists](#)” on page 635 for information on how to define Object Lists.

### Related reference

[CHECKPOINT: System Checkpoint report](#)



The **CHECKPOINT** operand of the **IMSPALOG** batch command requests the System Checkpoint report.

## Configuring the System Checkpoint report

You must configure the options in the System Checkpoint panel to generate the JCL required for streaming the data extracts as JSON Lines over TCP/IP.

### Procedure

1. Expand the **Resource Usage & Availability Reports** option, and then select **System Checkpoint**.
2. Select **Define Extract Options** from the **System Checkpoint** panel.
3. Configure the extract options by referring to the following table:

Sections	Fields	Description
General options	UTC Timezone	Select this field to export ISO 8601 timestamps as Coordinated Universal Time (UTC) rather than Local time obtained from the IMS input log.  The default value is Local time.  This field applies to both write data extracts and stream data extracts as JSON Lines.
	Label Case	Select this field to specify how to write the field labels. You can choose any of the following options: <ul style="list-style-type: none"><li>• <b>1 - As is:</b> Write labels same as how they are originally encoded.</li><li>• <b>2 - Upper:</b> Write labels in uppercase letters.</li><li>• <b>3 - Lower:</b> Write labels in lowercase letters.</li><li>• <b>4 - Snake:</b> Write labels in snake case so that the words are separated with an underscore symbol ( <code>_</code> ) instead of a space.</li></ul> The default value is <b>1 - As is</b> .  This field applies to both data extracts and stream data extracts as JSON Lines.

<b>Z/OS Data Set extract options</b>	<b>z/OS Data Set Prefix</b>	<p>Enter a fully qualified prefix for the data set where extract records are to be written to a z/OS sequential file.</p> <p>IMS Performance Analyzer appends the specified prefix with a low-level qualifier of IIII.XX.</p> <p>Where IIII is the IMS subsystem ID and XX is the unique POOL ID for each selected report.</p> <p><b>Note:</b> Separate files are created as IIII.XXSAP and IIII.XXTCB for the Dispatcher/Dynamic SAP and individual TCB statistics extracts.</p> <p>IMS Performance Analyzer creates the data set at run time with default space allocation attributes of (CYL,(1,1),RLSE) if data set is not previously allocated.</p> <p>IMS Performance Analyzer dynamically assigns a default DDname of IRURXX where XX is the unique POOL ID for each selected report.</p> <p><b>Note:</b> For the Dispatcher/Dynamic SAP and individual TCB statistics extracts, the DDnames are IRURXXSA and IRURXXTC.</p>
	<b>Disp</b>	<p>Specifies if any CSV or JSON Line extract data set with the specified prefix is already cataloged or not.</p> <p><b>Note:</b> If the data set is not cataloged then <b>Disp</b> value is set to New regardless of <b>Disp</b> setting.</p> <p>You can specify one of the following values for the <b>Disp</b> option:</p> <ul style="list-style-type: none"> <li>• <b>OLD:</b> Overwrites the data set contents with the new extracted data from the beginning of the data set along with the headers, if any. This is the default behavior.</li> <li>• <b>MOD:</b> Appends the new extracted data to the end of the data set. If the new extracted data contains any headers, those are not appended to the data set.</li> </ul>
<b>Streaming JSON Lines options</b>	<b>Port Override</b>	<p>Enter the host's port number to override the one you specified in <b>Log Global Options</b>.</p> <p>This field applies only when you want to stream data as JSON Lines over TCP/IP.</p>

- Exit the **Extract Options** panel by using the **F3** key.
- Enter any of the following values to choose the **Extract Type** option:  
You can choose any of the following options:
  - Enter 1 to data extracts directly into the z/OS data set.
  - Enter 2 to stream the data extracts as JSON Lines over TCP/IP.
- Select the other options based on your requirements.
- Enter SUB in the **Command** field, and then press the Enter key to generate the JCL.

## Results

You have configured and generated the JCL to stream the data extracts over TCP/IP.

## What to do next

You can run the **CHECKPOINT** operand of the **IMSPALOG** batch command to request the System Checkpoint report. See [“CHECKPOINT: System Checkpoint report”](#) on page 388.

## BMP Checkpoint report

The IMS BMP Checkpoint report provides an analysis of BMP checkpoint frequency that can affect online performance and system restartability. The detailed List report provides a breakdown of individual BMP checkpoint activity. The Summary report provides an overview of each BMP program.

IMS Performance Analyzer generates the report command:

```
IMSPALOG BMPCHKP(...)
```

SAMPLOG - BMP Checkpoint

Command ==> \_\_\_\_\_

Specify report options.

Reports Required:

List

Summary

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

To

Report Options:

Report update activity only

Report Output DDname BMPCHKP

Average Checkpoint Frequency:

Minimum . 4 per Minute

Maximum . 1 per Second

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	_____	_____	_____	
Program (PSB)	_____	_____	_____	
IMS Subsystem ID	_____	_____	_____	

Figure 137. The **BMP Checkpoint** report options panel in IMS Performance Analyzer

The options are as follows:

### Reports Required:

Default: **Summary**

Enter / to select one or both of the following reports:

#### List

The List report provides a breakdown of individual BMP checkpoint activity.

This option generates the LIST operand.

#### Summary

The Summary report provides an overview of each BMP program. This is the default.

This option generates the SUMMARY operand.

### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### Report update activity only

Default: Not selected; all BMP jobs are reported.

This option reports only BMP jobs with database update activity. This option is only applicable to Summary reports. List (or Trace) reports will contain events for all BMP jobs.

### Average Checkpoint Frequency

The Average Checkpoint Frequency is used to establish a desired checkpoint rate. This rate is then compared to the actual rate in the BMP Checkpoint report to determine if BMP jobs are issuing application checkpoints too frequently, or not often enough.

#### Minimum

The Minimum per Minute rate defines the lowest rate tolerated for BMP Checkpoints. Where a reported checkpoint rate results in a value lower than the desired rate an Indicator of "Lo" is included in the report to highlight that checkpoints are not being taken at the desired rate, for example, too infrequently.

The Minimum per Minute must be in the range of 1 to 60. Default: 4 /Minute.

#### Maximum

The Maximum per Second rate defines the highest rate tolerated for BMP Checkpoints. Where a reported checkpoint rate results in a value higher than the desired rate an Indicator of "Hi" is included in the report to highlight that checkpoints are being taken at more than the desired rate, for example, too frequently.

The Maximum per Second must be in the range of 1 to 9. Default: 1 /Second.

### Report Output DDname

Default: BMPCHKP

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Log records can be included in or excluded from the report by their Transaction Code, Program (PSB) name, and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

BMPCHKP: BMP Checkpoint report

The **BMPCHKP** operand of the **IMSPALOG** batch command requests the BMP Checkpoint report.

## Log Gap Analysis report

The IMS Log Gap Analysis report shows periods of time where log records are not being cut, potentially highlighting an external system event that may have caused IMS to slow down.

IMS PA generates the report command:

```
IMSPALOG GAP(...)
```

```

Command ==> _____

Specify report options.

Report Options:
1 1. By IMSID and Sysplex          _____ Report Interval _____
2 2. By IMS Subsystem only        YYYY/MM/DD HH:MM:SS:TH
3 3. Across Sysplex only          From _____
                                   To   _____

                                   Report Output DDname GAPS_____

Processing Options:
Gap Threshold . . . 5.000000 seconds (s.thmiju)

_ Ignore IMS 6D records

Selection Criteria:
Object Type      Inc/Exc  Object +  List      Validation Warning
IMS Subsystem ID      _____  _____  _____

```

Figure 138. Log Gap Analysis Report Options

The options are as follows:

### Report Options

Default: **1. By IMSID and Sysplex**

The selection is only relevant when processing multi-subsystem log files. In a single IMS subsystem environment all report options are equivalent.

Select **1** to produce one report for each subsystem followed by a total system wide report.

Select **2** to produce only the reports for each subsystem.

Select **3** to produce only the total system wide report.

### Gap Threshold

Default: 5.000000 seconds.

Specify a threshold interval in the range 0.000001 to 9.999999 seconds. This defines the maximum elapsed time tolerated between log records. Every gap longer than the threshold is reported.

### Ignore IMS 6D records

Default: Not selected, all records are included.

Exclude IMS x'6D' records from the Gap Analysis report. If using FDBR there is an x'6D' record written every 1 second which may distort the report.

### Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

### Report Output DDname

Default: GAPS

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their IMS Subsystem ID values. This enables you to report only the systems of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

## Related reference

GAP: Gap Analysis report

The **GAP** operand of the **IMSPALOG** batch command requests the Gap Analysis report.

## Cold Start Analysis report

The IMS Cold Start Analysis report provides a snapshot of in-train activity in the event of a cold start to determine what transactions were lost from the IMS message queue, what were the incomplete units of work, what database changes were made and not backed-out, and what external subsystem activity was left in doubt.

An IMS cold start initializes the message queues, the dynamic log, and the restart data sets. The consequences of a cold start can be destructive:

1. All input and output messages on the IMS message queue are lost
2. If IMS terminated abnormally, incomplete transactions may have:
  - Full-function database changes that are not backed-out, leaving databases corrupted.
  - External subsystem activity that is left in doubt.

IMS PA generates the report command:

```
IMSPALOG COLDSTART(...)
```

```

                                     SAMPLOG - Cold Start Analysis
Command ==> _____

Specify report options.

Reports Required:                    _____ Report Interval _____
   Detail                            YYYY/MM/DD  HH:MM:SS:TH
 /  Summary                          From _____
                                     To   _____

Detail Report Options:               Report Output DDname  COLDSTAR
   Incomplete UOWs
   Input Queue Messages

Processing Options:                  YYYY/MM/DD  HH:MM:SS:TH
 2  1. Point in time . . . .  _____
    2. End of the log
```

Figure 139. Cold Start Analysis Report Options

The options are as follows:

### Reports Required

Default: **Summary**

Select with a / to request the detail or summary report or both. Report content depends on the selected report options (Incomplete UOWs, Input Queue Messages).

- The **Detail** report shows each incomplete unit of work with database update and ESAF activity, and messages enqueued but not dequeued.
- The **Summary** report provides counts by transaction code, database, and external subsystem only.

### Report Options

Default: Both selected.

Select with a / to include any of the following in the report:

- **Incomplete UOWs** (units of work) with database update or ESAF (external subsystem) activity.
- **Input Queue Messages** enqueued but not dequeued.

**Report Interval**

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

**Report Output DDname**

Default: COLDSTAR

Specify the DDname to be used for the report output.

**Processing Options**

Default: 2 **End of the Log**

Specify when the selected Cold Start Analysis report is to be produced, either:

1. At a specific point in time. Specify both date and time in the same format as the Report Interval date/time.
2. At the end of the input log.

**Related reference**

[COLDSTART: Cold Start Analysis report](#)

The **COLDSTART** operand of the **IMSPALOG** batch command requests the Cold Start Analysis report.

## Enqueue/Dequeue report

The IMS Enqueue/Dequeue report shows an activity of IMS messages that are enqueued and dequeued.

The Outstanding Messages List report provides the following details:

- Input messages queued but not processed, or processed and abended or otherwise re-queued to the IMS Message Queue
- Output messages enqueued to a destination but not dequeued or deleted from the IMS message queue

The Dequeued Messages List report provides details for each Message counted in the Destination Summary report.

The Destination Summary report provides an overview of the volume of input and output messages which are queued to each destination (SMB/CNT).

IMS Performance Analyzer generates the report command:

```
IMSPALOG ENQDEQ(...)
```

SAMPLOG - Enqueue/Dequeue

Command ==>

Specify report options.

Reports Required:

- Dequeued Message List

- Outstanding Messages List

/ Destination Summary

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

To

Summary Report Options:

/ Interval

- By IMS Subsystem

HH:MM:SS

01:00:00

Report Output DDnames:

Dequeued Msgs . . . .

Outstanding Msgs . .

Summary . . . . .

NQDQLIST

NQDQMSGL

NQDQSUMM

Processing Options:

/ Report Input destinations (SMB)

/ Report Output destinations (CNT)

- CSV Extract

Extract Data Set Prefix

Data Set Disposition

OLD

Selection Criteria:

Object Type

Inc/Exc

Object +

List

Validation Warning

IMS Subsystem ID

Transaction Code

LTERM

Figure 140. Enqueue/Dequeue report options

The options are as follows:

Reports Required

Select with a / to request any of the following reports:

Dequeued Messages List

Produce a report of all messages dequeued over the period.

Outstanding Messages List

Produce a report of all messages enqueued, but not dequeued, at the end of the period.

Destination Summary

Produce a report with message counts and rates by destination, optionally by time interval.

Summary Report Options

Select with a / to apply any of the following options to the Destination Summary report:

Interval

The time interval over which you want details summarized. Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). A time interval under an hour must fit evenly into the hour. IMS Performance Analyzer will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval records for each hour of data. A time interval over an hour must fit evenly into the day. IMS Performance Analyzer will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval records for each day of data. Minutes take precedence for an abbreviated entry. For example: 1 becomes 00:01:00, 1.1 becomes 00:01:00 (rounded down from 00:01:01), and 1.1.1 becomes 01:00:00 (rounded down from 01:01:01).

By IMS Subsystem

Produce a summary report for each IMS system.

Processing Options

Report Input destinations (SMB)

Report on messages enqueued but not dequeued to Input destinations (SMB)



**Report Output destinations (CNT)**

Report on all messages enqueued but not dequeued to Output destinations (CNT)

**CSV Extract**

Produce a CSV-formatted extract file for each of the selected reports.

**Extract Data Set Prefix**

Specify a fully qualified prefix (may be enclosed in quotes or not) for the data sets where extract records are to be written.

IMS Performance Analyzer will append the specified prefix with a low-level qualifier of XX where "XX" is either "LI" (Dequeued Messages), "OS" (Outstanding Messages), or "SU" (Destination Summary). The exception is when Destination Summary is by IMS Subsystem ID, the low-level qualifier will then be IIII.SU where "IIII" is the IMS Subsystem ID.

If not previously allocated, IMS Performance Analyzer will create the data set at runtime, with default space allocation attributes of (CYL,(1,1),RLSE).

IMS Performance Analyzer dynamically assigns a default DDname of NQDQXX where "XX" is the two character report type above.

**Data Set Disposition**

Applies if any CSV extract data set with the specified prefix is already cataloged.

**Note:** If the data set is not cataloged then DISP=NEW is used regardless of this setting.

You can specify one of the following values for the **Data Set Disposition** option:

- **OLD:** Overwrites the data set contents with the new extracted data from the beginning of the data set along with the headers, if any.
- **MOD:** Appends the new extracted data to the end of the data set. If the new extracted data contains any headers, those are not appended to the data set.

**Report Interval**

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

**Report Output DDnames**

Specify the DDnames to be used for the required reports.

**Related reference**

[ENQDEQ: Enqueue/Dequeue report](#)

The **ENQDEQ** operand of the **IMSPALOG** batch command requests the Enqueue/Dequeue report.

## Fast Path Transit reports

---

The Fast Path Transit reports contain detailed transit time and resource usage statistics for Fast Path transactions.

They are:

- Fast Path Transit Analysis
- Fast Path Transit Log
- Fast Path Transit Extract by Interval
- Fast Path Transaction Exception

## Fast Path Transit Options

The IMS PA Fast Path Transit Options define control information that applies to the Fast Path Transit Reports within the Report Set.

The Fast Path Transit Options apply to the following reports:

- Fast Path Transit Analysis
- Fast Path Transit Log
- Fast Path Transit Extract by Interval
- Fast Path Transaction Exception

SAMPLOG - Fast Path Transit Options

Command ==> \_\_\_\_\_

Specify Fast Path Transit options.

Processing Options:

Peak Transaction Time Percentage . . 90 (50-100%)

Interval Options:

Time Interval . . . . . 15 Minutes

Align Time Interval to Even Hour . . YES (Yes or No)

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	<u>INC</u>	<u>TL000001</u>	<u>/</u>	

Figure 141. Fast Path Transit Options Panel

The options are as follows:

#### Peak Transaction Time Percentage

Default: 90

Specify a percentile *nnn* between 50 and 100 to report the transit time within which *nnn*% of the transactions complete. Computations assume a normal distribution. Thus, 50 gives the median transit time for the sample.

Specify 90 or greater to determine the response time for most transactions. This is useful, for example, when monitoring a service level agreement which states that 95% of transactions must complete within *nn* milliseconds.

This percentile calculation is applicable to the Fast Path Transit Analysis report.

It does not apply to the Extract by Interval during Report Set processing. However, a percentile calculation can be applied to extracted data at a later stage of IMS PA processing via the Graphing and Export facility.

#### Time Interval

Default: 15

Specify the value *nnnn*, in minutes, of the reporting interval for Fast Path Transit reports and extracts. Data is accumulated every *nnnn* minutes from the start of the log input for the following reports:

- Fast Path Transit Analysis (by Time of Input)
- Fast Path Transit Extract by Interval

The data included in the first reported interval is that from the first record whose time stamp is on or after the specified Start/From date/time. However, the specified Stop/To date/time may fall within the last reported interval, and in order to complete the interval, data whose time stamp is after the Stop/To date/time may therefore be included.

**Note:** If **Align Time Interval to Even Hour** is selected, it is recommended that you specify a value that is a factor or a multiple of 60 to achieve consistent alignment to the hour.

#### Align Time Interval to Even Hour

Default: YES

This option applies to the following reports:

- Fast Path Transit Analysis (by Time of Input)
- Fast Path Transit Extract by Interval

Specify YES to align the reporting interval to the hour. Data is accumulated according to the specified **Time Interval** starting from the hour of the first log input record, but with printing commencing from the first time interval containing data.

*Example:* If the time of the first record is 10:37:05, the accumulation starts at 10:00:00. If the specified time interval is 30 minutes, the reported start times of the intervals are then 10.30.00, 11.00.00, 11.30.00, 12.00.00, and so on; whereas for a time interval of 25 minutes, the reported times are 10.25.00, 10.50.00, 11.15.00, 11.40.00, 12.05.00, and so on. In both cases, 10.00.00 does not appear in the report as the interval contains no data.

**Note:** To achieve alignment on every hour, specify a time interval which is exactly divisible into an hour. This is recommended if merging of input logs is required, to ensure that time intervals are aligned and the validity of results is retained.

Specify NO for no time interval alignment.

*Example:* If the time of the first record is 10:37:05, and the specified time interval is 30 minutes, the reported start times of the intervals are then 10.37.05, 11.07.05, 11.37.05, and so on; and for a time interval of 25 minutes, the reported times are 10.37.05, 11.02.05, 11.27.05, and so on.

### Selection Criteria

Default: None specified; include all.

Specify transaction codes to be included in or excluded from all Fast Path Transit reports in the Report Set. Within this primary filtering of transaction codes, a further filtering is available on the following reports:

- Fast Path Transit Analysis
- Fast Path Transit Log
- Fast Path Transit Extract by Interval

This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

Fast Path (EMH) Transit Options

These operands of the **IMSPALOG** command define general control information for the Fast Path Transit reports.

## Fast Path Transit Analysis report

The IMS Fast Path Transit Analysis report shows the times for the components of transaction transit time: Input queue time, Processing Time, Output queue time, and Global input and output queue times. The transaction code and routing code reports show areas in application design and region availability that may require attention. The userid report shows whether the distribution of service among system users is adequate. The time of sync point report notes performance problems caused by momentary surges of transaction input. The display of transit time by time period is useful in isolating time periods of high response.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPANALYSIS(...)
```

SAMPLOG - Fast Path Transit Analysis

Command ==>

Specify report options.

Reports Required:

/ Transaction Code

- Routing Code

- User ID

- Time (Interval: 15 Minutes)

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

To

Report Output DDname FPTTRPT

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code			-	
Routing Code			-	
User ID			-	

Figure 142. The **Fast Path Transit Analysis** report options panel in IMS Performance Analyzer

The options are:

### Reports Required

#### Transaction Code

The transaction code and routing code reports show areas in application design and region availability that may require attention.

#### Routing Code

The transaction code and routing code reports show areas in application design and region availability that may require attention.

#### User ID

The userid report shows whether the distribution of service among system users is adequate.

#### Time (Interval: *nnn* Minutes)

The time of sync point report notes performance problems caused by momentary surges of transaction input.

Default: Single report ordered by Transaction Code.

Select with a / to produce up to four reports ordered by Transaction Code, Routing Code, User ID, or Time.

For reporting by Time, the interval of reporting is specified in minutes by the **Time Interval** option, and interval alignment is specified by the **Align Time Interval to Even Hour** option on the **Fast Path Transit Options** panel.

### Report Interval

Default: Not specified.

Specify the reporting interval. Within the context of the Global Report Interval, records with time stamps on or after the **From** Date/Time and before the **To** Date/Time are included in the report.

You can specify one of the following:

#### Date/time pairs or dates only

This indicates a *date-time range* (for example, 2023/06/25 7:00 to 2023/06/25 16:30). The **From** Date/Time must be before the **To** Date/Time.

#### Times only

This indicates a particular *time slot* (for example, 9:00 to 10:00 each day). Specifying the **From** Time greater than the **To** Time indicates a time slot across midnight.

#### Neither date/time pair

All input records are selected.

Rules governing the date and time are the same as those for the Global Report Interval (see [“Log Global Options”](#) on page 216).

### Report Output DDname

Default: FPTTRPT

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified. However, Transaction Code Selection Criteria specified on the **Fast Path Transit Options** panel is applied at run time.

Fast Path log records can be included in or excluded from the report based on their Transaction Code, Routing Code, and User ID values. For Transaction Codes, this panel provides a secondary filter within the primary filter specified on the Fast Path Transit Options panel. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists.

### Related reference

FPANALYSIS: Fast Path Transit Analysis report

The **FPANALYSIS** operand of the **IMSPALOG** batch command requests the Fast Path Transit Analysis report.

## Fast Path Transit Log report

The Fast Path Transit Log report is a chronological listing of all IFP transactions processed during the reporting interval. This report can help you diagnose problem areas and to isolate and diagnose problem transactions. It shows transit activity and DL/I call details of each IFP transaction. For multi-subsystem log input, IMS Performance Analyzer assumes global (shared EMHQ) processing, and produces a composite report by merging log data from all subsystems in the sysplex.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPLLOG(...)
```

SAMPLOG - Fast Path Transit Log

Command ==> \_\_\_\_\_

Specify report options.

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Report Output DDname FPTTLOG

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	___	_____	-	

Figure 143. The **Fast Path Transit Log** report options panel in IMS Performance Analyzer

The options are as follows:

### Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### Report Output DDname

Default: FPTTLOG

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified. However, Transaction Code Selection Criteria specified on the **Fast Path Transit Options** panel is applied at run time.

Records can be included in or excluded from the report based on their Transaction Code. This panel provides a secondary filter within the primary filter specified on the **Fast Path Transit Options** panel. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

FPLOG: Fast Path Transit Log report

The **FPLOG** operand of the **IMSPALOG** batch command requests the Fast Path Transit Log report.

## Fast Path Transit Extract by Interval

The IMS Fast Path Transit Extract by Interval report allows creation of extract files of Fast Path transit data by time interval. You can use the CSV extracts produced by IMS Performance Analyzer for further analysis in third-party tools.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPEXTRACT(...)
```

This panel provides a second level of control for extract processing. Values specified on the **Log Global Options** and **Fast Path Transit Options** panels provide a primary level of control.

**Note:** If merging extracted data files, check that the specified values for the filters (Transaction Code Selection Criteria) and the interval options (Time Interval, Align Time Interval to Even Hour) are consistent for all the extracts to ensure that the results of the merge are meaningful.

SAMPLOG - Fast Path Transit Extract By Interval

Command ==>>> \_\_\_\_\_

Specify extract options.

Extract Data Required:

☒ By Transaction Within Interval

☒ By Interval

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Report Output DDname FPTTERPT

Extract Data Sets:

Input \_\_\_\_\_

Output \_\_\_\_\_

Selection Criteria:

Object Type

Transaction Code

Inc/Exc

\_\_\_\_\_

Object +

\_\_\_\_\_

List

-

Validation Warning

Note: The extract time interval, set in Fast Path (EMH) Transit Options,

is 15 minutes and is aligned to even hours.

Figure 144. The **Fast Path Transit Extract by Interval** report options panel in IMS Performance Analyzer

The options are as follows:

### Extract Data Required

Options:

- **By Transaction Within Interval**

- **By Interval**

Default: Both selected.

Select with a / to produce the required extract.

Ensure that you select as a minimum criteria, the data you may wish to graph or export. For example:

- To graph or export *by interval*, you must first extract *by interval*.
- To graph or export *by transaction*, you must first extract *by transaction within interval*.

If no selection is made, no extract is produced. For more information on graphing, see [Chapter 3, “Extracts and CSV files in IMS Performance Analyzer,”](#) on page 47.

Select **By Transaction Within Interval** to accumulate data for individual transaction codes within each time interval.

*For example*, if during a particular time interval there are, on the input log file, 3 records for transaction A, 2 records for transaction B, and no records for transaction C, the extract processing writes 2 records to the extract file, 1 with the aggregate data for transaction A, and 1 with the aggregate data for transaction B.

Select **By Interval** to accumulate data for all transactions in each time interval.

*For example*, in the previous scenario, for the particular interval only 1 record is written to the extract file with the aggregate data for both transactions A and B.

Select both to obtain by time interval, the aggregate data for the individual transaction codes and their totals.

### **Report Interval**

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### **Report Output DDname**

Default: FPTTERPT

Specify the DDname to be used for the report output.

### **Extract Data Sets: Input and Output**

Defaults: None.

Extract processing uses the input data set, if it is specified, for reading previously extracted data, merging it with the data extracted from the current log, and writing it to the output data set. The extracted data is stored in a format suitable for further IMS PA processing, and is not directly readable by external programs.

The input data set is optional, but if specified, it must exist.

The output data set must be specified. If it does not exist, IMS PA will create the data set at the time the extract is run using the allocation details specified for the **Transit Extract by Interval Data Set** in **Reporting Allocation Settings** from the action bar **Options** menu. If the output data set exists, the JCL will be built with DISP=MOD and the new extract data will be appended to the end. To overwrite the contents, edit the JCL and specify DISP=OLD.

The same data set may be specified for input and output, although this is not recommended. You may specify the input and output data sets as generations (0) and (+1) respectively of the same Generation Data Group (GDG) and thereby avoid the need to update the specification between runs.

### **Selection Criteria**

Default: None specified. However, the Transaction Code Selection Criteria specified on the **Fast Path (EMH) Transit Options** panel are applied at run time.

Fast Path log records can be included in or excluded from the extract based on their Transaction Code. This panel provides a secondary filter within the primary filter specified on the Fast Path (EMH) Transit Options panel. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

Ensure that your selection contains the transaction codes you may wish to export or graph. See Chapter 3, [“Extracts and CSV files in IMS Performance Analyzer,” on page 47.](#)

#### Related reference

[FPEXTRACT: Fast Path Transit Extract by Interval](#)

The **FPEXTRACT** operand of the **IMSPALOG** batch command requests the Fast Path Transit Extract by Interval.

## Fast Path Transaction Exception report and extract

The Fast Path Transaction Exception reports provide detailed and summary information about IFP transactions, as well as message queue transactions that use Fast Path databases. The series of reports provide detailed and summary information about IFP transactions, as well as message queue transactions that use Fast Path databases. Optionally, two extract files can be produced containing detail records of all IFP transaction activity, or exception transactions only.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPTRNEX(...)
```

SAMPLOG - Fast Path Transaction Exception

Command ==> \_\_\_\_\_

Specify report options.

<p>Reports Required:</p> <p>/ Exception Detail Log</p> <p style="padding-left: 20px;">_ DEDB Calls</p> <p style="padding-left: 20px;">_ Buffer Usage</p> <p style="padding-left: 20px;">_ VSO</p> <p style="padding-left: 20px;">_ Shared EMHQ</p> <p>/ Summary by Transaction</p> <p>/ Sync Failure Summary</p>	<p style="text-align: center;">_____ Report Interval _____</p> <p style="text-align: center;">YYYY/MM/DD HH:MM:SS:TH</p> <p>From _____</p> <p>To _____</p> <p>Report Output DDname <u>FPTTXLOG</u></p>
--	--

Report Options:

\_ Include Non-IFP Transactions

Transaction Limits: \_\_\_\_\_ Validation Warning

Expectation Set \_\_\_\_\_ +

Extract Data Sets:

Total Traffic \_\_\_\_\_

Exception Traffic \_\_\_\_\_

*Figure 145. The **Fast Path Transaction Exception** report and extract options panel in IMS Performance Analyzer*

The options are as follows:

#### Reports Required

Select with a / to produce the required reports.

##### Exception Detail Log

Produce the Fast Path Transaction Exception Log report. The following options can be selected to produce additional detail in the following areas:

- **DEDB Calls**
- **Buffer Usage**



- **VSO**
- **Shared EMHQ**

### **Summary by Transaction**

Produce the Fast Path Transaction Exception Summary report.

### **Sync Failure Summary**

Produce the Fast Path Transaction Synchronization Failure Summary report.

Default: All three reports selected, but additional detail lines (**DEDB Calls, Buffer Usage, VSO, Shared EMHQ**) not selected.

The Fast Path Transaction Exception Recap report is always produced at the end to give a summary of the processing of the selected reports.

### **Report Interval**

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

### **Report Output DDname**

Default: FPTTXLOG

Specify the DDname to be used for the report output.

### **Include Non-IFP Transactions**

Default: Not selected; do not include non-IFP transactions.

Select with a / to report all non-IFP transactions as exceptions.

Non-IFP transactions are message queue transactions that use Fast Path databases.

### **Expectation Set**

Default: None.

Specify the name of an Expectation Set which contains user-supplied expected values for any of the following transaction attributes:

- Input queue time
- Processing time
- Output queue time
- Total transit time
- FP DB DL/I calls
- DEDB waits

You can enter the name directly, or to choose an Expectation Set from a list, position the cursor in the field and press **Prompt (F4)**.

[“Specifying Expectations” on page 628](#) describes how to specify expected values in an Expectation Set.

The report will show a transaction as an exception if it is outside the range for any of the values defined in the Expectation Set. If the Expectation Set is not specified, then the report shows all transactions as exceptions.

### **Extract Data Sets**

Options:

- **Total Traffic**
- **Exception Traffic**

Defaults: None.

Specify the names of either or both of the following optional extract data sets:

- The Total Traffic data set. All Fast Path transactions have a detail record written to this data set. It is equivalent to the DBFULTA0 Total Traffic data set.
- The Exception Traffic data set. Only Fast Path exception transactions have an exception record written to this data set. It is equivalent to the DBFULTA0 Exception Traffic data set.

If the data set does not exist, IMS PA will create it at the time the report and extract are run using the allocation details specified in **Reporting Allocation Settings** from the action bar **Options** menu.

If the data set exists, new extract data will be appended to the end (DISP=MOD). To overwrite the contents of the extract data set, edit the JCL and specify DISP=OLD.

You may specify the extract data set as a generation (say +1) of a generation data group (GDG) and thereby avoid the need to update the specification between runs.

#### Related reference

**FPTRNEX**: Fast Path Transaction Exception report and extract

The **FPTRNEX** operand of the **IMSPALOG** batch command requests the Fast Path Transaction Exception reports.

## Fast Path Resource Usage reports

---

The options for each Fast Path Resource Usage report are described here.

The IMS PA Fast Path Resource Usage Reports are:

- Fast Path Resource Usage and Contention
- Fast Path Database Call Statistics
- IFP Region Occupancy
- EMH Message Statistics
- DEDB Update Activity
- DEDB Update Trace
- VSO Statistics

### Fast Path Resource Usage and Contention report

The IMS Fast Path Resource Usage and Contention report provides detailed statistics on the Fast Path resources used by IFP transactions and non-IFP programs. Use this report to view information on DEDB databases, area data sets, VSO, common buffers, locks, logging, sync point failures, and transaction throughput. Use this IMS Performance Analyzer report to gauge the performance of transactions that use DEDB databases. This report identifies transactions that issue excessive DL/I calls that cause area data set I/O, use excessive resources (including buffers and VSO), cause excessive contention, cause excessive logging, or fail during sync point processing.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPIRUC(...)
```

SAMPLLOG - Resource Usage & Contention

Command ==>

Specify report options.

Report Options:

1

1. By IMSID and Sysplex

2. By IMS Subsystem only

3. Across Sysplex only

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

To

Reports Required:

/

Resource Usage & Contention

-

Buffer Usage

Report Output DDnames:

Resource . . . . .

Buffer . . . . .

Processing Options:

Peak NBA/OBA Buffer Percentage . . . 90 (50-100%)

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code					
IMS Subsystem ID					

Figure 146. The **Fast Path Resource Usage and Contention** report options panel in IMS Performance Analyzer

The options are as follows:

Report Options

Default: **1. By IMSID and Sysplex**

The selection is only relevant when processing multi-subsystem log files. In a single IMS subsystem environment all report options are equivalent.

Select **1** to produce one report for each subsystem followed by a total system wide report.

Select **2** to produce only the reports for each subsystem.

Select **3** to produce only the total system wide report.

Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

Reports Required

Default: **Resource Usage & Contention** report.

Select with a / one or both of the reports:

- The **Resource Usage & Contention** report provides wide-ranging information about transaction Fast Path Resource Usage including DEDB calls, ADS I/O, VSO activity, Fast Path Buffer usage, Contention, Logging, Sync Failure and Transaction rate.
- The **Buffer Usage** report provides a more detailed analysis of Fast Path Buffer usage.

Report Output DDnames

Specify the DDnames to be used for the report output for:

- FP Resource Usage & Contention report. Default: FPRUCRPT
- FP Buffer Usage report. Default: FPBUFRPT

Peak NBA/OBA Buffer Percentage

Default: 90

Specify a peak percentage *nnn* between 50 and 100.

The FP Buffer Usage report provides a statistical estimate of the peak percentile for transaction NBA and OBA Buffer usage. For example, specify 95 to report the peak NBA and OBA buffer usage for 95% of transactions.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their Transaction Code and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

[FPIRUC: Fast Path Resource Usage and Contention report](#)

The **FPIRUC** operand of the **IMSPALOG** batch command requests the Fast Path Resource Usage and Contention report or the Fast Path Buffer Usage report or both.

## Fast Path Database Call Statistics report

The IMS Fast Path Database Call Statistics report provides a breakdown of DL/I call function codes by transaction code, identifying transaction that issue excessive DL/I calls. After identifying transactions with poor response time (using the IMS Performance Analyzer Fast Path Transit Analysis report), or transactions using excessive resources (using the Fast Path Resource Usage and Contention report), use the Fast Path Database Call Statistics report to identify the DL/I call function codes most frequently used by the transactions. If your database is a HALDB, you can also report on specific HALDB partitions because the name of the partition is found on the database name field of the various records used in this report.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPDBCALL(...)
```

SAMPLOG - Database Call Statistics

Command ==> \_\_\_\_\_

Specify report options.

<p>Report Options:</p> <p><u>1</u> 1. By IMSID and Sysplex</p> <p>2. By IMS Subsystem only</p> <p>3. Across Sysplex only</p>	<p>_____ Report Interval _____</p> <p>YYYY/MM/DD HH:MM:SS:TH</p> <p>From _____</p> <p>To _____</p> <p>Report Output DDname <u>FPBCRPT</u></p>
--	---

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	___	_____	-	
IMS Subsystem ID	___	_____	-	

Figure 147. The Fast Path **Database Call Statistics** report options panel in IMS Performance Analyzer

The options are as follows:

### Report Options

Default: **1. By IMSID and Sysplex**

The selection is only relevant when processing multi-subsystem log files. In a single IMS subsystem environment all report options are equivalent.

Select **1** to produce one report for each subsystem followed by a total system wide report.

Select **2** to produce only the reports for each subsystem.

Select **3** to produce only the total system wide report.

### Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### Report Output DDname

Default: FPDBCRPT

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their Transaction Code and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists.

### Related reference

[FPDBCALL: Fast Path Database Call Statistics report](#)

The **FPDBCALL** operand of the **IMSPALOG** batch command requests the Fast Path Database Call Statistics report.

## IFP Region Occupancy report

The IFP Region Occupancy report provides approximate region occupancy rates for IFP regions. You can use this IMS Performance Analyzer report to determine if an appropriate number of IFP regions is available for processing the workload.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPRGNO(...)
```

SAMPLOG - IFP Region Occupancy

Command ==> \_\_\_\_\_

Specify report options.

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Report Output DDname FPRGORPT

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Region ID by PST	___	_____	-	
Program (PSB)	___	_____	-	
IMS Subsystem ID	___	_____	-	

Figure 148. The **IFP Region Occupancy** report options panel in IMS Performance Analyzer

The options are as follows:

### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### Report Output DDname

Default: FPRGORPT

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their Region ID by PST number, Program (PSB) name, and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern (but not for Region ID by PST number), or an Object List. To define an Object List, see [“Object Lists” on page 635](#).

### Related reference

[FPRGNO: IFP Region Occupancy report](#)

The **FPRGNO** operand of the **IMSPALOG** batch command requests the IFP Region Occupancy report.

## EMH Message Statistics report

The EMH Message Statistics report contains information on the number and length of EMH messages that are processed by balancing groups and shared EMH queues. This IMS Performance Analyzer report can be used to gauge the size and frequency of transaction messages processed by IFP regions and the ratio of transactions processed locally versus those processed globally.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPEMHQ(...)
```

SAMPLOG - EMH Message Statistics

Command ==> \_\_\_\_\_

Specify report options.

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Report Output DDname FPMGRPT

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code	_____	_____	-		

Figure 149. The **EMH Message Statistics** report options panel

The options are as follows:

### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

### Report Output DDname

Default: FPMGRPT

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their Transaction Code. Unlike the other Fast Path Resource Usage reports, there is no support for IMS Subsystem ID filtering as the

report is sysplex wide to give details on local and global transaction message lengths. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See “Object Lists” on page 635 for information on how to define Object Lists.

#### Related reference

FPEMHQ: EMH Message Statistics report

The **FPEMHQ** operand of the **IMSPALOG** batch command requests the EMH Message Statistics report.

## DEDB Update Activity report

The IMS DEDB Update Activity report can help you determine the cost of data entry database (DEDB) calls, and shows the rate of processing against your DEDB databases. This IMS Performance Analyzer report can be used to determine the most highly used DEDB databases (and their areas), allowing you to prioritize their tuning, reorganization, and other database administration tasks, and to view DEDB database update activity when diagnosing application performance problems. The report shows the number of sequential dependent (SDEP) and direct dependent (DDEP) segments updated, the segment update rate, the number of database opens, and the number of database errors.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPDBUPD(...)
```

SAMPLOG - DEDB Update Activity

Command ==> \_\_\_\_\_

Specify report options.

Report Options:

1 1. By IMSID and Sysplex

2. By IMS Subsystem only

3. Across Sysplex only

\_\_\_\_\_ Report Interval \_\_\_\_\_

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Report Output DDname FPDBURPT

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Database	___	_____	-	
DEDB Area	___	_____	-	
IMS Subsystem ID	___	_____	-	

Figure 150. The **DEDB Update Activity** report options panel

The options are as follows:

#### Report Options

Default: **1. By IMSID and Sysplex**

The selection is only relevant when processing multi-subsystem log files. In a single IMS subsystem environment all report options are equivalent.

Select **1** to produce one report for each subsystem followed by a total system wide report.

Select **2** to produce only the reports for each subsystem.

Select **3** to produce only the total system wide report.

#### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see page “Transaction Transit Analysis report” on page 244).

#### Report Output DDname

Default: FPDBURPT

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their DEDB Database, DEDB Area, and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

FPDBUPD: DEDB Update Activity report

The **FPDBUPD** operand of the **IMSPALOG** batch command requests the DEDB Update Activity report.

## VSO Statistics report

The IMS VSO Statistics report provides detailed statistics on VSO resource usage. This IMS Performance Analyzer report can be used to determine how well VSO is performing by comparing Data Space I/O with Area data set I/O, for SHARELVL 0/1, comparing Coupling Facility I/O with Area data set I/O, for SHARELVL 2/3, by checking the Lookaside hit rate, for SHARELVL 2/3, and by ensuring that Castout frequency and elapsed times are within expectations. The VSO resources include data spaces for SHARELVL 0/1, coupling Facility for SHARELVL 2/3, lookaside Buffers for SHARELVL 2/3, and DEDB Area data set I/O.

**Note:** This report will only be produced if there were VSO writes to disk in the log reporting period.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPVSO(...)
```

SAMPLOG - VSO Statistics

Command ==> \_\_\_\_\_

Specify report options.

Report Options:

1

1. By IMSID and Sysplex

2

2. By IMS Subsystem only

3

3. Across Sysplex only

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Report Output DDname FPVSORPT

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Database	_____	_____	_____		
DEDB Area	_____	_____	_____		
IMS Subsystem ID	_____	_____	_____		

Figure 151. The **VSO Statistics** report options panel in IMS Performance Analyzer

The options are as follows:

### Report Options

Default: **1. By IMSID and Sysplex**

The selection is only relevant when processing multi-subsystem log files. In a single IMS subsystem environment all report options are equivalent.

Select **1** to produce one report for each subsystem followed by a total system wide report.

Select **2** to produce only the reports for each subsystem.

Select **3** to produce only the total system wide report representing the aggregate of all the included subsystems in the sysplex.



### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

### Report Output DDname

Default: FPVSORPT

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the report based on their DEDB Database, DEDB Area, and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

FPVSO: VSO Statistics report

The **FPVSO** operand of the **IMSPALOG** batch command requests the VSO Statistics report.

## ATF Summary reports

The IBM OMEGAMON for IMS on z/OS Application Trace Facility (ATF) can be used to write summary records to the IMS log. You can use IMS Performance Analyzer to run reports on IMS logs containing this record.

IMS Performance Analyzer can produce the following outputs that use the OMEGAMON for IMS ATF summary record:

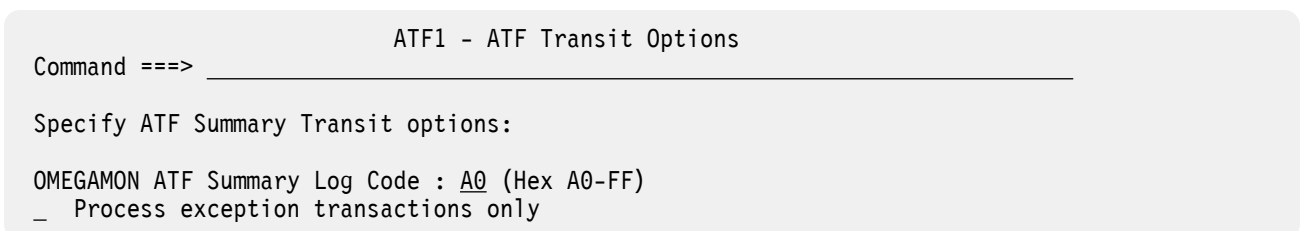
- Extract
- Transaction Analysis
- DLI Call Analysis
- Db2 Call Analysis
- MQ Call Analysis

## ATF Summary Transit Options

The IMS Performance Analyzer ATF Summary Transit Options define control information that applies to the ATF Summary reports within the report set.

The ATF Summary Transit Options apply to the following reports:

- ATF Summary Extract
- ATF Summary Transaction Analysis
- ATF Summary DLI Call Analysis
- ATF Summary Db2 Call Analysis
- ATF Summary MQ Call Analysis



```
ATF1 - ATF Transit Options
Command ==> _____
Specify ATF Summary Transit options:
OMEGAMON ATF Summary Log Code : A0 (Hex A0-FF)
_ Process exception transactions only
```

Figure 152. IMS Performance Analyzer: **ATF Transit Options** panel

You can configure the reports and extracts that depend on these settings using the following options:

### **OMEGAMON ATF Summary Log Code**

Default: A0

The log record code prefix of the OMEGAMON for IMS Application Trace Facility (ATF) summary records written to the IMS log. This code is a hexadecimal value A0-FF that uniquely identifies OMEGAMON for IMS ATF summary records in IMS log files.

### **Process exception transactions only**

Default: Not selected. There is no filtering on exception records.

Select this option to process only transactions marked by ATF as matching defined exception criteria.

**Note:** APAR OA54667 for IBM OMEGAMON for IMS introduced flags to indicate transactions that matched ATF exception criteria and which were written to the exception trace streams. If this option is selected and the ATF input is from a version earlier than APAR OA54667, no records are selected.

### **Related reference**

ATF Summary Transit Options

These operands of the **IMSPALOG** command define general control information for the ATF Summary reports.

## **ATF Summary Extract**

The OMEGAMON for IMS ATF Summary Extract creates comma separated values (CSV) file extracts of the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. The CSV extract created by IMS Performance Analyzer contains a HEADER section and optional repeating sections for DATABASE, DLI DB, DLI TM, Db2, MQ, and OTHER.

**Tip:** The IMS Performance Analyzer sample library contains samples to load the resulting extract data into Db2. For more information, see [Chapter 31, “IMS Performance Analyzer sample library,”](#) on page 653.

IMS Performance Analyzer generates the report command:

```
IMSPALOG ATFEXTR(  
    DELIMIT(' ', ' '))
```

Values specified on the **Log Global Options** and the **ATF Summary Transit Options** panels provide a primary level of control. Values supplied on the **ATF Extract** panel provides a second level of control for extract processing.

ATF1 - ATF Extract

Command ==> \_\_\_\_\_

Specify report options.

Processing Options (Transit options):

Report Interval

YYYY/MM/DD HH:MM:SS:TH

OMEGAMON ATF Summary Log Code : A0

From

To

Process exceptions only . . . :

Extract Data Sets:

Opt	Section	Extract Data Set Name	Disp
1. /	HEADER	'JXW.IMSPA.AA1.CSV'	OLD
2. _	DATABASE		
3. _	DLI DB		
4. _	DLI TM		
5. _	DB2		
6. _	MQ		
7. _	OTHER		

Extract Options:

Include Field Labels

Delimiter . . . (blank is valid)

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code					
Program					
Database					
User ID					
IMS Subsystem ID					

Figure 153. IMS Performance Analyzer: **ATF Extract** panel

You can configure the extract using the following options:

### OMEGAMON ATF Summary Log Code

The log record code prefix of the OMEGAMON for IMS Application Trace Facility (ATF) summary records written to the IMS log. To change this value, see [“ATF Summary Transit Options”](#) on page 307.

### Process exceptions only

An indicator of whether IMS Performance Analyzer will process only transactions marked by ATF as matching defined exception criteria. To change this value, see [“ATF Summary Transit Options”](#) on page 307.

### Report Interval

The time period for which you will extract records. For a record to be included in the output, it must be within not only this Report Interval, but also the Report Interval specified in the Log Global options of the report set.

### Extract Data Sets

Select with a / to produce the required extract. For each option, you must also enter an output extract data set name and disposition. For disposition, specify either OLD or SHR to overwrite the data set contents with the new extract data, or specify MOD to append the new extract data.

If no selection is made, only the HEADER extract is produced.

Table 1. Sections in the OMEGAMON for IMS ATF summary record	
Section	Details reported
<b>HEADER</b>	<p>The start of the log record, which includes the log code, subsystem, and time stamp. It also includes:</p> <ul style="list-style-type: none"> <li>details about the transaction: who ran it and when, and tokens to identify the unit-of-work</li> <li>overall response time and resource usage performance measurements</li> <li>information about what other sections to expect in the remainder of the record</li> </ul>
<b>DATABASE</b>	Information about databases referenced by the transaction

Table 1. Sections in the OMEGAMON for IMS ATF summary record (continued)	
Section	Details reported
<b>DLI DB</b>	DLI DB call types, counts, elapsed times, and CPU times
<b>DLI TM</b>	DLI TM call types, counts, elapsed times, and CPU times
<b>DB2</b>	Db2 call types, counts, elapsed times, and CPU times
<b>MQ</b>	MQ call types, counts, elapsed times, and CPU times
<b>OTHER</b>	Other counts, elapsed times, and CPU times

### Include Field Labels

Default: No field labels.

Select this option to include field labels as the first record written to the extract data set to identify the columns.

**Note:** If you intend to import the data into a database, be aware that many databases do not recognize the first row as a header row, and would consequently treat the field labels as raw data.

### Delimiter

Default: ,

The character that is used to separate field values in the extract.

### Selection Criteria

Default: None specified; include all.

Records can be included in or excluded from the extract based on their Transaction Code, Program (PSB), Database, User ID, and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

ATFEXTR: ATF Summary Extract

The **ATFEXTR** operand of the **IMSPALOG** batch command requests the ATF Summary Extract.

## ATF Summary Transaction Analysis report

The OMEGAMON for IMS ATF Summary Transaction Analysis report shows performance by transaction or by database using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. The report created by IMS Performance Analyzer is available in both List and Summary format.

IMS Performance Analyzer generates the report command:

```
IMSPALOG ATFANALYSIS(...)
```

ATF2 - ATF Transaction Analysis

Command ==>

Specify report options.

Processing Options (Transit options):

OMEGAMON ATF Summary Log Code : A0

Process exceptions only . . . :

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

To

Reports Required:

/ List

/ Summary

- Database

Report Output DDnames:

List . . . . ATFTRNLS

Summary . . ATFTRNSM

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code			-		
Program			-		
Database			-		
User ID			-		
IMS Subsystem ID			-		

Figure 154. The OMEGAMON for IMS **ATF Transaction Analysis** report options panel in IMS Performance Analyzer

You can configure the report using the following options:

**OMEGAMON ATF Summary Log Code**

The log record code prefix of the OMEGAMON for IMS Application Trace Facility (ATF) summary records written to the IMS log. To change this value, see [“ATF Summary Transit Options”](#) on page 307.

**Process exceptions only**

An indicator of whether IMS Performance Analyzer will process only transactions marked by ATF as matching defined exception criteria. To change this value, see [“ATF Summary Transit Options”](#) on page 307.

**Report Interval**

The time period for which you will include records. For a record to be included in the output, it must be within not only this Report Interval, but also the Report Interval specified in the Log Global options of the report set.

**Reports Required**

**List**

- When **Database** is not selected, transactions are listed with elapsed time and CPU time.
- When **Database** is selected, transactions are listed by database, with DLI Gets and Updates separated into call counts, elapsed time, and CPU time.

**Summary**

- When **Database** is not selected, transactions are summarized by program, with elapsed time and CPU time separated into different categories.
- When **Database** is selected, database usage is summarized showing call counts, elapsed time, and CPU time for DLI Reads and separately for DLI Updates.

**Database**

Changes the type of List or Summary report so that it shows performance by database. If the **Database** option is selected without either List or Summary, no report is produced.

**Report Output DDnames**

Defaults: ATFTRNLS for List, and ATFTRNSM for Summary.

Specify the ddnames to be used for the report output for the List and Summary reports.

**Selection Criteria**

Default: None specified; include all.



## Reports Required

### List

Within each transaction, DLI activity is reported by database and call type. Whether Database is selected has no effect.

### Summary

- When **Database** is not selected, DLI activity is summarized by transaction, with DLI call counts, average elapsed time and CPU time.
- When **Database** is selected, DLI activity is summarized by database, with DLI call counts, average elapsed time and CPU time.

### Database

Changes the type of Summary report so that it shows DLI activity by database. If the **Database** option is selected without either List or Summary, no report is produced.

### Report Output DDnames

Defaults: ATFDLILS for List, and ATFDLISM for Summary.

Specify the ddnames to be used for the report output for the List and Summary reports.

### Selection Criteria

Default: None specified; include all.

Records can be included in, or excluded from, the extract based on their Transaction Code, Program (PSB), Database, User ID, and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

[ATFDLICALL: ATF Summary DLI Call Analysis report](#)

The **ATFDLICALL** operand of the **IMSPALOG** batch command requests the ATF Summary DLI Call Analysis report.

## ATF Summary Db2 Call Analysis report

The OMEGAMON for IMS ATF Summary Db2 Call Analysis report is useful for showing Db2 SQL call activity within transactions using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. With IMS Performance Analyzer, you can produce a list report that breaks down Db2 activity within each transaction by call type, or a summary report.

IMS Performance Analyzer generates the report command:

```
IMSPALOG ATFDDB2CALL(...)
```

```

ATF2 - ATF Db2 Call Analysis

Command ==> _____

Specify report options.

Processing Options (Transit options):  _____ Report Interval _____
OMEGAMON ATF Summary Log Code : A0      YYYY/MM/DD HH:MM:SS:TH
Process exceptions only . . . :          From _____
                                      To   _____

Reports Required:                      Report Output DDnames:
/ List                                List . . . . ATFDB2LS
_ Summary                             Summary . . ATFDB2SM

Selection Criteria:
  Object Type      Inc/Exc  Object +  List    Validation Warning
Transaction Code   _____ -
Program            _____ -
User ID            _____ -
IMS Subsystem ID   _____ -

```

Figure 156. The OMEGAMON for IMS **ATF Summary Db2 Call Analysis** report options panel in IMS Performance Analyzer

You can configure the report using the following options:

### OMEGAMON ATF Summary Log Code

The log record code prefix of the OMEGAMON for IMS Application Trace Facility (ATF) summary records written to the IMS log. To change this value, see [“ATF Summary Transit Options”](#) on page 307.

### Process exceptions only

An indicator of whether IMS Performance Analyzer will process only transactions marked by ATF as matching defined exception criteria. To change this value, see [“ATF Summary Transit Options”](#) on page 307.

### Report Interval

The time period for which you will include records. For a record to be included in the output, it must be within not only this Report Interval, but also the Report Interval specified in the Log Global options of the report set.

### Reports Required

#### List

The List report shows Db2 activity within transaction by SQL call type, including call count, elapsed time and CPU time.

#### Summary

The Summary report shows Db2 activity summarized by transaction and SQL call type, including call count, elapsed time, and CPU time.

### Report Output DDnames

Defaults: ATFDB2LS for List, and ATFDB2SM for Summary.

Specify the ddnames to be used for the report output for the List and Summary reports.

### Selection Criteria

Default: None specified; include all.

Records can be included in, or excluded from, the extract based on their Transaction Code, Program (PSB), User ID, and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists.

### Related reference

[ATFDB2CALL: ATF Summary Db2 Call Analysis report](#)



The **ATFDB2CALL** operand of the **IMSPALOG** batch command requests the ATF Summary Db2 Call Analysis report.

## ATF Summary MQ Call Analysis report

The OMEGAMON for IMS ATF Summary MQ Call Analysis report is useful for showing MQ activity within transactions using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. With IMS Performance Analyzer, you can produce a list report that breaks down MQ activity within each transaction by call type, or a summary report.

IMS Performance Analyzer generates the report command:

```
IMSPALOG ATFMQCALL(...)
```

```

ATF2 - ATF MQ Call Analysis

Command ==> _____

Specify report options.

Processing Options (Transit options):  _____ Report Interval _____
OMEGAMON ATF Summary Log Code : A0      YYYY/MM/DD  HH:MM:SS:TH
Process exceptions only . . . :          From _____
                                      To       _____

Reports Required:                        Report Output DDnames:
/_ List                                List . . . . ATFMQLS
_ Summary                             Summary . . ATFMQSM

Selection Criteria:
  Object Type      Inc/Exc  Object +  List      Validation Warning
Transaction Code   _____  -
Program           _____  -
User ID           _____  -
IMS Subsystem ID  _____  -

```

Figure 157. The OMEGAMON for IMS **ATF MQ Call Analysis** report options panel in IMS Performance Analyzer

You can configure the report using the following options:

## OMEGAMON ATF Summary Log Code

The log record code prefix of the OMEGAMON for IMS Application Trace Facility (ATF) summary records written to the IMS log. To change this value, see “ATF Summary Transit Options” on page 307.

### Process exceptions only

An indicator of whether IMS Performance Analyzer will process only transactions marked by ATF as matching defined exception criteria. To change this value, see [“ATF Summary Transit Options”](#) on page 307.

## Report Interval

The time period for which you will include records. For a record to be included in the output, it must be within not only this Report Interval, but also the Report Interval specified in the Log Global options of the report set.

## Reports Required

## List

The List report shows MQ activity within transaction by call type, showing elapsed time and CPU time.

## Summary

The Summary report shows MQ activity summarized by transaction and call type, including call count, and average elapsed time and CPU time.

## Report Output DDnames

Defaults: ATFMQLS for List, and ATFMQSM for Summary.

Specify the ddnames to be used for the report output for the List and Summary reports.

### Selection Criteria

Default: None specified; include all.

Records can be included in, or excluded from, the extract based on their Transaction Code, Program (PSB), User ID, and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

[ATFMQCALL: ATF Summary MQ Call Analysis report](#)

The **ATFMQCALL** operand of the **IMSPALOG** batch command requests the ATF Summary MQ Call Analysis report.

## Trace reports

---

The options for each IMS Performance Analyzer log trace report are described here.

IMS Performance Analyzer can produce the following trace reports:

- DC Queue Manager Trace
- Database Trace (Full Function)
- DEDB Update Trace
- ESAF Trace

**Remember:** Input logs provided to IMS Performance Analyzer may contain sensitive information. Be sure to secure any reports that you generate as you would the input log data itself.

### DC Queue Manager Trace report

The IMS DC Queue Manager Trace report shows a time-sequenced list of each TM event, such as input, message enqueue, get unique, output, and free device relative record number (DRRN). This IMS Performance Analyzer report also shows the content of each input message. The DC UOW Tracker report option allows you to trace transaction message flow using the IMS tracking UOW.

IMS PA generates the report command:

```
IMSPALOG DCTRACE(...)
```

SAMPLOG - DC Queue Manager Trace

Command ==> \_\_\_\_\_

Specify report options.

Report Options:

— Print LTERM, not Line/terminal

— Print complete transactions

— Print entire message text

— Print Tracking UOW report

UTC Format:

1 1. Local 2. GMT

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

To

Report Output DDname DCTRDD

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Line/terminal	—	—	—	
LTERM	—	—	—	
VTAM Node	—	—	—	
Log Record Code	—	—	—	
Message ID	—	—	—	
User ID	—	—	—	
IMS Subsystem ID	—	—	—	

Figure 158. DC Queue Manager Trace Report Options

The options are as follows:

### Print LTERM, not Line/terminal

Default: Not selected.

Select with a / to print LTERMs. If not selected, VTAM Node names or Line/terminal values are printed. Whatever the choice, the column heading in the report is shown as LTERM.

### Print complete transactions

Default: Not selected.

Select with a / to ensure that all messages associated with a transaction are reported, regardless of the filtering options in effect. For example, if you include **Message ID** TR\* to only include messages for transactions that start with TR, then IMS PA also reports the output messages for these transactions, even though their Message ID does not match TR\*.

### Print entire message text

Default: Not selected.

Select with a / to print the entire message text. If this option is not specified then only the first part of each text segment that fits on one line is reported.

### Print Tracking UOW report

Default: Not selected.

Select with a / to include the Tracking UOW for each log record in the report. This option changes the format of the report to include additional information.

### UTC Format

Select the required format of the UTC time stamp for the DC UOW Tracker report:

- Local.** The UTC is converted from GMT to local time by applying the local time zone offset. This is the default.
- GMT.** The UTC is not converted to local time. The UTC is reported as it appears in the log record without the time zone offset applied.

### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

### Report Output DDname

Default: DCTRDD

Specify the DDname to be used for the report output.

### Selection Criteria

Default: None specified; include all.

Log Records can be selected by Line/Terminal, LTERM, VTAM Node, Log Record Code, Message ID, User ID and IMS Subsystem ID.

For example, to include terminals 2 and 5 on line 10, specify INC and the name of a Line/Terminal Object List which contains the values 10/2 and 10/5 and enter a / in the **List** column. To include only terminal 3 on line 8, enter the value 8/3 directly on this panel and leave the **List** column blank. If more than eight characters are required to specify a line/terminal value, use an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists.

Masking is not supported for Line/Terminal or Log Record Code objects.

**Note:** The Message ID is the first 8 characters in the 01 or 03 log record. When specifying a Message ID value on this panel or in an Object List, if it is less than 8 characters append an \* (asterisk). For example, specify TR1\* to include or exclude all messages for transaction code TR1.

### Related reference

[DCTRACE: DC Queue Manager Trace report](#)

The **DCTRACE** operand of the **IMSPALOG** batch command requests the DC Queue Manager Trace report.

## Database Trace (Full Function) report

The IMS Database Trace (Full Function) report provides a record of all database changes by application programs as recorded on the IMS log. Backout changes caused by emergency restart are also reported and identified separately, but changes due to the reorganization utilities are not reported. Log records created by pseudo-abends are included in the report. This IMS Performance Analyzer report shows the content of segments, prefix pointers, and free space elements, and shows both the *before* and *after* versions of these as appropriate. The report also identifies the time of the change and the name of the program (PSB) making the change.

IMS Performance Analyzer generates the report command:

```
IMSPALOG DBTRACE(...)
```

SAMPLOG - Database Trace (Full Function)

Command ==>

Specify report options.

Report Options:

1

1. Database with transaction oriented information

2. Database information only

3. Database Open/Close only

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

To

Report Output DDname DBTRDD

Report Option 1 Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code			-	
Database			-	
Program (PSB)			-	

Report Options 1 and 2 Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Key			-	
Block ID			-	

Report Options 1, 2 and 3 Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
IMS Subsystem ID			-	

Figure 159. The **Database Trace (Full Function)** report options panel in IMS Performance Analyzer

The options are as follows:

## Report Options

Default: 1

Select 1 to report database information and transaction information which includes:

- Database open, close, and update operations for the specified databases.
- Inputs, program schedulings, updates, and program terminations for the programs invoked by the specified transaction codes. All opens and closes for the specified databases are reported because they are not identified by specific transaction codes.

Select 2 to report database open, close, and update operations for all databases. Transaction-oriented information is not reported.

Select 3 to report open and close operations for all databases, but not updates. Transaction-oriented information is not reported.

## Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report”](#) on page 244).

## Report Output DDname

Default: DBTRDD

Specify a DDname to be used for the report output.

## Selection Criteria

Default: None specified; include all.

For report option 1, records can be filtered by Transaction Code, Database, Program (PSB), Key, Block ID, and IMS Subsystem ID.

For report option 2, records can be filtered by Key, Block ID, and IMS Subsystem ID.

For report option 3, records can be filtered by IMS Subsystem ID only.

Key values are from 1 to 8 characters. Block ID values are 4-byte hexadecimal IDs that can be used if keys are unknown or nonexistent. The specified Block ID values are compared to the DLOGRBA field in the database type 50 log records. The specified Key or Block ID values pertain to all included databases.

This enables you to report only the information of interest. You can specify a single value, a masking pattern (except for Block ID objects), or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

DBTRACE: Database Trace report

The **DBTRACE** operand of the **IMSPALOG** batch command requests the Database Trace (Full Function) report.

## DEDB Update Trace report

The IMS DEDB Update Trace report provides a record of all data entry database (DEDB) changes by application programs as recorded on the IMS log. Use this report to debug DEDB database problems and application program problems, and to diagnose performance problems and tune your applications. For example, you can monitor individual program or user updates to a particular database. This IMS Performance Analyzer report shows all DEDB segment updates (including the relative byte address (RBA) and contents of the modified data), DEDB Area data set Open and Close events, creation of Error Queue Elements (EQEs), and application sync points for all transactions that updated reported DEDBs.

IMS Performance Analyzer generates the report command:

```
IMSPALOG FPDBTRC(...)
```

SAMPLOG - DEDB Update Trace

Command ==> \_\_\_\_\_

Specify report options.

Report Options:

1

1. DEDB information including related sync point entries

2

2. DEDB information only

3

3. DEDB Open/Close only

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Report Output DDname FPDBUTRC

DEDB Update Entry Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Region ID by PST	___	_____	-	
Program (PSB)	___	_____	-	
User ID	___	_____	-	

General Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Database	___	_____	-	
DEDB Area	___	_____	-	
IMS Subsystem ID	___	_____	-	

Figure 160. The **DEDB Update Trace** report options panel in IMS Performance Analyzer

The DEDB Update Trace report can generate large amounts of output over a very short period of time. To avoid large and unwanted report output, it is recommended that you:

1. Use the From and To times to narrow the reporting period.
2. Use Object Lists to filter the databases, programs, or users included in the report.

3. Set the desired report option to include only the type of DEDB events required.

The options are as follows:

#### Report Options

Default: **1. DEDB information including related sync point entries**

**1. DEDB information including related sync point entries** includes:

- DEDB updates
- Application sync points that have some DEDB updates reported
- DEDB open and close events
- DEDB errors

**2. DEDB information only** includes:

- DEDB updates
- DEDB open and close events
- DEDB errors

**3. DEDB Open/Close only** includes:

- DEDB open and close events
- DEDB errors

#### Report Interval

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see page [“Transaction Transit Analysis report”](#) on page 244).

#### Report Output DDname

Default: FPDBUTRC

Specify a DDname to be used for the report output.

#### Selection Criteria

Default: None specified; include all.

The **General** qualifiers apply to all the possible entries of the Trace. In contrast, the **DEDB Update Entry** qualifiers apply only to DEDB update entries (5950 log records), though using these filters will affect the application SYNC records included in the report.

The databases to be included in or excluded from the report can be specified by DEDB Database name and DEDB Area name. The source of the database updates can be restricted by filtering on IMS Region by PST number, Program name, User ID, and IMS Subsystem ID. Filtering by Transaction Code is not available as DEDB update records do not contain transaction name.

You can specify a single value, a masking pattern (not for Region ID by PST number), or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists.

#### Related reference

[FPDBTRC: DEDB Update Trace report](#)

The **FPDBTRC** operand of the **IMSPALOG** batch command requests the DEDB Update Trace report.

## ESAF Trace report

The External Subsystem Attach Facility (ESAF) Trace report provides a chronological listing of all external subsystem connects and disconnects for the specified time period. Use this IMS Performance Analyzer report to determine when external subsystems were connected.

IMS Performance Analyzer generates the report command:

```
IMSPALOG ESAF(...)
```

SAMPLEG - ESAF Trace

Command ==> \_\_\_\_\_

Specify report options.

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From \_\_\_\_\_

To \_\_\_\_\_

Report Output DDname ESAFDD

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
External SSID	_____	_____	_____	
IMS Subsystem ID	_____	_____	_____	

Figure 161. The **ESAF Trace** report options panel in IMS Performance Analyzer

The options are as follows:

**Report Interval**

Default: Not specified.

Specify the reporting interval within that specified by the Global Report Interval. Standard rules apply to the date and time specification (see [“Transaction Transit Analysis report” on page 244](#)).

**Report Output DDname**

Default: ESAFDD

Specify the DDname to be used for the report output.

**Selection Criteria**

Default: None specified; include all.

Records can be included in or excluded from the report based on their External Subsystem ID and IMS Subsystem ID values. This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

## Extract by Interval graphing and export

For Transaction Transit (MSGQ) Extract by Interval and Fast Path (EMH) Extract by Interval data, IMS PA provides an interactive facility to graph the data, export the data for use by external program such as Db2.

**Restriction:** The facility described in this topic is *only* applicable to Extract by Interval data sets which are in proprietary format. It is *not* applicable to all other IMS PA extracts which can be directly analyzed by external programs such as Db2.

For more information on how to create the Extract by Interval data sets, see [“Transaction Transit Extract by Interval” on page 249](#) and [“Fast Path Transit Extract by Interval” on page 296](#).

The design of the IMS PA graphing and export facility is shown in [Figure 162 on page 323](#). It processes Extract by Interval data previously extracted from Log files using IMS PA. You then choose to graph the extract data using IMS PA (and GDDM) for analysis using your usual graphing tools.



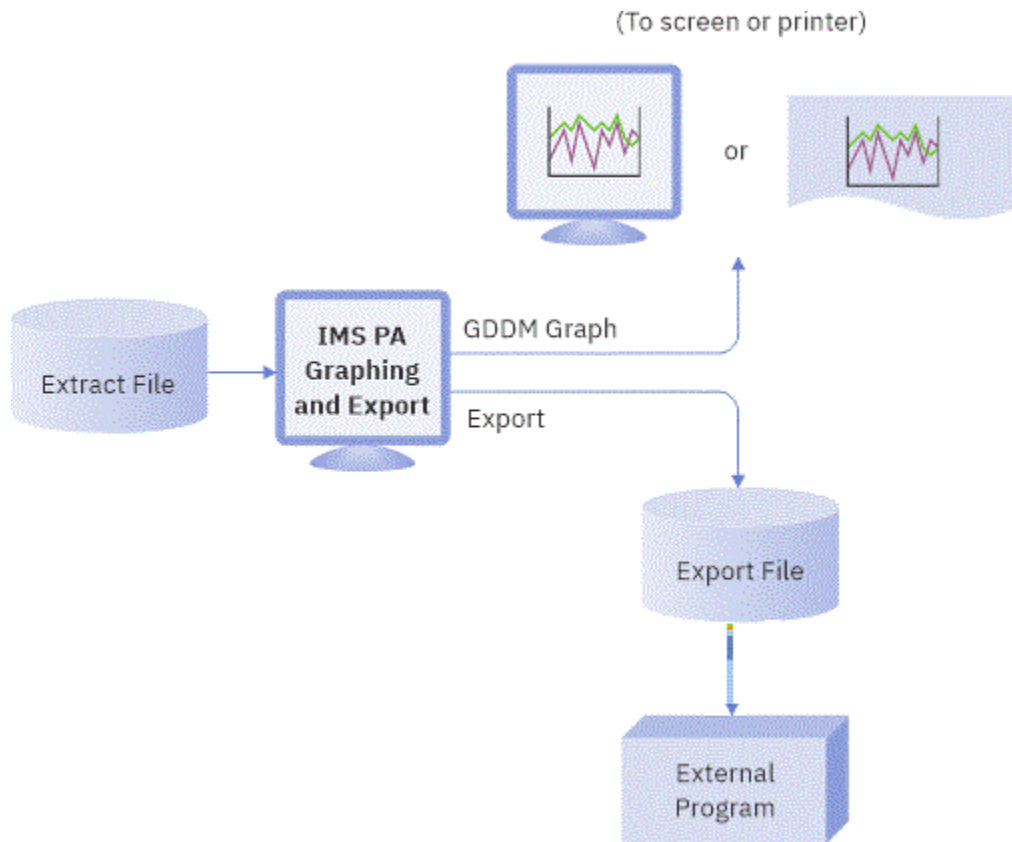


Figure 162. IMS PA Graphing and Export Facility

## Extract by Interval data

The graphing and export facility operates on transit time data previously extracted from log files into Extract Data Sets.

For details of how to create the extracts, see [“Transaction Transit Extract by Interval”](#) on page 249 and [“Fast Path Transit Extract by Interval”](#) on page 296

Data is stored in the Extract Data Sets in proprietary format which is the same for message queue transactions (Transaction Transit Extract by Interval) and Fast Path transactions (Fast Path Transit Extract by Interval). However, for Fast Path transactions, the following fields are set to zero. So when graphing or exporting an Extract Data Set, the Fast Path transactions will have these fields set to zero:

- Program switch time
- Output CQS time
- Output local queue time
- CPU time

Filtering and processing options can be applied to the Extract Data Set for graphing or export:

- The peak transaction time percentage is used to calculate for each time interval, or by transaction code within each interval, the transit time (in milliseconds) within which that percentage of transactions completes.
- A date-time range can be specified to narrow the time period of the data to be graphed or exported.
- The data can be presented either accumulated by time interval or by transaction code within time interval for a specified transaction code or all, provided it has been extracted at that level of detail.

## Graphing and export of interval data

To invoke the graphing and export facility, select option 4.6 **Graphing & Export** from the IMS Performance Analyzer primary option menu.

```

                                Extract Graphing & Export
Option ==> _____

      G  Graph - Produce graphs via GDDM from Extract by Interval data
      E  Export - Convert Extract by Interval data to external format

Extract Data Set _____

Processing Options:
Peak Transaction Time Percentage   90   (50-100%)

                                *** Extract Data Filtering Options ***

Data to Include:                  _____ Report Interval _____
_ By Interval                     YYYY/MM/DD  HH:MM:SS
_ By Transaction Within Interval:  From _____
  1. All Transactions             To   _____
  2. Single Transaction Code:     _____
    _____
```

Figure 163. Extract by Interval Graphing & Export Options

The Extract Graphing and Export panel allows you to:

- Export the data for external graphing or processing (option E).
- Produce GDDM graphs from previously extracted data (option G).

You can also specify the filtering and processing options you require. On this and all subordinate panels, the filtering and processing options have defaults which apply on initial entry to the panel until changed by the user.

**Note:** There is no way to revert back to the defaults after you have changed the filtering and processing options.

The options are as follows:

### Extract Data Set

Default: None.

Specify the name of the Extract Data Set containing the data to be graphed or exported. This data set must already have been populated with data using either or both of the Extract by Interval facilities from the **Report Set (LOG)** panel:

- [Transaction Transit Extract by Interval](#)
- [Fast Path Transit Extract by Interval](#)

### Peak Transaction Time Percentage

Default: 90

Specify a percentile *nnn* between 50 and 100 to report the transit time within which *nnn*% of the transactions complete. Computations assume a normal distribution. Thus, 50 gives the median transit time for the extract sample.

Specify 90 or greater to determine the response time for most transactions. This is useful, for example, when monitoring a service level agreement which states that 95% of transactions must complete within *nn* milliseconds.

### Data to Include: By Interval, By Transaction Within Interval

Default: Not selected.

Select with a / to specify whether to include data for each time interval at the summary level, at the transaction level, or both.

If the transaction level is selected, enter either 1 or 2 to specify, respectively, whether to include data for all transactions or a single transaction code.

The Extract Data Set must contain data extracted according to the selected criteria; the graphing or exporting processes perform no accumulation of data, nor can they report on individual transaction codes if the data has not been extracted at the transaction level. See [“Transaction Transit Extract by Interval”](#) on page 249.

If you have selected **By Transaction Within Interval**:

- If you enter 1 for **All Transactions**, a large number of graphs may be generated because a separate graph is produced for each transaction code in the filtered extract file.
- If you enter 2 for **Single Transaction Code**, specify the transaction code to be graphed or included in the export file.

If no options are selected, processing will not proceed.

### Report Interval From Date, Time To Date, Time

Defaults: None. (Include all data in the Extract Data Set)

Specify the time period for the data to be included in the graph or export file. On the graph, this becomes the boundaries for the time interval values on the x-axis.

The rules that govern the date and time values are:

#### Date

A date is expected in a format consistent with your **Preferred Date Format** specified in the dialog settings. See [Figure 7 on page 66](#). If the century of the year is omitted then, if the year is less than 73, century 2000 is assumed, otherwise century 1900 is assumed.

#### Time

Time is always expressed as *hh:mm:ss* for hours, minutes, and seconds. Colon delimiters must be used to separate the parts of the time.

#### Date/Time Pair

The To Date/Time must not be earlier than the From Date/Time. You can specify a date value without a time value, but if a time value is specified, a date value must also be specified. If one or more of the dates or times is omitted, the following defaults are applied at run time:

#### Missing Values

##### Default

#### From Date

Start of extract file

#### To Date

End of extract file

#### From Time

00:00:00

#### To Time

23:59:59

## Extract by Interval graphing

The Extract by Interval Graphing facility uses GDDM-PGF to display or print graphs of selected transaction transit time by time interval data from an Extract Data Set, and the filtering and processing options specified on the **Extract Graphing & Export** panel.

The Extract Data Set contains data extracted during log Report Set processing using the Extract by Interval report facilities. You can produce up to eight line graphs, and select which data items are to appear on each graph; you may also select one or more data items to appear on all graphs.

The data item values are plotted on the y-axis against the time interval on the x-axis.

If you select a "Count" item to appear on the same graph as one or more "Transit Time" items, the graph contains two y-axes, with Transit Time (msecs) on the left and Count on the right.

If multiple graphs are requested, they are presented one per page in ascending graph-number order in the following sequence:

1. First, if **By Interval** is selected, all requested graphs with summary level data for all transactions are presented in turn.
2. Then, if **By Transaction Within Interval** is selected, all requested graphs per transaction code are presented in descending order of transaction code.

If displaying the graphs, press Enter to page forward and view them sequentially. Press **Exit (F3)** or **Cancel (F12)** at any stage if you wish to prematurely terminate the display.

To invoke this facility, select option G on the **Extract Graphing & Export** panel, specify the required filtering and processing options, then press Enter. The following panel is displayed.

```

                                Extract by Interval Graphing
Command ==> _____

Specify the graphing options then press Enter.

Use '/' or graph-numbers (range 1 to 8) to select the data to graph
- Transaction Count                      - Average CPU Time
- Minimum Transit Time                  - Maximum Transit Time
- Average Input Queue Time              - 90% Peak Input Queue Time
- Average Switch Queue Time            - 90% Peak Switch Queue Time
- Average Execution Time                - 90% Peak Execution Time
- Average Output Queue Time             - 90% Peak Output Queue Time
- Average Output CQS Time               - 90% Peak Output CQS Time
- Average Output Local Queue Time       - 90% Peak Output Local Queue Time
- Average Total Transit Time            - 90% Peak Total Transit Time

Output Device                          Execution Mode
1 1. Terminal                          1 1. Foreground
2 2. Printer                           2 2. Batch

Printer ID _____
```

Figure 164. Extract by Interval Graphing Options

The options are as follows:

#### Select the Data to Graph

Default: Not selected.

If you wish to produce only one graph, use / to select those data items to appear on the graph.

If you wish to produce more than one graph:

- Use / to select the data items which you wish to appear on all graphs.
- Use numbers between 1 and 8 to select the data items to appear on up to 8 separate graphs. All data items with the same number will appear on the same graph. The number sequence dictates the order in which the graphs will appear.

If no items are selected, no graphs are produced.

*nnn%* is the **Peak Transaction Time Percentage** specified on the **Extract Graphing & Export** panel.

#### Output Device (Terminal or Printer)

Default: 1 (Terminal)

Select 1 to display the GDDM graphs, or 2 to print them.

## Printer ID

Default: None.

If you select Output Device 2 to print the graphs, specify the ID of the printer. The ID must be a valid GDDM nickname.

## Execution Mode (Foreground or Batch)

Default: 1 (Foreground)

Select 1 to generate the GDDM graphs in foreground. This is required if the selected output device is the terminal.

Select 2 for batch generation.

When all required options have been specified, press Enter to produce the requested graphs.

## Extract by Interval export

The Extract by Interval Export facility makes selected transit time by time interval data available to external programs.

### About this task

This facility creates an external format Export Data Set from a proprietary format Extract Data Set using filtering and processing options specified on the **Extract Graphing & Export** panel. The Extract Data Set contains data extracted during log Report Set processing using the Extract by Interval report facilities.

### Procedure

To invoke the Export facility:

1. On the IMS Performance Analyzer primary option menu, select option 4.6 **Graphing & Export**.  
The **Extract Graphing & Export** panel is displayed.
2. Select option E.
3. Specify the required filtering and processing options.
4. Press Enter.

The following panel is displayed.

```

                                Extract by Interval Export
Command ==> _____

Specify the export options then press Enter.

Destination:
_ 1. Export Data Set

Export Data Set 'IMSPA.EXPORT.DATA' _____

Options                                Execution Mode
/_ Headings in Export Data Set          _ 1. Foreground
_ Replace Workstation File              _ 2. Batch

```

Figure 165. Extract by Interval Export Options

The options are as follows:

#### Destination

Default: None. No export or transfer occurs.

Enter 1 to convert the extract data and write it to the Export Data Set.

## Export Data Set

Default: None.

Specify the name of the data set which contains the external format data after filtering and converting the data from the Extract file.

The Export Data Set must be cataloged. Its DCB attributes should be compatible with the Extract Data Set, and its SPACE allocation smaller if only a subset of the data is being exported.

See [Table 2 on page 329](#) for the record layout of the Export Data Set and [Figure 166 on page 328](#) for an example of the contents.

## Headings in Export Data Set

Default: Not selected. Headings are not written to the Export Data Set.

Select with a / to include field headings as the first record in the Export Data Set. The headings are shown in [Table 2 on page 329](#).

## Execution Mode (Foreground or Batch)

Default: 1 (Foreground)

Select 1 to process in foreground.

Select 2 to conduct export processing in batch mode.

## Export file content

Export files are comma-separated value (CSV) files.

The field headings are optionally included as the first record in the export file. The headings are comma-separated, in the same sequence but of different length to the data fields. Each subsequent row represents a record of type 2 containing accumulated data for the given transaction code for the given time interval.

The time shown is the start time of the interval and is included in the interval. If there is no transaction code shown, the row represents totals for the interval. The transaction data appears in alphabetical order by transaction code with \*TOTAL\* (the total for the interval) appearing first.

The following figure shows an example export file.

Type	Date	Time	Trancode	Count	Min	Avg	Input	Avg	Switch	Avg	Pgm	Exec	Avg	Output	Avg	Out	CQS	Avg	Out	Loc	Avg	Total	90%	Input	...
2	2023/06/25	07:51:00	*TOTAL*				3384		22	5	0	168		0	0	0	0	174	32	0	0	261	...		
2	2023/06/25	07:51:00	DSFFDE1A				8		94	2	0	134		0	0	0	0	137	4	0	0	166	...		
2	2023/06/25	07:51:00	DSFFDE1B				10		134	5	0	154		0	0	0	0	159	15	0	0	176	...		
2	2023/06/25	07:51:00	DSFFDE1C				7		125	2	0	142		0	0	0	0	145	3	0	0	160	...		
2	2023/06/25	07:51:00	DSFFDE1D				9		105	2	0	144		0	0	0	0	147	4	0	0	175	...		
2	2023/06/25	07:51:00	DSFFDE1E				7		122	4	0	146		0	0	0	0	150	9	0	0	172	...		
2	2023/06/25	07:51:00	DSFFDE1F				4		149	90	0	197		0	0	0	0	288	312	0	0	277	...		
2	2023/06/25	07:51:00	DSFFDE1G				8		128	2	0	160		0	0	0	0	162	3	0	0	197	...		
2	2023/06/25	07:51:00	DSFFDE1H				12		93	3	0	132		0	0	0	0	135	4	0	0	162	...		
2	2023/06/25	07:51:00	DSFFDE1I				7		112	3	0	144		0	0	0	0	147	7	0	0	170	...		
2	2023/06/25	07:51:00	DSFFDE1J				9		115	3	0	147		0	0	0	0	150	4	0	0	185	...		
2	2023/06/25	07:51:00	DSFFDE1K				4		115	3	0	146		0	0	0	0	149	4	0	0	189	...		
2	2023/06/25	07:51:00	DSFFDE1L				13		130	3	0	161		0	0	0	0	164	5	0	0	203	...		
:																									
2	2023/06/25	07:51:00	DSFFSC6M				18		48	7	0	78		0	0	0	0	85	26	0	0	107	...		
2	2023/06/25	07:51:00	DSFFSC6N				20		48	14	0	71		0	0	0	0	86	82	0	0	100	...		
2	2023/06/25	07:51:00	DSFFSC6O				17		50	6	0	71		0	0	0	0	77	25	0	0	99	...		
2	2023/06/25	07:51:00	DSFFSC6P				14		49	3	0	73		0	0	0	0	76	4	0	0	89	...		
2	2023/06/25	07:52:00	*TOTAL*				3878		23	2	0	163		0	0	0	0	166	6	0	0	254	...		
2	2023/06/25	07:52:00	DSFFDE1A				13		92	2	0	130		0	0	0	0	133	4	0	0	156	...		
2	2023/06/25	07:52:00	DSFFDE1B				8		132	2	0	141		0	0	0	0	143	3	0	0	150	...		
2	2023/06/25	07:52:00	DSFFDE1C				7		111	1	0	137		0	0	0	0	139	3	0	0	160	...		
2	2023/06/25	07:52:00	DSFFDE1D				9		105	3	0	133		0	0	0	0	137	4	0	0	153	...		
2	2023/06/25	07:52:00	DSFFDE1E				7		128	3	0	148		0	0	0	0	152	4	0	0	164	...		
2	2023/06/25	07:52:00	DSFFDE1F				14		123	3	0	144		0	0	0	0	147	4	0	0	169	...		
:																									

Figure 166. Export File Contents: Transit Extract by Interval

The data fields are fixed length, comma separated values. Character fields are left-justified and blank-filled to the right. Numeric fields are right-justified and blank-filled to the left.

The following table describes the record format of the export file.

Table 2. Export file record layout: Transit Extract by Interval

Field description	Column heading	Field length (Bytes)
Record Type ( = 2)	Type	1
Date (User-defined format)	Date	10
<b>Sort</b> yyyy/mm/dd		
<b>U.S.</b> mm/dd/yyyy		
<b>European</b> dd/mm/yyyy		
<b>Ordinal</b> yyyddd		
<b>Batch</b> ddMMMyyyy Where MMM = Jan, Feb, ...		
Time (hh:mm:ss)	Time	8
Transaction Code or *TOTAL*	Trancode	8
Transaction count	Count	10
Minimum Transit time (msec)	Min	8
Input Queue time (msec)	Avg Input	6
Program Switch time (msec)	Avg Switch	6
Program Execution time (msec)	Avg Pgm Exec	6
Output Queue time (msec)	Avg Output	6
Output CQS time (msec)	Avg Out CQS	6
Output Local Queue time (msec)	Avg Out Loc	6
Total Transit time (msec)	Avg Total	6
Input Queue time <i>User-defined percentage (msec)</i>	nnn% Input	6
Program Switch time <i>User-defined percentage (msec)</i>	nnn% Switch	6
Program Execution time <i>User-defined percentage (msec)</i>	nnn% Pgm Exec	6
Output Queue time <i>User-defined percentage (msec)</i>	nnn% Output	6
Output CQS time <i>User-defined percentage (msec)</i>	nnn% Out CQS	6
Output Local Queue time <i>User-defined percentage (msec)</i>	nnn% Out Loc	6
Total Transit time <i>User-defined percentage (msec)</i>	nnn% Total	6
Maximum Transit time (msec)	Max	8
CPU Time (msec)	CPU	8

### **Extract export report**

The **Extract Export Report** panel provides a summary report of your requested export processing when executing in foreground. If executing in batch mode, a similar report is produced and is written to SYSPRINT.

You can use the report to indicate whether the results of the export are as expected, prior to proceeding with further processing of the export data. For example, if the number of records written to the Export Data Set is unreasonably large, you may choose to return to previous panels to change the filters and processing options to reduce the amount of data selected for export. The number of export records written does not include the record containing the headings.

**Extract Start** and **Extract End** show the period of the data in the Extract file. **Export Start** and **Export End** show the period of the data in the Export file specified using the **From** and **To** date and time option on the **Extract Export** panel. Compare these periods to verify that you are exporting the required portion of the extract data.

```
                                Extract Export Report
Command ===> _____
Extract DSN:  IMSPA.EXTRACT.DATA
Extract Start: 2023/04/13 07:51:00
Extract End:   2023/04/13 07:56:00
Extract Records read:    1250

Export DSN:    IMSPA.EXPORT.DATA
Export Start:  2023/04/13 07:51:00
Export End:    2023/04/13 07:53:00
Export Records written:    26

IPI0139I  Export request completed successfully, RC=0
```

*Figure 167. Extract Export Report*



## Graphing the export data

The Export data can be processed by external programs such as Db2. You can produce graphs like the following example, which is a line graph of transit time (msecs) by time of day and shows Avg Input, Avg Out CQS, Avg Total and Count.

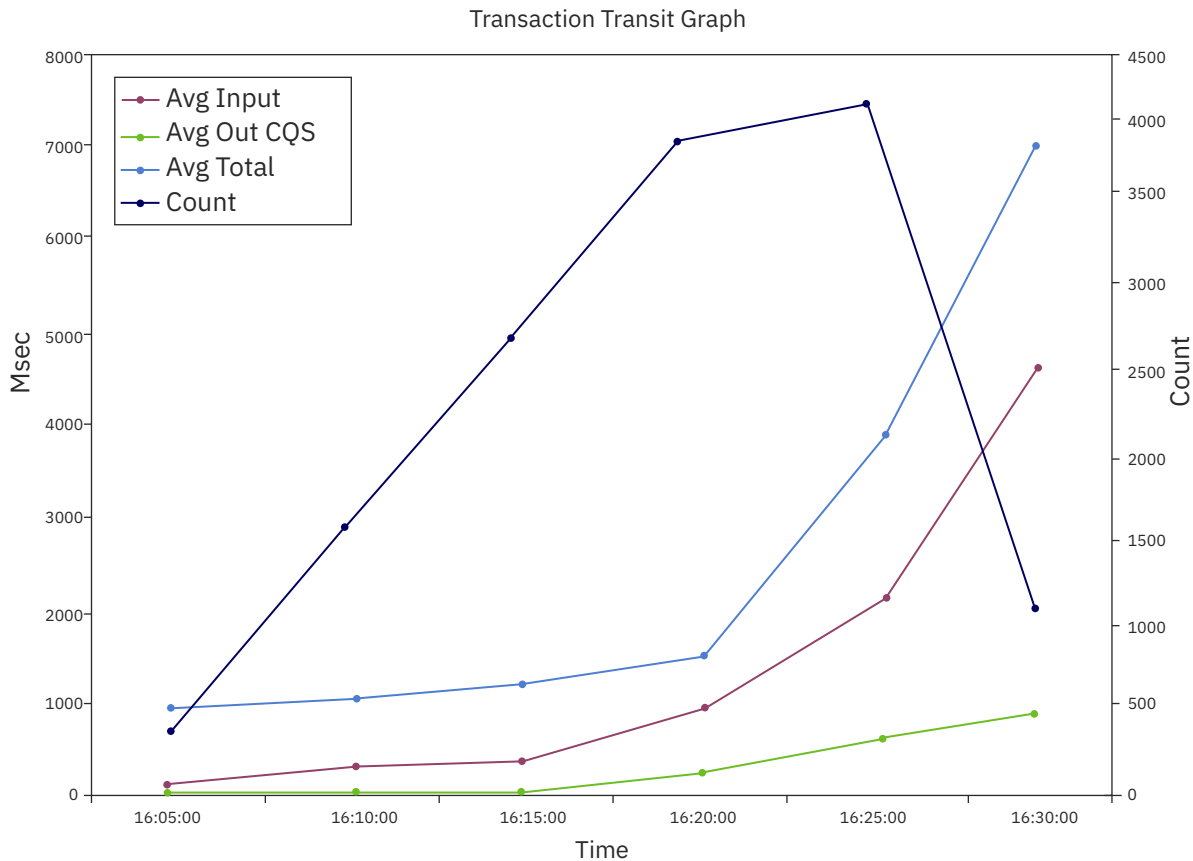


Figure 168. Transit Extract by Interval Export data

## Graphing and Export JCL

The Graphing and Export JCL facility allows you to customize the job statement used in batch graphing or export jobs, and gives you the option to view or edit the generated JCL prior to submission.

The following panel is displayed if you select option 2 **Batch Execution Mode** on either the **Extract Graphing** or **Extract Export** panels.

```
Extract - Submit Batch
Command ==> _____

Enter '/' to select option
_ Edit JCL before user submit

Job Statement Information:
==> //userid JOB (ACCOUNT),'NAME' _____
==> _____
==> _____
==> _____

Press Enter to proceed with submit processing.
Press Exit or Cancel to bypass submit processing.
```

Figure 169. Extract – Submit Batch Options

The options are as follows:

#### **Edit JCL before user submit**

Default: Not selected.

Select with a / to view or edit the JCL prior to submitting the job. The JCL will display using the standard ISPF Edit facility. You may modify the JCL as required. To submit the job, enter **SUB** on the command line of the ISPF Edit panel.

If not selected, IMS PA will automatically submit the job.

#### **Job Statement Information**

Initial Setting: `//userid JOB (ACCOUNT), 'NAME'` from the **Log/List - JCL** option in the action bar of the ISPF Settings panel invoked via the **SETTINGS** command.

Specify the JOB card to be used by the IMS PA dialog when building the JCL for executing the batch job for GDDM graphing or export processing. Multiple cards can be provided and are taken as is. Embedded or trailing null cards are ignored.

If the specified job card is invalid, TSO Submit processing generates a substitute.

IMS PA generates the JCL to execute the program IPIXTPCD. The graphing and export options specified using the dialog are passed as parameters to IPIXTPCD, together with the following where applicable:

#### **JOB**

**Job Statement Information** on the **Extract - Submit Batch** panel shown in [Figure 169 on page 331](#).

#### **STEPLIB DD**

**IMS PA Load Library** and **GDDM-PGF Load Library** from IMS PA Settings in your Profile Options.

#### **IPIXTRTI DD**

**Extract Data Set** specified in dialog option 4.6 **Graphing & Export**. It was initially created as the **Output Extract Data Set** on the **Transaction Transit Extract by Interval** panel in the Log Report Set.

#### **IPIXPORT DD**

**Export Data Set** specified on the Extract by Interval Export panel (Graphing and Export option E).

## **Log Information report**

---

The Log Information report provides a breakdown of the log record types in the input IMS log files. It shows record count, length, rates per second, and volume. Selected record types are broken down further to provide additional information about transaction arrival and processing throughput.

A Log Information report is produced automatically whenever an IMS PA Log report set is run. In this case, no additional batch commands are required. The ddname for the Log Information report is LOGINFO. Users can also generate a stand-alone Log Information report without running a report set using the appropriate batch command (see [“Log Information report” on page 418](#)).

V4R5M0 IMS Performance Analyzer - Log Information									
Log data From 2021-12-06 11:11:19.457342 To 2021-12-06 11:12:27.736114				Duration		1:08.278772			
Code	Count	MCNT	Recs/Sec	In		Byte/Sec	MB	%	
				Avg len	Max Len				
01 IN	6,025		88	719	2,170	63,719	4.3	2.3	IMS Message
INPUT	6,025		88	719	2,170	63,719	4.3	2.3	Input message
03 IN	1,412		20	634	799	13,179	0.8	0.5	IMS Message
INPUT	1,412		20	634	799	13,179	0.8	0.5	Input msg (program switch)
03 OUT	11,506		169	627	1,734	106,230	7.2	3.8	IMS Message
OUTPUT	6,899		101	713	1,734	72,408	4.9	2.6	Output message
MSG SWI	4,607		67	499	582	33,821	2.2	1.2	Message switch
07	3,588	7,405	52	456	456	24,060	1.6	0.9	Program schedule end
MPP	3,528	6,919	51	456	456	23,658	1.6	0.8	MPP
QUICK	45	450	0	456	456	301	0.0	0.0	MPP quick reschedule
ABEND	15	36	0	456	456	100	0.0	0.0	Abended transaction
08	3,590		52	156	156	8,235	0.5	0.3	Program schedule start
MPP	3,545		52	156	156	8,132	0.5	0.3	MPP
QUICK	45		0	156	156	103	0.0	0.0	MPP quick reschedule
11	1,078		15	68	68	1,078	0.0	0.0	Start of conversation
12	1,064		15	48	48	751	0.0	0.0	End of conversation
16	707		10	80	80	831	0.0	0.0	Sign On/Off
:									

Figure 170. Example of Log Information report content

## Related reference

### LOGINFO: Log Information report

The Log Information report provides a breakdown of the log record types in the input IMS log files. The LOGINFO operand allows users to produce a stand-alone Log Information report without running a report set. This is a batch-only command and is not generated by an IMS PA dialog.



---

## Chapter 21. Log batch interface

The IMS PA dialog generates the JCL and commands for executing your report requests in batch. The JCL and commands for Log report requests are described here. Sample jobs are supplied in the SIPISAMP Library.

### Related tasks

[Run Log Report Set](#)

The IMS PA dialog generates the JCL for batch report processing. Enter the **RUN** command to run your Report Set, Report Category or individual reports.

---

## Log Report Set JCL

The JCL built by IMS Performance Analyzer for the batch execution of a Report Set via the **SUBMIT** or **JCL** (or **RUN**) commands is based on the sample library member IPILOGJC for a Log Report Set.

IMS Performance Analyzer builds the JCL to execute the program IPIMAIN using the following options specified using the dialog:

### JOB

**Job Statement Information** in IMS PA **Settings**.

### IPI EXEC IPIMAIN,PARM='parameter list'

IMS Performance Analyzer main program with parameters:

#### Vnnn

for Log Report Sets where *nnn* is the IMS version (VRM) of the IMS subsystem logs that you are reporting on. If it is a Group that contains IMS systems at different release levels, the systems are listed with their corresponding VRM in the IPIOPTS DD statement. If the PARM= statement (or IPIOPTS specification for a multi-release level group) does not match the IMS version of the logs, the job may fail with message “IPI0024E” on page 571.

#### UPPER

if **Reports in Upper Case** is YES in IMS PA **Settings**.

### STEPLIB DD

**IMS PA Load Library** and optionally **User Program Load Library** In IMS PA **Settings** in your **Profile Options**.

### Lxxxxunn DD

**Log Data Set Name (DSN)** from **System Definitions**.

Each log input data set has its own ddname in the format Lxxxxunn where:

#### L

is a constant to identify it as a log input data set.

#### xxxx

is the IMSID for the IMS Subsystem.

#### u

defines the UNIT affinity; 0 for no affinity (for DASD) and 1–9, A–Z for affinity (for tape to be copied to DASD). This accommodates the situation in which the number of log input data sets on tape or cartridge exceeds the **Maximum Tape Units Available for Shared Queue Merge** specified on the **Shared Queue Settings** panel. DDnames with non-zero unit affinity are eligible for pre-merge copy processing (see “[Shared Queue merge processing](#)” on page 341).

#### nn

is a sequence number 01–99, A0–ZZ (1035 in total) corresponding to the order in which the Log Files are specified for the IMS Subsystem, and to uniquely identify the data sets.

### IPIRSET DD

For *DSN(member)* where:

**DSN**

**Report Sets Data Set** in your IMS PA **Profile**.

**member**

Name of the **Report Set** being run.

**IPIOBJL DD**

**Object Lists Data Set** in your IMS PA **Profile**.

**IPIDIST DD**

**Distributions Data Set** in your IMS PA **Profile**.

**IPIFORM DD**

**Report Forms Data Set** in your IMS PA **Profile**.

**IPIFLTR DD**

**Report Filters Data Set** in your IMS PA **Profile**.

**IPIOPTS DD \***

**Report Interval** This overrides the Report Set Global Report Interval within the IPIRSET or IPICMD DD statements.

It is the report period specified on the Run Report Set panel at run time. To display the runtime options, you can issue the **RUN** command for a Report, Report Category, or Report Set.

**IPIAVGQ DD**

**Transaction Averages Input Data Set** From the Averages Data Sets Specification for the Management Exception log report.

**IPIAVGO DD**

**Transaction Averages Output Data Set** From the Averages Data Sets Specification for the Management Exception log report.

If the data set does not exist, IMS PA uses the **Averages Data Set Allocation Details** in **Reporting Allocation Settings**.

**IPIEXPQ DD**

**Expectation Sets Data Set** in your IMS PA **Profile**.

**IPISMQWu DD**

A shared queue merge work file where *u* defines the unit affinity. One data set is required for each tape device that is used during the shared queue copy/merge process.

**IPIXTRTI DD**

**Transit Extract by Interval Input Data Set**

**IPIXTRTO DD**

**Transit Extract by Interval Output Data Set** From the Transaction (MSGQ) Transit **Extract by Interval**.

If the output data set does not exist, IMS Performance Analyzer uses the **Transit Extract by Interval** allocation details in **Reporting Allocation Settings**.

**IPIFPXTI DD**

**FP Transit Extract by Interval Input Data Set**

**IPIFPXTO DD**

**FP Transit Extract by Interval Output Data Set** From the Fast Path Transit Extract by Interval.

If the output data set does not exist, IMS Performance Analyzer uses the **Transit Extract by Interval** allocation details in **Reporting Allocation Settings**.

**IPITHIST DD**

**Transaction History File data set** From the **Transaction History File**.

If the output data set does not exist, IMS Performance Analyzer uses the **Transit Extract by Interval** allocation details in **Reporting Allocation Settings**.

**IPITXUT1 DD**

**Transaction (MSGQ) Transit Total Traffic Extract Data Set**

## IPITXUT2 DD

**Transaction (MSGQ) Transit Exception Traffic Extract Data Set** From the Transaction (MSGQ) Transit Transaction Exception report.

If the output data sets do not exist, IMS PA uses the **Transit Total Traffic** and **Transit Exception Traffic** allocation details in **Reporting Allocation Settings**. IMS PA may set or adjust the DCB attributes at Extract run time.

## IPIFXUT1 DD

**FP Transaction Transit Total Traffic Extract Data Set**

## IPIFXUT2 DD

**FP Transaction Transit Exception Traffic Extract Data Set** From the Fast Path Transit Transaction Exception report.

If the output data sets do not exist, IMS Performance Analyzer uses the **Transit Total Traffic** and **Transit Exception Traffic** allocation details in **Reporting Allocation Settings**. IMS Performance Analyzer may set or adjust the DCB attributes at Extract run time.

## CPURXTRO DD

**CPU Usage Extract Data Set** From the CPU Usage report.

If the output data set does not exist, IMS Performance Analyzer uses the **Summary Extracts** allocation details in **Reporting Allocation Settings**.

## DBUAXTRO DD

**Database Update Activity Extract Data Set** From the Database Update Activity report.

If the output data set does not exist, IMS Performance Analyzer uses the **Summary Extracts** allocation details in **Reporting Allocation Settings**.

## Sample JCL: Log Report Set

```
//IMSPA JOB CLASS=A,REGION=0M
//*
//IPI      EXEC PGM=IPIMAIN,PARM='V152'
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//* Input data sets
//LIMSA001 DD DSN=IMS.V152.LOG99,DISP=SHR
//* Sysout data sets
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//* Report Set member
//IPIRSET DD DSN=PREFIX.IMSPA.RSET(LOG01),DISP=SHR
//* Object Lists data set
//IPIOBJL DD DSN=PREFIX.IMSPA.OBJL,DISP=SHR
//* Distributions data set
//IPIDIST DD DSN=PREFIX.IMSPA.DIST,DISP=SHR
//* Report Forms data set
//IPIFORM DD DSN=PREFIX.IMSPA.FORM,DISP=SHR
//* Expectation Sets data set
//IPIEXPQ DD DSN=PREFIX.IMSPA.EXPSET,DISP=SHR
//* Report Filters data set
//IPIFORM DD DSN=PREFIX.IMSPA.FLTR,DISP=SHR
```

Figure 171. Sample JCL: Log Report Set

## Related reference

[IMS Performance Analyzer sample library](#)

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## Log JCL with command input

---

To generate JCL that contains commands in-stream, rather than referring to data sets, enter the dialog command **JCLCMD**, or its abbreviation, **JCM**; or, equivalently, enter **RUN**, and then specify the execution mode **Edit JCL with command input**.

By contrast, to generate JCL that builds commands at runtime from data sets, rather than containing commands in-stream, enter the dialog command **JCL** (or a **RUN** command that does not specify **Edit JCL with command input**). For details, see [“Log Report Set JCL” on page 335](#).

The JCL generated by the **JCLCMD** command differs in the following ways from the JCL generated by the **JCL** command:

- The IPICMD DD statement contains the series of user-modifiable commands built from the activated reports in the Report Set. A description of the Report Set appears as comments (\* in column 1) preceding the commands. It replaces the IPIRSET DD statement.
- The command input stream contains **INCL/EXCL** command parameters built from the Object Lists used by the Report Set. They replace the IPIOBJL DD statement.
- The command input stream contains **DISTRIBUTION** command parameters built from the Distributions used by the Report Set. They replace the IPIDIST DD statement.
- The command input stream contains **FIELDS** command parameters built from the Report Forms used by Form-based reports and extracts in the Report Set. They replace the IPIFORM DD statement.
- The **IMSPALOG** command identifies the log reports.

This facility allows you to build report JCL with command input once and store it into an external library for submitting at any time, independent of the original Report Set. Individual report options, such as Date/Time report intervals or object selection filters (such as Transaction Code, Program, Database) can then be modified in the JCL and submitted without making changes to the original Report Set.



## Sample JCL with command input: Log Report Set

```
//IMSPA JOB (ACCOUNT),"NAME"
//*
//* IMS PA Report Set SAMPLOG - Sample Log Report Set
//*
//IPI      EXEC PGM=IPIMAIN,PARM='V152'
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//* Input Data Sets
//LIMSAA001 DD DSN=IMS.V152.IMSA.LOG01,DISP=SHR
//* Report run-time options
//IPIOPTS DD *
* Reporting Time Range
IMSPALOG START(-1,10:00:00:00),STOP(-1,11:00:00:00)
/*
//* Sysout data set
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//* Report Set Command Input
//IPICMD DD *
* IMS PA Log Report
* Report Set Name - SAMPLOG
* Description - Sample Log Report Set
* Log Report Global Options
*   Log Input - LOGIN
*   Report Output - RPTOUT
*   Print Lines per Page - 60
*   When Reports are Written - STOP
*   Source of IMS Processing ID - DDNAME
IMSPALOG      INPUTDD(LOGIN),
               OUTPUTDD(RPTOUT),
               PAGESIZE(60),
               PRINTAT(STOP),
               SETIMSID(DDNAME)
* Transaction Transit Time Report Control Options
*   Max Input Queue Time - 0
*   Max Output Queue Time - 0
*   Percent of Peak Transaction Time - 90
*   Transaction Set Size - 32767
*   Time Report Interval (mins) - 15
*   Time interval is aligned to even hour
*   Include BMP Transactions
*   Include MSC Transactions
*   Include APPC/OTMA Transactions
IMSPALOG      INMAX(0),
               OUTMAX(0),
               PEAK(90),
               TSETSIZE(32767),
               INTERVAL(15),
               ALIGN,
               QUALIFY(INCL(BMP),
               INCL(MSC),
               INCL(APPC))
* Transit Time Analysis Report
*   Reports Selected:
*   Trancode
IMSPALOG      ANALYSIS(
               TRANCODE)
* Transaction Exception Report
*   Reports Selected:
*   Transaction Code
*   Standard Format
*   Report Output File - TRANEXC
*   Total Traffic DSN - Not Specified
*   Exception Traffic DSN - Not Specified
IMSPALOG      TRANEXC(
               TRANCODE,
               FORMAT1,
               DDNAME(TRANEXC))
```

Figure 172. JCL with command input: Log Report Set SAMPLOG (1 of 3)

```

* Dashboard Report
*   Report Output File - DASH
*       IMSPALOG      DASHBOARD(
*                       DDNAME(DASH))
* Management Exception Report
*   Reports Selected:
*       Transaction Code Exception
*       Program Abend
*       Security Violation
*       I/O Error
*       Snap Trace
*       Backout Failure
*   Report Output File - MGRXDD
*   Average Input DSN - Not Specified
*   Average Output DSN - Not Specified
*       IMSPALOG      MGREX(
*                       TCREPORT,
*                       PGMABEND,
*                       SECvio,
*                       IOERROR,
*                       SNAPTRC,
*                       BACKOUTFAIL,
*                       DDNAME(MGRXDD))
* Resource Availability Report
*   Report Output File - AVALDD
*   Reports Selected:
*       Region
*       Trancode
*       Program
*       Database
*       IMSPALOG      AVAIL(
*                       DDNAME(AVALDD),
*                       REGION,
*                       TRANCODE,
*                       PROGRAM,
*                       DATABASE)
* CPU Usage Report
*   Report Output File - CPURDD
*   Ordering Options:
*       Report 1: 1 Region   2 Program  3 Trancode
*   Extract DSN - Not Specified
*       IMSPALOG      CPUR(
*                       DDNAME(CPURDD),
*                       R-P-TC)

```

Figure 173. JCL with command input: Log Report Set SAMPLOG (2 of 3)

```

* Internal Resource Usage Report
* Report Output File - IRURDD
* Checkpoint Time Interval (mins) - 0
  IMSPALOG      IRUR(
                  DDNAME(IRURDD),
                  INTERVAL(0),
                  INCL(POOLS( Pool Statistics:
                              QP,      Message Queue
                              FP,      Message Format Buffer
                              DB,      OSAM Buffer
                              VS,      VSAM Buffer
                              SM,      Storage Management (PSB/DMB/CIOP)
                              AS,      Application Scheduling
                              PI,      Program Isolation
                              LT,      Latch
                              DLICALLS, DL/I call
                              MISC,    Miscellaneous
                              CB,      Storage
                              LL,      Logical Logger
                              FI,      Fixed Pool Usage
                              DS,      Dispatcher/Dynamic SAP
                              RU,      User IRLM
                              RS,      System IRLM
                              RF)))    RACF
* Database Update Activity Report
* Report Output File - DBUADD
* Format 1
* Uncommitted Block Updates Limit - 10000
* Extract DSN - Not Specified
  IMSPALOG      DBUPDATE(
                  DDNAME(DBUADD),
                  FORMAT1)
  IMSPALOG      MAXBLOCK(10000)
* Deadlock Report
* Reports Selected:
* Summary
* List Report Output File - DEADLOCK
* Summary Report Output File - DEADLOCK
  IMSPALOG      DEADLOCK(
                  SUMMARY,
                  LISTDDN(DEADLOCK),
                  SUMMDDN(DEADLOCK))
* Checkpoint Report
* Reports Selected:
* Report Output File - CHECKPT
  IMSPALOG      CHECKPOINT(
                  DDNAME(CHECKPT))
  IMSPALOG      EXECUTE
/*

```

Figure 174. JCL with command input: Log Report Set SAMPLOG (3 of 3)

## Shared Queue merge processing

To report performance in an IMS sysplex environment which uses shared queues, IMS PA receives log input from all the subsystems in the sysplex, and merges the log files to present the records to the report processors in time stamp sequence.

IMS PA log reports have three merge processing styles:

- Composite shared queue
- Composite chronological
- By subsystem

### Composite shared queue

*Composite shared queue* reports process the input data in time stamp sequence across all subsystems combined. The log records to produce a Transaction Set (lifetime of a transaction) used to produce these reports may come from the log files of more than one subsystem. The reports can only process intersecting time period data for the entire sysplex as there is a reliance of one subsystem's data to the other subsystems in the sysplex.

These reports are:

- All Transaction (MSGQ) Transit reports:
  - Analysis
  - Statistics
  - Log

- Graphic Summary
- Extract by Interval
- Transaction Exception
- Transaction History File
- Form-based Transit List and Summary
- All Fast Path (EMH) Transit reports:
  - Analysis
  - Log
  - Extract by Interval
  - Transaction Exception
- Dashboard
- Management Exception: Transaction Exception/Average Summary
- Resource Availability: Line/Node report only

## Composite chronological

*Composite chronological* reports receive log input for each subsystem as it becomes available, or when the requested time period commences. A single report is produced from data merged from all subsystems in the sysplex. Filtering by IMS subsystem ID is supported.

These reports are:

- Dashboard
- Management Exception: Error Conditions Log
- Database Trace (Full Function)
- DC Queue Manager Trace
- OSAM Sequential Buffering
- ESAF
- Region Histogram (a unique style of report in which the 13 columns can be for any region in any subsystem in the sysplex)
- DEDB Update Trace

## By subsystem

*By subsystem* reports receive log input for each subsystem as it becomes available, or when the requested time period commences. A separate report is produced for each subsystem in the sysplex. The IMS subsystem ID is usually shown in the report heading. Filtering by IMS subsystem ID is supported.

These reports are:

- Resource Availability (except Line/Node)
- CPU Usage
- Internal Resource Usage
- Message Queue Utilization
- Database Update Activity
- BMP Checkpoint
- Fast Path Resource Usage reports:
  - FP Resource Usage and Contention
  - FP Database Call Statistics
  - IFP Region Occupancy

- EMH Message Statistics
- DEDB Update Activity
- VSO Statistics

## Pre-Merge Copy Processing

IMS PA processes the log data sets for a subsystem sequentially in the order specified on the IMS Subsystem Log Files panel, which should be in contiguous time stamp sequence for reliable results. For merging to occur, the sequence of log data sets for each IMS subsystem must be able to be read concurrently with those of all other IMS subsystems in the sysplex.

Log input may be from DASD or tape (or cartridge). Each subsystem in the sysplex can have a combination of DASD and tape log data sets.

If the log files are tape data sets, there may be more IMS subsystems than there are tape units available to IMS PA. In this case, they cannot be processed concurrently during the merge process. Some tape log input must first be copied to a DASD merge work file (IPISMQWu) before being passed on to the merge process.

The number of tape units available and the allocation attributes of the merge work file are specified via the dialog. See [“Shared Queue Settings” on page 71](#) for details.

When the dialog generates the JCL to execute a Report Set, it identifies each input data set with a ddname in the format *Lxxxxunn* where *L* represents that it is a Log data set, *xxxx* is the 1- to 4-character IMS subsystem ID specified on the System Definitions panel, *u* is the unit assigned by IMS PA (0 for no affinity, 1–9, A–Z for affinity, giving a maximum of 35 tape units), and *nn* gives the sequence 01–99, A0–AZ, ... Z0–ZZ of the data sets within subsystem to keep them in the same order as specified on the System Definitions panel. In the case that there is no contention for tape units, the unit (*u*) is zero.

The only significance of the order in which the DD statements are generated is to obey the rules of unit affinity in that the data sets which first use the tape unit are specified (with no UNIT=AFF=) before any other data sets with affinity to the same unit (UNIT=AFF=ddname). Tape data sets from the one subsystem need not have the same unit affinity and hence may be copied to different DASD work files. The ddname of the data set is retained on the work file to identify the data.

There is one merge work file for each tape unit that is used during the pre-merge copy processing. The ddname of the merge work file is IPISMQWu where *u* corresponds to the unit affinity of each tape unit.

IMS PA optimizes the JCL to:

- Minimize the elapsed time by multitasking the copy to DASD. Each tape device used for copy processing has a subtask (and merge work file) assigned to it. The log input data sets are spread evenly across the tape devices, so each subtask processes approximately the same number.
- Minimize the number of tape data sets copied to DASD. IMS subsystems with the least number of tape log data sets are considered first for copy processing and appear first in the JCL.
- Minimize the volume of data copied. IMS PA filters and compresses the log records written to the merge work file. Log record filtering is based on specified time ranges and whether the activated reports require the log record.

The merge work file space allocation may need to be adjusted depending on the amount and nature of the log input data.

Specify the allocation attributes for the shared queue merge work file in your profile options 0.3 **Shared Queue Settings**. See [“Shared Queue Settings” on page 71](#) for details.

## Merge Work Files (IPISMQWu)

Merge Work Files are only required for Shared Queue log processing when both of the following situations exist:

- The log files are on tape
- There are more IMS subsystems than tape devices available to the job

IMS PA merges the log files from each sysplex system in time sequence. To do this, one log file from each system must be open concurrently. But this is not possible when there are more IMS subsystems than tape drives available to your batch job. In this case, IMS PA copies the required log records from one (or more) systems to the (DASD) Merge Work File. Then when IMS PA merges the log files from each system, it uses the DASD Merge Work File (not the Tape log file).

### JCL example

Consider a sysplex with five IMS subsystems with various numbers of tape log input data sets. Only two tape units are available to the IMS PA batch job.

System	Number of Log Input Data Sets
IMSA	4
IMSB	5
IMSC	2
IMSD	3
IMSE	2

Since for this job only two tape units are deemed available, the IMS PA merge process can only read log input from two IMS subsystems concurrently. Tape to DASD copy is therefore required. Log input from three subsystems must be selected for copy processing prior to the merge. IMSC, D, and E are selected because they have the least number of log input data sets.

The generated JCL might then be as shown in the following figure.

```

/* Log Input data sets
//LIMSC101 DD DSN=IMSC.LOG01,...
//LIMSC202 DD DSN=IMSC.LOG02,...
//LIMSE101 DD DSN=IMSE.LOG01,UNIT=AFF=LIMSC101,...
//LIMSE202 DD DSN=IMSE.LOG02,UNIT=AFF=LIMSC202,...
//LIMSD101 DD DSN=IMSD.LOG01,UNIT=AFF=LIMSC101,...
//LIMSD202 DD DSN=IMSD.LOG02,UNIT=AFF=LIMSC202,...
//LIMSD103 DD DSN=IMSD.LOG03,UNIT=AFF=LIMSC101,...
//LIMSA001 DD DSN=IMSA.LOG01,UNIT=AFF=LIMSC202,...
//LIMSA002 DD DSN=IMSA.LOG02,UNIT=AFF=LIMSC202,...
//LIMSA003 DD DSN=IMSA.LOG03,UNIT=AFF=LIMSC202,...
//LIMSA004 DD DSN=IMSA.LOG04,UNIT=AFF=LIMSC202,...
//LIMSB001 DD DSN=IMSB.LOG01,UNIT=AFF=LIMSC101,...
//LIMSB002 DD DSN=IMSB.LOG02,UNIT=AFF=LIMSC101,...
//LIMSB003 DD DSN=IMSB.LOG03,UNIT=AFF=LIMSC101,...
//LIMSB004 DD DSN=IMSB.LOG04,UNIT=AFF=LIMSC101,...
//LIMSB005 DD DSN=IMSB.LOG05,UNIT=AFF=LIMSC101,...
/* Shared Queue Merge Work Files
//IPISMQW1 DD UNIT=SYSDA,SPACE=(CYL,(100,20),RLSE)
//IPISMQW2 DD UNIT=SYSDA,SPACE=(CYL,(100,20),RLSE)

```

Figure 175. JCL for Shared Queue Copy/Merge Processing

The IMS PA batch job then processes the log input as follows:

1. LIMSC101, LIMSE101, LIMSD101, LIMSD103 are read in that order using tape unit 1, and filtered and copied to merge work file 1.
2. At the same time as reading from tape unit 1, LIMSC202, LIMSE202, LIMSD202 are read in that order using tape unit 2, and filtered and copied to merge work file 2.
3. When the copies are completed, the two merge work files on DASD, together with IMSA log input (LIMSA001–4) on tape unit 1 and IMSB log input (LIMSB001–5) on tape unit 2 enter the merge process for passing data to the report log record handlers.

## IMSPALOG command

The **IMSPALOG** batch command requests a log report. Multiple log reports can be requested in the one batch job.

### Format

IMSPALOG	<i>operands</i>
----------	-----------------

The last **IMSPALOG** command in the batch job must include **EXECUTE** as its last operand. For clarity, ensure that there is only one **EXECUTE** operand in the batch job. The **EXECUTE** operand informs IMS PA that all log reports have been requested, and processing of log input can commence.

If **IMSPALOG EXECUTE** is omitted, IMS PA performs syntax checking of the input commands but does not execute any reports.

See [“Log report operands” on page 347](#) for a description of the **IMSPALOG** operands.

### Example

IMSPALOG	START(2023/04/12,10:00),STOP(2023/04/12,11:00)
IMSPALOG	ANALYSIS(TRANCODE,INCL(TC(DC*,AX*)))
IMSPALOG	CPUR(REGION,REGION-TRANCODE)
IMSPALOG	IRUR(INTERVAL(10),
	INCL(POOLS(QP,FP,DB,VS,SM,AS,PI,LT,DLICALLS,
	MISC,CB,LL,FI,DS,RU,RS,RF,ST,IM,EW)))
IMSPALOG	EXECUTE

From this example, IMS PA produces the following reports for the time period 10 a.m. to 11 a.m. on 12 April 2023:

- Transaction Transit Analysis report for transaction codes that start with DC or AX
- CPU Usage report broken down by region, and transaction code within region
- Internal Resource Usage report for all resource types

## DISTRIBUTION command

The **DISTRIBUTION** batch command defines a Distribution to be used for monitor or log reporting. The Distribution describes the presentation and thresholds to be used by the report processors and presented in the report output.

For a detailed description see [“Distributions” on page 645](#).

The **DISTRIBUTION** command does not invoke report processing. It works in conjunction with report processing that produces distribution report output.

### Format

<i>name</i>	DISTRIBUTION	[LIMITS( <i>value1</i> ,..., <i>value9</i> ),] [TITLE('text'),] [MULTIPLY( <i>nnnn</i> ),] [EDITMASK('char.mask') EDITMASK( <i>hex.mask</i> )]
-------------	--------------	---

#### **name**

Specifies the name of the Distribution. This name associates the Distribution with a particular report or set of reports and must be one of the following: LOGIN, \$IPDIST1, \$IPDIST2, SYSCKPT, ELAP/SCH, ELAP/CAL, ELAP/IWT, IWTSCAL, IWTSUMMY, DDIWELAP, FPBSCNT, FPBGQLN, FPBGELP, FPOTACT, FPOTWTA, FPOTBOQ, FPRCLIW, COMMELP, COMMIWE, COMMLFR, COMMLFT, COMMLFI, MSCQLEN, MSCQELP.

For the list of these Distributions, their titles, and the reports they apply to, see [“Distribution and Report cross-reference”](#) on page 649.

## **DISTRIBUTION**

Identifies the attributes of the distribution graphs.

## **LIMITS**

Defines the nine limits which define nine ranges for the distributions. The nine limits must be in ascending sequence. When the distribution is printed, the limit values are printed at the left up the vertical axis of the graph. This operand is optional, and if omitted, the default limits are: 1, 5, 10, 30, 50, 100, 300, 500, 1000.

## **TITLE**

Defines the unit of measure for the graph. Up to 12 characters, including blanks, can be specified as the title. The title is printed on the left at the top of the vertical axis above the column of limit values. This operand is optional, and if omitted, the default title is Sc Mil Mic for seconds, milliseconds and microseconds respectively.

## **MULTIPLY**

Specifies a numeric value (typically a multiple of 10) to be used to multiply by each limit. This operand is optional, and if omitted, the default is 1000.

## **EDITMASK**

Specifies an edit mask to be used when printing the limit values. Two formats can be used:

1. Eleven (11) character quoted string.
2. Twenty four (24) character string that represents 12 hexadecimal values.

If less than the maximum number of characters allowed is specified, the mask is right justified and padded on the left with blanks.

If the quoted string is used, any character can be specified, but some characters have a special meaning, as follows:

### **Z**

Zero suppression

### **9**

Digit mask

### **S**

Trigger start

Any other character is used in the result as is. The number of digit select characters (Z, 9, S) must be odd, otherwise the low-order digit of the result will not be formatted.

If the hexadecimal string is used, up to 12 hexadecimal values (24 hex characters) can be represented. The hexadecimal string is the actual edit mask as used by the edit (ED and EDMK) assembler instructions. The mask can include any valid hexadecimal value, but some have a special meaning, as follows:

### **20**

Digit selector

### **21**

Significance starter

### **22**

Field separator

This operand is optional, and if omitted, the default edit mask is 'ZZZ.ZZ9.999' or 402020204B2021204B202020.

## **Example**

```
ELAP/CAL  DISTRIBUTION  LIMITS(1,5,10,30,50,100,300,500,1000),  
MULTIPLY(1000),
```



```
TITLE('Sc Mil Mic'),
EDITMASK('ZZZ.ZZ9.999')
```

In this example, the Distribution ELAP/CAL is used to produce distributions of DL/I call elapsed time. The time ranges are the limit values multiplied by the multiplier and would be 0-1000, 1001-5000, 5001-10000, 10001-30000, 30001-50000, 50001-100000, 100001-300000, 300001-500000, 500001-1000000, over 1000000. When formatted by the edit mask, they are printed as 1.000, 5.000, 10.000, . . . , 1.000.000 where 1.000 represents 1 millisecond and 1.000.000 represents 1 second.

## COPY command

The **COPY** batch command reads one or more members of the command library. The command library must be a partitioned data set defined by the CMDLIB DD statement.

**COPY** puts pre-coded commands from the command library into the input stream.

### Format

COPY	<i>member1[,member2,...]</i>
------	------------------------------

The only operands for the **COPY** command are one or more member names in the command library. Each member may in turn contain **COPY** commands. The **EXECUTE** operand may be within or following the last **COPY** command.

Member names are scanned from left to right, and members are read in the order specified. Copied members may themselves employ the **COPY** command. To prevent **COPY** loops, any request for a member currently queued for read causes an error and the member is not processed. An error message is issued for any member not found in the command library.

**COPY** allows users to retrieve pre-coded commands and include them in the input stream. Pre-coded commands would usually include production level command data, or static command input like Distributions, Include and Exclude lists, or commonly used reports.

### Example

In this example, LOGREPS contains a common set of Log report commands, and LOGDISTS contains the Distributions used by Log reporting.

IMSPALOG	START(2023/04/12,10:00),STOP(2023/04/12,11:00)
COPY	LOGREPS
IMSPALOG	EXECUTE
COPY	LOGDISTS

## Log report operands

The **IMSPALOG** command has two types of operand: report operands and general options operands that apply to multiple reports.

General options are further divided into:

- “Log Global Options” on page 350: global options that apply to all reports
- “Transaction (MSGQ) Transit Options” on page 362: options that apply to Transaction Transit reports
- “Fast Path (EMH) Transit Options” on page 396: options that only apply to Fast Path Transit reports

A list of report operands and the reports they produce can be found in the sections below.

### Form-based Transaction Transit reports

The Form-based Transaction Transit report operands for the **IMSPALOG** command are:

**LIST**

Transaction Transit List (Form-based)

**SUMMARY**

Transaction Transit Summary (Form-based)

**INDEX**

IMS transaction index

**Fixed-format Transaction Transit reports**

The Fixed-format Transaction Transit report operands for the **IMSPALOG** command are:

**ANALYSIS**

Transaction Transit Analysis

**STATS**

Transaction Transit Statistics

**LOG**

Transaction Transit Log

**GRAPH**

Transaction Transit Graphic Summary

**EXTRACT**

Transaction Transit Extract by Interval

**TRANEXC**

Transaction Exception

**TRANHIST**

Transaction History File

**Resource Usage and Availability reports**

The Resource Usage and Availability report operands for the **IMSPALOG** command are:

**DASHBOARD**

Dashboard (Health Check)

**MGREX**

Management Exception

**TRANRESU**

Transaction Resource Usage

**AVAIL**

Resource Availability

**CPUR**

CPU Usage

**IRUR**

Internal Resource Usage

**MSCLSTAT**

MSC Link Statistics

**MSGQ**

Message Queue Utilization

**DBUPDATE**

Database Update Activity

**HISTGRAM**

Region Histogram

**SB**

OSAM Sequential Buffering

**DEADLOCK**

Deadlock

**CHECKPOINT**

System Checkpoint

**BMPCHKP**

BMP Checkpoint

**GAP**

Gap Analysis

**COLDSTART**

Cold Start Analysis

**Fast Path Transit reports**

The Fast Path Transit report operands for the **IMSPALOG** command are:

**FPANALYSIS**

Fast Path Transit Analysis

**FPLOG**

Fast Path Transit Log

**FPEXTRACT**

Fast Path Transit Extract by Interval

**FPTRNEX**

Fast Path Transaction Exception

**Fast Path Resource Usage reports**

The Fast Path Resource Usage report operands for the **IMSPALOG** command are:

**FPIRUC**

Fast Path Resource Usage and Contention

**FPDBCALL**

Fast Path Database Call Statistics

**FPRGNO**

IFP Region Occupancy

**FPEMHQ**

EMH Message Statistics

**FPDBUPD**

DEDB Update Activity

**FPVSO**

VSO Statistics

**ATF Summary Reports**

The ATF Summary report operands for the **IMSPALOG** command are:

**ATFEXTR**

Extract

**ATFANALYSIS**

Transaction Analysis

**ATFDLICAL**

DLI Call Analysis

**ATFDB2CALL**

Db2 Call Analysis

**ATFMQCALL**  
IBM MQ Call Analysis

**Trace reports**

The Trace report operands for the **IMSPALOG** command are:

**DCTRACE**  
DC Queue Manager Trace

**DBTRACE**  
Database Trace (Full Function)

**FPDBTRC**  
DEDB Update Trace

**ESAF**  
ESAF Trace

**User-Written reports**

The User-Written report operands for the **IMSPALOG** command are:

**USERPGM**  
User-Written Record Processors

For further details of the reports and their default values, see the description of the corresponding dialog options in [Chapter 20, “Requesting Log reports,” on page 209](#).

**Log Global Options**

The Log Global Options define output and general control information for the log reports.

**Format**

---

IMSPALOG	[START( <i>date,time</i> ),] [STOP( <i>date,time</i> ),] [OUTPUTDD( <i>ddname</i> ),] [PRINTAT(HOUR STOP EOF  <i>nnnn</i> ),] [PAGESIZE( <i>nnn</i> ),] [NOPCTSIGN,] [XTRHEADING,] [XTRCOMMA,] [IGNORSEQ,] [TRANEXIT( <i>exitname</i> ),] [SETIMSID(LOG DDNAME),] [EXCLNULL,]	default RPTOUT default 60 lines
----------	--	------------------------------------

---

**START**  
Global Start date and time

**STOP**  
Global Stop date and time

**OUTPUTDD**  
Transaction (MSGQ) Transit reports output ddname

**PRINTAT**  
Report break point specifies when reports are written  
Default: STOP  
Specify when reports are to be written, as follows:

**HOURL**

Write reports every hour.

**STOP**

Write reports at the end of the specified interval, or end of the job if no defined interval.

**EOF**

Write reports at the end of the job.

**nnnn**

Write reports every *nnnn* minutes. The maximum value is 9999.

All times refer to log times.

**PAGESIZE**

Number of print lines per page

**NOPCTSIGN**

Do not print % sign in report output (for some form-based reports)

**XTRHEADING**

Include fields headings in Transit Traffic extract files

**XTRCOMMA**

Use comma delimiter in Transit Traffic extract files

**IGNORSEQ**

Ignore log sequencing errors

**TRANEXIT**

Transaction Substitution Exit name; affects the Transit Analysis, Transit Statistics, and Transaction Exception reports

**SETIMSID**

Source of IMS Processing ID.

**LOG**

Derive the subsystem name from the IMS log records.

**DDNAME**

Default. Use the subsystem name taken from the log input DD in the format *Lxxxxunn* where *xxxx* is the IMSID, for example, //LIMSA001 DD DSN=IMSA.SLDS.

**EXCLNULL**

Specifies whether to include or exclude fields selected for output but possess null reportable values.

**Example**

```
IMSPALOG      START(2023/03/26,) ,STOP(2023/03/27,) ,
               OUTPUTDD(RPTOUT) ,
               PRINTAT(STOP) ,PAGESIZE(60) ,
               XTRCOMMA ,IGNORSEQ
```

**Example - Inflight processing**

To generate this JCL, activate inflight processing on the IMS Performance Analyzer ISPF dialog and then submit one of the following reports:

- [“Form-based Transaction Transit reports” on page 225](#)
- [“IMS transaction index” on page 239](#)
- [“Internal Resource Usage reports” on page 267](#)

For details, see [“Log Global Options” on page 216](#).

```
:
/* In-flight transaction processing
//IMSinFLT DD DSN=USR.IMSPA.INFLIGHT,
```

```

//          DISP=SHR
//IMSOTFLT DD DSN=USR.IMSPA.OTFLIGHT,
//          DISP=SHR
:

/* Report Set Command Input
//IPICMD DD *
* IMS PA Log Report
* Report Set Name - SAMPLOG
* Description - Sample Log Report Set
* Log Report Global Options
*   Log Input - LOGIN
*   Report Output - RPTOUT
*   Inflight transaction processing requested 1
*   Inflight dataset - ddname=IMSINFLT
*   Outflight dataset - ddname=IMSOTFLT
*   Inflight DSN - 'USR.IMSPA.INFLIGHT'
*   Outflight DSN - 'USR.IMSPA.OTFLIGHT'
                IMSPALOG          INPUTDD(LOGIN),
:                                OUTPUTDD(RPTOUT),
:

/* Switch In-flight transaction datasets 2
//RENAME EXEC PGM=IDCAMS,(COND=0,NE,IPI)
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
ALTER      USR.IMSPA.INFLIGHT -
NEWNAME(   USR.IMSPA.INFLIGHT.TMP )
ALTER      USR.IMSPA.OTFLIGHT -
NEWNAME(   USR.IMSPA.INFLIGHT )
ALTER      USR.IMSPA.INFLIGHT.TMP -
NEWNAME(   USR.IMSPA.OTFLIGHT )
/*

```

**1**

JCL generated by the ISPF dialog indicates that inflight processing has been requested.

**2**

Switching the INFLIGHT and OTFLIGHT data sets using an IDCAMS post step after reporting has completed successfully (RC=0).

#### Related reference

##### Log Global Options

The IMS Performance Analyzer Log Global Options define general control information which applies to all active reports within the Report Set.

##### IMS Performance Analyzer sample library

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## Form-based Transaction Transit reports

This section contains the operands for Form-Based Transaction Transit log reports.

### Transaction Transit (Form-based) Options

Form-based Transaction Transit Options define general control information for the Form-based Transaction Transit reports.

The Form-based Transaction Transit Options apply to the following reports:

- [“LIST: Transaction Transit List report and extract \(Form-based\)” on page 354](#)
- [“SUMMARY: Transaction Transit Summary report and extract \(Form-based\)” on page 357](#)
- [“Fixed-format Transaction Transit Reports” on page 362](#)

## Format

---

IMSPALOG	[BMPSYNC(YES NO),]	default NO
	[PROCESSEDONLY(YES NO),]	default NO
	[PROGRAMSWITCH(YES BMP NO)]	default YES

---

### BMPSYNC

BMP treatment option.

The following options may be specified:

#### YES

Treat each BMP syncpoint interval as a single transaction.

#### NO

Default. Treat the BMP as a single transaction. All syncpoint intervals are accumulated and reported at job end.

When using this option, it is recommended that you collect type x'56FA' transaction accounting log records (TRANSTAT=YES) to analyze CPU usage and DLI call activity in more detail for each BMP syncpoint interval.

### PROCESSEDONLY

Determines which shared queue transactions are reported.

The following options may be specified:

#### YES

Only report transactions that were processed on subsystems whose logs were input.

#### NO

Report all transactions, even those processed on other subsystems whose logs were not input. This is the default option except when inflight processing has been activated. See [“Log Global Options”](#) on page 350.

### PROGRAMSWITCH

Program switch reporting.

The following options may be specified:

#### YES

Track transactions involved in program switch sequences. Program switch sequences are reported as a group. This is the default option except when inflight processing has been activated. See [“Log Global Options”](#) on page 350.

#### BMP

Track transactions involved in program switch sequences. If the sequence is initiated from a BMP, include the BMP transaction at the head of the group.

#### NO

Report all transactions separately. Program switch sequences are not reported as a group.

### Related reference

[Transaction Transit \(Form-based\) Options](#)

The IMS Performance Analyzer Form-based Transaction Transit Options define control information that applies to the Form-based Transaction Transit reports within the Report Set.

[IMS Performance Analyzer sample library](#)

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## LIST: Transaction Transit List report and extract (Form-based)

The **LIST** operand of the **IMSPALOG** batch command requests the Transaction Transit List report or extract for IMS fields.

### Format

```
IMSPALOG    LIST(
[DDNAME(ddname),]          default LISTnnnn
[FROM(date,time),]
[TO(date,time),]
[EXTRACT(ddname),]        default LISXnnnn
[TRANMIX(n),]             default 1
[STARTLVL(n),]            default 2
[COMPLVL(n),]             default 3
[PRECISION(n),]           default 6
[SECGROUP|NOGROUP|GROUP,]
[OUTPUTMSG|NOOUTPUTMSG,]
[INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
[INCL(PROGRAM(list))|EXCL(PROGRAM(list)),]
[INCL(LTERM(list))|EXCL(LTERM(list)),]
[INCL(LINE(list))|EXCL(LINE(list)),]
[INCL(VTAMNODE(list))|EXCL(VTAMNODE(list)),]
[INCL(CLASS(list))|EXCL(CLASS(list)),]
[INCL(USERID(list))|EXCL(USERID(list)),]
[DELIMIT(field-delimiter)|NODELIMIT,]    default , (comma)
[LABELS|NOLABELS,]
[ALLFIELDS,]
[FLOAT|NOFLOAT,]
[DECIMAL|NODECIMAL,]
[ISO8601|NOISO8601,]
[COND((condition1,...),...)]
[FIELDS(field1,...)]
```

#### DDNAME

DDname for the report output. The default is LISTnnnn where *nnnn* is a sequential number in the range 0001–9999.

#### FROM and TO

The reporting interval, either a date-time range or a time slot. The time slot can span midnight. The date can be either a calendar date or a relative date. If both dates are specified, they must be in the same format.

#### EXTRACT

DDname for the extract output. The default is LISXnnnn where *nnnn* is a sequential number in the range 0001–9999.

#### TRANMIX

Specify the mix of transactions to report:

- 1** All transactions
- 2** All transactions, excluding IFP.
- 3** IFP transactions only.
- 4** Transactions that use Fast Path (EMH and/or DEDB).
- 5** All transactions, excluding BMP.



Non-message driven BMP only.

#### **STARTLVL**

Specify a value in the range 1–3 to specify the minimum transaction start level for reporting.

#### **COMPLVL**

Specify a value in the range 0–6 to specify the minimum transaction completion level for reporting.

#### **PRECISION**

The precision of numeric fields. Numeric fields can be formatted to either 3, 4, 5, or 6 decimal places where 3 is millisecond precision and 6 is microsecond precision.

#### **SECGROUP | NOGROUP | GROUP**

Digit grouping affects the formatting of count and time-based fields.

**Note:** Extracts will not contain thousands separators to allow for simpler integration with analytics.

##### **SECGROUP**

Use thousands separators for count-based fields. Display time-based values in seconds with a precision specified by the **PRECISION** keyword.

##### **NOGROUP**

Do not use thousands separators for count-based fields. Display time-based values in the unit of measure implied by the **PRECISION** keyword.

##### **GROUP**

Use thousands separators for count-based fields and time-based fields. Display time-based values in the unit of measure implied by the **PRECISION** keyword.

#### **OUTPUTMSG | NOOUTPUTMSG**

##### **OUTPUTMSG**

Report all output messages from the transaction.

##### **NOOUTPUTMSG**

Report only the first output message for the transaction.

#### **INCL | EXCL**

Selection criteria to filter (include or exclude) the report on Transaction Code, Program, LTERM, LINE, VTAM node, Message class, User ID.

**Note:** An INCL(LINE) suboperand filters on the TERMINAL form field.

#### **DELIMIT | NODELIMIT**

##### **DELIMIT**

The field delimiter, enclosed in quotes, to be used to separate each data field in the extract data set.

##### **NODELIMIT**

A field delimiter is not to be used to separate each data field in the extract data set.

#### **LABELS | NOLABELS**

##### **LABELS**

The first record to be written to the extract data set is to be a field labels record.

##### **NOLABELS**

Field labels are to be omitted from the extract data set.

#### **ALLFIELDS**

The **ALLFIELDS** form-based reporting option explicitly includes all fields in extracts when reporting on multi-value fields from the DATABASE, ESAF, and ODBM categories. When combined with the **EXTRACT** option, the **ALLFIELDS** option produces a more verbose data set for easier ingestion into analytics platforms.

## FLOAT | NOFLOAT

### FLOAT

Write numeric fields in the extract in **FLOAT** format. Specify **FLOAT** if you plan to import the extract into a Db2 table and you need the data in hexadecimal S390 FLOAT format. When the Db2 load utility is used, it will interpret all numerical fields in S390 FLOAT format. Time fields are in units of seconds and count fields are real numbers.

### NOFLOAT

Numeric fields in the extract will be written in character format according to the Precision and Digit Grouping options.

## DECIMAL | NODECIMAL

### DECIMAL

Write numeric fields in the extract as a packed decimal number, which can be as large as  $10^{31}$ , not including the fractional part of the number. When you use the DECIMAL operand rather than the NODECIMAL operand, the risk of reports truncating numeric values is much less.

### NODECIMAL

Numeric fields in the extract will be written in character format according to the Precision and Digit Grouping options.

## ISO8601 | NOISO8601

**ISO8601** causes time fields that have the ISO function applied to have the format *YYYY-MM-DDT.MM.SS.THMIJU±HH:MM*. The number of digits of precision depends on the precision values you have specified. The final *HH* and *MM* values identify the time zone as a time offset from Coordinated Universal Time (UTC). **NOISO8601** outputs time fields without the time zone information.

## COND

Specifies a set of conditions for filtering report output. A condition follows the format *field name, operator, value*. For more information on what you can specify in these fields, see [Chapter 16, “Report Filters,”](#) on page 183. Within each COND statement, a boolean AND operator applies between multiple conditions. A boolean OR operator applies between two or more COND statements.

## FIELDS

Specifies which fields are included in the report or extract, their order, and format. For the list of available fields, see the [Chapter 34, “Glossary of Report Form field names,”](#) on page 673. If the **FIELDS** operand is omitted, the default report or extract is produced.

### Example 1

```
IMSPALOG LIST(FIELDS(TRANCODE,
                     TERMINAL,
                     USERID,
                     CPUTIME,
                     TOTALTM,
                     TRANCNT))
```

### Example 2: Report filter applied

```
IMSPALOG LIST(
  COND(
    (TRANCODE,EQ,MQ*),
    (TRANCODE,NE,MQ1),
    (CPUTIME,GT,0.05)),
  COND(
    (USERID,EQ,JOHN)),
  FIELDS(STARTIMS(TIME),
         ORGLTERM,
         TRANCODE,
         PROGRAM,
         USERID,
         CPUTIME,))
```

### Related concepts

[List report form](#)

An IMS Performance Analyzer list report form allows you to produce a list of transactions containing the specified fields.

### Related reference

Transaction Transit List report and extract

The options for the IMS Performance Analyzer Transaction Transit List report and extract are described here.

## SUMMARY: Transaction Transit Summary report and extract (Form-based)

The **SUMMARY** operand of the **IMSPALOG** batch command requests the Transaction Transit Summary Report or Extract for IMS fields.

### Format

```
IMSPALOG    SUMMARY(
[DDNAME(ddname),]          default SUMMnnnn
[FROM(date,time),]
[TO(date,time),]
[INTERVAL(hh:mm:ss),]      default 00:01:00
[EXTRACT(ddname),]         default SUMXnnnn
[ALLINTERVALS,]            default NOALLINTERVALS
[TRANMIX(n),]              default 1
[STARTLVL(n),]             default 2
[COMPLVL(n),]              default 3
[PRECISION(n1,n2),]        default 6,2
[SECGROUP|NOGROUP|GROUP,]
[TOTALS(n)|NOTOTALS,]      default 0
[LIMIT(nnn)]
[INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
[INCL(PROGRAM(list))|EXCL(PROGRAM(list)),]
[INCL(LTERM(list))|EXCL(LTERM(list)),]
[INCL(LINE(list))|EXCL(LINE(list)),]
[INCL(VTAMNODE(list))|EXCL(VTAMNODE(list)),]
[INCL(CLASS(list))|EXCL(CLASS(list)),]
[INCL(USERID(list))|EXCL(USERID(list)),]
[DELIMIT(field-delimiter)|NODELIMIT,]    default , (comma)
[LABELS|NOLABELS,]
[FLOAT|NOFLOAT,]
[DECIMAL|NODECIMAL,]
[ISO8601|NOISO8601,]
[COND((condition1,...),...)]*
FIELDS(field1[options],...))
```

### DDNAME

DDname for the report output. The default is SUMMnnnn where *nnnn* is a sequential number in the range 0001–9999.

### FROM and TO

The reporting interval, either a date-time range or a time slot. The time slot can span midnight. The date can be either a calendar date or a relative date. If both dates are specified, they must be in the same format.

### EXTRACT

DDname for the extract output. The default is SUMXnnnn where *nnnn* is a sequential number in the range 0001–9999.

### ALLINTERVALS

In extract output only, include the summary intervals in which no activity was reported. Only valid when **EXTRACT** is specified. Use this feature when charting to reveal gaps where the transaction count is zero. This option is useful for importing extract data into third-party tools and analytics platforms where an explicit value of "0" may be required for periods of system inactivity.

The **NOALLINTERVALS** option will hide intervals in which there was no activity. If no option is specified, **NOALLINTERVALS** is the default.

**INTERVAL**

Applies when you want to summarize activity over time. It is used when the **SUMMARY** Report Form has one or both of the sort fields **STARTIMS** or **STARTCON** included. When reporting, IMS Performance Analyzer accumulates the data for each interval in the report period and writes a report line for each.

**TOTALS**

The grand total and the level of subtotalling required. A totals level of 0 will produce grand totals only in the report. Specify a totals level in the range 1–7 to produce both a grand total and subtotals to the corresponding key level.

**NOTOTALS**

No grand totals or subtotals will be included in the report.

**LIMIT**

Limit the number of lines in the summary report to a value from 1 to 255. Can only be used when **LIMIT** is set to 0 or the parameter is omitted. Excludes the grand total line when **LIMIT** is set to 0.

**TRANMIX**

Specify the mix of transactions to report:

- 1** All transactions
- 2** All transactions, excluding IFP.
- 3** IFP transactions only.
- 4** Transactions that use Fast Path (EMH and/or DEDB).
- 5** All transactions, excluding BMP.
- 6** Non-message driven BMP only.

**STARTLVL**

Specify a value in the range 1–3 to specify the minimum transaction start level for reporting.

**COMPLVL**

Specify a value in the range 0–6 to specify the minimum transaction completion level for reporting.

**PRECISION**

The precision of numeric form fields.

The first value *n1* specifies the precision of time-based fields, from 3 (millisecond precision) to 6 (microsecond precision). CPU and elapsed times are rounded up where necessary. Time stamps are truncated.

The second value *n2* specifies the precision of count fields, applicable only when reported as average, from 0 to 2 decimal places.

**SECGROUP | NOGROUP | GROUP**

Digit grouping affects the formatting of count and time-based fields.

**Note:** Extracts will not contain thousands separators to allow for simpler integration with analytics.

**SECGROUP**

Use thousands separators for count-based fields. Display time-based values in seconds with a precision specified by the **PRECISION** keyword.

**NOGROUP**

Do not use thousands separators for count-based fields. Display time-based values in the unit of measure implied by the **PRECISION** keyword.

**GROUP**

Use thousands separators for count-based fields and time-based fields. Display time-based values in the unit of measure implied by the **PRECISION** keyword.

**INCL | EXCL**

Selection criteria to filter (include or exclude) the report on Transaction Code, LTERM, Line, VTAM node, Message class, User ID.

**Note:** An INCL(LINE) suboperand filters on the TERMINAL form field.

**DELIMIT | NODELIMIT****DELIMIT**

The field delimiter, enclosed in quotes, to be used to separate each data field in the extract data set.

**NODELIMIT**

A field delimiter is not to be used to separate each data field in the extract data set.

**LABELS | NOLABELS****LABELS**

The first record to be written to the extract data set is to be a field labels record.

**NOLABELS**

Field labels are to be omitted from the extract data set.

**FLOAT | NOFLOAT****FLOAT**

Write numeric fields in the extract in **FLOAT** format. Specify **FLOAT** if you plan to import the extract into a Db2 table. When the Db2 load utility is used, it will interpret all numerical fields reliably and consistently in **FLOAT** format. Time fields are in units of seconds and count fields are real numbers.

**NOFLOAT**

Numeric fields in the extract will be written in character format according to the Precision and Digit Grouping options.

**DECIMAL | NODECIMAL****DECIMAL**

Write numeric fields in the extract as a packed decimal number, which can be as large as  $10^{31}$ , not including the fractional part of the number. When you use the DECIMAL operand rather than the NODECIMAL operand, the risk of reports truncating numeric values is much less.

**NODECIMAL**

Numeric fields in the extract will be written in character format according to the Precision and Digit Grouping options.

**ISO8601 | NOISO8601**

**ISO8601** causes time fields that have the ISO function applied to have the format *YYYY-MM-DDT.MM.SS.THMIJU±HH:MM*. The number of digits of precision depends on the precision values you have specified. The final *HH* and *MM* values identify the time zone as a time offset from Coordinated Universal Time (UTC). **NOISO8601** outputs time fields without the time zone information.

**COND**

Specifies a set of conditions for filtering report output. A condition follows the format *field name, operator, value*. For more information on what you can specify in these fields, see [Chapter 16, “Report Filters,” on page 183](#). Within each COND statement, a boolean AND operator applies between multiple conditions. A boolean OR operator applies between two or more COND statements.

**FIELDS**

Specifies which fields are included in the report or extract, the order in which they appear in the report, and the statistical functions used to summarize the data. For the list of available fields, see the [Chapter 34, “Glossary of Report Form field names,” on page 673](#). If the **FIELDS** operand is omitted, the default report or extract is produced.

Up to 8 sort key fields can be specified, and at least one must be specified. The order of the key fields in the list defines the sort precedence, with the first key field being the major sort field. For each key field, the report can be ordered in ascending (**ASCEND**) or descending (**DESCEND**) sequence. The default is ascending. Sort key fields identify the grouping required for summarization, and can be **STARTIMS** or any character field.

The sort key fields must be specified first in the list ahead of the numeric fields. The only field that can appear ahead of a key field is **TRANCNT**.

In addition to the sort key fields, one numeric field can be selected as ascending or descending to activate Alternate Sequencing. This will change the order of report lines from sort key to numeric field sequence. For example, specify **RESPIMS (DESCEND)** to see the transactions with the highest response time at the top of the report. Note that grouping by sort key remains unaffected by alternate sequencing.

**TRANCNT** is a special field computed by IMS Performance Analyzer. It reports the number of transactions. **TRANCNT** can be reported anywhere on the print line by including it in the **FIELDS** specification.

Key fields must be specified first in the **FIELDS** list.

All numeric fields (except **TRANCNT**) are summarized using any number of the following statistical functions:

**AVE**

Average value (this is the default if a field is specified without a function)

**COUNT**

Number of transactions with a value

**DATE**

**STARTIMS** field: date in the format *yyyy-mm-dd*

**DEV**

Standard deviation

**HIDE**

Include field in key but do not print

**ISO**

**STARTIMS** field: date and time in the format *yyyy-mm-dd hh.mm.ss*

**MAX**

Maximum value

**MIN**

Minimum value

**TIME**

**STARTIMS** field: Time in the format *hh.mm.ss* (this is the default if format is not specified)

**TOTAL**

Sum total

**nnn**

Peak percentile value in the range 50%–100%

**RNGPERC**

Distribution: Percentage of values from a specified limit value or within a range. Specify one of the following options:

**RNGPERC(operator value)**

Specify a reporting limit. Use this parameter report a distribution by splitting the values reported by a single field into different columns. For example:

```
FIELDS(STARTIMS(TIME,ASCEND),
      IMSID(ASCEND),
      TRANCNT(ASCEND),
      TRANCNT,
      TOTALTM(MIN),
```

```
TOTALTM(AVE),
TOTALTM(MAX),
TOTALTM(RNGPERC(<10)),
TOTALTM(RNGPERC(<50)),
TOTALTM(RNGPERC(<100)),
TOTALTM(RNGPERC(<200)),
TOTALTM(RNGPERC(<500)),
TOTALTM(RNGPERC(>=500)),
TOTALTM(RNGCOUNT(>=500)))
```

The following values of *operator* are valid: =, >, >=, <, and <=.

**Character ranges:** Specify a character range with character-based fields. Where a blank or null value is valid for a particular field, use a hyphen (-).

#### **RNGPERC(*from* - *to*)**

Report on a range of values greater than or equal to the value of *from*, and less than (but *not equal*) to the value of *to*.

A character range can not be specified using this option.

#### **RNGCOUNT**

Distribution: Count of values from a specified limit value or within a range. Specify one of the following options:

##### **RNGCOUNT(*operator value*)**

Specify a reporting limit. The following values of *operator* are valid: =, >, >=, <, and <=.

**Character ranges:** Specify a character range with character-based fields. Where a blank or null value is valid for a particular field, use a hyphen (-).

##### **RNGCOUNT(*from* - *to*)**

Report on a range of values greater than or equal to the value of *from*, and less than (but *not equal*) to the value of *to*.

A character range can not be specified using this option.

### **Example 1**

```
IMSPALOG SUMMARY(FIELDS(ORGTRAN(ASCEND),
                        TRANCOD(ASCEND),
                        SWITTIME(HIDE,ASCEND),
                        TOTALTM(AVE),
                        INPUTQ(90),
                        CPUTIME(AVE)))
```

### **Example 2: Report filter applied**

```
IMSPALOG SUMMARY(
COND(,
(CLASS,GE,1),
(CLASS,LE,30),
(REGTYPE,EQ,MPP)),
FIELDS(STARTIMS(TIME,ASCEND),
PSTID(ASCEND),
CLASS(ASCEND),
PRIORITY(ASCEND),
TRANCNT,
INPUTQ(MIN),
INPUTQ(AVE),
INPUTQ(MAX)))
```

### **Related concepts**

#### Summary report form

An IMS Performance Analyzer summary report form allows you to produce a summary of transaction activity reporting on only the fields that you specify.

### **Related reference**

[Transaction Transit Summary report and extract](#)

The IMS Performance Analyzer Transaction Transit Summary report and extract options are described here.

## INDEX: IMS transaction index

The **INDEX** operand of the **IMSPALOG** batch command requests the IMS transaction index.

The IMS transaction index is a specialized extract file created by IMS Performance Analyzer batch reporting. Each record in the index represents an IMS transaction and contains cumulative information from the IMS log about that transaction. Optionally, you can request that the index include additional information for external subsystems or database update activity or both.

### Format

---

```
IMSPALOG INDEX(
    [ESAF,]
    [DBUPDATE])
    [ABEND,]
    [PROCESS(9999),]          default 0.50 seconds
    [TOTAL(9999),]          default 1.00 seconds
    [PGMSWI,]
    [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
    [INCL(LTERM(list))|EXCL(LTERM(list)),]
    [INCL(LINE(list))|EXCL(LINE(list)),]
    [INCL(VTAMNODE(list))|EXCL(VTAMNODE(list)),]
    [INCL(CLASS(list))|EXCL(CLASS(list)),]
    [INCL(USERID(list))|EXCL(USERID(list))]
IMSPALOG EXECUTE
```

---

### Related reference

#### [IMS transaction index](#)

The IMS transaction index is a specialized extract file created by IMS Performance Analyzer batch reporting. Each record in the index represents an IMS transaction and contains cumulative information from the IMS log about that transaction.

## Fixed-format Transaction Transit Reports

This section contains the operands for fixed-format Transaction Transit log reports.

### Transaction (MSGQ) Transit Options

Transaction Transit Options define general control information for the Transaction Transit reports.

The Transaction Transit reports are:

- Transaction Transit Analysis
- Transaction Transit Statistics
- Transaction Transit Log
- Transaction Transit Graphic Summary
- Transaction Transit Extract by Interval
- Transaction Exception
- Transaction History File

These operands apply to all Transaction Transit reports unless overridden by individual reports.



## Format

---

```
IMSPALOG      [PEAK(ppp),]           default 90 %
               [INMAX(nnnnn),]       default 60 seconds
               [OUTMAX(nnnnn),]       default 60 seconds
               [TSETSIZE(nnnnn),]     default 32767 transactions
               [INTERVAL(nnnn),]      default 15 minutes
               [ALIGN|NOALIGN,]
               [REPORTALL,]
               [QUALIFY([INCL(TC(list))|
                       EXCL(TC(list))],
                       [INCL(MSC),]
                       [INCL(BMP),]
                       [INCL(APPC),]
                       [INCL(MSGSW)])]
```

---

### PEAK

Peak percentile

### INMAX

Maximum Input Queue time

### OUTMAX

Maximum Output Queue time

### TSETSIZE

Maximum Transaction Set size

### INTERVAL

Time Interval in minutes

### ALIGN

Align Time Interval to the even hour

### NOALIGN

Do not align Time Interval to the even hour

### QUALIFY

The following options may be specified:

#### **INCL(TC(*list*)) or EXCL(TC(*list*))**

Selection criteria to filter (include or exclude) the report on Transaction Code.

#### **INCL(MSC)**

Include MSC transactions

#### **INCL(BMP)**

Include BMP transactions

#### **INCL(APPC)**

Include APPC and OTMA transactions

#### **INCL(MSGSW)**

Include Message Switches (CNT switches to ISC, MSC, and so on)

### REPORTALL

Include all transactions, regardless of whether there was a response to the originating LTERM.

**REPORTALL** will automatically include all MSC, BMP, and APPC and OTMA transactions unless a **QUALIFY** statement exists that specifically includes one or more of these transaction types. In this scenario, the remaining un-selected options are not included, even if **REPORTALL** has been specified.

**REPORTALL** does not report Message Switches. To include Message Switches, specify the **INCL(MSGSW)** option.

## Example

Transaction Transit Analysis, and Log with time interval 15 minutes, aligned to the hour, MSC, BMP, and APPC/OTMA transactions included, and message switches not included.

```
IMSPALOG      START(2023/06/25,07:15),STOP(2023/06/25,09:30),
               INPUTDD(LOGIN),OUTPUTDD(RPTOUT),
               PAGESIZE(60),PRINTAT(STOP)
IMSPALOG      INMAX(50),OUTMAX(50),PEAK(85),
               TSETSIZE(2500),
               INTERVAL(15),ALIGN,
               QUALIFY(INCL(TC((DSFJ,DSFM),F*,K*,(MDB,MDK))),
                     INCL(BMP),
                     INCL(MSC),
                     INCL(APPC))
IMSPALOG      ANALYSIS(TRANCODE)
IMSPALOG      LOG(FROM(2023/06/25,08:15),TO(2023/06/25,09:15))
```

## Related reference

[Transaction Transit Options](#)

The IMS PA Transaction Transit Options define control information that applies to the Transaction Transit reports within the Report Set.

## ANALYSIS: Transaction Transit Analysis report

The **ANALYSIS** operand of the **IMSPALOG** batch command requests the Transaction Transit Analysis report.

## Format

```
IMSPALOG      ANALYSIS([TRANCODE,]
                      [LTERM|USERID,]
                      [LTERM-TRANCODE|USERID-TRANCODE,]
                      [LINE,]
                      [CLASS,]
                      [TIME,]
                      [REPORTALL,]
                      [FROM(date,time),]
                      [TO(date,time),]
                      [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
                      [INCL(LTERM(list))|EXCL(LTERM(list)),]
                      [INCL(LINE(list))|EXCL(LINE(list)),]
                      [INCL(VTAMNODE(list))|EXCL(VTAMNODE(list)),]
                      [INCL(CLASS(list))|EXCL(CLASS(list)),]
                      [INCL(USERID(list))|EXCL(USERID(list))])
```

Any combination of the following reports can be requested. If all six reports are required, either specify the six report operands, or **ALL**.

### TRANCODE

By Transaction Code

### LTERM or USERID

By LTERM or User ID

### LTERM-TRANCODE or USERID-TRANCODE

By LTERM or User ID, broken down by Transaction Code

### LINE

By Line or VTAM Node

### CLASS

By Message Class

## TIME

By Time of Input

Transaction Transit Options that may be overridden are:

## REPORTALL

Report all transactions (otherwise only report those that respond back to the originating LTERM)

Other report options are:

## INCL|EXCL

Selection criteria to filter (include or exclude) the report on Transaction Code, LTERM, Line, VTAM Node, Class, or User ID.

## Example

Transaction Transit Analysis by Transaction Code and by Time with the report interval specified within global report interval, peak 95% (to check that 95% of transactions complete within a certain time), time interval 5 minutes, aligned to the hour, filtering on Transaction Code, message switches included, and MSC, BMP, and APPC/OTMA transactions not included.

```
IMSPALOG      START(2023/06/24,12:15),
               STOP(2023/06/25,12:15),
               OUTPUTDD(RPTOUT)
IMSPALOG      PEAK(95),INTERVAL(5),ALIGN,QUALIFY(INCL(MSGSW))
IMSPALOG      ANALYSIS(TRANCODE,
                     TIME,
                     FROM(2023/06/24,12:30),
                     TO(2023/06/24,13:00),
                     INCL(TRANCODE((A,K),M*,P*)))
IMSPALOG      EXECUTE
```

## Related reference

[Transaction Transit Analysis report](#)

The IMS Transaction Transit Analysis report shows the components of transaction transit time ordered by transaction code, LTERM, transaction code within LTERM, message class, line or VTAM node, or time of day. This IMS Performance Analyzer report reveals transaction input queue time (local or CQS), processing time, output queue time, output shared queue (CQS) time, output local queue time and program switch time. The display of transit time by time period helps you identify periods of poor response.

## STATS: Transaction Transit Statistics report

The **STATS** operand of the **IMSPALOG** batch command requests the Transaction Transit Statistics report.

The Transaction Transit Statistics report is similar to the Analysis report, but presents the output as distributions.

## Format

The format of the Transaction Transit Statistics report operand is the same as that for the Analysis report, but with the addition of a Distribution named LOGIN.

---

```

IMSPALOG      STATS([TRANCODE,]
                   [LTERM|USERID,]
                   [LTERM-TRANCODE|USERID-TRANCODE,]
                   [LINE,]
                   [CLASS,]
                   [TIME,]
                   [REPORTALL,]
                   [FROM(date,time),]
                   [TO(date,time),]
                   [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
                   [INCL(LTERM(list))|EXCL(LTERM(list)),]
                   [INCL(LINE(list))|EXCL(LINE(list)),]
                   [INCL(VTAMNODE(list))|EXCL(VTAMNODE(list)),]
                   [INCL(CLASS(list))|EXCL(CLASS(list)),]
                   [INCL(USERID(list))|EXCL(USERID(list))])
LOGIN         IMSPALOG      EXECUTE
DISTRIBUTION [LIMITS(value1,...,value9),]
              [TITLE('text'),]
              [MULTIPLY(nnnn),]
              [EDITMASK('char.mask')|EDITMASK(hex.mask)]

```

---

Any combination of the following reports can be requested. If all six reports are required, either specify the six report operands, or **ALL**.

**TRANCODE**

By Transaction Code

**LTERM or USERID**

By LTERM or User ID

**LTERM-TRANCODE or USERID-TRANCODE**

By LTERM or User ID, broken down by Transaction Code

**LINE**

By Line or VTAM Node

**CLASS**

By Message Class

**TIME**

By Time of Input

Transaction Transit Options that may be overridden are:

**REPORTALL**

Report all transactions (otherwise only report those that respond back to the originating LTERM)

Other report options are:

**INCL|EXCL**

Selection criteria to filter (include or exclude) the report on Transaction Code, LTERM, Line, VTAM Node, Class, or User ID.

To use a distribution, specify:

**LIMITS**

Range limits for the vertical axis of the graph.

**TITLE**

Title for vertical axis of the graph.

**MULTIPLY**

Value by which to multiply each limit value for the graph.

**MASK**

Edit mask for printing the limit values along the vertical axis of the graph.

## Example

Transaction Transit Statistics by Transaction Code and by Message Class with global report interval specified, time interval 10 minutes, aligned to the hour, filtering on Transaction Code and Message Class, and MSC, BMP, and APPC/OTMA transactions and message switches not included.

```
IMSPALOG      START(2023/06/24,) ,STOP(2023/06/25,) ,
               OUTPUTDD(RPTOUT)
IMSPALOG      INTERVAL(10) ,ALIGN
IMSPALOG      STATS(TRANCODE,CLASS,
               EXCL(TRANCODE(A*)),
               INCL(CLASS(89)))
LOGIN         IMSPALOG      EXECUTE
               DISTRIBUTION LIMITS(2,4,6,8,10,15,20,30,60) ,
               TITLE('Sc Mil') ,
               MULTIPLY(1) ,
               EDITMASK('ZZZ,ZZZ.ZZ9')
```

## Related reference

[Transaction Transit Statistics report](#)

The Transaction Transit Statistics report is a graphical representation of the information in the Transaction Transit Analysis report.

## LOG: Transaction Transit Log report

The **LOG** operand of the **IMSPALOG** batch command requests the Transaction Transit Log report.

## Format

```
IMSPALOG      LOG(
               [INCL(OK)|EXCL(OK),]
               [INCL(MAX),]
               [INCL(PARSFMT),]      report in IMSPARS format
               [DDNAME(ddname),]    default LOGDD
               [FROM(date,time),]
               [TO(date,time),]
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
               [INCL(LTERM(list))|EXCL(LTERM(list)),]
               [INCL(USERID(list))|EXCL(USERID(list))])
```

The messages to include in the report can be specified as follows:

### INCL (OK)

Only include messages remaining on the input (or output) queue for less time than that specified by **INMAX** (or **OUTMAX**).

### EXCL (OK) , INCL (MAX)

Only include messages remaining on the input (or output) queue for a longer time than that specified by **INMAX** (or **OUTMAX**).

### INCL (OK) , INCL (MAX)

Include all messages.

Transaction Transit Options that may be overridden are:

### INCL (PARSFMT)

Format report in IMSPARS format

Other report options are:

### DDNAME

The ddname for the recap report output. The default is LOGDD.

### INCL|EXCL

Selection criteria to filter (include or exclude) the report on Transaction Code, LTERM, or User ID.

## Example

IMSPALOG	INMAX(45),OUTMAX(65),QUALIFY(INCL(APPC))
IMSPALOG	LOG( INCL(TRANCODE((M,ZZZZZZZ))), INCL(MAX), INCL(OK), FROM(2023/06/25,07:15:00:00), TO(2023/06/25,08:00:00:00), DDNAME(LOGDD))
IMSPALOG	EXECUTE

## Related reference

### [Transaction Transit Log report](#)

The IMS Transaction Transit Log report shows the transit activity of each message originating from a logical terminal and shows any program-to-program switches caused by the input message and all output messages resulting from the input. This IMS Performance Analyzer report provides shared queue reporting for multiple IMS subsystems. For multi-subsystem log input, IMS Performance Analyzer assumes shared queue processing and produces a composite report by merging data from all subsystems in the sysplex.

## GRAPH: Transaction Transit Graphic Summary report

The **GRAPH** operand of the **IMSPALOG** batch command requests the Transaction Transit Graphic Summary report.

## Format

IMSPALOG	GRAPH
[IMSPALOG	ANALYSIS]
[IMSPALOG	[ALIGN NOALIGN,]
	[INTERVAL(nnnn)]]

Transaction Transit Options that may be overridden are:

### **ALIGN or NOALIGN**

Align time interval to the even hour or do not align time interval to the even hour.

## Example

Transaction Transit Graphic Summary with narrow global report interval, peak 90% (to check that 90% of transactions complete within a certain time), time interval 10 minutes, aligned to the hour, MSC, BMP, and APPC/OTMA transactions not included, message switches included.

IMSPALOG	START(2023/06/25,12:15),STOP(2023/06/25,15:00),
	OUTPUTDD(RPTOUT)
IMSPALOG	PEAK(90),INTERVAL(10),ALIGN,QUALIFY(INCL(MSGSW))
IMSPALOG	ANALYSIS
IMSPALOG	GRAPH
IMSPALOG	EXECUTE

## Related reference

### [Transaction Transit Graphic Summary report](#)

The IMS Transaction Transit Graphic Summary report generates a set of character-based graphs, summarizing daily transaction processing for mean transit time, user-specified percentile transit time, transaction response count, and responses per second.

## EXTRACT: Transaction Transit Extract by Interval

The **EXTRACT** operand of the **IMSPALOG** batch command requests the Transaction Transit Extract by Interval.

The extract processing merges previously extracted data in the input file, if it is specified, with data extracted in this run, and writes it to the output file. The output file contains records of data accumulated by time interval, for one or both of the following:

- Individual transaction codes within each time interval.
- All transaction codes in each time interval.

You need to extract the data at the level that you intend to export it; that is, if you want transaction data in your export file, you must extract by transaction code, and if you want interval totals in the export file, you must include the totals in the extract. However, at the time of export, the peak transaction percentage calculations occur and further filtering on transaction code and date/time is possible.

## Format

```

IMSPALOG      EXTRACT([TRANCODES,]
                  [TCTOTALS,]
                  [FROM(date,time),]
                  [TO(date,time),]
                  [INCL(TRANCODE(list))|EXCL(TRANCODE(list))])
[IMSPALOG      [ALIGN|NOALIGN,]
                  [INTERVAL(nnnn),]
                  [QUALIFY([INCL(MSC),]
                           [INCL(BMP),]
                           [INCL(APPC),]
                           [INCL(MSGSW)])])
[IMSPALOG      ANALYSIS]
IMSPALOG      EXECUTE

/*
//IPIXTRTI DD  DSN=input extract file,DISP=SHR
//IPIXTRTO DD  DSN=output extract file,DISP=(,CATLG),
//              UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE),
//              DCB=(DSORG=PS,RECFM=VB,LRECL=4092,BLKSIZE=4096)

```

The input extract file is optional. The extract data set may be a generation data group (GDG).

### TRANCODES

Accumulate data for each Transaction Code

### TCTOTALS

Accumulate data for Transaction Code totals

Other report options are:

### INCL|EXCL

Selection criteria to filter (include or exclude) the report on Transaction Code.

Transaction Transit Options that may be overridden are:

### ALIGN or NOALIGN

Align time interval to the even hour or do not align time interval to the even hour.

### INTERVAL

The summarization time interval. The default is 15 minutes.

## Example

```

IMSPALOG      START(,07:00:00:00),STOP(,10:30:00:00),
                OUTPUTDD(RPTOUT)

```

```

IMSPALOG      INTERVAL(10),ALIGN
IMSPALOG      EXTRACT(TRANCODE,
                    TCTOTALS,
                    FROM(,07:30:00:00),TO(,09:30:00:00),
                    INCL(TRANCODE(T*)))
IMSPALOG      EXECUTE
/*
//IPIXTRTI DD  DSN=IMSPA.EXTRACT.INFILE,DISP=SHR
//IPIXTRTO DD  DSN=IMSPA.EXTRACT.OUTFILE,DISP=(,CATLG),
//            UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE),
//            DCB=(DSORG=PS,RECFM=VB,LRECL=4092,BLKSIZE=4096)

```

## Related reference

### [Transaction Transit Extract by Interval](#)

The IMS Transaction Transit Extract by Interval allows creation of extract files of transaction transit time by time interval data. You can use this IMS Performance Analyzer extract to get pictures of system performance by exporting for manipulation by external programs.

## TRANEXC: Transaction Exception report and extract

The **TRANEXC** operand of the **IMSPALOG** batch command requests the Transaction Exception reports.

## Format

```

IMSPALOG      TRANEXC([TRANCODE,]
                    [USERID,]
                    [CLASS,]
                    [TIME,]
                    [SUMMARY,]
                    [SHRQ,]
                    [PRINTEXP,]
                    [FORMAT1|FORMAT2,]          default FORMAT1
                    [EXPECT(expectation-set-name),]
                    [DDNAME(ddname),]          default TRANEXC
                    [FROM(date,time),]
                    [TO(date,time),])
                    [INCL(TRANCODE(list))|EXCL(TRANCODE(list),)]
                    [INCL(USERID(list))|EXCL(USERID(list),)]
                    [INCL(CLASS(list))|EXCL(CLASS(list))])
[IMSPALOG      ANALYSIS]
IMSPALOG      EXECUTE
/*
//IPITXUT1 DD  DSN=total.traffic.dataset,DISP=(NEW,CATLG),
//            UNIT=SYSDA,SPACE=(CYL,(5,5),RLSE)
//IPITXUT2 DD  DSN=exception.traffic.dataset,DISP=(NEW,CATLG),
//            UNIT=SYSDA,SPACE=(CYL,(5,5),RLSE)
//IPIEXPQ DD   DSN=expect.sets.dataset,DISP=SHR

```

Any combination of the following reports may be requested:

### **TRANCODE**

By Transaction Code

### **USERID**

By User ID

### **CLASS**

By Message Class

### **TIME**

By Time of Input

Other report options are:

### **SUMMARY**

Show totals only (do not show a breakdown by Transaction Code) in the User ID, Message Class, and Time of Input reports

### **SHRQ**

Show shared queue details in the report.



## PRINTEXP

Print the Expectation Set values with the report.

## FORMAT1|FORMAT2

Original or extended format. **FORMAT1** omits OK transactions (non-exceptions) from the User ID, Class, and Time reports. **FORMAT2** gives a consistent breakdown of transactions (Total = Exceptions + OK) for all reports: Transaction Code, User ID, Class, and Time.

## EXPECT

Expectation Set (member name in the Expectation Sets data set).

## DDNAME

The ddname for the recap report output. The default is TRANEXC.

## INCL|EXCL

Selection criteria to filter (include or exclude) the report on Transaction Code, User ID, or Class.

An Expectation Set may optionally be specified to define, by transaction code, boundaries for a number of performance measures. A transaction is flagged as an exception if it performs outside the ranges of values specified for that transaction code in the Expectation Set.

If an Expectation Set is not specified, all transactions are considered exceptions. IPIEXPQ is the ddname of the Expectation Sets data set.

Two extract data sets may optionally be specified:

- IPITXUT1 Total Traffic data set contains detail records of all transactions.
- IPITXUT2 Exception Traffic data set contains detail records of exception transactions only.

An extract data set may be a generation data group (GDG).

## Example

```
IMSPALOG      START(2023/01/15,) ,STOP(2023/01/16,)
IMSPALOG      TRANEXC(TRANCODE,
                     TIME,
                     SHRQ,
                     EXPECT(TREXPECT))
IMSPALOG      EXECUTE
/*
//IPITXUT1 DD DSN=IMSPA.MSGQ.TOTAL.TRAFFIC,DISP=MOD
//IPITXUT2 DD DSN=IMSPA.MSGQ.EXCEPT.TRAFFIC,DISP=MOD
//IPIEXPQ  DD DSN=IMSPA.V450.EXPECTDS,DISP=SHR
```

## Related reference

[Transaction Exception report and extract](#)

The Transaction Exception report shows transaction performance information that affects response time.

## TRANHIST: Transaction History File

The **TRANHIST** operand of the **IMSPALOG** batch command requests the Transaction History File.

This file is used to collect historical performance data, useful for long-term trend analysis and capacity planning. Information is summarized for each transaction code over a short time interval, including transaction transit, response and CPU times, as well as DLI call statistics.

Data is provided in a format suitable for loading directly into Db2, from where you can run queries or produce reports. For a description of the data, refer to [“Understanding the Transaction History File”](#) on page 659.

## Format

```
IMSPALOG      TRANHIST(
               [DDNAME(ddname),]          default TRANHIST
               [INTERVAL(hh:mm:ss),]      default 00:15:00 (15 minutes)
               [FROM(date,time),]
               [TO(date,time),]
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list))])
/*
//IPITHIST DD DSN=transaction history.file.dsn,DISP=(NEW,CATLG),
//           UNIT=SYSDA,SPACE=(TRK,(5,5),RLSE),
//           DCB=(DSORG=PS,RECFM=VB,LRECL=4092,BLKSIZE=4096)
```

The report options are:

### DDNAME

The ddname for the recap report output. The default is TRANHIST.

### INTERVAL

The summarization time interval. The default is 15 minutes.

### INCL|EXCL

Selection criteria to filter (include or exclude) the report on transaction code or IMS subsystem ID.

## Examples

Taking defaults:

```
IMSPALOG      TRANHIST
IMSPALOG      EXECUTE
```

Transaction history, summarized in half hour intervals, and filtered by transaction code:

```
IMSPALOG      TRANHIST(INTERVAL(00:30:00),
IMSPALOG      EXCL(TRANCODE(A1*,B1*,C1*)))
IMSPALOG      EXECUTE
```

## Related reference

### Transaction History File

The IMS Transaction History File is used to collect historical performance data, useful for long-term trend analysis and capacity planning. Information is summarized for each transaction code over a short time interval, including transaction transit, response and CPU times, as well as DLI call statistics. Data is provided in a format suitable for loading directly into Db2, from where you can run queries or produce reports.

## Resource Usage and Availability reports

This section contains the operands for Resource Usage and Availability log reports.

### DASHBOARD: Dashboard report

The **DASHBOARD** operand of the **IMSPALOG** batch command requests the Dashboard report.

This report provides a quick overview of critical system performance indicators, including transaction throughput and IMS system resources. It can highlight potential performance problems quickly, providing a springboard to other reports that provide more detailed information.

## Format

```
IMSPALOG      DASHBOARD(
               [DDNAME(ddname)])          default DASH
```

The purpose of this report is a health check of the total system. There are no tailoring options.

The only option is:

#### DDNAME

The ddname for the recap report output. The default is DASH.

#### Example

Taking defaults:

IMSPALOG	DASHBOARD
IMSPALOG	EXECUTE

#### Related reference

##### [Dashboard report](#)

The IMS Dashboard report provides a quick overview of critical system performance indicators, including transaction throughput and IMS system resources. Use this IMS Performance Analyzer report to highlight potential performance problems quickly, providing a springboard to other reports that provide more detailed information.

## MGREX: Management Exception report

The **MGREX** operand of the **IMSPALOG** batch command requests the Management Exception report.

The report has two sections:

- Management Exception Summary containing transaction exceptions and averages
- Error Condition Log reporting up to five types of errors:
  - Program Abend
  - Backout Failure
  - Security Violation
  - Snap Trace
  - I/O Error

#### Format

```
IMSPALOG      MGREX([TCREPORT,]
                  [PGMABEND,]
                  [BACKOUTFAIL,]
                  [SECVIO,]
                  [IOERROR,]
                  [SNAPTRC,]
                  [INCL(PRINT(ALL)|PRINT(AVERAGE)|PRINT(ALL,AVERAGE)),]
                  [EXPECT(expectation-set-name),]
                  [OMIT(nnn),]
                  [QUEUES(nnn),]
                  [DDNAME(ddname),]          default MGRXDD
                  [FROM(date,time),]
                  [TO(date,time),]
                  [NOOTHERS,]
                  [INCL(TRANCODE(list))|EXCL(TRANCODE(list))])
IMSPALOG      EXECUTE
/*
//IPIAVGQ DD DSN=averages.input.dataset,DISP=SHR
//IPIAVGO DD DSN=averages.output.dataset,DISP=(,CATLG),
//         UNIT=SYSDA,SPACE=(TRK,(2,2),RLSE),
//         DCB=(DSORG=PS,RECFM=VB,LRECL=4092,BLKSIZE=4096)
//IPIEXPQ DD DSN=expect.sets.dataset,DISP=SHR
```

Any combination of the following reports may be requested:

**TCREPORT**

Transaction Exception/Average.

**PGMABEND**

Program Abends in Error Condition Log.

**BACKOUTFAIL**

Backout Failures in Error Conditions Log.

**SECVIO**

Security Violations in Error Conditions Log.

**IOERROR**

I/O Errors in Error Condition Log.

**SNAPTRC**

Snap Traces in Error Condition Log.

Other report options are:

**INCL (PRINT (ALL))**

Report all transactions, not just exceptions.

**INCL (PRINT (AVERAGE))**

Report exceptions only and print the input Averages data set.

**INCL (PRINT (ALL, AVERAGE))**

Report all transactions and print the input Averages data set.

**EXPECT**

Expectation Set (member name in the Expectation Sets data set).

**OMIT**

Omit messages after *nnn* minutes on the report processing queue.

**QUEUES**

The number of queues used in processing the report.

**DDNAME**

The ddname for the recap report output. The default is TRANHIST.

**NOOTHERS**

Omit \*OTHERS\* category from report.

**NOOTHERS** is used in conjunction with Trancode Include/Exclude Selection Criteria. By default, transaction codes and programs that are excluded by filtering are reported in a group called \*OTHERS\*, and included in the report subtotals and totals. When **NOOTHERS** is specified, transaction codes that are excluded by filtering are not reported, and not included in the report subtotals and totals.

**INCL|EXCL**

Selection criteria to filter (include or exclude) the report on Transaction Code.

An Expectation Set may optionally be specified so the report can identify transactions performing outside "expectations". If an Expectation Set is not specified, exceptions are not reported. IPIEXPQ is the ddname of the Expectation Sets data set.

Two averages data sets may optionally be specified:

- IPIAVGQ Input Averages data set.
- IPIAVGO Output Averages data set.

An Averages Data Set may be a generation data group (GDG).

**Example**

```
IMSPALOG      START(2023/01/06,) ,STOP(2023/01/07,)
IMSPALOG      MGREX(TCREPORT,
                  PGMABEND,SECVIO,IOERROR,SNAPTRC,BACKOUTFAIL,
                  INCL(PRINT(ALL)),
```

```

                                EXPECT(EXPMGRX1),
                                OMIT(3),QUEUES(250))
                                EXECUTE
IMSPALOG
/*
//IPIAVGQ DD DSN=IMSPA.V450.GDGAVG(0),DISP=SHR
//IPIAVGQ DD DSN=IMSPA.V450.GDGAVG(+1),DISP=(,CATLG),
//          UNIT=SYSDA,SPACE=(TRK,(2,2),RLSE),
//          DCB=(DSORG=PS,RECFM=VB,LRECL=4092,BLKSIZE=4096)
//IPIEXPQ DD DSN=IMSPA.V450.EXPECTDS,DISP=SHR

```

## Related reference

### [Management Exception report](#)

The IMS Management Exception report shows whether critical values are within specified limits, and it gives summary values of indicative information. Use this IMS Performance Analyzer report to measure today's transaction performance against agreed benchmarks, such as service level agreements and benchmark averages. Then, when a problem occurs, you can go to other IMS Performance Analyzer reports for additional, more detailed information.

## TRANRESU: Transaction Resource Usage report

The **TRANRESU** operand of the **IMSPALOG** batch command requests the Transaction Resource Usage report.

This report provides a comprehensive overview of transaction resource usage, including:

- Scheduling statistics, such as WFI
- CPU usage
- DL/I call statistics
- Enqueue statistics
- DBCTL DB and I/O usage

## Format

```

IMSPALOG      TRANRESU(
                [LIST,]
                [SUMMARY,]
                [CALLSUM,]
                [DB,][DC,][DLI,][ENQ,]
                [LISTDDN(ddname),]          default TRANRESU
                [SUMMDDN(ddname),]          default TRANRESU
                [CALLDDN(ddname),]          default TRANRESU
                [FROM(date,time),]
                [TO(date,time),]
                [INCL(REGION(list))|EXCL(REGION(list)),]
                [INCL(REGJBN(list))|EXCL(REGJBM(list)),]
                [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
                [INCL(PROGRAM(list))|EXCL(PROGRAM(list)),]
                [INCL(IMSID(list))|EXCL(IMSID(list))])

```

Any combination of the following reports can be requested.

### **LIST**

Long list

### **SUMMARY**

Long summary

### **CALLSUM**

Short (DLI Call) summary

Other report options are:

### **DB**

Include DB calls. This option is only applicable to **LIST** and **SUMMARY** reports.

**DC**

Include DC calls. This option is only applicable to **LIST** and **SUMMARY** reports.

**DLI**

Include other DLI calls. This option is only applicable to **LIST** and **SUMMARY** reports.

**ENQ**

Include ENQ/DEQ counts. This option is only applicable to **LIST** and **SUMMARY** reports.

**LISTDDN**

DDname for the output of the **LIST** report

**SUMMDDN**

DDname for the output of the **SUMMARY** report

**CALLDDN**

DDname for the output of the **CALLSUM** report

**INCL|EXCL**

Selection criteria to filter the report on Region ID, Region Jobname, Transaction Code, Program (PSB), or IMS subsystem ID

**Example**

All reports, all calls and counts from yesterday's data:

```

IMSPALOG      START(-1, ), STOP(0, ),
IMSPALOG      TRANRESU(
                LIST,
                SUMMARY,
                CALLSUM,
                DB,
                DC,
                DLI,
                ENQ,
                LISTDDN(TRANRESU),
                SUMMDDN(TRANRESU),
                CALLDDN(TRANRESU))
IMSPALOG      EXECUTE

```

**Related reference**

[Transaction Resource Usage report](#)

The IMS Transaction Resource Usage report provides a comprehensive overview of transaction resource usage. The resources reported on by IMS Performance Analyzer include scheduling statistics (including WFI), CPU usage, DL/I call statistics, enqueue statistics, and DBCTL DB and I/O usage.

**AVAIL: Resource Availability report**

The **AVAIL** operand of the **IMSPALOG** batch command requests the Resource Availability report.

**Format**

```

IMSPALOG      AVAIL([REGION,]
                   [TRANCODE,]
                   [PROGRAM,]
                   [DATABASE,]
                   [LINE,]
                   [DDNAME(ddname),]          default AVALDD
                   [FROM(date,time),]
                   [TO(date,time),]
                   [INCL(REGION(list))|EXCL(REGION(list))|
                   INCL(REGJBN(list))|EXCL(REGJBN(list)),]
                   [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
                   [INCL(PROGRAM(list))|EXCL(PROGRAM(list)),]
                   [INCL(DATABASE(list))|EXCL(DATABASE(list)),]
                   [INCL(LINE(list))|EXCL(LINE(list)),]
                   [INCL(VTAMNODE(list))|EXCL(VTAMNODE(list)),]
                   [INCL(IMSID(list))|EXCL(IMSID(list))])

```

Any combination of the following reports can be requested. If all five reports are required, either specify the five report operands, or **ALL**.

**REGION**

By Region

**TRANCODE**

By Transaction Code

**PROGRAM**

By Program (PSB)

**DATABASE**

By Database

**LINE**

By Line or VTAM Node

Other report options are:

**DDNAME**

DDname for the recap report output. The default is AVALDD.

**INCL|EXCL**

Selection criteria to filter the report on Region ID, Region Jobname, Transaction Code, Program (PSB), Database, Line, VTAM Node, or IMS subsystem ID

**Example**

```
IMSPALOG      START(2023/06/24,) ,STOP(2023/06/25,)
IMSPALOG      AVAIL(
                REGION,TRANCODE,PROGRAM,DATABASE,LINE,
                INCL(REGJBN(A*)),
                INCL(TRANCODE(B*)),
                INCL(PROGRAM(C*)),
                INCL(DATABASE(D*)),
                INCL(LINE(5)),
                INCL(VTAMNODE(V*)),
                INCL(IMSID(IMS)))
IMSPALOG      EXECUTE
```

**Related reference**

Resource Availability report

The IMS Resource Availability report indicates the relative amount of time a specific resource is active, idle, or unavailable. Use this report to get general availability information, a summary of how frequently each resource is used, to plan more efficient scheduling, and to identify when remedial action is required. Resource Availability reports can be generated in IMS Performance Analyzer for any combination of regions, programs (PSBs), transaction codes, databases, or lines or VTAM nodes.

## **CPUR: CPU Usage report and extract**

The **CPUR** operand of the **IMSPALOG** command requests the CPU Usage report and optionally an extract file.

Up to five reports can be requested, specifying any combination of the following to produce the reports sequenced accordingly:

- Region
- Program (PSB)
- Transaction Code

The format of the operand is as follows:

```

IMSPALOG      CPUR([report-order,]      default R-P-TC
               [DDNAME(ddname),]        default CPURDD
               [FROM(date,time),]
               [TO(date,time),]
               [NOOTHERS,]
               [INCL(REGION(list))|EXCL(REGION(list))|
               INCL(REGJBN(list))|EXCL(REGJBN(list)),]
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
               [INCL(PROGRAM(list))|EXCL(PROGRAM(list)),]
               [INCL(IMSID(list))|EXCL(IMSID(list))])
$IPDIST1 IMSPALOG EXECUTE
DISTRIBUTION [LIMITS(value1,...,value9),]      Processing (CPU) Time
               [TITLE('text'),]
               [MULTIPLY(nnnn),]
               [EDITMASK('char.mask')|EDITMASK(hex.mask)]
$IPDIST2 DISTRIBUTION [LIMITS(value1,...,value9),]      Elapsed Time
               [TITLE('text'),]
               [MULTIPLY(nnnn),]
               [EDITMASK('char.mask')|EDITMASK(hex.mask)]
/*
//CPURXTRO DD DSN=cpu.usage.extract.dataset,DISP=(,CATLG),
//          UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE)

```

If the Distributions are not specified, default Distributions will apply at run time.

*report-order* represents up to 5 combinations of the following ordering operands, with default **REGN-PROG-TRAN** (order by Region, then Program, then Transaction Code). A "combination" may be one, two, or three of the ordering operands.

#### REGN

By Region

#### PROG

By Program (PSB) name

#### TRAN

By Transaction Code

Other report options are:

#### DDNAME

DDname for the recap report output. The default is **CPURDD**.

#### NOOTHERS

Omit "OTHERS" category from report.

**NOOTHERS** is used in conjunction with Trancode and Program Include/Exclude Selection Criteria. By default, transaction codes and programs that are excluded by filtering are reported in a group called \*OTHERS\*, and included in the report subtotals and totals. When **NOOTHERS** is specified, transaction codes and programs that are excluded by filtering are not reported, and not included in the report subtotals and totals.

#### INCL|EXCL

Selection criteria to filter the report on Region ID or Region Jobname, Transaction Code, Program (PSB), or IMS subsystem ID

To extract CPU Usage details to an output file, specify an extract data set with ddname **CPURXTRO**. You can specify global options **XTRHEADING** to include column headings in the extract file and **XTRCOMMA** to use a comma as the field delimiter. See [“Log Global Options” on page 350](#) for details.

To use a **DISTRIBUTION**, specify:

#### LIMITS

Range limits for the vertical axis of the graph.

#### TITLE

Title for vertical axis of the graph.



Value by which to multiply each limit value for the graph.

Edit mask for printing the limit values along the vertical axis of the graph.

### Example

- Program
- Transaction Code
- Transaction Code within Region
- Program within Transaction Code within Region

## Related reference

The IMS CPU Usage report gives statistics for CPU time and elapsed time during a specified period for regions, transactions, and programs. It can help you determine who is using too much CPU time or, conversely, what programs or transactions in which regions are in a wait state too long. The report can optionally be written by IMS Performance Analyzer to an extract data set as a CSV file.

The **IRUR** operand of the **IMSPALOG** batch command requests the IMS Internal Resource Usage reports.

IMSPALOG	IRUR([INCL(POOLS( <i>report-list</i> ))  EXCL(POOLS( <i>report-list</i> )),]	default Include All
	[DDNAME( <i>ddname</i> ),]	default IRURDD
	[INTERVAL( <i>nnnn</i> ),]	default 0 minutes
	[FASTPATH,]	default no FP
	[PRINTAT([I S]),]	default S
	[EXTRACT,]	
	[CSVPRF( <i>prefix</i> ),]	
	[CSVDISP( <i>disp</i> ),]	
	[FROM( <i>date,time</i> ),]	
	[TO( <i>date,time</i> ),]	
	[INCL(IMSID( <i>list</i> )) EXCL(IMSID( <i>list</i> ))])	
	[OUTZONE(Z),]	
	[ASCII,]	default EBCDIC
	[EOL([None LF CR CRLF NL]),]	
	[JSON,]	
	[EXCLNULL,]	
	[LABELCASE(ASIS U L S),]	
	[UNIXPATH( <i>path</i> ),]	
	[STREAM,]	
	[PORT( <i>port number</i> )]	

## **INCL/EXCL(POOLS(*report-list*))**

*report-list* can be combination of any of the following reports:

### **AS**

Application Scheduling Statistics

### **CB**

Storage Pool Statistics

### **C6**

64-bit Cache Statistics

### **DB**

OSAM Buffer Pool Statistics

### **DLICALLS**

DL/I Call Statistics

### **DS**

Dispatcher Statistics and Dynamic SAP Statistics

### **EW**

EWLM Statistics

### **FB**

Fast Path 64-bit Buffer Statistics

### **FI**

Fixed Pool Usage Statistics

### **FP**

Message Format Buffer Pool Statistics

### **IM**

IMODULE Statistics

### **LL**

Logger Statistics

### **LT**

Latch Statistics

### **MISC**

Miscellaneous Statistics

### **PI**

Program Isolation Statistics

### **QP**

Message Queue Pool Statistics

### **RF**

RACF Statistics

### **RS**

IRLM System Statistics

### **RU**

IRLM Subsystem Statistics

### **SM**

Variable Pool Statistics

### **ST**

Virtual Storage Usage

### **UX**

User Exit Statistics

### **VS**

VSAM Buffer Pool Statistics

**TC**

Individual TCB Statistics

**S6**

64-bit Storage Statistics

**Note:** If you do not specify a value for INCL/EXCL (P00LS) then, all reports are produced.

**DDNAME**

DDname for the recap report output. The default value is IRURDD.

**INTERVAL**

Do not report checkpoints that are less than *nnnn* minutes apart. The default value is 0

**FASTPATH**

Include Fast Path transaction count in the Miscellaneous Statistics report.

**PRINTAT(value)**

Specify one of the following values:

**S or STOP**

Print a report at the end of each run. This is the default value.

**I or INTERVAL**

Print a report after each checkpoint.

**Tip:** Use PRINTAT (INTERVAL) only when INTERVAL (0) has been specified and the “Log Global Options” on page 350 are set to PRINTAT (STOP). Results may be unpredictable if multiple break conditions are specified.

**EXTRACT**

Produce CSV-formatted output for each of the selected Internal Resource Usage reports.

**CSV\_PREF**

Specify a fully qualified prefix (may be enclosed in quotes or not) for the data sets where extract records are to be written.

IMS Performance Analyzer will append the specified prefix with a low-level qualifier of IIII.XX where "IIII" is the IMS subsystem ID and "XX" is the unique POOL ID for each selected report.

**Note:** For the Dispatcher/Dynamic SAP and Individual TCB statistics extracts, separate files are created as IIII.XXSAP and IIII.XXTCB.

If you do not allocated the data set previously, IMS Performance Analyzer creates the data set at runtime, with the default space allocation attributes of (CYL,(1,1),RLSE).

IMS Performance Analyzer dynamically assigns a default DDname of IRURXX where "XX" is the unique POOL ID for each selected report.

**Note:** For the Dispatcher/Dynamic SAP and Individual TCB statistics extracts, the DDnames are IRURXXSA and IRURXXTC.

**CSV\_DISP**

Applies if any CSV extract data set with the specified prefix is already cataloged.

**Note:** If the data set is not cataloged then CSV\_DISP value is set to New regardless of CSV\_DISP setting.

You can specify one of the following values for the CSV\_DISP option:

- **OLD:** Overwrites the data set contents with the new extracted data from the beginning of the data set along with the headers, if any. This is the default behavior.
- **MOD:** Appends the new extracted data to the end of the data set. If the new extracted data contains any headers, those are not appended to the data set.

**INCL|EXCL**

Selection criteria to filter (include or exclude) the report on IMS subsystem ID.

## OUTZONE(Z)

Select to export ISO 8601 timestamps as Coordinated Universal Time (UTC) rather than Local time obtained from the IMS input log.

## ASCII

To set the encoding for data extracts. The default encoding is EBCDIC.

## EOL

To specify the end of line (EOL) delimiter. This parameter applies to UNIX extracts only.

When you use EOL, it appends one or more bytes to the end of each output record.

You can choose any of the following options:

- **None:** No line delimiter.
- **LF:** (\n) gets added to each record in the output.
- **CR:** (\r) gets added to each record in the output.
- **CRLF:** (\r\n) gets added to each record in the output.
- **NL:** each record in the output displayed in the new line.

## JSON

To set the format of the data extract as JSON Line format.

## EXCLNULL

To specify whether to include or exclude fields that are selected for output but for which the reportable value is "null".

**Note:** You must use EXCLNULL only when the output is in JSON Line format.

## LABELCASE

To specify how to write the field labels.

You can choose any of the following options:

- **ASIS:** Write labels same as how they are originally encoded.
- **U:** Write labels in uppercase letters.
- **L:** Write labels in lowercase letters.
- **S:** Write labels in snake case so that the words are separated with an underscore symbol (\_) instead of a space.

## UNIXPATH

Provide the z/OS UNIX directory path where the CSV extract files or JSON extract files results are written.

This field is a scrollable field, and you can enter an absolute path name up to 240 characters in length.

## PORT

The port number of the host to override the one you specified in **Log Global Options**.

## Example

```
IMSPALOG      IRUR(
                FROM(,12:00:00:00),
                TO(,14:00:00:00),
                DDNAME(IRURDD),
                INTERVAL(5),
                EXTRACT,
                CSVREF(MYPREF),
                CSVDISP(MOD),
                INCL(POLLS(QP,FP,DB,VS,SM,AS,PI,LT,DLICALLS,
                           MISC,CB,LL,FI,DS,RU,RS,RF)),
                INCL(IMSID(IMSA,IMSB)))
IMSPALOG      EXECUTE
```

## Related reference

[Internal Resource Usage reports](#)

The IMS Internal Resource Usage reports provide statistics on the use of various IMS pools and resources. From the statistics produced by IMS Performance Analyzer, you can determine how they are being used and where inefficiencies exist. You can configure an analytics platform, and then stream (or forward) the data extracts as JSON Lines. You can also write data extracts directly to z/OS data sets and z/OS Unix files. Thereby, you can bypass writing data to temporary files on z/OS.

## MSCLSTAT: MSC Link Statistics report

The **MSCLSTAT** operand of the **IMSPALOG** batch command requests the MSC Link Statistics report.

### Format

IMSPALOG	MSCLSTAT( [DDNAME(ddname),] default MSCLSTAT [PRINTAT(INTERVAL),] [GENERAL,] [SENDRECV,] [FROM(date,time),] [TO(date,time),] [INCL(IMSID(list)) EXCL(IMSID(list))])
----------	--

Report options are:

#### DDNAME

DDname for the report output. The default is MSCLSTAT

#### PRINTAT(value)

Specify one of the following values:

##### S or STOP

Print a report at the end of each run. This is the default.

##### I or INTERVAL

Print a report after each checkpoint.

**Tip:** Use PRINTAT(INTERVAL) only when the [“Log Global Options” on page 350](#) are set to PRINTAT(STOP). Results may be unpredictable if multiple break conditions are specified.

#### GENERAL

The General Statistics report provides summary information on the overall usage of each MSC link.

#### SENDRECV

The Send/Receive Statistics report provides summary information for each MSC link with a more detailed breakdown of Send and Receive traffic.

#### INCL|EXCL

Selection criteria to filter (include or exclude) the report on IMS subsystem ID.

### Example

IMSPALOG	START(2023/06/01, ), STOP(2023/06/02, )
IMSPALOG	MSCLSTAT( EXCL(IMSID(IMS9)))
IMSPALOG	EXECUTE

### Related reference

[MSC Link Statistics report](#)

The IMS MSC Link Statistics report provides summary information on the overall usage of MSC links and a detailed breakdown of Send and Receive data for each MSC link. The MSC Link Statistics report can help you validate and tune MSC links bandwidth.

## MSGQ: Message Queue Utilization report

The **MSGQ** operand of the **IMSPALOG** batch command requests the Message Queue Utilization report.

### Format

---

IMSPALOG	MSGQ( [INTERVAL( <i>nnn</i> ),] [ENQUEUE,] [RECORD,] [DDNAME( <i>ddname</i> ),] [FROM( <i>date,time</i> ),] [TO( <i>date,time</i> ),] [INCL(IMSID( <i>list</i> )) EXCL(IMSID( <i>list</i> ))])	default 10 bytes default all default complete records default MQRDD
----------	---	--

---

#### INTERVAL

Record size interval, in bytes, to be reported on each line of the report.

#### ENQUEUE

Report only messages that are enqueued.

#### RECORD

Report individual records, not complete messages. This option may be used for shared queues where OBJAVGSZ is determined based on individual records, not complete messages which may span multiple records.

Other report options are:

#### DDNAME

DDname for the report output. The default is MQRDD.

#### INCL|EXCL

Selection criteria to filter (include or exclude) the report on IMS subsystem ID.

### Example

IMSPALOG	START(2023/06/01, ), STOP(2023/06/02, )
IMSPALOG	MSGQ( INTERVAL(25), ENQUEUE, EXCL(IMSID(IMS9)))
IMSPALOG	EXECUTE

### Related reference

#### Message Queue Utilization report

The IMS Message Queue Utilization report contains information on the use of message queues. This IMS Performance Analyzer report can help you balance the I/O between long and short message data sets and

adjust record and buffer sizes for the most efficient use of these two data sets. Thus this report helps you reduce storage and minimize I/O.

## DBUPDATE: Database Update Activity report and extract

The **DBUPDATE** operand of the **IMSPALOG** batch command requests the Database Update Activity report.

### Format

```
IMSPALOG      DBUPDATE(
               [PROGRAM,]                default none
               [DDNAME(ddname),]          default DBUADD
               [FORMAT1,|FORMAT2,]        default FORMAT1
               [FROM(date,time),]
               [TO(date,time),]
               [INCL(DATABASE(list))|EXCL(DATABASE(list)),]
               [INCL(IMSID(list))|EXCL(IMSID(list))])
IMSPALOG      MAXBLOCK(nnnnn)            default 10000, max 32000
/*
//DBUAXTRO DD  DSN=database.update.activity.extract.dataset,DISP=(,CATLG),
//              UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE)
```

The report options are:

#### PROGRAM

Include the program name in the report, and order the report by database and program name.

If **PROGRAM** is *not* specified, the report is ordered by database name only, and the program name is not reported.

#### DDNAME

DDname for the recap report output. The default is DBUADD.

#### FORMAT1 or FORMAT2

Report format. Reports generated using the **FORMAT2** option provide a faster, more concise breakdown of database update activity. **FORMAT2** is the recommended report option.

#### INCL or EXCL

Selection criteria to filter (include or exclude) the report on Database or IMS subsystem ID.

#### MAXBLOCK

The limit on the number of uncommitted block updates to track for this report.

To extract Database Update Activity details to an output file, specify an extract data set with ddname DBUAXTRO. You can specify global options **XTRHEADING** to include column headings in the extract file and **XTRCOMMA** to use a comma as the field delimiter.

### Example

Taking defaults:

```
IMSPALOG      DBUPDATE
IMSPALOG      EXECUTE
```

Creating a **FORMAT2** report:

```
IMSPALOG DBUPDATE(PROGRAM,FORMAT2)
IMSPALOG EXECUTE
```

With filtering and uncommitted block update limit:

```
IMSPALOG      DBUPDATE(
               PROGRAM,
               FORMAT2,
               EXCL(DATABASE(D*)),
               INCL(IMSID(A*,(M,Z))))
```

IMSPALOG	MAXBLOCK(12500)
IMSPALOG	EXECUTE

## Related reference

### Database Update Activity report and extract

The IMS Database Update Activity report can help you determine the cost of database calls. It indicates the number of purge writes at sync point time to a database and provides a count of actual updates made to each database in the time period being reported. If your database is a HALDB, you can also report on specific HALDB partitions because the name of the partition is found on the database name field of the various records used in this report. This IMS Performance Analyzer report can optionally be written to an extract data set as a CSV file.

## HISTGRAM: Region Histogram (Log) report

The **HISTGRAM** operand of the **IMSPALOG** batch command requests the Region Histogram report.

## Format

IMSPALOG	HISTGRAM([REGION ( <i>pst1,pst2,...</i> )   REGJBN( <i>name1,name2,...</i> ),] [DDNAME( <i>ddname</i> ),] default HISTDD [FROM( <i>date,time</i> ),] [TO( <i>date,time</i> ),] [INCL(IMSID( <i>list</i> ))   EXCL(IMSID( <i>list</i> ))])
----------	--

The report options are:

### REGION

List up to 13 Region (PST) IDs.

### REGJBN

List up to 13 Region Jobnames.

### DDNAME

DDname for the recap report output. The default is HISTDD.

### INCL|EXCL

Selection criteria to filter (include or exclude) the report on IMS subsystem ID.

## Examples

Taking defaults (the first 13 active regions in the report period):

IMSPALOG	HIST
IMSPALOG	EXECUTE

Report for regions 15 through 20, and 25:

IMSPALOG	HISTGRAM(REGION(15-20,25),
IMSPALOG	FROM(2023/06/24,23:30),TO(2023/06/25,00:30))
IMSPALOG	EXECUTE

## Related reference

### Region Histogram report

The IMS Region Histogram report is a graphic display of region activity. It shows the times a region is active or idle, and the patterns of transaction scheduling in each region. The Region Histogram report highlights parallel scheduling issues. It lets you see which transactions are scheduled into which regions and when. You can quickly tell whether some regions are heavily scheduled while others are relatively idle. You can also tell which transactions are waiting on which other transactions.



# SB: OSAM Sequential Buffering report

The **SB** operand of the **IMSPALOG** batch command requests the OSAM Sequential Buffering report.

## Format

IMSPALOG	SB([ACTLOG,] [PROGSUM,] [DDNAME(ddname),] default SBDD [FROM(date,time),] [TO(date,time),] [INCL(PROGRAM(list)) EXCL(PROGRAM(list)),] [INCL(DATABASE(list)) EXCL(DATABASE(list)),] [INCL(IMSID(list)) EXCL(IMSID(list))])
----------	--

One or both of the following reports may be requested:

### ACTLOG

Activity Log:

- Sequential Buffering Summary for Region
- SB Detail Statistics

### PROGSUM

OSAM SB Program (PSB) Summary

Other report options are:

### DDNAME

DDname for the recap report output. The default is SBDD.

### INCL|EXCL

Selection criteria to filter the report on Program, Database, or IMS subsystem ID.

## Examples

Taking defaults:

IMSPALOG	SB
IMSPALOG	EXECUTE

Activity Log for two IMS Subsystems, excluding the SALES database:

IMSPALOG	SB(ACTLOG, FROM(2023/06/24,,),TO(2023/06/25,,), EXCL(DATABASE(SALES)), INCL(IMSID(IMSA,IMSB)))
IMSPALOG	EXECUTE

## Related reference

### OSAM Sequential Buffering report

The IMS OSAM Sequential Buffering report provides detailed I/O and buffer-usage statistics that allow you to assess the benefit of OSAM sequential buffering. You should use the OSAM Sequential Buffering report to determine whether sequential buffering is providing a benefit to each application that uses it.

## DEADLOCK: Deadlock report

The **DEADLOCK** operand of the **IMSPALOG** batch command requests the Deadlock report.

This report provides a comprehensive analysis of deadlock events, similar to DFSERA30. In addition the report summarizes deadlock activity to show at a glance:

- Associated winning transaction/database combinations
- Frequency of each losing transaction/database combination

The information provided is a useful aid for tuning applications and adjusting scheduling parameters to avoid this expensive overhead. Deadlocks involving Db2 are also reported.

## Format

IMSPALOG	DEADLOCK (	
	[LIST,]	
	[SUMMARY,]	
	[LISTDDN(ddname),]	default DEADLOCK
	[SUMMDDN(ddname),]	default DEADLOCK
	[FROM(date,time),]	
	[TO(date,time),]	

One or both of the following reports can be requested.

### LIST

List report

### SUMMARY

Summary report

Other report options are:

### LISTDDN

DDname for the list report output. The default is DEADLOCK.

### SUMMDDN

DDname for the summary report output. The default is DEADLOCK.

If both **LIST** and **SUMMARY** reports are selected, and their ddnames are the same, then only one report will be produced, containing both the List and Summary reports.

## Examples

Taking defaults:

IMSPALOG	DEADLOCK
IMSPALOG	EXECUTE

Deadlock List report for a specified period:

IMSPALOG	DEADLOCK((LIST),
	LISTDDN(DEADLOCK),
	FROM(2023/06/24, ), TO(2023/06/25, ))
IMSPALOG	EXECUTE

## Related reference

### Deadlock report

The IMS Deadlock report provides a comprehensive analysis of deadlock events. In addition the report summarizes deadlock activity to show the frequency of each losing transaction/database combination and the associated winning transaction/database combinations. This IMS Performance Analyzer report is a useful aid for tuning applications and adjusting scheduling parameters to avoid this expensive overhead. Deadlocks involving Db2 are also reported.

## CHECKPOINT: System Checkpoint report

The **CHECKPOINT** operand of the **IMSPALOG** batch command requests the System Checkpoint report.

This report provides a detailed analysis of IMS internal checkpoint activity with details of your IMS resources, including:

- Databases, with system definition information
- Transactions, with system definition information and basic usage indicators
- Terminals, with system definition information and basic usage indicators

The report also provides a summary of checkpoint activity, including:

- Break-down of checkpoint records by type
- Frequency and overhead of internal checkpoint processing

## Format

IMSPALOG	CHECKPOINT(	[DATABASE,]	
		[TRANCODE,]	
		[LTERM,]	
		[PTERM,]	
		[SUMMARY,]	
		[EVENTS,]	
	[DDNAME(ddname),]		default CHECKPT
	[FROM(date,time),]		
	[TO(date,time),]		
	[INCL(DATABASE(list)) EXCL(DATABASE(list)),]		
	[INCL(TRANCODE(list)) EXCL(TRANCODE(list)),]		
	[INCL(LTERM(list)) EXCL(LTERM(list)),]		
	[INCL(VTAMNODE(list)) EXCL(VTAMNODE(list)),]		
	[INCL(LINETERM(list)) EXCL(LINETERM(list)),]		
	[INCL(IMSID(list)) EXCL(IMSID(list))]		
SYSCPT	DISTRIBUTION	[LIMITS(value1,...,value9),]	Checkpoint Duration
		[TITLE('text'),]	
		[MULTIPLY(nnnn),]	
		[EDITMASK('char.mask') EDITMASK(hex.mask)]	
		[CSVPERF(),]	
		[CSVDISP(OLD),]	
		[OUTZONE(Z),]	
		[STREAM,]	
		[LABELCASE(ASIS),]	
		[PORT(port_number)]	

Any combination of the following reports can be requested.

### DATABASE

Database Definitions.

### TRANCODE

Transaction Definitions.

### LTERM

Terminals, sorted by LTERM.

### PTERM

Terminals, sorted by PTERM.

### SUMMARY

Record Summary. This is always produced.

### EVENTS

Record Events. Print details of every checkpoint.

### EXTRACT

Produce a CSV-formatted extract file for each of the selected reports.

### CSVREF

Specify a fully qualified prefix (may be enclosed in quotes or not) for the data sets where extract records are to be written.

IMS Performance Analyzer will append the specified prefix with a low-level qualifier of IIII.XX where "IIII" is the IMS subsystem ID and "XX" is the first two characters of the report type, either "DA" (database), "TR" (transaction), "LT" (LTERM), or "PT" (PTERM).

If not previously allocated, IMS Performance Analyzer will create the data set at runtime, with default space allocation attributes of (CYL,(1,1),RLSE).

IMS Performance Analyzer dynamically assigns a default DDname of CKPTXX where "XX" is the two character report type above.

## CSVDISP

Applies if any CSV extract data set with the specified prefix is already cataloged.

**Note:** If the data set is not cataloged then DISP=NEW will be used regardless of this setting.

## OLD

Overwrite the data set contents with the new extract data.

## MOD

Append the new extract data.

**Note:** VTAMNODE objects are either PTERM or NODE.

Other report options are:

## DDNAME

DDname for the report output. The default is CHECKPT.

## INCL|EXCL

Selection criteria to filter the report on Database, Transaction Code, LTERM, VTAM Node, Line/Terminal, or IMS subsystem ID.

## OUTZONE(Z)

Select to export ISO 8601 timestamps as Coordinated Universal Time (UTC) rather than Local time obtained from the IMS input log.

## LABELCASE

To specify how to write the field labels.

You can choose any of the following options:

- **ASIS:** Write labels same as how they are originally encoded.
- **U:** Write labels in uppercase letters.
- **L:** Write labels in lowercase letters.
- **S:** Write labels in snake case so that the words are separated with an underscore symbol ( `_` ) instead of a space.

## STREAM

Stream data extracts to a TCP listener in JSON Lines format.

## PORT

The port number of the host to override the one you specified in **Log Global Options**.

## Examples

Taking defaults:

IMSPALOG	CHECKPOINT
IMSPALOG	EXECUTE

Database and Transaction Definitions filtered by database and transaction code:

IMSPALOG	CHECKPOINT(DATABASE,TRANCODE,
	INCL(DATABASE(IPI*)),
	EXCL(TRANCODE(X*)))
IMSPALOG	EXECUTE

## Related reference

### [System Checkpoint report](#)

The IMS System Checkpoint report provides a detailed analysis of IMS internal checkpoint activity. This IMS Performance Analyzer report provides details of your IMS resources, including databases (with system definition information), transactions (with system definition information and basic usage indicators), and terminals (with system definition information and basic usage indicators). The report also provides a summary of checkpoint activity, including breakdown of checkpoint records by type, and frequency and overhead of internal checkpoint processing. You can extract results to a z/OS data set in CSV format or stream them in JSON format to a TCP listener with ASCII encoding.

## BMPCHKP: BMP Checkpoint report

The **BMPCHKP** operand of the **IMSPALOG** batch command requests the BMP Checkpoint report.

The IMS BMP Checkpoint report provides an analysis of BMP checkpoint frequency that can affect online performance and system restartability. The detailed List report provides a breakdown of individual BMP checkpoint activity. The Summary report provides an overview of each BMP program.

### Format

---

```
IMSPALOG      BMPCHKP (
               [LIST,]
               [SUMMARY,]
               [UPDATES,]
               [MINFREQ(rate),]           default 4/Minute
               [MAXFREQ(rate),]           default 1/Second
               [DDNAME(ddname),]         default BMPCHKP
               [FROM(date,time),]
               [TO(date,time),]
               [INCL (TRANCODE(list)) | EXCL (TRANCODE(list)),]
               [INCL (PROGRAM(list)) | EXCL (PROGRAM(list)),]
               [INCL (IMSID(list)) | EXCL (IMSID(list))] )
```

---

One or both of the following reports can be requested:

#### LIST

Detailed list report

#### SUMMARY

Summary report (default)

Other report options are:

#### UPDATES

Report update activity only. This option reports only BMP jobs with database update activity. This option is only applicable to summary reports.

#### MINFREQ and MAXFREQ

Used to establish a desired checkpoint rate. This rate is then compared to the actual rate in the BMP Checkpoint report to determine if BMP jobs are issuing application checkpoints too frequently, or not often enough.

##### MINFREQ

The Minimum per Minute rate defines the lowest rate tolerated for BMP Checkpoints. Where a reported checkpoint rate results in a value lower than the desired rate an indicator of **Lo** is included in the report to highlight that checkpoints are not being taken at the desired rate, for example, too infrequently.

The Minimum per Minute must be in the range of 1 to 60. Default: 4 /Minute.

##### MAXFREQ

The Maximum per Second rate defines the highest rate tolerated for BMP Checkpoints. Where a reported checkpoint rate results in a value higher than the desired rate an indicator of **Hi** is included in the report to highlight that checkpoints are being taken at more than the desired rate, for example, too frequently.

The Maximum per Second must be in the range of 1 to 9. Default: 1 /Second.

#### DDNAME

DDname for the report output. The default is BMPCHKP.

#### INCL|EXCL

Selection criteria to filter (include or exclude) the report on Transaction Code, Program, or IMS subsystem ID.

## Examples

Taking defaults:

IMSPALOG	BMPCHKP
IMSPALOG	EXECUTE

Summary report filtered by transaction code:

IMSPALOG	BMPCHKP(SUMMARY,
IMSPALOG	EXCL(TRANCODE(CSB*)))
	EXECUTE

Summary report showing only update activity:

IMSPALOG	BMPCHKP(SUMMARY,
IMSPALOG	UPDATES)
	EXECUTE

## Related reference

BMP Checkpoint report

The IMS BMP Checkpoint report provides an analysis of BMP checkpoint frequency that can affect online performance and system restartability. The detailed List report provides a breakdown of individual BMP checkpoint activity. The Summary report provides an overview of each BMP program.

## GAP: Gap Analysis report

The **GAP** operand of the **IMSPALOG** batch command requests the Gap Analysis report.

This report looks for periods of time where log records are not being cut, potentially highlighting an external system event that may have caused IMS to slow down.

## Format

IMSPALOG	GAP([BYIMID SYSPLEX BOTH,] [THRESHOLD( <i>s.thmiju</i> ),] default 5 seconds [IGNORE(6D),] [DDNAME( <i>ddname</i> ),] default GAPS [FROM( <i>date,time</i> ),] [TO( <i>date,time</i> ),] [INCL(IMSID( <i>list</i> )) EXCL(IMSID( <i>list</i> ))])
----------	---

Report options are:

### BYIMID|SYSPLEX|BOTH

Select **BYIMID** to produce only the reports for each subsystem.

Select **SYSPLEX** to produce only the total system-wide report.

Select **BOTH** to produce one report for each subsystem followed by a total system wide report. This is the default.

**Note:** For log files with a single IMS subsystem, all report options are equivalent.

### THRESHOLD

Threshold for the report output. The **THRESHOLD** defines the maximum elapsed time tolerated between records. Every gap longer than the threshold is reported.

The value of **THRESHOLD** must be within the range 0.000001 to 9.999999. The default is 5.000000 seconds.

### IGNORE(6D)

Exclude IMS x"6D" records from the Gap Analysis report. If using FDBR there is an x"6D" record written every 1 second which may distort the report. Default: all records are included if option not specified.

**DDNAME**

DDname for the report output. The default is GAPS.

**FROM-TO**

The reporting interval, either a date-time range or a time slot. The time slot can span midnight. The date can be either a calendar date or a relative date. If both dates are specified, they must be in the same format.

**INCL|EXCL**

Selection criteria to filter (include or exclude) the report on IMS subsystem ID.

**Example**

Taking defaults:

IMSPALOG	GAP
IMSPALOG	EXECUTE

**Related reference**[Log Gap Analysis report](#)

The IMS Log Gap Analysis report shows periods of time where log records are not being cut, potentially highlighting an external system event that may have caused IMS to slow down.

**COLDSTART: Cold Start Analysis report**

The **COLDSTART** operand of the **IMSPALOG** batch command requests the Cold Start Analysis report.

This report provides a point-in-time snapshot of in-train activity, answering the following questions in the event of a cold start:

- What input messages (transactions) are lost?
- What are the incomplete units-of-work, and what database changes did they make?

## Format

---

IMSPALOG	COLDSTART( [DDNAME( <i>ddname</i> ),] [FROM( <i>date,time</i> ),] [TO( <i>date,time</i> ),] [UOW,] [MSG,] [AT( <i>date,time</i> ),] [DETAIL,] [SUMMARY])	default COLDSTAR
----------	--	------------------

Report options are:

### **DDNAME**

DDname for the report output. The default is COLDSTAR.

### **UOW**

DETAIL report only. Include all incomplete units of work with database update or ESAF activity.

### **MSG**

DETAIL report only. Include all messages enqueued but not dequeued.

### **AT(*date,time*)**

Default: If not specified, the report is produced at the end of the input log.

Produce the Cold Start Analysis report at the specified *date* and *time*.

### **DETAIL**

Produce a report of all incomplete units of work (UOWs) with database update or ESAF activity, and messages enqueued but not dequeued.

### **SUMMARY**

Produce a report with counts by transaction code, database and external subsystem only.

---

## Example

Taking defaults:

IMSPALOG	COLDSTART
IMSPALOG	EXECUTE

## Related reference

Cold Start Analysis report

The IMS Cold Start Analysis report provides a snapshot of in-train activity in the event of a cold start to determine what transactions were lost from the IMS message queue, what were the incomplete units of work, what database changes were made and not backed-out, and what external subsystem activity was left in doubt.

## ENQDEQ: Enqueue/Dequeue report

The **ENQDEQ** operand of the **IMSPALOG** batch command requests the Enqueue/Dequeue report.

The IMS Enqueue/Dequeue report shows IMS message enqueue/dequeue activity. The Outstanding Messages List report provides detail of input messages queued, but not processed and bended or otherwise requested to the IMS message queue, and output messages enqueued to a destination but not dequeued and/or deleted from the IMS message queue. The Dequeue Messages List report provides details for each message counted in the destination summary report. The Destination Summary report provides an overview of the volume of input and output messages which have been queued to each destination (SMB/CNT).



## Format

---

```
IMSPALOG      ENQDEQ(
               [FROM(date,time),]
               [TO(date,time),]
               [LISTDDN(ddname),]      default NQDQLIST
               [MSGLDDN(ddname),]      default NQDQMSGL
               [SUMMDDN(ddname),]      default NQDQSUMM
               [SMB,]
               [CNT,]
               [MSGDEQ,]
               [MSGOUT,]
               [SUMMARY,]
               [BYIMID,]
               [INTERVAL(HH:MM:SS),]
               [EXTRACT,]
               [CSVDPREF(prefix),]
               [CSVDISP(disp),])
```

Report options are:

### **LISTDDN**

DDname for the Dequeued Messages List report output. The default is NQDQLIST.

### **MSGLDDN**

DDname for the Outstanding Messages List report output. The default is NQDQMSGL.

### **SUMMDDN**

DDname for the Destination Summary report output. The default is NQDQSUMM.

### **SMB**

Report on messages enqueued but not dequeued to Input destinations (SMB)

### **CNT**

Report on all messages enqueued but not dequeued to Output destinations (CNT)

### **MSGDEQ**

Produce the Dequeued Message List report containing of all messages dequeued over the period.

### **MSGOUT**

Produce the Outstanding Message List report containing all messages enqueued, but not dequeued, at the end of the period.

### **SUMMARY**

Produce the Destination Summary report containing message counts and rates by destination, optionally by time interval.

### **BYIMID**

For the Destination Summary report, produce a summary report for each IMS system.

### **INTERVAL**

For the Destination Summary report, the time interval over which you want details summarized. Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). A time interval under an hour must fit evenly into the hour. IMS Performance Analyzer will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval records for each hour of data. A time interval over an hour must fit evenly into the day. IMS Performance Analyzer will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval records for each day of data. Minutes take precedence for an abbreviated entry. For example: 1 becomes 00:01:00, 1.1 becomes 00:01:00 (rounded down from 00:01:01), and 1.1.1 becomes 01:00:00 (rounded down from 01:01:01).

### **EXTRACT**

Produce a CSV-formatted extract file for each of the selected reports.

### **CSVDPREF**

Specify a fully qualified prefix (may be enclosed in quotes or not) for the data sets where extract records are to be written.

IMS Performance Analyzer will append the specified prefix with a low-level qualifier of XX where "XX" is either "LI" (Dequeued Messages), "OS" (Outstanding Messages), or "SU" (Destination Summary). The exception is when Destination Summary is by IMS Subsystem ID, the low-level qualifier will then be IIII.SU where "IIII" is the IMS Subsystem ID.

If not previously allocated, IMS Performance Analyzer will create the data set at runtime, with default

## Example

```
IMSPALOG      ENQDEQ(
               FROM(2021/12/01,13:01:00:00),
               TO(2021/12/01,13:02:00:00),
               LISTDDN(NQDQLIST),
               MSGLDDN(NQDQMSGL),
               SUMMDDN(NQDQSUMM),
               SMB,
               CNT,
               MSGDEQ,
               MSGOUT,
               SUMMARY,
               BYIMID,
               INTERVAL(00:05:00),
               EXTRACT,
               CSVDPREF(MYPREF),
               CSVDISP(MOD))
IMSPALOG      EXECUTE
```

## Related reference

[Enqueue/Dequeue report](#)

The IMS Enqueue/Dequeue report shows an activity of IMS messages that are enqueued and dequeued.

## Fast Path Transit reports

This section contains the operands for Fast Path Transit log reports.

### Fast Path (EMH) Transit Options

These operands of the **IMSPALOG** command define general control information for the Fast Path Transit reports.

The Fast Path Transit reports are:

- Fast Path Transit Analysis
- Fast Path Transit Log
- Fast Path Transit Extract by Interval
- Fast Path Transaction Exception

## Format

The format of the operands is as follows:

---

```
IMSPALOG      [FPPEAK(ppp),]          default 90 %
               [FPINTERVAL(nnnn),]      default 15 minutes
               [FPALIGN|FPNOALIGN,]
               [FPQUALIFY(INCL(TC(list))|
                           EXCL(TC(list)))]
```

---

### FPPEAK

Peak percentile

### FPINTERVAL

Time Interval in minutes

### FPALIGN

Align Time Interval to the even hour

### FPNOALIGN

Do not align Time Interval to the even hour

### FPQUALIFY

Transaction Codes to include or exclude

## Example

Fast Path Transit Analysis and Log with peak transaction time percentage 95%, time interval 15 minutes, aligned to the hour.

```
IMSPALOG      START(2023/01/13,07:15),STOP(2023/01/13,09:30),
               INPUTDD(LOGIN),OUTPUTDD(RPTOUT),
               PAGESIZE(60),PRINTAT(STOP)
IMSPALOG      FPPEAK(95),
               FPINTERVAL(15),FPALIGN,
               FPQUALIFY(INCL(TC((DSFJ,DSFM),F*,K*,(MDB,MDK))))
IMSPALOG      FPANALYSIS(TRANCODE,TIME)
IMSPALOG      FPLOG
```

## Related reference

### Fast Path Transit Options

The IMS PA Fast Path Transit Options define control information that applies to the Fast Path Transit Reports within the Report Set.

## FPANALYSIS: Fast Path Transit Analysis report

The **FPANALYSIS** operand of the **IMSPALOG** batch command requests the Fast Path Transit Analysis report.

## Format

```
IMSPALOG      FPANALYSIS([TRANCODE,]
                        [ROUTCODE,]
                        [USERID,]
                        [TIME,]
                        [ALL,]
                        [DDNAME(ddname),]      default FPTTRPT
                        [FROM(date,time),]
                        [TO(date,time),]
                        [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
                        [INCL(ROUTCODE(list))|EXCL(ROUTCODE(list)),]
                        [INCL(USERID(list))|EXCL(USERID(list))])
```

Any combination of the following reports can be requested. If all four reports are required, either specify the four report operands, or **ALL**.

### TRANCODE

By Transaction Code

### ROUTCODE

By Routing Code

### USERID

By User ID

### TIME

By Time of Input

### ALL

Produce all reports.

Other report options are:

### DDNAME

DDname for the recap report output. The default is FPTTRPT.

### INCL|EXCL

Selection criteria to filter (include or exclude) the report on Transaction Code, Routing Code, or IMS subsystem ID.

## Example

Fast Path Transit Analysis by Transaction Code and by Time with report interval specified within global report interval, peak 95% (to check that 95% of transactions complete within a certain time), time interval 5 minutes, aligned to the hour, and filtering on Transaction Code.

```
IMSPALOG      START(2023/01/03,12:15),STOP(2023/01/04,12:15)
IMSPALOG      FPPEAK(95),FPINTERVAL(5),FPALIGN
IMSPALOG      FPANALYSIS(TRANCODE,
                        TIME,
                        FROM(2023/01/03,12:30),TO(2023/01/03,13:00),
                        INCL(TRANCODE((A,K),M*,P*)))
IMSPALOG      EXECUTE
```

## Related reference

### Fast Path Transit Analysis report

The IMS Fast Path Transit Analysis report shows the times for the components of transaction transit time: Input queue time, Processing Time, Output queue time, and Global input and output queue times. The transaction code and routing code reports show areas in application design and region availability that may require attention. The userid report shows whether the distribution of service among system users is adequate. The time of sync point report notes performance problems caused by momentary surges of transaction input. The display of transit time by time period is useful in isolating time periods of high response.

## FPLOG: Fast Path Transit Log report

The **FPLOG** operand of the **IMSPALOG** batch command requests the Fast Path Transit Log report.

## Format

```
IMSPALOG      FPLOG(
[DDNAME(ddname),]      default FPTTLOG
[FROM(date,time),]
[TO(date,time),]
[INCL(TRANCODE(list))|EXCL(TRANCODE(list))])
```

Other report options are:

### DDNAME

DDname for the recap report output. The default is FPTTLOG.

### INCL|EXCL

Selection criteria to filter the report on Transaction Code.

## Examples

Taking defaults:

```
IMSPALOG      FPLOG
IMSPALOG      EXECUTE
```

With report period and transaction code filtering:

```
IMSPALOG      FPLOG(
FROM(2023/01/14,07:15:00:00),
TO(2023/01/14,08:00:00:00),
INCL(TRANCODE((M,ZZZZZZZ))),
DDNAME(FPTTLOG))
IMSPALOG      EXECUTE
```

## Related reference

### Fast Path Transit Log report

The Fast Path Transit Log report is a chronological listing of all IFP transactions processed during the reporting interval. This report can help you diagnose problem areas and to isolate and diagnose

problem transactions. It shows transit activity and DL/I call details of each IFP transaction. For multi-subsystem log input, IMS Performance Analyzer assumes global (shared EMHQ) processing, and produces a composite report by merging log data from all subsystems in the sysplex.

## FPEXTRACT: Fast Path Transit Extract by Interval

The **FPEXTRACT** operand of the **IMSPALOG** batch command requests the Fast Path Transit Extract by Interval.

The extract processing merges previously extracted data in the input file, if it is specified, with data extracted in this run, and writes it to the output file. The output file contains records of data accumulated by time interval, for one or both of the following:

- Individual transaction codes within each time interval
- All transaction codes in each time interval

You need to extract the data at the level that you intend to export it.

The format of the extract data set is the same for both Message Queue and Fast Path transaction data, and if desired, both may reside in the same data set.

### Format

```

IMSPALOG      FPEXTRACT([TRANCODES,]
                  [TCTOTALS,]
                  [DDNAME(ddname),]      default FPTTERPT
                  [FROM(date,time),]
                  [TO(date,time),]
                  [INCL(TRANCODE(list))|EXCL(TRANCODE(list))])
[IMSPALOG      [FPALIGN|FPNOALIGN,]
IMSPALOG      [FPINTERVAL(nnnn)]]
EXECUTE

/*
//IPIFPXTI DD  DSN=input.extract.file,DISP=SHR
//IPIFPXTO DD  DSN=output.extract.file,DISP=(,CATLG),
//             UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE),
//             DCB=(DSORG=PS,RECFM=VB,LRECL=4092,BLKSIZE=4096)

```

Any combination of the following extracts may be requested:

#### TRANCODES

Accumulate data for each Transaction Code

#### TCTOTALS

Accumulate data for Transaction Code totals

Other options are:

#### DDNAME

DDname for the recap report output. The default is FPTTERPT.

#### INCL|EXCL

Selection criteria to filter the report on Transaction Code.

#### FPALIGN

Align Time Interval to the even hour.

#### FPNOALIGN

Do not align Time Interval to the even hour.

#### FPINTERVAL

Time Interval in minutes.

The input extract file IPIFPXTI is optional. The extract data set may be a generation data group (GDG).

## Example

```
IMSPALOG      START(,07:00:00:00),STOP(,10:30:00:00)
IMSPALOG      FPINTERVAL(10),FPALIGN
IMSPALOG      FPEXTRACT(TRANCODES,
                      TCTOTALS,
                      DDNAME(FPTTERPT),
                      FROM(,07:30:00:00),TO(,09:30:00:00),
                      INCL(TRANCODE(T*)))
IMSPALOG      EXECUTE
/*
//IPIFPXTI DD  DSN=IMSPA.EXTRACT.INFILE,DISP=SHR
//IPIFPXTO DD  DSN=IMSPA.EXTRACT.OUTFILE,DISP=(,CATLG),
//            UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE),
//            DCB=(DSORG=PS,RECFM=VB,LRECL=4092,BLKSIZE=4096)
```

## Related reference

### [Fast Path Transit Extract by Interval](#)

The IMS Fast Path Transit Extract by Interval report allows creation of extract files of Fast Path transit data by time interval. You can use the CSV extracts produced by IMS Performance Analyzer for further analysis in third-party tools.

## FPTRNEX: Fast Path Transaction Exception report and extract

The **FPTRNEX** operand of the **IMSPALOG** batch command requests the Fast Path Transaction Exception reports.

The report has four sections:

- Transaction Exception Detail Log, optionally with any combination of the following details:
  - DEDB Calls
  - Buffer Usage
  - VSO
  - Shared EMHQ
- Summary by Transaction
- Synchronization Failure Summary
- Recap, always produced at the end to summarize the report and extract processing

## Format

```
IMSPALOG      FPTRNEX([DETAIL,]
                      [CALLS,]
                      [BUFFER,]
                      [VSO,]
                      [SEMHQ,]
                      [SUMMARY,]
                      [SYNCFAIL,]
                      [OTHERFP,]
                      [EXPECT(expectation-set-name),]
                      [DDNAME(ddname),]          default FPTTXLOG
                      [FROM(date,time),]
                      [TO(date,time)])
IMSPALOG      EXECUTE
/*
//IPIFXUT1 DD  DSN=total.traffic.dataset,DISP=(,CATLG),
//            UNIT=SYSDA,SPACE=(CYL,(5,5),RLSE)
//IPIFXUT2 DD  DSN=exception.traffic.dataset,DISP=(,CATLG),
//            UNIT=SYSDA,SPACE=(CYL,(5,5),RLSE)
//IPIEXPQ  DD  DSN=expect.sets.dataset,DISP=SHR
```

Any combination of the following reports may be requested:

### **DETAIL**

Exception Detail Log

## **CALLS**

DEDB Calls

## **BUFFER**

Buffer Usage

## **VSO**

VSO

## **SEMHQ**

Shared EMHQ

## **SUMMARY**

Summary by Transaction Code

## **SYNCFAIL**

Sync Failure Summary

Other report options are:

## **OTHERFP**

Include non-IFP transactions in Exception reporting.

## **EXPECT**

Expectation Set (member name in the Expectation Sets data set).

## **DDNAME**

DDname for the recap report output. The default is SBDD.

An Expectation Set may be specified so the report and extracts can identify transactions performing outside "expectations". If omitted, all transactions are considered exceptions. IPIEXPQ is the ddname of the Expectation Sets data set.

Two extract data sets may be specified, to create the equivalent of the DBFULTA0 extract data sets:

- IPIFXUT1 Total Traffic data set contains detail records of all transactions
- IPIFXUT2 Exception Traffic data set contains only exception transactions

The Extract data sets may be GDGs.

Other report options are:

## **INCL|EXCL**

Selection criteria to filter the report on transaction code or IMS subsystem ID.

## **Example**

```
IMSPALOG      START(2023/01/15,) ,STOP(2023/01/15,)
IMSPALOG      FPTRNEX(DETAIL,
                    SUMMARY,
                    SYNCFAIL,
                    EXPECT(EXPEXCPT))
IMSPALOG      EXECUTE
/*
//IPIFXUT1 DD  DSN=IMSPA.V450.TOTAL.TRAFFIC,DISP=MOD
//IPIFXUT2 DD  DSN=IMSPA.V450.EXCEPT.TRAFFIC,DISP=(,CATLG),
//            UNIT=SYSDA,SPACE=(CYL,(5,5),RLSE)
//IPIEXPQ  DD  DSN=IMSPA.V450.EXPECTDS,DISP=SHR
```

## **Related reference**

[Fast Path Transaction Exception report and extract](#)

The Fast Path Transaction Exception reports provide detailed and summary information about IFP transactions, as well as message queue transactions that use Fast Path databases. The series of reports provide detailed and summary information about IFP transactions, as well as message queue transactions that use Fast Path databases. Optionally, two extract files can be produced containing detail records of all IFP transaction activity, or exception transactions only.

# Fast Path Resource Usage reports

This section contains the operands for Fast Path Resource Usage log reports.

## FPIRUC: Fast Path Resource Usage and Contention report

The **FPIRUC** operand of the **IMSPALOG** batch command requests the Fast Path Resource Usage and Contention report or the Fast Path Buffer Usage report or both.

### Format

IMSPALOG	FPIRUC([BYIMID SYSPLEX,] [RESUSAGE,] [BUFFER,] [RESDDN(ddname),] default FPRUCRPT [BUFDDN(ddname),] default FPBUFRPT [PEAK(nnn),] default 90% [FROM(date,time),] [TO(date,time),] [INCL(TRANCODE(list)) EXCL(TRANCODE(list)),] [INCL(IMSID(list)) EXCL(IMSID(list))])
----------	--

One or both of the following reports can be requested:

#### RESUSAGE

FP Resource Usage and Contention.

#### BUFFER

FP Buffer Usage.

The content of each report can take one of three forms:

#### BYIMID

One report for each IMS subsystem.

#### SYSPLEX

The total system wide report.

#### not specified

One report for each IMS subsystem followed by a total system wide report. This is the default.

Other report options are:

#### RESDDN

DDname for the FP Resource Usage and Contention report output.

#### BUFDDN

DDname for the FP Buffer Usage report output.

#### PEAK

Peak percentile for the FP Buffer Usage report.

#### INCL|EXCL

Selection criteria to filter the report on Transaction Code or IMS subsystem ID.

### Example

Request both the FP Resource Usage and Contention report and the FP Buffer Usage report with peak percentile 85% and selection criteria.

IMSPALOG	START(2023/01/14, ), STOP(2023/01/15, )
IMSPALOG	FPIRUC(RESUSAGE, BUFFER, RESDDN(FPRUCRPT), BUFDDN(FPBUFRPT), PEAK(85), INCL(TRANCODE(B*)), INCL(IMSID(IMS)))
IMSPALOG	EXECUTE



**Related reference**

Fast Path Resource Usage and Contention report

The IMS Fast Path Resource Usage and Contention report provides detailed statistics on the Fast Path resources used by IFP transactions and non-IFP programs. Use this report to view information on DEDB databases, area data sets, VSO, common buffers, locks, logging, sync point failures, and transaction throughput. Use this IMS Performance Analyzer report to gauge the performance of transactions that use DEDB databases. This report identifies transactions that issue excessive DL/I calls that cause area data set I/O, use excessive resources (including buffers and VSO), cause excessive contention, cause excessive logging, or fail during sync point processing.

**FPDBCALL: Fast Path Database Call Statistics report**

The **FPDBCALL** operand of the **IMSPALOG** batch command requests the Fast Path Database Call Statistics report.

**Format**

---

IMSPALOG	FPDBCALL ([BYIMID SYSPLEX,] [DDNAME(ddname),] default FPDBCRPT [FROM(date,time),] [TO(date,time),] [INCL(TRANCODE(list)) EXCL(TRANCODE(list)),] [INCL(IMSID(list)) EXCL(IMSID(list))])
IMSPALOG	EXECUTE

---

The content of each report can take one of three forms:

**BYIMID**

One report for each IMS subsystem.

**SYSPLEX**

The total system wide report.

**not specified**

One report for each IMS subsystem followed by a total system wide report. This is the default.

Other report options are:

**DDNAME**

DDname for the recap report output. The default is FPDBCRPT.

**INCL|EXCL**

Selection criteria to filter the report on Transaction Code or IMS subsystem ID.

**Example**

IMSPALOG	FPDBCALL ( DDNAME (FPDBCRPT) , INCL (TRANCODE ((A,K),M*)), INCL (IMSID (IMSA,IMSB)) )
IMSPALOG	EXECUTE

**Related reference**

Fast Path Database Call Statistics report

The IMS Fast Path Database Call Statistics report provides a breakdown of DL/I call function codes by transaction code, identifying transaction that issue excessive DL/I calls. After identifying transactions with poor response time (using the IMS Performance Analyzer Fast Path Transit Analysis report), or transactions using excessive resources (using the Fast Path Resource Usage and Contention report), use the Fast Path Database Call Statistics report to identify the DL/I call function codes most frequently used by the transactions. If your database is a HALDB, you can also report on specific HALDB partitions because the name of the partition is found on the database name field of the various records used in this report.

## FPRGNO: IFP Region Occupancy report

The **FPRGNO** operand of the **IMSPALOG** batch command requests the IFP Region Occupancy report.

### Format

IMSPALOG	FPRGNO( [DDNAME( <i>ddname</i> ),]                      default FPRGORPT [FROM( <i>date,time</i> ),] [TO( <i>date,time</i> ),] [INCL(REGION( <i>list</i> ))   EXCL(REGION( <i>list</i> )),] [INCL(PROGRAM( <i>list</i> ))   EXCL(PROGRAM( <i>list</i> )),] [INCL(IMSID( <i>list</i> ))   EXCL(IMSID( <i>list</i> ))]) EXECUTE
----------	--

Other report options are:

#### DDNAME

DDname for the recap report output. The default is FPRGORPT.

#### FROM-TO

The reporting interval, either a date-time range or a time slot. The time slot can span midnight. The date can be either a calendar date or a relative date. If both dates are specified, they must be in the same format.

#### INCL|EXCL

Selection criteria to filter the report on Region ID, Program, or IMS subsystem ID.

### Example

IMSPALOG	START(,10:00),STOP(,14:30)
IMSPALOG	FPRGNO( FROM(,12:00),TO(,14:00), INCL(IMSID(IMSA,IMSB))) EXECUTE

### Related reference

#### [IFP Region Occupancy report](#)

The IFP Region Occupancy report provides approximate region occupancy rates for IFP regions. You can use this IMS Performance Analyzer report to determine if an appropriate number of IFP regions is available for processing the workload.

## FPEMHQ: EMH Message Statistics report

The **FPEMHQ** operand of the **IMSPALOG** batch command requests the EMH Message Statistics report.

### Format

IMSPALOG	FPEMHQ( [DDNAME( <i>ddname</i> ),]                      default FPMSGRPT [FROM( <i>date,time</i> ),] [TO( <i>date,time</i> ),] [INCL(TRANCODE( <i>list</i> ))   EXCL(TRANCODE( <i>list</i> ))])
----------	---

Report options are:

#### DDNAME

DDname for the recap report output. The default is FPMSGRPT.

#### INCL|EXCL

Selection criteria to filter the report on Transaction Code.

## Example

```
IMSPALOG      START(2023/01/15,) ,STOP(2023/01/16,)
IMSPALOG      FPEMHQ(
               DDNAME(FPMSGRPT),
               EXCL(TRANCODE(IMS9)))
IMSPALOG      EXECUTE
```

## Related reference

[EMH Message Statistics report](#)

The EMH Message Statistics report contains information on the number and length of EMH messages that are processed by balancing groups and shared EMH queues. This IMS Performance Analyzer report can be used to gauge the size and frequency of transaction messages processed by IFP regions and the ratio of transactions processed locally versus those processed globally.

## FPDBUPD: DEDB Update Activity report

The **FPDBUPD** operand of the **IMSPALOG** batch command requests the DEDB Update Activity report.

## Format

```
IMSPALOG      FPDBUPD([BYIMID|SYSPLEX,]
                     [DDNAME(ddname),]      default FPDBURPT
                     [FROM(date,time),]
                     [TO(date,time),]
                     [INCL(DATABASE(list))|EXCL(DATABASE(list)),]
                     [INCL(AREA(list))|EXCL(AREA(list)),]
                     [INCL(IMSID(list))|EXCL(IMSID(list))])
```

The content of the report can take one of three forms:

### not specified

One report for each IMS subsystem followed by a total system wide report. This is the default.

### BYIMID

One report for each IMS subsystem.

### SYSPLEX

The total system wide report.

Other report options are:

### DDNAME

DDname for the recap report output. The default is FPDBURPT.

### INCL|EXCL

Selection criteria to filter the report on Database, Area, or IMS subsystem ID.

## Examples

Taking defaults:

```
IMSPALOG      FPDBUPD
IMSPALOG      EXECUTE
```

With filtering:

```
IMSPALOG      FPDBUPD(
               EXCL(DATABASE(D*)),
               INCL(IMSID(A*,(M,Z))))
IMSPALOG      EXECUTE
```

## Related reference

[DEDB Update Activity report](#)

The IMS DEDB Update Activity report can help you determine the cost of data entry database (DEDB) calls, and shows the rate of processing against your DEDB databases. This IMS Performance Analyzer report can be used to determine the most highly used DEDB databases (and their areas), allowing you to prioritize their tuning, reorganization, and other database administration tasks, and to view DEDB database update activity when diagnosing application performance problems. The report shows the number of sequential dependent (SDEP) and direct dependent (DDEP) segments updated, the segment update rate, the number of database opens, and the number of database errors.

## FPVSO: VSO Statistics report

The **FPVSO** operand of the **IMSPALOG** batch command requests the VSO Statistics report.

### Format

```
IMSPALOG      FPVSO([BYIMID|SYSPLEX,]
                [DDNAME(ddname),]      default FPVSORPT
                [FROM(date,time),]
                [TO(date,time),]
                [INCL(DATABASE(list))|EXCL(DATABASE(list)),]
                [INCL(AREA(list))|EXCL(AREA(list)),]
                [INCL(IMSID(list))|EXCL(IMSID(list))])
```

The content of the report can take one of three forms:

#### **BYIMID**

One report for each IMS subsystem.

#### **SYSPLEX**

The total system wide report.

#### ***not specified***

One report for each IMS subsystem followed by a total system wide report. This is the default.

Other report options are:

#### **DDNAME**

DDname for the recap report output. The default is FPVSORPT.

#### **INCL|EXCL**

Selection criteria to filter the report on Database, Area, or IMS subsystem ID.

### Examples

Taking defaults:

```
IMSPALOG      FPVSO
IMSPALOG      EXECUTE
```

For IMS subsystem IMSA, excluding the SALES database:

```
IMSPALOG      FPVSO(SYSPLEX,
                    FROM(2023/01/14, ), TO(2023/01/15, ),
                    EXCL(DATABASE(SALES)),
                    INCL(IMSID(IMSA)))
IMSPALOG      EXECUTE
```

### Related reference

#### VSO Statistics report

The IMS VSO Statistics report provides detailed statistics on VSO resource usage. This IMS Performance Analyzer report can be used to determine how well VSO is performing by comparing Data Space I/O with Area data set I/O, for SHARELVL 0/1, comparing Coupling Facility I/O with Area data set I/O, for SHARELVL 2/3, by checking the Lookaside hit rate, for SHARELVL 2/3, and by ensuring that Castout frequency and elapsed times are within expectations. The VSO resources include data spaces for

SHARELVL 0/1, coupling Facility for SHARELVL 2/3, lookaside Buffers for SHARELVL 2/3, and DEDB Area data set I/O.

## ATF Summary reports

This section contains the operands for ATF Summary log reports.

### ATF Summary Transit Options

These operands of the **IMSPALOG** command define general control information for the ATF Summary reports.

The ATF Summary reports and extract are:

- ATF Summary Extract
- ATF Summary Transaction Analysis
- ATF Summary DLI Call Analysis
- ATF Summary Db2 Call Analysis
- ATF Summary MQ Call Analysis

### Format

The format of the operands is as follows:

IMSPALOG	[ATFCODE( <i>code</i> ),] [ATFEXCEPT]	default A0 default not present
----------	--	-----------------------------------

#### ATFCODE

The log record code of the OMEGAMON Application Trace Facility (ATF) summary records written to the IMS log.

#### ATFEXCEPT

Process only transactions marked by ATF as matching defined ATF exception criteria. IBM OMEGAMON for IMS V5.5 introduced flags to identify these exceptions in APAR OI54667. If this option is selected and the ATF input is from a version prior to APAR OI54667, no records are selected.

### Example

ATF Summary Fast Path Transit Options with ATF log code set to A1, processing exception transactions only.

IMSPALOG	START(2023/01/13,07:15),STOP(2023/01/13,09:30), INPUTDD(LOGIN),OUTPUTDD(RPTOUT), PAGESIZE(60),PRINTAT(STOP), SETIMSID(DDNAME)
IMSPALOG	ATFCODE(A1),
IMSPALOG	ATFEXCEPT
IMSPALOG	ATFEXTR( DELIMIT(' ',''))
IMSPALOG	EXECUTE

#### Related reference

[ATF Summary Transit Options](#)

The IMS Performance Analyzer ATF Summary Transit Options define control information that applies to the ATF Summary reports within the report set.

## ATFEXTR: ATF Summary Extract

The **ATFEXTR** operand of the **IMSPALOG** batch command requests the ATF Summary Extract.

The OMEGAMON for IMS ATF Summary Extract creates comma separated values (CSV) file extracts of the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. The CSV extract created by IMS Performance Analyzer contains a HEADER section and optional repeating sections for DATABASE, DLI DB, DLI TM, Db2, MQ, and OTHER.

**Tip:** The IMS Performance Analyzer sample library contains samples to load the resulting extract data into Db2. For more information, see [Chapter 31, “IMS Performance Analyzer sample library,”](#) on page 653.

The extract writes data from the ATF Summary record to the output file. The output file contains an extract of the ATF Summary record fixed part of the record. Optionally, you can create additional extracts for up to six repeating sections:

- DATABASE
- DLI DB
- DLI TM
- Db2
- MQ
- OTHER

The format of the extract data set is as follows.

### Format

```

IMSPALOG      ATFEXTR([LABELS,]
                    DELIMIT('char'),
                    [SECTIONS(
                    [DBD,]
                    [DLIDB,]
                    [DLITM,]
                    [DB2,]
                    [MQ,]
                    [OTHER]))],
                    [INCL(TRANCODE(list))|EXCL(TRANCODE(list))]
                    [INCL(PROGRAM(list))|EXCL(PROGRAM(list))]
                    [INCL(DATABASE(list))|EXCL(DATABASE(list))]
                    [INCL(USERID(list))|EXCL(USERID(list))]
                    [INCL(IMSID(list))|EXCL(IMSID(list))])

IMSPALOG      EXECUTE
/*
//ATFHEAD DD DSN=header.output.extract.file,DISP=SHR|OLD|MOD
//ATFDBD DD DSN=database.output.extract.file,DISP=SHR|OLD|MOD]
//ATFDLIB DD DSN=dlidb.output.extract.file,DISP=SHR|OLD|MOD]
//ATFDLITM DD DSN=dlitm.output.extract.file,DISP=SHR|OLD|MOD]
//ATFDB2 DD DSN=db2.output.extract.file,DISP=SHR|OLD|MOD]
//ATFMQ DD DSN=mq.output.extract.file,DISP=SHR|OLD|MOD]
//ATFOTHER DD DSN=other.output.extract.file,DISP=SHR|OLD|MOD]

```

The report options are:

#### LABELS

Include field labels in the extract

#### DELIMIT

The character to use to separate fields in the extract

#### SECTIONS

The sections for which to produce extracts. Every extract includes the header extract. **SECTIONS** specifies which other sections to extract.

## INCL|EXCL

Selection criteria to filter the report on transaction code, program, database, user ID or IMS subsystem ID.

## Example

```
IMSPALOG START(2018/01/13,10:00:00:00),STOP(2018/01/14,11:00:00:00)
* ATF Summary Transit Options
* OMEGAMON ATF Summary log code - A0
* Process Exception transactions only
  IMSPALOG      ATFCODE(A2),
                ATFEXCEPT
* ATF Summary Extract
* ATFHEAD - extract DSN - 'ABC.IMSPA.HEAD1.CSV'
* Delimiter - ,
  IMSPALOG      ATFEXTR(
                DELIMIT(',')
  IMSPALOG      EXECUTE
/*
```

## Related reference

### [ATF Summary Extract](#)

The OMEGAMON for IMS ATF Summary Extract creates comma separated values (CSV) file extracts of the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. The CSV extract created by IMS Performance Analyzer contains a HEADER section and optional repeating sections for DATABASE, DLI DB, DLI TM, Db2, MQ, and OTHER.

## ATFANALYSIS: ATF Summary Transaction Analysis report

The **ATFANALYSIS** operand of the **IMSPALOG** batch command requests the ATF Summary Transaction Analysis report.

## Format

```
IMSPALOG      ATFANALYSIS([LIST],
                        [SUMMARY,]
                        [DATABASE,]
                        LISTDDN(ddname),      default ATFTRNLS
                        SUMMDDN(ddname),      default ATFTRNSM
                        [FROM(date,time),]
                        [TO(date,time),]
                        [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
                        [INCL(PROGRAM(list))|EXCL(PROGRAM(list)),]
                        [INCL(DATABASE(list))|EXCL(DATABASE(list)),]
                        [INCL(USERID(list))|EXCL(USERID(list)),]
                        [INCL(IMSID(list))|EXCL(IMSID(list))])
```

You can request a list or summary report, and optionally make those reports show performance by database.

### LIST

- When the DATABASE suboperand is not specified, transactions are listed with elapsed time and CPU time.
- When the DATABASE suboperand is specified, transactions are listed by database, with DLI Gets and Updates separated into call counts, elapsed time, and CPU time.

### SUMMARY

- When the DATABASE suboperand is not specified, transactions are summarized by program, with elapsed time and CPU time separated into different categories.
- When the DATABASE suboperand is specified, database usage is summarized showing call counts, elapsed time, and CPU time for DLI Reads and separately for DLI Updates.

## DATABASE

The DATABASE suboperand changes the type of List or Summary report so that it shows performance by database.

Other report options are:

### LISTDDN

DDname for the list report output. The default value is ATFTRNLS.

### SUMMDDN

DDname for the summary report output. The default value is ATFTRNSM.

### INCL|EXCL

Selection criteria to filter (include or exclude) the report on transaction code, program, database, user ID, or IMS subsystem ID.

## Example

ATF Summary Transaction Analysis, list and summary reports by database, and filtering on transaction code.

```
IMSPALOG      ATFCDN(A0)
IMSPALOG      ATFANALYSIS(
               LIST,
               SUMMARY,
               DATABASE,
               LISTDDN(ATFTRNLS),
               SUMMDDN(ATFTRNSM),
               INCL(TRANCODE(TRAN1)))
IMSPALOG      EXECUTE
```

## Related reference

[ATF Summary Transaction Analysis report](#)

The OMEGAMON for IMS ATF Summary Transaction Analysis report shows performance by transaction or by database using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. The report created by IMS Performance Analyzer is available in both List and Summary format.

## ATFDLICALL: ATF Summary DLI Call Analysis report

The **ATFDLICALL** operand of the **IMSPALOG** batch command requests the ATF Summary DLI Call Analysis report.

## Format

```
IMSPALOG      ATFDLICALL(
               [LIST,]
               [SUMMARY,]
               [DATABASE,]
               LISTDDN(ddname),           default ATFDLILS
               SUMMDDN(ddname),           default ATFDLISM
               [FROM(date,time),]
               [TO(date,time),]
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
               [INCL(PROGRAM(list))|EXCL(PROGRAM(list)),]
               [INCL(DATABASE(list))|EXCL(DATABASE(list)),]
               [INCL(USERID(list))|EXCL(USERID(list)),]
               [INCL(IMSID(list))|EXCL(IMSID(list))])
```

You can request a list or summary report, and optionally make the summary report show DLI activity by database.

### LIST

Within each transaction, DLI activity is reported by database and call type. Whether the DATABASE suboperand is specified has no effect.



## SUMMARY

- When the DATABASE suboperand is not specified, DLI activity is summarized by transaction, with DLI call counts, average elapsed time and CPU time.
- When the DATABASE suboperand is specified, DLI activity is summarized by database, with DLI call counts, average elapsed time and CPU time.

## DATABASE

The DATABASE suboperand changes the type of Summary report so that it shows DLI activity by database.

Other report options are:

## LISTDDN

DDname for the list report output. The default value is ATFDLILS.

## SUMMDDN

DDname for the summary report output. The default value is ATFDLISM.

## INCL|EXCL

Selection criteria to filter (include or exclude) the report on transaction code, program, database, user ID, or IMS subsystem ID.

## Example

ATF Summary Transaction Analysis, showing List and Summary reports by database, and filtering on transaction code.

```
IMSPALOG      ATFCODE(A0)
IMSPALOG      ATFDLICALL(
               LIST,
               SUMMARY,
               DATABASE,
               LISTDDN(ATFDLILS),
               SUMMDDN(ATFDLISM),
               INCL(TRANCODE(TRAN1)))
IMSPALOG      EXECUTE
```

## Related reference

ATF Summary DLI Call Analysis report

The OMEGAMON for IMS ATF Summary DLI Call Analysis report shows database activity within transactions using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. With IMS Performance Analyzer, you can produce a list report that breaks down database activity within each transaction by call type, or a summary report.

## ATFDB2CALL: ATF Summary Db2 Call Analysis report

The **ATFDB2CALL** operand of the **IMSPALOG** batch command requests the ATF Summary Db2 Call Analysis report.

## Format

```
IMSPALOG      ATFDB2CALL(
               [LIST,]
               [SUMMARY,]
               LISTDDN(ddname),          default ATFDB2LS
               SUMMDDN(ddname),          default ATFDB2SM
               [FROM(date,time),]
               [TO(date,time),]
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
               [INCL(PROGRAM(list))|EXCL(PROGRAM(list)),]
               [INCL(USERID(list))|EXCL(USERID(list)),]
               [INCL(IMSID(list))|EXCL(IMSID(list))])
```

You can request a list or summary report.

#### LIST

The List report shows Db2 activity within transaction by SQL call type, including call count, elapsed time and CPU time.

#### SUMMARY

The Summary report shows Db2 activity summarized by transaction and SQL call type, including call count, elapsed time, and CPU time.

Other report options are:

#### LISTDDN

DDname for the list report output. The default value is ATFDB2LS.

#### SUMMDDN

DDname for the summary report output. The default value is ATFDB2SM.

#### INCL|EXCL

Selection criteria to filter (include or exclude) the report on transaction code, program, user ID, or IMS subsystem ID.

#### Example

ATF Summary Db2 Call Analysis, showing List and Summary reports, and filtering on transaction code.

```
IMSPALOG      ATFCODE(A0)
IMSPALOG      ATFDB2CALL(
               LIST,
               SUMMARY,
               LISTDDN(ATFDB2LS),
               SUMMDDN(ATFDB2SM),
               INCL(TRANCODE(TRAN1)))
IMSPALOG      EXECUTE
```

#### Related reference

[ATF Summary Db2 Call Analysis report](#)

The OMEGAMON for IMS ATF Summary Db2 Call Analysis report is useful for showing Db2 SQL call activity within transactions using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. With IMS Performance Analyzer, you can produce a list report that breaks down Db2 activity within each transaction by call type, or a summary report.

### ATFMQCALL: ATF Summary MQ Call Analysis report

The **ATFMQCALL** operand of the **IMSPALOG** batch command requests the ATF Summary MQ Call Analysis report.

#### Format

```
IMSPALOG      ATFMQCALL(
               [LIST,]
               [SUMMARY,]
               LISTDDN(ddname),          default ATFMQLS
               SUMMDDN(ddname),          default ATFMQSM
               [FROM(date,time),]
               [TO(date,time),]
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
               [INCL(PROGRAM(list))|EXCL(PROGRAM(list)),]
               [INCL(USERID(list))|EXCL(USERID(list)),]
               [INCL(IMSID(list))|EXCL(IMSID(list))])
```

You can request a list or summary report.

#### LIST

The List report shows MQ activity within transaction by call type, showing elapsed time and CPU time.

## SUMMARY

The Summary report shows MQ activity summarized by transaction and call type, including call count, and average elapsed time and CPU time.

Other report options are:

## LISTDDN

DDname for the list report output. The default value is ATFMQLS.

## SUMMDDN

DDname for the summary report output. The default value is ATFMQSM.

## INCL|EXCL

Selection criteria to filter (include or exclude) the report on transaction code, program, user ID, or IMS subsystem ID.

## Example

ATF Summary Db2 Call Analysis, showing List and Summary reports, and filtering on transaction code.

```
IMSPALOG      ATFCODE(A0)
IMSPALOG      ATFMQCALL(
               LIST,
               SUMMARY,
               LISTDDN(ATFMQLS),
               SUMMDDN(ATFMQSM),
               INCL(TRANCODE(TRAN1)))
IMSPALOG      EXECUTE
```

## Related reference

ATF Summary MQ Call Analysis report

The OMEGAMON for IMS ATF Summary MQ Call Analysis report is useful for showing MQ activity within transactions using the OMEGAMON for IMS Application Trace Facility (ATF) summary record written to the IMS log. With IMS Performance Analyzer, you can produce a list report that breaks down MQ activity within each transaction by call type, or a summary report.

## Trace reports

This section contains the operands for IMS Performance Analyzer Trace log reports.

**Remember:** Input logs provided to IMS Performance Analyzer may contain sensitive information. Be sure to secure any reports that you generate as you would the input log data itself.

## DCTRACE: DC Queue Manager Trace report

The **DCTRACE** operand of the **IMSPALOG** batch command requests the DC Queue Manager Trace report.

## Format

```
IMSPALOG      DCTRACE(
               [LTERM,]
               [TRACKING, [UTCLOCAL|UTCGMT,]]
               [SAMEUOW,]
               [TEXTALL,]
               [DDNAME(ddname),]          default DCTRDD
               [FROM(date,time),]
               [TO(date,time),]
               [INCL(LINETERM(list))|EXCL(LINETERM(list)),]
               [INCL(LTERM(list))|EXCL(LTERM(list)),]
               [INCL(VTAMNODE(list))|EXCL(VTAMNODE(list)),]
               [INCL(LOGCODES(list))|EXCL(LOGCODES(list)),]
               [INCL(MSGID(list))|EXCL(MSGID(list)),]
               [INCL(USERID(list))|EXCL(USERID(list)),]
               [INCL(IMSID(list))|EXCL(IMSID(list))])
```

You can request any combination of the following options:

**LTERM**

Print LTERM name, instead of Line or VTAM Node name

**TRACKING**

Print DC UOW Tracker report

**UTCLOCAL**

For DC UOW Tracker: Convert UTC time stamp to local time

**UTCGMT**

For DC UOW Tracker: Report UTC as it appears in the log record (GMT)

**SAMEUOW**

Print complete transactions (all messages), regardless of filtering

**TEXTALL**

Print entire message text; otherwise only the first part to fit on one line is printed

Other report options are:

**DDNAME**

DDname for the recap report output. The default is DCTRDD.

**INCL|EXCL**

Selection criteria to filter the report on Line/Terminal, LTERM, VTAM Node, Log Record Code, Message ID, User ID, or IMS subsystem ID.

**Tip:** When specifying selection criteria for Message IDs less than 8 characters (for example, transaction codes), append \* to extend the length of the field to 8 characters.

**Examples**

Taking defaults:

IMSPALOG	DCTRACE
IMSPALOG	EXECUTE

Report for terminals 2 and 5 on line 10; exclude log records 01, 32, 34, and 39:

IMSPALOG	DCTRACE(INCL(LINETERM(10/2,10/5)),
IMSPALOG	EXCL(LOGCODES(01,32,34,39)))
	EXECUTE

Report for transaction code TR1:

IMSPALOG	DCTRACE(INCL(MSGID(TR1*)), SAMEUOW, TRACKING, UTCGMT)
IMSPALOG	EXECUTE

**Related reference**DC Queue Manager Trace report

The IMS DC Queue Manager Trace report shows a time-sequenced list of each TM event, such as input, message enqueue, get unique, output, and free device relative record number (DRRN). This IMS Performance Analyzer report also shows the content of each input message. The DC UOW Tracker report option allows you to trace transaction message flow using the IMS tracking UOW.

## DBTRACE: Database Trace report

The **DBTRACE** operand of the **IMSPALOG** batch command requests the Database Trace (Full Function) report.

### Format

IMSPALOG	DBTRACE([INCLUDE(DB),] [EXCLUDE(TC),] [DDNAME(ddname),] [FROM(date,time),] [TO(date,time),] [INCL(TRANCODE(list)) EXCL(TRANCODE(list)),] [INCL(DATABASE(list)) EXCL(DATABASE(list)),] [INCL(PROGRAM(list)) EXCL(PROGRAM(list)),] [INCL(KEY(list)) EXCL(KEY(list)),] [INCL(BLOCKID(list)) EXCL(BLOCKID(list)),] [INCL(IMSID(list)) EXCL(IMSID(list))])	database information only database open/close only default DBTRDD
----------	---	---

The content of the report can take one of three forms, with different filtering options available for each:

#### **INCLUDE(DB)**

Database information only, with filtering on Key, Block ID, IMS Subsystem ID.

#### **EXCLUDE(TC)**

Database Open/Close only, with filtering on IMS Subsystem ID.

#### **not specified**

Database with transaction oriented information, with filtering on Transaction Code, Database, Key, Block ID, IMS Subsystem ID. This is the default.

Other report options are:

#### **DDNAME**

DDname for the recap report output. The default is DBTRDD.

#### **INCL|EXCL**

Selection criteria to filter the report on Transaction Code, Database, Program, Key, Block ID, or IMS subsystem ID.

### Examples

Taking defaults:

IMSPALOG	DBT
IMSPALOG	EXECUTE

Report for the time period 3:00 p.m. to 5:00 p.m. for records with keys of BLD and DRF in the PARTFILE database:

IMSPALOG	DBTRACE( FROM(,15:00),TO(,17:00), INCL(DATABASE(PARTFILE)), INCL(KEY(BLD,DRF)))
IMSPALOG	EXECUTE

### Related reference

#### Database Trace (Full Function) report

The IMS Database Trace (Full Function) report provides a record of all database changes by application programs as recorded on the IMS log. Backout changes caused by emergency restart are also reported and identified separately, but changes due to the reorganization utilities are not reported. Log records created by pseudo-abends are included in the report. This IMS Performance Analyzer report shows the content of segments, prefix pointers, and free space elements, and shows both the *before* and *after* versions of these as appropriate. The report also identifies the time of the change and the name of the program (PSB) making the change.

## FPDBTRC: DEDB Update Trace report

The **FPDBTRC** operand of the **IMSPALOG** batch command requests the DEDB Update Trace report.

### Format

```
IMSPALOG      FPDBTRC([DEDBONLY|OPENCLOSE,]  
[DDNAME(ddname),]          default FPDBTRC  
[FROM(date,time),]  
[TO(date,time),]  
[INCL(REGION(list))|EXCL(REGION(list)),]  
[INCL(PROGRAM(list))|EXCL(PROGRAM(list)),]  
[INCL(USERID(list))|EXCL(USERID(list)),]  
[INCL(DATABASE(list))|EXCL(DATABASE(list)),]  
[INCL(AREA(list))|EXCL(AREA(list)),]  
[INCL(IMSID(list))|EXCL(IMSID(list))])
```

The content of the report can take one of three forms:

#### **DEDBONLY**

DEDB information only.

#### **OPENCLOSE**

DEDB Open/Close only.

#### ***not specified***

DEDB information including related sync point entries. This is the default.

Other report options are:

#### **DDNAME**

DDname for the recap report output. The default is FPDBTRC.

#### **INCL|EXCL**

Selection criteria to filter the report on Region ID, Program (PSB), User ID, Database, Area, or IMS subsystem ID.

### Examples

Taking defaults:

```
IMSPALOG      FPDBTRC  
IMSPALOG      EXECUTE
```

Report for the time period 3 p.m. to 5 p.m. for records in the PARTFILE database:

```
IMSPALOG      FPDBTRC(  
IMSPALOG      FROM(,15:00),TO(,17:00),  
IMSPALOG      INCL(DATABASE(PARTFILE))  
IMSPALOG      EXECUTE
```

### Related reference

#### DEDB Update Trace report

The IMS DEDB Update Trace report provides a record of all data entry database (DEDB) changes by application programs as recorded on the IMS log. Use this report to debug DEDB database problems and application program problems, and to diagnose performance problems and tune your applications. For example, you can monitor individual program or user updates to a particular database. This IMS Performance Analyzer report shows all DEDB segment updates (including the relative byte address (RBA) and contents of the modified data), DEDB Area data set Open and Close events, creation of Error Queue Elements (EQEs), and application sync points for all transactions that updated reported DEDBs.

## ESAF: ESAF Trace report

The **ESAF** operand of the **IMSPALOG** batch command requests the External Subsystem Statistics report.

### Format

---

IMSPALOG	ESAF( [DDNAME( <i>ddname</i> ),]                      default ESAFDD [FROM( <i>date,time</i> ),] [TO( <i>date,time</i> ),] [INCL(ES( <i>list</i> )) EXCL(ES( <i>list</i> )),] [INCL(IMSID( <i>list</i> )) EXCL(IMSID( <i>list</i> ))])
----------	---

---

The report options are:

#### DDNAME

DDname for the recap report output. The default is ESAFDD.

#### INCL|EXCL

Selection criteria to filter the report on External subsystem ID or IMS subsystem ID.

### Example

Taking defaults:

IMSPALOG	ESAF
IMSPALOG	EXECUTE

For External Subsystems SYST and XSYS, and IMS Subsystem IMSA:

IMSPALOG	ESAF( INCL(ES(SYST,XSYS)), INCL(IMSID(IMSA)))
IMSPALOG	EXECUTE

## User-written reports

This section contains the operands for user-written log reports.

### USERPGM: User-Written Record Processors

The **USERPGM** operand of the **IMSPALOG** batch command requests that a user-written program is to be run.

### Format

---

IMSPALOG	USERPGM( <i>program-name</i> , [DDNAME( <i>ddname</i> ),]                      default program name [FROM( <i>date,time</i> ),] [TO( <i>date,time</i> ),] [CODES('list'),]                      include log record codes [INCL( <i>object-label</i> ( <i>list</i> ))  EXCL( <i>object-label</i> ( <i>list</i> ))])
----------	--

---

Up to 21 user-written programs can be specified in the one job.

# Log Information report

This section contains the operands for the Log Information report.

## LOGINFO: Log Information report

The Log Information report provides a breakdown of the log record types in the input IMS log files. The LOGINFO operand allows users to produce a stand-alone Log Information report without running a report set. This is a batch-only command and is not generated by an IMS PA dialog.

### Format

---

IMSPALOG	LOGINFO
----------	---------

---

### LOGINFO

Generate a Log Information report. The ddname for the report is LOGINFO.

### Example

```
//IPICMD DD *
* IMSPALOG LOGINFO
* IMSPALOG EXEC
/*
```

### Related reference

[Log Information report](#)

The Log Information report provides a breakdown of the log record types in the input IMS log files. It shows record count, length, rates per second, and volume. Selected record types are broken down further to provide additional information about transaction arrival and processing throughput.



---

## Part 6. Monitor reporting

IMS Performance Analyzer provides both an online dialog and a batch interface. This part describes how to request and run Monitor reports using the dialog and batch commands.



# Chapter 22. Requesting Monitor reports

You can use the IMS PA ISPF dialog to specify and request reports generated from IMS Monitor or DB Monitor data.

## Monitor Report Sets

Monitor reports are specified in a Report Set of type **MON**.

Report Sets are stored in a Reports Sets data set. If you have not specified a Report Sets data set, IMS PA will allocate a data set for you with default characteristics. To change the Report Sets data set, you can use **Options** in the action bar or option 0.4 **IMS PA Control Data Sets** from the IMS Performance Analyzer primary option menu.

To work with Report Sets, select option 3 **Report Sets** from the IMS Performance Analyzer primary option menu. For more information, see [“Creating a Report Set” on page 188](#).

```
Command ==> Report Sets Row 1 to 6 of 6
Scroll ==> PAGE

Report Sets Data Set . . . : USER.IMSPA.RSET

/   Name      Type      Description      Changed      ID
___ SAMPLOG   LOG      Sample Log Report Set      2023/07/17 12:02 USER
___ SAMPMON   MON      Sample Monitor Report Set  2023/07/02 14:22 USER
***** Bottom of data *****
```

Figure 176. Selecting a Monitor Report Set in IMS Performance Analyzer

A panel is then displayed for you to view or modify the description of the Report Set and the reports it contains. [Figure 177 on page 422](#) shows the sample Monitor Report Set which IMS PA provides if there are no user-defined Report Sets in the Report Set data set.

```

EDIT                                     Report Set - SAMPMON                      Line 1 of 39
Command ===> _____ Scroll ===> PAGE

Description . . . Sample Monitor Report Set

Enter "/" to select action.

___  ** Reports **                               Active
-   ___ Options                                   Yes
    ___ Monitor Global                           Yes
    ___ Transactions by Time Period               No
    ___ Application Grouping                     No
    ___ DDname Grouping                         No
    ___ ESAF Integration                         No
    ___ Alternate Sequencing                    No
-   ___ Region Activity Summary Reports           Yes
    ___ Schedule Transaction                     Yes
    ___ Region                                   Yes
    ___ Program (PSB)                           Yes
    ___ Database IWAIT                           Yes
-   ___ Region Activity Analysis Reports          No
    ___ Region Analysis                         No
    ___ Application Detail                      No
    ___ Database IWAIT Analysis                 No
    ___ Performance Exceptions                  No
    ___ Enqueue/Dequeue Trace                   No
    ___ Region Histogram                       No
-   ___ System Analysis Reports                  Yes
    ___ Total System IWAIT                      Yes
-   ___ Program Analysis Reports                 No
    ___ Program Activity Detail                 No
    ___ Program Trace                           No
    ___ Batch VSAM Statistics                   No
-   ___ Resource Usage Reports                   Yes
    ___ Buffer Pool & Latch Statistics           Yes
    ___ Communication                           No
    ___ MSC                                     No
    ___ ESAF                                    No
    ___ Synchronous Callout                     No
-   ___ Fast Path Analysis Reports               No
    ___ DEDB Resource Contention                 No
    ___ Fast Path Buffer Statistics               No
    ___ BALG/Shared EMHQ Analysis                No
    ___ OTHREAD Analysis                        No
    ___ VSO Summary                             No
-   ___ Monitor Data Analysis Report             No
    ___ Monitor Record Trace                     No
    ** End of Reports **

```

Figure 177. Edit Monitor Report Set

Each report can be activated (**Active** column value Yes) or deactivated (No). If any changes are made to a report, the dialog will mark the report as active automatically. Each Report Category can be activated or deactivated. Only active reports in active report categories are included in the Report Set at submit time. A Report Set can be submitted for processing only if there is at least one active report in an active report category.

However, you can also use the RUN line action to temporarily override the inactive status of a report or report category.

## Line actions

The line actions that you can enter on the Monitor **Report Set** panel depend on the type of item that you enter the line action next to.

The available line actions depend on whether they are acting on either:

- The top of the Report Set menu tree (whole of Report Set)

- The Options Category
- A Report Category
- The Global Options
- Other Options
- A Report

## **\*\* Reports \*\***

The available line actions for **\*\* Reports \*\*** at the top of the menu tree are:

**/**

Display the menu of line actions.

**S**

Expand all categories that are not already expanded, or collapse all categories if they are all expanded.

**A**

Activate all categories that contain one or more active reports. This does not affect the status of the individual reports. If there are no active reports in the category, it cannot be activated. Only the active reports in active report categories will be run when the Report Set is submitted.

**AA**

Activate all categories, all reports, all options.

**D**

Deactivate all categories. This does not affect the status of the individual reports. When a report category is deactivated, no reports in that category will be run when the Report Set is submitted.

**DD**

Deactivate all categories, all reports, all options.

**RUN**

Also R. Run the report category. Run-time options will display.

## **Options Category**

The available line actions for the Options Category are:

**/**

Display the menu of line actions.

**S**

Expand or Collapse the options category.

**AA**

Activate all the options within the category. The category is automatically active.

**DD**

Deactivate all the options within the category, except the Monitor Global Options. The category is automatically active if Monitor Global is active. It cannot be explicitly activated or deactivated.

## **Global Options**

The Monitor Global Options can be edited by selecting with line action S. They cannot be explicitly activated or deactivated.

## **Other Options**

The other options are: Transactions by Time Period, Application Grouping, DDname Grouping, ESAF Integration, Alternate Sequencing. The available line actions for these options are:

**/**

Display the menu of line actions.

**S**

Select (Edit) the options. Not available for ESAF Integration.

**A**

Activate the option (sets the **Active** column value to Yes). Alternatively, you can type Y in the **Active** column.

**D**

Deactivate the option (sets the **Active** column value to No). Alternatively, you can type N in the **Active** column.

## Report Categories

The available line actions for a Report Category are:

**/**

Display the menu of line actions.

**S**

Expand or Collapse the report category.

**A**

Activate the report category (sets the **Active** column value to Yes). Alternatively, you can type Y in the **Active** column. This does not affect the status of the individual reports. If there are no active reports in the category, it cannot be activated. Only the active reports in active report categories will be run when the Report Set is submitted.

**AA**

Activate the report category and all the reports and options within it.

**D**

Deactivate the report category (sets the **Active** column value to No). Alternatively, you can type N in the **Active** column. This does not affect the status of the individual reports. When a report category is deactivated, no reports in that category will be run when the Report Set is submitted.

**DD**

Deactivate the report category and all the reports and options within it.

**RUN**

Also R. Run the report category. Run-time options will display.

## Reports

The available line actions for a report are:

**/**

Display the menu of line actions.

**S**

Select (Edit) the report. Not available for the Region Activity Summary Reports as they have no specific report-level options.

**A**

Activate the report (sets the **Active** column value to Yes). Alternatively, you can type Y in the Active column.

**D**

Deactivate the report (sets the **Active** column value to No). Alternatively, you can type N in the Active column.

**RUN**

Also R. Run the report. Run-time options will display.

## RUN command

The **RUN** command runs the Report Set and prompts you for entry of runtime options, such as System Selection and Report Interval, before generating the JCL.

**SUB**, **JCL**, and **JCM** are special **RUN** requests that preset the Execution Mode (see [Figure 179 on page 426](#)) and allow you to bypass the runtime prompt:

- The **SUBMIT** or **SUB** command directly submits the Report Set for execution.
- The **JCL** command builds the JCL to execute the Report Set and allows you to edit the job before you submit it or save it in your JCL library.
- The **JCLCMD** or **JCM** command builds the JCL, converts the Report Set to a command stream, and allows you to edit the job before you submit it or save it in your JCL library.

The **RUN** command does not reset the Execution Mode. For example, if you **SUB** a Report Set, the Execution Mode is set to 1. If next time you **RUN** a Report Set, the Execution Mode will default to 1.

**RUN** is also available as a line action to run individual reports or report categories and override the Active status. When entered as a line action, only Execution Mode 3 is available. **SUB**, **JCL**, and **JCM** can be entered as a line action, however in this case they act the same as the **RUN** line action.

## Specifying report options

The IMS PA dialog stores the report options that you specify in the Report Sets data set.

The remainder of this chapter describes the report options in terms of the dialog panels and fields. For additional information about the report options and examples of the reports, see the chapter "Analyzing Monitor reports" in the *IMS Performance Analyzer for z/OS: Report Reference*.

### Saving your changes

If an active report is deactivated, its specified options are retained. To return to the default options for a report, Edit the report in the Report Set, then select **File > Reset To Defaults** from the action bar or enter **DEFAULTS** on the command line. To return to the default value for a single field (excluding flags, selection fields, or fields in a dependent set), just erase the value in the field.

Any changes to a Report Set's options and activated reports are saved *only* by issuing a **SAVE**, **SAVEAS**, or **EXIT** (F3) command from the **EDIT Report Set** panel.

**Note:** **Exit** (F3) discards changes if **Automatic Save on Exit** in your IMS PA Profile Options is set to NO.

Saving of changes made on a subordinate panel is as follows:

- If **Exit** (F3) from the subpanel, then changes are retained pending **SAVE**, **SAVEAS**, or **EXIT** (F3) from the **EDIT Report Set** panel.
- If **Cancel** (F12) from the subpanel, then changes just entered on the subpanel are discarded.

## Run Monitor Report Set

---

The IMS PA dialog generates the JCL for batch report processing. Enter the **RUN** command to run your Report Set, Report Category, or individual reports.

### About this task

One way to do this is shown in [“Producing reports from a Report Set” on page 191](#).

```

                                Report Sets
Command ==> _____ Row 1 to 2 of 2
                                Scroll ==> PAGE

Report Sets Data Set . . . : IMSPA.RSET

/   Name      Type      Description      Changed      ID
___ SAMPLOG   LOG      Sample Log Report Set    2023/07/17 12:02 IMSPA
RUN SAMPMON   MON      Sample Monitor Report Set 2023/07/02 14:22 IMSPA
***** Bottom of data *****

```

Figure 178. Run a Monitor Report Set to generate reports

Before IMS PA generates the JCL, the **Run Report Set** panel is displayed to prompt you to specify runtime options. You can request to bypass this prompt, except in the following circumstances:

- When the **RUN** command is used. The prompt for runtime options can only be bypassed if **SUB**, **JCL**, or **JCM** commands are used.
- When a Report Interval is specified.

```

                                Run Report Set SAMPMON
Command ==> _____

Specify run options then press Enter to continue submit.

System Selection:                _____ Report Interval _____
System . . . _____ +      YYYY/MM/DD HH:MM:SS:TH
                                From _____
                                To   _____

Execution Mode:                  Unresolved Data Sets Options:
 2 1. Submit Report Set          1 1. Issue error message
 2 2. Edit JCL before submit      2. Edit unresolved JCL
 3 3. Edit JCL with command input

                                Enter "/" to select option
                                _ Bypass run-time options prompt

```

Figure 179. Run Monitor Report Set

Specify your desired runtime options. When the specification is complete, press Enter to proceed with JCL generation.

The options on the **Run Report Set** panel are:

### System Selection

Specify the IMS Subsystem to run the Report Set against. IMS PA includes in the JCL the monitor data sets specified for this subsystem.

You can type the IMSID or press **Prompt (F4)** to select one from a list of available IMS subsystems.

If you want to change your system specification, you can link there by selecting **SysDefs** in the action bar, then select 1 from the pull-down menu:

```

 1 1. System Definitions
 2 2. Groups

```

### Report Interval

Defaults: None first time, thereafter as previously set.

Specify a date/time range. The date/time fields are optional, but if specified, they override at run time the Global Report Interval specified within the Report Set.

Date can be either an actual date specification with the same edit rules as the Global Report Interval (see [“Monitor Global Options”](#) on page 428), or it can be a relative date. Relative dates are specified as 0, -1, -2,... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both From and To dates are specified, they must be in the same format.



Time is optional. If From time is not specified, it defaults to the start of the day. If To time is not specified, it defaults to the end of the day.

The specified date/time range is included as parameter input in the generated JCL under `//IPIOPTS DD *`

```
IMSPAMON START(yyyy/mm/dd, hh:mm:ss:th),
          STOP(yyyy/mm/dd, hh:mm:ss:th)
```

### Unresolved Data Sets Options

Default: Not selected.

This option allows you to control what IMS PA does when it strikes a problem with JCL generation because the system or file definitions for your System Selection are incomplete. Select one of the following actions:

1. **Issue error message.** IMS PA aborts JCL generation and reports the errors in a window titled Report Set JCL Generation Failure. This allows you to link to System Definitions and correct your file specifications.
2. **Edit unresolved JCL.** IMS PA proceeds with JCL generation creating DD statements with DSN=<unresolved> where the files are not known. Regardless of your **JCL** or **SUB** request, the JCL is edited to allow you to specify the DSNs before submission.

### Execution Mode

Default: According to the command entered.

Specify whether to execute the Report Set or generated commands, and whether you want to edit the JCL before submit. Editing JCL before submit will enable you to save the JCL in an external data set for automated job scheduling or ad hoc report requests.

The options are:

1. Submit Report Set. This is equivalent to the **SUBMIT** or **SUB** command.

The Report Set JCL contains the statements:

```
//IPIRSET DD DSN=ReportSets.DSN(ReportSetName),DISP=SHR
//IPIOBJL DD DSN=ObjectLists.DSN,DISP=SHR
//IPIDIST DD DSN=Distributions.DSN,DISP=SHR
```

2. Edit JCL before submit. This is equivalent to the **JCL** command. It generates the same JCL as SUBMIT, but allows you to edit it.
3. Edit JCL with command input. This is equivalent to the **JCLCMD** or **JCM** command.

This generates JCL in which the Report Set, and any Object Lists and Distributions it uses, are converted to a stream of commands and displayed to allow you to edit them. The Monitor JCL contains the statements:

```
//IPICMD DD *
          IMSPAMON          ...
                              INCL|EXCL(...),...
          IMSPAMON          EXECUTE
Distname DISTRIBUTION
```

Note that when you enter **RUN** at the report-level as a line action or override, option 3 is the only option available to you.

### Bypass run-time options prompt

Default: Not selected.

This controls the display of the prompt for runtime options, the **Run Report Set** panel.

Enter / to bypass the runtime options prompt. This is useful when you have specified your System Selection and you want to run your Report Sets from hereon using the **SUB**, **JCL**, or **JCM** commands without having the prompt intervene each time. Note that the runtime prompt cannot be bypassed if you use the **RUN** command to run your Report Set or you have specified a Report Interval.

## Related concepts

### [Report command format](#)

IMS PA provides both a dialog and batch interface. The IMS PA commands are used to request reports and extracts. The dialog generates the JCL and commands when you run (submit) a Report Set.

## Related reference

### [Monitor batch interface](#)

The IMS PA dialog generates the JCL and commands for executing your report requests in batch. The JCL and commands for Monitor report requests are described here. Sample jobs are supplied in the SIPISAMP Library.

### [IMS Performance Analyzer sample library](#)

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## Monitor Report Set Options

---

The **Options** category allows you to specify options that are common to more than one monitor report in the Report Set.

- The **Monitor Global** options apply to all reports in the Report Set. It includes Distribution Options. Global Option cannot be explicitly activated or deactivated. If any report in the Report Set is activated, then the Global Option is automatically activated.
- The **Transactions by Time Period** options apply to the two Transactions by Time Period subreports that can be selected within the Application Detail and Region Analysis reports. If either or both of these subreports are selected then this menu option is highlighted, as a reminder that its options are in use.
- **Application Grouping** options specify application groups to be reported in the Program Summary, Region Analysis and Application Detail reports. If **Application Grouping** is activated using line action A then the three reports will use the groupings it defines. If it is not activated (or is deactivated using D) then any groupings it defines are ignored. The Program Summary and Region Analysis reports will then show no grouping, and the Application Detail report will not be produced.
- **DDname Grouping** options specify DDname groups to be reported in the Database IWAIT Summary and Database IWAIT Analysis reports. If it is not activated using line action A, then any groupings it defines are ignored. The Database IWAIT reports will then show no grouping.
- **ESAF Integration** option specifies that External Subsystem calls are integrated into all Region and Program/Trancode reports and contribute to the total call and IWAIT counts for regions and program/trancodes.
- **Alternate Sequencing** options specify an alternate sort sequence (descending) for the summarized monitor reports. The default is to order by Name, such as Region ID, Program name, Transaction Code and Database name. Alternate Sequencing changes this to order by Occupancy, Calls (DL/I or other types), or Delay. A limit can also be specified to restrict the report to only the worst performers.

## Monitor Global Options

The IMS PA Monitor Global Options define output data sets and general control information that apply to all active reports within a Report Set.

To view and edit **Monitor Global Options** for a Report Set:

1. [Select the Monitor Report Set.](#)
2. Expand the **Options** category using line action S.
3. Select the **Monitor Global** category using line action S.

SAMPMON - Monitor Global Options

Command ==> \_\_\_\_\_

Specify Monitor Global options.

Monitor Source

1 1. Online 2. Batch

Report Interval

YYYY/MM/DD HH:MM:SS:TH

Processing Options:

Report Breaks by Region

Override 'IWAIT for no-message'

Report BMP Regions only

Exclude BMP Regions

Report Output DDnames:

Summary . . . SUMMRPT

Detail . . . DETLRPT

Distribution Options:

Include Distributions in Reports

Specify Distributions

Processing Limits:

Min VSAM IWAIT 0 msec

Report Options:

Report Break Points . . . STOP (HOURL, STOP, EOF or nnnn Minutes)

Print Lines per Page . . . 60 (1-255)

Trace Data Set \_\_\_\_\_

Selection Criteria:

Object Type

Inc/Exc

Object +

List

Validation Warning

Program Name (PSB)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Figure 180. Monitor Global Options Panel

The options are as follows:

Report Interval

Default: Not specified. All records are included.

This allows you to specify a time period for selecting a subset of the input file data for passing to the report processors. Records with time stamps on or after the From Date/Time and before the To Date/Time are selected for processing. Reducing the time period can significantly reduce total processing time and virtual storage requirements for generating the reports in the Report Set.

A Report Interval can be specified for some individual reports, and is applied within the context of the Global Report Interval.

You can specify one of the following:

- Date/time pairs or dates only. This indicates a *date-time range* (for example, 2023/07/06 8:00 to 2023/07/08 17:00). Input records between the From Date/Time and To Date/Time are selected for report processing. Any records at the start or end of the input file that are outside the specified range are bypassed. The From Date/Time must be before the To Date/Time.
- Times only. This indicates a particular *time slot* (for example, 9:00 to 10:00 each day). Input records whose time stamp is within the specified time slot, irrespective of the date, are selected for report processing. Any records throughout the input file whose time of day is not within the specified time slot are bypassed. The From and To Times must be different. Specifying the From Time greater than the To Time indicates a time slot across midnight.
- Neither date/time pair. *All* input records are selected.

Rules governing the date:

- A date is expected in a format consistent with your **Preferred Date Format** specified in the online interface settings. See [Figure 7 on page 66](#).
- If the year of the date is specified as \*\*\*\* (four asterisks), the current year is substituted at the time the Report Set is executed.

- If the century of the year is omitted then, if the year is less than 73, century 2000 is assumed, otherwise century 1900 is assumed.
- If the From Date is omitted, it will default at run time to the start of the input file.
- If the To Date is omitted, it will default at run time to the end of the input file.

Rules governing the time:

- Time is expressed as *hh:mm:ss:th* for hours, minutes, seconds, tenths and hundredths of a second. Colon delimiters separate the parts of the time.
- If the From Time is omitted, it will default at run time to 00:00:00:00.
- If the To Time is omitted, it will default at run time to 23:59:59:99.

#### **Detail Report Output DDname**

Default: DETLRPT

Specify the DDname for the output of the following detail reports:

- Application Detail
- Region Analysis
- Database IWAIT Analysis
- Program Activity Detail

#### **Summary Report Output DDname**

Default: SUMMRPT

Specify the DDname to be used for the output of the following summary reports:

- Schedule/Transaction Summary
- Program (PSB) Summary
- Region Summary
- Database IWAIT Summary

#### **Monitor Source (Online or Batch)**

Default: **1. Online** (IMS Monitor data is used).

Select **1** to specify that Online (IMS Monitor) data is to be used. Select **2** to specify that Batch (DB Monitor) data is to be used.

#### **Report Breaks by Region**

Default: Not selected; the reports are not produced by region.

Select with a / to specify that the following reports, if requested, are to be produced by region:

- Database IWAIT Analysis. See [“Database IWAIT Analysis report” on page 442.](#)
- PSB-TranCode Analysis. See [“Program Activity Detail reports” on page 448.](#)

#### **Override 'IWAIT for no-message'**

Default: Not selected; each wait-for-input (SUBQ6) IWAIT event is treated as a pseudo-schedule, and it increments the schedule count by one. The schedule count that is reported is the sum of the actual schedules and the wait-for-inputs.

Select with a / to disregard each wait-for-input event when calculating the schedule count. The schedule count that is reported is the actual schedules only.

This generates the ALTSCHED global report operand.

#### **Report BMP Regions only**

Default: Not selected; all regions are reported.

Select with a / to report only BMP regions. This generates the **BMPONLY** global report operand.

#### **Exclude BMP Regions**

Default: Not selected; BMP regions are included.

Select with a / to exclude BMP regions from reports. This generates the **NOBMP** global report operand.

### **Include Distributions in Reports**

Default: Not selected; distributions are not produced.

Select with a / to produce distribution graphs in the following reports, if activated:

- Region Summary
- Region Detail (in Region Analysis)
- PSB-TranCode Analysis (in Program Activity Detail)
- Program Trace

The particular distribution graphs to be produced are specified on the **Distributions Options** panel invoked by selecting **Specify Distributions**. If a Distribution is not specified, the corresponding distribution graph will not be produced.

### **Specify Distributions**

Select with an S or E to display the **Distributions Options** panel. See [“Distributions Options” on page 432](#) for further details.

### **Minimum VSAM IWAIT**

Default: 0

Specify, in milliseconds, the minimum IWAIT elapsed time to be reported as VSAM IWAIT. IWAITs greater than this value are reported as VSAM IWAITs. IWAITs less than this value are reported as total system IWAIT. The maximum value is 999999999.

**Note:** Specify 0 to report all IWAITs as VSAM IWAITs. This is recommended because the IMS Monitor only records VSAM I/O IWAITs.

### **Report Break Points**

Default: STOP

Specify when reports are to be written, as follows:

#### **HOURL**

Write reports every hour.

#### **STOP**

Write reports at the end of each trace.

#### **EOF**

Write reports at the end of the monitor input file, combining multiple trace intervals if present.

#### **nnnn**

Write reports every *nnnn* minutes. The maximum value is 9999.

All times refer to trace times.

### **Print Lines per Page**

Default: 60

Specify the number of lines per page for all monitor reports, except the Schedule/Transaction Summary and Enqueue/Dequeue Trace reports which ignore this option. Valid values are from 1 to 255.

### **Trace Data Set**

Default: None.

Specify the name of a data set to be used to write trace statistics records when the Report Set is executed for any active reports. The data set has DDname IPISTOUT and can then be passed to the IMS Monitor or DB Monitor Report Print utilities DFSUTR20 and DFSUTR30 to format the statistics. If no data set name is specified then the trace statistics records are not written.

The Trace Data Set must be a sequential data set with a VB record format. The recommended LRECL is 2044 bytes with an appropriate BLKSIZE of 2048 or higher. If the specified data set does not exist,

it is given default allocation attributes at the time the Report Set JCL is built. The default allocation details are specified using **Reporting Allocation Settings** from the action bar **Options** menu.

The following records are written to the Trace Data Set:

Record code	Description	Monitor
90	Monitor start	DB or IMS
91	Monitor end	DB or IMS
80	Intent Failure	IMS only
82	Pool Space Failure	IMS only
86	FF Deadlock Detected	IMS only

**Note:** IMS PA provides all the reporting capability of DFSUTR20 and DFSUTR30.

### Selection Criteria

Default: None specified; include all.

Records can be included or excluded based on their Program (PSB) name. This selection applies to all monitor reports, with the exception of the Total System IWAIT reports and the Region Histogram.

**Include** specifies that reporting is restricted to the listed PSBs and any activity associated with these PSBs. **Exclude** specifies that the listed PSBs and any activity associated with them are not to be included in the reports.

This enables you to report only the information of interest. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

### Related reference

[Monitor Global Options](#)

The Monitor Global Options define output and general control information for the monitor reports.

## Distributions Options

The Distributions Options allow you to request up to four distribution graphs by specifying the names of Distributions which define the layout of the graphs.

This panel is invoked from the **Monitor Global Options** panel by selecting **Specify Distributions**.

You can use the sample Distributions provided with IMS PA, or other Distributions defined using option 4.5 **Distributions** from the IMS Performance Analyzer primary option menu (See [“Distributions” on page 645](#)).

The Distributions are applicable to the monitor reports as follows:

- The Region Summary, Region Analysis, Region Detail, Program Activity Detail (PSB-TranCode Analysis), and Program Trace reports use the Elapsed Time per Schedule, Elapsed Time per Call, Elapsed Time per IWAIT, and IWAITs per Call Distributions.
- The Program Trace report uses the Elapsed Time per Call, Elapsed Time per IWAIT, and IWAITs per Call Distributions. The Exception Listing also uses the upper limit of these Distributions as threshold values if they are not specified explicitly on the Performance Exceptions panel.

Other monitor reports produce distribution graphs, but the Distributions are specified on the particular report panels; for example, the Fast Path Analysis reports, Total System IWAIT reports, and the Database IWAIT Analysis report. See [“Distribution and Report cross-reference” on page 649](#) for a summary of which Distributions are applicable to which reports.

SAMPMON - Distributions Options

Command ==> \_\_\_\_\_

Specify report options.

Elapsed Time per Schedule . . \_\_\_\_\_ +

Elapsed Time per Call . . . . \_\_\_\_\_ +

Elapsed Time per IWAIT . . . . \_\_\_\_\_ +

IWAITs per Call . . . . . \_\_\_\_\_ +

Validation Warning

Figure 181. Monitor Report Distributions Options

The options are:

**Elapsed Time per Schedule Distribution**

Default: Not specified; graph is not produced.

Specify the name of a Distribution which defines the characteristics of the Elapsed Time per Schedule distribution graph for the Region Summary, Region Analysis, Region Detail, and Program Activity Detail (PSB-TranCode Analysis) reports.

The sample Distribution ELAPSCH is provided. It specifies:

- Ranges (Limits) = 1,5,10,30,50,100,300,500,1000
- Title = Sc Mil Mic (for seconds, millisecs, microsecs)
- Multiplier = 1000
- Edit Mask = ZZZ.ZZ9.999

**Elapsed Time per Call Distribution**

Default: Not specified; graph is not produced.

Specify the name of a Distribution that defines the characteristics of the Elapsed Time per Call distribution graph for the Region Summary, Region Analysis, Region Detail, Program Activity Detail (PSB-TranCode Analysis), and Program Trace reports. Also, the Exception Listing report uses the upper limit as the threshold for *Call Elapsed* exceptions if a value is not specified explicitly on the **Performance Exceptions** panel.

The sample Distribution ELAPCAL is provided. It specifies:

- Ranges (Limits) = 1,5,10,30,50,100,300,500,1000
- Title = Sc Mil Mic (for seconds, millisecs, microsecs)
- Multiplier = 1000
- Edit Mask = ZZZ.ZZ9.999

**Elapsed Time per IWAIT Distribution**

Default: Not specified; graph is not produced.

Specify the name of a Distribution that defines the characteristics of the Elapsed Time per IWAIT distribution graph for the Region Summary, Region Analysis, Region Detail, Program Activity Detail (PSB-TranCode Analysis), and Program Trace reports. Also, the Exception Listing report uses the upper limit as the threshold for *IWAIT Elapsed* exceptions if a value is not specified explicitly on the **Performance Exceptions** panel.

The sample Distribution ELAPIWT is provided. It specifies:

- Ranges (Limits) = 1,5,10,30,50,100,300,500,1000
- Title = Sc Mil Mic (for seconds, millisecs, microsecs)
- Multiplier = 1000
- Edit Mask = ZZZ.ZZ9.999

**IWAITs per Call Distribution**

Default: Not specified; graph is not produced.

Specify the name of a Distribution that defines the characteristics of the IWAITS per Call distribution graph for the Region Summary, Region Analysis, Region Detail, Program Activity Detail (PSB-TranCode Analysis), and Program Trace reports. Also, the Exception Listing report uses the upper limit as the threshold for *IWAITS per Call* exceptions if a value is not specified explicitly on the **Performance Exceptions** panel.

The sample Distribution IWTSCAL is provided. It specifies:

Ranges (Limits) = 1,2,3,4,5,6,7,8,10

Title = Count

Multiplier = 1

Edit Mask = ZZZ,ZZZ,ZZ9

For all Distributions, you can enter the name directly, or to select from a list of available Distributions, position the cursor in the field and press **Prompt (F4)**.

### Related reference

DISTRIBUTION: Distributions Options

The Distributions Options describe the layout of distribution graphs which show the dispersion of the values of certain performance measures.

## Transactions by Time Period Options

The IMS Transactions by Time Period report presents for each PSB-transaction code (or application-transaction code if application groupings are active) the number or percentage of transactions occurring in the specified time periods. The overall transaction rate for each time period is also reported.

This panel maintains the time periods and other options used by the Transactions by Time Period report, which is optionally included in the Region Analysis and Application Detail reports.

SAMPMON - Transactions by Time Period Options

Command ==> \_\_\_\_\_

Specify Transactions by Time Period options.

Report Transactions as:	Report Interval
1. Count	YYYY/MM/DD HH:MM:SS:TH
2. Percent of Total Transactions	From _____
	To _____

Time Ranges (HH:MM:SS in ascending sequence):

1. 00:00	2. 07:00	3. 08:00	4. 09:00
5. 10:00	6. 11:00	7. 12:00	8. 13:00
9. 14:00	10. 15:00	11. 16:00	12. 17:00
13. 18:00	14. 19:00		

Figure 182. Transactions by Time Period Options

The options are:

### Report Transactions as Count or Percent

Default: **1** (report transaction counts)

Select with **1** to report transaction counts or with **2** to report as a percentage of total transactions.

### From and To Date/Time

Defaults: Not specified

Specify the reporting interval. Within the context of **Start** and **Stop** Date/Time on the Monitor Global Options panel, records with time stamps on or after the **From** Date/Time and before the **To** Date/Time are included in the report.

You can specify one of the following:



- Date/time pairs or dates only. This indicates a *date-time range* (for example, 2000/07/06 7:00 to 2000/07/07 16:30). The From Date/Time must be before the To Date/Time.
- Times only. This indicates a particular *time slot* (for example, 9:00 to 10:00 each day). Specifying the From Time greater than the To Time indicates a time slot across midnight.
- Neither date/time pair. *All* input records are selected.

Rules governing the date:

- A date is expected in a format consistent with your **Preferred Date Format** specified in the online interface settings. See [Figure 7 on page 66](#).
- If the year of the date is specified as \*\*\*\* (four asterisks), the current year is substituted at the time the Report Set is executed.
- If the century of the year is omitted then, if the year is less than 73, century 2000 is assumed, otherwise century 1900 is assumed.
- If the From Date is omitted, it will default at run time to the start of the input file after filtering by the Start Date.
- If the To Date is omitted, it will default at run time to the end of the input file after filtering by the Stop Date.

Rules governing the time:

- Time is expressed as *hh:mm:ss:th* for hours, minutes, seconds, tenths and hundredths of a second. Colon delimiters separate the parts of the time.
- If the From Time is omitted, it will default at run time to 00:00:00:00.
- If the To Time is omitted, it will default at run time to 23:59:59:99.

## Time Ranges

Defaults:

1. 00:00	2. 07:00	3. 08:00	4. 09:00
5. 10:00	6. 11:00	7. 12:00	8. 13:00
9. 14:00	10. 15:00	11. 16:00	12. 17:00
13. 18:00	14. 19:00		

Specify up to 14 ascending times to be used as ranges for accumulating and reporting data. Only times are allowed, not dates. The format of the time is *hh:mm:ss* for hours, minutes and seconds. Colon delimiters must be used to separate the parts of the time.

## Related reference

[TIMEREPORT: Transactions by Time Period Options](#)

The **TIMEREPORT** operand of the **IMSPAMON** batch command specifies control information for the Transactions by Time Period report, which is optionally produced by the Region Analysis and Application Detail reports.

## Application Grouping Options

The Application Grouping Options define groups of records based on Program (PSB) name.

Application Grouping Options are applicable to the following reports:

- Program (PSB) Summary
- Application Detail
- Region Analysis

The reports contain one line item for each specified Program (PSB) group. Records not included in any specified group are summarized into the group category SYSTEM.

## SAMPMON - Application Grouping Options

Command ==>

Specify Application Grouping options.

Application Group(s):

Object List + Type      Validation Warning

Note: An Object List type of APGRP is expected, or PROG for a single group.

Figure 183. Application Grouping Options

The grouping options are:

### Application Groups

Default: No application grouping defined.

**Object List** specifies either the name of one Program (PSB) Object List which is to be reported as one group, or the name of an Application Group Object List that contains the names of many Program (PSB) or Application Group Object Lists to be reported as many groups. To select from a list of available Object Lists, position the cursor in the field and press **Prompt (F4)**.

See [“Object Lists” on page 635](#) for information on how to define an Object List.

**Note:** Ranges are not supported.

**Type** is automatically determined by IMS PA from the specified Object List name.

A **Validation Warning** is displayed if the **Type** is other than PROG or APGRP.

### Related reference

APPLICATION: [Application Grouping Options](#)

The Application Grouping Options specify one or more groups of Program (PSB) names to appear as line items in the Program Summary and Region Analysis reports, and in the heading of the Application Detail report.

#### [Program Summary report](#)

The IMS Program Summary report is an analysis of schedule, transaction, and call activity for each PSB-transaction code and each specified application group. A percentage comparison of the activities for each PSB-transaction code is also provided.

#### [Application Detail report](#)

A separate Application Detail report is produced for each specified application (PSB) group. This IMS Performance Analyzer report can provide an analysis of program activity for each program group, including details for each PSB name that comprises the group, in the same format as the Program Summary report. Also provided are distribution graphs for the elapsed time per schedule, elapsed time per call, elapsed time per IWAIT, and number of IWAITs per call for each group and for each PSB within the group. You can also see the number or percent of transactions occurring, and overall transaction rate for specified time periods, in the same format as the Transactions by Time Period report.

#### [Region Analysis report](#)

The Region Analysis reports are a set of reports (Region Detail, Program Summary, Transactions by Time Period, Database IWAIT Summary) for each dependent region. These IMS Performance Analyzer reports are in the same format as the corresponding Summary reports described in the Region Activity Summary reports, except that they apply to each dependent region. The Summary reports group data by type to provide convenient comparison of one measure across all regions; for example, schedule data for the total system. The Region Analysis reports group data by region, to allow all the characteristics of a region to be viewed together.

## DDname Grouping Options

DDname Grouping Options define groups of records based on DDnames.

DDname Grouping Options are applicable to the following reports:

- Database IWAIT Summary
- Database IWAIT Analysis

The Database IWAIT Summary report contains one line item for each specified DDname group. The Database IWAIT Analysis report contains separate reports with the heading IWAIT Analysis DDgrp = xxxxxxxx for each specified DDname group xxxxxxxx. Records not included in any specified group are summarized into the group category SYSTEM.

```
SAMPMON - DDname Grouping Options
Command ==> _____

Specify DDname Grouping options.

DDname Group(s):
Object List + Type      Validation Warning
_____

Note: An Object List type of DDGRP is expected, or DD for a single group.
```

Figure 184. DDname Grouping Options

The grouping options are:

### DDname Groups

Default: No DDname grouping defined.

**Object List** specifies either the name of one DDname Object List which is to be reported as one group, or the name of a DDname Group Object List that contains the names of many DDname or DDname Group Object Lists to be reported as many groups. To select from a list of available Object Lists, position the cursor in the field and press **Prompt (F4)**.

See “Object Lists” on page 635 for information on how to define an Object List.

**Note:** Ranges are not supported.

**Type** is automatically determined by IMS PA from the specified Object List name.

A **Validation Warning** is displayed if the **Type** is other than DD or DDGRP.

### Related reference

#### DDGROUP: DDname Grouping Options

The DDname Grouping Options specify one or more groups of ddnames to appear as line items in the Database IWAIT Summary report and in the heading of the Database IWAIT Analysis (DDgroup) report.

#### Database IWAIT Summary report

The IMS Database IWAIT Summary report is a summary of IWAIT activity for each data set and specified DDgroup. The report includes number of IWAITs, average elapsed time per IWAIT, and IWAITs per call. Only database and message queue IWAITs directly associated with dependent region activity are included in this report; the Total System IWAIT Summary report includes all IWAITs.

#### Database IWAIT Analysis report

The Database IWAIT Analysis report produces IWAIT distribution graphs and IWAIT activity analysis by DDname and DDname Group for each dependent region. The report can be obtained from both IMS Monitor and DB Monitor data.

## ESAF Integration Option

When the ESAF Integration Option is activated, ESAF call statistics are reported for each subsystem and contribute to the total call and IWAIT counts for regions and program/trancodes.

External Subsystem calls can be integrated into the following reports:

- [“Region Summary report” on page 440](#)
- [“Program Summary report” on page 440](#)
- [“Region Analysis report” on page 441](#)
- [“Application Detail report” on page 441](#)
- [“Performance Exception reports” on page 443](#)
- [“Program Activity Detail reports” on page 448](#)
- [“Program Trace report” on page 449](#)

The ESAF Integration Option can only be activated or deactivated. There is no panel associated with this option.

### Related reference

[ESAFOpts: ESAF Integration Option](#)

The ESAF Integration Option controls whether External Subsystem calls are integrated into all Region and Program/Trancode reports.

## Alternate Sequencing Options

Alternate sequencing changes the default "name" order of a report (where the "name" field depends on the report; for example, Region ID, Program name, Transaction Code, or Database name) to descending order of one of the following: Occupancy, Calls, or Delay. You can also limit reporting to the worst performers.

An alternate sorting sequence can be specified for the following reports:

- Region Summary
- Program (PSB) Summary
- Application Detail
- Database IWAIT Analysis
- DDgroup
- Enqueue/Dequeue Trace
- Program Activity Detail
- Communication Summary, IWAIT and Line Functions
- MSC Summary, Traffic and Queueing
- DEDB Resource Contention
- Fast Path Buffer Statistics
- VSO Summary

## SAMPMON - Alternate Sequencing Options

Command ==> \_\_\_\_\_

Specify the required sequence of report data.

Required Sequence:

- 1 1. Name
2. Occupancy
3. Calls
4. Delay (IWAIT)

Limit reporting to . . . 100%

Limit applies only to Occupancy, Calls and Delay.

*Figure 185. Alternate Sequencing Options*

The Alternate Sequencing options are:

### Sorting Sequence

Default: 1 (sort by Name)

Specify one of the following alternate sort sequences:

#### Name

The default order of the reports. For example, by Region ID, Program name, Transaction Code, or Database name.

#### Occupancy

The elapsed time that the resource is scheduled or in use. For example, the busiest regions or programs.

#### Calls

The time spent by the resource performing DL/I or other types of calls. For example, transactions with the most DL/I call activity.

#### Delay

The time spent by the resource waiting for IWAIT events to complete. For example, the databases which had to wait the longest for I/O to complete.

### Limit

Default: 100% (no limit)

Specify a limit on the number of resources reported. You can specify either a fixed number (for example, the 10 worst performing databases) or a percentage (for example, the top 10% busiest regions).

### Related reference

ALTSEQ: Alternate Sequencing Options

Summarized monitor reports can be ordered in an alternate sequence. By default, the reports are ordered by name, such as Region ID, Program, Transaction Code and Database.

## Region Activity Summary reports

The options for Region Activity Summary reports are described here.

The reports in the Region Activity Summary Reports category are:

- Schedule/Transaction Summary
- Region Summary
- Program (PSB) Summary
- Database IWAIT Summary

## Schedule/Transaction Summary report

The IMS Schedule/Transaction Summary report presents a compact summary of total schedulings and transaction counts over all regions for the entire trace period.

There are no panel options specific to this report.

**Restriction:** This report is not produced for DB Monitor data.

### Related reference

[SCHEDTRAN: Schedule/Transaction Summary report](#)

The **SCHEDTRAN** operand of the **IMSPAMON** batch command requests the Schedule/Transaction Summary report.

## Region Summary report

The IMS Region Summary report is an analysis of schedule, transaction, call, and IWAIT activity as well as an analysis of region idle time for each active MPP region. Summary distribution graphs of activity can also be provided. The report contains the same details as the Region Detail report (part of the Region Analysis report). The Region Summary report groups data by type (for example, schedule data for all regions) to provide convenient comparison of one measure across all regions. The Region Detail report groups data by region, to allow all the measures for a region to be viewed together.

There are no panel options specific to this report. The report can only be activated or deactivated.

The [“ESAF Integration Option”](#) on page 438 and [“Alternate Sequencing Options”](#) on page 438 are applicable to this report.

### Related reference

[REGSUM: Region Summary report](#)

The **REGSUM** operand of the **IMSPAMON** batch command requests the Region Summary report.

## Program Summary report

The IMS Program Summary report is an analysis of schedule, transaction, and call activity for each PSB-transaction code and each specified application group. A percentage comparison of the activities for each PSB-transaction code is also provided.

There are no panel options specific to this report. The report can only be activated or deactivated.

**Restriction:** This report is not produced for DB Monitor data.

The [“ESAF Integration Option”](#) on page 438 and [“Alternate Sequencing Options”](#) on page 438 are applicable to this report.

### Related reference

[Application Grouping Options](#)

The Application Grouping Options define groups of records based on Program (PSB) name.

[PROGSUM: Program Summary report](#)

The **PROGSUM** operand of the **IMSPAMON** batch command requests the Program Summary report.

## Database IWAIT Summary report

The IMS Database IWAIT Summary report is a summary of IWAIT activity for each data set and specified DDgroup. The report includes number of IWAITs, average elapsed time per IWAIT, and IWAITs per call. Only database and message queue IWAITs directly associated with dependent region activity are included in this report; the Total System IWAIT Summary report includes all IWAITs.

There are no panel options specific to this report. The report can only be activated or deactivated.

The [“Alternate Sequencing Options”](#) on page 438 are applicable to this report.

### Related reference

[DDname Grouping Options](#)

DDname Grouping Options define groups of records based on DDnames.

IWAITSUM: Database IWAIT Summary report

The **IWAITSUM** operand of the **IMSPAMON** batch command requests the Database IWAIT Summary report.

## Region Activity Analysis reports

---

The options for Region Activity Analysis reports are described here.

### Region Analysis report

The Region Analysis reports are a set of reports (Region Detail, Program Summary, Transactions by Time Period, Database IWAIT Summary) for each dependent region. These IMS Performance Analyzer reports are in the same format as the corresponding Summary reports described in the Region Activity Summary reports, except that they apply to each dependent region. The Summary reports group data by type to provide convenient comparison of one measure across all regions; for example, schedule data for the total system. The Region Analysis reports group data by region, to allow all the characteristics of a region to be viewed together.

**Restriction:** Only the Database IWAIT Summary report is produced for DB Monitor data; however, the Region Detail report for region 1 can be produced.

The options are as follows:

```

                                SAMPMON - Region Analysis
Command ==> _____

Specify report options.

Reports Required:
/  Region Detail
/  Program Summary
/  Database IWAIT Summary
_  Transactions by Time Period
```

*Figure 186. Region Analysis Report Options*

#### Reports Required

Default: First three reports, **Region Detail, Program Summary, Database IWAIT Summary**

Select with a / to request any combination of reports. If none are selected, no reports are produced.

If **Transactions by Time Period** is selected, specify the time periods and other options on the [“Transactions by Time Period Options”](#) on page 434 panel.

The [“ESAF Integration Option”](#) on page 438 and [“Alternate Sequencing Options”](#) on page 438 are applicable to this report.

#### Related reference

[Application Grouping Options](#)

The Application Grouping Options define groups of records based on Program (PSB) name.

REGANAL: Region Analysis report

The **REGANAL** operand of the **IMSPAMON** batch command requests the Region Analysis report.

### Application Detail report

A separate Application Detail report is produced for each specified application (PSB) group. This IMS Performance Analyzer report can provide an analysis of program activity for each program group, including details for each PSB name that comprises the group, in the same format as the Program Summary report. Also provided are distribution graphs for the elapsed time per schedule, elapsed time per call, elapsed time per IWAIT, and number of IWAITs per call for each group and for each PSB within

the group. You can also see the number or percent of transactions occurring, and overall transaction rate for specified time periods, in the same format as the Transactions by Time Period report.

**Restriction:** This report is not produced for DB Monitor data.

```

                                SAMPMON - Application Detail
Command ==> _____

Specify report options.

Reports Required:
/  Program Summary
_  Transactions by Time Period

```

Figure 187. Application Detail Report Options

The options are as follows:

#### Reports Required

Default: **Program Summary**

Select with a / to request either or both reports. If neither is selected, no report is produced.

If **Transactions by Time Period** is selected, specify the time periods and other options on the “Transactions by Time Period Options” on page 434 panel.

**Note:** To produce the report, the **Application Grouping** option must be activated and an Application Group or Program (PSB) Object List specified.

The “ESAF Integration Option” on page 438 is applicable to this report.

#### Related reference

[Application Grouping Options](#)

The Application Grouping Options define groups of records based on Program (PSB) name.

[APPLGRP: Application Detail report](#)

The **APPLGRP** operand of the **IMSPAMON** batch command requests the Application Detail report.

## Database IWAIT Analysis report

The Database IWAIT Analysis report produces IWAIT distribution graphs and IWAIT activity analysis by DDname and DDname Group for each dependent region. The report can be obtained from both IMS Monitor and DB Monitor data.

```

                                SAMPMON - Database IWAIT Analysis
Command ==> _____

Specify report options.

Report Options:
_  Print Distributions

Graph Distributions:           Validation Warning
Elapsed Time per IWAIT      _____ +

```

Figure 188. Database IWAIT Analysis Report Options

The options are as follows:

#### Print Distributions

Default: Not selected; distribution graphs are not printed.



Select with a / to print distribution graphs for this report. If selected, the Distribution specified for **Elapsed Time per IWAIT** is used, but if this is blank, the sample Distribution DDIWELAP is used by default at run time.

If **DDname Grouping** is activated, distribution graphs are always produced.

#### Elapsed Time per IWAIT Distribution

Default: Not specified; Sample Distribution DDIWELAP is used at run time if **Print Distributions** is selected.

Specify the name of a Distribution that defines the characteristics of the Elapsed Time Per IWAIT distribution graph to be produced by the report. To select from a list of available Distributions, position the cursor in the field and press **PROMPT** (F4).

You can specify the sample Distribution DDIWELAP or let this be taken as the default at run time. Otherwise, specify an alternate Distribution and define its attributes using 4.5 **Distributions** from the IMS Performance Analyzer primary option menu.

The sample Distribution DDIWELAP specifies:

Ranges (Limits) = 5,10,20,30,40,50,60,70,100  
Title =Sc Mil Mic (for seconds, millisecs, microsecs)  
Multiplier = 1000  
Edit Mask = ZZZ.ZZZ.ZZ9

The “[Alternate Sequencing Options](#)” on page 438 are applicable to this report.

#### Related reference

[DDname Grouping Options](#)

DDname Grouping Options define groups of records based on DDnames.

[IWAITANAL](#): Database IWAIT Analysis report

The **IWAITANAL** operand of the **IMSPAMON** batch command requests the Database IWAIT Analysis report.

## Performance Exception reports

The Performance Exception reports provide a list report of performance exceptions, and summary reports of intent failures, pool space failures, or deadlock events.

**Restriction:** The three Summary reports are not produced for DB Monitor data.

```
SAMPMON - Performance Exceptions
Command ==> _____

Specify report options.

Reports Required:                                Report Output DDname  EXCPTTRPT
/ Exception Listing
/ Intent Failure summary
/ Pool Space Failure Summary
/ Deadlock Event Summary

Exception Listing Report Options:
_ Ignore Schedules
Maximum Allowable:
  Call Elapsed Time      _____ msec
  IWAIT Elapsed Time     _____ msec
  IWAITs per Call        _____
Output Limit             9_____ pages
```

Figure 189. Performance Exceptions Report Options

The options are as follows:

## Reports Required

Default: All selected.

Select with a / to request any combination of the following reports:

### Exception Listing

A chronological listing of several types of exceptional occurrences including violations of performance thresholds for call elapsed time, IWAIT elapsed time, and number of IWAITs per call; and unusual occurrences such as BMP schedule failures, pseudo-schedules, transaction backouts inferred, and incomplete schedules.

### Intent Failure Summary

For each PSB/DMB combination, the number of schedule failures due to intent conflict.

### Pool Space Failure Summary

For each pool ID, the number of attempts that failed to reserve pool space due to unavailable storage.

### Deadlock Event Summary

The number of deadlocks that occurred in the segments in DMB.

## Report Output DDname

Default: EXCPTRPT

Specify the DDname to be used for the report output.

The following options apply only to the Exception Listing:

### Ignore Schedules

Suppress printing of Specifically Created Schedule and Forced Schedule End lines in the Exception Listing report. Refer to the section "Performance Exception reports" in the *IMS Performance Analyzer for z/OS: Report Reference* for further details.

### Maximum Allowable

Specify threshold values (in milliseconds) for the following measures. If an actual measure exceeds the threshold it is reported as an exception.

#### Call Elapsed Time

Default: None.

Specify the threshold value (in milliseconds) in the range 1–99999 for Call Elapsed exceptions. If the Elapsed Time per Call exceeds this threshold, it is reported as an exception.

If omitted, the upper limit of the Elapsed Time per Call Distribution is used as the threshold value if specified on the **Distributions Options** panel. If neither is specified, no Call Elapsed exceptions can be reported.

#### IWAIT Elapsed Time

Default: None.

Specify the threshold value (in milliseconds) in the range 1–99999 for IWAIT Elapsed exceptions. If the Elapsed Time per IWAIT exceeds this threshold, it is reported as an exception.

If omitted, the upper limit of the Elapsed Time per IWAIT Distribution is used as the threshold value if specified on the **Distributions Options** panel. If neither is specified, no IWAIT Elapsed exceptions can be reported.

#### IWAITs per Call

Default: None.

Specify the threshold value in the range 1–99999 for IWAITs per Call exceptions. If the number of IWAITs per Call exceeds this threshold, it is reported as an exception.

If omitted, the upper limit of the IWAITs per Call Distribution is used as the threshold value if specified on the **Distributions Options** panel. If neither is specified, no IWAITs per Call exceptions can be reported.

## Output Limit

Default: 9

Specify the maximum number *nnnnn* of pages to be produced for the Exception Listing. Reporting will terminate when this *n*th page is started.

The “[ESAF Integration Option](#)” on page 438 is applicable to the Exception Listing.

## Related reference

[EXCEPTION: Performance Exception reports](#)

The **EXCEPTION** operand of the **IMSPAMON** batch command requests the suite of Performance Exceptions reports.

## Enqueue/Dequeue Trace report

The Enqueue/Dequeue Trace report is a detailed trace of the database enqueue conflicts occurring during the reporting interval. A detail line is printed for each enqueue IWAIT interval recorded on the monitor data set. The PSB names active in the IMS region during the interval are displayed.

The IMS PA Enqueue/Dequeue Trace report traces a maximum of nine regions.

**Restriction:** This report is not produced for DB Monitor data.

```

                                SAMPMON - Enqueue/Dequeue Trace
Command ==> _____

Specify report options.

Reports Required:                      Report Output DDname  ENQDD
- Detailed Trace
/ Summary by Database
/ Summary by Trancode
```

Figure 190. Enqueue/Dequeue Trace Report Options

The options are as follows:

### Reports Required

Default: **Summary by Database** and **Summary by Trancode**

Select with a / to request any combination of the following reports:

#### Detailed Trace

A detailed trace of the database enqueue conflicts occurring during the reporting interval. A detail line is printed for each enqueue IWAIT interval recorded on the monitor data set. The PSB names active in the IMS region during the interval are displayed.

#### Summary by Database

A Summary of Waiting Transaction Codes by Database/Segment.

#### Summary by Trancode

A Summary of Database/Segments by Waiting Transaction Codes.

### Report Output DDname

Default: ENQDD

Specify the DDname to be used for the report output.

The “[Alternate Sequencing Options](#)” on page 438 are applicable to this report.

## Related reference

[ENQTRACE: Enqueue/Dequeue Trace report](#)

The **ENQTRACE** operand of the **IMSPAMON** batch command requests the Enqueue/Dequeue Trace report.

## Region Histogram report

The Region Histogram report traces region activity by time interval. Activity for up to 13 regions is presented graphically in side-by-side format. Periods of region activity and inactivity can be seen at a glance from the visual presentation.

**Restriction:** This report is not produced for DB Monitor data.

```

                                SAMPMON - Region Histogram
Command ==> _____

Specify report options.

Report Options:
Output Line Interval   1000   msec   _____ Report Interval _____
CPU/Transaction Limit  _____ msec   From _____ YYYY/MM/DD HH:MM:SS:TH
Duplicate Line Limit   _____   To   _____

                                Report Output DDname  RGNHIST

Regions to Include:
Object Type      Object + List   Validation Warning
Region ID by PST  _____   -
```

Figure 191. Region Histogram (Monitor) Report Options

The options are as follows:

### Output Line Interval

Default: 1000

Specify the number of milliseconds between output lines. The minimum value is 10 milliseconds and the maximum is 60000. Any value can be used, but it might be converted to a more efficient value. For example, 160 is converted to 200 to obtain 5 intervals per second. Any value over one second is converted to the nearest second.

### CPU/Transaction Limit

Default: No limit.

Specify the maximum number of milliseconds of CPU time per transaction. If the average CPU time per transaction for the transactions processed during a schedule exceeds this value, it is flagged by appending an \* (asterisk) to the number of messages enqueued at schedule end.

### Duplicate Line Limit

Default: None.

Specify that all duplicate lines in excess of the given value are to be skipped. All activity on the lines must be identical for the output to be condensed. The maximum number of lines is 32767.

### Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Monitor Global Report Interval. Standard rules apply to the date and time specification (see [“Transactions by Time Period Options” on page 434](#)).

### Report Output DDname

Default: RGNHIST

Specify the DDname to be used for the report output.

### Regions to Include

Default: First 13 active regions encountered in the input data.

Specify one PST Number, or the name of a Region ID by PST Object List (select **List** with a /), to nominate which regions to include in this report, up to a maximum of 13 regions. Masking is not supported. In the Object List, ranges of values can be specified. If a requested region is not found in the input data, a report column will still be created for it. See “Object Lists” on page 635 for information on how to define an Object List.

You can enter the name of an Object List directly, or to select from a list of available Object Lists, position the cursor in the field and press **Prompt (F4)**.

#### Related reference

HISTOGRAM: Region Histogram (Monitor) report

The **HISTOGRAM** operand of the **IMSPAMON** batch command requests the Region Histogram report.

## System Analysis reports

The options for System Analysis reports are described here.

The Monitor System Analysis reports are:

- Total System IWAIT

### Total System IWAIT reports

The Total System IWAIT Summary report describes the IWAIT activity for the entire IMS system including system data sets, databases (full function and Fast Path), block loading, format services, scheduler, checkpoints, line/node IWAITs, pools, multiple system transfers. Elapsed time per IWAIT distribution graphs for each category can be requested. The Total System IWAIT Detail report is a detailed breakdown of IWAIT activity for the entire IMS system. IWAIT activity is reported for Databases (full function and Fast Path), Block loading, Format services, Line/Node IWAITs. Elapsed time per IWAIT distributions for each detail line are optionally reported.

SAMPMON - Total System IWAIT

Command ==> \_\_\_\_\_

Specify report options.

Reports Required:

Report Output DDname IWTSUMMY

☒ Total System IWAIT Summary

☒ Total System IWAIT Detail

Graph Distributions:

Validation Warning

Elapsed Time per IWAIT \_\_\_\_\_ +

Figure 192. The **Total System IWAIT** report options panel in IMS Performance Analyzer

The options are as follows:

#### Reports Required: Total System IWAIT Summary, Total System IWAIT Detail

Default: Both selected.

Select with a / to request either or both reports.

#### Report Output DDname

Default: IWTSUMMY

Specify the DDname to be used for the report output.

#### Elapsed Time per IWAIT Distribution

Default: Not specified; graph is not produced.

Specify the name of a Distribution that defines the characteristics of the Elapsed Time per IWAIT distribution graph in the Total System IWAIT Summary and Detail reports. To select from a list of available Distributions, position the cursor in the field and press **Prompt (F4)**.

The sample Distribution IWTSUMMY is provided. It specifies:

Ranges (Limits) = 1,5,10,30,50,100,300,500,1000  
Title = Sc Mil Mic (for seconds, millisecs, microsecs)  
Multiplier = 1000  
Edit Mask = ZZZ.ZZ9.999

The “Alternate Sequencing Options” on page 438 is applicable to the Total System IWAIT Detail report.

#### Related reference

TSIWAIT: Total System IWAIT reports

The **TSIWAIT** operand of the **IMSPAMON** batch command requests the Total System IWAIT reports.

## Program Analysis reports

The options for Program Analysis reports are described here.

The Program Analysis reports are:

- Program Activity Detail
- Program Trace
- Batch VSAM Statistics

### Program Activity Detail reports

The Program Activity Detail reports provide a detailed breakdown of the database activity of each PSB name by PCB name, function code, DDname, and segment name feedback. Alternate report formats present the data organized by PCB name. No sorting of the input data is required to obtain the reports and they can be produced from either IMS Monitor or DB Monitor data.

```

SAMPMON - Program Activity Detail    No reports selected
Command ===> _____

Specify report options.

Report Format:                        Supplementary Reports:
1 1. PSB Details                      _ DDname by PSB-TranCode
2 2. PSB-TranCode Analysis
3 3. PSB Details with PSB-TranCode
   data added at the lowest level

Reports Required (in Report Format):
_ Function Code
_ Segment Name
_ DDname
_ Function-Segment Name
_ Function-DDname
```

Figure 193. The **Program Activity Detail** report options panel in IMS Performance Analyzer

The options are as follows:

#### Report Format

Default: **1. PSB Details**

Select **1** or **3** to specify that the PSB Details reports are to be produced. Option **3** will produce the additional details of Transaction Code within PSB for all included PSBs. Both these reports have the heading PSB Details *xxxxxxx* where *xxxxxxx* is determined by the selection of **Reports Required**. The possible headings are:

#### PSB Details PCB Totals

Shows all calls by PCB.

**PSB Details by Function Code**

Shows all calls by the combination of PCB and function.

**PSB Details by Segment Name Feedback**

Shows all calls by the combination of PCB, function segment level, segment name, and status code.

**PSB Details by Function Code Segment Name**

Shows all calls by the combination of PCB, segment level, segment name, and status code.

**PSB Details PCB Totals (DD)**

Shows the calls that result in IWAITs, presented by PCB.

**PSB Details by DDname (DD)**

Shows the calls that result in IWAITs, presented by the combination of PCB and DDname.

**PSB Details by Function Code (DD)**

Shows the calls that result in IWAITs, presented by the combination of PCB and function.

**PSB Details by Function Code-DDname (DD)**

Shows the calls that result in IWAITs, presented by the combination of PCB, function, and DDname.

Select **2** to specify that PSB-TranCode Analysis reports are to be produced. They provide detailed information on program activities and calls that the program issues. The reports have the heading *Analysis of PSBname-TranCode* for all Transaction Codes for the Included PSBs. The subheadings of the reports are determined by the selection of **Reports Required**.

**Supplementary Report - DDname by PSB-TranCode**

Default: Not selected.

Select with a / to request the DDname by PSB-TranCode report. This report presents the analysis information on calls and IWAIT activities for each combination of DDname (major to minor), PSB name, transaction code, and PCB name. The report has the heading *DDname by PSB-Tran using*.

The **Reports Required** option is not applicable to this report.

**Reports Required (in Report Format)**

Default: None selected.

Select with a / to request any combination of reports to be produced in the format specified by the **Report Format** option.

Select **Function Code** to request "PCB Totals" and "by Function Code" reports.

Select **Segment Name** to request "PCB Totals" and "by Segname Feedbk" reports.

Select **DDname** to request "PCB Totals", "PCB Totals(DD)", and "by DDname IWTd On" reports.

Select **Function-Segment Name** to request "PCB Totals" and "by Functn-Segname" reports.

Select **Function-DDname** to request "PCB Totals", "PCB Totals(DD)", "by Function(DD)", and "by Functn-DDname" reports.

**Note:** This option is not required for the Supplementary Report **DDname by PSB-TranCode**.

The "ESAF Integration Option" on page 438 is applicable to the **PSB Details** and **PSB-Trancode Analysis** reports.

**Related reference**

PSBREPORTS: Program Activity Detail report

The **PSBREPORTS** operand of the **IMSPAMON** batch command requests the Program Activity Detail reports.

**Program Trace report**

The Program Trace report is a detailed trace of the events associated with a program schedule. There is a detail line of information for each call and, optionally, each IWAIT occurring during the program schedule. There is also a summary of schedule activity. The Program Trace report is produced from DB Monitor and

IMS Monitor traces. It can be used for problem isolation, to determine database use, and for program documentation.

```

Command ==> _____ SAMPMON - Program Trace Row 1 to 2 of 2
Scroll ==> PAGE

Specify report options.

Enter "/" to select action.

  YYYY/MM/DD HH:MM:SS:TH  --- Trace Combination ---
  From      From      Prog   Tran   Regn   Type   Limit   DDname
  To        To
- 2021/06/25 02:00:00:00 PMENU          SUMM  100   TRACE1
  2021/06/25 02:10:00:00
- 2021/06/25 02:00:00:00          STOCK LONG  150   TRACE2
  2021/06/25 02:10:00:00

***** Bottom of data *****

```

Figure 194. Program Trace Report Options

**Note:** When the field values are higher than 999.99, then the Monitor Program Trace report displays the field values in the 99.9K format.

Any number of separate traces can be requested, each defined by a set of the following parameters:

#### Report Interval

Defaults: Not specified.

Specify the reporting interval within that specified by the Monitor Global Report Interval. Standard rules apply to the date and time specification (see [“Transactions by Time Period Options”](#) on page 434).

Validation of the date and time might result in a warning message that will be displayed on the same row as the date/time to which the message relates.

**Note:** This option is not applicable to batch region traces. Instead, use the **Report Interval** on the **Monitor Global Options** panel.

#### Trace Combination (Prog-Tran-Regn)

The Trace Combination identifies the resource to be traced. You must specify one or more of the following three fields to identify the resource.

- For **Prog**, specify the PSB name to trace. For batch region traces, specify %PSB0001.
- For **Tran**, specify the Transaction Code to trace.
- For **Regn**, specify the Region PST number (1 to 999) to trace.

Each report can only trace one resource. You can request additional traces for other resources.

#### Type

Default: SUMM

Enter one of the following:

##### SHORT

One line is to be printed per call. The one page summary is also produced.

##### LONG

One line is to be printed per call, plus one line per IWAIT. The one page summary is also produced.

##### SUMM

A one page summary is to be printed per trace.

#### Limit

Default: No limit.



Specify the maximum number of schedules to be processed in this trace.

**DDname**

Default: PGMTRACE

Specify the DDname for the trace. The DDname must be different for each trace.

**Line Actions:** The following line actions can be performed on a row of trace options:

**/**

Display the menu of line actions

**I**

Insert a null row after this row

**R**

Repeat this row

**C**

Copy this row

**M**

Move this row

**A**

(Move/Copy) After this row

**B**

(Move/Copy) Before this row

**D**

Delete this row

The “[ESAF Integration Option](#)” on page 438 is applicable to this report.

From the **Edit** menu on the action bar, or by direct entry on the command line, the following panel-level action is available:

**Reset (RES)**

Remove all line actions and delete any blank rows.

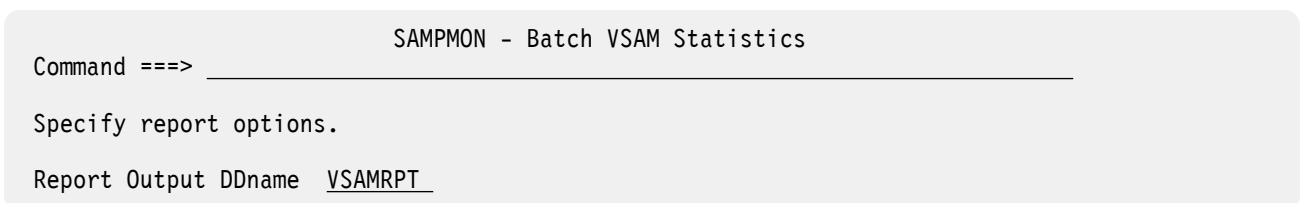
**Related reference**

[TRACE: Program Trace report](#)

The **TRACE** operand of the **IMSPAMON** batch command requests Program Trace reports.

## Batch VSAM Statistics report

The Batch VSAM Statistics report provides VSAM usage statistics for batch applications, and is only produced for DB Monitor files built during the execution of the IMS batch system. VSAM Statistics are based on a specific application program PCB, a data set the application program is using, and the type of DL/I call the application program issued.



SAMPMON - Batch VSAM Statistics

Command ====> \_\_\_\_\_

Specify report options.

Report Output DDname VSAMRPT

Figure 195. The **Batch VSAM Statistics** report options panel in IMS Performance Analyzer

The options are as follows:

**Report Output DDname**

Default: VSAMRPT

Specify the DDname to be used for the report output.

### Related reference

[VSAMSTAT: Batch VSAM Statistics report](#)

The **VSAMSTAT** operand of the **IMSPAMON** batch command requests the Batch VSAM Statistics report. This report provides similar output to the DFSUTR30 VSAM Statistics report.

## Resource Usage reports

---

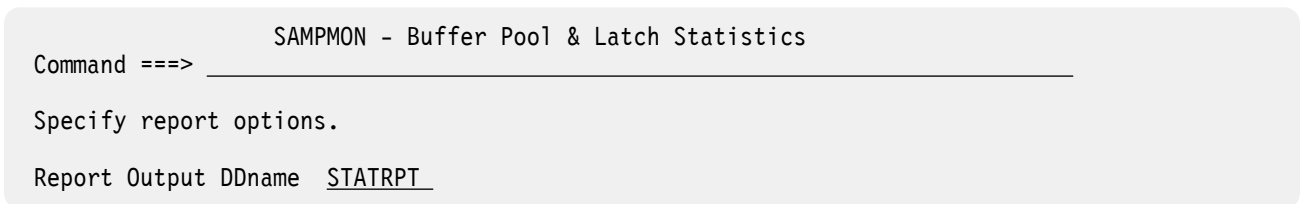
The options for Resource Usage reports are described here.

The Resource Usage reports are:

- Buffer Pool & Latch Statistics
- Communication reports
- MSC report
- ESAF report
- Synchronous Callout report

## Buffer Pool and Latch Statistics reports

The Buffer Pool and Latch Statistics reports consist of the set of Buffer Pool Statistics reports, which show IMS buffer usage statistics for the Message Queue Pool, Database Buffer Pool, VSAM Buffer Pool, and Message Format Buffer Pool, and the Latch Statistics report which shows IMS latch usage counters. When requested, the Buffer Pool and Latch Statistics reports are always produced regardless of the global (or run-time) report interval specified as they provide summary statistics in the monitor start (90) and monitor end (91) records.



```

SAMPMON - Buffer Pool & Latch Statistics
Command ===> _____
Specify report options.
Report Output DDname  STATRPT

```

Figure 196. The **Buffer Pool and Latch Statistics** report options panel in IMS Performance Analyzer

The options are as follows:

### Report Output DDname

Default: STATRPT

Specify the DDname to be used for the report output.

**Note:** The Buffer Pool and Latch Statistics reports are always produced when activated, regardless of the Report Interval specification, as they provide a summary of the monitor start (90) and monitor end (91) records.

### Related reference

[STATIS: Buffer Pool and Latch Statistics reports](#)

The **STATIS** operand of the **IMSPAMON** batch command requests the Buffer Pool and Latch Statistics reports.

## Communication reports

The IMS Monitor Communication reports consist of the Communication Summary report, the Communication IWAIT report, and the Communication Line Functions report. The Communication Summary report provides a summary of line or VTAM node activities. The Communication IWAIT report provides detailed information on IWAITs occurring while dispatching communication subtask to lines or VTAM nodes. The Communication Line Functions report provides the functions of lines and VTAM nodes.

**Restriction:** This report is not produced for DB Monitor data.

SAMPMON - Communication

Command ==>

Specify report options.

Reports Required:

/ Communication Summary

/ Communication IWAIT

/ Line Functions

Report Output DDname

COMMRPT

Graph Distributions:

Communication Summary:

Line Elapsed Time

Communication IWAIT:

Line IWAIT Elapsed Time

Line Functions:

Received Blksize/Block

Transmitted Blksize/Block

Turnaround Interval

Validation Warning

+

+

+

+

+

+

Figure 197. Communication Reports Options

The options are as follows:

**Reports Required**

Default: All selected.

Select with a / to request any combination of the following reports:

**Communication Summary**

Summary information on activities of teleprocessing lines or VTAM nodes.

**Communication IWAIT**

Detailed information on IWAITs occurring while dispatching communication subtasks to lines or VTAM nodes.

**Line Functions**

Information on functions of lines and VTAM nodes, including transmitted or received block sizes and turnaround intervals.

**Report Output DDname**

Default: COMMRPT

Specify the DDname to be used for the report output.

**Communication Summary Distribution**

Default: Not specified; graph is not produced.

Specify the name of a Distribution which defines the attributes of the **Line Elapsed Time** graph for the Communication Summary report. If not specified, the graph is not produced.

The sample Distribution COMMELP is provided. It specifies:

Ranges (Limits) = 1,2,4,8,16,32,64,128,256  
 Title = Sc Mil Mic (for seconds, millisecs, microsecs)  
 Multiplier = 1000  
 Edit Mask = ZZZ.ZZ9.999

**Communication IWAIT Distribution**

Default: Not specified; graph is not produced.

Specify the name of the Distribution to define the attributes of the **Line IWAIT Elapsed Time** graph for the Communication IWAIT report. The Distribution must be specified for the distribution graph to be produced.

The sample Distribution COMMIWE is provided. It specifies:

Ranges (Limits) = 1,2,4,8,16,32,64,128,256  
Title = Sc Mil Mic (for seconds, millisecs, microsecs)  
Multiplier = 1000  
Edit Mask = ZZZ.ZZ9.999

### Line Functions Distributions

Defaults: Not specified; graphs are not produced.

Specify the names of the Distributions to define the attributes of the graphs for the Line Functions report. A Distribution must be specified for the corresponding distribution graph to be produced.

For the **Received Block Size per Block** graph, the sample Distribution COMMLFR is provided. For the **Transmitted Block Size per Block** graph, the sample Distribution COMMLFT is provided. They specify:

Ranges (Limits) = 10,20,40,60,100,200,400,800,1000  
Title = Block Size  
Multiplier = 1  
Edit Mask = ZZZ,ZZZ,ZZ9

For the **Turnaround Interval** graph, the sample Distribution COMMLFR is provided. It specifies:

Ranges (Limits) = 1,10,100,200,500,800,1000,1500,2000  
Title = Sc Mil Mic (for seconds, millisecs, microsecs)  
Multiplier = 1000  
Edit Mask = ZZZ.ZZ9.999

You can enter the name of the Distributions directly, or to select from a list of available Distributions, position the cursor in the field and press **Prompt (F4)**.

See “Distributions” on page 645 for information on how to define Distributions and their attributes.

The “Alternate Sequencing Options” on page 438 are applicable to this report.

### Related reference

COMMS: Communication reports

The **COMMS** operand of the **IMSPAMON** batch command requests the Communication reports.

## MSC reports

The Multiple Systems Coupling (MSC) reports are the MSC Summary, MSC Traffic, and MSC Queuing Summary. The MSC Summary report provides summary information on the number of cross-system messages. The MSC Traffic report provides detailed information on local system IDs and cross-system traffic. The MSC Queuing Summary report provides detailed information on the cross-system message queue.

**Restriction:** These reports are not produced for DB Monitor data.

SAMPMON - MSC

Command ==> \_\_\_\_\_

Specify report options.

Reports Required: \_\_\_\_\_ Report Output DDname MSCRPT

☐ MSC Summary

☐ MSC Traffic

☐ MSC Queuing

Graph Distributions: \_\_\_\_\_ Validation Warning

MSC Queuing:

Queue Length per Message \_\_\_\_\_ +

Queue Time per Message \_\_\_\_\_ +

Figure 198. The **MSC** report options panel in IMS Performance Analyzer

The options are as follows:

### Reports Required

Default: All selected.

Select with a / to request any combination of the following reports:

#### MSC Summary

Summary information on the number of cross-system messages.

#### MSC Traffic

Detailed information on local system IDs and cross-system traffic.

#### MSC Queueing

Detailed information on the cross-system message queue.

### Report Output DDname

Default: MSCRPT

Specify the DDname to be used for the report output.

### MSC Queuing Distributions

Defaults: Not specified; graphs are not produced.

Specify the names of the Distributions to define the attributes of the graphs for the MSC Queuing report. A Distribution must be specified for the corresponding distribution graph to be produced.

For the **Queue Length per Message** graph, the sample Distribution MSCQLEN is provided. It specifies:

Ranges (Limits) = 1,2,3,4,5,10,15,30,90

Title = Q Length

Multiplier = 1

Edit Mask = ZZZ,ZZZ,ZZ9

For the **Queue Time per Message** graph, the sample Distribution MSCQELP is provided. It specifies:

Ranges (Limits) = 1,5,10,50,100,500,1000,5000,10000

Title = Sc Mil Mic (for seconds, millisecs, microsecs)

Multiplier = 1000

Edit Mask = ZZZ.ZZ9.999

You can enter the name of the Distributions directly, or to select from a list of available Distributions, position the cursor in the field and press **Prompt (F4)**.

See “Distributions” on page 645 for information on how to define Distributions and their attributes.

The “Alternate Sequencing Options” on page 438 are applicable to this report.

### Related reference

MSC: MSC reports

The **MSC** operand of the **IMSPAMON** batch command requests the MSC reports.

## ESAF report

The IMS Monitor External Subsystem (ESAF) report provides a detailed analysis of external subsystem activity in regions and by application programs. This IMS Performance Analyzer report provides individual subsystem activity broken down by Region and Program, with statistics of ESAF activity per Transaction.



```
Command ==> SAMPMON - ESAF

Specify report options.

Report Output DDname ESAFRPT
```

Figure 199. The **ESAF** (Monitor) report options panel in IMS Performance Analyzer

The options are as follows:

**Report Output DDname**

Default: ESAFRPT

Specify the DDname to be used for the report output.

The “Alternate Sequencing Options” on page 438 are applicable to this report.

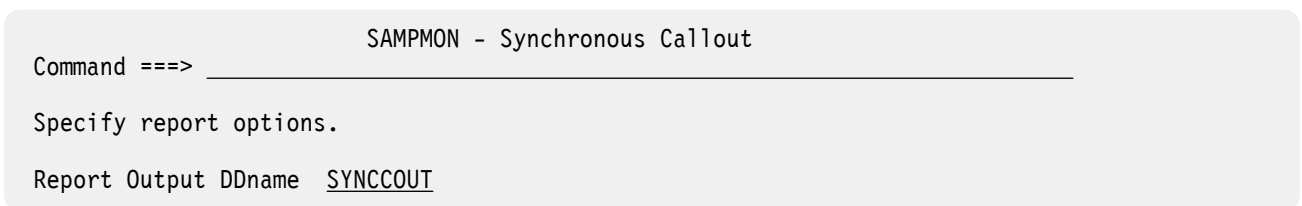
**Related reference**

ESAF: ESAF (Monitor) report

The **ESAF** operand of the **IMSPAMON** batch command requests the External Subsystem report.

## Synchronous Callout report

The Synchronous Callout report provides a detailed analysis of sync callout activity in regions and by application programs. This IMS Performance Analyzer report shows individual subsystem activity is broken down by Region and Program, with statistics of sync callout activity per Transaction.



SAMPMON - Synchronous Callout

Command ===> \_\_\_\_\_

Specify report options.

Report Output DDname SYNCCOUT

Figure 200. The **Synchronous Callout** report options panel in IMS Performance Analyzer

The options are as follows:

**Report Output DDname**

Default: SYNCCOUT

Specify the DDname to be used for the report output.

**Related reference**

SYNCCOUT: Synchronous Callout report

The **SYNCCOUT** operand of the **IMSPAMON** batch command requests the Synchronous Callout report.

## Fast Path Analysis reports

The options for Fast Path Analysis reports are described here.

The Fast Path Analysis reports are:

- DEDB Resource Contention
- Fast Path Buffer Statistics
- BALG/Shared EMHQ Analysis
- OTHREAD Analysis
- VSO Summary

## DEDB Resource Contention report

The DEDB Resource Contention report provides summary information about IWAITs on data entry database (DEDB) locks of various types, including CI, unit of work (UOW), segment level, area, buffer overflow, main storage database (MSDB), non-DBRC DB, command and dummy locks.

**Restriction:** This report is not produced for DB Monitor data.

```

SAMPMON - DEDB Resource Contention
Command ==> _____

Specify report options.

Report Output DDname  FPRSCONT

Graph Distributions:           Validation Warning
Lock IWAIT Elapsed Time      _____ +

```

Figure 201. DEDB Resource Contention Report Options

The options are as follows:

#### Report Output DDname

Default: FPRSCONT

Specify the DDname to be used for the report output.

#### Graph Distributions

Default: Not specified; graph is not produced.

Specify the name of a Distribution that defines the attributes of the **Lock IWAIT Elapsed Time** graph. A Distribution must be specified for the distribution graph to be produced. Note that this distribution graph is for all lock types.

The sample Distribution FPRCLIW is provided. It specifies:

```

Ranges (Limits) = 1,2,4,8,16,32,64,128,256
Title = Sc Mil Mic (for seconds, millisecs, microsecs)
Multiplier = 1000
Edit Mask = ZZZ.ZZ9.999

```

You can enter the name of the Distribution directly, or to select from a list of available Distributions, position the cursor in the field and press **Prompt (F4)**.

See “Distributions” on page 645 for information on how to define Distributions and their attributes.

The “Alternate Sequencing Options” on page 438 are applicable to this report.

#### Related reference

FPRSCONT: DEDB Resource Contention report

The **FPRSCONT** operand of the **IMSPAMON** batch command requests the DEDB Resource Contention report.

## Fast Path Buffer Statistics report

The Fast Path Buffer Statistics report provides statistical information on activities in the Fast Path buffers, for all regions combined and for each region.

**Restriction:** This report is not produced for DB Monitor data.

```

SAMPMON - Fast Path Buffer Statistics
Command ==> _____

Specify report options.

Report Output DDname  FPBUFFER

Graph Distributions:           Validation Warning
Buffer Statistics        _____ +

```

Figure 202. FP Buffer Statistics Report Options

The options are as follows:

### Report Output DDname

Default: FPBUFFER

Specify the DDname to be used for the report output.

### Graph Distributions

Default: Not specified; graph is not produced.

Specify the name of a Distribution which defines the attributes of the **Buffer Statistics** distribution graph for the Fast Path Buffer Statistics report. If not specified, the graph is not produced.

You can enter the name of the Distribution directly, or to select from a list of available Distributions, position the cursor in the field and press **Prompt (F4)**.

The sample Distribution FPBSCNT is provided. It specifies:

Ranges (Limits) = 100,200,300,400,500,600,700,800,900

Title = Counts

Multiplier = 1

Edit Mask = ZZZ,ZZZ,ZZ9

See [“Distributions” on page 645](#) for information on how to define Distributions and their attributes.

The [“Alternate Sequencing Options” on page 438](#) are applicable to this report.

### Related reference

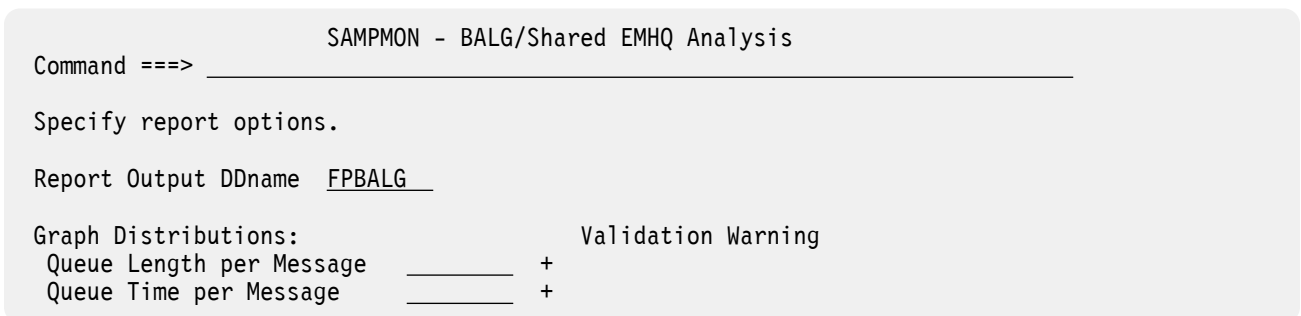
FPBUFFER: Fast Path Buffer Statistics report

The **FPBUFFER** operand of the **IMSPAMON** batch command requests the Fast Path Buffer Statistics report.

## BALG/Shared EMHQ Analysis report

The BALG/Shared EMHQ Analysis report provides statistical information on Balancing Group (BALG) activities and the shared Expedited Message Handler queue (EMHQ).

**Restriction:** This report is not produced for DB Monitor data.



The screenshot shows a command prompt window titled "SAMPMON - BALG/Shared EMHQ Analysis". The command line is "Command ==>". Below the command line, the text "Specify report options." is displayed. The "Report Output DDname" is set to "FPBALG". Under "Graph Distributions:", there are two options: "Queue Length per Message" and "Queue Time per Message", each followed by a blank line and a "+" sign. To the right of these options, the text "Validation Warning" is displayed.

Figure 203. BALG/Shared EMHQ Analysis Report Options

The options are as follows:

### Report Output DDname

Default: FPBALG

Specify the DDname to be used for the report output.

### Graph Distributions

Defaults: Not specified; graphs are not produced.

Specify the names of the Distributions to define the attributes of the graphs for this report. If a Distribution is not specified, the corresponding distribution graph is not produced.

For the **Queue Length per Message** graph, the sample Distribution FPBGQLN is provided. It specifies:



Ranges (Limits) = 1,2,3,4,5,10,15,30,90  
Title = Length  
Multiplier = 1  
Edit Mask = ZZZ,ZZZ,ZZ9

For the **Queue Time per Message** graph, the sample Distribution FPBGELP is provided. It specifies:

Ranges (Limits) = 1,5,10,50,100,500,1000,5000,10000  
Title = Sc Mil Mic (for seconds, millisecs, microsecs)  
Multiplier = 1000  
Edit Mask = ZZZ.ZZ9.999

You can enter the name of the Distributions directly, or to select from a list of available Distributions, position the cursor in the field and press **Prompt (F4)**.

See [“Distributions” on page 645](#) for information on how to define Distributions and their attributes.

#### Related reference

FPBALG: BALG/Shared EMHQ report

The **FPBALG** operand of the **IMSPAMON** batch command requests the BALG/Shared EMHQ report.

## OTHREAD Analysis report

The OTHREAD Analysis report is a summary analysis of activities in the output thread (OTHREAD) queue.

**Restriction:** This report is not produced for DB Monitor data.

```

                                     SAMPMON - OTHREAD Analysis
Command ==> _____
Specify report options.
Report Output DDname  FPOTHRD
Graph Distributions:
Active OTHREAD Counts . . _____ +
Waiting Area . . . . . _____ +
Buffers on Queue . . . . . _____ +
Validation Warning
```

Figure 204. OTHREAD Analysis Report Options

The options are as follows:

#### Report Output DDname

Default: FPOTHRD

Specify the DDname to be used for the report output.

#### Graph Distributions

Defaults: Not specified; graphs are not produced.

Specify the names of the Distributions to define the attributes of the graphs for the OTHREAD Analysis report. A Distribution must be specified for the corresponding distribution graph to be produced.

For the **Active OTHREAD Counts** graph, the sample Distribution FPOTACT is provided. It specifies:

Ranges (Limits) = 100,200,300,400,500,600,700,800,900  
Title = Counts  
Multiplier = 1  
Edit Mask = ZZZ,ZZZ,ZZ9

For the **Waiting Area** graph, the sample Distribution FPOTWTA is provided. For the **Buffers on Queue** graph, the sample Distribution FPOTBOQ is provided. They specify:

Ranges (Limits) = 10,20,30,40,50,60,70,80,90

Title = Counts

Multiplier = 1

Edit Mask = ZZZ,ZZZ,ZZ9

You can enter the name of the Distributions directly, or to select from a list of available Distributions, position the cursor in the field and press **Prompt (F4)**.

See [“Distributions” on page 645](#) for information on how to define Distributions and their attributes.

#### Related reference

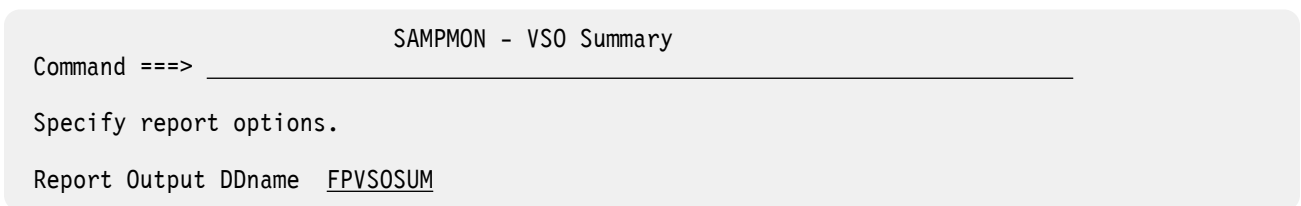
FPOTHRD: OTHREAD Analysis report

The **FPOTHRD** operand of the **IMSPAMON** batch command requests the OTHREAD Analysis report.

## VSO Summary report

The DEDB VSO Summary provides summary information on Virtual Storage Option (VSO) activity including VSO preload, VSO I/O activities for the various data base share levels, VSO Write IWAITS, VSO area castout operations, and VSO Coupling Facility I/O Waits.

**Restriction:** This report is not produced for DB Monitor data.



```
SAMPMON - VSO Summary
Command ==>
Specify report options.
Report Output DDname  FPVSOSUM
```

*Figure 205. VSO Summary Report Options*

The options are as follows:

#### Report Output DDname

Default: FPVSOSUM

Specify the DDname to be used for the report output.

The [“Alternate Sequencing Options” on page 438](#) are applicable to this report.

#### Related reference

FPVSOSUM: VSO Summary report

The **FPVSOSUM** operand of the **IMSPAMON** batch command requests the VSO Summary report.

## Monitor Data Analysis report

The options for Monitor Data Analysis reports are described here.

The Monitor Data Analysis reports are:

- Monitor Record Trace

## Monitor Record Trace report

The Monitor Record Trace report formats the records on the monitor input file to produce a chronological listing of the data. The Monitor Record Trace can be used to understand the flow of internal IMS events (and the information that is recorded by IMS), retrieve more information from your monitor records not available from the standard reports and diagnosing problems with your IMS subsystem.

SAMPMON - Monitor Record Trace

Command ==>

Specify report options.

Report Options:

Report Output DDname SLOGTRC

Output Limit 100 pages

Monitor Records to Include:

Object Type Object + List Validation Warning

Monitor Record Code \_ \_

Figure 206. Monitor Record Trace Report Options

The options are as follows:

**Report Output DDname**

Default: SLOGTRC

Specify the DDname to be used for the report output.

**Output Limit**

Default: 100

Specify the maximum number of pages to be produced for this trace report.

**Monitor Records to Include**

Default: None specified; include all records.

Specify one monitor record code, or the name of an Object List of type RECCD (select **List** with a /), to nominate which record codes to include in this trace report. Monitor Record Codes are hexadecimal values of two characters. Masking is not supported. In the Object List, ranges of values can be specified.

You can enter the name of the Object List directly, or to select from a list of available Object Lists, position the cursor in the field and press **Prompt (F4)**.

See “Object Lists” on page 635 for information on how to define an Object List.

**Related reference**

SLOGTRC: Monitor Record Trace report

The **SLOGTRC** operand of the **IMSPAMON** batch command requests the Monitor Record Trace report.



---

## Chapter 23. Monitor batch interface

The IMS PA dialog generates the JCL and commands for executing your report requests in batch. The JCL and commands for Monitor report requests are described here. Sample jobs are supplied in the SIPISAMP Library.

### Related tasks

Run Monitor Report Set

The IMS PA dialog generates the JCL for batch report processing. Enter the **RUN** command to run your Report Set, Report Category, or individual reports.

---

## Monitor Report Set JCL

The JCL built by IMS PA for the batch execution of a Report Set via the **SUBMIT** or **JCL** (or **RUN**) commands is based on the sample library member IPIMONJC for a Monitor Report Set.

IMS PA builds the JCL to execute the program IPIMAIN using the following options specified using the dialog:

### JOB

**Job Statement Information** in IMS PA **Settings**.

**IPI EXEC IPIMAIN,PARM='parameter list'**

IMS PA main program with parameters:

### UPPER

if **Reports in Upper Case** is YES in IMS PA **Settings**.

### STEPLIB DD

**IMS PA Load Library** In IMS PA **Settings**.

### TAPEDD DD

For monitor input, this DD statement is generated when two or more tape (or cartridge) input data sets are specified. TAPEDD is only used to establish unit affinity for the tape files in the JCL, and is not used by IMS PA batch processing.

### MONITOR DD

**Monitor Data Set Name (DSN)** From **System Definitions**. The Monitor Files specified for the IMS Subsystem.

### IPIRSET DD

For *DSN(member)* where:

#### DSN

**Report Sets Data Set** in your IMS PA **Profile**.

#### member

Name of the **Report Set** being run.

### IPIOBJL DD

**Object Lists Data Set** in your IMS PA **Profile**.

### IPIDIST DD

**Distributions Data Set** in your IMS PA **Profile**.

### IPIOPTS DD \*

**Report Interval** This overrides the Report Set Global Report Interval within the IPIRSET or IPICMD DD statements.

It is the report period specified on the **Run Report Set** panel at run time. To display the runtime options, you can issue the **RUN** command for a Report, Report Category, or Report Set.

### IPISTOUT DD

**Trace Data Set** From Monitor Global Options.

If the data set does not exist, IMS PA uses the **Monitor Trace** allocation details in **Reporting Allocation Settings**.

### Sample JCL: Monitor Report Set

```
//IMSPA JOB CLASS=A
//*
//IMSPA EXEC PGM=IPIMAIN
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//* Monitor Input data set
//MONITOR DD DSN=IMS.V152.MONITOR,DISP=SHR
//* IMSPA Messages
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//* Report Set
//IPIRSET DD DSN=IMSPA.V450.RSET(MON01),DISP=SHR
//* Object Lists
//IPIOBJL DD DSN=IMSPA.V450.OBJL,DISP=SHR
//* Distributions
//IPIDIST DD DSN=IMSPA.V450.DIST,DISP=SHR
//* Report Time Range
//IPIOPTS DD *
IMSPAMON START(2023/01/13,12:15:00:00),STOP(2023/01/13,18:30:00:00)
```

Figure 207. JCL: Monitor Report Set

### Related reference

[IMS Performance Analyzer sample library](#)

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## Monitor JCL with command input

To generate JCL that contains commands in-stream, rather than referring to data sets, enter the dialog command **JCLCMD**, or its abbreviation, **JCM**; or, equivalently, enter **RUN**, and then specify the execution mode **Edit JCL with command input**.

By contrast, to generate JCL that builds commands at runtime from data sets, rather than containing commands in-stream, enter the dialog command **JCL** (or a **RUN** command that does not specify **Edit JCL with command input**). For details, see [“Monitor Report Set JCL” on page 463](#).

The JCL generated by the **JCLCMD** command differs in the following ways from the JCL generated by the **JCL** command:

- The IPICMD DD statement contains the series of user modifiable commands built from the activated reports in the Report Set. A description of the Report Set appears as comments (\* in column 1) preceding the commands. It replaces the IPIRSET DD statement generated by the **JCL** command.
- The command input stream contains **INCL/EXCL** command parameters built from the Object Lists used by the Report Set. They replace the IPIOBJL DD statement generated by the **JCL** command.
- The command input stream contains **DISTRIBUTION** command parameters built from the Distributions used by the Report Set. They replace the IPIDIST DD statement generated by the **JCL** command.
- The **IMSPAMON** command identifies monitor reports.

This facility allows you to build report JCL with command input once and store it into an external library for submitting at any time, independent of the original Report Set. Individual report options, such as Date/Time report intervals or object selection filters (such as Transaction Code, Program, Database) can then be modified in the JCL and submitted without making changes to the original Report Set.

## Sample JCL with command input: Monitor Report Set

```
//IMSPA JOB (ACCOUNT),'NAME'
//*
/* IMS PA Report Set SAMPMON - Sample Monitor Report Set
/*
//IPI      EXEC PGM=IPIMAIN
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
/* Input Data Sets
//MONITOR DD DSN=IMS.V152.MONITOR,DISP=SHR
/* Report Time Range
//IPIOPTS DD *
IMSPAMON START(-1,),STOP(0,)
/*
/* Sysout data set
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
/* Report Set Command Input
//IPICMD  DD *
* IMS PA Monitor Report
* Report Set Name - SAMPMON
* Description - Sample Monitor Report Set
* Monitor Report Global Options
*   Summary Report Output File - SUMMRPT
*   Detail Report Output File - DETLRPT
*   Trace Records Save Data Set Name - Not Specified
*   Total System IWAIT Report Output File - IWTSUMMY
*   Print Lines per Page - 60
*   When Reports are written - STOP
*   Minimum VSAM IWAIT Time (milliseconds) - 5
IMSPAMON      DDNAME(SUMMRPT),
               DDNAME(DETLRPT),
               PAGESIZE(60),
               PRINTAT(STOP),
               MINIWAIT(5)
* Schedule/Trancode Summary Report
IMSPAMON      SCHEDTRAN
* Region Summary Report
IMSPAMON      REGSUM
* Program Summary Report
IMSPAMON      PROGSUM
* Database IWAIT Summary Report
IMSPAMON      IWAITSUM
* Total System IWAIT Report
*   Summary Report
*   Detailed Report
*   Report Output File - IWTSUMMY
IMSPAMON      TSIWAIT(
               SUMMARY,
               DETAIL,
               DDNAME(IWTSUMMY))
* Buffer Pool and Latch Statistics
*   Report Output DDname - STATRPT
IMSPAMON      STATIS(
               DDNAME(STATRPT))
IMSPAMON      EXECUTE
/*
```

Figure 208. JCL with command input: Monitor Report Set SAMPMON

## IMSPAMON command

The **IMSPAMON** command requests a monitor report. Multiple monitor reports can be requested in the one batch job.

### Format

IMSPAMON	operands
----------	----------

The last **IMSPAMON** command in the batch job must include **EXECUTE** as its last operand. For clarity, ensure that there is only one **EXECUTE** operand in the batch job. The **EXECUTE** operand informs IMS PA that all monitor reports have been requested, and processing of monitor input can commence.

If **IMSPAMON EXECUTE** is omitted, IMS PA performs syntax checking of the input commands but does not execute any reports.

For a description of the **IMSPAMON** operands, see [“Monitor report operands”](#) on page 468.

### Example

```
IMSPAMON      START(2021/08/12,10:00),STOP(2021/08/12,11:00)
IMSPAMON      PROGSUM,REGSUM,IWAITSUM
IMSPAMON      TSIWAIT(DETAIL,SUMMARY,DDNAME(IWAITRPT))
IMSPAMON      EXECUTE
```

From this example, IMS PA will produce the following reports for the time period 10 a.m. to 11 a.m. on 12 August 2021:

- Program Summary
- Region Summary
- Database IWAIT Summary
- Total System IWAIT Detail and Summary

## DISTRIBUTION command

The **DISTRIBUTION** command defines a Distribution to be used for monitor or log reporting. The Distribution describes the presentation and thresholds to be used by the report processors and presented in the report output.

For a detailed description of Distributions, see [“Distributions”](#) on page 645.

The **DISTRIBUTION** command does not invoke report processing. It works in conjunction with report processing that produces distribution report output.

### Format

```
name      DISTRIBUTION [LIMITS(value1,...,value9),]
                        [TITLE('text'),]
                        [MULTIPLY(nnnn),]
                        [EDITMASK('char.mask')|EDITMASK(hex.mask)]
```

#### **name**

Specifies the name of the Distribution. This name associates the Distribution with a particular report or set of reports and must be one of the following: LOGIN, \$IPDIST1, \$IPDIST2, SYSCKPT, ELAP/SCH, ELAP/CAL, ELAP/IWT, IWTS/CAL, IWTSUMMY, DDIWELAP, FPBSCNT, FPBGQLN, FPBGELP, FPOTACT, FPOTWTA, FPOTBOQ, FPRCLIW, COMMELP, COMMIWE, COMMLFR, COMMLFT, COMMLFI, MSCQLEN, MSCQELP. See [“Distribution and Report cross-reference”](#) on page 649 for the list of these Distributions, their titles, and the reports they apply to.

#### **DISTRIBUTION**

Identifies the attributes of the distribution graphs.

#### **LIMITS**

Defines the nine limits which define nine ranges for the distributions. The nine limits must be in ascending sequence. When the distribution is printed, the limit values are printed at the left up the vertical axis of the graph. This operand is optional, and if omitted, the default limits are 1,5,10,30,50,100,300,500,1000.

#### **TITLE**

Defines the unit of measure for the graph. Up to twelve (12) characters, including blanks, can be specified as the title. The title is printed on the left at the top of the vertical axis above the column of limit values. This operand is optional, and if omitted, the default title is Sc Mil Mic for seconds, milliseconds and microseconds respectively.



## MULTIPLY

Specifies a numeric value (typically a multiple of 10) to be used to multiply by each limit. This operand is optional, and if omitted, the default is 1000.

## EDITMASK

Specifies an edit mask to be used when printing the limit values. Two formats can be used:

1. Eleven (11) character quoted string.
2. Twenty four (24) character string that represents twelve (12) hexadecimal values.

If less than the maximum number of characters allowed is specified, the mask is right justified and padded on the left with blanks.

If the quoted string is used, any character can be specified, but some characters have a special meaning, as follows:

**Z**

Zero suppression

**9**

Digit mask

**S**

Trigger start

Any other character is used in the result as is. The number of digit select characters (Z, 9, S) must be odd, otherwise the low-order digit of the result will not be formatted.

If the hexadecimal string is used, up to twelve (12) hexadecimal values (24 hex characters) can be represented. The hexadecimal string is the actual edit mask as used by the edit (ED and EDMK) assembler instructions. The mask can include any valid hexadecimal value, but some have a special meaning, as follows:

**20**

Digit selector

**21**

Significance starter

**22**

Field separator

This operand is optional, and if omitted, the default edit mask is 'ZZZ.ZZ9.999' or 402020204B2021204B202020.

## Example

```
ELAP/CAL  DISTRIBUTION LIMITS(1,5,10,30,50,100,300,500,1000),
          MULTIPLY(1000),
          TITLE('Sc Mil Mic'),
          EDITMASK('ZZZ.ZZ9.999')
```

In this example, the Distribution ELAP/CAL is used to produce distributions of DL/I call elapsed time. The time ranges are the limit values multiplied by the multiplier and would be 0-1000, 1001-5000, 5001-10000, 10001-30000, 30001-50000, 50001-100000, 100001-300000, 300001-500000, 500001-1000000, over 1000000. When formatted by the edit mask, they are printed as 1.000, 5.000, 10.000, . . . , 1.000.000 where 1.000 represents 1 millisecond and 1.000.000 represents 1 second.

## COPY command

The **COPY** command reads one or more members of the command library. The command library must be a partitioned data set defined by the CMDLIB DD statement.

**COPY** puts precoded commands from the command library into the input stream.

## Format

---

COPY	<i>member1[,member2,...]</i>
------	------------------------------

The only operands for the **COPY** command are one or more member names in the command library. Each member may in turn contain **COPY** commands. The **EXECUTE** operand may be within or following the last **COPY** command.

Member names are scanned from left to right, and members are read in the order specified. Copied members may themselves employ the **COPY** command. To prevent **COPY** loops, any request for a member currently queued for read causes an error and the member is not processed. An error message is issued for any member not found in the command library.

**COPY** allows users to retrieve precoded commands and include them in the input stream. Precoded commands would usually include production level command data, or static command input like Distributions, Include and Exclude lists, or commonly used reports.

### Example

In this example, MONREPS contains a common set of monitor report commands, and MONDISTS contains the Distributions used by monitor reporting.

IMSPAMON	START(2023/01/12,10:00),STOP(2023/01/12,11:00)
COPY	MONREPS
IMSPAMON	EXECUTE
COPY	MONDISTS

## Monitor report operands

---

The **IMSPAMON** command has two categories of operand: the reports and their specific options, and the general options (Global, Distributions, Transactions by Time Period, Application Grouping, DDname Grouping, ESAF Integration, Alternate Sequencing) that apply to multiple reports.

The **IMSPAMON** operands that produce reports are:

### **TIMEREPORT**

Transactions by Time Period

### **APPLICATION**

Application Group

### **DDGRP**

DDgroup

### **SCHEDTRAN**

Schedule/Transaction Summary

### **REGSUM**

Region Summary

### **PROGSUM**

Program (PSB) Summary

### **IWAITSUM**

Database IWAIT Summary

### **REGANAL**

Region Analysis

### **APPLGRP**

Application Detail

### **IWAITANAL**

Database IWAIT Analysis

**EXCEPTION**

Performance Exceptions

**ENQTRACE**

Enqueue/Dequeue Trace

**HISTOGRAM**

Region Histogram

**TSIWAIT**

Total System IWAIT

**PSBREPORTS**

Program Activity Detail

**TRACE**

Program Trace

**VSAMSTAT**

Batch VSAM Statistics

**STATIS**

Buffer Pool and Latch Statistics

**COMMS**

Communication

**MSC**

Multiple Systems Coupling

**ESAF**

External Subsystem

**SYNCCOUT**

Synchronous Callout

**FPRSCONT**

DEDB Resource Contention

**FPBUFFER**

Fast Path Buffer Statistics

**FPBALG**

BALG/Shared EMHQ

**FPOTHRD**

OTHRD Analysis

**FPVSOSUM**

VSO Summary

**SLOGTRC**

Monitor Record Trace

For further details of the operands and their default values, see the description of the corresponding dialog options in [Chapter 22, “Requesting Monitor reports,” on page 421.](#)

## Monitor Global Options

The Monitor Global Options define output and general control information for the monitor reports.

### Format

---

```
IMSPAMON      [START(date,time),]  
               [STOP(date,time),]  
               [DDNAME(ddname),]      default SUMMRPT  
               [DETAILDDNAME(ddname),] default DETLRPT  
               [STATSDDDNAME(IPISTOUT),]  
               [DISTRIBUTIONS,]  
               [REGIONS,]  
               [MINIWAIT(nnnnnnnnnn),] default 0 msec  
               [BMPONLY|NOBMP,]  
               [PAGESIZE(nnn),]      default 60 lines  
               [PRINTAT(HOUR|STOP|EOF|nnnn),]  
               [SELECT(psbname,...)|NOSELECT(psbname,...)]  
[IMSPAMON     ALTSCHED]  
IMSPAMON      EXECUTE[(NEW|BATCH)]
```

---

#### START

Global Start date and time

#### STOP

Global Stop date and time

#### DDNAME

Monitor Input File ddname

#### DETAILDDNAME

Summary reports output ddname

#### STATSDDDNAME

Trace data set file name

#### DISTRIBUTIONS

Include Distributions in reports

#### REGIONS

Break down reports by Region

#### BMPONLY

Only include BMP regions in reports

#### NOBMP

Exclude BMP regions from reports

#### MINIWAIT

Minimum VSAM IWAIT elapsed time, in milliseconds

#### PAGESIZE

Number of print lines per page

#### PRINTAT

Report break point specifies when reports are written

#### SELECT or NOSELECT

Program (PSB) names to include or exclude

#### ALTSCHED

Do not include wait-for-input events when calculating the schedule count

#### BATCH

Input data is DB Monitor

## Example

Total System IWAIT Summary and Detail Reports for an IMS DB System:

```
IMSPAMON      START(2023/06/25,06:30:00:00),
               STOP(2023/06/25,06:45:00:00),
               DDNAME(SUMMRPT),
               DETAILDDNAME(DETLRPT),
               STATSDDNAME(IPISTOUT),
               PAGESIZE(60),
               PRINTAT(STOP),
               MINIWAIT(5),
               NOSELECT(PSB2R*,PSB2T*)
IMSPAMON      TSIWAIT(SUMMARY,DETAIL,DDNAME(IWTSUMMY))
IMSPAMON      EXECUTE(BATCH)
```

## Related reference

[Monitor Global Options](#)

The IMS PA Monitor Global Options define output data sets and general control information that apply to all active reports within a Report Set.

## DISTRIBUTION: Distributions Options

The Distributions Options describe the layout of distribution graphs which show the dispersion of the values of certain performance measures.

## Format

```
name          DISTRIBUTION [LIMITS(value1,...,value9),]
                               [TITLE('text'),]
                               [MULTIPLY(nnnn),]
                               [EDITMASK('char.mask')|EDITMASK(hex.mask)]
```

where the Distribution *name* is either: ELAP/SCH, ELAP/CAL, ELAP/IWT, IWTS/CAL, IWTSUMMY, DDIWELAP, FPBSCNT, FPBGQLN, FPBGELP, FPOTACT, FPOTWTA, FPOTBOQ, FPRCLIW, COMMELP, COMMIWE, COMMLFR, COMMLFT, COMMLFI, MSCQLEN, MSCQELP.

See [“Distribution and Report cross-reference”](#) on page 649 for the list of these Distributions, their titles, and the reports they apply to.

## Example

Database IWAIT Analysis Report by Region with Distributions:

```
IMSPAMON      DISTRIBUTIONS,
               REGIONS
IMSPAMON      DBIWAITANAL(DISTRIBUTIONS)
IMSPAMON      EXECUTE
DDIWELAP      DISTRIBUTION LIMITS(1,5,10,30,50,100,300,500,1000),
                          TITLE('Sc Mil Mic'),
                          MULTIPLY(1000),
                          EDITMASK('ZZZ.ZZ9.999')
```

## Related reference

[Distributions Options](#)

The Distributions Options allow you to request up to four distribution graphs by specifying the names of Distributions which define the layout of the graphs.

## TIMEREPORT: Transactions by Time Period Options

The **TIMEREPORT** operand of the **IMSPAMON** batch command specifies control information for the Transactions by Time Period report, which is optionally produced by the Region Analysis and Application Detail reports.

### Format

---

```
IMSPAMON      TIMEREPORT(
               [TIMES(t1,t2,t3,...,t14),]
               [PERCENT|COUNT,]
               [REGION,]
               [FROM(date,time),]
               [TO(date,time)])
```

---

#### TIMES

List of fourteen (14) comma separated, ascending times in the format *hh:mm:ss* to be used as report time ranges

#### PERCENT

Report transaction counts as a percentage of total transactions

#### COUNT

Report transaction counts as a number

#### REGION

Break down reports by Region

### Examples

Region Analysis Report:

```
IMSPAMON      TIMEREPORT(
               TIMES(00:00,07:00,08:00,09:00,10:00,11:00,12:00,
               13:00,14:00,15:00,16:00,17:00,18:00,19:00),
               COUNT,
               FROM(2021/08/13, ), TO(2021/08/14, ))
IMSPAMON      REGANAL(TIMEREPORT)
IMSPAMON      EXECUTE
```

Application Detail Report with Application Grouping:

```
IMSPAMON      APPLICATION(PSB2, (PSB2R*, PSB2T*, PSB2A*))
IMSPAMON      TIMEREPORT(
               TIMES(09:25,09:25:10,09:25:20,09:25:30,
               09:25:40,09:25:50,09:26,,,,,,,,),
               PERCENT,
               FROM(2023/06/19,09:25:00:00),
               TO(2023/06/19,09:30:00:00))
IMSPAMON      APPLGRP(TIMEREPORT)
IMSPAMON      EXECUTE
```

### Related reference

[Transactions by Time Period Options](#)

The IMS Transactions by Time Period report presents for each PSB-transaction code (or application-transaction code if application groupings are active) the number or percentage of transactions occurring in the specified time periods. The overall transaction rate for each time period is also reported.

## APPLICATION: Application Grouping Options

The Application Grouping Options specify one or more groups of Program (PSB) names to appear as line items in the Program Summary and Region Analysis reports, and in the heading of the Application Detail report.

### Format

---

IMSPAMON	APPLICATION( <i>grpname1</i> , ( <i>a1</i> , <i>a2</i> , ...), <i>grpname2</i> , ( <i>b1</i> , <i>b2</i> , ...), ...)
----------	--

---

### Example

Program Summary Report with Application Grouping:

IMSPAMON	APPLICATION (PROGAGRP, (A*), PROGBGRP, (B*, C*, D*))
IMSPAMON	PROGSUM
IMSPAMON	EXECUTE

### Related reference

[Application Grouping Options](#)

The Application Grouping Options define groups of records based on Program (PSB) name.

## DDGROUP: DDname Grouping Options

The DDname Grouping Options specify one or more groups of ddnames to appear as line items in the Database IWAIT Summary report and in the heading of the Database IWAIT Analysis (DDgroup) report.

### Format

---

IMSPAMON	DDGROUP( <i>grpname1</i> , ( <i>a1</i> , <i>a2</i> , ...), <i>grpname2</i> , ( <i>b1</i> , <i>b2</i> , ...), ...)
----------	--

---

### Example

Database IWAIT Analysis Report with DDname Grouping, no Distributions:

IMSPAMON	DDGROUP (DD1, (A*), DD2, (B*, C*, D*))
IMSPAMON	DBIWAITANAL
IMSPAMON	EXECUTE

### Related reference

[DDname Grouping Options](#)

DDname Grouping Options define groups of records based on DDnames.

## ESAFOpts: ESAF Integration Option

The ESAF Integration Option controls whether External Subsystem calls are integrated into all Region and Program/Trancode reports.

### Format

IMSPAMON	ESAFOpts (CALLs   <u>NOCALLs</u> )
----------	------------------------------------

#### CALLS

ESAF call statistics are reported for each subsystem and contribute to the total call and IWAIT counts for regions and program/trancodes.

#### NOCALLS

ESAF call statistics are not included.

### Example

Program Summary with ESAF Integration:

IMSPAMON	ESAFO (CALL)
IMSPAMON	PROGSUM
IMSPAMON	EXECUTE

### Related reference

ESAF Integration Option

When the ESAF Integration Option is activated, ESAF call statistics are reported for each subsystem and contribute to the total call and IWAIT counts for regions and program/trancodes.

## ALTSEQ: Alternate Sequencing Options

Summarized monitor reports can be ordered in an alternate sequence. By default, the reports are ordered by name, such as Region ID, Program, Transaction Code and Database.

Alternate Sequencing changes this sequence to order (in descending sequence) by any one of the following:

#### Occupancy

The elapsed time that the resource is scheduled or in use. For example, the busiest regions or programs.

#### Calls

The time spent by the resource performing DL/I or other types of calls. For example, transactions with the most DL/I call activity.

#### Delay

The time spent by the resource waiting for IWAIT events to complete. For example, the databases which had to wait the longest for I/O to complete.

When Alternate Sequencing is used, a limit can also be specified to restrict the number of resources reported. You can specify a fixed number, for example the 10 worst performing databases, or you can specify a percentage, for example the top 10% busiest regions.



## Format

---

IMSPAMON	ALTSEQ( [NAME OCCupancy CALLs DELAY,] [LIMit( <i>nnn</i> [%])])	default 100%
----------	---	--------------

### NAME

Order the report by name.

### OCCUPANCY

Order the report by the elapsed time scheduled or in use.

### CALLS

Order the report by the volume of DL/I activity (or other types of calls).

### DELAY

Order the report by the time spent waiting for IWAITs to complete.

### LIMIT

Report only the first *nnn* or *nnn*% of the resource.

## Example

Region Summary with sorting by occupancy and limited to the 5 worst regions:

IMSPAMON	ALTSEQ(OCC, LIMIT(5))
IMSPAMON	REGSUM
IMSPAMON	EXECUTE

## Related reference

### [Alternate Sequencing Options](#)

Alternate sequencing changes the default "name" order of a report (where the "name" field depends on the report; for example, Region ID, Program name, Transaction Code, or Database name) to descending order of one of the following: Occupancy, Calls, or Delay. You can also limit reporting to the worst performers.

## SCHEDTRAN: Schedule/Transaction Summary report

The **SCHEDTRAN** operand of the **IMSPAMON** batch command requests the Schedule/Transaction Summary report.

## Format

---

IMSPAMON	SCHEDTRAN
----------	-----------

## Example

IMSPAMON	DDNAME(SUMMRPT)
IMSPAMON	SCHEDTRAN
IMSPAMON	EXECUTE

## Related reference

[Schedule/Transaction Summary report](#)

The IMS Schedule/Transaction Summary report presents a compact summary of total schedulings and transaction counts over all regions for the entire trace period.

## REGSUM: Region Summary report

The **REGSUM** operand of the **IMSPAMON** batch command requests the Region Summary report.

### Format

---

	IMSPAMON	REGSUM
	IMSPAMON	EXECUTE
[name	DISTRIBUTION	[LIMITS( <i>value1</i> , ..., <i>value9</i> ),]
		[TITLE('text'),]
		[MULTIPLY( <i>nnnn</i> ),]
		[EDITMASK('char.mask') EDITMASK( <i>hex.mask</i> )]]

Specify up to 4 Distributions with *name* either: ELAP/SCH, ELAP/CAL, ELAP/IWT, IWTS/CAL.

---

### Example

	IMSPAMON	DDNAME(SUMMRPT)
	IMSPAMON	REGSUM
	IMSPAMON	EXECUTE

### Related reference

#### [Region Summary report](#)

The IMS Region Summary report is an analysis of schedule, transaction, call, and IWAIT activity as well as an analysis of region idle time for each active MPP region. Summary distribution graphs of activity can also be provided. The report contains the same details as the Region Detail report (part of the Region Analysis report). The Region Summary report groups data by type (for example, schedule data for all regions) to provide convenient comparison of one measure across all regions. The Region Detail report groups data by region, to allow all the measures for a region to be viewed together.

## PROGSUM: Program Summary report

The **PROGSUM** operand of the **IMSPAMON** batch command requests the Program Summary report.

### Format

---

IMSPAMON	PROGSUM
----------	---------

---

### Example

	IMSPAMON	DDNAME(SUMMRPT)
	IMSPAMON	PROGSUM
	IMSPAMON	EXECUTE

### Related reference

#### [Program Summary report](#)

The IMS Program Summary report is an analysis of schedule, transaction, and call activity for each PSB-transaction code and each specified application group. A percentage comparison of the activities for each PSB-transaction code is also provided.

## IWAITSUM: Database IWAIT Summary report

The **IWAITSUM** operand of the **IMSPAMON** batch command requests the Database IWAIT Summary report.

### Format

---

IMSPAMON	IWAITSUM
----------	----------

---

### Example

IMSPAMON	DDNAME (SUMMRPT)
IMSPAMON	IWAITSUM
IMSPAMON	EXECUTE

### Related reference

[Database IWAIT Summary report](#)

The IMS Database IWAIT Summary report is a summary of IWAIT activity for each data set and specified DDgroup. The report includes number of IWAITs, average elapsed time per IWAIT, and IWAITs per call. Only database and message queue IWAITs directly associated with dependent region activity are included in this report; the Total System IWAIT Summary report includes all IWAITs.

## REGANAL: Region Analysis report

The **REGANAL** operand of the **IMSPAMON** batch command requests the Region Analysis report.

### Format

---

	IMSPAMON	REGANAL ([REGDETL,] [PROGSUM,] [IWAITSUM,] [TIMEREPORT])
[name]	IMSPAMON DISTRIBUTION	EXECUTE [LIMITS( <i>value1</i> , ..., <i>value9</i> ),] [TITLE('text'),] [MULTIPLY( <i>nnnn</i> ),] [EDITMASK('char.mask') EDITMASK( <i>hex.mask</i> )]

Specify up to 4 Distributions with *name* either: ELAP/SCH, ELAP/CAL, ELAP/IWT, IWTs/CAL

---

Any combination of the following reports can be requested.

#### REGDETL

Region Detail

#### PROGSUM

Program Summary

#### IWAITSUM

Database IWAIT Summary

#### TIMEREPORT

Transactions by Time Period. See also [“TIMEREPORT: Transactions by Time Period Options”](#) on page 472.

All reports:

IMSPAMON	DETAILDDNAME(DETLRPT)
IMSPAMON	TIMEREPORT( TIMES(12:05,12:05:10,12:05:20,12:05:30, 12:05:40,12:05:50,12:06,,,,,,,,), COUNT, FROM(9999/08/15,12:05:00:00), TO(9999/08/15,12:06:00:00))
IMSPAMON	REGANAL(REGDETL,PROGSUM,IWAITSUM,TIMEREPORT)
IMSPAMON	EXECUTE

## Related reference

## Region Analysis report

The Region Analysis reports are a set of reports (Region Detail, Program Summary, Transactions by Time Period, Database IWAIT Summary) for each dependent region. These IMS Performance Analyzer reports are in the same format as the corresponding Summary reports described in the Region Activity Summary reports, except that they apply to each dependent region. The Summary reports group data by type to provide convenient comparison of one measure across all regions; for example, schedule data for the total system. The Region Analysis reports group data by region, to allow all the characteristics of a region to be viewed together.

## APPLGRP: Application Detail report

The **APPLGRP** operand of the **IMSPAMON** batch command requests the Application Detail report.

## Format

IMSPAMON	APPLGRP([PROGSUM, [TIMEREPOT]])
IMSPAMON	APPLICATION( <i>grpname1</i> , ( <i>a1</i> , <i>a2</i> , ...), <i>grpname2</i> , ( <i>b1</i> , <i>b2</i> , ...), ...)

One or both of the following reports can be requested:

## PROG SUM

## Program Summary

## TIMEREPORT

Transactions by Time Period. See also [“TIMEREPORT: Transactions by Time Period Options”](#) on page 472.

Application Groups must be specified for the report to be produced.

### Example

Both reports, and Application Grouping:

IMSPAMON	DETAILDDNAME(DETLRPT)
IMSPAMON	APPLICATION(PROGGRP1,(A*,B*,K*))
IMSPAMON	TIMEREPORT(COUNT,
	TIMES(00:00,07:00,08:00,09:00,10:00,11:00,12:00,
	13:00,14:00,15:00,16:00,17:00,18:00,19:00))
IMSPAMON	APPLGRP(PROGSUM,TIMEREPORT)
IMSPAMON	EXECUTE

## Related reference

## Application Detail report

A separate Application Detail report is produced for each specified application (PSB) group. This IMS Performance Analyzer report can provide an analysis of program activity for each program group, including details for each PSB name that comprises the group, in the same format as the Program Summary report. Also provided are distribution graphs for the elapsed time per schedule, elapsed time

per call, elapsed time per IWAIT, and number of IWAITs per call for each group and for each PSB within the group. You can also see the number or percent of transactions occurring, and overall transaction rate for specified time periods, in the same format as the Transactions by Time Period report.

## IWAITANAL: Database IWAIT Analysis report

The **IWAITANAL** operand of the **IMSPAMON** batch command requests the Database IWAIT Analysis report.

### Format

---

	IMSPAMON	IWAITANAL ([DISTRIBUTIONS])
	IMSPAMON	EXECUTE
[DDIWELAP	DISTRIBUTION	[LIMITS( <i>value1</i> , ..., <i>value9</i> ),]
		[TITLE(' <i>text</i> '),]
		[MULTIPLY( <i>nnnn</i> ),]
		[EDITMASK(' <i>char.mask</i> ')   EDITMASK( <i>hex.mask</i> )]]

---

### DISTRIBUTIONS

Include distributions in the report

### Examples

No Distributions:

	IMSPAMON	DETAILDDNAME (DETLRPT)
	IMSPAMON	IWAITANAL
	IMSPAMON	EXECUTE

By Region, with Distribution taking defaults:

	IMSPAMON	DETAILDDNAME (DETLRPT),
		REGIONS,
		DISTRIBUTIONS
	IMSPAMON	IWAITANAL (DISTRIBUTIONS)
	IMSPAMON	EXECUTE
DDIWELAP	DISTRIBUTION	

### Related reference

[Database IWAIT Analysis report](#)

The Database IWAIT Analysis report produces IWAIT distribution graphs and IWAIT activity analysis by DDname and DDname Group for each dependent region. The report can be obtained from both IMS Monitor and DB Monitor data.

## EXCEPTION: Performance Exception reports

The **EXCEPTION** operand of the **IMSPAMON** batch command requests the suite of Performance Exceptions reports.

### Format

	IMSPAMON	EXCEPTION	(	[LISTING,]	
				[INTENT,]	
				[POOL,]	
				[DEADLOCK,]	
				[IGNSCHED,]	
				[CALLELAP( <i>nnnnn</i> ),]	msecs
				[IWTELAP( <i>nnnnn</i> ),]	msecs
				[IWTCALL( <i>nnnnn</i> ),]	msecs
				[PAGES( <i>nnn</i> ),]	default 9 lines
				[DDNAME( <i>ddname</i> )]	default EXCPTRPT
				EXECUTE	
[ <i>name</i> ]	IMSPAMON			[LIMITS( <i>value1</i> , . . . , <i>value9</i> ),]	
	DISTRIBUTION			[TITLE(' <i>text</i> '),]	
				[MULTIPLY( <i>nnnn</i> ),]	
				[EDITMASK(' <i>char.mask</i> ')   EDITMASK( <i>hex.mask</i> )]	

Specify up to 3 Distributions with *name* either: ELAP/CAL, ELAP/IWT, IWTS/CAL

Any combination of the following reports may be requested:

#### LISTING

Exception Listing

#### INTENT

Intent Failure Summary

#### POOL

Pool Space Failure Summary

#### DEADLOCK

Deadlock Event Summary

Other report options for the Exception Listing:

#### IGNSCHED

Suppress printing of Specifically Created Schedule and Forced Schedule End lines in the Exception Listing report. Refer to the section "Performance Exception reports" in the *IMS Performance Analyzer for z/OS: Report Reference* for further details.

#### CALLELAP

Maximum allowable DL/I Call elapsed time

#### IWTELAP

Maximum allowable IWAIT elapsed time

#### IWTCALL

Maximum allowable number of IWAITs per DL/I Call

#### PAGES

Maximum number of pages for the Exception Listing

The Distributions are used to provide the threshold values if **CALLELAP**, **IWTELAP**, or **IWTCALL** are not specified.

## Examples

Exception Listing (taking defaults) and Deadlock Event Summary:

IMSPAMON	EXCEPTION(LISTING,DEADLOCK)
IMSPAMON	EXECUTE

All reports, with threshold values and page limit specified for the Exception Listing:

IMSPAMON	EXCEPTION( CALLELAP(50), IWTELAP(20), IWTCALL(2), PAGES(15),DDNAME(EXCPTRPT))
IMSPAMON	EXECUTE

## Related reference

[Performance Exception reports](#)

The Performance Exception reports provide a list report of performance exceptions, and summary reports of intent failures, pool space failures, or deadlock events.

## ENQTRACE: Enqueue/Dequeue Trace report

The **ENQTRACE** operand of the **IMSPAMON** batch command requests the Enqueue/Dequeue Trace report.

## Format

IMSPAMON	ENQTRACE([TRACE,] [SUMMDB,] [SUMMTC,] [DDNAME(ddname)])	default ENQDD
----------	--	---------------

Any combination of the following reports can be requested:

### TRACE

Detailed Trace

### SUMMDB

Summary by Database

### SUMMTC

Summary by Transaction Code

## Examples

Taking defaults. Produces the two Summary reports:

IMSPAMON	ENQTRACE
IMSPAMON	EXECUTE

Detailed Trace report:

IMSPAMON	ENQTRACE(TRACE)
IMSPAMON	EXECUTE

## Related reference

[Enqueue/Dequeue Trace report](#)

The Enqueue/Dequeue Trace report is a detailed trace of the database enqueue conflicts occurring during the reporting interval. A detail line is printed for each enqueue IWAIT interval recorded on the monitor data set. The PSB names active in the IMS region during the interval are displayed.

## HISTOGRAM: Region Histogram (Monitor) report

The **HISTOGRAM** operand of the **IMSPAMON** batch command requests the Region Histogram report.

### Format

```
IMSPAMON      HISTOGRAM([REGIONS (r1,r2,r5-r8,...),]
                [INTERVAL(nnnnn),]          default 1000 msec
                [CPULIMIT(nnnnnnnn),]       msec
                [SKIPPRINT(nnnnn),]
                [FROM(date,time),]
                [TO(date,time),]
                [DDNAME(ddname)])          default RGNHIST
```

#### REGIONS

List of up to 13 Region (PST) IDs

#### INTERVAL

Number of milliseconds between output lines

#### CPULIMIT

CPU Time Limit (milliseconds) before a transaction is flagged

#### SKIPPRINT

Number of duplicate lines before printing is skipped

### Example

```
IMSPAMON      HISTOGRAM(REGIONS(1-5,7,13),
                        INTERVAL(1000),
                        CPULIMIT(20),
                        SKIPPRINT(5),
                        FROM(2023/05/27,12:10:00:00),
                        TO(2023/05/27,12:12:00:00))
IMSPAMON      EXECUTE
```

### Related reference

#### [Region Histogram report](#)

The Region Histogram report traces region activity by time interval. Activity for up to 13 regions is presented graphically in side-by-side format. Periods of region activity and inactivity can be seen at a glance from the visual presentation.

## TSIWAIT: Total System IWAIT reports

The **TSIWAIT** operand of the **IMSPAMON** batch command requests the Total System IWAIT reports.

### Format

```
IMSPAMON      TSIWAIT([SUMMARY,]
                      [DETAIL,]
                      [DDNAME(ddname)])    default IWTSUMMY
IMSPAMON      EXECUTE
[IWTSUMMY DISTRIBUTION [LIMITS(value1,...,value9),]
                  [TITLE('text'),]
                  [MULTIPLY(nnnn),]
                  [EDITMASK('char.mask')|EDITMASK(hex.mask)]]
```

One or both of the following reports can be requested:



## SUMMARY

Total System IWAIT Summary

## DETAIL

Total System IWAIT Detail

A Distribution can optionally be specified for the Detail report.

## Examples

Taking defaults:

```
IMSPAMON      TSIWAIT
IMSPAMON      EXECUTE
```

Summary Report:

```
IMSPAMON      TSIWAIT(SUMMARY, DDNAME(IWTSUMMY))
IMSPAMON      EXECUTE
```

Detail report with a user-specified Distribution:

```
IMSPAMON      TSIWAIT(DETAIL)
IMSPAMON      EXECUTE
IWTSUMMY      DISTRIBUTION LIMITS(1,10,15,50,100,250,350,600,800),
                        TITLE('Sc Mil Mic'),MULTIPLY(1000),
                        EDITMASK('ZZZ.ZZ9.999')
```

Summary and Detail reports, no Distribution:

```
IMSPAMON      TSIWAIT(SUMMARY, DETAIL, DDNAME(IWTSUMMY))
IMSPAMON      EXECUTE
```

## Related reference

[Total System IWAIT reports](#)

The Total System IWAIT Summary report describes the IWAIT activity for the entire IMS system including system data sets, databases (full function and Fast Path), block loading, format services, scheduler, checkpoints, line/node IWAITs, pools, multiple system transfers. Elapsed time per IWAIT distribution graphs for each category can be requested. The Total System IWAIT Detail report is a detailed breakdown of IWAIT activity for the entire IMS system. IWAIT activity is reported for Databases (full function and Fast Path), Block loading, Format services, Line/Node IWAITs. Elapsed time per IWAIT distributions for each detail line are optionally reported.

## PSBREports: Program Activity Detail report

The **PSBREports** operand of the **IMSPAMON** batch command requests the Program Activity Detail reports.

## Format

```
IMSPAMON      PSBREports(
[BYREPORT|BYPSB| (BYREPORT, BYPSB) ,]
[FUNCTION,]
[SEGNAME,]
[DDNAME,]
[FUNC-SEGNAME,]
[FUNC-DDNAME,]
[DDNAME-PSB])
[name      IMSPAMON      EXECUTE
            DISTRIBUTION [LIMITS(value1, . . . , value9),]
                        [TITLE(' text '),]
                        [MULTIPLY(nnnn),]
                        [EDITMASK(' char.mask ') | EDITMASK(hex.mask )]]
```

for up to 4 Distributions with *name* ELAP/SCH, ELAP/CAL, ELAP/IWT, or IWTS/CAL

The report formats are:

**BYREPORT**

PSB Details

**BYPSB**

PSB-Transaction Code Analysis

**(BYREPORT, BYPSB)**

PSB Details with PSB-Transaction Code data

**DDNAME - PSB**

DDname by PSB-Transaction Code

If either **BYREPORT** or **BYPSB** or both are specified, at least one type of report must be specified. The report types can be specified in any combination. Note that the PSB Details PCB Totals report is always produced. The report types are:

**FUNCTION**

PSB Details PCB Totals

PSB Details by Function Code

**SEGNAME**

PSB Details PCB Totals

PSB Details by Segment Name Feedback

**DDNAME**

PSB Details PCB Totals

PSB Details PCB Totals (DD)

PSB Details by ddname IWAITed On

**FUNC - SEGNAME**

PSB Details PCB Totals

PSB Details by Function Code-Segment Name

**FUNC - DDNAME**

PSB Details PCB Totals

PSB Details PCB Totals (DD)

PSB Details by Function Code (DD)

PSB Details by Function Code-ddname

**Example**

PSB Details by Function Code and by Segment Name Feedback, and ddname by PSB-Transaction Code:

```
IMSPAMON    DETAILDDNAME(DETLRPT)
IMSPAMON    PSBREPORTS(
              BYREPORT,
              FUNCTION,
              SEGNAME,
              DDNAME - PSB)
IMSPAMON    EXECUTE
```

**Related reference**

**Program Activity Detail reports**

The Program Activity Detail reports provide a detailed breakdown of the database activity of each PSB name by PCB name, function code, DDname, and segment name feedback. Alternate report formats present the data organized by PCB name. No sorting of the input data is required to obtain the reports and they can be produced from either IMS Monitor or DB Monitor data.

# TRACE: Program Trace report

The **TRACE** operand of the **IMSPAMON** batch command requests Program Trace reports.

## Format

	IMSPAMON	TRACE([PSBNAME( <i>name</i> ),] [TRANCODE( <i>code</i> ),] [REGION( <i>PST number</i> ),] [FROM( <i>date,time</i> ),] [TO( <i>date,time</i> ),] [SUMMARY SHORT LONG,] [LIMIT( <i>nnnnnnnn</i> ),] [DDNAME( <i>ddname</i> )]]) default PGMTRACE
[ <i>name</i>	IMSPAMON DISTRIBUTION	EXECUTE [LIMITS( <i>value1</i> ,... <i>value9</i> ),] [TITLE('text'),] [MULTIPLY( <i>nnnn</i> ),] [EDITMASK('char.mask') EDITMASK( <i>hex.mask</i> )]])

Specify up to 3 Distributions with *name* ELAP/CAL, ELAP/IWT, or IWTS/CAL.

Any number of traces can be requested as long as a unique ddname is used for each trace. For each trace, any combination of **PSBNAME**, **TRANCODE**, or **REGION** can be specified, but at least one must be specified.

### PSBNAME

Program (PSB) name

### TRANCODE

Transaction Code

### REGION

Region PST ID

Other report options:

### SUMMARY

One page summary per trace

### SHORT

One report line per DL/I Call

### LONG

One report line per DL/I Call, plus one line per IWAIT

### LIMIT

Maximum number of schedules to be processed in this trace

## Example

Two traces, the first for region 13, the second for PSB PMENU and transaction code STOCK:

	IMSPAMON	TRACE(REGION(13), FROM(2023/06/25,02:00:00:00), SHORT, LIMIT(50), DDNAME(TRACE1))
	IMSPAMON	TRACE(PSBNAME(PMENU), TRANCODE(STOCK), FROM(2023/06/25,02:00:00:00), TO(2023/06/25,02:15:00:00), LONG, LIMIT(100), DDNAME(TRACE2))
	IMSPAMON	EXECUTE

### Related reference

[Program Trace report](#)

The Program Trace report is a detailed trace of the events associated with a program schedule. There is a detail line of information for each call and, optionally, each IWAIT occurring during the program schedule. There is also a summary of schedule activity. The Program Trace report is produced from DB Monitor and IMS Monitor traces. It can be used for problem isolation, to determine database use, and for program documentation.

## VSAMSTAT: Batch VSAM Statistics report

The **VSAMSTAT** operand of the **IMSPAMON** batch command requests the Batch VSAM Statistics report. This report provides similar output to the DFSUTR30 VSAM Statistics report.

### Format

---

IMSPAMON	VSAMSTAT( [DDNAME(ddname)])	default VSAMRPT
----------	--------------------------------	-----------------

---

### Example

IMSPAMON	VSAMSTAT
IMSPAMON	EXECUTE

### Related reference

[Batch VSAM Statistics report](#)

The Batch VSAM Statistics report provides VSAM usage statistics for batch applications, and is only produced for DB Monitor files built during the execution of the IMS batch system. VSAM Statistics are based on a specific application program PCB, a data set the application program is using, and the type of DL/I call the application program issued.

## STATIS: Buffer Pool and Latch Statistics reports

The **STATIS** operand of the **IMSPAMON** batch command requests the Buffer Pool and Latch Statistics reports.

The Buffer Pool and Latch Statistics reports are:

- Message Queue Pool
- Database Buffer Pool
- VSAM Buffer Pool
- Message Format Buffer Pool
- Latch Statistics

### Format

---

IMSPAMON	STATIS( [DDNAME(ddname)])	default STATRPT
----------	------------------------------	-----------------

---

### Example

IMSPAMON	STATIS
IMSPAMON	EXECUTE

### Related reference

[Buffer Pool and Latch Statistics reports](#)

The Buffer Pool and Latch Statistics reports consist of the set of Buffer Pool Statistics reports, which show IMS buffer usage statistics for the Message Queue Pool, Database Buffer Pool, VSAM Buffer Pool,

and Message Format Buffer Pool, and the Latch Statistics report which shows IMS latch usage counters. When requested, the Buffer Pool and Latch Statistics reports are always produced regardless of the global (or run-time) report interval specified as they provide summary statistics in the monitor start (90) and monitor end (91) records.

## COMMS: Communication reports

The **COMMS** operand of the **IMSPAMON** batch command requests the Communication reports.

### Format

	IMSPAMON	COMMS([SUMMARY,] [IWAIT,] [LINEFUNC,] [DDNAME(ddname)])	default COMMRPT
[name]	IMSPAMON DISTRIBUTION	EXECUTE [LIMITS(value1,...,value9),] [TITLE('text'),] [MULTIPLY(nnnn),] [EDITMASK('char.mask') EDITMASK(hex.mask)]]	

Specify up to 5 Distributions with *name* either: COMMELP, COMMIWE, COMMLFR, COMMLFT, COMMLFI.

Any combination of the following reports can be requested:

#### SUMMARY

Communication Summary

#### IWAIT

Communication IWAIT

#### LINEFUNC

Line Functions

### Example

All reports requested, and Distributions specified for the first two reports:

	IMSPAMON	COMMS(SUMMARY,IWAIT,LINEFUNC)
	IMSPAMON	EXECUTE
COMMELP	DISTRIBUTION	LIMITS(1,2,4,8,16,32,64,128,256),MULT(1000), TITLE('Sc Mil Mic'),EDITMASK('ZZZ.ZZ9.999')
COMMIWE	DISTRIBUTION	LIMITS(1,2,4,8,16,32,64,128,256),MULT(1000), TITLE('Sc Mil Mic'),EDITMASK('ZZZ.ZZ9.999')

### Related reference

#### [Communication reports](#)

The IMS Monitor Communication reports consist of the Communication Summary report, the Communication IWAIT report, and the Communication Line Functions report. The Communication Summary report provides a summary of line or VTAM node activities. The Communication IWAIT report provides detailed information on IWAITs occurring while dispatching communication subtask to lines or VTAM nodes. The Communication Line Functions report provides the functions of lines and VTAM nodes.

## MSC: MSC reports

The **MSC** operand of the **IMSPAMON** batch command requests the MSC reports.

### Format

	IMSPAMON	MSC([SUMMARY,] [TRAFFIC,] [QUEUING,] [DDNAME(ddname)])	default MSCRPT
[MSCQLEN	IMSPAMON	EXECUTE	
	DISTRIBUTION	[LIMITS(value1,...,value9),] [TITLE('text'),] [MULTIPLY(nnnn),] [EDITMASK('char.mask') EDITMASK(hex.mask)]]	
[MSCQELP	DISTRIBUTION	[LIMITS(value1,...,value9),] [TITLE('text'),] [MULTIPLY(nnnn),] [EDITMASK('char.mask') EDITMASK(hex.mask)]]	

Any combination of the following reports can be requested:

#### SUMMARY

MSC Summary

#### TRAFFIC

MSC Traffic

#### QUEUING

MSC Queuing

### Example

All reports, both Distributions:

	IMSPAMON	MSC(SUMMARY, TRAFFIC, QUEUING)	
	IMSPAMON	EXECUTE	
MSCQLEN	DISTRIBUTION	LIMITS(1,2,3,4,5,10,15,30,90), TITLE('Q Length'),EDITMASK('ZZZ,ZZZ,ZZ9')	
MSCQELP	DISTRIBUTION	LIMITS(1,5,10,50,100,500,1000,5000,10000), MULT(1000), TITLE('Sc Mil Mic'),EDITMASK('ZZZ.ZZ9.999')	

### Related reference

#### [MSC reports](#)

The Multiple Systems Coupling (MSC) reports are the MSC Summary, MSC Traffic, and MSC Queuing Summary. The MSC Summary report provides summary information on the number of cross-system messages. The MSC Traffic report provides detailed information on local system IDs and cross-system traffic. The MSC Queuing Summary report provides detailed information on the cross-system message queue.

## ESAF: ESAF (Monitor) report

The **ESAF** operand of the **IMSPAMON** batch command requests the External Subsystem report.

### Format

	IMSPAMON	ESAF( [DDNAME(ddname)])	default ESAFRPT
--	----------	----------------------------	-----------------

## Example

IMSPAMON	ESAF
IMSPAMON	EXECUTE

## Related reference

### [ESAF report](#)

The IMS Monitor External Subsystem (ESAF) report provides a detailed analysis of external subsystem activity in regions and by application programs. This IMS Performance Analyzer report provides individual subsystem activity broken down by Region and Program, with statistics of ESAF activity per Transaction.

## SYNCCOUT: Synchronous Callout report

The **SYNCCOUT** operand of the **IMSPAMON** batch command requests the Synchronous Callout report.

## Format

IMSPAMON	SYNCCOUT( [DDNAME(ddname)])	default SYNCCOUT
----------	--------------------------------	------------------

## Example

IMSPAMON	SYNCCOUT
IMSPAMON	EXECUTE

## Related reference

### [Synchronous Callout report](#)

The Synchronous Callout report provides a detailed analysis of sync callout activity in regions and by application programs. This IMS Performance Analyzer report shows individual subsystem activity is broken down by Region and Program, with statistics of sync callout activity per Transaction.

## FPRSCONT: DEDB Resource Contention report

The **FPRSCONT** operand of the **IMSPAMON** batch command requests the DEDB Resource Contention report.

## Format

IMSPAMON	FPRSCONT( [DDNAME(ddname)])	default FPRSCONT
IMSPAMON	EXECUTE	
[FPRCLIW	DISTRIBUTION	[LIMITS(value1,...,value9),] [TITLE('text'),] [MULTIPLY(nnnn),] [EDITMASK('char.mask') EDITMASK(hex.mask)]]

## Examples

Taking defaults, no distributions:

IMSPAMON	FPRSCONT
IMSPAMON	EXECUTE

With distributions:

IMSPAMON	FPRSCONT(DDNAME(FPRSCONT))	
IMSPAMON	EXECUTE	
FPRCLIW	DISTRIBUTION	LIMITS(1,2,4,8,16,32,64,128,256), TITLE('Sc Mil Mic'),

```
MULTIPLY(1000),  
EDITMASK('ZZZ.ZZ9.999')
```

#### Related reference

[DEDB Resource Contention report](#)

The DEDB Resource Contention report provides summary information about IWAITS on data entry database (DEDB) locks of various types, including CI, unit of work (UOW), segment level, area, buffer overflow, main storage database (MSDB), non-DBRC DB, command and dummy locks.

## FPBUFFER: Fast Path Buffer Statistics report

The **FPBUFFER** operand of the **IMSPAMON** batch command requests the Fast Path Buffer Statistics report.

### Format

---

	IMSPAMON	FPBUFFER( [DDNAME( <i>ddname</i> ))]            default FPBUFFER EXECUTE
[FPBSCNT	DISTRIBUTION	[LIMITS( <i>value1</i> , ..., <i>value9</i> ),] [TITLE(' <i>text</i> '),] [MULTIPLY( <i>nnnn</i> ),] [EDITMASK(' <i>char.mask</i> ')   EDITMASK( <i>hex.mask</i> )]]

---

### Examples

Taking defaults, no distributions:

IMSPAMON	FPBUFFER
IMSPAMON	EXECUTE

With distributions:

	IMSPAMON	FPBUFFER(DDNAME(FPBUFFER))
	IMSPAMON	EXECUTE
FPBSCNT	DISTRIBUTION	LIMITS(100,200,300,400,500,600,700,800,900), TITLE('Counts'), MULTIPLY(1), EDITMASK('ZZZ,ZZZ,ZZ9')

#### Related reference

[Fast Path Buffer Statistics report](#)

The Fast Path Buffer Statistics report provides statistical information on activities in the Fast Path buffers, for all regions combined and for each region.

## FPBALG: BALG/Shared EMHQ report

The **FPBALG** operand of the **IMSPAMON** batch command requests the BALG/Shared EMHQ report.

### Format

---

	IMSPAMON	FPBALG( [DDNAME( <i>ddname</i> ))]            default FPBALG EXECUTE
[ <i>name</i>	DISTRIBUTION	[LIMITS( <i>value1</i> , ..., <i>value9</i> ),] [TITLE(' <i>text</i> '),] [MULTIPLY( <i>nnnn</i> ),] [EDITMASK(' <i>char.mask</i> ')   EDITMASK( <i>hex.mask</i> )]]

for up to 2 Distributions with *name* either FPBGQLN or FPBGELP

---



## Examples

Taking defaults, no distributions:

	IMSPAMON	FPBALG
	IMSPAMON	EXECUTE

With both distributions:

	IMSPAMON	FPBALG(DDNAME(FPBALG))
	IMSPAMON	EXECUTE
FPBGQLN	DISTRIBUTION	LIMITS(1,2,3,4,5,10,15,30,90), TITLE('Length'), MULTIPLY(1), EDITMASK('ZZZ,ZZZ,ZZ9')
FPBGELP	DISTRIBUTION	LIMITS(1,5,10,50,100,500,1000,5000,10000), TITLE('Sc Mil Mic'), MULTIPLY(1000), EDITMASK('ZZZ.ZZ9.999')

## Related reference

[BALG/Shared EMHQ Analysis report](#)

The BALG/Shared EMHQ Analysis report provides statistical information on Balancing Group (BALG) activities and the shared Expedited Message Handler queue (EMHQ).

## FPOTHRD: OTHREAD Analysis report

The **FPOTHRD** operand of the **IMSPAMON** batch command requests the OTHREAD Analysis report.

## Format

	IMSPAMON	FPOTHRD(	
		[DDNAME(ddname)]	default FPOTHRD
	IMSPAMON	EXECUTE	
[name	DISTRIBUTION	[LIMITS(value1,...,value9),]	
		[TITLE('text'),]	
		[MULTIPLY(nnnn),]	
		[EDITMASK('char.mask') EDITMASK(hex.mask)]]	

for up to three Distributions with *name* FPOTACT, FPOTWTA, or FPOTBOQ

## Examples

Taking defaults, no distributions:

	IMSPAMON	FPOTHRD
	IMSPAMON	EXECUTE

With all three distributions:

	IMSPAMON	FPOTHRD(DDNAME(FPOTHRD))
	IMSPAMON	EXECUTE
FPOTACT	DISTRIBUTION	LIMITS(100,200,300,400,500,600,700,800,900) TITLE('Counts'), MULTIPLY(1), EDITMASK('ZZZ,ZZZ,ZZ9')
FPOTWTA	DISTRIBUTION	LIMITS(10,20,30,40,50,60,70,80,90) TITLE('Counts'), MULTIPLY(1), EDITMASK('ZZZ,ZZZ,ZZ9')
FPOTBOQ	DISTRIBUTION	LIMITS(10,20,30,40,50,60,70,80,90) TITLE('Counts'), MULTIPLY(1), EDITMASK('ZZZ,ZZZ,ZZ9')

## Related reference

[OTHRD Analysis report](#)

The OTHREAD Analysis report is a summary analysis of activities in the output thread (OTHRD) queue.

## FPVSOSUM: VSO Summary report

The **FPVSOSUM** operand of the **IMSPAMON** batch command requests the VSO Summary report.

### Format

IMSPAMON	FPVSOSUM (	
IMSPAMON	[DDNAME(ddname)]	default FPVSOSUM
	EXECUTE	

### Example

Taking defaults:

IMSPAMON	FPVSOSUM
IMSPAMON	EXECUTE

### Related reference

VSO Summary report

The DEDB VSO Summary provides summary information on Virtual Storage Option (VSO) activity including VSO preload, VSO I/O activities for the various data base share levels, VSO Write IWAITs, VSO area castout operations, and VSO Coupling Facility I/O Waits.

## SLOGTRC: Monitor Record Trace report

The **SLOGTRC** operand of the **IMSPAMON** batch command requests the Monitor Record Trace report.

### Format

IMSPAMON	SLOGTRC (	
	[CODES('list'),]	default '01-99'
	[PAGES(number),]	default 100 pages
	[DDNAME(ddname)]	default SLOGTRC

Figure 209. Monitor Trace Report Options

### CODES

Record code selection list. '01-99' for all monitor record codes. A subset of monitor record codes can be selected.

### PAGES

Page limit.

### Examples

Taking defaults:

IMSPAMON	SLOGTRC
IMSPAMON	EXECUTE

Selecting only IWAIT records:

IMSPAMON	SLOGTRC (
	CODES('14-39,56-57,66-69,72-73,94'),
	PAGES(10))
IMSPAMON	EXECUTE

**Related reference****Monitor Record Trace report**

The Monitor Record Trace report formats the records on the monitor input file to produce a chronological listing of the data. The Monitor Record Trace can be used to understand the flow of internal IMS events (and the information that is recorded by IMS), retrieve more information from your monitor records not available from the standard reports and diagnosing problems with your IMS subsystem.



---

## Part 7. IMS Connect reporting

This part describes how to request and run IMS Connect reports and extracts using the dialog and batch commands. From a Connect Report Set you can also request Form-based transit reporting for a group that combines IMS and Connect systems to get a complete end-to-end picture of IMS Connect transactions.



# Chapter 24. Requesting IMS Connect reports

IMS PA provides a comprehensive set of reports from the IMS Connect performance data collected by IBM IMS Connect Extensions for z/OS (5655-S56). The reports provide a summary and detailed analysis of IMS Connect transaction transit time, resource usage and resource availability, and exception events.

## Before you begin

- Activate event collection in IMS Connect Extensions. For more information, see *Event Collection* in the IBM IMS Connect Extensions for z/OS User's Guide
- Specify the name of your IMS Connect Extensions Definitions data set in the IMS Performance Analyzer ISPF dialog. To do this, select option 0.5 **IMS Connect Extensions Definitions Data Set**.

## Connect Report Sets

IMS Connect reports are specified in a Report Set of type **CEX**.

Report Sets are stored in a Reports Sets data set. If you have not specified a Report Sets data set, IMS PA will allocate a data set for you with default characteristics. To change the Report Sets data set, use option 0.4 **IMS PA Control Data Sets** from the IMS Performance Analyzer primary option menu, or you can use the **Options** menu in the action bar.

To work with Report Sets, select option 3 **Report Sets** from the IMS Performance Analyzer primary option menu. For more information, see [“Creating a Report Set” on page 188](#).

Report Sets			Row 1 to 3 of 3		
Command ==> <u>NEW CONNECT1 CEX</u>			Scroll ==> <u>PAGE</u>		
Report Sets Data Set . . . : IMSPA.RSCTL					
/	Name	Type	Description	Changed	ID
<u>S</u>	CEXAMPLE	CEX	Connect Report Set Example	2021/07/15 10:48	IMSPA
<u>—</u>	SAMPLOG	LOG	Sample Log Report Set	2021/07/17 12:02	IMSPA
<u>—</u>	SAMPMON	MON	Sample Monitor Report Set	2021/07/02 14:22	IMSPA
***** Bottom of data *****					

Figure 210. Selecting a Connect Report Set and creating a new one

A panel is then displayed for you to view or modify the description of the Report Set and the reports it contains. [Figure 104 on page 210](#) shows an example of a Connect Report Set.

The list of reports in the Report Set is presented in a tree structure (folder style). The reports are grouped by category.

```

EDIT                                     Report Set - CEXAMPLE                      Line 1 of 18
Command ===> _____ Scroll ===> PAGE

Description . . . IMS PA Report Set

Enter "/" to select action.

RUN      ** Reports **                      Active
-  ___ Options                               Yes
    ___ Connect Global                       Yes
-  ___ Transaction Transit Reports           No
    ___ Analysis                            Yes
    ___ Log                                 No
    ___ Extract                             No
-  ___ Transaction Transit Reports (Form-based) Yes
    ___ List                               Yes
    ___ Summary                           Yes
    ___ Transaction Index                   No
-  ___ Resource Usage Reports               Yes
    ___ Port Usage                         Yes
    ___ Resume Tpipe                       No
    ___ ACK/NAK                            Yes
    ___ Exception Events                   Yes
    ___ Gap Analysis                       No
-  ___ Trace Reports                       No
    ___ Transit Event Trace                 No
    ** End of Reports **

```

Figure 211. Connect Report Set Edit Panel

Each report can be activated (**Active=Yes**) or deactivated (**Active=No**). If any changes are made to a report, the dialog will mark the report as active automatically. Each Report Category can be activated or deactivated. Only active reports in active report categories are included in the Report Set at submit time. A Report Set can be submitted for processing only if there is at least one active report in an active report category.

However, you can also use the RUN line action to temporarily override the inactive status of a report or report category.

## Line actions

The line actions that you can enter on the IMS Connect **Report Set** panel depend on the type of item that you enter the line action next to.

The available line actions depend on whether they are acting on either:

- The top of the Report Set menu tree (whole of Report Set)
- A Report or Option Category
- The Global Options
- A Report or Extract

### **\*\* Reports \*\***

The available line actions for **\*\* Reports \*\*** at the top of the menu tree are:

/

Display the menu of line actions.

S

Expand all categories that are not already expanded, or collapse all categories if they are all expanded.



**A**

Activate all categories that contain one or more active reports. This does not affect the status of the individual reports. If there are no active reports in the category, it cannot be activated. Only the active reports in active report categories will be run when the Report Set is submitted.

**AA**

Activate all categories, all reports, all options.

**D**

Deactivate all categories. This does not affect the status of the individual reports. When a report category is deactivated, no reports in that category will be run when the Report Set is submitted.

**DD**

Deactivate all categories, all reports, all options.

**RUN**

Also R. Run the report category. Run-time options will display.

## Report Categories

The available line actions for a Report Category are:

**/**

Display the menu of line actions.

**S**

Expand or Collapse the report category.

**A**

Activate the report category (**Active=Yes**). Alternatively, you can type Y in the **Active** column. This does not affect the status of the individual reports. If there are no active reports in the category, it cannot be activated. Only the active reports in active report categories will be run when the Report Set is submitted.

**AA**

Activate the report category and all the reports and options within it.

**D**

Deactivate the report category (**Active=No**). Alternatively, you can type N in the **Active** column. This does not affect the status of the individual reports. When a report category is deactivated, no reports in that category will be run when the Report Set is submitted.

**DD**

Deactivate the report category and all the reports and options within it.

**RUN**

Also R. Run the report category. Run-time options will display.

## Options

There is one set of Options: Connect Global Options. The Options can be edited by selecting with line action S. They cannot be explicitly activated or deactivated.

## Reports

The available line actions for a report are:

**/**

Display the menu of line actions.

**S**

Select (Edit) the report.

**A**

Activate the report (**Active=Yes**). Alternatively, you can type Y in the **Active** column.

## D

Deactivate the report (**Active=No**). Alternatively, you can type N in the **Active** column.

## RUN

Also R. Run the report. Run-time options will display.

## RUN command

The **RUN** command runs the Report Set and prompts you for entry of runtime options, such as System Selection and Report Interval, before generating the JCL.

**SUB**, **JCL**, and **JCM** are special **RUN** requests that preset the Execution Mode (see [Figure 212 on page 501](#)):

- The **SUBMIT** or **SUB** command directly submits the Report Set for execution.
- The **JCL** command builds the JCL to execute the Report Set and allows you to edit the job before you submit it or save it in your JCL library.
- The **JCLCMD** or **JCM** command builds the JCL, converts the Report Set to a command stream, and allows you to edit the job before you submit it or save it in your JCL library.

The **RUN** command does not reset the Execution Mode. For example, if you **SUB** a Report Set, the Execution Mode is set to 1. If next time you **RUN** a Report Set, the Execution Mode will default to 1.

**RUN** is also available as a line action to run individual reports or report categories and override the Active status. When entered as a line action, only Execution Mode 3 is available. **SUB**, **JCL**, and **JCM** can be entered as a line action, however in this case they act the same as the **RUN** line action.

## Specifying report options

You can specify IMS Connect report options using dialog panels and fields.

For additional information about the report options and examples of the reports, see "Analyzing IMS Connect reports and extracts" in the *IMS Performance Analyzer for z/OS: Report Reference*.

## Saving your changes

If an active report is deactivated, its specified options are retained. To return to the default options for a report, Edit the report in the Report Set, then select **File > Reset To Defaults** from the action bar or enter **DEFAULTS** on the command line. To return to the default value for a single field (excluding flags, selection fields, or fields in a dependent set), just erase the value in the field.

Any changes to a Report Set's options and activated reports are saved *only* by issuing a **SAVE**, **SAVEAS**, or **EXIT** (F3) command from the **EDIT Report Set** panel.

**Note:** **Exit** (F3) discards changes if **Automatic Save on Exit** in your IMS PA **Profile Options** is set to NO.

Saving of changes made on a subordinate panel is as follows:

- If **Exit** (F3) from the subpanel, then changes are retained pending **SAVE**, **SAVEAS**, or **EXIT** (F3) from the **EDIT Report Set** panel.
- If **Cancel** (F12) from the subpanel, then changes just entered on the subpanel are discarded.

## Run Connect Report Set

The IMS PA dialog generates the JCL for batch report processing. Enter the **RUN** command to run your Report Set, Report Category, or individual reports.

### About this task

One way to do this is shown in [Figure 211 on page 498](#).

At the time of report submission, but before IMS PA generates the JCL, the **Run Report Set** panel is displayed to prompt you to specify runtime options.

Run Report Set CEXAMPLE

Command ==>

Specify run options then press Enter to continue submit.

System Selection:

System or Group . . PR01

+

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From 2020/06/01 00:00:00:00

To 2021/01/01 00:00:00:00

File Selection Options:

2 1. Use specified journal files

2. Automated file selection

Unresolved Data Set Options:

2 1. Issue error message

2. Edit unresolved JCL

Execution Mode:

3 1. Submit Report Set

2. Edit JCL before submit

3. Edit JCL with command input

Enter "/" to select option

\_ Bypass run-time options prompt

Figure 212. Run Connect Report Set

Specify your desired runtime options. When the specification is complete, press Enter to proceed with JCL generation.

Note that the selected Report Set is already specified for you. Specify the System that you want to report against. Press **Prompt (F4)** from the System or Group field to select from a list of available IMS Connect Systems or Groups defined in the IMS Connect Extensions Definitions Data Set.

The fields on the Run Report Set panel are:

### System Selection

Enter the name or press **Prompt (F4)** to select from a list of available systems or groups.

A group can specify both IMS and Connect systems for combined end-to-end Form-based reporting. Depending on your File Selection Options, IMS PA builds the JCL using the files from System Definitions or the system details from the IMS Connect Extensions Definitions Data Set specified in your profile options (dialog option 0.5 **IMS Connect Extensions Definitions Data Set**).

If files are not explicitly included in the JCL, IMS PA uses Automated File Selection to locate the Connect journal data sets and if requested, the IMS Log data sets, relevant to the specified report interval.

### Report Interval

When reporting on an IMS Connect System, the Report Interval is required so that Automated File Selection can locate the data sets that are relevant to that time period. If you select **Use specified journal files**, then the Report Interval is optional.

The Report Interval allows selection of a subset of the input data for passing to the report processors. Records with time stamps on or after the From date/time and before the To date/time are selected for processing. Reducing the time period can significantly reduce processing time for generating the reports.

Date can be either a calendar date or a relative date. Calendar dates must conform to your **Preferred Date Format** in your Profile Options. Relative dates are specified as 0, -1, -2,... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both From and To dates are specified, they must be in the same format.

Time is optional. If From time is not specified, it defaults to the start of the day. If To time is not specified, it defaults to the end of the day. Time is expressed as *hh:mm:ss:th* for hours, minutes, seconds, tenths and hundredths of a second using the colon delimiter.

The date/time range is generated as parameter input in the JCL:

- For IMS Connect Extensions Journal File Selection:

```
//IPIPARM DD *
FROM=(yyyy/mm/dd,hh:mm:ss:th)
TO=(yyyy/mm/dd,hh:mm:ss:th)
```

or

```
//IPIPARM DD *
FROM=(-nnn,hh:mm:ss:th)
TO=(-nnn,hh:mm:ss:th)
```

- For IMS Connect Extensions Journal File Selection and Report Set processing:

```
//IPIOPTS DD *
IMSPACEX START(yyyy/mm/dd,hh:mm:ss:th),
STOP(yyyy/mm/dd,hh:mm:ss:th)
```

or

```
//IPIOPTS DD *
IMSPACEX START(-nnn,hh:mm:ss:th),
STOP(-nnn,hh:mm:ss:th)
```

## File Selection Options

There are two ways to specify the Journal Data Sets for reporting:

1. Select **Use specified journal files** to use the files specified in dialog option 1.1 **System Definitions** for the system or group. Select this option when you are reporting on orphaned data sets or you do not have an active IMS Connect system. The Report Interval is optional.
2. Select **Automated file selection** to instruct IMS PA to use IMS Connect Extensions Automated File Selection to locate the relevant Journal data sets, and if requested, IMS Log data sets, for the specified System and Report Interval. Select this option when you have specified an IMS Connect Extensions Definitions Data Set (dialog option 0.5 **IMS Connect Extensions Definitions Data Set**).

## Execution Mode

Specify whether to execute the Report Set or generated commands, and whether you want to edit the JCL before submit. Editing JCL before submit will enable you to save the JCL in an external data set for automated job scheduling or ad hoc report requests.

Default: Set by the command (**RUN, SUB, JCL, JCM**) that invoked this panel.

The options are:

1. Submit the Report Set. Same as the **SUBMIT** or **SUB** command. This directly submits a batch job to execute the Report Set. The Report Set JCL contains the statements:

```
//IPIRSET DD DSN=ReportSets.DSN(ReportSetName),DISP=SHR
//IPIOBJL DD DSN=ObjectLists.DSN,DISP=SHR
//IPIFORM DD DSN=ReportForms.DSN,DISP=SHR
```

2. Edit JCL before submit. Same as the **JCL** command. This generates the same JCL as **SUBMIT**, but allows you to edit it.
3. Edit JCL with command input. Same as the **JCLCMD** or **JCM** command. This generates JCL in which the Report Set, and any Object Lists and Distributions it uses, are converted to a stream of commands and displayed to allow you to edit them. For an IMS Connect Report Set, the JCL contains the statements:

```
//IPICMD DD *
IMSPACEX      ...
               INCL|EXCL(...),...
IMSPACEX      EXECUTE
```

Note that when you enter **RUN** at the report-level as a line action or override, option 3 is the only option available to you.

## Related concepts

[Report command format](#)

IMS PA provides both a dialog and batch interface. The IMS PA commands are used to request reports and extracts. The dialog generates the JCL and commands when you run (submit) a Report Set.

### Related reference

#### IMS Connect batch interface

The IMS PA dialog generates the JCL and commands for executing your report requests in batch. The JCL and commands for IMS Connect report requests are described here. Sample jobs are supplied in the SIPISAMP Library.

#### IMS Performance Analyzer sample library

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## Connect Global Options

The IMS Connect Global Options define general control information that applies to all reports within an IMS Performance Analyzer CEX Report Set.

To view and edit **Connect Global Options** for a Report Set:

1. Select the **Connect Report Set**.
2. Expand the **Options** category using line action S.
3. Select the **Connect Global** category using line action S.

CEXAMPLE - Connect Global Options

Command ===> \_\_\_\_\_

Specify Connect Global options.

Report Options:

Print Lines per Page . . 60 (1-255)

Jobname . . . . . \_\_\_\_\_

/ Print "%" sign in Report output

Run-time Options:

☐ Activate inflight processing

Inflight DSN . . . \_\_\_\_\_

Outflight DSN . . . \_\_\_\_\_

☐ Print the discarded transactions report

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	___	___	-	
User ID	___	___	-	
Datastore (IMS ID)	___	___	-	
Client ID	___	___	-	
Tpipe	___	___	-	
TCP/IP Port Number	___	___	-	
Socket Number	___	___	-	

Figure 213. The IMS Connect Global Options panel in IMS Performance Analyzer

The options are:

### Print Lines per Page

Default: 60

Specify the number of print lines per page. The specified value applies to all IMS Connect reports in the Report Set.

Valid values are from 1 to 255.

This option generates the PAGESIZE(*nnn*) global operand.

## Jobname

Optional. Specify the Jobname to be associated with this Report Set. If specified, the Jobname will be substituted in the JCL used for submitting the Report Set, providing consistency for a report that may be submitted multiple times, or on a regularly scheduled basis.

## Print "%" sign in Report output

Print the percent sign (%) in percentage values in report output. This is the default, and applies only to some form-based reporting output.

If not selected, this option generates the NOPCTSIGN global operand.

## Activate inflight processing

Default: Not selected; Inflight processing is not activated.

Select with a / to ensure that all transactions are reported with complete details across journal switches.

IMS Connect Extensions cuts event records to its active journal. At journal switch time, some transactions may be in the middle of processing and incomplete. Without inflight processing activated, reporting against the archive journal will result in these incomplete transactions being lost or reported with incomplete details.

Inflight processing requires both an input and output data set, either consecutive generations of a generation data group (GDG), or two explicitly-named data sets:

### Inflight DSN

The name of the input data set that contains incomplete transactions from the previous run. The inflight data set is read at the start of report processing. Incomplete transactions will resume and presumably complete within the current journal.

### Outflight DSN

The name of the output data set that is to contain incomplete transactions from the current run. The outflight data set is written at the end of report processing and automatically becomes the inflight data set for the next run.

There are two data set options when using inflight processing. Both options ensure you will never have to change your report JCL:

- **Fixed data set names:** IMS Performance Analyzer writes to the data set specified in **Outflight DSN**. The **Inflight DSN** and **Outflight DSN** data sets are then switched in an IDCAMS post step after reporting has completed successfully (RC=0). For an example, see [“Log Global Options” on page 350](#).
- **Generation Data Set Group (GDG):** Use the following IDCAMS command to define the GDG base:

```
DEFINE GDG (NAME('IMSPA.CEX.INFLIGHT') NOEMPTY SCRATCH LIMIT(3))
```

The GDG limit is set to 3, even though only 2 data sets are required. This will ensure that in the event of a reporting failure, corrective action can be taken (delete the generation 0 data set and re-run the job).

To allocate inflight data sets, see [Chapter 31, “IMS Performance Analyzer sample library,” on page 653](#).

Optionally, select **Print the discarded transactions report** to produce a report of incomplete transactions in the inflight data set that have no activity in the current journal and are not written to the outflight data set.

**Tip:** After you commence running the Report Set with inflight processing activated, you should not change the selection of reports. If you wish to run a different set of reports, define them in a new Report Set with a different pair of inflight and outflight data sets.

## Selection Criteria

Selection Criteria enable you to filter the IMS Connect data so that your report contains only the information that you are interested in. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

Global selection criteria provide a filter for all reports in the Report Set. Selection Criteria specified for an individual report override the global specification.

Specify field values to be included in or excluded from all IMS Connect reports in the Report Set. The fields you can filter on are:

- Transaction Code
- User ID
- Datastore (IMS ID)
- Client ID
- Tpipe
- TCP/IP Port Number
- Socket Number

This option generates the INCL | EXCL (*field(values)*) global operand.

### Related reference

IMS Connect Global Options

The IMS Connect Global Options define output and general control information for the IMS Connect reports.

## Form-based IMS Connect Transaction Transit reports

Form-based IMS Connect Transaction Transit reports and extracts use the IMS Connect Extensions journal as input. In addition to producing transit reports, the Report Set can be used to request combined IMS Connect and IMS reports by merging IMS Connect Extensions journal and IMS log file data. This merged data provides an end-to-end picture of the Connect transaction life cycle.

### IMS Connect Transaction Transit List report and extract

The IMS Connect Form-based Transit List report in the CEX Report Set is similar to the Form-based Transit List report in the **Log** Report Set.

CEXLOG - Transit List
More: < >

Command ==> \_\_\_\_\_

Specify required view:

1. 1. Report
2. Extract
3. Transit options

— Report Interval —

YYYY/MM/DD HH:MM:SS:TH

From 2019/11/12 01:00:00:00

To 2019/11/12 02:00:00:00

Reports Required:

	Type	Form +	Filter +	Output Messages	Precision	Digit Grouping	Report Width
1.	<u>EXTRACT</u>	<u>BMPCHKPT</u>	<u>CPUFILT</u>	<u>NO</u>	<u>6</u>	<u>SEC</u>	
2.	<u>REPORT</u>	<u>BMPCHKPT</u>		<u>NO</u>	<u>6</u>	<u>SEC</u>	95 <
3.				<u>NO</u>	<u>6</u>	<u>SEC</u>	
4.				<u>NO</u>	<u>6</u>	<u>SEC</u>	
5.				<u>NO</u>	<u>6</u>	<u>SEC</u>	

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code	—	—	—		
LTERM	—	—	—		
User ID	—	—	—		
Datastore (IMS ID)	—	—	—		
Client ID	—	—	—		
TCP/IP Port Number	—	—	—		

Figure 214. The IMS Connect Transaction Transit List report panel in IMS Performance Analyzer

Like the Form-based Transit List in the LOG Report Set, the Form-based Transit List in the CEX Report Set has three views. The extract and transit option views are the same for both LOG and CEX. For a description of these, see [“Transaction Transit List report and extract”](#) on page 228.

Most of the options are the same for both LOG and CEX. The **Transaction Mix** LOG report option is not available for CEX reports. Other report option differences are:

#### **Selection Criteria**

Default: Not specified.

Records can be included in or excluded from the report based on their Transaction Code, LTERM, User ID, Datastore (IMS ID), Client ID, and TCP/IP Port Number values. This enables you to report only the information of interest. You can specify a single value, a masking pattern (except Port Number), or an Object List. See [“Object Lists”](#) on page 635 for information on how to define Object Lists.

The differences for transit options are:

#### **CEX Completion Level**

Default: 2

Enter a value between 0 and 4 to specify the minimum IMS Connect transaction completion level for reporting.

IMS Performance Analyzer assigns a completion level to every transaction. Form-based reporting can specify a minimum completion level, instructing IMS Performance Analyzer to report only those transactions that have reached this level of completion.

The IMS Connect transaction completion levels are:

**0**

IMS Connect non-transactional message initialized. Use to analyze all activity.

**1**

IMS Connect transactional message initialized. Use to analyze messages rejected by the message exit.

**2**

IMS Connect Message Sent to OTMA for processing.

**3**

IMS Connect Message Received from OTMA. This level may also indicate an OTMA Timeout/Error.

**4**

Transaction has completed IMS Connect processing.

**Note:** For combined reporting, you have completion levels for both IMS Connect and IMS transactions to consider.

#### **Related concepts**

[List report form](#)

An IMS Performance Analyzer list report form allows you to produce a list of transactions containing the specified fields.

#### **Related reference**

[LIST: IMS Connect Transaction Transit List report and extract \(Form-based\)](#)



The **LIST** operand of the **IMSPACEX** batch command requests the IMS Connect Transaction Transit List report or extract for both IMS and IMS Connect fields.

## IMS Connect Transaction Transit Summary report and extract

The IMS Connect Form-based Transit Summary report is similar to the IMS Connect Form-based Transit List report.

Command ==>
CEXLOG - Transit Summary
More: < >

Specify required view:

1. Report
2. Extract
3. Transit options

Report Interval

From 2019/12/16 06:15:00:00

To 2019/12/17 06:15:00:00

Reports Required:

Type	Form +	Filter +	Time Interval	Totals Level	Rept Limit	Precision Time	Count	Digit Group	Rept Width
1. REPORT	CEXIPAS	CPUFILT	00:01:00	0	100	6	2	SEC	99 <
2. EXTRACT	CEXIPAS		00:01:00	0		6	2	SEC	
3. _____	_____	_____	00:01:00	0		6	2	SEC	
4. _____	_____	_____	00:01:00	0		6	2	SEC	
5. _____	_____	_____	00:01:00	0		6	2	SEC	

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code	_____	_____	_____	_____	_____
LTERM	_____	_____	_____	_____	_____
User ID	_____	_____	_____	_____	_____
Datastore (IMS ID)	_____	_____	_____	_____	_____
Client ID	_____	_____	_____	_____	_____
TCP/IP Port Number	_____	_____	_____	_____	_____

Figure 215. The IMS Connect Transaction Transit Summary report panel in IMS Performance Analyzer

Like the Form-based List, the Form-based Summary has three views. The extract and transit option views are the same for the List and the Summary. Most of the report options are the same for the List and Summary. For a description of these, see [“IMS Connect Transaction Transit List report and extract”](#) on page 505.

The report options that are different for the Summary report are:

### Time Interval

Default: 00:01:00

The time interval applies when you want to summarize activity over time. It is used when you specify a SUMMARY Report Form which has one or both sort fields STARTIMS or STARTCON included. When reporting, IMS PA accumulates the data for each interval in the report period and writes a report line for each.

Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). A time interval under an hour must fit evenly into the hour. IMS Performance Analyzer will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval records for each hour of data. A time interval over an hour must fit evenly into the day. IMS Performance Analyzer will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval records for each day of data. Minutes take precedence for an abbreviated entry. For example:

**1**  
becomes 00:01:00

**1.1**  
becomes 00:01:00 (rounded down from 00:01:01)

### 1.1.1

becomes 01:00:00 (rounded down from 01:01:01)

## Totals Level

Default: 0

Specify the grand total and subtotal levels required for reporting as follows:

### **blank**

No totals.

### **0**

Grand totals only, no subtotals.

### **1-7**

Grand total and subtotals to the corresponding key level.

## Rept Limit

Report Limit.

### **1-255**

Limit the number of report lines to the specified value. Can only be used when **Tot Lvl** is set to blank or 0. Excludes the grand total line when **Tot Lvl** is set to 0.

### **blank**

No limit.

## Precision

### Time

Default: 6

The precision of numeric fields. Numeric fields can be formatted to either 3, 4, 5, or 6 decimal places.

For example, if the field value is 10.123456 seconds:

- 3 decimal places is 10.123 precision
- 4 decimal places is 10.1235 precision
- 5 decimal places is 10.12346 precision
- 6 decimal places is 10.123456 precision

**Note:** Rounding occurs for elapsed and CPU time values.

Precision and Digit Grouping affect how the field values are represented in the report. Precision and Digit Grouping can be specified in the Report Form and the Report Set. The Report Set takes precedence.

An indicator shows whether the options you select in the Report Set make the report width different from the Report Form width. The < symbol indicates that the report precision is less than the Report Form precision. The > symbol indicates that the report precision is greater than the Report Form precision.

### Count

Default: 2

Specifies the precision of count fields, applicable only when reported as average, from 0 to 2 decimal places.

## Digit Grouping

Default: SEC

Digit grouping affects the formatting of count and time-based fields.

**Note:** Extracts will not contain thousands separators to allow for simpler integration with analytics.

**SEC**

Use thousands separators for count-based fields. Display time-based values in seconds with a precision specified in the **Precision** field.

**NO**

Do not use thousands separators for count-based fields. Display time-based values in the unit of measure implied by the **PRECISION** keyword.

**YES**

Use thousands separators for count-based fields and time-based fields. Display time-based values in the unit of measure implied by the **PRECISION** keyword.

**Extract Data Set Name**

Default: Not specified.

The name of the data set where the extract records are written. If IMS PA is to create the data set at run time, the default allocation attributes specified for **Summary (CPU Usage, Database Update Activity and Connect) Extracts in Reporting Allocation Settings** will be used when generating the JCL. If the data set is already cataloged, then IMS PA will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set. Alternatively, you can use a generation data group (GDG) to create a new data set each time the extract is run. When generating the JCL, IMS PA assigns a default DDname of SUMXnnnn where nnnn is a sequential number 0001–9999 to ensure DDnames are unique.

When specifying the data set name, standard TSO conventions apply. For example, if the TSO option PROFILE PREFIX is in effect, the prefix will be appended as the high-level qualifier unless the data set name is enclosed in quotes.

**DDname**

Default: IMS PA assigns a default DDname of SUMMnnnn where nnnn is a sequential number 0001–9999 to ensure each report has a unique DDname.

The DDname for the report output. Specify 1–8 alphanumeric characters starting with an alphabetic character. The DDname is mandatory and should be unique to separate the output of multiple reports. Multiple reports of the same type can use the same DDname without consequence, however a mix of reports using the same DDname may interleave the print lines.

In the event of the output being an extract file, the DDname is used for the Extract Recap report output. The Extract Recap report contains information regarding the extract output including extract file name and record count.

**All Intervals**

In extract output only, include the summary intervals in which no activity was reported. Use this feature when charting to reveal gaps where the transaction count is zero. This option is useful for importing extract data into third-party tools and analytics platforms where an explicit value of "0" may be required for periods of system inactivity.

**Related concepts**

[Summary report form](#)

An IMS Performance Analyzer summary report form allows you to produce a summary of transaction activity reporting on only the fields that you specify.

**Related reference**

[SUMMARY: IMS Connect Transaction Transit Summary report and extract \(Form-based\)](#)

The **SUMMARY** operand of the **IMSPACEX** batch command requests an IMS Connect Transaction Transit Summary Report or Extract for both IMS and IMS Connect fields.

## Creating an IMS Connect transaction index

The IMS Connect transaction index is a specialized extract file created by IMS Performance Analyzer where each record in the index represents an IMS transaction and contains summarized information from the IMS Connect Extensions journal about that transaction. After creating an IMS Connect transaction

index with IMS Performance Analyzer, you can then use it in IMS Problem Investigator to diagnose problem transactions.

## Procedure

1. On the IMS Performance Analyzer primary option menu, select option 3 **Report Sets**.
2. Select or create a CEX report set.
3. In the **Transaction Transit Reports (Form-based)** category, select **Transaction Index**.

```
EDIT                                     Report Set - SAMPCEX                               Line 1 of 8
Command ===> _____ Scroll ===> PAGE

Description . . . Sample CEX Report Set

Enter "/" to select action.

___  ** Reports **                               Active
+   ___ Options                               No
+   ___ Transaction Transit Reports             No
-   ___ Transaction Transit Reports (Form-based) No
    ___ List                                   No
    ___ Summary                               No
    S ___ Transaction Index                     No
+   ___ Resource Usage Reports                 No
+   ___ Trace Reports                         No
    ** End of Reports **
```

Figure 216. IMS Performance Analyzer CEX Report Set: Select Transaction Index

4. Specify the IMS Connect transaction index data set name and disposition.

```
SAMPCEX - Transaction Index

Command ===> _____

Specify the Transaction Index data set name and disposition.

Name: 'IPI000.QADATA.I2CEXIDX' Disp: OLD
```

Figure 217. IMS Performance Analyzer: Specify IMS Connect transaction index data set name

5. Enter **RUN** to run the report set, including the IMS Connect transaction index request. The generated command is **IMSPACEX INDEX**.
6. Specify report set run-time options, and then press Enter to submit the job.

## What to do next

After creating an IMS Connect transaction index with IMS Performance Analyzer, you can use it in IMS Problem Investigator to diagnose problem transactions. For more information, see *Using the IMS Connect transaction index to diagnose transaction problems* in the IMS Problem Investigator User's Guide.

### Related reference

INDEX: IMS Connect transaction index

The **INDEX** operand of the **IMSPACEX** batch command requests the IMS Connect transaction index.

## Fixed-format IMS Connect Transaction Transit reports

Fixed-format IMS Connect Transaction Transit reports provide performance statistics to measure the performance of your IMS Connect transactions.

Transaction Transit (response) time is broken down into its components; Input, Processing (by OTMA), Acknowledgement from the client, and Output. They can help identify any bottlenecks in transaction flow, and are used for monitoring system performance, gathering diagnostic information, and tuning IMS.

The fixed-format IMS Connect Transaction Transit reports are:

- Analysis
- Log
- Extract

## IMS Connect Transit Analysis report

The IMS Connect Transit Analysis report provides a summary of IMS Connect OTMA transaction performance. Performance data can be summarized by one or two sort keys including Time of Day, Transaction Code, User ID, IMS data store (original and target), Port number, and Connect Client ID. Performance statistics are provided as averages, and optionally, peak percentiles. For example, you can use IMS Performance Analyzer to report on the elapsed time within which 90% of transactions completed.

IMS Performance Analyzer generates the report command:

```
IMSPACEX ANALYSIS(...)
```

CEXAMPLE - Transit Analysis

Command ==> \_\_\_\_\_

Specify report options.

Reports Required:

	Ordering	Operands	Time	Peak	Report
	Level-1 +	Level-2 +	Interval		DDName
1.	TRANCODE	TIME	00:15:00	85	ANAL0001
2.	TIME	CLIENTID	00:30:00		ANAL0002
3.					ANAL0003
4.					ANAL0004
5.					ANAL0005

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code	___	_____	___ s		
User ID	___	_____	___		
Datastore (IMS ID)	___	_____	___		
Client ID	___	_____	___		
TCP/IP Port Number	___	_____	___		
Socket Number	___	_____	___		

Figure 218. IMS Performance Analyzer: IMS Connect **Transit Analysis** report options panel

You can specify up to five different reports with the following options:

### Ordering Operands

Default: One report sorted by TRANCODE

You can request multiple reports. For each report, specify the name of one or two fields that you want the report ordered by.

Press **Prompt (F4)** to select from a list of available fields. The order of the fields defines the sort order of the report; the level-1 ordering operand is the primary sort field.

If you specify TIME as a sort field, then specify the time interval.

This option generates the BY(*field1*) or BY(*field1*,*field2*) operand.

### Time Interval

Default: 00:01:00 (1 minute)

When TIME is an ordering operand, specify the time interval over which you want details summarized.

Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). A time interval under an hour must fit evenly into the hour. IMS Performance Analyzer will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval records for each hour of data. A time interval over an hour must fit evenly into the day. IMS Performance Analyzer will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval records for each day of data. Minutes take precedence for an abbreviated entry. For example:

**1**

becomes 00:01:00

**1.1**

becomes 00:01:00 (rounded down from 00:01:01)

**1.1.1**

becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL(*hh:mm:ss*) operand.

### Peak

Default: Not specified; peak percentiles are not reported.

Specify a percentage *nnn* between 50 and 100.

The IMS Connect Transit Analysis report provides a statistical estimate of the peak percentile for each elapsed time component that makes up transaction transit time. For example, specify 95 to report an estimate of the transit time within which 95% of the transactions completed processing. Calculations assume a normal distribution.

If Peak is specified, averages and peak percentiles are reported. If Peak is not specified, only averages are reported.

This option generates the PEAK(*nnn*) operand.

### Report DDname

Default: ANAL0001 to ANAL0005

Specify the DDname to be used for the report output. You can request more than one report. To separate the output, specify a different DDname for each.

This option generates the DDNAME(*ddname*) operand.

### Selection Criteria

Specify Selection Criteria to apply to all (up to five) Analysis reports.

Selection Criteria enable you to filter the IMS Connect data so that your report contains only the information that you are interested in. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

This option generates the INCL|EXCL(*field(values)*) report operand.

### Related reference

[ANALYSIS: IMS Connect Transit Analysis report](#)

The **ANALYSIS** operand of the **IMSPACEX** batch command requests the IMS Connect Transit Analysis report.

## IMS Connect Transit Log report

The IMS Connect Transit Log report provides performance details about every OTMA transaction processed by IMS Connect using event records captured in the IMS Connect Extensions journal. The order of transactions in this IMS Performance Analyzer report is based on when they end, and not when they start.

IMS Performance Analyzer generates the report command:

```
IMSPACEX LOG(...)
```

CEXAMPLE - Transit Log

Command ==>

Specify report options.

Report Options:

Report Output DDname LOG

Additional identification

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	---	-----	-	
User ID	---	-----	-	
Datastore (IMS ID)	---	-----	-	
Client ID	---	-----	-	
TCP/IP Port Number	---	-----	-	
Socket Number	---	-----	-	

Figure 219. IMS Performance Analyzer: IMS Connect **Transit Log** report options panel

The options are:

**Additional identification**

Default: Not selected; report one line of details per message.

For each IMS Connect message, the following primary identification details are reported:

- Transaction Code
- Target Datastore
- Port Number

Select with a / to report additional identification details:

- User ID
- Original Datastore
- Client ID

The additional details exceed the page width so appear on a second report line immediately below the primary details.

If selected, this option generates the ADDIDENT operand.

If not selected, this option generates the NOADDIDENT operand.

**Report Output DDname**

Default: LOG

Specify the DDname to be used for the report output.

This option generates the DDNAME(ddname) operand.

**Selection Criteria**

Selection Criteria enable you to filter the IMS Connect data so that your report contains only the information that you are interested in. You can specify a single value, a masking pattern, or an Object List. See “Object Lists” on page 635 for information on how to define Object Lists.

Global Selection Criteria provide a filter for all reports in the Report Set. Selection Criteria specified for an individual report override the global specification.

This option generates the INCL|EXCL(field(values)) report operand.

**Related reference**

[LOG: IMS Connect Transit Log report](#)

The **LOG** operand of the **IMSPACEX** batch command requests the IMS Connect Transit Log report.

## IMS Connect Transit Extract

The IMS Connect Transit Extract provides performance details about every OTMA transaction processed by IMS Connect. You can request a List or Summary Extract, or both. The List Extract provides similar details to the Connect Transit Log report, while the Summary Extract summarizes these details over a specified time interval. The extract data produced by IMS Performance Analyzer is suitable for importing into Db2 or third-party tools from where you can run queries or produce reports and graphs.

**Tip:** For more information on sample jobs to help you define and load the Db2 tables and run queries, see [Chapter 31, “IMS Performance Analyzer sample library,”](#) on page 653.

IMS Performance Analyzer generates the report command:

```
IMSPACEX TRANEXTR(...)
```

CEXAMPLE - Transit Extract

Command ==> \_\_\_\_\_

Specify extract options.

Extract Recap DDname TRANEXTR

Extract Options:

\_ List Extract DSN . . . \_\_\_\_\_

\_ Summary Extract DSN . . . \_\_\_\_\_

\_ Extended Format

Time Interval . . 00:15:00 (hh:mm:ss)

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	____	_____	-	
User ID	____	_____	-	
Datastore (IMS ID)	____	_____	-	
Client ID	____	_____	-	
TCP/IP Port Number	____	_____	-	
Socket Number	____	_____	-	

Figure 220. IMS Performance Analyzer: IMS Connect **Transit Extract** report options panel

The options are:

### Extract Recap DDname

Default: TRANEXTR

Specify the DDname to be used for the Extract Recap report output.

This option generates the DDNAME (*ddname*) operand.

### Extract DSNs:

Defaults: Not specified; DSN is required if the extract is requested.

You can request a List Extract, a Summary Extract, or both:

- To produce the List Extract, select **List Extract DSN** with a / and specify the name of the extract data set.
- To produce the Summary Extract, select **Summary Extract DSN** with a / and specify the name of the extract data set. Also specify the time interval to use for summarizing the data.

If the data set does not exist, IMS PA will create it at the time the extract is run using the corresponding allocation details specified in **Reporting Allocation Settings** in your **Profile Options**.



If the data set exists, the new extract records will be appended to the end (DISP=MOD). To overwrite the contents of the data set, edit the JCL before submission and specify DISP=OLD.

You can specify the extract data set as a generation of a generation data group (GDG) and thereby avoid the need to update the specification between runs.

### Extended Format

Default: Not selected; no additional fields will be processed.

Select with a / to have additional fields appended to the record of the requested extracts. For example, an additional field is the IMS Connect Extensions exit name (form field EXITNAME). Specify a new data set for the initial extract as the DCB and record layout are incompatible with the existing record format. If the resultant data is being used as input to Db2, or other load function, then the load process must be modified to account for the additional data.

Contact your local IBM support office for details of maintenance associated with new fields and updated record formats.

This option generates the EXTENDED operand.

### Time Interval

Default: 00:15:00 (15 minutes)

If requesting a Summary Extract, specify the time interval by which you want the data summarized. It is not applicable to the List Extract.

Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). A time interval under an hour must fit evenly into the hour. IMS Performance Analyzer will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval records for each hour of data. A time interval over an hour must fit evenly into the day. IMS Performance Analyzer will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval records for each day of data. Minutes take precedence for an abbreviated entry. For example:

**1**

becomes 00:01:00

**1.1**

becomes 00:01:00 (rounded down from 00:01:01)

**1.1.1**

becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL (*hh:mm:ss*) operand.

### Selection Criteria

Selection Criteria enable you to filter the IMS Connect data so that your report contains only the information that you are interested in. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

Global Selection Criteria provide a filter for all reports in the Report Set. Selection Criteria specified for an individual report override the global specification.

This option generates the INCL|EXCL(*field(values)*) report operand.

### Related reference

TRANEXTR: IMS Connect Transit Extract

The **TRANEXTR** operand of the **IMSPACEX** batch command requests the IMS Connect Transit Extract. This creates extract data sets of performance details about every transaction processed by IMS Connect.

[IMS Performance Analyzer sample library](#)

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## IMS Connect Resource Usage reports

The IMS Connect Resource Usage reports contain detailed and summary information on the use and availability of various IMS Connect resources including TCP/IP Ports and Tpipes.

The IMS Connect Resource Usage reports are:

- Port Usage
- Resume Tpipe
- ACK/NAK
- Exception Events
- Gap Analysis

### IMS Connect Port Usage report

The IMS Connect Port Usage report provides a summary of the TCP/IP ports used by the IMS Connect system. For each port, average statistics are provided for port depth, message processed count, and ACCEPT, READ and WRITE Socket counts. IMS Performance Analyzer provides peak percentile statistics for Input READ and ACK/NAK READ Socket counts.

IMS Performance Analyzer generates the report command:

```
IMSPACEX PORT(...)
```

CEXAMPLE - Port Usage

Command ==> \_\_\_\_\_

Specify report options.

Interval Options: Report Output DDname PORT

\_ Time Interval 00:01:00 (hh:mm:ss)

Processing Options:

Peak Percentile 90 (50-100%)

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
TCP/IP Port Number	___	_____	-	

Figure 221. The IMS Connect **Port Usage** report options panel

The options are:

#### Report DDname

Default: PORT

Specify the DDname to be used for the report output.

This option generates the DDNAME (*ddname*) operand.

#### Time Interval

Default: 00:01:00 (1 minute) but not selected; report is not summarized by time.

To summarize the information by time interval, select with a / and specify the time interval.

Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). A time interval under an hour must fit evenly into the hour. IMS Performance Analyzer will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval records for each hour of data. A time interval over an hour must fit evenly into the day. IMS

Performance Analyzer will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval records for each day of data. Minutes take precedence for an abbreviated entry. For example:

**1**

becomes 00:01:00

**1.1**

becomes 00:01:00 (rounded down from 00:01:01)

**1.1.1**

becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL(*hh:mm:ss*) operand.

## Peak

Default: 90

Specify a percentage *nnn* between 50 and 100.

The IMS Connect Port Usage report provides a statistical estimate of the peak percentile for Input READ time and ACK/NAK READ time. For example, specify 95 to report an estimate of the time within which 95% of the READs completed. Calculations assume a normal distribution.

This option generates the PEAK(*nnn*) operand.

## Selection Criteria

Selection Criteria enable you to filter the IMS Connect data so that your report contains only the information that you are interested in.

Specify TCP/IP Port Number values to be included in or excluded from the report. This report-level filter applies to the subset of records after the global filter (if specified) has been applied.

Valid TCP/IP Port Numbers are in the range 1 to 65535. Masking (\*) is not supported.

An Object List of type PORT can be used to specify a list or range of values. Press **Prompt (F4)** to select from a list of available Object Lists. Then select **List** with a / to denote that you have specified an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

This option generates the INCL | EXCL(PORT(*values*)) report operand.

## Related reference

PORT: IMS Connect Port Usage report

The **PORT** operand of the **IMSPACEX** batch command requests an IMS Connect Port Usage report.

## IMS Connect Resume Tpipe report

The IMS Connect Resume Tpipe report provides a summary of RESUME TPIPE command activity. The standard version of the report provides command statistics, including command count, and a breakdown by command type: Auto (with timeout), No Auto and Single. Command statistics produced by IMS Performance Analyzer include count of commands issued, IMS messages received, Negative responses (Tpipe queue empty), NAK and timeout interval. The extended version of this IMS Performance Analyzer report supports all of the different resume tpipe types and options.

IMS Performance Analyzer generates the report command:

```
IMSPACEX TPIPE(...)
```

CEXAMPLE - Resume Tpipe

Command ==>

Specify report options.

Interval Options:

Report Output DDname TPIPE

Time Interval 00:01:00 (hh:mm:ss)

Report Options:

Extended format

Selection Criteria:

Object Type Inc/Exc Object + List Validation Warning

Tpipe - - - -

Figure 222. The IMS Connect **Resume Tpipe** report options panel

The options are:

**Report DDname**

Default: TPIPE

Specify the DDname to be used for the report output.

This option generates the DDNAME (*ddname*) operand.

**Time Interval**

Default: 00:01:00 (1 minute) but not selected; report is not summarized by time.

To summarize the information by time interval, select with a / and specify the time interval. The standard version report supports reporting by time interval; the extended version of the report does not.

Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). A time interval under an hour must fit evenly into the hour. IMS Performance Analyzer will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval records for each hour of data. A time interval over an hour must fit evenly into the day. IMS Performance Analyzer will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval records for each day of data. Minutes take precedence for an abbreviated entry. For example:

**1**  
becomes 00:01:00

**1.1**  
becomes 00:01:00 (rounded down from 00:01:01)

**1.1.1**  
becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL (*hh:mm:ss*) operand.

**Extended format**

Generates the extended format of the report, rather than the standard version. The extended version of the report supports all of the different resume tpipe types and options, and the IMS parallel resume tpipe option. However, the extended format report does not support reporting by time interval.

**Selection Criteria**

Selection Criteria enable you to filter the IMS Connect data so that your report contains only the information that you are interested in.

Specify Tpipe values to be included in or excluded from the report. The Tpipe values are 1–8 alphanumeric character names and masking (\*) is supported.

An Object List of type TPIPE can be used to specify a list or range of values. Press **Prompt (F4)** to select from a list of available Object Lists. Then select **List** with a / to denote that you have specified an Object List. See “Object Lists” on page 635 for information on how to define Object Lists.

Global Selection Criteria provide a filter for all reports in the Report Set. Selection Criteria specified for an individual report override the global specification.

This option generates the INCL | EXCL (TPIPE(*values*)) report operand.

#### Related reference

TPIPE: IMS Connect Resume Tpipe report

The **TPIPE** operand of the **IMSPACEX** batch command requests the IMS Connect Resume Tpipe report.

## IMS Connect ACK/NAK report

The IMS Connect ACK/NAK report provides a summary of acknowledgment activity for transactions that use Sync Level=CONFIRM. Positive acknowledgment (ACK) and negative acknowledgment (NAK) statistics are reported by IMS Performance Analyzer for each transaction code. NAK is further broken down as negative acknowledgment from either OTMA (NAK sense code) or from the Client.

IMS Performance Analyzer generates the report command:

```
IMSPACEX ACKN(...)
```

CEXAMPLE - ACK/NAK

Command ==> \_\_\_\_\_

Specify report options.

Interval Options: \_\_\_\_\_ Report Output DDname ACKNAK

  \_ Time Interval 00:01:00 (hh:mm:ss)

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	___	_____	-	
User ID	___	_____	-	
Datastore (IMS ID)	___	_____	-	
Client ID	___	_____	-	
TCP/IP Port Number	___	_____	-	
Socket Number	___	_____	-	

Figure 223. The IMS Connect **ACK/NAK** report options panel

The options are:

#### Report Output DDname

Default: ACKNAK

Specify the DDname to be used for the report output.

This option generates the DDNAME (*ddname*) operand.

#### Time Interval

Default: 00:01:00 (1 minute) but not selected; report is not summarized by time.

To summarize the information by time interval, select with a / and specify the time interval.

Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). A time interval under an hour must fit evenly into the hour. IMS Performance Analyzer will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval records for each hour of data. A time interval over an hour must fit evenly into the day. IMS Performance Analyzer will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval records for each day of data. Minutes take precedence for an abbreviated entry. For example:

**1**

becomes 00:01:00

**1.1**

becomes 00:01:00 (rounded down from 00:01:01)

**1.1.1**

becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL (*hh:mm:ss*) operand.

### Selection Criteria

Selection Criteria enable you to filter the IMS Connect data so that your report contains only the information that you are interested in. You can specify a single value, a masking pattern, or an Object List. See “Object Lists” on page 635 for information on how to define Object Lists.

Global Selection Criteria provide a filter for all reports in the Report Set. Selection Criteria specified for an individual report override the global specification.

This option generates the INCL|EXCL(*field(values)*) report operand.

### Related reference

[ACKN: IMS Connect ACK/NAK report](#)

The **ACKN** operand of the **IMSPACEX** batch command requests the IMS Connect ACK/NAK report.

## IMS Connect Exception Events report

The IMS Connect Exception Events report provides details about events that cause transactions to fail or that signal critical resources are no longer available. This IMS Performance Analyzer report comes in two formats: List and Summary. The List report provides a list of all exception events in chronological order. The Summary report provides a recap of each exception event encountered and a count of the number of times it occurred.

IMS Performance Analyzer generates the report command:

```
IMSPACEX EXCEPT(...)
```

### CEXAMPLE - Exception Events

Command ==> \_\_\_\_\_

Specify report options.

Reports Required:

☐ List  
☒ Summary

Report Output DDname EXCEPT

Figure 224. The IMS Connect **Exception Events** report options panel

The options are:

### Report DDname

Default: EXCEPT

Specify the DDname to be used for the report output.

This option generates the DDNAME(*ddname*) operand.

### Reports Required

Default: Summary

Select with a / to request one or both of the reports that analyze IMS Connect exceptions:

### List

Provides a list (in chronological order) of all exception events.

This option generates the LIST operand.

### Summary

Provides a recap of each exception event encountered and a count of the number of times it occurred. This is the default report.

This option generates the SUMMARY operand.

There are two types of Connect exceptions. The first type is an event that causes a transaction to fail, for example a non-zero return code from a READ EXIT or a NAK response. The second type is when a critical IMS Connect resource becomes unavailable, for example Datastore unavailable or Tpipe stopped.

All exception events are reported; there is no filtering capability via Selection Criteria.

### Related reference

[EXCEPTION: IMS Connect Exception Events report](#)

The **EXCEPTION** operand of the **IMSPACEX** batch command requests the IMS Connect Exception Events report.

## IMS Connect Gap Analysis report

The IMS Connect Gap Analysis report searches for time periods where IMS Connect Extensions journal records are not being cut, potentially highlighting an external system event that may have caused IMS Connect to slow down. You can adjust this IMS Performance Analyzer report by specifying your desired gap threshold.

IMS Performance Analyzer generates the report command:

```
IMSPACEX GAP(...)
```

CEXAMPLE - Gap Analysis

Command ==> \_\_\_\_\_

Specify report options.

Report Output DDname GAPS

Processing Options:  
Gap Threshold . . . 5.000000 seconds (s.thmiju)

Report Interval

From \_\_\_\_\_

To \_\_\_\_\_

YYYY/MM/DD HH:MM:SS:TH

Figure 225. IMS Connect Gap Analysis Report Options

The options are:

### Report Output DDname

Default: GAPS

Specify the DDname to be used for the report output.

This option generates the DDNAME (*ddname*) operand.

### Report Interval

Default: Not specified.

Specify the reporting interval. Within the context of the Global Report Interval, records with time stamps on or after the **From** Date/Time and to the **To** Date/Time are included in the report.

You can specify either:

- Date/time pairs or dates only. This indicates a *date-time range* (for example, 2023/06/25 7:00 to 2023/06/25 16:30). The **From** Date/Time must be before the **To** Date/Time.
- Times only. This indicates a particular *time slot* (for example, 9:00 to 10:00 each day). Specifying the **From** Time greater than the **To** Time indicates a time slot across midnight.
- Neither date/time pair. *All* input records are selected.

### Gap Threshold

Default: 5.000000 seconds

Specify a threshold interval in the range 0.000001 to 9.999999 seconds. This defines the maximum elapsed time tolerated between log records. Every gap longer than the threshold is reported.

### Related reference

GAP: IMS Connect Gap Analysis report

The **GAP** operand of the **IMSPACEX** batch command requests the IMS Connect Gap Analysis report.

## IMS Connect Trace reports

The IMS Connect Trace report provides a detailed analysis of individual IMS Connect event records.

Trace reports are typically used to investigate point in time performance problems because they provide all available information. To focus on the desired problem area or to minimize the size of the report, specify date/time range and/or Selection Criteria.

**Remember:** Input logs provided to IMS Performance Analyzer may contain sensitive information. Be sure to secure any reports that you generate as you would the input log data itself.

## IMS Connect Transit Event Trace report

The IMS Connect Transit Event Trace report provides a list of transactions, each with detailed information about every event in the life of that transaction. At a glance, this IMS Performance Analyzer report allows you to see when a transaction starts, followed by all the events associated with the transaction in the order they occurred.

IMS Performance Analyzer generates the report command:

```
IMSPACEX TRACE(...)
```

CEXBRO - Transit Event Trace

Command ==> \_\_\_\_\_

Specify report options.

Report Output DDname TRACE

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code	___	_____	___		
User ID	___	_____	___		
Datastore (IMS ID)	___	_____	___		
Client ID	___	_____	___		
TCP/IP Port Number	___	_____	___		
Socket Number	___	_____	___		

Figure 226. The IMS Connect **Transit Event Trace** report options panel

The options are:

### Report DDname

Default: TRACE

Specify the ddname to be used for the report output.

This option generates the DDNAME(*ddname*) operand.



## Selection Criteria

Selection Criteria enable you to filter the IMS Connect data so that your report contains only the information that you are interested in. You can specify a single value, a masking pattern, or an Object List. See [“Object Lists” on page 635](#) for information on how to define Object Lists.

Global Selection Criteria provide a filter for all reports in the Report Set. Selection Criteria specified for an individual report override the global specification.

This option generates the INCL | EXCL (*field(values)*) report operand.

## Related reference

[TRACE: IMS Connect Transit Event Trace report](#)

The **TRACE** operand of the **IMSPACEX** batch command requests the IMS Connect Transit Event Trace report.



---

## Chapter 25. IMS Connect batch interface

The IMS PA dialog generates the JCL and commands for executing your report requests in batch. The JCL and commands for IMS Connect report requests are described here. Sample jobs are supplied in the SIPISAMP Library.

### Related tasks

Run Connect Report Set

The IMS PA dialog generates the JCL for batch report processing. Enter the **RUN** command to run your Report Set, Report Category, or individual reports.

---

## IMS Connect Report Set JCL

The JCL built by IMS Performance Analyzer for the batch execution of an IMS Connect Report Set via the **SUBMIT** or **JCL** (or **RUN**) commands is based on the sample library member IPICEXJC.

IMS Performance Analyzer builds the JCL to execute the program IPIMAIN using the following options specified using the dialog:

### JOB

**Job Statement Information** in IMS PA **Settings**.

**IPI EXEC PGM=IPIMAIN,PARM='parameter list'**

IMS Performance Analyzer main program with parameters:

### UPPER

Print reports in upper case if **Reports in Upper Case** is YES in IMS PA **Settings**.

### STEPLIB DD

**IMS PA Load Library** In IMS PA **Settings**.

### IPICXOUT DD

This is the Transaction Index data set name specified on the Transaction Index panel. To create a Transaction Index, you must specify its data set name.

### CXRECAP DD

A statement specifying the output destination where IMS Performance Analyzer will state the number of records written to the Transaction Index data set file.

### CEXIN DD

**Connect Journal Data Set** Selected data set.

### SYSPRINT DD

IPIDBRC utility message output file.

### IPIOPTS DD \*

**Report Interval** This is the Global Report Interval.

It is the report period specified on the **Run Report Set** panel at run time. To display the runtime options, you can issue the **RUN** command for a Report, Report Category, or Report Set.

### PICTRLS DD

**Transit List Extract Data Set** From the Connect Transit Extract panel.

If the output data sets do not exist, IMS Performance Analyzer uses the **Transit Total Traffic** allocation details in **Reporting Allocation Settings**. IMS Performance Analyzer may set or adjust the DCB attributes at Extract run time.

### PICTRSU DD

**Transit Summary Extract Data Set** From the **Connect Transit Extract** panel.

If the output data set does not exist, IMS Performance Analyzer uses the **Summary Extracts** allocation details in Reporting Allocation Settings.

**IPIRSET DD**

For *DSN(member)* where *DSN* is the **Report Sets Data Set** in your IMS PA **Profile** and *member* is the name of the **Report Set** being run.

**IPIOBJL DD**

**Object Lists Data Set** in your IMS PA **Profile**.

**IPIFORM DD**

**Report Forms Data Set** in your IMS PA **Profile**.

**IPIFLTR DD**

**Report Filters Data Set** in your IMS PA **Profile**.

**Sample JCL: IMS Connect Report Set**

```
//CEXUSER1 JOB (ACCOUNT),'NAME'
//*
//IPI      EXEC PGM=IPIMAIN
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//* Input data sets
//CEXIN    DD DISP=SHR,
//          DSN=IMS.Connect.Extensions.Journal.Data.Set
//* Sysout data sets
//IPIRPT   DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//* Report time range
//IPIOPTS  DD *
//          IMSPACEX START(2023/04/19,14:45:08.55),STOP(2023/04/19,15:03:38.55)
//* IMS Connect List extract file
//IPICTRLS DD DISP=SHR,DSN=IPI.CEXLIST.EXTRCT
//* IMS Connect Summary extract file
//IPICTRSU DD DISP=SHR,DSN=IPI.CEXSUMM.EXTRCT
//* Report Set member
//IPIRSET  DD DSN=PREFIX.IMSPA.RSET(CEX01),DISP=SHR
//* Object Lists data set
//IPIOBJL  DD DSN=PREFIX.IMSPA.OBJL,DISP=SHR
//* Report Forms data set
//IPIFORM  DD DSN=PREFIX.IMSPA.FORM,DISP=SHR
//* Report Filters data set
//IPIFORM  DD DSN=PREFIX.IMSPA.FLTR,DISP=SHR
```

Figure 227. JCL: IMS Connect Report Set

**Related reference**

[IMS Performance Analyzer sample library](#)

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

## Connect JCL with command input

To generate JCL that contains commands in-stream, rather than referring to data sets, enter the dialog command **JCLCMD**, or its abbreviation, **JCM**; or, equivalently, enter **RUN**, and then specify the execution mode **Edit JCL with command input**.

By contrast, to generate JCL that builds commands at runtime from data sets, rather than containing commands in-stream, enter the dialog command **JCL** (or a **RUN** command that does not specify **Edit JCL with command input**). For details, see [“IMS Connect Report Set JCL” on page 525](#).

The JCL generated by the **JCLCMD** command differs in the following ways from the JCL generated by the **JCL** command:

- The IPICMD DD statement contains the series of user-modifiable batch commands built from the activated reports in the Report Set. A description of the Report Set appears as comments (\* in column 1) preceding the commands. It replaces the IPIRSET DD statement generated by the **JCL** command.
- The command input stream contains **INCL/EXCL** command parameters built from the Object Lists used by the Report Set. They replace the IPIOBJL DD statement generated by the **JCL** command.

- The command input stream contains **FIELDS** command parameters built from the Report Forms used by the Form-based reports and extracts in the Report Set. They replace the IPIFORM DD statement generated by the **JCL** command.
- The **IMSPACEX** command identifies IMS Connect reports.

This facility allows you to build report JCL with command input once and store it into an external library for submitting at any time, independent of the original Report Set. Individual report options, such as Date/Time report intervals or object selection filters (such as Transaction Code, Connect Client ID, TCP/IP Port) can then be modified in the JCL and submitted without making changes to the original Report Set.

### Sample JCL with command input: IMS Connect Report Set

```
//SEC1 JOB (ACCOUNT),'NAME'
//IPI EXEC PGM=IPIMAIN
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//* Input Data Sets
//CEXIN DD DISP=SHR,
//      DSN=Journal.Data.Set
//* Sysout data set
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//* Report time range
//IPIOPTS DD *
IMSPACEX START(-1,10:00:00.00),STOP(-1,12:00:00.00)
//* Report Set Command Input
//IPICMD DD *
* IMS PA Connect Report
* Report Set Name - CEXEXAMP
* Description - Connect Report Set Example
* Connect Report Global Options
IMSPACEX PAGESIZE(60)
* Transit Time Analysis Report
IMSPACEX ANALYSIS(DDNAME(ANAL0001),
BY(TRANCODE,TIME)
INTERVAL(00:05:00),
PEAK(95))

* Transit Log Report
IMSPACEX LOG(DDNAME(LOG))
* Port Report
IMSPACEX PORT(DDNAME(PORT),
INTERVAL(00:01:00),
PEAK(90))

* TPIPE Report
IMSPACEX TPIPE(DDNAME(TPIPE),
INTERVAL(00:01:00))

* ACK/NAK Report
IMSPACEX ACKN(DDNAME(ACKNAK),
INTERVAL(00:01:00))

* Exception Report
IMSPACEX EXCEPT(DDNAME(EXCEPT),
LIST,
SUMMARY)

* Trace Report
IMSPACEX TRACE(DDNAME(TRACE))
IMSPACEX EXECUTE
/*
```

Figure 228. JCL with command input: IMS Connect reporting

## IMSPACEX command

The **IMSPACEX** command requests an IMS Connect report. Multiple Connect reports can be requested in the one batch job.

### Format

IMSPACEX	<i>operands</i>
----------	-----------------

The last **IMSPACEX** command in the batch job must include **EXECUTE** as its last operand. For clarity, ensure that there is only one **EXECUTE** operand in the batch job. The **EXECUTE** operand informs IMS PA that all Connect reports have been requested, and processing of IMS Connect data can commence.

If **IMSPACEX EXECUTE** is omitted, IMS PA performs syntax checking of the input commands but does not execute any reports.

See “IMS Connect report operands” on page 529 for a description of the **IMSPACEX** operands.

**Tip:** Multiple reports of the same type can be requested. For example:

```
IMSPACEX  ANAL(BY(TC)),ANAL(BY(TIME))
```

### Example

```
IMSPACEX  START(2023/03/13,10:00),STOP(2023/03/13,11:00)
IMSPACEX  ANALYSIS(BY(TRANCODE,TIME),INTERVAL(00:15:00),PEAK(85))
IMSPACEX  LOG,ACKN,PORT,TPIPE,EXCEPT,GAP,TRACE
IMSPACEX  EXECUTE
```

From this example, IMS PA will produce the following reports for the time period 10:00 a.m. to 11:00 a.m. on March 13, 2023:

- Transit Analysis
- Transit Log
- ACK/NAK
- Port Usage
- Resume Tpipe
- Exception Events
- Gap Analysis
- Transit Event Trace

## COPY command

The **COPY** command reads one or more members of the command library. The command library must be a partitioned data set defined by the CMDLIB DD statement.

**COPY** puts pre-coded commands from the command library into the input stream.

### Format

```
COPY      member1[,member2,...]
```

The only operands for the **COPY** command are one or more member names in the command library. Each member may in turn contain **COPY** commands. The **EXECUTE** operand may be within or following the last **COPY** command.

Member names are scanned from left to right, and members are read in the order specified. Copied members may themselves employ the **COPY** command. To prevent **COPY** loops, any request for a member currently queued for read causes an error and the member is not processed. An error message is issued for any member not found in the command library.

**COPY** allows users to retrieve pre-coded commands and include them in the input stream. Pre-coded commands would usually include production level command data, or static command input like Include and Exclude lists, or commonly used reports.

## Example

In this example, CEXREPS contains a common set of IMS Connect report commands.

```
IMSPACEX    START(2023/02/22,10:00),STOP(2023/02/22,11:00)
COPY        CEXREPS
IMSPACEX    EXECUTE
```

## IMS Connect report operands

---

The **IMSPACEX** command has two categories of operand: the IMS Connect reports and their specific options, and the general options (Global options) that apply to multiple IMS Connect reports.

The **IMSPACEX** operands that produce the IMS Connect reports are:

### **LIST**

IMS Connect Transaction Transit List (Form-based) report

### **SUMMARY**

IMS Connect Transaction Transit Summary (Form-based) report

### **INDEX**

IMS Connect transaction index

### **ANALYSIS**

IMS Connect Transit Analysis report

### **LOG**

IMS Connect Transit Log report

### **TRANEXTR**

IMS Connect Transit Extract report

### **PORT**

IMS Connect Port Usage report

### **TPIPE**

IMS Connect Resume Tpipe report

### **ACKN**

IMS Connect ACK/NAK report

### **EXCEPT**

IMS Connect Exception Events report

### **GAP**

IMS Connect Gap Analysis report

### **TRACE**

IMS Connect Transit Event Trace

For further details of the operands and their default values, see the description of the corresponding dialog options in [Chapter 24, “Requesting IMS Connect reports,”](#) on page 497.

# IMS Connect Global Options

The IMS Connect Global Options define output and general control information for the IMS Connect reports.

## Format

IMSPACEX	[PAGESIZE( <i>nnn</i> ),] [NOPCTSIGN,] [DISCARDS,] [INCL(TRANCODE( <i>list</i> )) EXCL(TRANCODE( <i>list</i> )),] [INCL(USERID( <i>list</i> )) EXCL(USERID( <i>list</i> )),] [INCL(DATASTORE( <i>list</i> )) EXCL(DATASTORE( <i>list</i> )),] [INCL(CLIENT( <i>list</i> )) EXCL(CLIENT( <i>list</i> )),] [INCL(TPIPE( <i>list</i> )) EXCL(TPIPE( <i>list</i> )),] [INCL(PORT( <i>list</i> )) EXCL(PORT( <i>list</i> ))], [INCL(SOCKET( <i>list</i> )) EXCL(SOCKET( <i>list</i> ))]]	default 60 lines default print % sign
----------	--	--

### PAGESIZE

Number of print lines per page.

### NOPCTSIGN

Do not print % sign in report output.

### DISCARDS

When inflight transaction processing is requested, print the discarded transactions report.

### INCL|EXCL

Selection Criteria. If individual reports specify Selection Criteria, then it overrides this Global specification.

## Example

IMSPACEX	PAGESIZE(120), EXCL(TRANCODE(MM*)), INCL(DATASTORE(IMT*,IMP*))
----------	--

### Related reference

[Connect Global Options](#)



The IMS Connect Global Options define general control information that applies to all reports within an IMS Performance Analyzer CEX Report Set.

## LIST: IMS Connect Transaction Transit List report and extract (Form-based)

The **LIST** operand of the **IMSPACEX** batch command requests the IMS Connect Transaction Transit List report or extract for both IMS and IMS Connect fields.

### Format

```
IMSPACEX    LIST(
             [DDNAME(ddname),]           default LISTnnnn
             [FROM(date,time),]
             [TO(date,time),]
             [EXTRACT(ddname),]         default LISXnnnn
             [STARTLVL(n),]             default 2
             [COMPLVL(n),]              default 3
             [COMPLVLC(n),]             default 2
             [PRECISION(n),]            default 6
             [SECGROUP|NOGROUP|GROUP,]
             [OUTPUTMSG|NOOUTPUTMSG,]
             [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
             [INCL(LTERM(list))|EXCL(LTERM(list)),]
             [INCL(USERID(list))|EXCL(USERID(list)),]
             [INCL(DATASTORE(list))|EXCL(DATASTORE(list)),]
             [INCL(CLIENT(list))|EXCL(CLIENT(list)),]
             [INCL(PORT(list))|EXCL(PORT(list)),]
             [DELIMIT(field-delimiter)|NODELIMIT,] default , (comma)
             [FLOAT|NOFLOAT,]
             [LABELS|NOLABELS,]
             [ALLFIELDS,]
             [COND((condition1,...),...)]*
             [FIELDS(field1,...)]])
```

#### DDNAME

DDname for the report output. The default is LISTnnnn where nnnn is a sequential number in the range 0001–9999.

#### FROM-TO

The reporting interval, either a date-time range or a time slot. The time slot can span midnight. The date can be either a calendar date or a relative date. If both dates are specified, they must be in the same format.

#### EXTRACT

DDname for the extract output. The default is LISXnnnn where nnnn is a sequential number in the range 0001–9999.

#### STARTLVL

Specify a value in the range 1–3 to specify the minimum transaction start level for reporting.

#### COMPLVL

Specify a value in the range 0–6 to specify the minimum IMS transaction completion level for reporting.

#### COMPLVLC

Specify a value in the range 0–4 to specify the minimum Connect transaction completion level for reporting.

#### PRECISION

The precision of numeric fields. Numeric fields can be formatted to 3, 4, 5, or 6 decimal places, where 3 is millisecond precision and 6 is microsecond precision.

#### SECGROUP | NOGROUP | GROUP

Digit grouping affects the formatting of count and time-based fields.

**Note:** Extracts will not contain thousands separators to allow for simpler integration with analytics.

**SECGROUP**

Use thousands separators for count-based fields. Display time-based values in seconds with a precision specified by the **PRECISION** keyword.

**NOGROUP**

Do not use thousands separators for count-based fields. Display time-based values in the unit of measure implied by the **PRECISION** keyword.

**GROUP**

Use thousands separators for count-based fields and time-based fields. Display time-based values in the unit of measure implied by the **PRECISION** keyword.

**OUTPUTMSG | NOOUTPUTMSG****OUTPUTMSG**

Report all output messages from the transaction.

**NOOUTPUTMSG**

Report only the first output message for the transaction.

**INCL | EXCL**

Selection criteria to filter (include or exclude) the report on Transaction Code, LTERM, User ID, Datastore (IMS ID), Client ID, TCP/IP Port number.

**DELIMIT | NODELIMIT****DELIMIT**

The field delimiter, enclosed in quotes, to be used to separate each data field in the extract data set.

**NODELIMIT**

A field delimiter is not to be used to separate each data field in the extract data set.

**LABELS | NOLABELS****LABELS**

The first record to be written to the extract data set is to be a field labels record.

**NOLABELS**

Field labels are to be omitted from the extract data set.

**ALLFIELDS**

The **ALLFIELDS** form-based reporting option explicitly includes all fields in extracts when reporting on multi-value fields from the DATABASE, ESAF, and ODBM categories. When combined with the **EXTRACT** option, the **ALLFIELDS** option produces a more verbose data set for easier ingestion into analytics platforms.

**FLOAT | NOFLOAT****FLOAT**

Write numeric fields in the extract in **FLOAT** format. Specify **FLOAT** if you plan to import the extract into a Db2 table. When the Db2 load utility is used, it will interpret all numerical fields reliably and consistently in **FLOAT** format. Time fields are in units of seconds and count fields are real numbers.

**NOFLOAT**

Numeric fields in the extract will be written in character format according to the Precision and Digit Grouping options.

**COND**

Specifies a set of conditions for filtering report output. A condition follows the format *field name, operator, value*. For more information on what you can specify in these fields, see [Chapter 16, "Report Filters," on page 183](#). Within each COND statement, a boolean AND operator applies between multiple conditions. A boolean OR operator applies between two or more COND statements.

**FIELDS**

Specifies which fields are included in the report or extract, their order, and format. Refer to [Chapter 34, "Glossary of Report Form field names," on page 673](#) for the list of available fields. If the **FIELDS** operand is omitted, the default report or extract is produced.

## Example

```
IMSPACEX LIST(FIELDS(USERID,
                      CONNLTK,
                      TIMEOUT,
                      TRANCODE,
                      USERID,
                      XMITEXIT))
```

## Related concepts

[List report form](#)

An IMS Performance Analyzer list report form allows you to produce a list of transactions containing the specified fields.

## Related reference

[IMS Connect Transaction Transit List report and extract](#)

The IMS Connect Form-based Transit List report in the CEX Report Set is similar to the Form-based Transit List report in the **Log** Report Set.

# SUMMARY: IMS Connect Transaction Transit Summary report and extract (Form-based)

The **SUMMARY** operand of the **IMSPACEX** batch command requests an IMS Connect Transaction Transit Summary Report or Extract for both IMS and IMS Connect fields.

## Format

```
IMSPACEX SUMMARY(
[DDNAME(ddname),]          default SUMMnnnn
[FROM(date,time),]
[TO(date,time),]
[INTERVAL(hh:mm:ss),]      default 00:01:00
[EXTRACT(ddname),]         default SUMXnnnn
[ALLINTERVALS,]
[MATCH|NOMATCH,]
[STARTLVL(n),]             default 2
[COMPLVL(n),]              default 3
[COMPLVLC(n),]             default 2
[PRECISION(n1,n2),]        default 6,2
[SECGROUP|NOGROUP|GROUP,]
[TOTALS(n)|NOTOTALS,]      default 0
[LIMIT(nnn)]
[INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
[INCL(LTERM(list))|EXCL(LTERM(list)),]
[INCL(USERID(list))|EXCL(USERID(list)),]
[INCL(DATASTORE(list))|EXCL(DATASTORE(list)),]
[INCL(CLIENT(list))|EXCL(CLIENT(list)),]
[INCL(PORT(list))|EXCL(PORT(list)),]
[DELIMIT(field-delimiter)|NODELIMIT,]
[FLOAT|NOFLOAT,]
[LABELS|NOLABELS,]
[COND((condition1,...),...)]*
[FIELDS(field1[options],...)]
```

### DDNAME

DDname for the report output. The default is SUMMnnnn where nnnn is a sequential number in the range 0001–9999.

### FROM-TO

The reporting interval, either a date-time range or a time slot. The time slot can span midnight. The date can be either a calendar date or a relative date. If both dates are specified, they must be in the same format.

### EXTRACT

DDname for the extract output. The default is SUMXnnnn where nnnn is a sequential number in the range 0001–9999.

## **ALLINTERVALS**

In extract output only, include the summary intervals in which no activity was reported. Only valid when **EXTRACT** is specified.

**Tip:** Use this feature when charting to reveal gaps where the transaction count is zero.

## **INTERVAL**

Applies when you want to summarize activity over time. It is used when the **SUMMARY** Report Form has one or both of the sort fields **STARTIMS** or **STARTCON** included. When reporting, IMS PA accumulates the data for each interval in the report period and writes a report line for each.

## **MATCH | NOMATCH**

### **MATCH**

For combined reporting, include only Connect and IMS transactions for which full end-to-end data is available. Note that the Completion Level influences which transactions are available for selection.

### **NOMATCH**

For combined reporting, include all Connect and IMS transactions.

## **STARTLVL**

Specify a value in the range 1–3 to specify the minimum transaction start level for reporting.

## **COMPLVL**

Specify a value in the range 0–6 to specify the minimum transaction completion level for reporting.

## **COMPLVLC**

Specify a value in the range 0–4 to specify the minimum Connect transaction completion level for reporting.

## **PRECISION**

The precision of numeric form fields. Default: **PRECISION**(6,2)

The first value *n1* specifies the precision of time-based fields, from 3 (millisecond precision) to 6 (microsecond precision).

The second value *n2* specifies the precision of count fields, applicable only when reported as average, from 0 to 2 decimal places.

## **SECGROUP | NOGROUP | GROUP**

Digit grouping affects the formatting of count and time-based fields.

**Note:** Extracts will not contain thousands separators to allow for simpler integration with analytics.

### **SECGROUP**

Use thousands separators for count-based fields. Display time-based values in seconds with a precision specified by the **PRECISION** keyword.

### **NOGROUP**

Do not use thousands separators for count-based fields. Display time-based values in the unit of measure implied by the **PRECISION** keyword.

### **GROUP**

Use thousands separators for count-based fields and time-based fields. Display time-based values in the unit of measure implied by the **PRECISION** keyword.

## **TOTALS | NOTOTALS**

### **TOTALS**

The grand total and the level of subtotalling required. A totals level of 0 will produce grand totals only in the report. Specify a totals level in the range 1–7 to produce both a grand total and subtotals to the corresponding key level.

### **NOTOTALS**

No grand totals or subtotals will be included in the report.

## LIMIT

Limit the number of lines in the summary report to a value from 1 to 255. Can only be used when **TOTALS** is set to 0 or the parameter is omitted. Excludes the grand total line when **TOTALS** is set to 0.

## INCL | EXCL

Selection criteria to filter (include or exclude) the report on Transaction Code, LTERM, User ID, Datastore (IMS ID), Client ID, TCP/IP Port number.

## DELIMIT | NODELIMIT

### DELIMIT

The field delimiter, enclosed in quotes, to be used to separate each data field in the extract data set.

### NODELIMIT

A field delimiter is not to be used to separate each data field in the extract data set.

## LABELS | NOLABELS

### LABELS

The first record to be written to the extract data set is to be a field labels record.

### NOLABELS

Field labels are to be omitted from the extract data set.

## FLOAT | NOFLOAT

### FLOAT

Write numeric fields in the extract in **FLOAT** format. Specify **FLOAT** if you plan to import the extract into a Db2 table. When the Db2 load utility is used, it will interpret all numerical fields reliably and consistently in **FLOAT** format. Time fields are in units of seconds and count fields are real numbers.

### NOFLOAT

Numeric fields in the extract will be written in character format according to the Precision and Digit Grouping options. This is suitable when importing the extract data into spreadsheets that expect character-based data.

## COND

Specifies a set of conditions for filtering report output. A condition follows the format *field name, operator, value*. For more information on what you can specify in these fields, see [Chapter 16, "Report Filters,"](#) on page 183. Within each COND statement, a boolean AND operator applies between multiple conditions. A boolean OR operator applies between two or more COND statements.

## FIELDS

Specifies which fields are included in the report or extract, the order in which they appear in the report, and the statistical functions used to summarize the data. Refer to the [Chapter 34, "Glossary of Report Form field names,"](#) on page 673 for the list of available fields. If the **FIELDS** operand is omitted, the default report or extract is produced.

Up to 8 sort key fields can be specified, and at least one must be specified. The order of the key fields in the list defines the sort precedence, with the first key field being the major sort field. For each key field, the report can be ordered in ascending (**ASCEND**) or descending (**DESCEND**) sequence. The default is **ASCEND**. Sort key fields identify the grouping required for summarization, and can be **STARTIMS**, **STARTCON**, or any character field.

The sort key fields must be specified first in the list ahead of the numeric fields. The only field that can appear ahead of a key field is **TRANCNT**.

In addition to the sort key fields, one numeric field can be selected as ascending or descending to activate Alternate Sequencing. This will change the order of report lines from sort key to numeric field sequence. For example, specify **RESPCON(DESCEND)** to see the transactions with the highest response time at the top of the report. Note that grouping by sort key remains unaffected by alternate sequencing.

**TRANCNT** is a special field computed by IMS PA. It reports the number of Connect transactions.

**TRANCNT** can be reported anywhere on the print line by including it in the **FIELDS** specification.

Key fields must be specified first in the **FIELDS** list.

All numeric fields (except **TRANCNT**) are summarized using any number of the following statistical functions:

**AVE**

Average value (this is the default if a field is specified without a function)

**COUNT**

Number of transactions with a value

**DATE**

**STARTIMS** or **STARTCON** field: date in the format *yyyy-mm-dd*

**DEV**

Standard deviation

**HIDE**

Include field in key but don't print

**ISO**

**STARTIMS** or **STARTCON** field: date and time in the format *yyyy-mm-dd hh.mm.ss*

**MAX**

Maximum value

**MIN**

Minimum value

**TIME**

**STARTIMS** or **STARTCON** field: time in the format *hh.mm.ss* (this is the default if format is not specified)

**TOTAL**

Sum total

***nnn***

Peak percentile value in the range 50%–100%

**RNGPERC**

Distribution: Percentage of values from a specified limit value or within a range. Specify one of the following options:

**RNGPERC(*operator value*)**

Specify a reporting limit. Use this parameter report a distribution by splitting the values reported by a single field into different columns. The following values of *operator* are valid: =, >, >=, <, and <=.

**Character ranges:** Specify a character range with character-based fields. Where a blank or null value is valid for a particular field, use a hyphen (-).

**RNGPERC(*from - to*)**

Report on a range of values greater than or equal to the value of *from*, and less than (but *not equal*) to the value of *to*.

A character range can not be specified using this option.

**RNGCOUNT**

Distribution: Count of values from a specified limit value or within a range. Specify one of the following options:

**RNGCOUNT(*operator value*)**

Specify a reporting limit. The following values of *operator* are valid: =, >, >=, <, and <=.

**Character ranges:** Specify a character range with character-based fields. Where a blank or null value is valid for a particular field, use a hyphen (-).

**RNGCOUNT(*from - to*)**

Report on a range of values greater than or equal to the value of *from*, and less than (but *not equal*) to the value of *to*.

A character range can not be specified using this option.

### Example

```
IMSPACEX SUMMARY(FIELDS(STARTCON(ASCEND),
                        TRANCNT(ASCEND),
                        TRANCNT,
                        RESPCON(AVE),
                        RESPCON(80),
                        PREOTMA(AVE)))
```

### Related concepts

[Summary report form](#)

An IMS Performance Analyzer summary report form allows you to produce a summary of transaction activity reporting on only the fields that you specify.

### Related reference

[IMS Connect Transaction Transit Summary report and extract](#)

The IMS Connect Form-based Transit Summary report is similar to the IMS Connect Form-based Transit List report.

## INDEX: IMS Connect transaction index

The **INDEX** operand of the **IMSPACEX** batch command requests the IMS Connect transaction index.

### Format

---

IMSPACEX	INDEX
IMSPACEX	EXECUTE

### Related tasks

---

[Creating an IMS Connect transaction index](#)

The IMS Connect transaction index is a specialized extract file created by IMS Performance Analyzer where each record in the index represents an IMS transaction and contains summarized information from the IMS Connect Extensions journal about that transaction. After creating an IMS Connect transaction index with IMS Performance Analyzer, you can then use it in IMS Problem Investigator to diagnose problem transactions.

## ANALYSIS: IMS Connect Transit Analysis report

The **ANALYSIS** operand of the **IMSPACEX** batch command requests the IMS Connect Transit Analysis report.

The Analysis report provides a summary of IMS Connect transaction performance. Performance data can be summarized by one or two sort keys including Time of Day, Transaction Code, User ID, IMS data store (original destination and target) and Port number.

Performance statistics are provided as averages, and optionally, peak percentiles. For example, you can specify 90 to report the elapsed time within which 90% of transactions completed.

## Format

```
IMSPACEX      ANALYSIS(
               [BY(order1) |
               BY(order1,order2),]          default BY(TRANCODE)
               [DDNAME(ddname),]            default ANAL0001,ANAL0002,...
               [INTERVAL(hh:mm:ss),]        default 00:01:00 (1 minute)
               [PEAK(nnn),]                  50-100%, default no peak
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
               [INCL(USERID(list))|EXCL(USERID(list)),]
               [INCL(DATASTORE(list))|EXCL(DATASTORE(list)),]
               [INCL(CLIENT(list))|EXCL(CLIENT(list)),]
               [INCL(PORT(list))|EXCL(PORT(list))],
               [INCL(SOCKET(list))|EXCL(SOCKET(list))])
```

You can request multiple IMS Connect Analysis reports in the one job. The default ddname is ANAL $nnnn$  where  $nnnn$  is 0001 to 9999. The sort order of each report is according to the order of the fields in the **BY** operand.

The sort fields are the first one or two columns of the report, and can be any one or two of the following fields:

### TRANCODE

Transaction Code (default)

### USERID

User ID

### PORT

TCP/IP Port Number

### DSORIG

Original Datastore

### DSTARG

Target Datastore

### CLIENTID

Connect Client ID

### TIME

Time Interval

Other report operands are:

### DDNAME

The ddname for the recap report output. The default is ANAL0001, ANAL0002, ...

### INTERVAL

Summarization time interval when report is ordered by **TIME**

### PEAK

Peak percentile, optional

### INCL|EXCL

Selection criteria to filter (include or exclude)

## Example

Two IMS Connect Analysis reports, the first ordered by Transaction Code and Time over 5 minute time intervals and filtered on Transaction Code, and the second ordered by IMS Connect Client ID and filtered on Connect Client ID. 95% peak percentile is requested for both to check that 95% of transactions completed within a certain time.

```
IMSPACEX      ANALYSIS(BY(TRANCODE,TIME),
                       DDNAME(ANAL0001),
                       INTERVAL(00:05:00),
                       PEAK(95),
                       INCLUDE(TRANCODE(A*,P*,T*)))
```



```
IMSPACEX      ANALYSIS(BY(CLIENTID),
                      DDNAME(ANAL0002),
                      PEAK(95),
                      EXCLUDE(CLIENT(MP1*,XP1*,ZP1*)))
```

### Related reference

#### IMS Connect Transit Analysis report

The IMS Connect Transit Analysis report provides a summary of IMS Connect OTMA transaction performance. Performance data can be summarized by one or two sort keys including Time of Day, Transaction Code, User ID, IMS data store (original and target), Port number, and Connect Client ID. Performance statistics are provided as averages, and optionally, peak percentiles. For example, you can use IMS Performance Analyzer to report on the elapsed time within which 90% of transactions completed.

## LOG: IMS Connect Transit Log report

The **LOG** operand of the **IMSPACEX** batch command requests the IMS Connect Transit Log report.

The IMS Connect Transit Log report provides performance details about every transaction processed by IMS Connect. Information from IMS Connect Extensions event records is collected to provide a complete picture of transaction processing. The order of transactions in the report is based on when they end, and not when they start.

### Format

```
IMSPACEX      LOG(
[DDNAME(ddname),]          default LOG
[NOADDIDENT|ADDIDENT,]
[INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
[INCL(USERID(list))|EXCL(USERID(list)),]
[INCL(DATASTORE(list))|EXCL(DATASTORE(list)),]
[INCL(CLIENT(list))|EXCL(CLIENT(list)),]
[INCL(PORT(list))|EXCL(PORT(list)),]
[INCL(SOCKET(list))|EXCL(SOCKET(list))])
```

Report operands are:

#### DDNAME

The DDname for the recap report output. The default is LOG.

#### NOADDIDENT

For each input message, report the primary identification details: Transaction Code, Target Datastore, and Port Number. This is the default.

#### ADDIDENT

For each input message, report the primary identification details: Transaction Code, Target Datastore, and Port Number. Immediately underneath, report additional identification details: User ID, Original Datastore, and Client ID.

#### INCL|EXCL

Selection criteria to filter (include or exclude)

### Example

```
IMSPACEX      LOG(
INCL(TRANCODE((M*,Z*)),
INCL(USERID(SC*,SK*,AS*,JH*,PC*,SP*)),
DDNAME(LOG))
```

### Related reference

#### IMS Connect Transit Log report

The IMS Connect Transit Log report provides performance details about every OTMA transaction processed by IMS Connect using event records captured in the IMS Connect Extensions journal. The

order of transactions in this IMS Performance Analyzer report is based on when they end, and not when they start.

## TRANEXTR: IMS Connect Transit Extract

The **TRANEXTR** operand of the **IMSPACEX** batch command requests the IMS Connect Transit Extract. This creates extract data sets of performance details about every transaction processed by IMS Connect.

You can request a List or Summary Extract, or both. The List Extract provides similar details to the Connect Transit Log report, while the Summary Extract summarizes these details over a specified time interval. The format of the List Extract record is shown in [“Connect List extract” on page 667](#), and the Summary Extract record is shown in [“Connect Summary extract” on page 663](#).

The extract data is suitable for exporting to Db2 for further manipulation and analysis. Sample Db2 jobs are supplied in the SIPISAMP library to help you create and load Db2 tables and run SQL queries:

- For the List Extract:
  - Sample DDL job IPICLDDL
  - Sample Load job IPICLLOD
  - Sample SQL queries IPICQML1 and IPICQML2
- For the Summary Extract:
  - Sample DDL job IPICSDDL
  - Sample Load job IPICSLOD
  - Sample SQL queries IPICQMS1 and IPICQMS2

### Format

---

```
IMSPACEX      TRANEXTR(
               [DDNAME(ddname),]          default TRANEXTR
               [LIST,]
               [SUMMARY,]
               [EXTENDED,]
               [INTERVAL(hh:mm:ss),]      default 00:15:00 (15 minutes)
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
               [INCL(USERID(list))|EXCL(USERID(list)),]
               [INCL(DATASTORE(list))|EXCL(DATASTORE(list)),]
               [INCL(CLIENT(list))|EXCL(CLIENT(list)),]
               [INCL(PORT(list))|EXCL(PORT(list)),]
               [INCL(SOCKET(list))|EXCL(SOCKET(list))])
IMSPACEX      EXECUTE
/*
//IPICTRL S DD  DSN=List extract file,DISP=(NEW,CATLG),
//              UNIT=SYSDA,SPACE=(CYL,(5,5),RLSE)
//IPICTR S DD  DSN=Summary extract file,DISP=(NEW,CATLG),
//              UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE)
```

---

One or both of the following extracts can be requested.

#### LIST

Transit List extract.

#### SUMMARY

Transit Summary extract. **INTERVAL** is required.

Other extract options are:

#### DDNAME

The ddname for the recap extract output. The default is TRANEXTR.

#### EXTENDED

Extend the extract record format to include additional fields, such as IMS Connect Extensions exit name (form field EXITNAME). Refer to the [Chapter 34, “Glossary of Report Form field names,” on page 673](#) for the list of available fields.

**INTERVAL**

Summarization time interval.

**INCL|EXCL**

Selection criteria to filter (include or exclude)

**Example**

```
IMSPACEX      TRANEXTR(LIST,SUMMARY,
                INTERVAL(00:15:00),
                INCL(TRANCODE((M*,Z*)),
                INCL(USERID(SC*,SK*,AS*,JH*,PC*,SP*)),
                DDNAME(TRANEXTR))
```

**Related reference**

IMS Connect Transit Extract

The IMS Connect Transit Extract provides performance details about every OTMA transaction processed by IMS Connect. You can request a List or Summary Extract, or both. The List Extract provides similar details to the Connect Transit Log report, while the Summary Extract summarizes these details over a specified time interval. The extract data produced by IMS Performance Analyzer is suitable for importing into Db2 or third-party tools from where you can run queries or produce reports and graphs.

**PORT: IMS Connect Port Usage report**

The **PORT** operand of the **IMSPACEX** batch command requests an IMS Connect Port Usage report.

This report provides a summary of the TCP/IP ports used by the IMS Connect system. For each port, average and other summary statistics are provided for port depth, message processed count, and ACCEPT, READ and WRITE Socket counts.

The report can optionally be summarized by time interval.

**Format**

IMSPACEX	PORT( [DDNAME(ddname),]                      default PORT [INTERVAL(hh:mm:ss),]                default 00:01:00 (1 minute) [PEAK(nnn),]                            50-100%, default 90% [INCL(PORT(list)) EXCL(PORT(list))])
----------	--

Report operands:

**INTERVAL**

Summarization time interval, optional.

**PEAK**

Peak percentile, default 90%.

Other report options are:

**DDNAME**

The ddname for the report output. The default is PORT.

**INCL|EXCL**

Selection criteria to filter (include or exclude) the report on port number.

**Example**

```
IMSPACEX      PORT(DDNAME(PORT),
                INTERVAL(00:30:00),
                PEAK(95),
                INCLUDE(PORT((101,200),(301,999))))
```

## Related reference

[IMS Connect Port Usage report](#)

The IMS Connect Port Usage report provides a summary of the TCP/IP ports used by the IMS Connect system. For each port, average statistics are provided for port depth, message processed count, and ACCEPT, READ and WRITE Socket counts. IMS Performance Analyzer provides peak percentile statistics for Input READ and ACK/NAK READ Socket counts.

## TPIPE: IMS Connect Resume Tpipe report

The **TPIPE** operand of the **IMSPACEX** batch command requests the IMS Connect Resume Tpipe report.

This report provides a summary of Resume Tpipe command activity. The standard report provides command statistics, including command count, and a breakdown by command type: Auto (with timeout), No Auto, and Single. Command statistics include count of commands issued, IMS messages sent, Negative responses (Tpipe queue empty), NAK, and timeout interval.

The extended version of the report supports all of the different resume tpipe types and options.

The standard report can optionally be summarized by time interval, but the extended report cannot.

## Format

IMSPACEX	TPIPE( [DDNAME(ddname),]                    default TPIPE [INTERVAL(hh:mm:ss),]               default 00:01:00 (1 minute) FORMAT1 FORMAT2,                   default FORMAT1 [INCL(TPIPE(list)) EXCL(TPIPE(list))])
----------	---

Report operands are:

### DDNAME

The ddname for the report output. The default is TPIPE.

### INTERVAL

Summarization time interval, optional. The default is 1 minute. INTERVAL is supported for the standard report (FORMAT1) but not the extended report (FORMAT2).

### FORMAT1|FORMAT2

FORMAT1 produces the standard version of the report. FORMAT2 produces the extended version of the report.

### INCL|EXCL

Selection criteria to filter (include or exclude) the report on Tpipe.

## Example

IMSPACEX	TPIPE(INTERVAL(00:20:00), DDNAME(TPIPE), FORMAT2, INCLUDE(TPIPE(A*,P*,T*)))
----------	--

## Related reference

[IMS Connect Resume Tpipe report](#)

The IMS Connect Resume Tpipe report provides a summary of RESUME TPIPE command activity. The standard version of the report provides command statistics, including command count, and a breakdown by command type: Auto (with timeout), No Auto and Single. Command statistics produced by IMS Performance Analyzer include count of commands issued, IMS messages received, Negative responses (Tpipe queue empty), NAK and timeout interval. The extended version of this IMS Performance Analyzer report supports all of the different resume tpipe types and options.

# ACKN: IMS Connect ACK/NAK report

The **ACKN** operand of the **IMSPACEX** batch command requests the IMS Connect ACK/NAK report.

This report provides a summary of acknowledgment activity for transactions that use Sync Level=CONFIRM. Positive acknowledgment (ACK) and negative acknowledgment (NAK) statistics are reported for each transaction code. NAK is further broken down as negative acknowledgment from either OTMA (NAK sense code) or from the Client.

The report can optionally be summarized by time interval.

## Format

IMSPACEX	ACKN( [DDNAME(ddname),] default ACKNAK [INTERVAL(hh:mm:ss),] default 00:01:00 (1 minute) [INCL(TRANCODE(list)) EXCL(TRANCODE(list)),] [INCL(USERID(list)) EXCL(USERID(list)),] [INCL(DATASTORE(list)) EXCL(DATASTORE(list)),] [INCL(CLIENT(list)) EXCL(CLIENT(list)),] [INCL(PORT(list)) EXCL(PORT(list))], [INCL(SOCKET(list)) EXCL(SOCKET(list))])
----------	--

Report operands are:

### DDNAME

The ddname for the report output. The default is ACKNAK.

### INTERVAL

Summarization time interval. The default is 1 minute.

### INCL|EXCL

Selection criteria to filter (include or exclude).

## Example

IMSPACEX	ACKN(DDNAME(ACKNAK), INTERVAL(00:05:00), INCLUDE(TRANCODE(A*,P*,T*)), EXCLUDE(CLIENT(MP1*,XP1*,ZP1*)))
----------	---

## Related reference

### [IMS Connect ACK/NAK report](#)

The IMS Connect ACK/NAK report provides a summary of acknowledgment activity for transactions that use Sync Level=CONFIRM. Positive acknowledgment (ACK) and negative acknowledgment (NAK) statistics are reported by IMS Performance Analyzer for each transaction code. NAK is further broken down as negative acknowledgment from either OTMA (NAK sense code) or from the Client.

# EXCEPTION: IMS Connect Exception Events report

The **EXCEPTION** operand of the **IMSPACEX** batch command requests the IMS Connect Exception Events report.

This report provides details about events that cause transactions to fail or that signal critical resources are no longer available. The Exception List report provides a list (in chronological order) of all exception events. The Exception Summary report provides a recap of each exception event encountered and a count of the number of times it occurred.

## Format

---

IMSPACEX	EXCEPT( [DDNAME(ddname),] [LIST,] [SUMMARY])	default EXCEPT
----------	---	----------------

One or both of the following reports can be requested.

### LIST

Exception List report

### SUMMARY

Exception Summary report (default)

Other report options are:

### DDNAME

The ddname for the report output. The default is EXCEPT.

## Examples

Taking defaults (the Summary report):

IMSPACEX	EXCEPT
----------	--------

Both reports:

IMSPACEX	EXCEPTION(LIST, SUMMARY, DDNAME(EXCEPT))
----------	--

## Related reference

IMS Connect Exception Events report

The IMS Connect Exception Events report provides details about events that cause transactions to fail or that signal critical resources are no longer available. This IMS Performance Analyzer report comes in two formats: List and Summary. The List report provides a list of all exception events in chronological order. The Summary report provides a recap of each exception event encountered and a count of the number of times it occurred.

## GAP: IMS Connect Gap Analysis report

The **GAP** operand of the **IMSPACEX** batch command requests the IMS Connect Gap Analysis report.

This report looks for periods of time where records are not being cut, potentially highlighting an external system event that may have caused IMS Connect to slow down.

## Format

---

IMSPACEX	GAP( [THRESHOLD(s.thmiju),] [DDNAME(ddname),] [FROM(date,time),] [TO(date,time)])	default 5 seconds default GAPS
----------	---	-----------------------------------

Report options are:

### THRESHOLD

Threshold for the report output. The **THRESHOLD** defines the maximum elapsed time tolerated between records. Every gap longer than the threshold is reported.

The value of **THRESHOLD** must be within the range 0.000001 to 9.999999. The default is 5.000000 seconds.

**DDNAME**

DDname for the report output. The default is **GAPS**.

**FROM-TO**

The reporting interval, either a date-time range or a time slot. The time slot can span midnight. The date can be either a calendar date or a relative date. If both dates are specified, they must be in the same format.

**Example**

Taking defaults:

IMSPACEX	GAP
IMSPACEX	EXECUTE

**Related reference**

IMS Connect Gap Analysis report

The IMS Connect Gap Analysis report searches for time periods where IMS Connect Extensions journal records are not being cut, potentially highlighting an external system event that may have caused IMS Connect to slow down. You can adjust this IMS Performance Analyzer report by specifying your desired gap threshold.

**TRACE: IMS Connect Transit Event Trace report**

The **TRACE** operand of the **IMSPACEX** batch command requests the IMS Connect Transit Event Trace report.

This trace report provides a list of transactions, each with detailed information about every event in the life of that transaction. At a glance, you can see when a transaction starts, followed by all the events associated with the transaction in the order they occurred.

**Remember:** Input logs provided to IMS Performance Analyzer may contain sensitive information. Be sure to secure any reports that you generate as you would the input log data itself.

**Format**

IMSPACEX	TRACE( [DDNAME(ddname),] default TRACE [INCL(TRANCODE(list)) EXCL(TRANCODE(list)),] [INCL(USERID(list)) EXCL(USERID(list)),] [INCL(DATASTORE(list)) EXCL(DATASTORE(list)),] [INCL(CLIENT(list)) EXCL(CLIENT(list)),] [INCL(PORT(list)) EXCL(PORT(list))], [INCL(SOCKET(list)) EXCL(SOCKET(list))])
----------	---

The report options are:

**DDNAME**

The ddname for the report output. The default is TRACE.

**INCL|EXCL**

Selection criteria to filter (include or exclude).

**Examples**

Taking defaults:

IMSPACEX	TRACE
----------	-------

With filtering:

```
IMSPACEX      TRACE (DDNAME (TRACE),  
                    EXCL (TRANCODE (Z*)),  
                    INCL (USERID (A*)),  
                    INCL (DATASTORE (A*)),  
                    INCL (CLIENT (A*)),  
                    INCL (PORT ((101,300), (501,800), 999)))
```

### **Related reference**

#### IMS Connect Transit Event Trace report

The IMS Connect Transit Event Trace report provides a list of transactions, each with detailed information about every event in the life of that transaction. At a glance, this IMS Performance Analyzer report allows you to see when a transaction starts, followed by all the events associated with the transaction in the order they occurred.



---

## Part 8. OMEGAMON ATF reporting

This part describes how to request and run OMEGAMON ATF reports using the dialog and batch commands.



---

## Chapter 26. Requesting OMEGAMON ATF reports

IMS Performance Analyzer complements IBM OMEGAMON for IMS on z/OS by reporting transaction and application-level accounting statistics produced by the OMEGAMON for IMS Application Trace Facility (ATF).

### OMEGAMON ATF data

---

OMEGAMON Application Tracing Facility (ATF) provides application-level accounting statistics of DLI, Db2, and MQ calls, call times, and CPU utilization.

OMEGAMON ATF provides the following data:

- Application-level detailed monitoring:
  - DLI calls, including SSA, KFBA, and IO area.
  - Db2 calls.
- DLI call times and CPU utilization (in each IMS region).

The analysis of the data collected by ATF can be used to:

- Identify transaction response-time components.
- Fine-tune applications.
- Understand how application programs operate.

When monitoring, OMEGAMON ATF writes near-term history records to active log streams. For IMS Performance Analyzer reporting, create a log stream extract using the [IPIATFXT](#) utility before reporting.

### Creating a log stream extract

---

You can use member IPIATFXT in the sample library SIPISAMP to extract data from an OMEGAMON ATF log stream to a sequential data set.

The batch utility IPIATFXT can read z/OS log streams containing IBM OMEGAMON for IMS ATF records, and write them to a sequential output file.

To create a log stream extract, you modify the parameters in the JCL of sample member IPIATFXT. The utility has the following parameters:

#### **NAME=ATF log stream**

The name of the z/OS log stream to be processed. This parameter is required. Because only one log stream is processed at a time, each type of application trace data in the following list must be processed separately:

- Application trace summary data (SM)
- Application trace detail data (DL)
- Application trace exception summary data (SX)
- Application trace exception detail data (DX)

#### **EXTRACT**

Instructs the utility to perform the extract. This parameter is required. The following sub-parameters are optional. You can specify them after the EXTRACT parameter:

#### **ALL**

Extract all ATF records from the log stream to the data set defined by the ATFOUT DD name. If no EXTRACT sub-parameters are specified, this is the default behavior.

## EXCEPTION

Extract only ATF exception records from the log stream to the data set defined by the ATFXCPT DD name. If no exception records exist, none are extracted.

**Note:** Users of IBM OMEGAMON for IMS V5.5 must also apply APAR OA54667 to use this option because exception records are written to the DL log stream in this release (instead of the DX/SX log streams, which is the case in versions 5.3 and 5.4).

## START(yyyy/mm/dd<sub>1</sub>,hh:mm:ss:th<sub>3</sub>)

Record start time. If *START* is not specified, the start time is the time when the log stream begins.

**Note:** The log stream is read from this time, but extract processing does not start until the first ATF record for a new ATF correlation token is encountered after the specified time.

## END(yyyy/mm/dd<sub>1</sub>,hh:mm:ss:th<sub>3</sub>)

Record end time. If *END* is not specified, a timestamp taken at job initialization is used as the end time.

**Note:** Processing continues until all records for the ATF correlation token encountered at the specified time are complete.

## ATF extracts for an IMS subsystem

To associate extracts from IBM OMEGAMON for IMS Application Trace Facility (ATF) log streams with an IMS subsystem, use view 5 of the **IMS Subsystem** panel. This data is used by the IMS Performance Analyzer ISPF dialog in the generation of JCL to run ATF Report Sets.

Specify the data set names of the OMEGAMON ATF extracts in a similar way to IMS Connect journal files. The data sets must be cataloged. For a description of the fields, available line actions, and action bar choices, see “Journal Files for a Connect System” on page 121.

```

                                     IMS Subsystem          Row 1 of 1 More: < >
Command ===> _____ Scroll ===> PAGE

IMS Subsystem definition:
IMS Subsystem ID . . . . IZDX  IMS Version (VRM) . . . 154  +
Description . . . . . System with ATF tracing
RESLIB Data Set . . . . . IMS.V1540.SDFSRESL
-----
Specify required view . . 5   1. DBRC Settings      4. Groups
                             2. Log Files           5. OMEGAMON ATF Files
                             3. Monitor Files
-----
Specify the Log Files (in time sequence) for this subsystem:

/  Exc      Data Set Name (DSN)          UNIT +  SEQ VOLSER +
-   *  'IZDX.OMEGATF.EXTRACT1'          _____
***** Bottom of data *****
```

**Note:** ATF files are not involved in automated file selection. ATF files can contain data from multiple systems in an IMSplex.

## ATF Report Set

ATF reports are specified in a IMS Performance Analyzer Report Set of type ATF.

To work with Report Sets, select option 3 **Report Sets** from the IMS Performance Analyzer primary option menu. For more information, see “Creating a Report Set” on page 188.

```

Command ==> NEW ATFRSET ATF
Report Sets
Row 1 to 4 of 4
Scroll ==> PAGE

Report Sets Data Set . . . : IMSPA.RSET

/   Name      Type      Description      Changed      ID
___ BASICCOM CEX  Combined basic - List & Summary  2021/07/25 13:02 AJL
___ DFLTCEX  CEX  IMS Connect daily          2021/07/15 10:48 AJL
___ DFLTLOG  LOG  IMS Log weekly              2021/07/17 12:02 AJL
***** Bottom of data *****

```

Figure 229. Defining a new ATF Report Set in IMS Performance Analyzer

Enter **NEW** on the command line to display a window which prompts you to specify the name and type of Report Set or model on an existing one.

You can bypass the prompt window if you specify the report set type ATF in the command as shown in the previous figure, or if you specify a model in the command. For example:

```
NEW ATFDAILY MODEL ATFWEEK
```

or

A panel is then displayed for you to edit the description of the Report Set and specify your report requests.

```

EDIT
Command ==>
Report Set - ATFRSET
Line 1 of 9
Scroll ==> PAGE

Description . . . OMEGAMON ATF starter set

Enter "/" to select action.

___  ** Reports **
-   ___ Options
      ___ ATF Global
-   ___ Transaction Transit Reports
      S___ List
      ___ Summary
-   ___ Trace Reports
      ___ Record Trace
-   ___ Extracts
      ___ Exception Transaction
      ** End of Reports **
Active
No
No
No
No
No
No
No
No

```

Figure 230. Edit ATF Report Set

The ATF Report Set provides three reports and an extract, with global options that apply to most or all of them:

1. List report – lists all transaction event data in chronological sequence.
2. Summary report – statistical analysis of transaction activity.
3. Trace report – with three levels of detail for application-level analysis of DLI and external subsystem (Db2 SQL and MQ adapter) calls.
4. Exception transaction extract – to extract exception records from the online IBM OMEGAMON for IMS Application Trace Facility (ATF) log stream extracts, based on two criteria, ABEND and long response time.

The operation of the ATF Report Set edit panel, such as the commands, line actions, action bar, and PF keys, is similar to that for the other types of Report Set. For example, see [Chapter 22, “Requesting Monitor reports,”](#) on page 421.

### Related concepts

[Report command format](#)

IMS PA provides both a dialog and batch interface. The IMS PA commands are used to request reports and extracts. The dialog generates the JCL and commands when you run (submit) a Report Set.

### Related reference

OMEGAMON ATF batch interface

The IMS PA dialog generates the JCL and commands for running your report requests in batch. The JCL and commands for ATF report requests are described here.

## ATF Global Options

The IMS PA ATF Global Options define general control information that applies to more than one report within the ATF Report Set.

IMS PA automatically activates the ATF Global Options if at least one report in the Report Set is active. Conversely, the ATF Global Options are deactivated if no reports are active. You cannot activate or deactivate the ATF Global Options yourself.

To view and edit **ATF Global Options** for a Report Set:

1. Select the ATF Report Set.
2. Expand the **Options** category using line action S.
3. Select the **ATF Global** category using line action S.

```
ATFRSET - ATF Global Options
Command ==>>> _____

Specify ATF Global options.

Report Options:
Print Lines per Page . . 60 (1-255)
Jobname . . . . . _____

Exception criteria for transactions:
_ Abended
_ Exceeded elapsed time threshold... 1.00 seconds (0.01 to 9999)
```

Figure 231. ATF Global Options

The ATF global options are:

### Print Lines per Page

Default: 60

Specify the number of print lines per page. The specified value applies to all reports in the ATF Report Set.

Valid values are from 1 to 255.

This option generates the PAGESIZE(*nnn*) global operand.

### Jobname

This field is optional. It specifies the job name to be associated with this report set.

### Exception criteria for transactions

Default: None selected; no filtering on exception criteria.

Select one or both of the exception criteria to filter the ATF data to be processed. If both are selected, transactions that satisfy either or both criteria are processed. The criteria apply to all reports in the Report Set. At least one must be specified to request an Exception Transaction Extract.

#### Abended

Default: Not selected; all transactions are processed.

Select with a / to limit exception processing to those transactions that abended.

This option generates the ABEND global operand.

### Exceeded elapsed time threshold *nnnn*

Default: Not selected; all transactions are processed.

Select with a / to limit exception processing to those transactions with an elapsed time that exceeds the specified elapsed time threshold.

Specify a threshold in the range 0.01 to 9999 seconds. Default: 1.00 second.

This option generates the ELAPSE(*s.th*) or ELAPSE(*ssss*) global operand.

## ATF Transaction Transit reports

The OMEGAMON ATF Transaction Transit reports are List and Summary.

### ATF Transit List report

The OMEGAMON for IMS ATF Transaction Transit List report provides a chronological list of transactions with their processing and CPU times from the ATF log stream data.

```
ATFRSET - List
Command ==> _____
Specify report options.

                _____ Report Interval _____
                YYYY/MM/DD HH:MM:SS:TH
From _____
To   _____

                Report Output DDname LIST0001

Selection Criteria:
  Object Type   Inc/Exc  Object +  List   Validation Warning
Transaction Code _____ -
User ID        _____ -
IMS Subsystem ID _____ -
Program        _____ -
```

Figure 232. The OMEGAMON for IMS ATF transaction transit **List** report options panel

The options are as follows:

#### Report Interval

Default: Not specified.

Specify the reporting interval. Records with time stamps on or after the **From** Date/Time and to the **To** Date/Time are included in the report.

You can specify one of the following:

- Date/time pairs or dates only. This indicates a *date-time range* (for example, 2021/06/25 7:00 to 2021/06/25 16:30). The **From** Date/Time must be before the **To** Date/Time.
- Times only. This indicates a particular *time slot* (for example, 9:00 to 10:00 each day). Specifying the **From** Time greater than the **To** Time indicates a time slot across midnight.
- Neither date/time pair. *All* input records are selected.

#### Report Output DDname

Default: LIST0001

Specify the DDname to be used for the report output.

This option generates the DDNAME(*ddname*) operand.

#### Selection Criteria

Default: None specified; include all records.

Selection Criteria can be specified to filter the input data on one or more of the following:

- Transaction Code
- User ID
- IMS Subsystem ID
- Program

Specify field values to be included in or excluded from the report. Specify a single value, a masking pattern, or an Object List.

You can enter the name of the Object List directly, or to select from a list of available Object Lists, position the cursor in the field and press **Prompt (F4)**. Select **List** with a / to identify it as an Object List not a value.

See “Object Lists” on page 635 for information on how to define an Object List.

This option generates the INCL | EXCL (*field(values)*) report operand.

## LIST: ATF Transit List report

The **LIST** operand of the **IMSPAATF** batch command requests the ATF Transit List report.

### Format

```
IMSPAATF      LIST(
               [DDNAME(ddname),]          default LIST0001
               [FROM(date,time),]
               [TO(date,time),]
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
               [INCL(USERID(list))|EXCL(USERID(list)),]
               [INCL(IMSID(list))|EXCL(IMSID(list)),]
               [INCL(PROGRAM(list))|EXCL(PROGRAM(list))])
IMSPAATF      EXECUTE
```

## ATF Transit Summary report

The OMEGAMON for IMS ATF Transaction Transit Summary report provides a statistical analysis of transaction activity with average and maximum processing and CPU times, and number of abends from ATF log stream data.

ATFRSET - Summary

Command ==> \_\_\_\_\_

Specify report options.

Report Options:

Totals Level 0

Report Interval

YYYY/MM/DD HH:MM:SS:TH

From

\_\_\_\_\_

To

\_\_\_\_\_

Report Output DDname

SUMM0001

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation	Warning
Transaction Code	___	_____	-		
User ID	___	_____	-		
IMS Subsystem ID	___	_____	-		
Program	___	_____	-		

Figure 233. The OMEGAMON for IMS ATF Transaction Transit **Summary** report options panel

The options are as follows:



### Totals Level

Default: 0 (grand total only)

Specify the summarization level:

- 0 for grand total, no subtotals. This generates the TOTALS(0) operand.
- Blank for no totals. This generates the NOTOTALS operand.

### Report Interval

As for “ATF Transit List report” on page 553.

### Report Output DDname

Default: SUMM0001

Specify the DDname to be used for the report output.

This option generates the DDNAME(*ddname*) operand.

### Selection Criteria

As for “ATF Transit List report” on page 553.

## SUMMARY: DLI Call Summary report

The **SUMMARY** operand of the **IMSPAATF** batch command requests the DLI Call Summary report.

### Format

```
IMSPAATF      SUMMARY(
               [TOTALS(n)|NOTOTALS,]          default TOTALS(0)
               [DDNAME(ddname),]                default SUMM0001
               [FROM(date,time),]
               [TO(date,time),]
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
               [INCL(USERID(list))|EXCL(USERID(list)),]
               [INCL(IMSID(list))|EXCL(IMSID(list)),]
               [INCL(PROGRAM(list))|EXCL(PROGRAM(list))]
IMSPAATF      EXECUTE
```

## ATF Trace reports

The OMEGAMON ATF Trace reports provide detailed application DLI, Db2, and IBM MQ call analysis for selected transactions.

### ATF Record Trace report

The OMEGAMON for IMS ATF Record Trace provides detailed application DLI, Db2, and MQ call analysis for selected transactions using ATF log stream data. There are three levels of trace that provide increasing level of detail: Trace Overview, Trace Detail, and Trace Detail (Expanded) with additional application call detail.

ATFRSET - Record Trace

Command ==>

Specify report options.

Reports Required:

/ Trace Overview

- Trace Detail

- Trace Detail (Expanded)

Report Output DDnames:

TRACE001

TRACE002

TRACE003

Report Options:

- Include Monitor events

Selection Criteria:

Object Type	Inc/Exc	Object +	List	Validation Warning
Transaction Code	___	_____	-	
User ID	___	_____	-	
IMS Subsystem ID	___	_____	-	
Program	___	_____	-	

Figure 234. The OMEGAMON for IMS ATF **Record Trace** report options

The options are as follows:

### Reports Required

Select one or more of the following trace reports:

#### Trace Overview (level 1)

This report lists summary statistics for each transaction, including a breakdown by event type. Details for each event type include event type and subtype, for example, DLI CALL (DB); GHU or Db2 SQL; FETCH and Total, Average and Maximum elapsed times.

Trace Overview (level 1) is the default option.

This option generates the LEVEL (1) batch operand.

#### Trace Detail (level 2)

This report lists statistics for each event within a transaction. This includes a time stamp, call duration, call verb and return code.

This option generates the LEVEL (2) batch operand.

#### Trace Detail (Expanded) (level 3)

This report lists statistics for each event within a transaction. In addition, for each DLI and Db2 call, detailed information captured by ATF is provided. For DLI calls, this includes key feedback, I/O area and unqualified SSA. For Db2 calls this includes statement number and program name.

This option generates the LEVEL (3) batch operand.

### Report Output DDnames

For each report, specify a unique DDname to separate the output of multiple reports. A DDname is 1–8 alphanumeric characters starting with an alphabetic character.

The default DDnames provided are TRACE001, TRACE002, and TRACE003 for level 1, 2, and 3 respectively.

This option generates the DDNAME (*ddname*) batch operand.

### Include Monitor events

Select this option to include Monitor events and additional transaction identification and performance characteristics in the trace level 2 and 3 detailed reports. This option is not applicable to the trace level 1 overview report.

By default, the Monitor option is not selected.

This option generates the MONITOR batch operand.

### Selection Criteria

As for ATF “ATF Transit List report” on page 553.

## TRACE: ATF Record Trace report

The **TRACE** operand of the **IMSPAATF** batch command requests the ATF Record Trace report.

### Format

```
IMSPAATF      TRACE(
               [LEVEL(1|2|3),]          default 1
               [MONITOR,]
               [DDNAME(ddname),]        default TRACE001
               [INCL(TRANCODE(list))|EXCL(TRANCODE(list)),]
               [INCL(USERID(list))|EXCL(USERID(list)),]
               [INCL(IMSID(list))|EXCL(IMSID(list)),]
               [INCL(PROGRAM(list))|EXCL(PROGRAM(list))])
IMSPAATF      EXECUTE
```

## ATF Extracts

The Exception Transaction Extract file contains exception records extracted from the OMEGAMON ATF log streams based on two criteria, ABEND and long response time.

IMS PA extracts all the records (such as DLI, Db2, MQ) associated with an exception transaction, even though the exception is not determined until the final summary record is read. It does this by queuing records based on their IMS recovery token.

## ATF Exception Transaction extract

The OMEGAMON for IMS ATF Exception Transaction extract produced by IMS Performance Analyzer is an ATF data reduction process. It creates a new ATF data set from ATF log stream data that contains only those records associated with transactions that generated an exception (abend or long response time).

```
ATFRSET - Exception Transaction Extract
Command ==> _____

Specify the extract options:

Specify the Extract data set name and disposition.
Name: 'IMSP.ATF.EXTRACT.REPRO(+1)'      Disp: OLD

Exception criteria for transactions (Global options):
/  Abended
   Exceeded elapsed time threshold... 1.00 seconds
```

Figure 235. The OMEGAMON for IMS ATF **Exception Transaction Extract** options panel

The Extract data set name and disposition options are as follows:

### Name

Default: Not specified

This is the name of the data set to which the exception extract records are to be written.

If IMS PA is to create the data set at run time, the default allocation attributes specified for **Summary Extracts in Reporting Allocation Settings** will be used when generating the JCL. If the data set is already cataloged, then IMS PA will use DISP=OLD or DISP=MOD according to your request to

overwrite or append to the existing data set. Alternatively, you can use a GDG to create a new data set each time the extract is run.

When specifying the data set name, standard TSO conventions apply. For example, if the TSO option PROFILE PREFIX is in effect, the prefix will be appended as the high-level qualifier unless the data set name is enclosed in quotes.

The JCL assigns DDname ATFOUT2 to the extract data set.

**Disp**

Default: Not specified

This option applies if the extract data set you specified is already cataloged. Specify a disposition of OLD or SHR to overwrite the data set contents with the new extract data or MOD to append the new extract data. If the data set is not cataloged then DISP=NEW will be used regardless of this setting.

**Exception criteria for transactions**

The exception criteria are displayed here for reference purposes, and to prompt you to set them in ATF Global Options. See **Exception criteria for transactions** in [Figure 231 on page 552](#).

Exception records are extracted from the ATF log stream extracts based on two criteria, ABEND or long response time, or both:

**Abended**

If selected with a /, the extract includes transactions that abended.

This option generates the ABEND global operand.

**Exceeded elapsed time threshold... nnnn**

If selected with a /, the extract includes transactions that exceed the specified elapsed time threshold.

The threshold is in the range 0.01 to 9999 seconds. Default: 1.00 second.

This option generates the ELAPSE(s.th) or ELAPSE(ssss) global operand.

**EXTRACT: Exception Transaction extract**

The **EXTRACT** operand of the **IMSPAATF** batch command requests the Exception Transaction extract.

**Format**

IMSPAATF	[ABEND,]	
	[ELAPSE(ssss)]	default 1.00 second
IMSPAATF	EXTRACT(	
	FILE)	DDname ATFOUT2
*		DDname ATFRECAP for Recap report
IMSPAATF	EXECUTE	

**Note:**

1. Reports can be run during the extract process, and they will honor the exception criteria ABEND and ELAPSE(ssss).
2. If no exception criteria are specified, an error message is issued and the extract does not proceed.
3. A recap report is written to ATFRECAP DD showing how many exceptions occurred.

**Recoverability**

In the event of an IMS PA extract failure, the job can be restarted.

**FILE**

IMS PA will open the file and write each record, either at the end of the data set (DISP=MOD) or from the beginning (DISP=NEW or OLD). When restarting an extract with DISP=MOD, duplicate records may

be written. Prior to restarting an extract to a generation data group (GDG), first delete the most recent generation that failed to compete successfully.

## Reporting the ATF extract data set

The ATF Exception Extract data set can be input to IMS PA reporting in the same way as standard ATF extracts.

The following example JCL demonstrates using an ATF Exception Extract data set as input to IMS PA reporting.

```
//IMSPAATF JOB (ACCOUNT), 'NAME'
//*
//IPI      EXEC PGM=IPIMAIN,REGION=100M
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//* ATF extracts
//ATFIN001 DD DISP=SHR,DSN=IMS.ATF.EXTRACT.EXCEPT
//IPIOPTS DD *
* Reporting time range
IMSPAATF START(2021/04/20,10:00:00:00),STOP(2021/04/20,11:00:00:00)
/*
//SYSPRINT DD SYSOUT=*
//* Report Set command input
//IPICMD  DD *
* IMS PA OMEGAMON ATF Reports
* ATF Report Global Options
      IMSPAATF      PAGESIZE(60)
      IMSPAATF      LIST
      IMSPAATF      SUMMARY
      IMSPAATF      TRACE(LEVEL(3))
      IMSPAATF      EXECUTE
/*
```

*Figure 236. JCL: Reporting the extract ATF data set*



---

## Chapter 27. OMEGAMON ATF batch interface

The IMS PA dialog generates the JCL and commands for running your report requests in batch. The JCL and commands for ATF report requests are described here.

### Related concepts

[ATF Report Set](#)

ATF reports are specified in a IMS Performance Analyzer Report Set of type ATF.

---

## ATF Report Set JCL

IMS PA uses options that you specify in the dialog to generate JCL that runs a Report Set.

```
//IMSPAATF JOB (ACCOUNT),'NAME'
//* IMS PA Report Set - OMEGAMON ATF Reports and Extract
//IPI      EXEC PGM=IPIMAIN
//STEPLIB DD DSN=IMSPA.V450.SIPILINK,DISP=SHR
//* ATF Extract input data sets
//ATFIN001 DD DISP=SHR,DSN=IMS.ATF.EXTRACT1
//ATFIN002 DD DISP=SHR,DSN=IMS.ATF.EXTRACT2
//IPIOPTS DD *
* Reporting time range
IMSPAATF START(2021/10/19,10:00:00:00),STOP(2021/10/19,10:05:00:00)
/*
//* ATF Exception Extract processing
//ATFOUT2  DD DSN=ATF.NEW.EXTRACT,
//          DISP=OLD
//* ATF Exception Extract Recap
//ATFRECAP DD SYSOUT=*
//* SYSOUT data set
//SYSPRINT DD SYSOUT=*
//IPIDIAGS DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
```

*Figure 237. JCL: ATF command input (part 1 of 2)*

```

/* Command input
//IPICMD DD *
* IMS PA OMEGAMON ATF Reports
* ATF Report Global Options
    IMSPAATF      PAGESIZE(60),
                  ABEND,
                  ELAPSE(1.00)

* List Report
    IMSPAATF      LIST(
                  DDNAME(LIST0001),
                  EXCL(TRANCODE(TRANX)),
                  INCL(USERID(USRX)),
                  INCL(IMSID(IMSX)),
                  INCL(PROGRAM(PROGX)))

* Summary Report
    IMSPAATF      SUMMARY(
                  DDNAME(SUMM0001),
                  TOTALS(0))

* ATF Trace Reports
    IMSPAATF      TRACE(
                  LEVEL(1),
                  DDNAME(TRACE001))
    IMSPAATF      TRACE(
                  LEVEL(2),
                  DDNAME(TRACE002))
    IMSPAATF      TRACE(
                  LEVEL(3),
                  DDNAME(TRACE003))

* ATF Exception Extracts
* Extract to data set
* Extract data set - 'ATF.NEW.EXTRACT'
    IMSPAATF      EXTRACT(
                  FILE)
    IMSPAATF      EXECUTE

/*

```

Figure 238. JCL: ATF command input (part 2 of 2)

ATF Report Set JCL statements are:

## **JOB**

### **Job Statement Information**

In IMS PA **Settings**.

## **IPI EXEC IPIMAIN,PARM='parameter list'**

IMS PA main program with parameters:

### **UPPER**

if **Reports in Upper Case** is YES in IMS PA **Settings**.

## **STEPLIB DD**

### **IMS PA Load Library**

In IMS PA **Settings**.

## **ATFIN001 DD**

### **ATF Journal Extract File Name**

From **System Definitions**. The ATF extract file specified for the IMS Subsystem.

## **IPIRSET DD**

For *DSN(member)* where:

### **DSN**

**Report Sets Data Set** in your IMS PA **Profile**.

### **member**

Name of the **Report Set** being run.

## **IPIOBJL DD**

**Object Lists Data Set** in your IMS PA **Profile**.

## **IPIOPTS DD \***

**Report Interval** specified on the **Run Report Set** panel at run time. The format of the statement is:

```
IMSPAATF START(yyyy/mm/dd,hh:mm:ss:th),STOP(yyyy/mm/dd,hh:mm:ss:th)
```



or

```
IMSPAATF START(-9999, hh:mm:ss:th), STOP(-nnnn, hh:mm:ss:th)
```

# IMSPAATF command and report operands

The **IMSPAATF** batch command requests OMEGAMON ATF reports and extracts. Any number of ATF reports can be requested in the one batch job.

## Format

IMSPAATF	<i>operands</i>
----------	-----------------

The last command in the batch job must be **IMSPAATF EXECUTE** to inform IMS PA that all ATF reports have been requested and processing of ATF input can commence. For clarity, ensure that there is only one **EXECUTE** operand in the batch job.

If **IMSPAATF EXECUTE** is omitted, IMS PA performs syntax checking of the input commands but does not execute any reports.

The ATF report operands are:

**LIST**

Transaction Transit List

**SUMMARY**

Transaction Transit Summary

**TRACE**

Record Trace

**EXTRACT**

Exception Transaction extract

For further information about the report operands, their meaning, and default values, see the description of the corresponding dialog options in [Chapter 26, “Requesting OMEGAMON ATF reports,”](#) on page 549.



---

## Part 9. Troubleshooting

This part provides a list of the messages produced by the batch interface and technical references to help you troubleshoot and diagnose IMS Performance Analyzer problems.



---

## Chapter 28. IMS Performance Analyzer messages

Batch messages issued by IMS Performance Analyzer are listed here.

The batch messages listed here include messages issued by:

- The batch report processors for Log, Monitor, IMS Connect, and ATF input data
- The Automated File Selection utility, incorporating DBRC Log Selection and IMS Connect Extensions Journal File Selection

Messages issued exclusively by the dialog (and that do not have a message number) are not listed here. Instead, refer to the online help.

---

### Message format

Each IMS PA batch processor message begins with a unique message identifier, followed by message text.

#### **IPInnnnx Message Text variable**

The message identifier has the following format:

##### **IPI**

The *program identifier* identifies the message as an IMS PA message. All IMS PA messages begin with IPI.

##### **nnnn**

The *message identification number* is a four-digit number that uniquely identifies each message.

##### **x**

The *severity level* is a letter that indicates the return code (RC), the purpose of the message and the type of response required. As they are issued from batch processes which are possibly running unattended, no messages are of a nature which require immediate action from the user. The severity levels, from least to most severe, are:

##### **I**

Information. RC=00. Requires no action. This message is used only for advisory purposes.

##### **W**

Warning. RC=04. A possible error has occurred but processing continues. You should evaluate results. Action is required if results are not as expected.

##### **E**

Error (or Eventual Action). An error has occurred which requires eventual action by the user. Depending on the nature of the error, the associated report either continues accepting input records (RC=04), or stops accepting input but still reports processing until the error (RC=08), producing a partial reporting before processing stops.

The *Message Text* provides concise information about an event or condition of interest to the user, and may include *variable* text to identify system components or to provide other detailed information about the specific circumstance which caused the message.

An IMS PA message may contain the text of an IMS Connect Extensions functional support message identified by the prefix FUN. For an explanation of the IMS Connect Extensions functional support messages, refer to the "Messages and Codes" in the *IBM IMS Connect Extensions for z/OS User's Guide*.

## Message descriptions

---

This section contains descriptions of all IMS PA batch processing messages. The messages are listed in message number order, all with the prefix IPI.

An IMS PA message may contain the text of an IMS Connect Extensions functional support message. For an explanation of the IMS Connect Extensions functional support messages identified by the prefix FUN, refer to the "Messages and Codes" in the *IBM IMS Connect Extensions for z/OS User's Guide*.

---

### **IPI0001I      IMS Started**

#### **Explanation**

The first record with a time stamp has been read from the log input.

#### **System action**

Processing continues.

#### **User response**

None required.

---

### **IPI0002I      Reporting starts within specified time range**

#### **Explanation**

The first record with a time stamp equal to or after the global Start time has been read from the log input.

#### **System action**

Processing continues.

#### **User response**

None required.

---

### **IPI0003I      Reporting stopped: elapsed time is hhhh.mm.ss.thmiju**

#### **Explanation**

The first record with a time stamp after the global Stop time has been read from the log input. Reading of the log is complete.

#### **System action**

IMS PA proceeds to end of file processing.

#### **User response**

None required.

---

### **IPI0004I      End of File signalled to Report Processors**

#### **Explanation**

Either the global Stop time has been reached, or end of file on the log input has occurred.

#### **System action**

All active report processors are notified so that they can complete their processing.

#### **User response**

None required.

---

### **IPI0005I      IMS Stopped**

#### **Explanation**

End of file has been reached on the log input.

#### **System action**

IMS PA proceeds to end of file processing.

#### **User response**

None required.

---

### **IPI0006I      Trace assumed Stopped, Hit Start Record**

#### **Explanation**

A Monitor Trace Start record was encountered during monitor processing.

#### **System action**

IMS PA posts end of file to the active monitor reports, then restarts monitor processing.

#### **User response**

None required.

---

### **IPI0007I      An HSB Takeover**

#### **Explanation**

The log input file was closed by DFSFDLU0 for an HSB takeover.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0008I           IMS stopped for RSR Takeover**

### Explanation

IMS has stopped for RSR plan takeover.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0009I           Emergency Restart detected**

### Explanation

The log input file was closed by DFSFDLU0 for an Emergency Restart.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0010I           IMS Restarted**

### Explanation

IMS has started.

### System action

Processing continues.

### User response

None required.

---

**IPI0011I           Large gap was found in Log  
Sequence after *seqnum*, End of  
Data Set assumed**

### Explanation

A large gap was detected in the log. The end of data set was assumed; the remaining records will be

skipped until the next checkpoint. *seqnum* was the sequence number of the log record before the gap.

### System action

Processing continues.

### User response

None required.

---

**IPI0012W           Line/PTERM has invalid status,  
Rec=*xx*, Reas=*nn***

### Explanation

Rec=*xx* specifies the record code of the IMS log record that caused the problem. Reas=*nn* specifies an error reason code for diagnostics.

### System action

If Rec=31 and Reas=13, IMS PA has encountered a Communications Get Unique whose destination is not known; IMS PA ignores the record and continues processing. Otherwise, IMS PA terminates the Resource Availability report.

### User response

This may be an IMS or IMS PA error. Contact your IBM representative for help.

---

**IPI0013E           Resource Availability Reporting  
stopped due to error**

### Explanation

A Resource Availability Report processor has either abended or detected a condition it cannot recover from.

### System action

Processing of log records is terminated for the Resource Availability report.

### User response

Check the output with DD statement IPIDIAGS to identify the reason for the error. This may be an IMS or IMS PA error. Contact your IBM representative for help.

---

**IPI0014W           SMB has invalid status, Rec=*info***

## Explanation

An invalid value was encountered in a field of a log record. Rec=*info* specifies the record code of the IMS log record that caused the problem.

## System action

Processing terminates for the Resource Availability report.

## User response

This may be an IMS error. Contact your IBM representative for help.

---

**IPI0015W      Region has invalid status, Rec=*info***

---

## Explanation

An invalid value was encountered in a field of a log record. Rec=*info* specifies the record code of the IMS log record that caused the problem.

## System action

Processing terminates for the Resource Availability report.

## User response

This may be an IMS error. Contact your IBM representative for help.

---

**IPI0016W      PSB has invalid status, Rec=*info***

---

## Explanation

An invalid value was encountered in a field of a log record. Rec=*info* specifies the record code of the IMS log record that caused the problem.

## System action

Processing terminates for the Resource Availability report.

## User response

This may be an IMS error. Contact your IBM representative for help.

---

**IPI0017E      DBD has invalid status, Rec=*xx***

---

## Explanation

An invalid value was encountered in a field of a log record. Rec=*xx* specifies the record code of the IMS log record that caused the problem.

## System action

Processing terminates for the Resource Availability report.

## User response

This may be an IMS error. Contact your IBM representative for help.

---

**IPI0018E      LTERM not defined to IMS PA,  
Rec=*xx***

---

## Explanation

An LTERM that has not been defined to IMS PA via a type 40 log record was encountered during transaction processing. Rec=*xx* specifies the record code of the IMS log record that caused the problem.

## System action

Processing continues.

## User response

Contact your IBM representative for help.

---

**IPI0019E      First segment missing**

---

## Explanation

A continuation segment was encountered without a first segment to go with it.

## System action

The record is skipped. Processing continues.

## User response

This may be an IMS problem. Contact your IBM representative for help.

---

**IPI0020E      Record segments exceed indicated  
size**

---

## Explanation

A work area was allocated based on the length of the command buffer, as specified in the first segment of the record. However, as later segments were encountered, the work area was too small for the actual data.

## System action

The program processes the data that it has.



## User response

This is an IMS PA error. Contact your IBM representative for help.

---

### IPI0021E Invalid record

## Explanation

An invalid condition was detected in a type 02 log record.

## System action

Processing continues.

## User response

This may be an IMS problem. Contact your IBM representative for help.

---

### IPI0022E Error – input DRRN already in use

## Explanation

A type 01 or 03 log record specified a DRRN that was already in use.

## System action

Processing terminates for this report.

## User response

Contact your IBM representative for help.

---

### IPI0023E Unknown DC Trace record

## Explanation

An unknown DC trace record (type 67 log record) was encountered.

## System action

Processing continues.

## User response

This may be an IMS problem. Contact your IBM representative for help.

---

### IPI0024E Statistics record has an invalid length

## Explanation

A sub-section for the type 45 log record had an unsupported length. The record was bypassed. This condition might be caused by log records produced by

an unsupported release (or maintenance level) of IMS. It might also occur when the format of the log input records does not match the specified IMS release.

## System action

Processing continues.

## User response

Ensure that the PARM= parameter on the EXEC statement matches the IMS version (VRM) of the logs being reported on. If the logs are from a sysplex with IMS systems at different release levels, ensure each system is listed in the IPIOPTS DD statement in the format IMSPALOG SYSTEM(name,VRM), for example IMSPALOG SYSTEM(IMSB,V154). Correct the VRM and rerun the job. If unresolved, contact IBM Software Support.

---

### IPI0025E Unsupported statistics record found

## Explanation

An unknown subtype for the type 45 log record was detected. The record was bypassed. This condition might be caused by log records produced by an unsupported release (or maintenance level) of IMS.

## System action

Processing continues.

## User response

This may be an IMS problem. Contact your IBM representative for help.

---

### IPI0026E Unknown Latch statistic ID found, ID=xxxx

## Explanation

An unknown latch ID was detected in the type 45, subtype 06, log record. The statistics associated with this ID were ignored.

## System action

Processing continues.

## User response

A change to the IMS log record may have occurred. Contact your IBM representative for help.

---

### IPI0027E Unknown DL/I Calls Flags

## Explanation

The Database Update Activity report encountered a database update log record (X'50') whose DL/I application call was not known.

## System action

The database update is treated as an insert (ISRT) DL/I call.

## User response

None required.

---

**IPI0028E LTERM not found in table**

---

## Explanation

An LTERM that has not been defined to IMS PA via a type 40 log record was encountered.

## System action

Processing terminates for this report.

## User response

Contact your IBM representative for help.

---

**IPI0029E DC Queue Manager Trace Report stopped due to error**

---

## Explanation

The DC Queue Manager Trace report has been stopped due to an error in Log processing.

## System action

Processing terminates for this report.

## User response

Check previous error message for reason.

---

**IPI0030E Block Id length exceeds present capacity**

---

## Explanation

The Database Update Activity report encountered a database update log record (type 50) whose key data length was greater than 178 bytes.

## System action

IMS PA ignores the log record and continues processing.

## User response

Contact your IBM representative for help.

---

**IPI0031E Block Id length changed**

---

## Explanation

Block ID lengths (from the type 50 log record) have changed. This would usually be due to an online change. Eight bytes were dumped with the message. The first four bytes contain the address of the VQ data element, the next two bytes are the saved ID length, and the last two bytes are the new ID length.

## System action

Processing continues.

## User response

This may be an IMS problem. Contact your IBM representative for help.

---

**IPI0032E Unknown Prefix change**

---

## Explanation

An unknown record identifier was detected in the type 30 log record.

## System action

Processing continues.

## User response

This may be an IMS problem. Contact your IBM representative for help.

---

**IPI0033E Invalid length in type 36 record**

---

## Explanation

The length of the type 36 log record was invalid.

## System action

Processing continues.

## User response

This may be an IMS problem. Contact your IBM representative for help.

---

**IPI0034E Invalid length in type 37 record**

---

## Explanation

The length of the type 37 log record was invalid.

### System action

Processing continues.

### User response

This may be an IMS problem. Contact your IBM representative for help.

---

<b>IPI0036W</b>	<b>No data in specified time range. Graph ignored</b>
-----------------	---

---

### Explanation

No records were selected from the log for processing.

### System action

IMS PA does not print the Graph report.

### User response

Make sure the global and report-level **Report Interval** dates and times are within those on the log being processed. Then rerun the job.

---

<b>IPI0037E</b>	<b>TCODE not found in table</b>
-----------------	---------------------------------

---

### Explanation

Region Histogram transaction termination processing cannot find the associated transaction start point.

### System action

The Region Histogram report is stopped.

### User response

Contact your IBM representative for help.

---

<b>IPI0038E</b>	<b>Histogram reporting stopped due to error</b>
-----------------	---

---

### Explanation

The Region Histogram report has been stopped due to an error in Log processing.

### System action

The Region Histogram report is stopped.

### User response

Check the previous error message for the reason.

---

<b>IPI0039E</b>	<b>Logic error processing 01 record</b>
-----------------	---

---

### Explanation

An output transaction was detected while processing the type 01 log record. A message queue record contained a still active output message when it was revised by input.

### System action

Processing continues.

### User response

Contact your IBM representative for help.

---

<b>IPI0040E</b>	<b>DRRN already in use</b>
-----------------	----------------------------

---

### Explanation

A type 03 record specifies a DRRN already in use.

### System action

Processing continues.

### User response

Contact your IBM representative for help.

---

<b>IPI0041E</b>	<b>Logic error processing 03 record</b>
-----------------	---

---

### Explanation

An output transaction was detected while processing the type 03 log record. Another output message with the same DRRN was found on the temporary output queue.

### System action

Processing continues.

### User response

Contact your IBM representative for help.

---

<b>IPI0042I</b>	<b>Unknown reason code in type 10 record</b>
-----------------	--

---

### Explanation

An unknown reason code was encountered in a type 10 record.

### System action

Processing continues.

## User response

Include an IPIDIAGS DD statement in the JCL then rerun the job to get a snap of the problem record. Contact IBM Software Support with this information.

---

### **IPI0043E      Unknown error code in type 24 record**

## Explanation

A VSAM database I/O error record contained an error code other than read or write.

## System action

Processing continues.

## User response

Include an IPIDIAGS DD statement in the JCL then rerun the job to get a snap of the problem record. Contact your IBM representative with this information.

---

### **IPI0044E      Missing Enqueue Record for Transaction xxxxxxxx back from suspend queue**

## Explanation

Transaction xxxxxxxx returned from the suspend queue, and a log record was missing from the input data set. The enqueue from the suspend queue back to the SMB queue was not detected.

## System action

Processing continues. However, the output for this transaction may be incorrect.

## User response

Contact your IBM representative for help.

---

### **IPI0045E      DRRN/CNT conflict**

## Explanation

The origin CNT does not match the optional destination name due to missing log records.

## System action

The queue entry in error is deleted, and processing continues.

## User response

Contact your IBM representative for help.

---

### **IPI0046E      Logic error processing 31 record**

## Explanation

A GU call from DL/I was encountered, either:

- When a GU from communications was expected, or
- With no QLGUOPDN field

## System action

Processing continues.

## User response

Contact your IBM representative for help.

---

### **IPI0047E      Missing Suspend Record for Transaction xxxxxxxx back from Suspend Queue**

## Explanation

Transaction xxxxxxxx returned from the suspend queue, and a log record was missing from the input data set. The enqueue to the suspend queue was not detected.

## System action

Processing continues. However, the output for this transaction may be incorrect.

## User response

Contact your IBM representative for help.

---

### **IPI0048E      Logic error processing 35 record**

## Explanation

An output transaction was detected while processing the type 35 log record. A message queue record contained a still active input message when revised by output.

## System action

Processing continues.

## User response

Contact your IBM representative for help.

---

### **IPI0049E      Incomplete 01/03 message found**

## Explanation

An incomplete or deleted message was represented by a type 01 or 03 log record. This might be caused by incorrect time control parameters, or incomplete logs may have been mounted.

## System action

Processing continues.

## User response

This may be an IMS problem. Contact your IBM representative for help.

---

<b>IPI0050E</b>	<b>Uncommitted update count nnnnnn for database xxxxxxxx exceeds available storage</b>
-----------------	--

---

## Explanation

The maximum number of uncommitted block updates was reached. See [“Database Update Activity report and extract” on page 276](#).

## System action

The block update queue for database xxxxxxxx is deleted, and IMS PA reports \*\*\*\*\* for the block update count for that database. Processing continues.

## User response

Change the limit specified for the **Uncommitted Block Updates** option on the Database Update Activity panel, and resubmit the Report Set.

---

<b>IPI0051W</b>	<b>IMS Log Sequence numbers lose continuity after <i>seqnum</i>, End of Data Set assumed</b>
-----------------	--

---

## Explanation

The sequence numbers of each successive log record should increase by one or more. A break in this pattern was detected.

## System action

The end of data set was assumed; the remaining records will be skipped until the next checkpoint.

## User response

None required.

---

<b>IPI0052E</b>	<b>Invalid RQ chain off a TQ</b>
-----------------	----------------------------------

---

## Explanation

When trying to delete a previously cancelled message, IMS PA did not find a response queue entry for the message.

## System action

Processing terminates for this report.

## User response

Contact your IBM representative for help.

---

<b>IPI0053E</b>	<b>Conflicting Transaction codes in 01 and 08 records</b>
-----------------	---

---

## Explanation

The transaction codes located in the transaction queue and region queue should be the same.

## System action

The offending transaction is discarded and processing continues.

## User response

Contact your IBM representative for help.

---

<b>IPI0054W</b>	<b>Timestamp not found in Message Record – Record ignored</b>
-----------------	---

---

## Explanation

The record was skipped because there was no time stamp in it.

## System action

Processing continues.

## User response

If you think the record should have had a time stamp, contact your IBM representative for help.

---

<b>IPI0055E</b>	<b>Transit Internal error, Rec=xx, Reas=nn</b>
-----------------	--

---

## Explanation

Transit Report processing has detected an error. Rec=xx specifies the record code of the IMS log record that caused the problem. Reas=nn specifies an error reason code for diagnostics.

## System action

Processing continues.

## User response

Contact your IBM representative for help.

---

<b>IPI0056E</b>	<b>Conflicting Transaction codes in 01 and 07 records</b>
-----------------	---

---

## Explanation

A type 07 log record was processed for which no corresponding type 01 log record exists.

## System action

Processing continues.

## User response

Contact your IBM representative for help.

---

<b>IPI0057E</b>	<b>Processing time is not greater than zero seconds</b>
-----------------	---

---

## Explanation

The transaction time between the type 08 and 07 log records was negative.

## System action

Processing continues.

## User response

Contact your IBM representative for help.

---

<b>IPI0059E</b>	<b>Transit Reporting stopped due to error</b>
-----------------	---

---

## Explanation

The Transaction Transit reports have been stopped due to an error in log processing.

## System action

Transit processing terminates.

## User response

Check the previous error message for the reason.

---

<b>IPI0060E</b>	<b>Unknown LTERM xxxxxxxx in 03 record; Message ignored</b>
-----------------	---

---

## Explanation

Transit report processing encountered an output message log record (type 03) whose output destination was not defined.

## System action

IMS PA ignores the log record and continues processing.

## User response

None required.

---

<b>IPI0061W</b>	<b><i>report subreport</i> Transit Report ignored, no data was filtered from Log</b>
-----------------	--

---

## Explanation

No records were selected from the log for processing the specified *report* (for example, Analysis or Statistics) and *subreport* (for example, by Transaction or by LTERM).

## System action

Processing continues.

## User response

Make sure the global and report-level dates and times are within those on the log being processed, or that the **Include/Exclude Qualifiers** or other filtering options are correctly specified. Then resubmit the Report Set.

---

<b>IPI0062E</b>	<b>Error encountered building xxx Control Blocks, record subtype nn</b>
-----------------	---

---

## Explanation

An error occurred while building the IMS PA control block tables for the CLB, CNT, PSB, or SMB.

## System action

The remaining records were skipped until the next checkpoint. Processing continues.

## User response

None required.

---

<b>IPI0063E</b>	<b>Error encountered building ETO CNT table</b>
-----------------	---

---

**Explanation**

IMS PA has encountered an error processing an ETO LTERM checkpoint record.

**System action**

Record is ignored, processing continues.

**User response**

IMS PA error. Contact your IBM representative for help.

---

<b>IPI0064E</b>	<b>Duplicate CNT name xxxxxxxx in checkpoint</b>
-----------------	--

---

**Explanation**

Multiple checkpoint records contain the same CNTNAME.

**System action**

Processing continues.

**User response**

If many of these messages are received (usually followed by a severe error), it probably indicates that the log is from a different IMS release level than that specified. Make sure that the IMS version specified in System Definitions corresponds to the IMS version of the log input files specified for that subsystem. Then rerun the job.

---

<b>IPI0065E</b>	<b>Logic error – CTB to CNT link failed</b>
-----------------	---

---

**Explanation**

IMS PA could not determine the physical terminal for an LTERM.

**System action**

Record is ignored, processing continues.

**User response**

IMS PA error. Contact your IBM representative for help.

---

<b>IPI0066E</b>	<b>Time difference negative - unusual sequence, record ignored</b>
-----------------	--

---

**Explanation**

A record processor detected a negative time difference for a DL/I call.

**System action**

The record is ignored, and processing continues.

**User response**

None required. This is a warning message indicating an irregular sequence found in the monitor trace. For further details, see “Nonstandard Monitor Record Sequences” in the *IMS Performance Analyzer for z/OS: Report Reference*.

---

<b>IPI0067W</b>	<b>Q Entry for Region Totals created</b>
-----------------	--

---

**Explanation**

IMS PA could not find the Region Totals Q entry.

**System action**

The entry is built and processing continues.

**User response**

None required.

---

<b>IPI0068E</b>	<b>No HISTOGRAM control specified, report not run</b>
-----------------	---

---

**Explanation**

The monitor Histogram processing modules determined that Histogram control was not specified in the control table IPIATBLE.

**System action**

The Histogram is omitted, and processing continues.

**User response**

Contact your IBM representative for help.

---

<b>IPI0069E</b>	<b>Monitor file has record out of place, waiting for trace start</b>
-----------------	--

---

**Explanation**

IMS PA was expecting a trace start monitor record.

**System action**

The record is ignored and processing continues.

**User response**

None required.

---

<b>IPI0071E</b>	<b>Error on some IMS PA Queue, internal logic error</b>
-----------------	---

---

## Explanation

This is an IMS PA internal logic error.

## System action

Processing stops.

## User response

IMS PA error. Contact your IBM representative for help.

---

<b>IPI0072E</b>	<b>Call records out of sequence, record ignored</b>
-----------------	---

---

## Explanation

In a monitor trace, a type 61 (DL/I call ended) record was found when no call was started.

## System action

The record is ignored, and processing continues.

## User response

None required. This is a warning message indicating an error in the monitor formatting module. For further details, see "Nonstandard Monitor Record Sequences" in the *IMS Performance Analyzer for z/OS: Report Reference*.

---

<b>IPI0073E</b>	<b>Invalid schedule start (end of prior), record ignored</b>
-----------------	--

---

## Explanation

The explanation depends on the IMS system in use, as follows:

- In a monitor trace, the PSB name and Transaction Code from a type 02, 06, or 10 (scheduling started) record did not match the PSB name and Transaction Code from the previous type 03, 07, or 11 (scheduling ended) record.
- In a monitor trace, a type 61 (DL/I call ended) record was expected, but was not received before this type 02, 06, or 10 (scheduling started) record.

An error in the execution of the online IMS monitor formatting routine may have occurred.

## System action

The trace record is not used, and processing continues.

## User response

None required. This is a warning message indicating an irregular sequence found in the monitor trace. For further details, see "Nonstandard Monitor Record Sequences" in the *IMS Performance Analyzer for z/OS: Report Reference*.

---

<b>IPI0074E</b>	<b>IWAIT ignored, no IWAIT start or not in a call</b>
-----------------	---

---

## Explanation

In a monitor trace, one of the following occurred:

- An IWAIT end record was read for which no IWAIT start record was received.
- An IWAIT end record was read that is a different type than the previously read IWAIT start record.

## System action

Processing continues, and the record is ignored.

## User response

None required. This is a warning message indicating an error in the monitor formatting module. For further details, see "Nonstandard Monitor Record Sequences" in the *IMS Performance Analyzer for z/OS: Report Reference*.

---

<b>IPI0075E</b>	<b>Call records out of sequence, this record overrides</b>
-----------------	--

---

## Explanation

In a monitor trace, two successive type 60 (DL/I call started) records were found without an intervening call end record.

## System action

Processing continues, using the last record.

## User response

None required. This is a warning message indicating an error in the monitor formatting module. For further details, see "Nonstandard Monitor Record Sequences" in the *IMS Performance Analyzer for z/OS: Report Reference*.

---

<b>IPI0076E</b>	<b>ITask ID does not match expected, record ignored</b>
-----------------	---

---

## Explanation

In a monitor trace, an unexpected ITask sequence number was found on a trace record.



## System action

The record is ignored, and processing continues.

## User response

None required. This is a warning message indicating an irregular sequence found in the monitor trace. For further details, see "Nonstandard Monitor Record Sequences" in the *IMS Performance Analyzer for z/OS: Report Reference*.

---

<b>IPI0077E</b>	<b>ITask ID does not match expected, ITask ID reset</b>
-----------------	---

---

## Explanation

In a monitor trace, an unexpected ITask sequence number was found on a trace record.

## System action

The record is ignored, and processing continues.

## User response

None required. This is a warning message indicating an irregular sequence was found in the monitor trace. For further details, see "Nonstandard Monitor Record Sequences" in the *IMS Performance Analyzer for z/OS: Report Reference*.

---

<b>IPI0078E</b>	<b>Additional Buffer Prime Call required for schedule</b>
-----------------	---

---

## Explanation

During region scheduling, more than one buffer priming call was made to the input message queue to obtain a message.

## System action

Processing continues.

## User response

None required. This is an unusual IMS occurrence. A large number of such occurrences may indicate a problem in message region scheduling.

---

<b>IPI0079E</b>	<b>Trancode with PSBNAME xxxxxxxx scheduled, no call resulted</b>
-----------------	---

---

## Explanation

Specified PSB was scheduled, but no database calls resulted.

## System action

Processing continues.

## User response

None required.

---

<b>IPI0080E</b>	<b>Processing aborted since DCB failed to open</b>
-----------------	--

---

## Explanation

IMS PA was unable to open the data control block for the data set that was to receive the statistics records from the monitor trace.

## System action

Processing continues, and this function is skipped.

## User response

Correct the data set name specified for **Trace Data Set** on the Monitor Global Options panel. Check the DD statement for IPISTOUT. Then resubmit the Report Set.

---

<b>IPI0081E</b>	<b>SYSPRINT DD statement missing - run halted</b>
-----------------	---

---

## Explanation

SYSPRINT DD statement is missing from the JCL.

## System action

Processing terminates.

## User response

Add the SYSPRINT DD statement to the JCL and resubmit the job.

---

<b>IPI0082E</b>	<b>IPIRSET DD statement missing - run halted</b>
-----------------	--

---

## Explanation

The Report Set data set is not allocated.

## System action

Report Set processing terminates.

## User response

Add the Report Set data set to the JCL and resubmit the job.

---

**IPI0083E**      **Member xxxxxxxx not in Report Set format**

---

### Explanation

The specified member is not in IMS PA Report Set format.

### System action

Report Set processing terminates.

### User response

Verify the specified Report Set name is a valid Report Set.

---

**IPI0084I**      **Report Set xxxxxxxx read successfully**

---

### Explanation

The specified Report Set has been read without error.

### System action

Processing continues.

### User response

None required.

---

**IPI0085W**      **No required report options are set**

---

### Explanation

The Report Set has an activated report, but the report has no required report options set.

### System action

IMS PA ignores this report, but continues processing the rest of the Report Set.

### User response

Select the report you require and resubmit the job.

---

**IPI0086E**      **No reports active in Report Set**

---

### Explanation

The Report Set has no active reports.

### System action

IMS PA does not process the Report Set.

### User response

Activate the reports you require and resubmit the job.

---

**IPI0087E**      **Object List read error, reason**

---

### Explanation

IMS PA failed to read an Object List from file IPIOBJL. Typical reasons include that the DDname IPIOBJL is not in the JCL, or the required Object List is not found in the PDS specified by IPIOBJL.

### System action

IMS PA does not process the Report Set.

### User response

Correct the problem and resubmit the job.

---

**IPI0088E**      **Distribution read error, reason**

---

### Explanation

IMS PA failed to read a Distribution from file IPIDIST. Typical reasons include that the DDname IPIDIST is not in the JCL, or the required Distribution is not found in the PDS specified by IPIDIST.

### System action

IMS PA does not process the Report Set.

### User response

Correct the problem and resubmit the job.

---

**IPI0089E**      **User Program module xxxxxxxx could not be found**

---

### Explanation

The specified User Program module name could not be found in the STEPLIB libraries.

### System action

IMS PA continues processing. The User Program will not be run.

### User response

Ensure the User Program module resides in the User Program Load Library. This library is specified in the **User Program Load Library** option on the IMS PA Settings panel, and is used as a STEPLIB library at report submit time. See [“IMS PA Settings” on page 66](#).

---

<b>IPI0090E</b>	<b>System module xxxxxxxx could not be found</b>
-----------------	--

---

### Explanation

IMS PA could not find the specified module in the STEPLIB. If the module name is DFSVC000, IMS PA was loading it to determine your IMS release.

### System action

Report Set processing terminates immediately.

### User response

If the module name is DFSVC000, either specify the IMS version in the JCL PARM specification as 'Vnnn', where *nnn* is either 151, or add the IMS RESLIB data set to the STEPLIB concatenation.

If it is an IMS PA module, check that your IMS PA load library was specified correctly. This library is specified in the **IMS PA Load Library** option on the IMS PA Settings panel, and is used as a STEPLIB library at report submit time. See “IMS PA Settings” on page 66.

Correct the entries, then resubmit the job. If the problem persists, contact your IBM representative for help.

---

<b>IPI0091E</b>	<b>Report Set xxxxxxxx at level nnn not supported by IMS PA level mmm</b>
-----------------	---

---

### Explanation

The Report Set specified for processing was built at a higher level of IMS PA than is currently processing.

### System action

Report Set processing terminates immediately.

### User response

If you have recently upgraded your level of IMS PA, ensure that the JCL you are submitting specifies the new IMS PA load library.

---

<b>IPI0092I</b>	<b>Management Exception Transaction Averages saved into DSN datasetname</b>
-----------------	---

---

### Explanation

The Management Exception report has built the specified Averages Data Set with Transaction Transit information from the log input files.

### System action

IMS PA continues processing.

### User response

Averages Data Sets can be viewed from option 4.3 **Averages** of the dialog.

---

<b>IPI0093I</b>	<b>Management Exception Transaction Averages merged into DSN datasetname</b>
-----------------	--

---

### Explanation

The Management Exception report has built the specified Averages Data Set by merging Transaction Transit information from the log input files, together with an old Averages Data Set.

### System action

IMS PA continues processing.

### User response

Averages Data Sets can be viewed from option 5 **Averages** of the dialog.

---

<b>IPI0094E</b>	<b>Transit Log Report file xxxxxxxx allocation failed</b>
-----------------	---

---

### Explanation

The Transaction Transit Log report processor failed to dynamically allocate the specified output file. IMS PA attempts to allocate the Log output file like the SYSPRINT file.

### System action

The Transaction Transit Log report is ignored.

### User response

Specify the Transaction Transit Log output file DD directly in the JCL, avoiding the need for the Log report processor to dynamically allocate it.

---

<b>IPI0095E</b>	<b>IMS PA has failed ABENDxxxx-xxxxxxx, recovery attempt in progress</b>
-----------------	--

---

### Explanation

IMS PA has abended with the specified abend code.

### System action

IMS PA attempts to recover from the abend condition. All input file processing is stopped. Incomplete reports are written with the available data. However, if IMS PA abends a second time during this attempt, then no further recovery is attempted and the job step immediately abends.

### User response

The abend code may indicate a user or environmental error. Common abend codes are:

**S002**

Input file I/O error, check that the log input file contains valid data.

**S0C7**

Sometimes caused by an incorrect IMS version specification, check the **EXEC PARM= 'Vnnn'** specification.

**S80A**

Short of storage condition, increase the REGION size.

**S878**

Short of storage condition, increase the REGION size.

**S913**

Security violation, check with your security administrator.

Other abend codes, for example S0C4, may indicate a problem with IMS PA. Rerun the job with **EXEC PARM= 'Vnnn, NOSTAE'** and a SYSUDUMP DD to collect the dump. For more information on the required JCL, see [“Obtaining dumps” on page 621](#). Then contact IBM.

---

**IPI0096E**      **Report Form read error, reason**

### Explanation

IMS PA was unable to find or decode a Report Form specified in a Report Set. Typical reasons include that the DDname IPIFORM is not in the JCL, or the specified Report Form is not found in the Report Forms data set.

### System action

IMS PA does not process the Report Set.

### User response

Correct the problem if it relates to the specification of a Report Forms data set or member, then resubmit the report request. Otherwise, contact your IBM representative for help.

---

**IPI0097I**      **nnnnnnnnnn records written to IMS transaction index**

### Explanation

The number of records written to the IMS transaction index data set. The IMS transaction index is created from IMS log files and contains one record of accumulated information for each transaction on the input logs.

### System action

IMS PA continues processing.

### User response

None required. The IMS transaction index is available for reporting.

---

**IPI0098I**      **Premature End of File, reports may be incomplete**

### Explanation

End of file was reached for the monitor data set, but no SLOG 91 (monitor stop) event was detected. Monitor file creation may have ended with ABENDx37 due to a data set size constraint.

### System action

Reporting terminates. All the reports are written using the available data. The Buffer Pool & Latch Statistics report, if requested, will be incomplete.

### User response

Ensure the size of the monitor data set is large enough to contain the volume of data you need to collect.

---

**IPI0099W**      **More than 150 x'4518' TCB records encountered, subsequent records will be ignored**

### Explanation:

More than 150 x'4518' TCB records were encountered during batch processing.

### System action:

The records are ignored.

### User response:

None.

---

**IPI0100W**      **Command is ignored - command name**

### Explanation

During conversion of IMSPARS or IMSASAP commands to Report Set format, IMS PA encountered an unsupported command.

### System action

The command is ignored and processing continues.

### User response

Verify that the command has no impact on IMS PA processing of a Report Set. If it does, contact your IBM representative for help; otherwise the command can be ignored.

---

<b>IPI0101E</b>	<b>Report Set file IPIRSET not allocated</b>
-----------------	--

### Explanation

IPIRSET DD statement is missing from the JCL.

### System action

Processing terminates.

### User response

Add the required DD statement to the JCL and resubmit. During conversion of IMSPARS or IMSASAP commands to Report Set format, IMS PA creates the new Report Set in the PDS specified with DDname IPIRSET. A member name must be specified.

---

<b>IPI0102W</b>	<b>Operand is ignored - <i>operand name</i></b>
-----------------	---

### Explanation

During conversion of IMSPARS or IMSASAP commands to Report Set format, IMS PA encountered an operand where it was not expected.

### System action

The operand is ignored and processing continues.

### User response

Check that the operand does not impact the use of the new Report Set. If it does, you may be able to activate the operand from the IMS PA dialog. Otherwise, contact your IBM representative for help.

---

<b>IPI0103W</b>	<b>Operand is unsupported - <i>operand name</i></b>
-----------------	---

### Explanation

The specified operand is not supported by IMS PA.

### System action

IMS PA ignores the operand (and its suboperands) and continues processing.

### User response

Verify that the Report Set performs the required functions.

---

<b>IPI0104E</b>	<b>Operand out of context - <i>operand name</i></b>
-----------------	---

### Explanation

During conversion of IMSPARS or IMSASAP commands to Report Set format, IMS PA encountered an operand used out of context.

### System action

Processing terminates.

### User response

Check that the operand does not impact the use of the new Report Set. If it does, you may be able to activate the operand from the dialog. If so, remove the operand and rerun the job. Otherwise, contact your IBM representative for help.

---

<b>IPI0105E</b>	<b>Report Set build has failed</b>
-----------------	------------------------------------

### Explanation

During conversion of IMSPARS or IMSASAP commands to Report Set format, IMS PA encountered an error. A previous error message will have described the error condition.

### System action

Processing terminates.

### User response

Identify any previous error messages issued and check the reason for the errors.

---

<b>IPI0106I</b>	<b>Report Set <i>Report Set name</i> built successfully</b>
-----------------	---

### Explanation

IMS PA has successfully converted IMSPARS or IMSASAP commands to an IMS PA Report Set.

## System action

Processing continues.

## User response

None required.

---

<b>IPI0107E</b>	<b>Object List build failed, reason = <i>failure reason</i></b>
-----------------	---

---

## Explanation

During conversion of IMSPARS or IMSASAP commands to Report Set format, IMS PA could not create an Object List for the reason specified; for example, DDname missing.

## System action

References to the Object List name in the Report Set are set to \*ERROR, and processing continues.

## User response

Correct the reason for the failure and rerun the job.

---

<b>IPI0108I</b>	<b>Object List <i>Object List name</i> connected, status = <i>status</i></b>
-----------------	--

---

## Explanation

During conversion of IMSPARS or IMSASAP commands to Report Set format, IMS PA created an Object List that is used by the Report Set.

## System action

Processing continues.

## User response

None required.

---

<b>IPI0109E</b>	<b>Distribution build failed, reason = <i>failure reason</i></b>
-----------------	--

---

## Explanation

During conversion of IMSPARS or IMSASAP commands to Report Set format, IMS PA could not create a Distribution for the reason specified; for example, DDname missing.

## System action

References to the Distribution name in the Report Set are set to \*ERROR, and processing continues.

## User response

Correct the reason for the failure and rerun the job.

---

<b>IPI0110I</b>	<b>Distribution <i>Distribution name</i> connected, status = <i>status</i></b>
-----------------	--

---

## Explanation

During conversion of IMSPARS or IMSASAP commands to Report Set format, IMS PA created a Distribution that is used by the Report Set.

## System action

Processing continues.

## User response

None required.

---

<b>IPI0111E</b>	<b>Report Set File IPIRSET does not include a member name</b>
-----------------	---

---

## Explanation

IPIRSET DD does not include a member name. IMS PA identifies the Report Set name from the member name specification.

## System action

Processing terminates.

## User response

Add a member name to the IPIRSET DD statement and rerun the job.

---

<b>IPI0120I</b>	<b>Expectation Set <i>name</i> built successfully</b>
-----------------	---

---

## Explanation

IMS PA has successfully converted an IMSPARS expectation file to the new IMS PA Expectation Set format.

## System action

Processing continues.

## User response

None required.

---

<b>IPI0121E</b>	<b>Expectation Set build has failed, reason = <i>error reason</i></b>
-----------------	---

---

**Explanation**

IMS PA has failed to convert an IMSPARS expectation file to the new IMS PA Expectation Set format.

**System action**

Processing terminates.

**User response**

If possible, correct the error and rerun the conversion. Otherwise, contact your IBM representative for help.

---

<b>IPI0130E</b>	<b>Error in Parameter <i>parameter number</i></b>
-----------------	---

---

**Explanation**

The IMS PA Export/Graph module has detected an error in the EXEC PARM.

**System action**

Processing terminates.

**User response**

If the job was submitted from the IMS PA dialog, an error constructing the parameter has occurred. Contact your IBM representative for help.

---

<b>IPI0131E</b>	<b>Extract Input File <i>ddname</i> not allocated</b>
-----------------	---

---

**Explanation**

The IMS PA Export/Graph module required the Extract Data Set to be allocated.

**System action**

Processing terminates.

**User response**

If the job was submitted from the IMS PA dialog, check the JCL built by the SUB or JCL command to ensure that the Extract Data Set was properly included.

---

<b>IPI0132E</b>	<b>Export Output File <i>ddname</i> not allocated</b>
-----------------	---

---

**Explanation**

The IMS PA Export/Graph module required the Export Data Set to be allocated.

**System action**

Processing terminates.

**User response**

If the job was submitted from the IMS PA dialog, check the JCL built by the SUB or JCL command to ensure that the Export Data Set was properly included.

---

<b>IPI0133E</b>	<b>Error converting Extract Record, <i>reason</i></b>
-----------------	---

---

**Explanation**

The IMS PA Export/Graph module failed to convert an Extract record into an Export or Graph record.

**System action**

Processing terminates.

**User response**

Verify that the Extract Data Set was created successfully from the Extract report process. If it was, contact your IBM representative for help.

---

<b>IPI0134E</b>	<b>Extract data set does not contain valid extract data</b>
-----------------	---

---

**Explanation**

The IMS PA Export/Graph module detected a record in the Extract Data Set that is not in Extract format.

**System action**

Processing terminates.

**User response**

Ensure that an Export Data Set was not inadvertently specified as the Extract Data Set. Verify that the Extract Data Set was created successfully from the Extract report process; if it was, contact your IBM representative for help.

---

<b>IPI0135E</b>	<b>Extract data set is empty</b>
-----------------	----------------------------------

---

**Explanation**

The IMS PA Export/Graph module detected that the Extract Data Set is empty.

**System action**

Processing terminates.

## User response

Run an Extract report to populate the Extract Data Set.

---

**IPI0136E                      No Extract records selected**

---

## Explanation

The IMS PA Export/Graph module could not find any records in the Extract Data Set that matched the selected filtering options. The *reason* can be:

- **Range From Date/Time - To Date/Time.** The specified date/time range does not fall within the date/time range of the extract. The date/time range included in the message is that of the Extract Data Set.
- **Interval data not collected.** Interval data was requested for the export/graph request, but interval data is not contained in the Extract Data Set.
- **Transaction data not collected.** Transaction data was requested for the export/graph request, but transaction data is not contained in the Extract Data Set.
- **Transaction Trancode data not collected.** The specified transaction code was requested for the export/graph request, but the Extract Data Set does not include data for that transaction code.
- **Check filtering options.** An unknown reason caused no extract records to be selected.

## System action

Processing terminates.

## User response

Ensure the requested date/time range falls within the date/time range of the data in the Extract Data Set, or that the selected transaction code is in the Extract Data Set. If you want to export or graph the data by Interval or by Transaction, ensure the data in the Extract Data Set was extracted according to that same criteria. Correct the offending options and retry the request. If the reason for the problem cannot be established, contact your IBM representative for help.

---

**IPI0137E                      GDDM has failed to display/print graph, RC=return code**

---

## Explanation

The IMS PA Graph module failed to display (or print) a graph using GDDM.

## System action

Processing terminates.

## User response

Check the previous error message for the failure reason. Correct the problem and retry the request.

---

**IPI0138E                      Graph/Export request has failed, RC=8**

---

## Explanation

The IMS PA Export/Graph module has failed to perform the request.

## System action

Processing terminates.

## User response

Check the previous error message for the failure reason. Correct the problem and retry the request.

---

**IPI0139I                      Graph/Export request completed successfully, RC=0**

---

## Explanation

The IMS PA Export/Graph module has completed successfully. The Export Data Set or GDDM graphs have been successfully built.

## System action

None required.

## User response

The Export Data Set is now ready for processing, or the GDDM graphs are ready for viewing.

---

**IPI0140E                      Peak Percentage invalid - percentage**

---

## Explanation

The IMS PA Export/Graph module detected that the peak percentage specification is not within the range 50 to 100.

## System action

Processing terminates.

## User response

Correct the Peak Percentage specification and retry the request. This error should not occur in the IMS PA dialog. If it was, contact your IBM representative for help.



---

<b>IPI0141E</b>	<b>GDDM is not available</b>
-----------------	------------------------------

---

### Explanation

The IMS PA Export/Graph module detected that the GDDM interface program (ADMASPLT) was not available.

### System action

Processing terminates and no graphs are produced.

### User response

Make the GDDM interface program accessible to IMS PA by adding the GDDM execution library to the load module search path of your job.

---

<b>IPI0142W</b>	<b>Graphs terminated via End or Cancel</b>
-----------------	--

---

### Explanation

The display of multiple graphs has been interrupted by the user pressing the End or Cancel key.

### System action

If there are more graphs beyond this point, they are not displayed, and the user is returned to the invoking panel.

### User response

None required.

---

<b>IPI0143E</b>	<b>GDDM abnormal termination <i>abend code</i></b>
-----------------	--

---

### Explanation

GDDM terminated abnormally giving an abend code such as S806.

### System action

The extract graphing process terminates.

### User response

Check your GDDM and GDDM-PGF installation. If the reason for the problem cannot be established, contact your IBM representative for help.

---

<b>IPI0144E</b>	<b>Printer name '<i>printer ID</i>' is not a valid GDDM nickname</b>
-----------------	--

---

### Explanation

The specified Printer ID is unknown to GDDM.

### System action

The extract graphing print process terminates.

### User response

Specify a valid GDDM nickname for the Printer ID and resubmit the print request.

---

<b>IPI0145E</b>	<b>Extract and Export DSNs cannot be the same data set</b>
-----------------	--

---

### Explanation

The name of the Extract Data Set specified on the Extract Graphing & Export panel is the same as that specified for the Export Data Set on the Extract Export panel.

### System action

IMS PA terminates export processing.

### User response

Ensure the Extract Data Set has been created from a Transit Extract by Interval report and the Export Data Set has a different name.

---

<b>IPI0150E</b>	<b>Mismatched MSGORGTK found processing 35 record, LSN=xxxxxxxxxxxxxxxxxx</b>
-----------------	---

---

### Explanation

A mismatched, or duplicate, MSGORGTK is found when processing the IMS x'35' record for a program-switch transaction.

### System action

IMS Performance Analyzer processing logic will switch to **PROGRAMSWITCH(NO)** and not attempt to re-link program-switch messages. Message "[IPI0355W](#)" on [page 595](#) will be also be issued to indicate that the change in processing logic has taken place.

### User response

Possible IMS error. Contact your IBM representative for help.

---

<b>IPI0151E</b>	<b>Report Filter read error, <i>message</i></b>
-----------------	---

---

## Explanation

An error occurred attempting to read the Report Filter data set.

## System action

Processing stops.

## User response

Review the message, make changes, and retry the request.

---

<b>IPI0152I</b>	<b>PSB name / TRAN name scheduled in multiple regions</b>
-----------------	---

---

## Explanation

MONITOR TRACE has a restriction where only one transaction can be reported at a time.

## System action

None. Information message only.

## User response

This message informs users that the requested program is scheduled in Multiple Regions at the same time which may require additional analysis.

---

<b>IPI0250E</b>	<b>GETDSAB macro error, Ret=xx, Reas=nn</b>
-----------------	---

---

## Explanation

IMS PA received a bad return code from the GETDSAB macro.

## System action

IMS PA processing terminates.

## User response

IMS PA error. Contact your IBM representative for help.

---

<b>IPI0251E</b>	<b>No log input files specified in the JCL</b>
-----------------	--

---

## Explanation

IMS PA could not find any DD statements referring to log input files in the JCL.

## System action

IMS PA processing terminates.

## User response

IMS PA generates unique DDnames for the log input files for the specified system or group of systems. Check your System Definitions, then rebuild your JCL from the dialog.

---

<b>IPI0252E</b>	<b>ATTACH macro error, Ret=xx</b>
-----------------	-----------------------------------

---

## Explanation

IMS PA received a bad return code from the ATTACH macro.

## System action

IMS PA processing terminates.

## User response

IMS PA error. Contact your IBM representative for help.

---

<b>IPI0253E</b>	<b>Pre-Merge Subtask Abended, DD=xxxxxxx, Abend Code=yyyyyyy, Reason Code=nnnnnnnn</b>
-----------------	--

---

## Explanation

IMS PA pre-merge copy processing has abended while copying required log records from the shared queue log input file on tape to the DASD merge work file.

## System action

IMS PA processing terminates.

## User response

If the abend code is 80x37000 (Sx37 abend), then the merge work file specified is probably too small. On the Shared Queue Settings panel, increase the space allocation settings in the **Shared Queue Merge Work File Allocation Details**, then resubmit the job. Otherwise, contact your IBM representative for help.

---

<b>IPI0254E</b>	<b>Merge Work File DD xxxxxxxx statement missing</b>
-----------------	--

---

## Explanation

IMS PA pre-merge copy processing required the specified merge work file DD to be allocated when processing a shared message queue log file.

## System action

IMS PA processing terminates.

## User response

Ensure that the merge work file allocation settings are correct in the **Shared Queue Settings** option in the dialog. Rebuild your JCL from the dialog.

---

<b>IPI0255I</b>	<b>xxxxxxx Input File xxxxxxxx Pre-Merge Copy from Tape to DASD has Started</b>
-----------------	---

---

## Explanation

IMS PA pre-merge copy processing has started to process the specified file.

## System action

IMS PA continues processing.

## User response

None required.

---

<b>IPI0256I</b>	<b>xxxxxxx Input File xxxxxxxx Pre-Merge Copy Start of Time Range</b>
-----------------	---

---

## Explanation

IMS PA pre-merge copy processing has detected the first log record in the specified input file that falls within the requested date/time range of the Report Set.

## System action

IMS PA commences to copy required records from the input file on tape to the DASD merge work file.

## User response

None required.

---

<b>IPI0257I</b>	<b>xxxxxxx Input File xxxxxxxx Pre-Merge Copy End of Time Range</b>
-----------------	---

---

## Explanation

IMS PA pre-merge copy processing has detected the last record in the specified input file that falls within the requested date/time range of the Report Set.

## System action

IMS PA stops processing the current input file, and continues onto the next.

## User response

None required.

---

<b>IPI0258I</b>	<b>xxxxxxx Input File xxxxxxxx Pre-Merge Copy from Tape to DASD has Ended</b>
-----------------	---

---

## Explanation

IMS PA pre-merge copy processing has completed processing the specified input file.

## System action

IMS PA continues processing.

## User response

None required.

---

<b>IPI0259I</b>	<b>Recs/Bytes In=numrecs/ numbytes, Out=numrecs/numbytes</b>
-----------------	--

---

## Explanation

The current log input file specified in the previous IPI0258I message has completed pre-merge copy processing. This message details how many records and bytes were read in from the shared queue log input file, and how many records and bytes were written out to the merge work file.

## System action

IMS PA continues processing.

## User response

None required.

---

<b>IPI0300I</b>	<b>System xxxx Log Started, DDname=ddname</b>
-----------------	---

---

## Explanation

IMS PA has commenced processing log records from log input files for the specified IMS subsystem.

## System action

IMS PA continues processing.

## User response

None required.

---

<b>IPI0301I</b>	<b>System xxxx Start of Time Range</b>
-----------------	--

---

## Explanation

IMS PA has reached the first log record within the user-specified time range.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0302I            System xxxx End of Time Range**

### Explanation

IMS PA has reached the last log record within the user-specified time range.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0303I            System xxxx Log Ended,  
                     DDname=ddname**

### Explanation

IMS PA has completed processing log records from log input files for the specified IMS subsystem.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0304I            System xxxx Stopped**

### Explanation

The specified IMS subsystem has been stopped, or log input end of file has been reached.

### System action

IMS PA performs End of File processing. In an IMS sysplex with multiple IMS subsystem log input IMS PA continues processing the log input of the remaining IMS subsystems.

### User response

None required.

---

**IPI0305I            System xxxx HSB Takeover**

### Explanation

The log input file was closed by DFSFDLU0 for an HSB takeover for the specified IMS subsystem.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0306I            System xxxx stopped for RSR  
                     Takeover**

### Explanation

IMS has stopped for RSR takeover for the specified IMS subsystem.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0307I            System xxxx Emergency Restart  
                     detected**

### Explanation

The log input file was closed by DFSFDLU0 for an emergency restart for the specified IMS subsystem.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0308I            System xxxx Restarted**

### Explanation

Specified IMS subsystem has been restarted.

### System action

Processing continues.

### User response

None required.

---

**IPI0309W**      **Large time gap was found in log input, End of Data Set assumed**

### Explanation

A large time gap was detected in the log input. IMS PA performs End of Data Set processing, then resumes normal record processing from that point.

### System action

Processing continues.

### User response

None required.

---

**IPI0310I**      **Transit processing started**

### Explanation

IMS PA Transit Report processing has detected the first complete Transaction Set. Transit reports start from this time.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0311I**      **Transit processing ended, Transaction Sets processed=xxxxxxx**

### Explanation

IMS PA Transit Report processing has detected the last complete Transaction Set. Transit reports stop at this time.

### System action

IMS PA continues processing.

### User response

None required.

---

**IPI0312W**      **Transit processing ended, no Transaction Sets were processed**

### Explanation

IMS PA Transit Report processing did not detect any complete Transaction Sets. Transit reports will not be produced.

### System action

IMS PA continues processing other selected reports.

### User response

Verify that the log input file data falls within the date-time range you specified for reporting. For shared message queue log input, ensure that all IMS subsystems in the sysplex have log input for the specified time range of the report.

---

**IPI0313I**      **Log input for System xxxx contains a Checkpoint for system yyyy**

### Explanation

IMS PA detected log input where the IMS subsystem ID specified in the DDname does not match the IMS subsystem ID in the Checkpoint log record.

### System action

IMS PA continues processing and reporting for that subsystem with the subsystem ID specified in the log input DDname, and ignores the subsystem ID in the Checkpoint log record.

### User response

If you wish to correct the IMS subsystem ID for future reports, rename the subsystem in System Definitions in the dialog.

---

**IPI0314I**      **Transit processing detected  
nnnnnnn Shared Queue  
Transactions with missing Log  
records**

### Explanation

At the completion of transit processing, *nnnnnnnn* shared queue transactions were not reported because some log data for the transactions was not available. The missing log data may be from another IMS subsystem in the sysplex.

### System action

Shared queue transactions with missing log data are not reported by IMS PA.

### User response

Ensure log data from all IMS subsystems in the sysplex is specified in the IMS PA System Definitions. Minimize the number of unprocessed transactions and reduce IMS PA processing time by specifying a global Report

Interval that intersects the log input from all IMS subsystems in the sysplex.

---

**IPI0315I**      **Transit processing detected**  
**nnnnnnnn Transactions that were**  
**not completed**

**Explanation**

At the completion of transit processing, *nnnnnnnn* transactions were not reported because they had not completed within the time range or by the end of the log input.

**System action**

Incomplete transactions are not reported by IMS PA.

**User response**

None required.

---

**IPI0316I**      **xxxxxxx Input File *ddname***  
**lost continuity. Rec=nnnnnnnn**  
**Time=*time1/time2***

**Explanation**

A sequence error was detected in the specified input file. Records should be in chronological sequence, but record *nnnnnnnn* has a time stamp earlier than the previous record. The time stamps *time1* and *time2* caused the gap condition. *xxxxxxx* is the type of file, for example, Log.

**System action**

Reporting continues. This message is only issued once and subsequent conditions are ignored.

**User response**

None required, although you might investigate why the input file contains sequence errors. To ignore log sequencing errors and suppress this message, specify Log global option IGNORSEQ.

---

**IPI0317I**      **xxxxxxx Input File *ddname***  
**lost continuity. Rec=nnnnnnnn**  
**Seq=*seq1/seq2***

**Explanation**

A sequence error was detected in the specified input file at record *nnnnnnnn*. The sequence numbers of successive log records should increase. The sequence numbers *seq1* and *seq2* caused the discontinuity condition. *xxxxxxx* is the type of file, for example, Log.

**System action**

Reporting continues. This message is only issued once and subsequent conditions are ignored.

**User response**

None required, although you might investigate why the input file contains sequence errors. To ignore log sequencing errors and suppress this message, specify Log global option IGNORSEQ.

---

**IPI0318I**      **Log input for System *xxxx***  
**sequence IMS PA interruption**  
**detected, End of Data Set**  
**assumed**

**Explanation**

IMS PA encountered a log record sequence gap or continuity problem. Message IPI0316I or IPI0317E will precede this message detailing the nature and location of the problem.

**System action**

IMS PA performs end of data set processing, then resumes record processing from the start of the sequence interruption.

**User response**

None required.

---

**IPI0320E**      **Transaction History File IPITHIST**  
**DD statement missing**

**Explanation**

The Transaction History File was requested in your report request, but the Transaction History File DD name is missing from the JCL.

**System action**

The request is aborted.

**User response**

Specify the Transaction History File DD in the JCL and resubmit the request.

---

**IPI0321I**      **Transaction History File Collection**  
**completed successfully**

**Explanation**

Transaction History File data was successfully written to the data set.

## System action

Processing continues.

## User response

Use Db2 to analyze the data contained in the Transaction History File.

---

<b>IPI0322E</b>	<b>Transaction History File Collection aborted due to previous error</b>
-----------------	--

---

## Explanation

The Transaction History File request failed due to a previous error.

## System action

The request is aborted.

## User response

Identify and action the previous error message that caused this request to fail.

---

<b>IPI0323W</b>	<b>Transaction History File Collection detected that no data was filtered from Log</b>
-----------------	--

---

## Explanation

The Transaction History File request failed because there was no log data for the requested reporting period.

## System action

The request is aborted.

## User response

Verify that log data is available in the required reporting period.

---

<b>IPI0330E</b>	<b>Load Failed for Transaction Substitution Exit, TRANEXT=exitname</b>
-----------------	--

---

## Explanation

IMS PA could not load the specified Transaction Substitution Exit.

## System action

Reporting continues without Transaction Substitution.

## User response

Verify that the Transaction Substitution Exit module resides in the STEPLIB library.

---

<b>IPI0331W</b>	<b>System info</b>
-----------------	--------------------

---

## Explanation:

IMS Performance Analyzer has encountered an issue described in the warning text.

## User response:

Review the information supplied in the message for any corrective action.

---

<b>IPI0332E</b>	<b>Unsupported IMS version ver input detected, processing terminated</b>
-----------------	--

---

## Explanation:

IMS Performance Analyzer has detected an input log generated by an unsupported version of IMS.

## System action:

Processing stops.

## User response:

Retry the request with a supported version of IMS.

---

<b>IPI0333W</b>	<b>Transit processing flushed incomplete transactions due to HWM constraints</b>
-----------------	--

---

## Explanation

During transaction transit processing, IMS Performance Analyzer was forced to flush some incomplete transactions because high-water-mark (HWM) limits were reached. Transactions are not clearing because all the log records for the transaction are either not available or have not been processed yet.

## System action

Incomplete transactions are passed to the report processors. The transactions might appear in transit report results depending on the report criteria specified.

## User response

If the REGION parameter is not set to the maximum size, you can set REGION=0M to attempt to reduce the occurrence of this message.

---

<b>IPI0340I</b>	<b>Logininfo report processing abandoned, increase REGION parameter and re-run</b>
-----------------	--

---

---

<b>IPI0351E</b>	<b>INFLIGHT data set processing failed: Rsn=reas info</b>
-----------------	---

---

## Explanation:

The reading of incomplete system and transaction information from in-flight data set in preparation for continuous reporting has failed due to an internal logic error, indicated by a reason code, where the contents of the inflight data set are not as expected.

**System action:**

Processing stops immediately – no reports are produced.

**User response**

For a system abend, take the corrective action that is appropriate for the problem. Some reason codes are recoverable:

- 0001 The inflight data set is incomplete or truncated. The likely cause is that the previous job failed. Check its output for message “IPI0353E” on [page 594](#) and take the recommended corrective action.
- 0002 Inflight processing caused a short-of-storage condition. Increase the region, for example EXEC PGM=IPIMAIN,REGION=0M.

All other reasons codes are internal log errors and are not recoverable.

If no corrective action is possible, then you must retry your request with an empty inflight data set.

If the out-flight data set is a GDG and one was created by this failed job; then delete it. This will ensure that the correct (same) inflight data set will be used by the retry job.

If the problem persists then contact your IBM representative.

---

**IPI0352E      INFLIGHT processing failed:  
Rsn=Sinfo-info info**

**Explanation:**

The reading of incomplete system and transaction information from in-flight data set in preparation for continuous reporting has failed. The abend code provides the reason for the failure, where an I/O error or other system problem has occurred.

**System action:**

Processing stops immediately – no reports are produced.

**User response**

For a system abend, take the corrective action that is appropriate for the problem.

If no corrective action is possible, then you must retry your request with an empty inflight data set. In this case, inflight processing is considered to be interrupted and some loss of incomplete transactions may occur.

If the out-flight data set is a GDG and one was created by this failed job; then delete it. This will ensure that the correct (same) inflight data set will be used by the retry job.

If the problem persists then contact your IBM representative.

---

**IPI0353E      INFLIGHT processing failed:  
Rsn=Sinfo-info info**

**Explanation:**

The writing of incomplete system and transaction information to the out-flight data set has failed. The abend code provides the reason for the failure. The out-flight data set is considered to be incomplete and cannot be used as inflight to the next job.

**System action:**

All report requests are completed. Out-flight data for this run is lost.

**User response**

In order to provide a valid inflight for the next run, you must recover from this problem by following these steps:

1. Resolve the problem with the out-flight data set. Common problems include:
  - ABENDSx37 out-of-space conditions: Increase the SPACE= specification for the out-flight data set
  - ABENDS913 data set access is denied: Contact your RACF security administrator to grant you access to the out-flight data set.
2. If the out-flight data set is a GDG then delete this latest generation to ensure that the inflight data set for the rerun is the same inflight that was used for the original run that failed.
3. In some cases it may be inconvenient to re-run the job because it has created GDG data sets (transaction index for example) that are valid and you do not want duplicated.

To avoid running the reports again, add REPAIROUTFLIGHT to the PARM parameter of the EXEC statement (for example, EXEC PGM=IPIMAIN, PARM= ' V151, REPAIROUTFLIGHT ' and remove all new data set allocations from the JCL.

REPAIROUTFLIGHT will cause all report requests to be ignored. The only action performed is to write the incomplete information to the out-flight data set.

4. Rerun the job

If the condition is unrecoverable then you must ensure that the out-flight data set is available and empty



prior to it being used as inflight into the next run. In this case, some incomplete transactions may be lost. If the problem persists then contact your IBM representative.

---

<b>IPI0354I</b>	<b>Inflight processing is disabled because no transit reports were requested</b>
-----------------	--

---

<b>IPI0355W</b>	<b>info caused override of transit option to - info</b>
-----------------	---

---

**Explanation:**

A transit option has been changed for the reasons described in the message. This could be due to the use of an invalid or deprecated option.

**System action:**

Processing continues with the modified option.

**User response:**

To avoid this message in future, change use the transit option specified in the message.

---

<b>IPI0356E</b>	<b>Merging of shared queue logs is not supported for Inflight</b>
-----------------	---

---

**Explanation:**

Inflight processing only supports input from a single system.

**System action:**

The request is aborted.

**User response:**

Resubmit the job with input from a single system.

---

<b>IPI0357W</b>	<b>Global Start/Stop times ignored for Inflight processing</b>
-----------------	--

---

**Explanation:**

All log input records must be processed if Inflight is activated Global Start/Stop times cause records outside the specified time to be skipped which would result in incomplete Inflight results.

**System action:**

Any specified Global Start/Stop times are ignored and the full log input is processed.

**User response**

If partial log input processing is required then Inflight processing should not be activated.

**Note:** Start/Stop times may be specified for certain individual Transit reports, these times will be honoured even if Inflight is active.

---

<b>IPI0358E</b>	<b>BMPSYNC setting for Inflight creation does not match current run</b>
-----------------	---

---

**Explanation:**

The BMPSYNC option specified in the current run does not match that of the job used to create the Inflight data set.

**System action:**

The request is aborted.

**User response:**

Resubmit the job with the same BMPSYNC option used to create the Inflight data set. To change the BMPSYNC option, the Inflight process must be restarted with no Inflight data set or an empty one.

---

<b>IPI0400I</b>	<b>report not produced, no data available</b>
-----------------	---

---

**Explanation**

The specified report was not produced because the monitor file did not contain records required to build this report.

**System action**

IMS PA does not produce the specified report.

**User response**

If the specified report is a Fast Path Analysis report and report output is expected, then verify that records for the report were requested in the /TRACE MONITOR FP command.

---

<b>IPI0401E</b>	<b>FP Resource Contention Summary detected unsupported resource type 'xx'</b>
-----------------	---

---

**Explanation**

The Fast Path Resource Contention report detected an unknown resource type in a 68 record.

**System action**

The record is ignored and processing continues.

**User response**

Contact your IBM representative.

---

<b>IPI0402E</b>	<b>MSC Report failed to process monitor record</b>
-----------------	--

---

**Explanation**

The MSC report encountered a record that it could not process because of an unusual condition.

### System action

The record is ignored and processing continues.

### User response

Contact your IBM representative.

---

<b>IPI0403E</b>	<b>Communication Report failed to process monitor record</b>
-----------------	--

---

### Explanation

The Communication report encountered a record that it could not process because of an unusual condition.

### System action

The record is ignored and processing continues.

### User response

Contact your IBM representative.

---

<b>IPI0404E</b>	<b>Fast Path Analysis detected monitor record extension error</b>
-----------------	---

---

### Explanation

A Fast Path Analysis report detected a monitor record extension that it could not interpret.

### System action

The record is ignored and processing continues.

### User response

Contact your IBM representative.

---

<b>IPI0405E</b>	<b>Monitor record extension not supported</b>
-----------------	---

---

### Explanation

IMS PA encountered a monitor record extension with an unknown DFSSLOG code.

### System action

The extension is not processed by IMS PA, and processing is resumed at the next monitor record.

### User response

Contact your IBM representative.

---

<b>IPI0406I</b>	<b>Monitor constraints: xxxx xxxx</b>
-----------------	---------------------------------------

---

### Explanation

xxxx xxxx is a list of the monitor /TRACE parameters in effect when the monitor input file was created.

### System action

Processing continues.

### User response

None required.

---

<b>IPI0422E</b>	<b>Command error ***** IMS PA terminated due to previous errors. Command module detecting error is xxxxxxxx</b>
-----------------	---

---

### Explanation

IMS PA encountered an error in the Report Set or command input.

### System action

Processing terminates.

### User response

Message IPI0424E will have been issued previously. Correct the problem described in that message and resubmit the job.

---

<b>IPI0423I</b>	<b>Command info ***** reason</b>
-----------------	----------------------------------

---

### Explanation

IMS PA encountered a condition in the Report Set or command input that caused an override, or a minor syntax error was ignored.

### System action

Processing continues.

### User response

None required.

---

<b>IPI0424E</b>	<b>Command error ***** reason</b>
-----------------	-----------------------------------

---

### Explanation

IMS PA encountered the specified error in the Report Set or command input, usually an unsupported command/operand or incorrect operand specification.

### System action

Processing terminates.

## User response

Check your Report Set specification, or correct the problem with the command input and resubmit the job. If the reason for the problem cannot be established, contact your IBM representative for help.

---

**IPI0425E          Syntax error \*\*\*\*\* reason**

---

## Explanation

IMS PA encountered the specified error in the construction of the command input, such as unmatched quotes or parentheses.

## System action

Processing terminates.

## User response

Correct the problem with the command input and resubmit the job. If the reason for the problem cannot be established, contact your IBM representative for help.

---

**IPI0500I          Input file selection processing completed, RC=xx**

---

## Explanation

IMS PA has completed automated file selection processing, and issues the following return codes:

- 00**          Processing completed successfully
- 04**          Processing completed, warning message issued
- 08**          Processing failed, error message issued
- 16**          Operand specification error

## System action

If the return code is 0 or 4, automated file selection completed successfully, and the IMS PA report JCL has been submitted. If the return code is 8 or 16, automated file selection has failed. Previous error messages explain the reason for the error.

## User response

None required. If the return code is 8 or 16, respond to the previous message.

---

**IPI0501E          FROM operand not specified**

---

## Explanation

The automated file selection utility FROM time operand was not specified, but is required.

## System action

Automated file selection processing terminates.

## User response

Ensure the FROM operand is specified in the command input, then resubmit the job.

---

**IPI0502E          TO operand not specified**

---

## Explanation

The automated file selection utility TO time operand was not specified, but is required.

## System action

Automated file selection processing terminates.

## User response

Ensure the TO operand is specified in the command input, then resubmit the job.

---

**IPI0503E          Duplicate IMS subsystem ID specified, IMSID=ssss**

---

## Explanation

The automated file selection utility detected an IMSID operand with a duplicate subsystem ID. A subsystem ID can only be specified once in the input.

## System action

Automated file selection processing terminates.

## User response

Correct the duplicated subsystem ID specification, then resubmit the job.

---

**IPI0504E          Operand specified at column xx is invalid, "yyyyyyyy"**

---

## Explanation

The automated file selection utility encountered an invalid operand starting at column xx. yyyyyyyy is the first 8 characters of the invalid operand.

## System action

Automated file selection processing terminates.

## User response

Remove or correct the invalid operand, then resubmit the job.

---

<b>IPI0505E</b>	<b>IMSID operand has invalid character at column xx</b>
-----------------	---

---

## Explanation

The automated file selection utility encountered an invalid character in the IMSID operand specification starting at column xx.

## System action

Automated file selection processing terminates.

## User response

Correct the IMSID specification, then resubmit the job.

---

<b>IPI0506E</b>	<b>xxxxxxx operand has invalid syntax</b>
-----------------	---

---

## Explanation

The automated file selection utility detected that the specified operand had a syntax error.

## System action

Automated file selection processing terminates.

## User response

Correct the syntax error, then resubmit the job.

---

<b>IPI0507E</b>	<b>Date specified in xxxxxxxx operand invalid, RSN=nnn</b>
-----------------	--

---

## Explanation

The automated file selection utility has found an invalid date specified in the xxxxxxxx operand, and issues one of the following reason codes:

**001**

Date specification is wrong length

**002**

Year specification is zero or wrong length

**003**

Ordinal day specification is zero or wrong length

**004**

Hour specification is zero or wrong length

**005**

Minute specification is invalid

**006**

Second specification is zero or wrong length

**007**

Fraction of second specification is wrong length

**008**

Month is not between one (1) and twelve (12)

**009**

Day specification is zero or wrong length

**010**

Relative date exceeded 9999 days

## System action

Automated file selection processing terminates.

## User response

Correct the date specification, then resubmit the job.

---

<b>IPI0508E</b>	<b>IMSID operand not specified</b>
-----------------	------------------------------------

---

## Explanation

The automated file selection utility requires at least one IMSID operand to be specified.

## System action

Automated file selection processing terminates.

## User response

Specify the IMS subsystem name in the IMSID operand, then resubmit the job.

---

<b>IPI0509E</b>	<b>Start time of first SLDS not found in RECON data set, SSID=xxxxxxx</b>
-----------------	---

---

## Explanation

The automated file selection utility processing could not determine the start time of the first SLDS record. The DBRC routine failed to return the start time. The message can be issued for the following reasons:

- There are no SLDS records in the RECON data sets.
- There is a problem with the RECON data sets.
- There is a problem with DBRC.

## System action

Automated file selection processing terminates.

## User response

Verify that the RECON data sets contain SLDS records for the requested IMS subsystem. Otherwise, contact your IBM representative for help.

---

<b>IPI0510E</b>	<b>End time of first SLDS not found in RECON data set, SSID=xxxxxxx</b>
-----------------	---

---

## Explanation

The automated file selection utility processing could not determine the end time of the first SLDS record. The DBRC routine failed to return the start time. The message can be issued for the following reasons:

- There are no SLDS records in the RECON data sets.
- There is a problem with the RECON data sets.
- There is a problem with DBRC.

## System action

Automated file selection processing terminates.

## User response

Verify that the RECON data sets contain SLDS records for the requested IMS subsystem. Otherwise, contact your IBM representative for help.

---

<b>IPI0511E</b>	<b>Start time of last SLDS not found in RECON data set, SSID=xxxxxxx</b>
-----------------	--

---

## Explanation

The automated file selection utility processing could not determine the start time of the last SLDS record. The DBRC routine failed to return the start time. The message can be issued for the following reasons:

- There are no SLDS records in the RECON data sets.
- There is a problem with the RECON data sets.
- There is a problem with DBRC.

## System action

Automated file selection processing terminates.

## User response

Verify that the RECON data sets contain SLDS records for the requested IMS subsystem. Otherwise, contact your IBM representative for help.

---

<b>IPI0512E</b>	<b>End time of last SLDS not found in RECON data set, SSID=xxxxxxx</b>
-----------------	--

---

## Explanation

The automated file selection utility processing could not determine the end time of the last SLDS record. The DBRC routine failed to return the start time. The message can be issued for the following reasons:

- There are no SLDS records in the RECON data sets.
- There is a problem with the RECON data sets.
- There is a problem with DBRC.

## System action

Automated file selection processing terminates.

## User response

Verify that the RECON data sets contain SLDS records for the requested IMS subsystem. Otherwise, contact your IBM representative for help.

---

<b>IPI0513E</b>	<b>No Log files for the required time range are available, SSID=xxxxxxx</b>
-----------------	---

---

## Explanation

The automated file selection utility detected that there were no SLDS records in the RECON data set within the specified time range for the subsystem.

## System action

Automated file selection processing terminates.

## User response

Correct the reporting time range, then resubmit the job.

---

<b>IPI0514W</b>	<b>Log files not available for the complete time range, report period truncated, SSID=xxxxxxx</b>
-----------------	---

---

## Explanation

The automated file selection utility detected that the SLDS records in the RECON data set for the subsystem only partially cover the required date range. The report interval is truncated.

## System action

Automated file selection processing continues.

## User response

If reporting is required for the entire date/time range, ensure that SLDS records for that range are available in the RECON data set, then resubmit the job.

---

<b>IPI0515E</b>	<b>DBRC Utility (DSPURX00) failed to return the LOG variable</b>
-----------------	--

---

## Explanation

The DBRC routine did not return the LOG variable in the skeleton.

## System action

Automated file selection processing terminates.

## User response

Automated file selection utility error. Contact your IBM representative for help.

---

<b>IPI0516E</b>	<b>DBRC Utility (DSPURX00) ATTACH error, RC=xx</b>
-----------------	--

---

## Explanation

The DBRC routine received a bad return code from the ATTACH macro.

## System action

Automated file selection processing terminates.

## User response

Automated file selection utility error. Contact your IBM representative for help.

---

<b>IPI0517E</b>	<b>RDJFCB error for DDname dddddddd, RC=xx</b>
-----------------	--

---

## Explanation

The automated file selection utility received a bad return code from the RDJFCB macro for DDname dddddddd.

## System action

Automated file selection processing terminates.

## User response

Automated file selection utility error. Contact your IBM representative for help.

---

<b>IPI0518E</b>	<b>DDname xxxxxxxx not specified in JCL</b>
-----------------	---

---

## Explanation

The automated file selection utility DDname xxxxxxxx was not specified in the JCL, but is required.

## System action

Automated file selection processing terminates.

## User response

Ensure the DDname xxxxxxxx is specified in the JCL, then resubmit the job.

---

<b>IPI0519E</b>	<b>DBRC Utility (DSPURX00) Skeleton generation failed, LOG FROM time expected</b>
-----------------	---

---

## Explanation

The automated file selection utility has found output from the DBRC routine in the wrong sequence or missing.

## System action

Automated file selection processing terminates.

## User response

Automated file selection utility error. Contact your IBM representative for help.

---

<b>IPI0520E</b>	<b>DBRC Utility (DSPURX00) Skeleton generation failed, LOG TO time expected</b>
-----------------	---

---

## Explanation

The automated file selection utility has found output from the DBRC routine in the wrong sequence or missing.

## System action

Automated file selection processing terminates.

## User response

Automated file selection utility error. Contact your IBM representative for help.

---

<b>IPI0521E</b>	<b>DBRC Utility (DSPURX00) has failed, RC=xx</b>
-----------------	--

---

## Explanation

The DBRC routine has failed to return SLDS information to the automated file selection utility. The SYSPRINT output file contains run information,

including DBRC error messages to further explain the problem.

**System action**

Automated file selection processing terminates.

**User response**

Check the output from DBRC utility in the SYSPRINT output file. If you cannot resolve the problem, contact your IBM representative for help.

---

<b>IPI0522S</b>	<b>DBRC Utility (DSPURX00) has abended, CODE=xxxx</b>
-----------------	---

---

**Explanation**

The automated file selection utility has detected an abend in the DBRC routine. The SYSPRINT output file contains run information, including DBRC error messages to further explain the problem.

**System action**

IMS PA processing terminates.

**User response**

Check the output from DBRC routine in the SYSPRINT output file. If the abend code is S806, verify the RESLIB specified and that the DBRC routine is available in the RESLIB. If you cannot resolve the problem, contact your IBM representative for help.

---

<b>IPI0523E</b>	<b>OPEN failed for DDname xxxxxxxx, RC=xx</b>
-----------------	---

---

**Explanation**

The automated file selection utility received a bad return code from the OPEN SVC when opening the specified DDname.

**System action**

Automated file selection processing terminates.

**User response**

Automated file selection utility error. Contact your IBM representative for help.

---

<b>IPI0524E</b>	<b>IMSID operand exceeds maximum length (4)</b>
-----------------	---

---

**Explanation**

The automated file selection utility has detected that the IMS subsystem ID specification in the IMSID operand is longer than the maximum of four characters.

**System action**

Automated file selection processing terminates.

**User response**

Correct the IMSID operand, then resubmit the job.

---

<b>IPI0525E</b>	<b>TO time is not greater than FROM time</b>
-----------------	--

---

**Explanation**

The automated file selection utility has detected that the TO time specified is not greater than the FROM time.

**System action**

Automated file selection processing terminates.

**User response**

Correct the FROM and TO times, then resubmit the job.

---

<b>IPI0526E</b>	<b>IMS release xxx is not supported</b>
-----------------	---

---

**Explanation**

The automated file selection utility has detected an unsupported release of IMS specified in the VRM operand. IMS PA supports IMS releases 151.

**System action**

Automated file selection processing terminates.

**User response**

Correct the VRM operand, then resubmit the job.

---

<b>IPI0527E</b>	<b>Date format is invalid</b>
-----------------	-------------------------------

---

**Explanation**

The automated file selection utility encountered a date that did not adhere to the required format. Date must be a valid calendar date in the format yyyy-mm-dd, or a relative date such as 0, -1, -2 representing today, yesterday, and so on.

## System action

Automated file selection processing terminates.

## User response

Correct the date format, then resubmit the job.

---

<b>IPI0528E</b>	<b>Dynamic Allocation failed, DDname dddddddd, SSID=sssssss, RC=xx/EC=eeee/ IC=iiii</b>
-----------------	---

---

## Explanation

The automated file selection utility has failed to allocate the specified DDname. The error and information codes explain the cause of the problem.

## System action

Automated file selection processing terminates.

## User response

If you cannot correct the problem, then contact your IBM representative for help.

---

<b>IPI0529E</b>	<b>RECON specification error; RECON1 and RECON2 is the minimum specification</b>
-----------------	--

---

## Explanation

The automated file selection utility detected an error in the RECON data set specification. At least two RECON data sets, RECON1 and RECON2, must be specified.

## System action

Automated file selection processing terminates.

## User response

Specify at least two RECON data sets, then resubmit the job.

---

<b>IPI0530E</b>	<b>BLDL failed for xxxx MDA Members, RC=xx/Reas=yy</b>
-----------------	--

---

## Explanation

The automated file selection utility received a bad return code from the BLDL macro.

## System action

Automated file selection processing terminates.

## User response

Automated file selection utility error. Contact your IBM representative for help.

---

<b>IPI0531E</b>	<b>LOAD failed for xxxx MDA member mmmmmmmm, ABEND=aaaa-rr</b>
-----------------	--

---

## Explanation

The automated file selection utility failed to load an MDA member. The ABEND code explains the reason for the failure. This abend code could indicate:

- The job region size is too small
- MDA member has an I/O error

## System action

Automated file selection processing terminates.

## User response

Check the abend code, and if possible, correct the problem. Otherwise, contact your IBM representative for help.

---

<b>IPI0532E</b>	<b>xxxx RECON MDA member mmmmmmmm has invalid format</b>
-----------------	--

---

## Explanation

The automated file selection utility detected the MDA member for the specified RECON is not in MDA format.

## System action

Automated file selection processing terminates.

## User response

Verify that RECON MDA member has been generated correctly. Otherwise, contact your IBM representative for help.

---

<b>IPI0533E</b>	<b>Specified xxxx RECON data sets do not exactly match RECON MDA members</b>
-----------------	--

---

## Explanation

The automated file selection utility detected that the explicitly specified RECON data sets do not exactly match the RECON MDA members. When the RECON data sets are explicitly specified, the automated file selection utility also checks the RECON MDA members. If at least one RECON MDA member is detected, then the specified RECON data set names must exactly match the RECON MDA members. This



ensures that the DBRC RECON data sets are not corrupted by the DBRC API routine DSPAPI00.

**System action**

Automated file selection processing terminates.

**User response**

Correct the RECON data sets specification, then resubmit the job.

---

<b>IPI0534E</b>	<b>Operand xxxxxxxx specified more than once</b>
-----------------	--

---

**Explanation**

The automated file selection utility detected that the specified operand was duplicated for the subsystem. Each operand can only be specified once per subsystem.

**System action**

Automated file selection processing terminates.

**User response**

Correct the duplicated operand specification, then resubmit the job.

---

<b>IPI0536E</b>	<b>Data set name is longer than 44 characters</b>
-----------------	---

---

**Explanation**

The automated file selection utility has detected a data set name longer than 44 characters.

**System action**

Automated file selection processing terminates.

**User response**

Correct the data set name specification, then resubmit the job.

---

<b>IPI0537E</b>	<b>IMS subsystem ssss has no VRM operand</b>
-----------------	--

---

**Explanation**

The automated file selection utility requires that each IMS subsystem has a VRM operand to specify the release of the subsystem, or that it can be determined from the RESLIB using DFSVC000.

**System action**

Automated file selection processing terminates.

**User response**

Ensure each IMS subsystem has a VRM operand specified.

Either specify the IMS version in the JCL PARM specification as ' Vnnn ', where nnn is either 151, or add the IMS RESLIB data set to the STEPLIB concatenation.

Check that the IMS PA load library was specified correctly. This library is specified in the **IMS PA Load Library** option on the IMS PA Settings panel, and is used as a STEPLIB library at report submit time. See [“IMS PA Settings” on page 66](#).

Correct the entries, then resubmit the job. If the problem persists, contact your IBM representative for help.

---

<b>IPI0539E</b>	<b>Dynamic Deallocation failed, DDname=dddddddd, SSID=ssssssss, RC=xx/EC=eeee/ IC=iiii</b>
-----------------	--

---

**Explanation**

The automated file selection utility has failed to deallocate the specified DDname. The error and information codes explain the cause of the problem.

**System action**

Automated file selection processing terminates.

**User response**

If you cannot correct the problem, then contact your IBM representative for help.

---

<b>IPI0540E</b>	<b>LOCATE failed for xxxx Log data set, RC=xx/DSN=dddddddd</b>
-----------------	--

---

**Explanation**

The automated file selection utility could not locate the catalog entry for the specified Log data set.

IMS PA requires the device type (UNIT) information of each Log data set when using shared queue merge processing. IMS PA uses the catalog when UNIT information is not available in the RECON.

**System action**

Automated file selection processing terminates.

## User response

Either catalog the Log data set or use DBRC utilities to update UNIT and VOLSER information in the RECON.

---

**IPI0541W**      **xxxx Log data set UNIT information is incomplete, DSN=dddddddd**

---

## Explanation

The automated file selection utility has detected that the specified Log data set has VOLSER information in the RECON, but UNIT information was not available.

## System action

Automated file selection processing terminates.

## User response

Use DBRC utilities to update the UNIT information in the RECON.

---

**IPI0542E**      **xxxx Log data set has unsupported UNIT type, DSN=datasetname**

---

## Explanation

The automated file selection utility has detected that the specified Log data set is not eligible as it is not defined as either a TAPE or DASD device on this processor.

## System action

Automated file selection processing terminates.

## User response

Move the log data set to an eligible device or exclude the log data set.

---

**IPI0543E**      **xxxx LOG data set is not cataloged, DSN=dddddddd**

---

## Explanation

The automated file selection utility failed to locate the catalog entry for the specified Log data set. IMS PA requires the UNIT information from the catalog if this information is not available from the RECON.

## System action

Automated file selection processing terminates.

## User response

Either catalog the LOG data set or use DBRC utilities to update unit information in your RECON data set.

---

**IPI0544E**      **xxxx Log data set has more than 255 volumes, DSN=dddddddd**

---

## Explanation

The automated file selection utility has detected that the specified Log data set has more than 255 volumes. IMS PA does not support more than 255 volumes per Log data set.

## System action

Automated file selection processing terminates.

## User response

The automated file selection utility cannot be used for this Log file.

---

**IPI0545E**      **No input files were eligible for processing**

---

## Explanation

The automated file selection utility has found no SLDS log data sets or IMS Connect Extensions journal data sets to process for one of the following reasons:

- No IMS subsystems were specified.
- No Log data sets are available for the specified time period.
- DBRC failed to return Log data set information from the RECON.
- The IMS Connect Extensions definitions data set contained no eligible journals.

A previous message will explain the reason for the error.

## System action

Automated file selection processing terminates.

## User response

Correct the problem, then resubmit the job.

---

**IPI0546E**      **IPISMQW1 Merge Work File DD statement not found in Report JCL skeleton**

---

## Explanation

The IMS PA automated file selection utility could not find the IPISMQW1 DD statement in the Report JCL skeleton.

IMS PA requires merge work files for shared queue processing. When insufficient tape units are available

to concurrently process the log input from all subsystems, IMS PA requires merge work files.

### System action

IMS PA automated file selection processing terminates.

### User response

Specify IPISMQW1 DD statement in the Report JCL skeleton, then resubmit the job.

---

<b>IPI0547I</b>	<b>DBRC Utility (DSPURX00) completed, RC=xx, SSID=sssssss, FROM=ffffff, TO=ttttttt</b>
-----------------	--

---

### Explanation

The automated file selection utility has successfully invoked the DBRC routine. When RC=0, DBRC has returned SLDS entries for the specified time range. When RC=4, DBRC could not find any SLDS entries for the specified time range. In this case, IMS PA will re-invoke DBRC with a modified time range to retrieve the first required SLDS entry.

### System action

Automated file selection processing continues.

### User response

None required if RC=0 or 4. When RC=12, check that the RECON data set is at the same IMS level as the library that contains the DBRC routine (usually specified by the RESLIB parameter).

---

<b>IPI0548I</b>	<b>Report JCL has been submitted, Jobname=jjjjjjj, Jobno.=nnnn</b>
-----------------	--

---

### Explanation

The automated file selection utility has submitted the report/extract JCL. The job name and job number are specified.

### System action

Automated file selection processing continues.

### User response

None required.

---

<b>IPI0549E</b>	<b>CAT operand must be YES or NO</b>
-----------------	--------------------------------------

---

### Explanation

The automated file selection utility detected that the CAT operand was not specified as YES (SLDS data sets are cataloged) or NO (SLDS data sets are not cataloged).

### System action

Automated file selection processing terminates.

### User response

Correct the CAT operand, then resubmit the job. The dialog generates this operand from **Log Data Sets are Cataloged** on the Log Input - IMS Subsystem panel.

---

<b>IPI0550E</b>	<b>SSID operand exceeds maximum length (8)</b>
-----------------	--

---

### Explanation

The SSID operand is longer than the maximum allowed.

### System action

Automated file selection processing terminates.

### User response

Correct the SSID operand, then resubmit the job.

---

<b>IPI0551E</b>	<b>SSID operand has invalid character at column cc</b>
-----------------	--

---

### Explanation

The SSID operand contains invalid characters.

### System action

Automated file selection processing terminates.

### User response

Correct the SSID operand, then resubmit the job.

---

<b>IPI0552E</b>	<b>SLDS operand must be SEC or PRI</b>
-----------------	--

---

### Explanation

The automated file selection utility SLDS operand was incorrectly specified.

### System action

Automated file selection processing terminates.

## User response

Ensure the OLDS operand is specified as SEC or PRI, then resubmit the job.

---

<b>IPI0553E</b>	<b>More than 1035 log files required for SSID=ssssssss</b>
-----------------	--

---

## Explanation

The FROM and TO date range selected has resulted in the selection of more than the maximum allowed number of log data sets for this subsystem.

## System action

Automated file selection processing terminates.

## User response

Reduce the FROM, TO time range, then resubmit the job.

---

<b>IPI0555E</b>	<b>xxxxxxx VOLSER name is too long. DSN=datasetname, VOLSER=vvvvvvvvvv</b>
-----------------	--

---

## Explanation

The VOLSER specified for the data set is greater than 6 characters.

## System action

Automated file selection processing terminates.

## User response

Automated file selection utility error. Contact your IBM representative for help.

---

<b>IPI0556E</b>	<b>IMS DBRC API module DSPAPI00 not found</b>
-----------------	---

---

## Explanation

The DBRC API module DSPAPI00 was not found in the RESLIB specified. If the RESLIB was not specified, then the DSPAPI00 module was not found in the STEPLIB or JOBLIB concatenation. Message IPI0558I follows.

## System action

Automated file selection processing continues.

## User response

None required.

---

<b>IPI0557I</b>	<b>The RECON data set has not been upgraded, SSID=ssssssss</b>
-----------------	--

---

## Explanation

The RECON data sets have not been upgraded to the format required by the IMS version specified by the RESLIB parameter. Message IPI0558I follows.

## System action

Automated file selection processing continues.

## User response

None required.

---

<b>IPI0558I</b>	<b>The log data sets will be located using DSPURX00</b>
-----------------	---

---

## Explanation

This message will always come after message "IPI0556E" on page 606 or "IPI0557I" on page 606. The log data sets will be located using the DBRC API routine DSPAPI00.

## System action

Automated file selection processing continues.

## User response

None required.

---

<b>IPI0559I</b>	<b>DBRC API (DSPAPI00) completed, RC=rc, SSID=ssssssss, FROM=fromdate, TO=todate</b>
-----------------	--

---

## Explanation

IMS PA has completed DSPAPI log selection processing, and issued the following return codes:

- |           |  |
|-----------|--|
| <b>00</b> | Processing completed successfully            |
| <b>04</b> | Processing completed, warning message issued |
| <b>08</b> | Processing failed, error message issued      |
| <b>16</b> | Operand specification error                  |

## System action

If the return code is 0 or 4, automated file selection completed successfully, and the IMS PA report JCL has been submitted. If the return code is 8 or 16,

automated file selection has failed. Previous error messages explain the reason for the error.

### User response

None required.

---

**IPI0560E**      **OLDS operand must be YES or NO**

### Explanation

The automated file selection utility OLDS operand was incorrectly specified.

### System action

Automated file selection processing terminates.

### User response

Ensure the OLDS operand is specified as YES or NO, then resubmit the job.

---

**IPI0561E**      **DBRC API interface module has abended, CODE=xxxxx**

### Explanation

The automated file selection API interface has detected an ABEND in the DBRC API interface module IPIDBRCA. The JESMSGLOG output file contains the summary ABEND information.

### System action

Automated file selection processing terminates.

### User response

If you cannot resolve the problem, contact your IBM representative for help.

---

**IPI0562E**      **No IMS Log files were eligible for processing**

### Explanation

IMS logs and IMS Connect Extensions journal data sets were requested for this run, however the automated file selection utility did not find any IMS systems with SLDS log data sets to process for one of the following reasons:

- No Log data sets are available for the specified time period.
- DBRC failed to return Log data set information from the RECON.

A previous message will explain the reason for the error.

### System action

Automated file selection processing terminates.

### User response

Correct the problem, then resubmit the job.

---

**IPI0563E**      **No CEX journals were eligible for processing**

### Explanation

IMS logs and IMS Connect Extensions journals were requested for this run, however the automated journal file selection utility did not find any IMS Connect systems with journal data sets to process for one of the following reasons:

- No journals are available for the specified time period.
- The IMS Connect Extensions definitions data set contained no eligible journals.

A previous message will explain the reason for the error.

### System action

Automated file selection processing terminates.

### User response

Correct the problem, then resubmit the job.

---

**IPI0564E**      **No CEX journals were eligible for processing**

### Explanation

The automated journal file selection utility did not find any IMS Connect Extensions journal data sets to process for one of the following reasons:

- No journals are available for the specified time period.
- The IMS Connect Extensions definitions data set contained no eligible journals.

A previous message will explain the reason for the error.

### System action

Automated file selection processing terminates.

### User response

Correct the problem, then resubmit the job.

---

**IPI0565E**      **xxxxxxx operand is blank**

**Explanation**

IMSID or HWSID has not been specified.

**System action**

Automated file selection processing terminates.

**User response**

Correct the IMSID or HWSID operand, then resubmit the job.

---

<b>IPI0566E</b>	<b>Authorization failed: IMSID=xxxx, IMSPLEX=xxxxxx</b>
-----------------	---

---

**Explanation**

The authorization exit IPIUAUTH disallowed the use of the IMSPLEX name for the IMS subsystem.

**System action**

Automated file selection processing terminates.

**User response**

Correct the IMSPLEX specification, then resubmit the job. If the IMSPLEX specification is correct and the problem still occurs, then the authorization exit needs updating. See SIPISAMP members IPIU002 and IPIUAUTH for more details.

**Related reference**

IMS Performance Analyzer sample library  
The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

---

<b>IPI0578W</b>	<b>Timezone for HWSID=xxxxxxxx is zero and local timezone is non-zero</b>
-----------------	---

---

**Explanation**

The timezone offset in the IMS Connect Extensions definitions data set is zero and the local system timezone (CVTLDTO) is not.

**System action**

Automated file selection processing continues.

**User response**

If this situation is unexpected, check that the corequisite IMS Connect Extensions APAR has been applied.

---

<b>IPI0579I</b>	<b>xxxxxxx Journals selected: xxxxxx</b>
-----------------	--

---

**Explanation**

The IMS Connect journal file selection utility selected xxxxxx journals, archive or active.

**System action**

Automated file selection processing continues.

**User response**

None required.

---

<b>IPI0580E</b>	<b>IMS Connect Extensions service failed, RC=rc</b>
-----------------	---

---

**Explanation**

The IMS Connect Journal File Selection utility was unable to initialize its IMS Connect Extensions services environment.

**System action**

Automated file selection processing terminates.

**User response**

See the job log for the reason for failure and contact an IBM representative for help.

---

<b>IPI0581E</b>	<b>CEX Definitions Data Set access failed; DDname CEXDEF missing or invalid</b>
-----------------	---

---

**Explanation**

The specified IMS Connect Extensions definitions data set is invalid or the required DD CEXDEF is missing from the JCL.

**System action**

Automated file selection processing terminates.

**User response**

Specify a valid IMS Connect Extensions definitions data set and resubmit the job.

---

<b>IPI0582E</b>	<b>No journal data sets found for HWSID=hhhhhhh in the CEX Definitions Data Set</b>
-----------------	---

---

## Explanation

Either there are no archive records in the IMS Connect Extensions definitions data set for this HWSID, or this HWSID does not exist in the IMS Connect Extensions definitions data set.

## System action

Automated file selection processing terminates.

## User response

Correct the HWSID and resubmit the job.

---

<b>IPI0583E</b>	<b>CEX Definitions Data Set access failed</b>
-----------------	---

---

## Explanation

The IMS Connect Journal File Selection utility could not use the IMS Connect Extensions definitions data set.

## System action

Automated file selection processing terminates.

## User response

Specify a valid IMS Connect Extensions definitions data set and resubmit the job.

---

<b>IPI0584W</b>	<b>CEX Journals not available for the complete time range, report period truncated, HWSID=hhhhhhh</b>
-----------------	---

---

## Explanation

The IMS Connect Journal File Selection utility could not locate journal data sets that cover the entire requested reporting time range.

## System action

Reporting continues with only partial coverage of the requested reporting time range.

## User response

None required.

---

<b>IPI0585E</b>	<b>Duplicate CEX subsystem ID specified, HWSID=hhhhhhh</b>
-----------------	--

---

## Explanation

The automated file selection utility detected a HWSID operand with a duplicate ID. An ID can only be specified once in the input.

## System action

IMSPA automated file selection processing terminates.

## User response

Correct the duplicated HWSID specification, then resubmit the job.

---

<b>IPI0586E</b>	<b>HWSID operand exceeds maximum length (8)</b>
-----------------	---

---

## Explanation

The HWSID operand is longer than the maximum allowed.

## System action

Automated file selection processing terminates.

## User response

Correct the HWSID operand, then resubmit the job.

---

<b>IPI0587E</b>	<b>DSPAPI Error, FUNC=function, RC=rc, RSN=X'reasoncode', SSID=sssssss</b>
-----------------	--

---

## Explanation

Automated file selection utility error. An unexpected return code and reason code were returned from the IMS DBRC API call. See DBRC Application Programming Interface (API) Reference in the DBRC Guide and Reference for a detailed explanation of the reason code.

## System action

Automated file selection processing terminates.

## User response

If the RECON data sets that you want to use belong to an IMSplex:

- Ensure that you have correctly specified the name of the IMSplex in the PARM parameter of the EXEC statement for the automated file selection utility program. See [“Preparing for DBRC Log Selection” on page 139](#).
- Ensure that the structured call interface (SCI) address space is running.

Otherwise, contact your IBM representative for help.

---

<b>IPI0588E</b>	<b>DSPAPI Error, xxxx data returned does not match the requested ID, Requested=rrrr, Returned=tttt</b>
-----------------	--

---

## Explanation

Unexpected data was returned from the IMS DBRC API call. Possible data corruption.

## System action

automated file selection processing terminates.

## User response

Automated file selection utility error. Contact your IBM representative for help.

---

<b>IPI0589I</b>	<b>CEX xxxxxxxx Journal selection completed, RC=rc, HWSID=hhhhhhh, FROM=fromdate, TO=todate</b>
-----------------	---

---

## Explanation

IMS Connect Journal File Selection processing completed, and issued one of the following return codes:

- |           |  |
|-----------|--|
| <b>00</b> | Processing completed successfully            |
| <b>04</b> | Processing completed, warning message issued |
| <b>08</b> | Processing failed, error message issued      |
| <b>16</b> | Operand specification error                  |

## System action

If the return code is 0 or 4, IMS Connect Journal File Selection completed successfully, and the report JCL has been submitted. If the return code is 8 or 16, IMS Connect Journal File Selection has failed. Previous error messages explain the reason for the error.

## User response

None required.

---

<b>IPI0600I</b>	<b>xxxxxxxxxx not produced, no data available</b>
-----------------	---

---

## Explanation

The specified Log report was not produced because no Log data was available for one of the following reasons:

- Log data was not available in the requested reporting time period
- The Log file did not contain the necessary Log records to build the report

## System action

The specified Log report is not produced, processing continues.

## User response

Validate the log input file by ensuring that it contains data for the requested reporting time period and the records required to build the report.

---

<b>IPI0601E</b>	<b>Report File xxxxxxxx Dynamic Allocation failed</b>
-----------------	---

---

## Explanation

The specified Report File failed Dynamic Allocation processing. The JES Job Log will contain the Dynamic Allocation information message.

## System action

The reports that require the Report File are not produced. Processing continues.

## User response

From the dynamic allocation information message, attempt to resolve the problem. Alternatively, insert a DD statement into the JCL for the report file name in error. This will cause IMS PA to bypass dynamic allocation of the report file. Otherwise, contact your IBM representative for help.

---

<b>IPI0700I</b>	<b>Input file ddname processing started</b>
-----------------	---

---

## Explanation

IMS PA has started to process data in the specified IMS Connect Extensions journal data set.

## System action

Reporting continues.

## User response

None required.

---

<b>IPI0701I</b>	<b>Connect record processing started</b>
-----------------	--

---

## Explanation

IMS PA Connect reporting has started because the requested start date/time has been reached.

## System action

Reporting continues.



## User response

None required.

---

**IPI0702I      Connect record processing ended**

## Explanation

IMS PA Connect reporting has stopped because the requested end date/time has been reached.

## System action

Reporting stops.

## User response

None required.

---

**IPI0703I      Input file ddname processing ended**

## Explanation

IMS PA has reached end-of-file for the specified IMS Connect Extensions journal data set.

## System action

IMS PA continues reporting against the next IMS Connect Extensions journal data set until all journals are processed.

## User response

None required.

---

**IPI0710I      Inflight file processing ended, records=nnnnnnnnnnnn**

## Explanation

IMS PA has completed processing the inflight data set. The record count is the number of records read from the inflight data set (the outflight data set from the previous run).

## System action

IMS PA continues processing the IMS Connect Extensions journals. Reporting continues.

## User response

None required.

---

**IPI0711E      Unable to load Inflight file, processing terminated**

## Explanation

IMS PA has been unable to store all inflight records in virtual storage.

## System action

IMS PA terminates.

## User response

Increase REGION= size and rerun the job. If this fails, contact your IBM representative for help.

---

**IPI0712I      Invalid record length, Inflight file processing abandoned**

## Explanation

IMS PA has determined that the inflight record length is incorrect.

## System action

IMS PA ignores the inflight file and continues processing the IMS Connect Extensions journals. Reporting continues.

## User response

Check that the inflight file specification is correct.

---

**IPI0720I      Outflight file processing ended, records=nnnnnnnnnnnn**

## Explanation

IMS PA has finished creating the outflight data set. The record count is the number of records written to the outflight data set (the inflight data set for the next run).

## System action

Reporting stops normally.

## User response

None required.

---

**IPI0780I      Input file ddname processing started**

## Explanation

IMS PA has started to process data in the specified OMEGAMON ATF journal, DDname ATFInnnn.

## System action

Reporting continues.

## User response

None required.

---

**IPI0781I            ATF record processing started**

## Explanation

IMS PA ATF reporting has started because the requested start date/time has been reached.

## System action

Reporting continues.

## User response

None required.

---

**IPI0782I            ATF record processing ended**

## Explanation

IMS PA ATF reporting has stopped because the requested end date/time has been reached.

## System action

Reporting stops.

## User response

None required.

---

**IPI0783I            Input file ddname processing ended**

## Explanation

IMS PA has reached end-of-file for the specified OMEGAMON ATF journal, DDname ATFINnnn.

## System action

IMS PA continues reporting against the next OMEGAMON ATF journal until all journal data sets are processed.

## User response

None required.

---

**IPI0784E            Unsupported version, OMEGAMON ATF IF3 required**

## Explanation

IMS PA ATF reporting requires the statistics record enhancements applied by OMEGAMON ATF IF3 APAR OA36278.

## System action

Processing stops.

## User response

Install OMEGAMON for IMS, V4.2 ATF APAR OA36278: Interim Feature 3 (IF3).

---

**IPI0790I            Inflight file processing ended, records=nnnnnnnnnnnn**

## Explanation

IMS PA has completed processing the inflight data set. The record count is the number of records read from the inflight data set (the outflight data set from the previous run).

## System action

IMS PA continues processing the ATF journals. Reporting continues.

## User response

None required.

---

**IPI0791E            Unable to load Inflight file, processing terminated**

## Explanation

IMS PA has been unable to store all inflight records in virtual storage.

## System action

ATF reporting terminates.

## User response

Increase REGION= size and rerun the job. If this fails, contact your IBM representative for help.

---

**IPI0792I            Invalid record length, Inflight file processing abandoned**

## Explanation

IMS PA has determined that the inflight record length is incorrect.

## System action

IMS PA ignores the inflight file and continues processing the ATF journals. Reporting continues.

### User response

Check that the inflight file specification is correct.

---

**IPI0793I**      **Outflight file processing ended,  
records=nnnnnnnnnnnn**

### Explanation

IMS PA has finished creating the outflight data set. The record count is the number of records written to the outflight data set (the inflight data set for the next run).

### System action

ATF reporting stops normally.

### User response

None required.

---

**IPI0800E**      **Number of Key fields exceed  
maximum of 8**

### Explanation

The Summary report/extract field specification contains more than the maximum number of key fields allowed in a Form.

### System action

Processing terminates.

### User response

Reduce the number of key fields to no more than 8 and rerun the Summary report/extract.

---

**IPI0801E**      **Key sequence error detected at  
field *fieldname***

### Explanation

At least 1 non-key field was specified before a key field in a Summary report field specification.

### System action

Processing terminates.

### User response

Ensure all key fields are defined before non-key fields.

---

**IPI0802E**      **Key length exceeds 255 characters**

### Explanation

The total length of all specified key fields exceeds the maximum of 255 characters.

### System action

Processing terminates.

### User response

Reduce the number of key fields to create a key whose combined length is less than or equal to 255 characters.

---

**IPI0803I**      **No records were selected from  
input for processing**

### Explanation

None of the input records were eligible for processing based on the Report Interval, Selection Criteria, or Completion Level specified.

### System action

Processing terminates.

### User response

Check START and STOP times, and other selection criteria, are consistent with input data sets.

---

**IPI0804E**      **Error opening Extract output file**

### Explanation

IMS PA was unable to open the output extract file for processing.

### System action

Processing terminates.

### User response

Look at any system messages that may be related to this error.

---

**IPI1003E**      **CONVTO macro error; Ret=xx**

### Explanation

IMS PA could not upgrade your old System Definitions because the CONVTO macro failed.

### System action

Upgrading of your old System Definitions is terminated but System Definition processing continues.

## User response

Contact your IBM representative for help.

---

**IPI1020E**      **Table Library not available;  
DDname=xxxxxxx**

## Explanation

An IMS PA dialog module has detected that the specified DDname for the Table library was not allocated.

## System action

Processing is terminated.

## User response

Contact your IBM representative for help.

---

**IPI1021E**      **System Definition Table for IMS PA  
xxxx has a format error**

## Explanation

IMS PA determined that the Table containing your IMS System and file definitions is not in the correct format. The Systems Definition Table is a member in your Permanent ISPF Table Library, which is specified in your IMS PA Settings.

## System action

Processing is terminated.

## User response

With caution, you can delete member IPISDIN4 from your Permanent ISPF Table Library, then retry your request. Note that if you do this, you will lose your saved System Definitions and not be able to recover them. If the problem is occurring regularly, or you do not want to lose your saved System Definitions, then contact your IBM representative for help.

---

**IPI1041E**      **Reason=reason Member=xxxxxxx  
DSN=dataset.name**

## Explanation

IMS PA could not SAVE your currently active EDIT session. The reasons why your SAVE request may have failed are:

1. ABEND - Save request abended
2. PDS Directory Full - The PDS directory is full
3. BLDL or STOW error - Unsupported return code from BLDL/STOW SVC

## System action

The SAVE request is aborted.

## User response

For ABENDSx37 conditions, compress the data set or re-allocate the data set with a larger primary/secondary space allocation. For Directory Full or ABENDSB14-0000000C conditions, re-allocate the data set with a larger directory block allocation. For all other conditions, contact your IBM representative for help.

---

**IPI2000I**      **IMS Performance Analyzer 4.5  
Db2 Load Utility - ddmmyyyy  
hh.mm.ss**

## Explanation

IMS PA batch utility IPIUTILB commences processing. This utility loads records from a form-based Summary extract data set into a pre-defined Db2 table with the Resume option.

## System action

Processing continues.

## User response

None required.

---

**IPI2003I**      **- parameter input**

## Explanation

Print of the parameter card input.

## System action

Processing continues.

## User response

None required.

---

**IPI2004I**      **- SQL error message**

## Explanation

SQL error message.

## System action

Refer to the Db2 SQL publication library.

## User response

As recommended.

---

**IPI2005I      - Records Read - nnnnnnnnn**

---

**Explanation**

The number of input records read from the form-based extract data set.

**System action**

Processing continues.

**User response**

None required.

---

**IPI2006I      - Records Inserted - nnnnnnnnn**

---

**Explanation**

The number of input records read and inserted as new rows in the Db2 table.

**System action**

Processing continues.

**User response**

None required.

---

**IPI2007I      - Records Updated - nnnnnnnnn**

---

**Explanation**

The number of input records read which had duplicate keys and updated existing rows in the Db2 table.

**System action**

Processing continues.

**User response**

None required.

---

**IPI2010E      - Required DDNAME not found,  
DDNAME=ddname**

---

**Explanation**

A required DDname is missing from the JCL.

**System action**

Processing terminates.

**User response**

Add the DDNAME statement to the JCL and rerun the job.

---

**IPI2011E      RDJFCB error for DDname  
ddname, RC=rc**

---

**Explanation**

The IMS PA input file selection utility received a bad return code from the RDJFCB macro for the specified DDname.

**System action**

IMS PA input file selection processing terminates.

**User response**

This is an IMS PA input file selection utility error. Contact your IBM representative for help.

---

**IPI2012E      OPEN failed for DDname ddname,  
RC=rc**

---

**Explanation**

The IMS PA input file selection utility received a bad return code from the OPEN SVC when opening the specified DDname.

**System action**

IMS PA input file selection processing terminates.

**User response**

This is an IMS PA input file selection utility error. Contact your IBM representative for help.

---

**IPI2013E      Unknown or misplaced keyword,  
xxxxxxx**

---

**Explanation**

The keyword is either unknown or out of place.

**System action**

Processing terminates after verifying all parameters.

**User response**

Correct the parameters and rerun the job.

---

**IPI2014E      Duplicate parameter, xxxxxxxx**

---

## Explanation

The operand has been duplicated.

## System action

Processing terminates after verifying all parameters.

## User response

Correct the parameters and rerun the job.

---

**IPI2015E** Invalid parameter syntax, xxxxxxxx

---

## Explanation

The input parameters have an invalid syntax.

## System action

Processing terminates after verifying all parameters.

## User response

Correct the parameters and rerun the job.

---

**IPI2016E** TRANCNT information is not available

---

## Explanation

TRANCNT has not been defined for this extract. TRANCNT is key data required for processing of the extracted data. It is required to be able to perform updates on other data within this extract.

## System action

Processing terminates.

## User response

Modify or define a new Form to include TRANCNT, then rerun the extract and export to Db2.

---

**IPI5000I** Input options specified:

---

## Explanation

IMS Connect Journal File Selection utility input commands follow.

## System action

Processing continues.

## User response

None required.

---

**IPI5001I**

---

**Connect Archive Selection  
completed/failed, CC=rc**

---

## Explanation

Indicates the success or failure of IMS Connect Journal File Selection processing:

- For RC=0, journal file selection successfully completed submitting your report request.
- For RC=4, journal file selection successfully completed submitting your report request, but a warning message was issued.
- For RC greater than 4, the journal file selection utility issued an error message and did not proceed to submit your report request.

## System action

Processing continues.

## User response

If RC is not 00, then refer to the previous warning or error messages for the required action.

---

**IPI5002I** Selected Archive files range from  
*start date time to end date time*

---

## Explanation

The IMS Connect Journal File Selection utility selected journal files in the specified date/time range.

## System action

Processing continues.

## User response

None required.

---

**IPI5003I** Connect Report JCL  
submitted, Jobname=xxxxxxx,  
JobID=xxxxxxx

---

## Explanation

The IMS Connect Journal File Selection utility submitted the specified job to run your report request.

## System action

Processing continues.

## User response

None required.

---

**IPI5004E Invalid xxxxxx operand specified**

---

**Explanation**

The specified operand is not a valid IMS Connect Extensions Journal File Selection utility command or operand.

**System action**

Processing stops.

**User response**

Correct the specified operand and resubmit the job.

---

**IPI5005E Invalid Jobcard specified in IPISKEL input**

---

**Explanation**

An invalid job card was specified in your IPISKEL DD report request skeleton.

**System action**

Processing stops.

**User response**

Correct the jobcard in the JCL or in IMS PA Settings in your Profile Options, then resubmit the job.

---

**IPI5006E xxxx has invalid syntax**

---

**Explanation**

The specified operand is incorrectly specified in the IMS Connect Extensions Journal File Selection utility input commands.

**System action**

Processing stops.

**User response**

Correct the specified operand and resubmit the job.

---

**IPI5007E Invalid date or time specified in the xxxx operand, Reason=reason**

---

**Explanation**

The FROM/TO date or time was incorrectly specified. The allowed date formats are yyyy/mm/dd or 0,-1,... and the allowed time format is hh:mm:ss.th.

**System action**

Processing stops.

**User response**

Correct the specified date or time and resubmit the job.

---

**IPI5008E Archive data set not cataloged, DSN=datasetname**

---

**Explanation**

The specified data set defined in the IMS Connect Extensions definitions data set is not cataloged. This data set is required to satisfy your report request. The data set is deleted or cataloged on another system.

**System action**

Processing stops.

**User response**

If the data set is no longer available, then you cannot report against the required time range.

---

**IPI5009E xxxxx operand specified more than once**

---

**Explanation**

The specified operand was specified more than once in the IMS Connect Extensions Journal File Selection utility input commands.

**System action**

Processing stops.

**User response**

Remove the duplicate operand and resubmit the job.

---

**IPI5010E IMS Connect Extensions service failed**

---

**Explanation**

The IMS Connect Extensions Journal File Selection utility was unable to initialize its IMS Connect Extensions services environment.

**System action**

Processing stops.

## User response

See the job log for the reason for failure and contact IBM.

---

<b>IPI5011E</b>	<b>Definitions Data Set access failed; DDname CEXDEF missing or invalid</b>
-----------------	---

---

## Explanation

The specified IMS Connect Extensions definitions data set is invalid or the required DD CEXDEF is missing from the JCL.

## System action

Processing stops.

## User response

Specify a valid IMS Connect Extensions definitions data set and resubmit the job.

---

<b>IPI5012E</b>	<b>Definitions Data Set access failed</b>
-----------------	---

---

## Explanation

The IMS Connect Extensions Journal File Selection utility could not use the IMS Connect Extensions definitions data set.

## System action

Processing stops.

## User response

Specify a valid IMS Connect Extensions definitions data set and resubmit the job.

---

<b>IPI5013E</b>	<b>No Archive files found for specified HWSID</b>
-----------------	---

---

## Explanation

The required IMS Connect HWS system does not have any archive journal data sets defined. Journal data sets are created by IMS Connect Extensions.

## System action

Processing stops.

## User response

Verify that IMS Connect Extensions is collecting event data for this HWSID.

---

<b>IPI5014E</b>	<b>TO time is not greater than FROM time</b>
-----------------	--

---

## Explanation

The TO date and time must be greater than the FROM date and time.

## System action

Processing stops.

## User response

Correct the FROM/TO specification and resubmit the job.

---

<b>IPI5015E</b>	<b>Unable to open file, DDname=ddname</b>
-----------------	---

---

## Explanation

IMS PA was unable to open the file with the specified DDname.

## System action

Processing stops.

## User response

Correct the JCL and resubmit the job.

---

<b>IPI5016E</b>	<b>No Archive files found for required time range</b>
-----------------	---

---

## Explanation

The IMS Connect Extensions Journal File Selection utility could not find any journal data sets (archive or active) for the required reporting time range.

## System action

Processing stops.

## User response

Verify that IMS Connect Extensions is collecting event data to meet your reporting requirements.

---

<b>IPI5017W</b>	<b>Archive files not available for the complete time range. Report period truncated.</b>
-----------------	--

---

## Explanation

The IMS Connect Extensions Journal File Selection utility could not locate journal data sets (archive or



active) that cover the entire requested reporting time range.

**System action**

Reporting continues with only partial coverage of the requested reporting time range.

**User response**

None required.

---

<b>IPI5018E</b>	<b>Required operand missing. HWSID, FROM and TO operands must be specified</b>
-----------------	--

**Explanation**

One or more of the required IMS Connect Journal File Selection utility operands is missing.

**System action**

Processing stops.

**User response**

Add missing operands and resubmit the job.

---

<b>IPI5019E</b>	<b>Specified HWSID is not defined in the Definitions Data Set</b>
-----------------	---

**Explanation**

The IMS Connect Journal File Selection utility could not locate the specified HWSID in the IMS Connect

Extensions definitions data set. IMS Connect systems are defined in IMS Connect Extensions, not IMS PA.

**System action**

Processing stops.

**User response**

Correct the HWSID, or specify the correct IMS Connect Extensions definitions data set, and resubmit the job.

---

<b>IPI9999E</b>	<b>IMS PA internal failure, reason=<i>reason</i></b>
-----------------	--

**Explanation**

IMS PA has detected an internal failure for the specified reason.

**System action**

Depending on the severity of the failure, processing may stop for the record, for the report, or entirely.

**User response**

This is an IMS PA error. Contact your IBM representative for help.

---

## How to look up message explanations

You can use several methods to search for messages and codes.

**Searching an information center**

In the search box that is located in the top left toolbar of any Eclipse help system, such as the IBM Information Management Software for z/OS Solutions Information Center, enter the number of the message that you want to locate. For example, you can enter DFS1065A in the search field.

Use the following tips to help you improve your message searches:

- You can search for information on codes by entering the code; for example, enter -327.
- Enter the complete or partial message number. You can use the asterisk wildcard character (\*) to represent multiple characters, and you can use the question mark wildcard character (?) to represent a single character.

The information center contains the latest message information for all of the information management products that are included in the information center.

## Searching for messages on the Web

You can use any of the popular search engines that are available on the Web to search for message explanations. When you type the specific message number or code into the search engine, you will be presented with links to the message information in IBM information centers.

## Using LookAt

LookAt is an online facility that you can use to look up explanations for most of the IBM messages you encounter, as well as for some system abends and codes. Using LookAt to find information is faster than a conventional search because in most cases LookAt goes directly to the message explanation.

You can use LookAt from the following locations to find IBM message explanations for z/OS elements and features, z/VM®, VSE/ESA, and Clusters for AIX® and Linux®:

- The Internet. You can access IBM message explanations directly from the LookAt website at <https://www-01.ibm.com/servers/resourcelink/svc00100.nsf/pages/lookatkc/>.
- Your z/OS TSO/E host system. You can install code on your z/OS or z/OS.e systems to access IBM message explanations, using LookAt from a TSO/E command line (for example, a TSO/E prompt, ISPF, or z/OS UNIX System Services running OMVS).
- Your Microsoft Windows workstation. You can install code to access IBM message explanations on the z/OS Collection (SK3T-4271) using LookAt from a Microsoft Windows command prompt (also known as the DOS command line).
- Your wireless handheld device. You can use the LookAt Mobile Edition with a handheld device that has wireless access and an Internet browser (for example, Internet Explorer for Pocket PCs, Blazer, or Eudora for Palm OS, or Opera for Linux handheld devices). Link to the LookAt Mobile Edition from the LookAt website.

You can obtain code to install LookAt on your host system or Microsoft Windows workstation from a disk on your z/OS Collection (SK3T-4271) or from the LookAt website (click **Download** and select the platform, release, collection, and location that suit your needs). More information is available in the LOOKAT.ME files available during the download process.

---

## Chapter 29. Gathering diagnostic information

Before you report a problem with IMS Performance Analyzer to IBM Software Support, you need to gather the appropriate diagnostic information.

### Procedure

Provide the following information for all IMS Performance Analyzer problems:

- A clear description of the problem and the steps that are required to re-create the problem
- All messages that were issued as a result of the problem
- Product release number and the number of the last program temporary fix (PTF) that was installed
- The version of Db2/IMS that you are using and the type and version of the operating system that you are using

Provide additional information based on the type of problem that you experienced:

#### For online abends, provide the following information

- A screen shot of the panel that you were using when the abend occurred
- The job log from the TSO session that encountered the abend
- The job log from the server
- A description of the task that you were doing before the abend occurred

#### For errors in batch processing, provide the following information

- The complete job log
- Print output
- Contents of input data sets that were used during the processing

---

## Obtaining dumps

IMS Performance Analyzer normally executes in a NOSTAE environment set up by IMS Performance Analyzer which is useful for revealing programming errors. If you are executing IMS Performance Analyzer in a STAE environment, it will be necessary to rerun IMS Performance Analyzer and specify the **NOSTAE** parameter on the **EXEC** statement of the JCL to obtain a dump.

### Procedure

To ensure IMS Performance Analyzer is set up to capture a dump:

1. Specify the **NOSTAE** parameter on the **EXEC** statement of the JCL.
2. Include a SYSUDUMP DD statement in the JCL to capture the system dump in the case of an abend.

### Example

```
//BUILDERS EXEC PGM=IPIMAIN,PARM=' Vnnn ,NOSTAE '  
:  
:  
//SYSUDUMP DD SYSOUT=*
```

*Figure 239. Specifying NOSTAE and SYSUDUMP in IMS Performance Analyzer JCL to obtain a dump*

---

# Obtaining problem diagnostics

To get more detailed problem diagnostics, specify an IPIDIAGS DD statement in your JCL.

## About this task

Error messages associated with the processing of input records are not written at the time that the error is encountered. Instead, each error message is accumulated by message number, and written once at end of file, before the reports are written. These messages are identified by a message count preceding the message text, as shown in the following figure.

```
08Jun2022 11.27.50.88 IPI0003I Reporting stopped : Elapsed time is 1. 07.551.097
Msg Count=          12 IPI0074E IWAIT ignored, no IWAIT start or not in call
Msg Count=           5 IPI0076E ITask ID does not match expected, record ignored
08Jun2022 11.27.50.88 IPI0004I End of File signalled to Report Processors
```

Figure 240. Message counts

It is helpful to capture each error message and associated diagnostic information in a diagnostic DD. If the JCL contains an IPIDIAGS DD statement, the error message is written to the IPIDIAGS data set at the time of the error, along with the record number and dump of the record that caused the problem.

```
Record=          14      IPI0076E ITask ID does not match expected, record ignored
0000  002D0000 4E590000 B25DCD8C 112D6759 81000001 000001E0 0000C4C2 C4F0F0F0 . . . *
0020  F0F14040 01000000 00000000 0E                                     . . . *
```

Figure 241. IPIDIAGS message and record dump

## Procedure

To get more detailed problem diagnostics:

1. Specify an IPIDIAGS DD statement in the JCL.
2. Submit the job.
3. Review the contents of the IPIDIAGS data set in the job output.

---

## Part 10. Reference

This part provides reference information about IMS PA. It provides a list of the various record types processed by IMS PA, contents of the sample library supplied with IMS PA, details about the macros for user-written programs, some SQL examples to help you get started analyzing extracts exported to Db2, and instructions on how to use the IMS Tools Knowledge Base for IMS PA reports.



---

## Chapter 30. Controls

IMS Performance Analyzer includes various filtering and formatting features that are available from the Controls menu.

This section of the documentation describes the following controls:

- Expectations Sets
- Averages
- Object Lists
- Distributions

Information about the other controls is available in other topics in this documentation as described in the following table.

Control	Topic
Filters	<a href="#">Chapter 16, “Report Filters,” on page 183</a>
Graphing & Export	<a href="#">“Graphing and export of interval data” on page 324</a>
IMS Connect	<a href="#">“IMS Connect systems and data sets” on page 119</a>

---

### Expectation Sets

An Expectation Set specifies your expectations of transaction performance by defining minimum and maximum installation-expected values for nine measures. Log data falling within these bounds is considered "as expected" and not reported. Log data falling outside the bounds is reported as an "exception".

Expectation Sets can be specified for the following log reports:

- Management Exception
- Transaction (MSGQ) Exception
- Fast Path Transaction Exception

Expectations can be defined as direct values or, for the Management Exception report, relative to historic averages recorded in an Averages Data Set.

If no Expectation Set is specified, there are no performance expectations with which to compare the log data. In this case, the Management Exception report shows data for This Run only with no Expectation information, while the Transaction (MSGQ/FP) Exception reports treat all transactions as exceptions.

### Maintaining Expectation Sets

You can use the IMS PA dialog to maintain (create, edit, delete) Expectation Sets.

#### Procedure

1. Select option 4.2 **Expectation Sets** from the IMS Performance Analyzer primary option menu.

The **Expectation Sets** panel is displayed, which lists the Expectation Sets in the nominated Expectation Sets data set.

2. If you have not nominated an Expectation Sets data set, IMS PA allocates a data set for you with default characteristics. To change the Expectation Sets data set, select option 0.4 **IMS PA Control Data Sets** from the IMS Performance Analyzer primary option menu.

3. From here you can select Expectation Sets to review or update, or you can create a new Expectation Set.

File View Options Help

-----

Expectation Sets

Row 1 to 2 of 2

Command ==> \_\_\_\_\_

Scroll ==> \_\_\_\_\_

Expectation Sets Data Set . : IMSPA.XSCTL

/	Name	Description	Changed	ID
_	INITTEST	EXPECTATION SET FOR INITIAL TEST	2023/06/25 15:45	JCH09
_	YEAREND	EXPECTATIONS FOR THE END OF YEAR	2023/06/25 13:28	MKR02

\*\*\*\*\* End of list \*\*\*\*\*

Figure 242. Expectation Sets list

All the fields are display-only on this panel. The Expectation Sets are listed with the following user-defined attributes:

**Name**

1–8 character name in ISPF member name format, used to uniquely identify the Expectation Set within the Expectation Sets data set.

**Description**

Free format text up to 32 characters, used to clarify the contents and purpose of the Expectation Set.

The Expectation Sets also have the following system-generated attributes:

**Changed**

Date and time when last updated.

**ID**

The user ID that last updated the Expectation Set.

**Line actions:**

The valid line actions for the list of Expectation Sets are:

- / Display the menu of line actions
- E Edit the Expectation Set
- S Select the Expectation Set (same as Edit)
- V View the Expectation Set (Edit without Save)
- R Rename the Expectation Set
- D Delete the Expectation Set

**Primary commands:**

The following primary commands are available:

**NEW name**

Define a new Expectation Set member. The name must be unique. If the command is valid, the edit panel is displayed for you to complete the definition. Otherwise, you are prompted to specify valid parameters. Also available from the **File** menu on the action bar.

**SELECT**

Select (edit) a member in the Expectation Sets member list. If the name is a member in the list, the edit panel is displayed. If the name is omitted or invalid, you are prompted for a valid name. This command is the same as entering line action S (Select) or E (Edit). Also available from the **File** menu on the action bar.



**REFRESH (REFR)**

Repopulate the list of Expectation Sets by re-accessing the Expectation Sets data set. Also available from the **View** menu on the action bar.

***SORT field1 field2***

Sort the list on any one, or a combination of columns. The default sort field is Name. The sort sequence disregards upper and lower case, and can be ascending (ASC) or descending (DESC), with ascending the default for all but the Changed column. The sort order is retained only until Exit or another **SORT** command is issued. Also available from the **View** menu on the action bar.

**LOCATE (L or LOC)**

Locate an entry in the list based on the primary sort field.

**Creating new Expectation Sets**

If you want IMS PA to only report data that is outside of your expectations ("exceptions"), you need to create an Expectation Set that specifies threshold values of your expectations for various transaction measurements.

**Procedure**

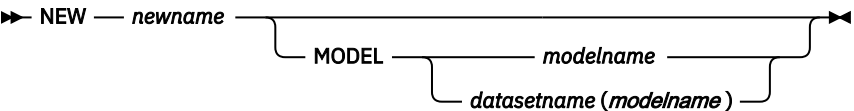
To create an Expectation Set:

- 1. On the IMS Performance Analyzer primary option menu, select option 4.2 **Expectation Sets**.

The **Expectation Sets** panel is displayed, showing the list of existing Expectation Sets.

- 2. Either:

- On the command line, enter **NEW** followed by the name of the new Expectation Set and optional initialization details using the following syntax:



- On the action bar, select **File > New**.

A pop-up dialog window is displayed. Enter the name of the new Expectation Set, and select the method of initialization as either:

- a. Based on defaults
- b. Modelled from an existing Expectation Set (specify the name of the model Expectation Set, and the data set name if other than the current data set)

New Expectation Set

Specify the name of the new Expectation Set and optional model.

Name . . . . HALFYEAR

Default or MODEL . . . . 2 1. Default  
2. MODEL (specified below)

Model 'IMSPA.EXPSET(MIDYEAR)' \_\_\_\_\_

Press Enter to create the Expectation Set.  
Press Exit or Cancel to cancel the request.

Figure 243. Specifying a new Expectation Set

When you have specified the required fields, press Enter.

A panel is then displayed for you to view or modify the description of the Expectation Set and its contents.

## Specifying Expectations

An Expectation Set consists of a list of transaction codes for which you wish to report only *exceptions* (data outside your expectations). For each transaction code, you specify lower and upper threshold values for a set of nine performance measures. These measures are predefined by IMS PA. Optionally, you can specify the special transaction code \*DEFAULT that applies to transaction codes not explicitly listed.

### Procedure

To specify expectations:

1. On the IMS Performance Analyzer primary option menu, select option 4.2 **Expectation Sets**.

The **Expectation Sets** panel is displayed, showing the list of existing Expectation Sets.

2. To create a new Expectation Set, enter **NEW** on the command line; to edit an existing Expectation Set, enter S next to the Expectation Set.

The **Edit Expectation Set** panel is displayed.

3. Specify transaction codes and their threshold values.

```

File Edit Options Help
-----
EDIT Expectation Set - YEAREND                               Row 1 to 8 of 12
Command ==> _____ Scroll ==> _____

Specify the threshold values.

Description . . . . EXPECTATIONS FOR THE END OF YEAR

/ TranCode % ---- Transit Time ----- DB  DC  DB  CPU  Proc
              Total Input Proc  Outpt Calls Calls Waits Time Rate
              -----
- *DEFAULT - 121  5   50   _____ 2.1  2   _____ 20  0.2
              150 99  120  111  30.1  5   2   _____ 50  2
- DSFFHR2L - 120  3   50   _____ 2   2   _____ 20  0.2
              150  5  122  1   30   5   2   _____ 50  2
- DSFFHR2M - 120  2   50  12   2   2   _____ 20  0.2
              150  5  120  1   30   5   2   _____ 50  2
- DSFFHR2N - 120  2   50   _____ 2   2   _____ 20  0.2
              150  5  120  1   30   5   2   _____ 50  2
- DSFFHR2O - 120  2   50   _____ 2   2   _____ 20  0.2

```

Figure 244. Defining an Expectation Set

Values can be expressed as integers in the range 0–99999, or with one decimal place in the range 0–999.9. Direct values for transit or CPU times are expressed only as integers; decimal positions are rounded to the nearest integer. Direct values that are not supplied default to 0. Percentage values default at run time to 50% lower and 20% higher than the value in the Averages Data Set.

The pair of data rows with no **TranCode** field above the dividing line (the full-width horizontal line) is used for entering column global values and column adjustment values.

The first row affects minimum values and the second affects maximum values. Specifying a value in the first row causes all rows with matching expectation type (direct value or percentage) to have their minimum expectation in that column modified.

Similarly, specifying a value in the second row causes all rows with matching expectation type (direct value or percentage) to have their maximum expectation in that column modified.

Measurements lower than the minimum expectation or higher than the maximum expectation are reported as "exceptions".

The rows below the dividing line are grouped two per TranCode. The first row contains minimum expected values and the second contains maximum expected values for the specified transaction code.

The Expectation Set fields are:

**Description**

Default: IMS PA Expectation Set

A descriptive title used to clarify the contents and purpose of the Expectation Set.

**TranCode**

Represents a 1- to 8-character transaction code contained in the input message.

A transaction code of \*DEFAULT is the default expectation which may optionally be specified. For transaction codes not explicitly listed, the default values specified in the \*DEFAULT row are applied at run time. If more than one of these rows is specified, the last one takes precedence.

Rows with a blank transaction code are deleted on Reset or Exit.

**% (Expectation Type)**

Default: Blank. Expected values are specified as direct values.

Expectation Type determines how the specified expectation values are to be interpreted.

Leave blank to indicate that the expected values for this transaction code are specified as direct values. If the actual measurement is outside the specified range, it is reported as an "exception".

Select with a / to indicate that all expected values specified for this transaction code are percentages. If the actual measurement deviates from the transaction code's average by more than the specified minimum percentage, or exceeds the average by more than the specified maximum percentage, it is reported as an "exception". Percentage values apply only to the Management Exception report when an Input Averages Data Set is specified. In all other cases, they are ignored.

**Transit Time**

Transit time in milliseconds.

**Total**

Total transit time (milliseconds) per transaction; the time between input message arrival and output message send. In the example, transaction code DSFFHR2L has an expected minimum transit time of 120 milliseconds and maximum of 150 milliseconds per transaction.

**Input**

Input queue time (milliseconds) per transaction; the time between input message arrival and message processing start. In the example, transaction code DSFFHR2L has an expected minimum input queue time of 3 milliseconds and maximum of 5 milliseconds per transaction.

**Proc**

Processing time (milliseconds) per transaction. Processing (or execution) time is the time between message processing start and message processing end. In the example, transaction code DSFFHR2L has an expected minimum processing time of 50 milliseconds and maximum of 122 milliseconds per transaction.

**Output**

Output queue time (milliseconds) per transaction; the time between message processing end and output message send. In the example, transaction code DSFFHR2L assumes the default 0 for the minimum expected output queue time and has a specified expected maximum output queue time of 1 millisecond per transaction.

**DB Calls**

Represents the number of database calls issued by the transaction. For Fast Path transactions, the database calls include both DEDB and MSDB DL/I calls. In the example, transaction code

DSFFHR2L has an expected minimum of 2 database calls and maximum of 30 database calls per transaction.

#### **DC Calls**

Represents the number of data communication calls issued by the transaction. This is not applicable to Fast Path transactions. In the example, transaction code DSFFHR2L has an expected minimum of 2 DC calls and maximum of 5 DC calls per transaction.

#### **DB Waits**

Represents program isolation waits for the transaction; the number of database waits, for program isolation enqueue, issued by the transaction. For Fast Path transactions, it represents the total number of DEDB UOW, CI, and OBA waits. In the example, the number of DB Waits for transaction code DSFFHR2L is expected to be in the range 0 to 2.

#### **CPU Time**

Represents the amount of CPU Time (milliseconds) to process the transaction. This is not applicable to Fast Path transactions. The example shows that the expected CPU Time for transaction code DSFFHR2L is between 20 to 50 milliseconds.

#### **Proc Rate**

Represents transaction processing rate (transactions per minute). This is not applicable to the Transaction (MSGQ/FP) Exception reports. In the example, the expected execution rate of transaction code DSFFHR2L is in the range 0.2 to 2 transactions per minute.

#### **Line actions:**

The following line actions can be performed on the contents of Expectation Sets to create or remove Expectation data for specific transaction codes:

- / Display the menu of line actions
- I Insert a null row after this row
- R Repeat this row
- C Copy this row
- M Move this row
- A Move/Copy after this row
- B Move/Copy before this row
- D Delete this row

The resulting sequence is retained only for the current edit or view session; by default, the list is presented in TranCode order.

#### **Primary commands:**

The following primary commands are available:

##### **Reset (RES)**

Remove all line actions and delete any blank rows. Remove all rows where the transaction code is blank. Also available from the **Edit** menu on the action bar.

##### **SAVE**

Write all unsaved changes to the Expectation Sets data set. If the Expectation Set already exists, it is overwritten. If it does not exist, it is created. Editing of the data can continue after the save is complete. Also available from the **File** menu on the action bar.

### SAVEAS name

Save the Expectation Set as the specified name. If only a member name is specified, the current Expectation Sets data set is assumed. To save in another data set, specify the DSN and member name. If the Expectation Set already exists, it is overwritten. If it does not exist, it is created. Editing of the data can continue after the save is complete. Also available from the **File** menu on the action bar.

## Adjusting Expectations

You may need to adjust the values in an Expectation Set if characteristics of your IMS installation change. For example, if a new CPU is installed with processing capacity twice that of the previous CPU, you may wish to halve associated expectations.

### Procedure

- To replace a single value in the Expectations Set, overwrite it with the required value.
- To arithmetically adjust a value, overwrite it with an operator followed by a value:

\*

Multiply. For example \*1.5

/

Divide. For example /1.5

+

Add. For example +1.5

—

Subtract. For example -1.5

If you omit the operator, the cell is changed to the specified value.

Commands entered in the global cells (above the dividing line) apply to all corresponding cells in the column. For example, if % is selected in the global area, then values entered in the minimum value row will be applied to all % minimum values in the same column, and a value in the maximum value row will be applied to all % maximum values in the same column. Similarly, if % is not selected in the global area, then only values in rows that do not have % selected will be affected.

## Averages Data Sets

---

Averages Data Sets provide historic average values which can be used by the Management Exception report to identify data for exception reporting.

For details on how the report uses these values, see [“Management Exception report” on page 257](#).

Averages Data Sets must be sequential data sets as they can be specified as both input and output to the report process. See Figure 125 on page 261, which shows the panel used to specify the input and output Averages Data Sets to be used by the Management Exception report.

The strategy you adopt for your Averages Data Sets may be to use either:

- One data set only to keep a running tally of averages, updated by each run.
- Multiple data sets to save the running average after each of a number of report runs (for example, a generation data group (GDG) of at least 10 to 15 generations).

## Creating new Averages Data Sets

To create a new Averages Data Set, use ISPF option 3.2.

### About this task

Default allocation details for output Averages Data Sets can be specified in **Reporting Allocation Settings** on the action bar **Options** menu. See [Figure 8 on page 69](#). The default attributes are applied at the time

the Report Set JCL is built if the specified output Averages Data Set does not exist. They are *not* applied to input Averages Data Sets which are assumed to exist at the time of report generation.

**Note:** IMS PA stores an Averages Data Set in a special format. It must *not* be modified using facilities other than IMS PA as this may make it unusable by IMS PA. Should this occur, an error message similar to the following will be displayed when you attempt to view or edit the data set:

```
The EDIT request cannot be performed on the specified Averages Data Set
as the file is not in Average format.
```

## Procedure

Use ISPF option 3.2 to allocate and catalog a sequential data set with VB format, a record length of 4092, and an appropriate blocksize.

## Maintaining Averages

You can use the IMS PA dialog to view or edit values in an Averages Data Set.

### About this task

Typically, you use the Management Exception reporting job to update values in an Averages Data Set. However, under some circumstances, you might want to manually update these values.

## Procedure

1. Select option 4.3 **Averages** from the IMS Performance Analyzer primary option menu.

```

                                     Averages Data Set
Command ==> _____
Specify the name of the Averages Data Set.

Averages Data Set . . . 'IMSPA.AVERAGES.D2023' _____

/ "/" to Edit the Averages Data Set

Press Enter to proceed with Averages Data Set processing.
Enter EXIT or CANCEL to leave without processing.
```

*Figure 245. Averages Data Set*

The field on this panel is:

### Averages Data Set

The name of an Averages Data Set, which must already be allocated and cataloged.

From this panel you can view or edit the Averages data set.

2. Type / to edit the data set, or leave blank and press Enter to view it.

# Specifying Averages

When you view or edit the Averages data set, IMS PA displays a panel similar to the Expectations data set.

## About this task

```

File Edit Options Help
-----
                        EDIT Averages Data Set                        Row 1 to 2 of 2
Command ==> _____ Scroll ==> PAGE

Averages Data Set . . : IMSPA.AVERAGES.D2023

/  TranCode   Count   ---- Transit Time ---- DB   DC   DB   CPU   Proc
                               Total Input Proc  Outpt Calls Calls Waits Time Rate
-----
-  _____   _____   _____   _____   _____   _____   _____   _____   _____
***** End of list *****

```

Figure 246. Edit Averages Data Set

The data row with no **TranCode** field above the dividing line (the full-width horizontal line) is used for entering column global values and column adjustment values.

The rows below the dividing line each define average values for one TranCode. Specifying a value above the line causes all rows below the line to have their average in that column modified accordingly.

Values are expressed as integers in the range 0 to 99999, or with one decimal place in the range 0 to 999.9. Values for transit or CPU times are expressed only as integers; decimal positions are rounded to the nearest integer. Averages that are not supplied for a newly-entered transaction code default to 0; if values for a pre-existing transaction code are erased, the pre-existing values are reinstated.

The Averages fields are:

### TranCode

Each row contains average data for one transaction code.

For transaction codes not explicitly listed there are no averages held. However, IMS PA automatically maintains averages for every transaction code that it encounters.

Rows with a blank transaction code are deleted on Reset or Exit.

### Count

Transaction Count is the total number of transactions processed for the specified transaction code, upon which the average values in the row have been based.

The transaction count directly affects the average values and therefore cannot be modified.

### Transit Time

Transit time per transaction.

#### Total

The average total transaction transit time (milliseconds) per transaction; the time between input message arrival and output message send.

#### Input

The average input transit time (milliseconds) per transaction; the time between input message arrival and message processing start.

#### Proc

The average processing transit time (milliseconds) per transaction; the time between message processing start and message processing end.

**Outpt**

The average output transit time (milliseconds) per transaction; the time between message processing end and output message send.

**DB Calls**

The average number of database calls per transaction.

**DC Calls**

The average number of data communication calls per transaction.

**DB Waits**

The average number of database waits, for program isolation enqueue, per transaction.

**CPU Time**

The average CPU time (milliseconds) per transaction.

**Proc**

The processing rate; the number of transactions per minute. This number is calculated by the Management Exception report as the Transaction Count divided by the elapse time for that transaction. If modified by the user, it is rounded to the nearest integer which is exactly divisible into the Transaction Count, thereby making the elapse time a whole number of minutes.

**Line actions:**

The following line actions can be performed on Averages Data Sets to create or remove averages data for specific transaction codes:

- /** Display the menu of line actions
- I** Insert a null row after this row
- R** Repeat this row
- C** Copy this row
- M** Move this row
- A** Move/Copy after this row
- B** Move/Copy before this row
- D** Delete this row

The resulting sequence is retained only for the current edit or view session; by default, the list is presented in TranCode order.

**Primary commands:**

The following primary commands are available:

**Reset (RES)**

Remove all line actions and delete any blank rows. Remove all rows with a blank transaction code. Also available from the **Edit** menu on the action bar.

**SAVE**

Write all unsaved data to the Averages data set overwriting the contents of the data set. Editing of the data can continue after the save is complete. Also available from the **File** menu on the action bar.

**Note:** The **SaveAs** command is not available on this panel.



## Adjusting Averages

You may need to adjust the values in an Averages Data Set if characteristics of your IMS installation change. For example, if a new CPU is installed with processing capacity twice that of the previous CPU, you may wish to halve associated averages.

### About this task

Arithmetic operations that can be performed are:

- \***  
Multiply. For example, \*1.5
- /**  
Divide. For example, /1.5
- +**  
Add. For example, +1.5
- Subtract. For example, -1.5

### Procedure

To replace a single value in the Averages Data Set, overwrite it with the required value. To arithmetically adjust a value, overwrite it with an operator followed by a value. For example, \*1.5 If you don't specify an operator, the cell is changed to the specified value. Commands entered in the global cells (above the dividing line) apply to all cells in the column.

## Object Lists

---

A major feature of IMS PA is the ability to include or exclude input records, based on the values of fields such as Database, LTERM, and Transaction code. This is done by specifying the field types (object types), and values of each object type to either include or exclude.

Commonly, more than one value needs to be included or excluded. Therefore an Object List must be used to define the values. For example, in the Transaction Transit reports, you may want to include only two or three suspect transaction codes. You would create an Object List containing the codes, and specify this Object List as a selection criterion when requesting the report.

Each Object List has a specified type, and can only contain items or sublists of that type. The types are:

#### **APGRP**

Application Group

#### **AREA**

DEDB Area

#### **BLKID**

Block ID

#### **CLASS**

Message Class

#### **CLIENT**

Connect Client ID (Connect reports only)

#### **DB**

Database

#### **DD**

DDname

#### **DDGRP**

DDname Group

**ESSID**

External Subsystem ID

**IMSID**

IMS Subsystem ID

**KEY**

Key

**LINE**

Line

**LN/PT**

Line/Terminal

**LTERM**

Logical Terminal

**MSGID**

Message ID

**NODE**

VTAM Node

**PORT**

TCP/IP Port (Connect reports only)

**PROG**

Program Name (PSB)

**RECCD**

Record Code

**RGJOB**

Region Job Name

**RGPST**

Region ID by PST Number

**RTCDE**

Routing Code

**TPIPE**

Tpipe (Connect reports only)

**TRAN**

Transaction Code

**USERID**

User ID

**USRDEF**

User-defined Object

CLIENT, PORT, and TPIPE are used when specifying Selection Criteria for IMS Connect reports. They are not relevant to Log, Monitor, or ATF reporting.

Object Lists are also used to define application and DDname groupings to appear in monitor reports.

Object Lists can be defined as a hierarchy, by including the names of other Object Lists. This allows a basic set of Object Lists to be used to create higher level lists, avoiding the need to repetitively create and maintain detailed lists. This can be done for all types of Object Lists and to any depth of hierarchy. For example, as depicted in [Figure 247 on page 637](#), the Finance Databases Object List could contain the names of three other Database Object Lists: Payroll, Debtors, and Creditors, which in turn contain the actual database names.

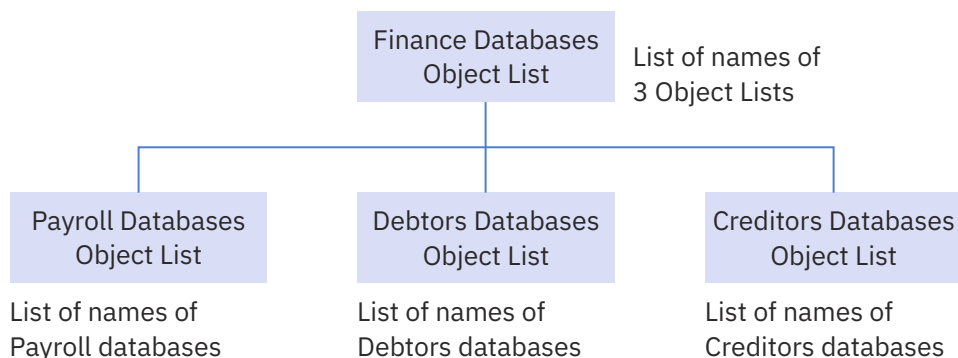


Figure 247. Hierarchical Structure of Object Lists

## Maintaining Object Lists

To maintain (create, edit, delete) Object Lists, use the IMS PA dialog.

### Procedure

Select option 4.4 **Object Lists** from the IMS Performance Analyzer primary option menu.

The **Object Lists** panel is displayed, which lists the Object Lists in the nominated Object Lists data set.

If you have not specified an Object Lists data set, IMS PA allocates a data set for you with default characteristics. To change the Object Lists data set, you can use **Options** in the action bar or option 0.4 **IMS PA Control Data Sets** from the IMS Performance Analyzer primary option menu.

From here you can select Object Lists to review or update, or you can create a new Object List.

File View Options Help

-----

Object Lists

Row 1 to 3 of 3

Command ==> \_\_\_\_\_ Scroll ==> \_\_\_\_\_

Object Lists Data Set . . : IMSPA.OLCTL

/	Name	Type	Description	Changed	ID
-	CL000001	CLASS	CLASS OBJECT LIST 01	2023/05/27 12:27	JCH02
-	DG000001	DDGRP	DD GROUP OBJECT LIST 01	2023/05/27 09:00	MKR08
-	LL000001	LN/PT	LINE/PTerm OBJECT LIST 01	2023/05/27 08:57	DAM13

\*\*\*\*\* End of list \*\*\*\*\*

Figure 248. Object Lists panel

All the Object List fields are display-only on this panel.

The Object Lists are listed with the following user-defined attributes:

#### Name

1–8 character name in ISPF member name format, used to uniquely identify the Object List within the Object Lists data set.

#### Description

Free-format text up to 32 characters, used to clarify the contents and purpose of the Object List.

In addition, the Object Lists are listed with the following system-generated attributes:

#### Type

Type of Object List, as defined in Object List types . Can be one of APGRP, AREA, BLKID, CLASS, DB, DD, DDGRP, ESSID, IMSID, KEY, LINE, LN/PT, LTERM, MSGID, NODE, PROG, RECCD, RGJOB, RGPST, RTCDE, TRAN, USERID, USRDEF, CLIENT, PORT, or TPIPE.

#### Changed

Date and time when last updated.

**ID**

The userid that last updated the Object List.

**Line actions:**

The following line actions can be performed on the list of Object Lists:

- /**  
Display the menu of line actions
- E**  
Edit the Object List
- S**  
Select the Object List (same as Edit)
- V**  
View the Object List (Edit without Save)
- R**  
Rename the Object List
- D**  
Delete the Object List

**Primary commands:**

The following primary commands are available.

**Refresh (REFR)**

To re-populate the list of Object Lists by re-accessing the Object Lists data set. Also available from the **View** menu on the action bar.

**Sort**

To sort the list on any one, or a combination of columns. The default sort field is Name. The sort sequence disregards upper and lower case, and can be ascending (ASC) or descending (DESC), with ascending the default for all but the Changed column. The sort sequence is retained only until Exit or another **SORT** command is issued. Also available from the **View** menu on the action bar.

**LOCATE (L or LOC)**

Locate an entry in the list based on the primary sort field. Also available from the **View** menu on the action bar.

**NEW *name type* | Model *modelname***

Define a new Object List. If the command is valid, the edit panel is displayed for you to complete the definition. Otherwise, you are prompted to specify valid parameters. Also available from the **File** menu on the action bar.

**SELECT *name***

Select (edit) a member in the Object Lists member list. If the name is a member in the list, the edit panel is displayed. If the name is omitted or invalid, you are prompted for a valid name. This command is the same as entering line action S (Select) or E (Edit). Also available from the **File** menu on the action bar.

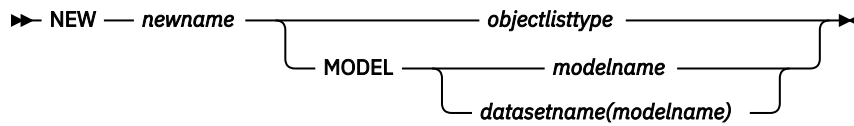
## Creating Object Lists

If you want a reusable list of values for including or excluding input records from reports or extracts, you need to create an Object List.

### Procedure

To create an Object List:

1. Either:
  - In the command line, enter **NEW** followed by the name of the new Object List and initialization details using the following syntax:



- Select **File > New** from the action bar. A pop-up dialog window is displayed as shown in [Figure 249 on page 639](#). Enter the name of the new Object List, and select the method of initialization as either:
  - a. One of the Object List types
  - b. Modelled from an existing Object List (specify the name of the model Object List, and the data set name if other than the current data set)

**New Object List**

Specify the name of the new Object List and the type or model.

Name . . . . ASSETS

List Type or MODEL

— 1. Application Group 2. Block ID 3. Class 4. Database 5. DDname 6. DDname Group 7. DEDB Area 8. External SSID 9. IMS Subsystem ID 10. Key	11. Line 12. Line/Terminal 13. LTERM 14. Message ID 15. Program Name 16. Record Code 17. Region ID by PST 18. Region Jobname 19. Routing Code 20. Transaction Code	21. User ID 22. User-Defined 23. VTAM Node 24. Connect Client ID 25. TCP/IP Port 26. Tpipe 27. MODEL (see below)
--	---	--

Model . . . . \_\_\_\_\_

Press ENTER to create the Object List, EXIT or CANCEL to leave.

*Figure 249. Specifying a new Object List*

2. Press Enter when the required fields have been specified.

A panel is displayed where you can view or modify the description of the Object List and its list of values.

For an explanation of how to edit Object Lists see [“Types of Object Lists and values” on page 639](#).

## Types of Object Lists and values

There are several types of Object List in IMS Performance Analyzer. The type of an Object List determines what the values are allowed in the Object List, and what those values represent.

*Table 3. Types of IMS Performance Analyzer Object Lists*

Type of Object List	Values allowed	Mask allowed	Range allowed
APGRP	APGRP or PROG Object List name	no	no
AREA	DEDB Area name	yes	yes
BLKID	Block ID (DLOGRBA in log record 50) specified as 4 bytes hexadecimal	no	yes
CLASS	Message Class	no	yes
CLIENT	IMS Connect Client ID	yes	yes

Table 3. Types of IMS Performance Analyzer Object Lists (continued)

Type of Object List	Values allowed	Mask allowed	Range allowed
DB	Database name	yes	yes
DD	DDname	yes	yes (but not in DDGRP)
DDGRP	DDGRP or DD Object List name	no	no
ESSID	External Subsystem ID	yes	yes
IMSID (Datastore)	IMS Subsystem ID or Datastore	yes	yes
KEY	Key (KSDS)	yes	yes
LINE	Line number	no	yes
LN/PT	Line/Terminal specified as two, 1-8 digit numbers in the format <i>nnnnnnnn/nnnnnnnn</i>	no	yes
LTERM	Logical Terminal	yes	yes
MSGID	Message ID	yes	yes
NODE	VTAM Node name	yes	yes
PORT	TCP/IP Port Number	no	yes
PROG	Program (PSB) name	yes	yes (but not in APGRP)
RECCD	Record Codes, Log or Monitor specified as 1 byte hexadecimal (2 hex characters)	no	yes
RGJOB	Region ID by Job	yes	yes
RGPST	Region ID by PST	no	yes
RTCDE	Routing Code	yes	yes
TPIPE	Tpipe	yes	yes
TRAN	Transaction Code	yes	yes
USERID	User ID	yes	yes
USRDEF	User-defined Code	yes	yes

**Note:** Object Lists of every type can also contain entries that are Object Lists of the same type. For example, a PROG Object List can contain the names of other PROG Object Lists.

## Specifying values in Object Lists

You can specify any number of values in an Object List. Depending on the type of Object List and its purpose, values may be specified as single values, ranges of values, masks, or groups. You can also specify sublists, which are Object Lists of the same type as the Object List being edited.

### About this task

When an Object List is used for reporting, the list of objects processed includes all specified values in the Object List and all values in the Sublist Object Lists as well.

The order of entries in the list is not relevant to the batch report processors.

## Procedure

On the **Object List edit** panel, specify values appropriate for the type of Object List:

### Description

Default: IMS PA OBJECT LIST

Free format text up to 32 characters to describe the contents and purpose of the Object List.

### Sublist

Depending on the Object List type, specifies a value, Object List, or Object List type.

#### For APGRP and DDGRP Object Lists:

Specify whether the List Name is the same type as the Object List being edited (/) or a different type (blank). For example:

- An APGRP Object List can specify APGRP (/) or PROG (blank) Lists that define groups of applications for the Application Detail report.
- A DDGRP Object List can specify DDGRP (/) or DD (blank) Lists that define groups of DDnames for the Database IWAIT reports.

**List Name:** Object Lists of type APGRP and DDGRP define groups of values for reporting purposes. They enable report details to be summarized by group. Each group of values is defined in an Object List which you specify as the List Name.

#### For other types of Object Lists:

Indicate whether the **From** field specifies an Object List (/) or an actual value or mask (blank).

The usual method of populating an Object List is to specify the required values. In this case the Sublist indicator remains blank.

You may have a requirement to include one Object List inside another. This is called a Sublist. In this case, set the Sublist indicator to /.

**From** must be specified.

**To** is only specified if a range of values is being specified.

### Validation Warning

Warnings indicate errors such as Member not found or Member not of correct type. ("Member" refers to an Object List name, as Object Lists are stored as members in the Object Lists Data Set.) Such occurrences are given as warnings rather than errors to allow you to specify them on the current panel and take subsequent action to correct the situation, such as to then create the specified Object List.

If **Warning Confirmation** has been requested from option 0.1 **IMS PA Settings**, you will be prompted to confirm any Exit or Save attempt if a warning is outstanding.

### Line actions:

The following line actions can be performed on rows within an Object List:

/

Display the menu of line actions

I

Insert a null row after this row

R

Repeat this row

C

Copy this row

M

Move this row

A

Move/Copy after this row

- B** Move/Copy before this row
- D** Delete this row

### Primary commands:

The following primary commands are available:

#### Reset (RES)

Remove all line actions and delete any blank rows. Also available from the **Edit** menu on the action bar.

#### SAVE

Write all unsaved changes to the Object Lists data set. If the Object List already exists, it is overwritten. If it does not exist, it is created. Editing of the data can continue after the save is complete. Also available from the **File** menu on the action bar.

#### SAVEAS name

Save the Object List as the specified name. If only a member name is specified, the current Object Lists data set is assumed. To save in another data set, specify the DSN and member name. If the Object List already exists, it is overwritten. If it does not exist, it is created. Editing of the data can continue after the save is complete. Also available from the **File** menu on the action bar.

## Examples

### Single values

For example, to specify that the PAYMAST and PAYHIST databases are to be included (or excluded), define a Database (type DB) Object List which contains the database names as shown in [Figure 250](#) on page 642.

File Edit Options Help

-----

EDIT DB Object List - DB000001

Row 1 to 2 of 2

Command ==>

Scroll ==>

Specify the Database values.

Description . . . . \*\*\* DATABASE OBJECT LIST \*\*\*

Enter "/" to select action.

Sublist

From:

To:

Validation Warning

- Range (or sublist) -

PAYMAST

PAYHIST

Figure 250. Specifying Single Values in an Object List

### Ranges of values

For example, to specify that regions 1, 4, 5, 6, 8, 11, 12, and 13 are to be included (or excluded), define a Region ID by PST (type RGPST) Object List which contains the values as shown in [Figure 251](#) on page 643.

Ranges are not supported for APGRP and DDGRP Object Lists, nor for their PROG and DD sublists.



File Edit Options Help			
Command ==>		EDIT RGPST Object List - RG000001	Row 1 to 4 of 4 Scroll ==>
Specify the Region ID by PST Number values.			
Description . . . . IMS PA OBJECT LIST FOR REGIONS__			
Enter "/" to select action.			
Sublist	- Range (or sublist) -		Validation Warning
-	From:	To:	
-	1	6	
-	4		
-	8		
-	11	13	

Figure 251. Specifying Ranges of Values in an Object List

### Generic forms of the value (Masking)

Specify a pattern using the masking character \* (asterisk) for any number of characters. For example, specifying a transaction code value of T\*K will match transaction codes TK, TRK, TURK but not TURKEY, and THWACK but not ATTACK.

Masking is not supported for Object Lists of type APGRP, BLKID, CLASS, DDGRP, LINE, LN/PT, LOGCD, or RGPST.

File Edit Options Help			
Command ==>		EDIT TRAN Object List - TC000002	Row 1 to 2 of 2 Scroll ==>
Specify the Transaction Code values.			
Description . . . . *** TRANCODE OBJECT LIST ***__			
Enter "/" to select action.			
Sublist	- Range (or sublist) -		Validation Warning
-	From:	To:	
-	T*K		
-	*FUN*		

Figure 252. Specifying Generic Values (Masking) in an Object List

### Group values

These are Application Groups and DD Groups which allow, respectively, a hierarchical grouping of Program (PSB) Names and DDnames. [Figure 253 on page 644](#) shows a DD Group Object List which contains two further DD Group sublists FINANCE and STOCK, and two DDname Object Lists EMPLOYEE and PAYROLL. There are validation warnings for two of them because they have not yet been created.

```

File Edit Options Help
-----
Command ==> EDIT DDGRP Object List - DG000001 Row 1 to 4 of 4
Scroll ==> _____

Specify the DDname Group values.

Description . . . DD GROUP OBJECT LIST 01_____

Enter "/" to select action.

      Sublist  List Name  Validation Warning
      -      -      -
      -      7      PAYROLL  Member was not found
      -      7      FINANCE
      -      7      EMPLOYEE
      -      7      STOCK    Member was not found

```

Figure 253. Specifying Group Values in an Object List

## Using Object Lists in Selection Criteria

Rather than specifying multiple individual values in selection criteria, you can refer to the name of an object list (that contains those values).

### About this task

Here is part of a typical panel that allows record selection for a report:

```

Selection Criteria:
Object Type      Inc/Exc  Object  List  Validation Warning
Transaction Code  -      -      -
LTERM            -      -      -

```

Figure 254. Using Object Lists to Select Records

In the row for **Transaction Code**:

#### Inc/Exc

Type INC to include only the specified Transaction Codes. Type EXC to exclude the specified Transaction Codes.

#### Object

Specify a transaction code, a mask (using \* to represent non-compare positions), or the name of an Object List of type TRAN.

#### List

Select **List** with a / if **Object** is an Object List, otherwise it is assumed to be an individual transaction code or a mask.

### Example

For example, to include only transaction codes listed in Object List TL0000001 specify:

```

Selection Criteria:
Object Type      Inc/Exc  Object  List  Validation Warning
Transaction Code  INC      TL0000001  /

```

To exclude transaction code PAY specify:

```

Selection Criteria:
Object Type      Inc/Exc  Object  List  Validation Warning
Transaction Code  EXC      PAY      -

```

## Distributions

A feature of IMS PA is the ability to produce graphs showing the distribution (dispersion) of the values of performance measures (for example, the distribution of Transit Times). Each graph can be individually customized by specifying range values and labels in a PDS member called a *Distribution*.

For example:

Value ranges (Limits) = 1,5,10,30,50,100,300,500,1000

Values Title = Sc Mil Mic (seconds, milliseconds, microseconds)

Values Multiplier = 1000

Values Edit Mask = ZZZ.ZZ9.999

Report from 08Jun2023 17.24.39.87			IMS 15.4.0			IMS Performance Analyzer 4.5			Report to 08Jun2023 17.29.20.92		
Region Totals			Region Distributions			Region Distributions			Region Distributions		
From 08Jun2023 17.24.58.55 To 08Jun2023 17.29.20.92			Elapsed= 0 Hrs			Elapsed= 0 Hrs			Elapsed= 0 Hrs		
Elapsed/Call			Elapsed/IWAIT			Elapsed/IWAIT			Elapsed/IWAIT		
Average Std-Dev/Avg Max Value			Average Std-Dev/Avg Max Value			Average Std-Dev/Avg Max Value			Average Std-Dev/Avg Max Value		
58.370 18.205 34.739.656			15.386 8.304 3.303.220			0.32 2.689 10			0.32 2.689 10		
Range Count in Totals all Regions			Range Count in Totals all Regions			Range Count in Totals all Regions			Range Count in Totals all Regions		
Sc Mil Mic Range			Sc Mil Mic Range			Sc Mil Mic Range			Sc Mil Mic Range		
To Maximum 13			To Maximum 2			To Maximum 1			To Maximum 1		
1.000.000 1			1.000.000 0			1.000.000 0			1.000.000 0		
500.000 0			500.000 0			500.000 0			500.000 0		
300.000 5			300.000 5			300.000 5			300.000 5		
100.000 21			100.000 10			100.000 10			100.000 10		
50.000 48 *			50.000 19 *			50.000 19 *			50.000 19 *		
30.000 146 ***			30.000 155 *****			30.000 155 *****			30.000 155 *****		
10.000 77 *			10.000 176 *****			10.000 176 *****			10.000 176 *****		
5.000 206 ****			5.000 261 *****			5.000 261 *****			5.000 261 *****		
1.000 1798 *****			1.000 114 *****			1.000 114 *****			1.000 114 *****		
Total= 2,315 10 20 30 40 50%			Total= 742 10 20 30 40 50%			Total= 2,315 10 20 30 40 50%			Total= 2,315 10 20 30 40 50%		

Figure 255. Report output example: Distributions

Nominating the Distribution is the mechanism for requesting the graph, as well as defining its characteristics. Sample Distributions are provided for all distribution graphs.

## Maintaining Distributions

You can use the IMS PA dialog to maintain (create, edit, delete) Distributions.

### Procedure

1. Select option 4.5 **Distributions** from the IMS Performance Analyzer primary option menu.

The **Distributions** panel is displayed, which lists the Distributions in the nominated Distributions data set.

2. If you have not nominated a Distributions data set, IMS PA allocates a data set for you with default characteristics. To change the Distributions data set, select option 0.4 **IMS PA Control Data Sets** from the IMS Performance Analyzer primary option menu.

If the data set contains no user-defined Distributions, IMS PA populates it with the sample Distributions listed in [“Distribution and Report cross-reference”](#) on page 649.

3. From here you can select Distributions to review or update, or you can create new Distributions.

```

File View Options Help
-----
Distributions Row 1 to 3 of 3
Command ==> _____ Scroll ==> _____

Distributions Data Set . . : IMSPA.DIST

/      Name      Description      Changed      ID
-      DS000001  Transit Time Statistics  2023/06/25 10:32  JCH02
-      DS000002  ELAPSCH                2023/06/25 10:35  JCH02
-      DS000003  IWTSUMMY              2023/06/25 14:27  JCH02
***** End of list *****

```

Figure 256. Distributions list

The Distributions are listed with the following user-defined attributes:

**Name**

1–8 character name in ISPF member name format, used to uniquely identify the Distribution within the Distributions data set.

**Description**

Free format text up to 32 characters, used to clarify the contents and purpose of the Distribution.

In addition, the Distributions are listed with the following system-generated attributes:

**Changed**

Date and time when last updated.

**ID**

The userid that last updated the Distribution.

**Line actions:**

The following line actions can be performed on Distributions:

- / Display the menu of line actions
- E Edit the Distribution
- S Select the Distribution (same as Edit)
- V View the Distribution (Edit without Save)
- R Rename the Distribution
- D Delete the Distribution

**Primary commands:**

The following primary commands are available:

**Refresh (REFR)**

Repopulate the list of Distributions by re-accessing the Distributions data set. Also available from the **View** menu on the action bar.

**Sort**

Sort the list on any one, or a combination of columns. The default sort field is Name. The sort sequence disregards upper and lower case, and can be ascending (ASC) or descending (DESC), with ascending the default for all but the Changed column. The sort sequence is retained only until Exit or another **SORT** command is issued. Also available from the **View** menu on the action bar.

**LOCATE (L or LOC)**

Locate an entry in the list based on the primary sort field. Also available from the **View** menu on the action bar.

**NEW** *name* Model *modelname*

Define a new Distribution member. If the command is valid, the edit panel is displayed for you to complete the definition. Otherwise, you are prompted to specify valid parameters. Also available from the **File** menu on the action bar.

**SELECT** *name*

Select (edit) a member in the Distributions member list. If the name is a member in the list, the edit panel is displayed. If the name is omitted or invalid, you are prompted for a valid name.

This command is the same as entering line action S (Select) or E (Edit). Also available from the **File** menu on the action bar.

## Creating new Distributions

If you want a distribution graph with custom value ranges, you need to create a Distribution that specifies those value ranges.

## Procedure

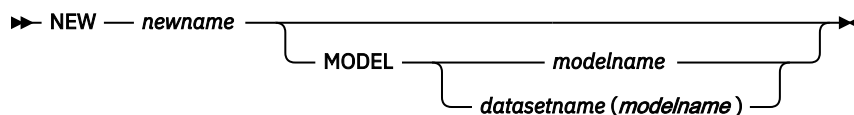
To create a Distribution:

1. On the IMS Performance Analyzer primary option menu, select option 4.5 **Distributions**.

The **Distributions** panel is displayed, showing the list of existing Distributions.

2. Either:

- On the command line, enter **NEW** followed by the name of the new Distribution and optional initialization details using the following syntax:



- On the action bar, select **File > New**.

A pop-up dialog window is displayed. Enter the name of the new Distribution, and select the method of initialization as either:

- Based on defaults
- Modelled from an existing Distribution (specify the name of the model Distribution, and the data set name if other than the current data set)

```

New Distribution

Specify the name of the new Distribution and optional model.

Name . . . . DS000009

Default or MODEL . . . . 1  1. Default
                               2. MODEL (specified below)

Model _____

Press Enter to create the Distribution.
Press Exit or Cancel to cancel the request.

```

Figure 257. Specifying a new Distribution

When you have specified the required fields, press Enter.

A panel is then displayed for you to view or modify the description of the Distribution and its characteristics.

## Specifying Distribution characteristics

The characteristics of a Distribution are the nine range limits that appear on the vertical axis of a distribution graph.

### Procedure

To define the characteristics of a Distribution:

1. On the IMS Performance Analyzer primary option menu, select option 4.5 **Distributions**.

The **Distributions** panel is displayed, showing the list of existing Distributions.

2. To create a new Distribution, enter **NEW** on the command line; to edit an existing Distribution, enter S next to the Distribution.

The **Edit Distribution** panel is displayed, showing the characteristics of the Distribution.

3. Edit the characteristics.

```

                                EDIT Distribution - DS000002
Command ==> _____

Specify distribution options.

Description . . . . Elapsed Time per Schedule_____

Limit Values . . . . . (1) 1_____ (2) 5_____ (3) 10_____
                       (4) 30_____ (5) 50_____ (6) 100_____
                       (7) 300_____ (8) 500_____ (9) 1000_____

Limit Values Title . . . . . Sc Mil Mic___
Limit Value Multiplier . . . . 1000_____
Limit Value Edit Mask . . . . ZZZ.ZZ9.999_____
```

Figure 258. Defining a Distribution

The fields in the Edit Distribution panel are:

#### Description

Default: IMS PA DISTRIBUTION

A descriptive title used to clarify the contents and purpose of the Distribution.

#### Limit Values

Default: 1, 5, 10, 30, 50, 100, 300, 500, 1000

Limit Values define the nine range-limits for the vertical axis of the graph. A tenth range is added by IMS PA to catch all values greater than the highest specified limit. If limits are to be specified, then all 9 values must be provided. The values will be sorted into ascending sequence. Limits are multiplied by the Limit Multiplier at the time of producing the graph.

#### Limit Values Title

Default: Sc Mil Mic (for seconds, msecs, microsecs)

Specify the title to be printed for the limit values on the vertical axis of the graph.

#### Limit Value Multiplier

Default: 1000

Each Limit Value is multiplied by the Limit Multiplier when producing the graph.

#### Limit Value Edit Mask

Default: ZZZ.ZZ9.999 or 402020204B2021204B202020

Specify an edit mask to be used when printing the limit values along the vertical axis of the graph. Two formats are accepted:

- Up to 11 characters, where any character may be specified but the following are digit-select characters: Z (zero suppression), 9 (digit mask), S (trigger start). Any other character is copied into the mask; the fill character is blank and the field is right-justified.
- Up to 12 bytes hexadecimal (represented by up to 24 characters) which will be used as the edit mask as specified in the *ESA/390 Principles of Operation*, SA22-7201.

For both formats, the number of digit-select characters (X'20' and X'21' in format 2) must be greater than zero and should be odd. If the number of digit-select characters is even, then the low order digit of the result will not be formatted.

The format of the following graph was produced by the Distribution specified in the previous figure.

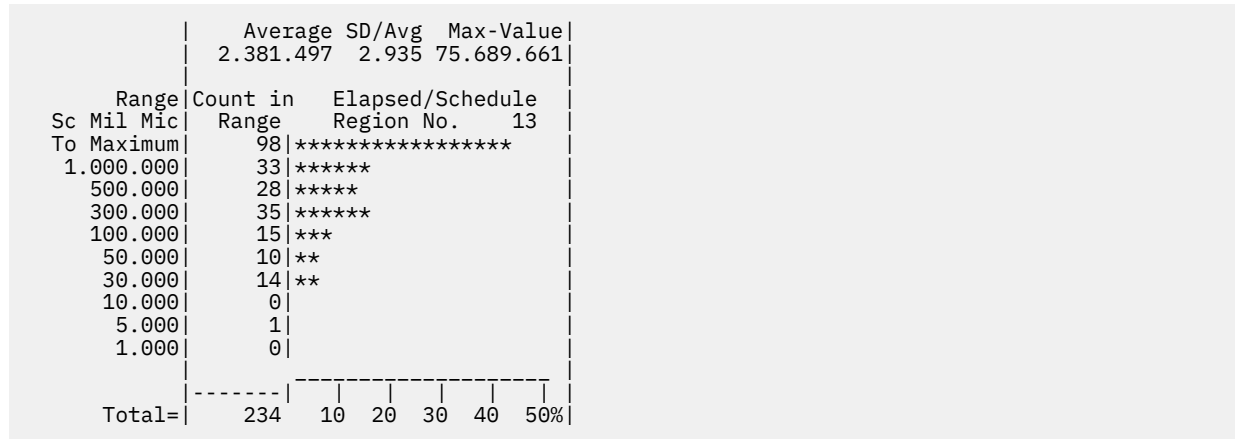


Figure 259. Distribution Graph

## Distribution and Report cross-reference

Distributions do not apply to all reports. This cross-reference lists the log and monitor reports that can produce distribution graphs, with the name of the sample Distribution provided.

Table 4. Distribution and Report cross-reference

Distribution type	Sample Distribution	Report type	Report	Where Distribution is specified
Transit Time	LOGIN	Log	Transit Time Statistics	report panel
Processing (CPU) Time	\$IPDIST1	Log	CPU Usage	report panel
Elapsed Time	\$IPDIST2	Log	CPU Usage	report panel
Checkpoint Duration	SYSCKPT	Log	System Checkpoint	report panel
Elapsed Time per Schedule	ELAPSCH	Monitor	Region Summary Region Detail Region Analysis PSB-TranCode Analysis	Monitor Global - Distributions Options
Elapsed Time per Call	ELAPCAL	Monitor	Region Summary Region Detail Region Analysis Exception Listing PSB-TranCode Analysis Program Trace	Monitor Global - Distributions Options

Table 4. Distribution and Report cross-reference (continued)

Distribution type	Sample Distribution	Report type	Report	Where Distribution is specified
Elapsed Time per IWAIT	ELAPIWT	Monitor	Region Summary Region Detail Region Analysis Exception Listing PSB-TranCode Analysis Program Trace	Monitor Global - Distributions Options
IWAITs per Call	IWTSCAL	Monitor	Region Summary Region Detail Region Analysis Exception Listing PSB-TranCode Analysis Program Trace	Monitor Global - Distributions Options
Elapsed Time per IWAIT	IWTSUMMY	Monitor	Total System IWAIT Summary and Detail	report panel
Elapsed Time per IWAIT	DDIWELAP	Monitor	Database IWAIT Analysis	report panel
Lock IWAIT Elapsed Time	FPRCLIW	Monitor	DEDB Resource Contention	report panel
Fast Path Buffer Statistics	FPBSCNT	Monitor	Fast Path Buffer Statistics	report panel
Queue Length per Message	FPBGQLN	Monitor	BALG/Shared EMHQ Analysis	report panel
Queue Time per Message	FPBGELP	Monitor	BALG/Shared EMHQ Analysis	report panel
Active OTHREAD Counts	FPOTACT	Monitor	OTHREAD Analysis	report panel
Waiting Area	FPOTWTA	Monitor	OTHREAD Analysis	report panel
Buffers on Queue	FPOTBOQ	Monitor	OTHREAD Analysis	report panel
Line Elapsed Time	COMMELP	Monitor	Communication Summary	report panel
Line IWAIT Elapsed Time	COMMIWE	Monitor	Communication IWAIT	report panel
Received Blksize per Block	COMMLFR	Monitor	Communication Line Functions	report panel
Transmitted Blksize per Block	COMMLFT	Monitor	Communication Line Functions	report panel
Turnaround Interval	COMMLFI	Monitor	Communication Line Functions	report panel
Queue Length per Message	MSCQLEN	Monitor	MSC Queuing	report panel
Queue Time per Message	MSCQELP	Monitor	MSC Queuing	report panel

**Notes:**



- The Exception Listing does not produce graphs but uses the Distribution values as thresholds.
- The name of the Distribution used in batch command input to associate the Distributions with the reports is the same name as the Sample Distribution shown in this table, with the following exceptions:

**Command Name**

**Sample Distribution**

**ELAP/SCH**

ELAPSCH

**ELAP/CAL**

ELAPCAL

**ELAP/IWT**

ELAPIWT

**IWTS/CAL**

IWTSCAL



---

## Chapter 31. IMS Performance Analyzer sample library

The IMS Performance Analyzer sample library SIPISAMP contains several members that contain sample JCL and several user programs for specialized reporting scenarios.

### Report Set JCL

The following members of the sample library contain examples of report set JCL you can use to generate IMS Performance Analyzer reports and extracts.

#### **IPILOGJC**

IMS Log Report Set

#### **IPIMONJC**

IMS Monitor Report Set

#### **IPISBMP**

IMS Log Report Set for BMP analysis

#### **IPICEXJC**

IMS Connect Report Set

#### **IPILDBRC**

Automated file selection (DBRC Log Selection for IMS logs and Journal File Selection for IMS Connect Extensions journals)

### Inflight data sets for IMS and IMS Connect reporting

The following members of the sample library contain sample JCL when working with IMS and IMS Connect inflight data sets. For more information on inflight processing, see [“Log Global Options” on page 216](#) and [“Connect Global Options” on page 503](#).

#### **IPIIMSIF and IPICEXIF**

Allocate inflight transaction data sets for IMS and IMS Connect. These samples demonstrate two alternative methods for allocating data sets; one that uses GDGs and one that uses fixed data set names. When using these samples, simply delete the method you do not wish to use. Either option ensure that no changes are required to your report set JCL.

**Tip:** Generation data group (GDG) is the recommended approach because it does not require a post-step to switch (rename) the inflight data sets. The JCL also initializes the first inflight data set to an empty state, in preparation for the first batch request.

#### **IPIIFLST**

Report on the contents of the IMS inflight data set

### Export to Db2 - Bind Db2 Plan

The following members of the sample library contain sample JCL to bind a Db2 plan for program IPIUTILB. IPIUTILB is an alternative to the Db2 load utility DSNUTILB when an IMS Performance Analyzer form-based summary extract is loaded into a Db2 table with the Resume option. When a record in the extract file has a duplicate key to a row in the table, IPIUTILB accumulates the data, whereas DSNUTILB would stop processing on this condition.

#### **IPIDB2BD**

JCL to create the Db2 package required to run the alternative load utility IPIUTILB.

#### **IPIDBRMU**

Binds the Db2 plan for program IPIUTILB.

## Export to Db2 - IMS Connect Transit Extract

The following members of the sample library contain sample JCL to load IMS Connect Transit extract data into Db2 tables and run SQL queries. For more information, see [“Understanding the Connect Transit Extract”](#) on page 663.

The following samples apply to List extracts:

### **IPICLDDL**

DDL for Db2 Table Create (List Extract)

### **IPICLLOD**

Load data into Db2 Table (List Extract)

### **IPICQML1**

QMF query showing average Transit input Elapsed times (including Pre-OTMA and SAF), Processing OTMA and Response time (List Extract)

### **IPICQML2**

QMF query showing average Transit Output Elapsed time, including Confirm, Post-OTMA, XMIT EXIT and Acknowledgment READ Socket (List Extract)

The following samples apply to Summary extracts:

### **IPICSDDL**

DDL for Db2 Table Create (Summary Extract)

### **IPICSLLOD**

Load data into Db2 Table (Summary Extract)

### **IPICQMS1**

SQL Query showing average Transit Processing times (Summary Extract)

### **IPICQMS2**

SQL Query showing average Transit Queue times (Summary Extract)

## Export to Db2 - OMEGAMON ATF Summary Extract

The following members of the sample library contain sample JCL to load OMEGAMON ATF Summary extract data into Db2. For more information, see [“ATF Summary Extract”](#) on page 308.

### **IPIESDDL**

DDL framework to define the Db2 database and tables

### **IPIESLD**

HEADER table load framework

### **IPIESLD1**

DBD table LOAD framework

### **IPIESLD2**

DLIDB table LOAD framework

### **IPIESLD3**

DLITM table LOAD framework

### **IPIESLD4**

Db2 table LOAD framework

### **IPIESLD5**

MQ table LOAD framework

### **IPIESLD6**

OTHER table LOAD framework

## Authorization Exit for IMSPLEX security

The following members of the sample library contain a sample program and a JCL member for a Request Authorization Exit.

The Request Authorization Exit is optional. The exit stops DBRC Log Selection when an IMSPLEX name is specified. If not installed, then all requests are allowed. For more information, see [“Preparing for DBRC Log Selection” on page 139](#).

#### **IPIUAUTH**

Request Authorization Exit

#### **IPIU002**

Authorization Exit JCL

### **Transaction History File**

The following members of the sample library contain sample JCL to create a Transaction History File, load the data into Db2 tables, and run SQL queries. For examples, see [“Understanding the Transaction History File” on page 659](#).

The following members contain documentation:

#### **IPITH\$\$\$**

SIPISAMP member documentation

#### **IPITHDOC**

Transaction History File documentation

The following members demonstrate collection of data and working with the transaction history file:

#### **IPITHCOL**

Collection

#### **IPITHCOS**

Collection using DBRC Log Selection

#### **IPITHGDA**

IDCAMS statements to define generation data group (GDG) base

#### **IPITHGDM**

Define a new history file (for example, at month-end)

The following members demonstrate how to load data into Db2:

#### **IPITHDDL**

DDL for Db2 Table Create

#### **IPITHLOD**

Load transaction history data into Db2 Table

The following members demonstrate SQL queries:

#### **IPITHQM1**

QMF query showing average Transit Queue times

#### **IPITHQM2**

QMF query showing average Transit Queue times and average End-User Response times

#### **IPITHQM3**

QMF query showing average Transit Queue time and approximate CPU and DL/I resource usage

#### **IPITHQM4**

QMF query showing Transit Queue time peak percentile.

### **Transaction Substitution Exit**

The following members of the sample library contain a demonstration of how to use the Transaction Substitution Exit facility. For more information, see [“Log Global Options” on page 216](#).

#### **IPITSUB#**

Transaction Substitution Exit documentation describing how it works, how to install it, and how to use it.

**IPITSUBA**

Assembly and Link-Edit JCL

**IPITSUBR**

Run Transit Reports

**IPITSUBS**

JCL to install the USERMOD

**IPITSUBU**

USERMOD to install the Transaction Substitution Exit

**IPITSUBX**

Sample Transaction Substitution Exit that forces IMS Performance Analyzer to report an alternate Transaction Code name

**IPIXAASM**

JCL to assemble and link the sample user program IPIXAPGP into the IMS Performance Analyzer User Load Library (dialog option 0.1 **IMS PA Settings**)

**IPIXAPGP**

Sample Transaction Substitution Exit to support Application Groups, relevant to the Transit Analysis, Statistics and Transaction Exception reports, or form-based transit reports specifying a report form that includes the APPLNAME field

This exit enables you to change the Transaction Code name that is reported by selected Transit reports. The only reports affected by the exit are the Transit Analysis, Statistics and Transaction Exception reports.

To code, install, and then request the Transaction Substitution Exit, complete the following steps:

1. Tailor the exit source code IPITSUBX to meet your requirements. IPITSUBX contains the sample assembler language exit that forces IMS Performance Analyzer to report an alternate name in the Transaction Code name field. This sample exit extracts the 7 byte replacement TranCode name from offset 40 in the message text.

You can assign any name to the exit, and create as many exits as required, although only one exit can run at a time.

2. Install the exit using one of the following methods:

**SMPE USERMOD**

IPITSUBU contains USERMOD IPIU001. It installs the exit into your IMS Performance Analyzer SMPE environment. IPITSUBS contains the JCL to install the USERMOD. Tailor the JCL to suit your requirements.

**Direct Assemble and Link without SMPE**

IPITSUBA contains JCL to assemble and link the exit without SMPE.

3. To request the exit from the dialog, specify the name of the Transaction Substitution Exit in **Log Global Options** in the Log Report Set. See [Figure 106 on page 217](#).
4. To request the exit using batch commands, specify the name of the exit in the **TRANEXIT** operand as shown in sample member IPITSUBR.

**IMS program switch sequence analysis**

The following members of the sample library contain samples for performing a program switch call analysis to identify all unique IMS program (switch) call sequences and then to drill down to discover which sequences an individual transaction/program is associated with.

**IPIPSWI\$**

Documentation for the program switch sequence analysis report.

**IPIPSWIA**

JCL to compile and link the sample program IPIPSWIT.

**IPIPSWIT**

Source code for program switch call report. If desired, you can modify this code to enhance the transaction source descriptions.

**IPIPSWIQ**

Object code required for link (subroutine used by IPIPSWIT).

**IPIPSWIR**

JCL to run the report

**IMS Tools Knowledge Base**

The following member of the sample library contains sample JCL to define or update the register of reports in the IMS Tools Knowledge Base. For more information, see [Chapter 33, “IMS Tools Knowledge Base,”](#) on page 669.

**IPIDITKB**

If the Product Definition Table (PDT) is updated, run this job to load it into the IMS Tools Knowledge Base repository.





---

## Chapter 32. Analyzing extracts using Db2

In addition to the versatile form-based extracts, IMS Performance Analyzer can create other extracts suitable for loading into Db2 for analysis using your favorite Db2 query tool. These extracts include the Transaction History File, and the Connect Transit Extract. The format of the Transaction History File and Connect Transit Extract data records are described here, with examples that show you how to use QMF SQL queries to analyze the data. Sample jobs are also provided in the SIPISAMP library to illustrate these examples.

For information on exporting and analyzing form-based extracts, see [Chapter 18, “Exporting data for Db2 or for third party tools,”](#) on page 197.

---

### Understanding the Transaction History File

With IMS Performance Analyzer, you can extract and summarize IMS log data in a format suitable for loading directly into Db2 tables. From here you can then run queries or produce reports.

You can create Transaction History Files by running the Transaction History File in a Log Report Set in the dialog.

The command to request the Transaction History File is:

```
IMSPALOG TRANHIST(INTERVAL(hh:mm:ss),...)
```

In the Transaction History File, information is summarized for each transaction code over a short time interval, typically 15 minute intervals. This historical performance data includes transaction transit, response and CPU times, as well as DLI call statistics.

#### Transaction History record format

The following figure shows the format of the Transaction History File records. The record layout is defined by the assembler macro IPITRHR in the SIPIMAC library.

TRHRSTRT	DS	0D	.Start of Transaction History record	
*				
TRHRDATE	DS	CL10	.Date='yyyy-mm-dd'	POSITION=01 DATE EXTERNAL(10)
	DS	CL1	.Hyphen	
TRHRTIME	DS	CL8	.Time='hh.mm.ss'	=12 TIME EXTERNAL(8)
TRHRPRID	DS	CL4	.Processing IMS Subsystem ID	=20 CHAR(4)
TRHRTRAN	DS	CL8	.Transaction Code	=24 CHAR(8)
*				
.End of Key				
*				
.Queue time Totals in microseconds:				
TRHRTRA#	DS	XL8	.Transaction count -	POSITION=32 FLOAT
TRHRRSP#	DS	XL8	.Response count-	POSITION=40 FLOAT
TRHRTINQ	DS	XL8	.Input queue elapsed time	POSITION=48
TRHRTPRO	DS	XL8	.Processing elapsed time	=56
TRHRTOUT	DS	XL8	.Output queue elapsed time	=64
TRHRTTOT	DS	XL8	.Total elapsed time -	=72
*				
.Total=Input+Processing+Output				
TRHRTRSP	DS	XL8	.End-User Response time -	=80
*				
.Queue time Sums-of-Squares:				
TRHR2INQ	DS	XL8	.Input queue elapsed time	POSITION=88
TRHR2PRO	DS	XL8	.Processing elapsed time	=96
TRHR2OUT	DS	XL8	.Output queue elapsed time	=104
TRHR2TOT	DS	XL8	.Total elapsed time	=112
TRHR2RSP	DS	XL8	.End-User Response time	=120
*				
.Start of 07 Application End statistics:				
TRHRDLI#	DS	XL8	.Transaction count with DLI stats -	=128
TRHRCPUT	DS	XL8	.CPU time in microseconds	POSITION=136
*				
.DLI call statistics totals				
TRHRDBCL	DS	XL8	.DB Calls	POSITION=144
TRHRDCCL	DS	XL8	.DC Calls	=152
TRHRDBWT	DS	XL8	.DB Waits	=160

Figure 260. IMS Performance Analyzer Transaction History File record layout

All numerical fields are in Floating Point format.

## Sample Db2 jobs

Sample Db2 jobs are supplied in the SIPISAMP library to help you create Db2 tables and load the historical data into them:

- Sample DDL job IPITHDDL
- Sample Load job IPITHLOD

You will need the following Db2 settings when completing your JCL:

- Db2 Subsystem ID. For example, DB2P
- DSNTIAD Plan Name. For example, DSNTIAC1
- Db2 Load Library. For example, 'DB2.VC10.SDSNLOAD'
- Db2 Exit Library. For example, 'DB2.VC10.SDSNEXIT'
- Db2 RUNLIB Library. For example, 'DSNC10.RUNLIB.LOAD'

You will also need to define your:

- Storage group
- VOLSER
- VCAT
- Database name
- Table name

The following sample SQL queries are also supplied in the SIPISAMP library to help you run SQL queries using QMF:

- IPITHQM1
- IPITHQM2
- IPITHQM3
- IPITHQM4

### Simple query

Transaction History records are already summarized by Time and Transaction Code, so a basic query does not require any scalar functions. The following SQL query lists selected fields in the history record.

```
SELECT TRHRDATE AS "Date",
       TRHRTIME AS "Time",
       TRHRPRID AS "IMS",
       TRHRTRAN AS "TranCode",
       DECIMAL(TRHRTRA#,8) AS "Tran Count",
       DECIMAL(TRHRTINQ/1000,8,1) AS "Input Q_Time",
       DECIMAL(TRHRTPRO/1000,8,1) AS "Process_Time",
       DECIMAL(TRHRTOUT/1000,8,1) AS "Output Q_Time",
       DECIMAL(TRHRTTOT/1000,8,1) AS "Total_Time"
FROM IPIHIST.TRANHIST
```

This query produces output like the following:

DATE	TIME	IMS	TRANCODE	TRAN COUNT	INPUT Q TIME	PROCESS TIME	OUTPUT Q TIME	TOTAL TIME
2023-04-04	05.45.00	DI23	ACIS	31	288340.9	7968.3	0.0	296309.3
2023-04-04	05.45.00	DI23	ZTMEN	6	78096.1	1838.4	0.0	79934.6
2023-04-04	06.00.00	DI23	DN81711A	1	0.9	332.6	0.0	333.6
2023-04-04	06.00.00	DI23	XY5P00A1	31	1343.4	7985.7	587.0	9916.1
2023-04-04	06.00.00	DI23	ZTMEN	6	1.0	407.5	0.0	408.6
2023-04-04	06.00.00	DI23	ZTOFF	6	1.2	591.2	0.0	592.5
2023-04-04	06.15.00	DI23	XY5P00A1	31	694.6	7411.7	439.8	8546.2
2023-04-04	06.15.00	DI23	ZTMEN	6	0.9	418.8	0.0	419.7
2023-04-04	06.15.00	DI23	ZTOFF	6	1.5	327.0	0.0	328.6
2023-04-04	06.30.00	DI23	DN81711A	1	0.2	116.6	0.0	116.9
2023-04-04	06.30.00	DI23	XY5P00A1	31	48.6	8758.4	352.9	9160.0
2023-04-04	06.30.00	DI23	ZTMEN	6	0.9	339.5	0.0	340.4
2023-04-04	06.30.00	DI23	ZTOFF	6	0.9	260.8	0.0	261.7
2023-04-04	06.45.00	DI23	XY5P00A1	31	563.0	6678.8	302.1	7544.0
2023-04-04	06.45.00	DI23	ZTMEN	6	0.9	281.0	0.0	281.9
2023-04-04	06.45.00	DI23	ZTOFF	6	1.6	283.5	0.0	285.2

Figure 261. IMS Performance Analyzer Transaction History File: Simple SQL query by time and transaction code

### Calculating averages

The following query summarizes all Response Counts greater than 0 and calculates the average time for each Transit Queue Elapsed time field.

```
SELECT TRHRDATE AS "Date",
       TRHRTIME AS "Time",
       TRHRPRID AS "IMS",
       TRHRTRAN AS "TranCode",
       DECIMAL(TRHRTRA#,8) AS "Tran_Count",
       DECIMAL(TRHRRSP#,8) AS "Resp_Count",
       DECIMAL(TRHRTINQ/1000/TRHRTRA#,8,1) AS "Avg_Input Q_Time ",
       DECIMAL(TRHRTPRO/1000/TRHRTRA#,8,1) AS "Avg_Process_Time",
       DECIMAL(TRHRTTOT/1000/TRHRTRA#,8,1) AS "Avg_Total_Time",
       DECIMAL(TRHRTTRSP/1000/TRHRRSP#,8,1) AS "Avg_Response"
FROM IPIHIST.TRANHIST
WHERE TRHRRSP# > 0;
```

This query produces output like the following:

DATE	TIME	IMS	TRANCODE	TRAN COUNT	RESP COUNT	AVG INPUT Q TIME	AVG PROCESS TIME	AVG TOTAL TIME	AVG RESPONSE
2023-04-04	09.45.00	DI23	ZTOFF	3	3	0.1	48.1	48.2	97.9
2023-04-04	10.00.00	DI23	ACIS	10	10	0.2	225.5	225.8	225.8
2023-04-04	10.00.00	DI23	XY5P00A1	21	21	0.6	249.5	273.6	273.6
2023-04-04	10.00.00	DI23	ZTMEN	6	2	0.1	45.4	45.6	44.3
2023-04-04	10.00.00	DI23	ZTOFF	4	4	0.3	59.8	60.1	106.2
2023-04-04	10.15.00	DI23	XY5P00A1	25	25	0.3	231.9	257.4	257.4
2023-04-04	10.15.00	DI23	ZTOFF	4	4	0.1	46.1	46.3	95.8
2023-04-04	10.30.00	DI23	XY5P00A1	27	27	0.3	229.0	243.7	243.7
2023-04-04	10.30.00	DI23	ZTOFF	6	6	0.2	54.3	54.5	105.5
2023-04-04	10.45.00	DI23	XY5P00A1	28	28	2.0	242.6	267.3	267.3
2023-04-04	10.45.00	DI23	ZTOFF	5	5	9.9	49.5	59.4	105.8
2023-04-04	11.00.00	DI23	XY5P00A1	23	23	0.3	229.0	253.1	253.1
2023-04-04	11.00.00	DI23	ZTOFF	5	5	0.1	47.7	47.9	91.1
2023-04-04	11.15.00	DI23	XY5P00A1	30	30	0.3	253.2	272.9	272.9
2023-04-04	11.15.00	DI23	ZTOFF	6	6	0.2	23.7	24.0	65.9

Figure 262. IMS Performance Analyzer Transaction History File: SQL query reporting averages

### Calculating peak percentiles

Peak Percentile is a statistical estimate (based on the Normal Distribution) that provides an upper limit value of when *nn%* of tasks completed processing. Peak Percentiles allow you to measure whether workload targets are being met.

The following query calculates the 90% peak percentile of elapsed time fields. The CASE statements show the function required to calculate peak percentiles.

```

SELECT TRHRTRAN AS "TRANCODE",
       INT(SUM(TRHRTRA#)) AS "TRAN COUNT",
       DECIMAL(SUM(TRHRTINQ)/1000/SUM(TRHRTRA#),8,1) AS "AVG_Input Q_Time",
       CASE WHEN (SUM(TRHRTRA#) > 1) THEN
         DEC(((&PEAK*SQRT(((SUM(TRHRTRA#)*SUM(TRHR2INQ)/1000000)
                           -POWER(SUM(TRHRTINQ)/1000,2))
                           /(SUM(TRHRTRA#)*(SUM(TRHRTRA#)-1))))
              + (SUM(TRHRTINQ)/SUM(TRHRTRA#))/1000,13,3)
         ELSE DEC((SUM(TRHRTINQ)/SUM(TRHRTRA#))/1000,10,3)
       END
       AS Input_PEAK90,
       DECIMAL(SUM(TRHRTPRO)/1000/SUM(TRHRTRA#),8,1) AS "AVG_Process_Time",
       CASE WHEN (SUM(TRHRTRA#) > 1) THEN
         DEC(((&PEAK*SQRT(((SUM(TRHRTRA#)*SUM(TRHR2PRO)/1000000)
                           -POWER(SUM(TRHRTINQ)/1000,2))
                           /(SUM(TRHRTRA#)*(SUM(TRHRTRA#)-1))))
              + (SUM(TRHRTPRO)/SUM(TRHRTRA#))/1000,13,3)
         ELSE DEC((SUM(TRHRTPRO)/SUM(TRHRTRA#))/1000,10,3)
       END
       AS Process_PEAK90,
       DECIMAL(SUM(TRHRTTOT)/1000/SUM(TRHRTRA#),8,1) AS "AVG_Total_Time",
       CASE WHEN (SUM(TRHRTRA#) > 1) THEN
         DEC(((&PEAK*SQRT(((SUM(TRHRTRA#)*SUM(TRHR2TOT)/1000000)
                           -POWER(SUM(TRHRTTOT)/1000,2))
                           /(SUM(TRHRTRA#)*(SUM(TRHRTRA#)-1))))
              + (SUM(TRHRTPRO)/SUM(TRHRTRA#))/1000,13,3)
         ELSE DEC((SUM(TRHRTTOT)/SUM(TRHRTRA#))/1000,10,3)
       END
       AS Total_PEAK90
FROM IPIHIST.TRANHIST
GROUP BY TRHRTRAN
ORDER BY TRHRTRAN

```

**Note:** Replace &PEAK with the percentile of your choice. For example, to calculate the 90% peak percentile, replace &PEAK with 0.9.

This query produces output like the following:

TRANCODE	TRAN COUNT	AVG INPUT TIME	INPUT PEAK90	AVG PROCESS TIME	PROCESS PEAK90	AVG TOTAL TIME	TOTAL PEAK90
ACIS	789	375.0	-	263.2	-	657.5	-
DN81711A	36	0.3	-	167.4	211.961	167.7	-
XYKCT00	18	5.0	-	21.0	-	26.1	-
XYKUAM00	6	0.2	-	7.7	-	8.0	-
XYKUAM00	10	24.9	-	70.4	-	95.3	-
XYKUA000	22	12.8	-	100.2	-	113.0	-
XYKUAQ00	20	10.2	-	25.7	-	36.0	-
XYKUA000	8	0.2	-	22.4	-	22.7	-
XYKUA500	4	29.0	-	97.1	-	126.2	-
XYKUA600	2	1.6	-	40.5	-	42.1	-
XYKUA700	2	9.2	-	74.4	-	83.6	-
XYKUA800	23	4.5	-	47.6	-	52.2	-
XYKU9F00	14	0.6	-	12.9	-	13.6	-
XYKU9G00	32	3.2	-	41.0	-	104.4	-
XYKU9H00	23	0.2	-	16.0	-	16.3	-
XYKU9I00	72	0.3	-	32.6	-	32.9	-
XYTACP01	1	122.7	122.720	3988.8	3988.897	4111.6	4111.617
XY5P00A1	1476	9.0	-	245.6	-	272.8	-
ZTMEN	350	223.7	-	57.7	-	700.8	-
ZTOFF	337	887.5	-	46.0	-	933.5	-

Figure 263. IMS Performance Analyzer Transaction History File: SQL query reporting peak percentiles

## Understanding the Connect Transit Extract

You can use IMS Performance Analyzer to extract IMS Connect event data in a format suitable for loading directly into Db2 tables. You can create List or Summary extract data sets by running the IMS Connect Transit Extract in a CEX Report Set using the ISPF dialog.

The command to request the Connect Transit Extract is:

```
IMSPACEX TRANEXTR([LIST,][SUMMARY,]INTERVAL(hh:mm:ss),...)
```

### Connect Summary extract

In the Connect Summary Extract, transaction transit activity is summarized by time interval, typically 15 minute intervals.

#### Summary record format

The Summary Extract record has the following format.

CTSSUMM	CEX Transaction Summary Record		
CTSDATE	CL10	Tran Date 'yyyy-mm-dd'	
CTSDATES	CL1	Separator '-'	
CTSTIME	CL8	Tran Time 'hh.mm.ss'	
CTSTC	CL8	Tran Code	
CTSINTVL	XL8	Time Interval (seconds)	
Transit Elapsed times (microseconds)			
CTSELIN	XL8	Pre-OTMA	Total
CTSELIN2	XL8	Pre-OTMA	Sum-of-Squares
CTSELRD	XL8	Input READ Socket	Total
CTSELRD2	XL8	Input READ Socket	Sum-of-Squares
CTSELRX	XL8	Message Exit READ	Total
CTSELRX2	XL8	Message Exit READ	Sum-of-Squares
CTSELSF	XL8	SAF	Total
CTSELSF2	XL8	SAF	Sum-of-Squares
CTSELPR	XL8	Processing by OTMA	Total
CTSELPR2	XL8	Processing by OTMA	Sum-of-Squares
CTSELXX	XL8	Message Exit XMIT	Total
CTSELXX2	XL8	Message Exit XMIT	Sum-of-Squares
CTSELAR	XL8	Acknowledgement READ Socket	Total
CTSELAR2	XL8	Acknowledgement READ Socket	Sum-of-Squares
CTSELCF	XL8	Transaction Confirm	Total
CTSELCF2	XL8	Transaction Confirm	Sum-of-Squares
CTSELOT	XL8	Post-OTMA	Total
CTSELOT2	XL8	Post-OTMA	Sum-of-Squares
CTSELRS	XL8	Response time	Total
CTSELRS2	XL8	Response time	Sum-of-Squares
CTSTRAN#	XL4	Transaction count	
CTSREJE#	XL4	Rejected count	
CTSTIMO#	XL4	Timeout count	
CTSFAIL#	XL4	Failed count	
CTSCACK#	XL4	Client ACK count	
CTSCNAK#	XL4	Client NAK count	
CTSONAK#	XL4	OTMA NAK count	
CTSRTPI#	XL4	Resume Tpipe message count	
CTSPDAVG	XL4	Average Port depth	
CTSPDMAX	XL4	Maximum Port depth	
CTSPDMIN	XL4	Minimum Port depth	

Figure 264. Format of Connect Transit Summary Extract record

## Sample Db2 jobs

The following sample Db2 jobs are supplied in the SIPISAMP library:

- Sample DDL job IPICSDDL
- Sample Load job IPICSLOD
- Sample SQL queries IPICQMS1 and IPICQMS2

## Simple query

Summary tables are already summarized (by time), so a basic query does not require any scalar functions. The following query lists selected fields in the summary table.

```
SELECT CTSTC              AS TRANSACTION_CODE,
       INTEGER(CTSTRAN#)  AS TRANSACTION_COUNT,
       DECIMAL(CTSELRS/1000,13,4) AS RESPONSE_TOTAL,
       DECIMAL(CTSELIN/1000,10,3) AS PRE_OTMA_TOTAL,
       DECIMAL(CTSELRD/1000,10,3) AS READ SOCK_TOTAL,
       DECIMAL(CTSELRX/1000,10,3) AS READ_EXIT_TOTAL,
       DECIMAL(CTSELSF/1000,10,3) AS SAF_TOTAL
FROM IPICONS.CTSSUMM
```

This query produces output like the following.

TRANSACTION CODE	TRANSACTION COUNT	RESPONSE TOTAL	PRE OTMA TOTAL	READ SOCK TOTAL	READ EXIT TOTAL	SAF TOTAL
PART	5	1435.7870	1218.788	1216.187	0.394	0.000
DSPALLI	100	69463.4320	38389.667	37716.086	16.911	0.000
DSPINV	100	67962.7320	34089.078	33201.285	14.207	0.000
PART	205	125199.3300	76138.329	75212.801	24.388	0.000
PART	3	1831.4520	665.493	663.842	0.346	0.000
DSPALLI	11	3271.7730	2854.238	2848.395	1.465	0.000
DSPINV	11	3249.6670	2834.724	2829.164	1.254	0.000
PART	22	6409.3750	5725.630	5715.764	2.573	0.000
PART	21	14076.2680	5326.346	5316.563	2.846	0.000
PART	18	5186.0090	4589.195	4493.980	88.907	0.000
PART	11	3572.2840	2976.655	2835.723	68.818	66.593

Figure 265. Connect Transit Summary Extract: Simple SQL query by transaction

### Calculating averages

The following query summarizes all transactions, grouping by Transaction Code and calculating the average time for each elapsed time field.

```

SELECT CTSTC
      INTEGER(SUM(CTSTRAN#))
      DECIMAL(SUM(CTSELRS)/1000,13,4)
      DECIMAL((SUM(CTSELRS)/SUM(CTSTRAN#))/1000,10,3)
      DECIMAL((SUM(CTSELIN)/SUM(CTSTRAN#))/1000,10,3)
      DECIMAL((SUM(CTSELRD)/SUM(CTSTRAN#))/1000,10,3)
      DECIMAL((SUM(CTSELRX)/SUM(CTSTRAN#))/1000,10,3)
      DECIMAL((SUM(CTSELSF)/SUM(CTSTRAN#))/1000,10,3)
      DECIMAL((SUM(CTSELPR)/SUM(CTSTRAN#))/1000,10,3)
      DECIMAL((SUM(CTSELXX)/SUM(CTSTRAN#))/1000,10,3)
      DECIMAL((SUM(CTSELAR)/SUM(CTSTRAN#))/1000,10,3)
      DECIMAL((SUM(CTSELCF)/SUM(CTSTRAN#))/1000,10,3)
      DECIMAL((SUM(CTSELOT)/SUM(CTSTRAN#))/1000,10,3)
      AS TRANSACTION_CODE,
      AS TRANSACTION_COUNT,
      AS RESPONSE_TOTAL,
      AS RESPONSE_AVERAGE,
      AS PRE_OTMA_AVERAGE,
      AS READ_SOCK_AVERAGE,
      AS READ_EXIT_AVERAGE,
      AS SAF_AVERAGE,
      AS OTMA_AVERAGE,
      AS XMIT_EXIT_AVERAGE,
      AS ACK_READ_AVERAGE,
      AS CONFIRM_AVERAGE,
      AS POST_OTMA_AVERAGE
FROM IPICONS.CTSMUM
GROUP BY CTSTC
ORDER BY CTSTC

```

This query produces output like the following.

TRANSACTION CODE	TRANSACTION COUNT	RESPONSE TOTAL	RESPONSE AVERAGE	PRE OTMA AVERAGE	SOCK AVERAGE	EXIT AVERAGE	SAF AVERAGE
DSPALLI	111	72735.2050	655.272	371.566	365.445	0.165	0.000
DSPINV	11			646	324.598	0.139	0.000
PART	28	TRANSACTION	TRANSACTION	RESPONSE 089	334.929	0.660	0.233

Figure 266. Connect Transit Summary Extract: SQL query reporting averages

### Calculating peak percentiles

Peak Percentile is a statistical estimate (based on the Normal Distribution) that provides an upper limit value of when nn% of tasks completed processing. Peak Percentiles allow you to measure whether workload targets are being met.

Peak Percentiles are calculated using the formula:

Factor\*Standard Deviation+Average

The following table shows the Factors for each 5 percentile greater than 50% (the average):

#### Factor

##### Peak Percentile

**0.126**

55%

**0.253**

60%

**0.385**  
 65%  
**0.524**  
 70%  
**0.674**  
 75%  
**0.842**  
 80%  
**1.036**  
 85%  
**1.282**  
 90%  
**1.645**  
 95%

The following query calculates the 90% peak percentile of elapsed time fields. The CASE statements show the function required to calculate peak percentiles. Calculations use a Factor of 1.282 for 90%.

```

SELECT CTSTC                                AS TRANSACTION_CODE,
       INT(SUM(CTSTRAN#))                   AS TRANSACTION_COUNT,
       CASE WHEN (SUM(CTSTRAN#) > 1) THEN
         DEC(((&PEAK*SQRT(((SUM(CTSTRAN#)*SUM(CTSELRS2)/1000000)
          -POWER(SUM(CTSELRS)/1000,2))
          /(SUM(CTSTRAN#)*(SUM(CTSTRAN#)-1))))
          +(SUM(CTSELRS)/SUM(CTSTRAN#))/1000,13,3)
         ELSE DEC((SUM(CTSELRS)/SUM(CTSTRAN#))/1000,10,3)
       END                                  AS RESPONSE_PEAK90,
       CASE WHEN (SUM(CTSTRAN#) > 1) THEN
         DEC(((&PEAK*SQRT(((SUM(CTSTRAN#)*SUM(CTSELIN2)/1000000)
          -POWER(SUM(CTSELIN)/1000,2))
          /(SUM(CTSTRAN#)*(SUM(CTSTRAN#)-1))))
          +(SUM(CTSELIN)/SUM(CTSTRAN#))/1000,13,3)
         ELSE DEC((SUM(CTSELIN)/SUM(CTSTRAN#))/1000,10,3)
       END                                  AS PRE_OTMA_PEAK90,
       CASE WHEN (SUM(CTSTRAN#) > 1) THEN
         DEC(((&PEAK*SQRT(((SUM(CTSTRAN#)*SUM(CTSELRD2)/1000000)
          -POWER(SUM(CTSELRD)/1000,2))
          /(SUM(CTSTRAN#)*(SUM(CTSTRAN#)-1))))
          +(SUM(CTSELRD)/SUM(CTSTRAN#))/1000,13,3)
         ELSE DEC((SUM(CTSELRD)/SUM(CTSTRAN#))/1000,10,3)
       END                                  AS READ_SOCKET_PEAK90,
       CASE WHEN (SUM(CTSTRAN#) > 1) THEN
         DEC(((&PEAK*SQRT(((SUM(CTSTRAN#)*SUM(CTSELRX2)/1000000)
          -POWER(SUM(CTSELRX)/1000,2))
          /(SUM(CTSTRAN#)*(SUM(CTSTRAN#)-1))))
          +(SUM(CTSELRX)/SUM(CTSTRAN#))/1000,13,3)
         ELSE DEC((SUM(CTSELRX)/SUM(CTSTRAN#))/1000,10,3)
       END                                  AS READ_EXIT_PEAK90,
       CASE WHEN (SUM(CTSTRAN#) > 1) THEN
         DEC(((&PEAK*SQRT(((SUM(CTSTRAN#)*SUM(CTSELSF2)/1000000)
          -POWER(SUM(CTSELSF)/1000,2))
          /(SUM(CTSTRAN#)*(SUM(CTSTRAN#)-1))))
          +(SUM(CTSELSF)/SUM(CTSTRAN#))/1000,13,3)
         ELSE DEC((SUM(CTSELSF)/SUM(CTSTRAN#))/1000,10,3)
       END                                  AS SAF_PEAK90
FROM IPICONS.CTSUMM
GROUP BY CTSTC
ORDER BY CTSTC
  
```

This query produces output like the following:

TRANSACTION CODE	TRANSACTION COUNT	RESPONSE PEAK90	PRE OTMA PEAK90	READ SOCKET PEAK90	READ EXIT PEAK90	SAF PEAK90
DSPALLI	111	29928.674	13599.108	13235.167	42.412	0.000
DSPINV	111	32727.816	17237.198	16552.236	27.029	0.000
PART	285	50882.091	23939.055	23756.950	152.333	109.671

Figure 267. Connect Transit Summary Extract: SQL query reporting peak percentiles



## Connect List extract

The Connect List Extract lists transaction transit activity in a similar way to the Connect Transit Log report.

### List record format

The List Extract record has the following format.

CTLLIST			CEX Transaction List Record
CTLDATE	CL10	Tran Date	'yyyy-mm-dd'
CTLDATES	CL1	Separator	'-'
CTLTIME	CL14	Tran Time	'hh.mm.ss.thmiju'
CTLTC	CL8	Transit Code	
CTLUSID	CL8	User ID	
CTLDORG	CL8	Datastore (Original)	
CTLDSTGT	CL8	Datastore (Target)	
CTLCLID	CL8	Client ID	
CTLTPIPE	CL8	TPIPE name	
CTLPORT	CL5	Port Number	
CTLREJE	CL1	R = Transaction rejected	
CTLIMO	CL1	T = Transaction timeout	
CTLFAIL	CL1	F = Transaction failed	
CTLCLACK	CL1	A = Client sent ACK	
CTLCLNAK	CL1	N = Client sent NAK	
CTLONAK	CL1	O = OTMA NAK	
CTLRTPIP	CL1	N = RESUME TPIPE NOAUTO command	
		A = RESUME TPIPE AUTO command	
		S = RESUME TPIPE SINGLE command	
			Transit Elapsed times (microseconds)
CTLELIN	XL8	Pre-OTMA	
CTLELRD	XL8	Input READ Socket	
CTLELRX	XL8	Message Exit READ	
CTLELSF	XL8	SAF	
CTLELPR	XL8	Processing by OTMA	
CTLELXX	XL8	Message Exit XMIT	
CTLELAR	XL8	Acknowledgement READ Socket	
CTLELCF	XL8	Transaction Confirm	
CTLELOT	XL8	Post-OTMA	
CTLELRS	XL8	Response time	
			Transaction counters
CTLCAK#	XL2	Client ACK count	
CTLCLNAK#	XL2	Client NAK count	
CTLONAK#	XL2	OTMA NAK count	
CTLRTPI#	XL4	Resume Tpipe message count	
CTLPTDEP	XL4	Port depth	
CTLNAKSC	XL2	OTMA NAK Sense Code	
CLTIMOV	XL2	Timeout value (seconds)	
CLTIRM	XL1	Timeout value (raw)	
CLTTIMOC	CL8	Timeout value (character)	
CTLIPADR	CL39	IP Address	

Figure 268. Format of Connect Transit List Extract record

### Sample Db2 jobs

The following sample Db2 jobs are supplied in the SIPISAMP library:

- Sample DDL job IPICLDDL
- Sample Load job IPICLLOD
- Sample SQL queries IPICQML1 and IPICQML2

### Ten worst response times

You can use a Db2 SQL query to highlight the top ten worst response times.

```

SELECT CTLTC                AS "TRANSACTION_CODE",
       TIME(CTLTIME)        AS "START TIME",
       DECIMAL(CTLELRS/1000,8,2) AS "RESPONSE_AVERAGE",
       DECIMAL(CTLELIN/1000,8,2) AS "PRE_OTMA_AVERAGE",
       DECIMAL(CTLELSF/1000,8,2) AS "SAF_AVERAGE",
       DECIMAL(CTLELPR/1000,8,2) AS "OTMA_AVERAGE",
       DECIMAL(CTLELCF/1000,8,2) AS "CONFIRM_AVERAGE",
       DECIMAL(CTLELOT/1000,8,2) AS "POST_OTMA_AVERAGE",
       DECIMAL(CTLELXX/1000,8,2) AS "EXIT_XMIT_AVERAGE",
       DECIMAL(CTLELAR/1000,8,2) AS "READ SOCK_AVERAGE"
FROM IPICNL.CONLIST
ORDER BY CTLELRS DESC
FETCH FIRST 10 ROWS ONLY
OPTIMIZE FOR 10 ROWS

```

This query produces output like the following:

TRANSACTION CODE	START TIME	RESPONSE AVERAGE	PRE OTMA AVERAGE	SAF AVERAGE	OTMA AVERAGE	CONFIRM AVERAGE	POST OTMA AVERAGE	EXIT XMIT AVERAGE	READ SOCK AVERAGE
PART	15.26.25	5519.16	268.38	0.00	57.98	5149.02	43.77	0.17	5131.11
PART	16.58.11	2988.95	1895.00	0.00	1088.74	0.00	5.20	0.11	0.00
PART	16.58.11	2943.25	1808.59	0.00	1130.77	0.00	3.88	0.13	0.00
PART	16.58.11	2907.06	1846.99	0.00	1058.05	0.00	2.01	0.11	0.00
PART	16.58.11	2823.57	1836.53	0.00	976.59	0.00	10.45	0.12	0.00
PART	16.58.11	2760.14	1825.13	0.00	923.77	0.00	11.23	0.12	0.00
PART	16.58.11	2712.31	1873.00	0.00	830.20	0.00	9.10	0.14	0.00
PART	16.58.11	2670.28	288.92	0.00	2329.58	0.00	51.77	0.11	0.00
PART	16.58.11	2622.52	1764.89	0.00	818.24	0.00	39.38	0.05	0.00
PART	16.58.11	2412.90	1688.80	0.00	719.75	0.00	4.35	0.13	0.00

Figure 269. Connect Transit List Extract: SQL query reporting 10 worst response times

# Chapter 33. IMS Tools Knowledge Base

IBM IMS Tools Knowledge Base (IMS Tools KB) is an IMS Tools product that allows you to store, manage, and access reports that are generated by any tool product that has been enabled and registered to participate in an IMS Tools Knowledge Base information management environment. It provides a common information management service that allows the sharing of data generated by multiple tool products within a sysplex from a single, centralized interface.

IMS database administration responsibilities can include ensuring the availability and maintenance of many hundreds or thousands of databases. These database administration tasks require the services of many tools to perform backup, reorganization, and analysis operations. Reports that are generated by the tools during these operations can provide valuable information, such as documenting the success of tool execution or reporting statistics on the state of a database at that time.

Most of these reports are valuable to you long after they are generated. The reports, and the data that is provided in these reports, allow you to better utilize the rich information that is produced by the tools. Typically, however, most reports are deleted because there is no useful way to save and organize them.

With its common report repository and viewing interface, IMS Tools Knowledge Base can provide centralized report storage, access, and management capabilities for a complex sysplex environment. IMS Tools Knowledge Base becomes the single platform within a sysplex environment for multiple IMS Tools products to share report output.

## IMS Tools KB setup for IMS Performance Analyzer reports

IMS Performance Analyzer is registered as a product (PRODUCTID=IP). All fixed-format reports are registered. Also, generic report definitions are registered for ten LIST and ten SUMMARY form-based reports and five user-written log reports.

If the Product Definition Table (PDT) is updated, run the sample job IPIDITKB to load it into the IMS Tools Knowledge Base repository. See [Chapter 31, “IMS Performance Analyzer sample library,”](#) on page 653.

**Related reading:** For information about how to install and configure IMS Tools KB, see "Configuring IMS Tools Knowledge Base" in the *IMS Tools Knowledge Base for z/OS User's Guide*. For information about how to register more reports, such as more user-defined form-based reports, see "Registering products and reports".

To display the list of products that are available in the IMS Tools Knowledge Base, select from the action bar menu **Administration > 2. List Installed Products**.

```
SERVER: IPIXCFSV          Installed Products List          Row 1 to 2 of 2
Command ===> _____ Scroll ===> CSR

Select a row action or press End to exit.

Row Actions: S Subs List RP Remove Product RR Remove Release RS Remove Subs

Act  Product Name          Product Release
S    IMS Performance Analyzer for z/OS    040500
_    IVP PRODUCT            010101
```

Figure 270. IMS Tools KB: Installed products

Enter S to view the list of reports defined for IMS Performance Analyzer.  
Scroll down to view the full list. The following figure shows the reports at the end of the list.

SERVER: IPIXCFVS                      Report Subscriptions List                      Row 33 to 66 of 66  
 Command ==> \_\_\_\_\_ Scroll ==> CSR

Select a row action or press End to exit.

Row actions: U Update

Product Name . . : IMS Performance Analyzer for z/OS  
 Product Release : 040500

Act	Report Title	----- Retention -----				Record	Repository
		Days	Versions	Default			
___	Form-based Summary 8	30	7	Y		Y	N/A
___	Form-based Summary 9	30	7	Y		Y	N/A
___	FP Buffer Usage	30	7	Y		Y	N/A
___	FP Database CALL	30	7	Y		Y	N/A
___	FP Exception List	30	7	Y		Y	N/A
___	FP Exception Summary	30	7	Y		Y	N/A
___	FP Resource & Contention	30	7	Y		Y	N/A
___	FP Transit Analysis	30	7	Y		Y	N/A
___	FP Transit Log	30	7	Y		Y	N/A
___	Internal Resource Usage	30	7	Y		Y	N/A
___	IFP Region Occupancy	30	7	Y		Y	N/A
___	Log Cold Start Analysis	30	7	Y		Y	N/A
___	Log/Journal Gap Analysis	30	7	Y		Y	N/A
___	Management Exception	30	7	Y		Y	N/A
___	Message Queue Utilization	30	7	Y		Y	N/A
___	MSC Statistics	30	7	Y		Y	N/A
___	OSAM Sequential Buffering	30	7	Y		Y	N/A
___	Region Histogram	30	7	Y		Y	N/A
___	Resource Availability	30	7	Y		Y	N/A
___	System Checkpoint	30	7	Y		Y	N/A
___	Trans DLI Call Summary	30	7	Y		Y	N/A
___	Trans Resource List	30	7	Y		Y	N/A
___	Trans Resource Summary	30	7	Y		Y	N/A
___	Transit Analysis	30	7	Y		Y	N/A
___	Transit Exception	30	7	Y		Y	N/A
___	Transit Graphic Summary	30	7	Y		Y	N/A
___	Transit Log	30	7	Y		Y	N/A
___	Transit Statistics	30	7	Y		Y	N/A
___	User Log Report 1	30	7	Y		Y	N/A
___	User Log Report 2	30	7	Y		Y	N/A
___	User Log Report 3	30	7	Y		Y	N/A
___	User Log Report 4	30	7	Y		Y	N/A
___	User Log Report 5	30	7	Y		Y	N/A
___	VSO Statistics	30	7	Y		Y	N/A

Figure 271. IMS Tools KB: Registered IMS PA reports

## Related tasks

### Run Log Report Set

The IMS PA dialog generates the JCL for batch report processing. Enter the **RUN** command to run your Report Set, Report Category or individual reports.

## Loading IMS Performance Analyzer reports into IMS Tools KB

When you submit a Log Report Set, to redirect the output to the IMS Tools Knowledge Base, select the run-rime option **Write to the ITKB repository** and specify the ITKB server name.

## About this task

**Related reading:** For information about how to import reports into the IMS Tools KB, see "Managing reports" in the *IMS Tools Knowledge Base for z/OS User's Guide*.

# Viewing IMS Performance Analyzer reports using IMS Tools KB

After loading your reports into the IMS Tools KB, you can use the IMS Tools KB ISPF dialog to find and view them.

## Procedure

1. From the IMS Tools Knowledge Base primary option panel, select option 6 to display the list of reports.

```
SERVER: IPIXCFVS          IMS Tools Knowledge Base          Ver 1.6.0
Option ==> 6

Select an option or press END to exit.

*Knowledge Base Server Name . . . . IPIXCFVS
Recon ID . . . . .                    *History (y/n) N

Display Database Report Output
1 List of databases with reports
2 List of DDnames with reports
3 List of IMS Systems with reports
4 List of Report jobs
5 List of Report types
6 List of Reports
7 List of Products
8 List reports using selection criteria
9 List of all reports available
10 List of recently viewed reports
11 Exit
```

Figure 272. IMS Tools KB: Primary option panel

The list of reports that have been loaded into the IMS Tools Knowledge Base is displayed.

```
SERVER: IPIXCFVS          Report List                      Row 1 from 6
Command ==>              Scroll ==> CSR

Select a row action or press END to exit.

Row actions: S - List
A Product      Report Title
- IMSPA        FORM LIST 1
- IMSPA        FORM LIST 2
- IMSPA        FORM LIST 3
S IMSPA        FORM SUMMARY 1
- IVP PRODUCT  IVP REPORT
- IMSPA        USER LOG REPORT 1
```

Figure 273. IMS Tools KB: List of report types

2. Select an IMS PA report. The list of occurrences of this report is displayed.

```
SERVER: IPIXCFVS          Available Reports - Reports      Row 1 from 1
Command ==>              Scroll ==> CSR

Select a row action or press END to exit.

Row actions: S - View J - Job T - Step H - History P - Print D - Delete
              I - Info A - Archive
Act DBD      Area/Part DD      Set  Recon ID IMS ID  Grp Type Grp Name
S              SUMM0001        NORECON
```

Figure 274. IMS Tools KB: List of available reports of selected type

3. Select a report from the list to display its contents.

IMS Performance Analyzer MSC Summary Report								
SUMM0001 Printed at 16:48:37 10Jun2008				Data from 09.19.52 02Apr2008 to 10.34.55				
Trancode	Tran Count	MSC FrontEnd	MSC BackEnd	Avg CPU Time	Avg InputQ Time	Avg Process Time	Avg OutputQ Time	...
IVTCB	2	50.00%	50.00%	117.117	15.729.610	44.543	-	
IVTCV	78	55.13%	44.87%	1.685	0.827	22.975	1.164	
IVTCX	25	28.00%	28.00%	7.295	8.687	49.542	1.192	
IVTNO	130	47.69%	45.38%	1.258	10.327.961	21.128	9.106	
IVTNV	184	47.83%	47.83%	-	3.518.618	43.831	0.878	
Total	419	47.97%	45.35%	5.534	4.879.439	33.539	3.519	

Figure 275. IMS Tools KB: Actual report content

The IMS Tools Knowledge Base ISPF dialog provides a variety of methods for finding your reports, such as by selection criteria, by job, or by group.

---

## Chapter 34. Glossary of Report Form field names

This glossary lists all the fields available to IMS Performance Analyzer form-based list and summary reports.

Report form fields can be used in the following ways:

### Report Forms

Use the IMS Performance Analyzer ISPF dialog to construct a Report Form containing fields from the list below. The dialog can be used to generate batch report commands. For more information, see [Chapter 15, “Report Forms,”](#) on page 165.

### Batch

You can also specify these fields with the following batch report commands using the **FIELDS** operand as follows:

```
IMSPALOG LIST(...,FIELDS(field1,...))
IMSPACEX LIST(...,FIELDS(field1,...))
IMSPALOG SUMMARY(...,FIELDS(field1,...))
IMSPACEX SUMMARY(...,FIELDS(field1,...))
```

**Note:** The fields below are also the default Db2 column name used when exporting a Form-based extract to Db2. The default Db2 table name is the Report Form name. For more information, see [Chapter 18, “Exporting data for Db2 or for third party tools,”](#) on page 197.

The fields are listed alphabetically ignoring embedded spaces (in column headings). Other details provided for each field are:

- A description of the field.
- The source of the reporting field: IMS, IMS Connect, or both.
- The column heading that is displayed in reports and extracts.
- Where applicable, the corresponding global field used when browsing IMS logs and IMS Connect Extensions journals in IMS Problem Investigator.

**Note:** Form-fields that result in a hyphen (-) being displayed in the corresponding report column indicate that the required information is not available in the input logs. This is normal behavior that can occur, for example, if the log records required to determine the value are not present.

## A

### ABEND Code

See [COMPCODE](#)

### ABENDCNT

For Form-based summary reporting only, the number of abending transactions that were accumulated in the key range. See also [TRANCNT](#).

Source: IMS

Column heading: Abend Count

### ACKREAD

Acknowledgment read socket time. The total elapsed time for all read Socket Events issued after the response from OTMA has been sent to the client. This is the time taken to read the acknowledgment from the client.

Source: IMS Connect

Column heading: ReadSock Ack Time

**ALIAS**

Original ODBM alias name. For Open Database workloads in IMS Connect, this is the name of the ODBM alias specified in the DRDA request. *See also* [OUTALIAS](#).

Source: IMS Connect

Column heading: Alias Name

**APPC**

APPC indicator. Indicates whether the transaction originated from APPC. Reported values are:

**APPC**

Implicit APPC using the IMS message queue

**CPIC**

Explicit CPI-CI APPC using program schedule and APPC verbs

**blank**

Transaction is not APPC

Source: IMS

Column heading: APPC

**Applict n Grp Name**

*See* [APPLNAME](#)

**APPLNAME**

Application grouping name provided by the Transaction Substitution exit.

Source: IMS

Column heading: Applict n Grp Name

**ApplResp Time(R0)**

*See* [R0TIME](#)

**ASIO Waits**

*See* [FPASIOWT](#)

**ASYNCRd-Ahead**

*See* [FPASIORA](#)

**B****BALG Q Count**

*See* [FPBALGCT](#)

**BMPCHKID**

The BMP user checkpoint id.

Column heading: BMP Chkpt ID

**BMPCHKPT**

The number of checkpoints issued by the BMP, or the unit of work.

*See also* [BMPSYNCP](#)

Column heading: BMP Chkpt Ct

**BMPSYNCP**

The number of syncpoints issued by the BMP, or the unit of work.

*See also* [BMPCHKPT](#)

Column heading: BMP Sync Cnt



## C

### **CEXcm Level**

See [COMPLVLC](#)

### **CEXHICOD**

IMS Connect log code associated with the highest reported return code (RC). No value is reported if the return code is zero (0). See also [CEXHIRC](#) and [CEXHIRSN](#).

Source: IMS Connect

Column heading: High Code

### **CEXHIRC**

Highest return code (RC) found in the IMS Connect transaction. See also [CEXHICOD](#) and [CEXHIRSN](#).

Source: IMS Connect

Column heading: CEX High RC

### **CEXHIRSN**

Reason code associated with the highest reported return code (RC) found in the IMS Connect transaction. No value is reported if the return code is zero (0). See also [CEXHICOD](#) and [CEXHIRSN](#).

Source: IMS Connect

Column heading: CEX High RSN

### **CEXTYPE**

IMS Connect transaction type.

#### **OTMA**

Open Transaction Manager Access (OTMA) transaction

#### **ODBM**

Open Database transaction

#### ***blank***

Unknown transaction type

Source: IMS Connect

Column heading: Tran Type

### **CI Lock WAITS**

See [FPCILWT](#)

### **CICSAPPL**

CICS generic APPLID.

For CICS-DBCTL only, the generic APPLID of the CICS region that scheduled this thread.

The APPLID is extracted from the first 8 characters of the IMS recovery token.

### **CICSTASK**

CICS task number. For CICS-DBCTL only, the task number of the CICS transaction that scheduled this DBCTL thread.

In CICS Performance Analyzer, the associated CMF field is TRANNUM DFHTASK P031 and is reported using field name TASKNO.

You can use the CICS task number to match transactions in the CICS and IMS reports.

The CICS transaction name and task number are available in the IMS 08 log record. For details, see the IMS-supplied macro SDFS MAC(DFSLOG08).

Source: IMS

Column heading: CICS Task ID

### **CLASS**

Transaction Class. Transaction class as specified in the TRANSACT macro MSGTYPE parameter.

Source: IMS

Column heading: C1s

#### **CLIACK**

Client acknowledgment indicator. Indicates how the IMS Connect transaction client acknowledged the transaction results from IMS. Reported values are:

##### **ACK**

Client positively acknowledged (ACK)

##### **NAK**

Client negatively acknowledged (NAK)

##### **NAKP**

Client NAK with Purge if non-deliverable

##### **NAKR**

Client NAK with Re-route

##### **blank**

Transaction was not Synch Level=CONFIRM

Source: IMS Connect

Column heading: Cli ACK

#### **CLIENTID**

IMS Connect Client ID.

Source: IMS Connect

Column heading: Client ID

IMS Problem Investigator global field: ClientID

#### **C1s**

See [CLASS](#)

#### **CM0DELAY**

OTMA Commit Mode 0 (Commit-Then-Send) client ACK time. For OTMA Commit Mode 0 transactions only, the time it takes the client to acknowledge the response back to IMS. The elapsed time is calculated from when the output message is sent (Comms 31) to when the client acknowledgment is received and dequeued (36). This is a part of transaction processing time and can include the following:

- XCF overhead
- OTMA client (IMS Connect) processing overhead and wait for client acknowledgment

Source: IMS

Column heading: CM0Delay Time

#### **CM1DELAY**

OTMA Commit Mode 1 (Send-Then-Commit) delay time. For OTMA Commit Mode 1 transactions only, the delay in processing after the output message has been sent to OTMA. The delay elapsed time is from when the output message is sent (03/31) to when the transaction commences syncpoint processing (5610). This delay is a part of transaction processing time and can include the following:

- XCF overhead
- For Synch Level=CONFIRM only, OTMA client (IMS Connect) processing overhead and wait for client acknowledgment

Source: IMS

Column heading: CM1Delay Time

#### **COMMITMD**

IMS Connect Commit mode. Reported values are:

**0**

Commit mode 0 (Commit-Then-Send)

**1**

Commit mode 1 (Send-Then-Commit)

**blank**

Not an IMS Connect transaction

Source: IMS Connect

Column heading: Commit mode

#### **Commit SDEP CIs**

See [FPSDEPCI](#)

#### **Commit SDEP Seg**

See [FPSDEPSG](#)

#### **COMPCODE**

Transaction abend completion code.

Source: IMS

Column heading: ABEND Code

#### **COMPLVL**

IMS transaction completion level. IMS Performance Analyzer assigns a completion level to every transaction. IMS Performance Analyzer form-based reporting can specify a minimum completion level allowing you to report only those transactions that have reached this level of completion. The IMS transaction completion levels are:

**0**

IMS message is a message switch or generated output message, not a transaction. Use Completion level 0 to analyze all message queue activity, not when transaction transit information is required.

**1**

Transaction input message enqueued onto the IMS message queue. Use Completion level 1 to analyze transaction message queue activity, not when transaction transit information is required.

**2**

Transaction has started processing in the dependent region but has not completed processing. Only input queue time is available for reporting.

**3**

Transaction has finished processing in the dependent region but has not sent the output message to the destination LTERM. Input queue and processing times are available for reporting.

**4**

Transaction has ended but resource utilization statistics (from the type 07 application termination record) are not available, possibly due to WFI processing (schedule not ended). Input queue, processing, output queue and total times are available for reporting.

**Note:** When processing logs from shared queues subsystems, transactions are possibly assigned completion level 4, even though IMS is writing 56FA transaction-level accounting records. 56FA records result in completion level 6; however, these records can be on the log from an IMS subsystem that was not selected for the report. For transactions to be assigned completion level 6, logs from all IMS subsystems participating in the same shared queues environment must be selected.

For example, suppose a transaction message is received into IMS1, put on the shared queue, read from the shared queue by IMS2, and processed by IMS2. Completion level 4 is assigned because IMS2 might have written the 57FA transaction-level accounting record.

To achieve completion level 6, you can create a Group definition that contains IMS1 and IMS2. Then, run the report for the Group so that IMS PA can merge the logs from both subsystems. See [“Shared Queue merge processing” on page 341](#).

5

Transaction has ended and resource utilization statistics (from the type 07 application termination record) are available, and are *approximations* only. Type 07 application termination record statistics are apportioned equally amongst all transactions processed by the program schedule. All application statistics fields are available for reporting.

6

Transaction has ended and accurate resource utilization statistics are available. For Unit-of-Recovery () transactions, resource utilization statistics are derived from the type 56FA transaction-level accounting record. This record provides accurate and reliable information for each Unit-of-Recovery (). Resource statistics for transactions reported over the entire schedule are taken from the type 07 record. This includes DBCTL, ODBM, CPIC, and non-message driven BMP transactions.

All application statistics fields are available for reporting.

Source: IMS

Column heading: Comp Level

### **COMPLVLC**

IMS Connect transaction completion level. IMS Performance Analyzer assigns a completion level to every transaction. IMS Performance Analyzer form-based reporting can specify a minimum completion level allowing you to report only those transactions that have reached this level of completion. The IMS Connect transaction completion levels are:

0

For transactions that specified a transaction socket type, either IMS Connect rejected the transaction request message before calling the user message exit or that exit abended. For other transactions, Resume-Tpipe transaction completed. Use Completion level 0 to analyze all activity.

1

For transactions that specified a transaction socket type, the IMS Connect user message exit rejected the transaction request. Use Completion level 1 to analyze messages rejected by the message exit.

2

IMS Connect Message sent to OTMA for processing.

3

IMS Connect Message received from OTMA. This level may also indicate an OTMA timeout or error.

4

Transaction has completed IMS Connect processing. This level may also indicate an OTMA timeout or error.

Source: IMS Connect

Column heading: CEXcm Level

### **CONFIRM**

Client Confirm time. For Sync Level CONFIRM transactions only, the elapsed time from when OTMA completed processing the input message to when the ACK response from the client is sent back to OTMA.

Source: IMS Connect

Column heading: Confirm Time

### **CONFOTMA**

OTMA ACK processing time. For Sync Level CONFIRM transactions, the time IMS Connect waits for the ACK transaction to be processed by IMS and send the response back.

Source: IMS Connect

Column heading: OTMAconf Time

**Conn RTp Time**

See [OUTRTCON](#)

**Connect Logon Token**

See [CONNLTOK](#)

**Connect System**

See [HWSID](#)

**CONNLTOK**

IMS Connect Logon token. When used as a key field in IMS Connect summary reports, only persistent socket transactions will be reported.

Source: IMS and IMS Connect

Column heading: Connect Logon Token

IMS Problem Investigator global field: LogToken

**CONNOTOK**

IMS Connect Resume-Tpipe Orig Message logon token. IMS Connect logon token of the originating input message taken from the first IMS Connect event 58 (IMS Hold Queue Compensation) record encountered in the IMS Connect transaction.

Source: IMS Connect

Column heading: Resume Tpipe Orig Msg Token

**CON Resp Time**

See [RESPCON](#)

**CON Tran Start**

See [STARTCON](#)

**Conv**

See [CONVERS](#)

**CONVERS**

Conversational transaction indicator. Indicates whether a transaction is conversational as defined in the TRANSACT macro SPA parameter. Reported values are:

**C**

Conversational

**N**

Non-conversational

***blank***

Not a message queue transaction

Source: IMS

Column heading: Conv

**CPUSU**

Program execution CPU time reported in service units. The service unit normalizes the reporting of CPU time to allow for performance comparisons between, for example, an older processor and a newer processor in terms of CPU effort. CPU service unit reporting is only available in Form-based transit reports.

The CPUSU is calculated as `CPUTIME * conversion factor`. When IMS Performance Analyzer is running on the same system that generated the IMS log input file, the conversion factor can be calculated at run-time. Otherwise the conversion factor must be supplied to IMS Performance Analyzer in the command input as `IMSPALOG SYSTEM(name,vurm,factor)`.

The conversion factor for each IMS system should be specified in your batch JCL:

1. Use the IPICPUSU REXX EXEC located in the SIPIEXEC library to calculate the conversion factor and generate the batch command:

```

* IBM IMS Performance Analyzer: CPU time to Service Units conversion
*
* SYSID: XYZ1
*
* CPU VV --ID-- Model Speed Specialty
* 0 00 039A37 2818 1.000
* 1 00 039A37 2818 1.000
* 2 00 039A37 2818 1.000 zIIP
*
* Adjustment values: RMCTADJC=718 RMCTCPU=4097
*
* Formula: SUSEC = 1000000 / (RMCTADJC * 256 / RMCTCPU)
* Result : 1 CPU second = 22289.563 Service Units
*
* The following IMSPA batch command will convert CPU time to SUs:
  IMSPALOG SYSTEM(name,Vvrm,22289.563)

```

You can specify a conversion factor of CURRENT to instruct IMS Performance Analyzer to calculate the conversion factor at run time, based on the processor where IMS PA is executing. If you do not specify a conversion factor, IMS Performance Analyzer will use CURRENT.

2. Specify the command generated by step 1 in your batch JCL, for example:

```

//IMSPA JOB (ACCOUNT),'NAME'
//*
//IMSPA EXEC PGM=IPIMAIN,PARM='V152'
//STEPLIB DD DISP=SHR,DSN=IMSPA.V4R5M0.SIPILINK
//SYSPRINT DD SYSOUT=*
//LOLD1001 DD DISP=SHR,DSN=IMS.OLD1.SLDS
//LNEW1001 DD DISP=SHR,DSN=IMS.NEW1.SLDS
//IPIOPTS DD *
* IMS System Definitions
  IMSPALOG SYSTEM(OLD1,V151,14637.212)
  IMSPALOG SYSTEM(NEW1,V152,22289.563)
/*
//IPICMD DD *
  IMSPALOG LIST(SECGROUP,FIELDS(...,CPUSU,...))
  IMSPALOG SUMMARY(SECGROUP,FIELDS(...,CPUSU,...))
  IMSPALOG EXECUTE
/*

```

You must execute this REXX on the same system that created the IMS log file. The command generated by this REXX is then input into the IMS Performance Analyzer batch process.

**Note:** There is no provision for specialty processors.

Source: IMS

Column heading: CPUSU

## CPUTIME

Program execution CPU time, approximation only at completion level 5, accurate at completion level 6.

At completion level 5 resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times.

At completion level 6, resource usage metrics for Unit-of-Recovery () transactions are obtained from the type 56FA transaction accounting record. Metrics for transactions reported over the entire schedule are obtained from the type 07 record. This includes DBCTL, ODBM and non-message driven BMP transactions (with BMPSYNC(NO)).

For Fast Path transactions, CPU time is available only at completion level 6 from the 56FA record.

See also [DBGETS](#) and [DBUPDATS](#).

Source: IMS.

Column heading: CPU Time

## CPUZIIP

zIIP execution time.

Source: IMS

Column heading: zIIP CPU Time

## D

### DATABASE

The DBD name of the database updated by the transaction.

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Note:** The IMS log only keeps database update activity records (log codes 50 and 5950). Databases accessed by the transaction for read-only will not be reported.

Source: IMS

Column heading: Database DBD Name

### Database DBD Name

See [DATABASE](#)

### DB AccM

See [DBACMETH](#)

### DB Lock Time

See [LOCKTIME](#)

### DB Org Type

See [DBORGTYP](#)

### DBACMETH

Database access method. Reported values are:

#### CHKP

BMP user checkpoint. CHKP is an indicator that the database has been read by the BMP.

#### DEDB

Fast path data entry database

#### ESDS

Entry-sequenced data set (VSAM)

#### KSDS

Key-sequenced data set (VSAM)

#### OSAM

Overflow sequential access method

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Recommendation:** When requesting this field, also include the [DATABASE](#) field in the form. This will identify the database to which this field applies.

Source: IMS

Column heading: DB AccM

### DBBLKDEL

The number of block deletes for the database.

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Recommendation:** When requesting this field, also include the [DATABASE](#) field in the form. This will identify the database to which this field applies.

Source: IMS

Column heading: DB Block Deletes

**DBBLKINS**

The number of block inserts for the database.

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Recommendation:** When requesting this field, also include the DATABASE field in the form. This will identify the database to which this field applies.

Source: IMS

Column heading: DB Block Inserts

**DBBLKREP**

The number of block replaces for the database.

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Recommendation:** When requesting this field, also include the DATABASE field in the form. This will identify the database to which this field applies.

Source: IMS

Column heading: DB Block Replaces

**DBBLKUPD**

The number of block updates for the database.

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Recommendation:** When requesting this field, also include the DATABASE field in the form. This will identify the database to which this field applies.

Source: IMS

Column heading: DB Block Updates

**DBCALLS**

Full function database call count, approximation only at completion level 5, accurate at completion level 6. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB Call Count

**DBCTLPRE**

The elapsed time between the start of the CICS transaction and the IMS PSB being scheduled and ready to process DLI calls.

For programs that issue the EXEC DLI SCHEDULE at the start of processing, this measurement can provide an estimate of the time for a DBCTL thread to become available, and for IMS to schedule it.

This time is calculated as 08 suffix STCK - IMS recovery token STCK.

For CICS-DBCTL, the IMS recovery token is generated by CICS, and consists of two parts:

1. CICS APPLID
2. Unique recovery UOW identifier (STCK value recorded in CMF field RMUOWID DFHTASK T132)

**DBDEQ**

The number of DL/I DB DEQ calls.

Source: IMS

Column heading: DB DEQ Count



**DBDLET**

Database DLET call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB DLET Count

**DBGETS**

Full function database get call count, approximation only at completion level 5, accurate at completion level 6. Get calls are Get Unique (GU), Get Next (GN), Get Next in Parent (GNP), Get Hold Unique (GHU), Get Hold Next (GHN), and Get Hold Next in Parent (GHNP). At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB Get Count

**DBGHN**

Database Get Hold Next (GHN) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB GHN Count

**DBGHNP**

Database Get Hold Next in Parent (GHNP) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB GHNP Count

**DBGHU**

Database Get Hold Unique (GHU) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB GHU Count

**DBGN**

Database Get Next (GN) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB GN Count

**DBGNP**

Database Get Next in Parent (GNP) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB GNP Count

**DBGNS**

Total database Get Next (GN), Get Next in Parent (GNP), Get Hold Next (GHN), and Get Hold Next in Parent (GHNP) calls. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB GNx Count

**DBGU**

Database Get Unique (GU) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB GU Count

**DBGUR**

The number of DL/I GUR calls.

Source: IMS

Column heading: DB GUR Count

**DBGUS**

Total database Get Unique (GU) and Get Hold Unique (GHU) calls. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB GUx Count

**DBIOCALL**

Total OSAM and VSAM database IO count, approximation only at completion level 5, accurate at completion level 6. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: Total IO Count

**DBIOTIME**

Database IO elapsed time, approximation only at completion level 5, accurate at completion level 6. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB IO Time

**DBIR**

The number of DL/I IR calls.

Source: IMS

Column heading: DB IR Count

**DBISRT**

Database ISRT call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB ISRT Count

**DBMR**

The number of DL/I MR calls.

Source: IMS

Column heading: DB MR Count

**DBORGTYPE**

Database organization type. Reported values are:

**HDAM**

Hierarchical Direct Access Method

**HIDAM**

Hierarchical Indexed Direct Access Method

**DEDB**

Data Entry Database

**INDEX**

Primary or secondary index

**HISAM**

Hierarchical Indexed Sequential Access Method

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Recommendation:** When requesting this field, also include the DATABASE field in the form. This will identify the database to which this field applies.

Source: IMS

Column heading: DB Org Type

**DBREPL**

Database REPL call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB REPL Count

**DBRLSE**

The number of DL/I DB RLSE calls.

Source: IMS

Column heading: DB RLSE Count

#### **DBUPDATS**

Full function database update call count, approximation only at completion level 5, accurate at completion level 6. Update calls are ISRT, DLET, REPL. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB Updat Count

#### **DBUPRATE**

The number of database updates per second.

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Recommendation:** When requesting this field, also include the DATABASE field in the form. This will identify the database to which this field applies.

Source: IMS

Column heading: Updates/Second

#### **DBWAITS**

Full function database wait count, approximation only at completion level 5, accurate at completion level 6. Waits can be for Test enqueues, Queue commands, Update and enqueues, and Exclusive enqueues. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB Wait Count

#### **DCAUTH**

The number of DL/I message queue AUTH calls.

Source: IMS

Column heading: DC AUTH Count

#### **DCCALLS**

DC message queue call count, approximation only at completion level 5, accurate at completion level 6. DC calls are Get Unique (GU), Get Next (GN), Insert (ISRT), and PURGE. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DC Call Count

#### **DCCHNG**

Message queue Change (CHNG) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DC CHNG Count

**DCCMD**

Message queue Command (CMD) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DC CMD Count

**DCGCMD**

Message queue Get Command (GCMD) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DC GCMD Count

**DCGN**

Message queue Get Next (GN) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DC GN Count

**DCGU**

Message queue Get Unique (GU) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DC GU Count

**DCISRT**

Message queue Insert (ISRT) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DC ISRT Count

**DCPURG**

Message queue Purge (PURG) call count. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DC PURG Count

**DCSETO**

The number of DL/I message queue SETO calls. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At

completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DC SET0 Count

#### **DDNAME**

Input log ddname. The name specified in the JCL for the log containing the start record (usually X'01') for this transaction.

Source: IMS

Column heading: IMS log DDname

#### **DEDBAREA**

The DEDB area name of the database.

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Recommendation:** When requesting this field, also include the DATABASE field in the form. This will identify the database to which this field applies.

Source: IMS

Column heading: DEDB Area

#### **DEDB Get Count**

See FPDEGET

#### **DEDB Put Count**

See FPDEPUT

#### **Dest Tmember**

See TMEMBERD

#### **DLAYOTMA**

OTMA delay time. The delay attributable to OTMA for an IMS Connect transaction. This elapsed time is a combination of two times:

1. From when IMS Connect sends the transaction message to OTMA, to when the message is enqueued onto the IMS message queue.
2. From when the IMS transaction sends the response back to OTMA, to when IMS Connect receives the response back.

**Important:** OTMA delay time can only be calculated when IMS Connect Extensions journal and IMS log data is available. This is because both IMS Connect Extensions journal records and IMS log records are required to calculate the elapsed time delay.

Source: IMS Connect and IMS

Column heading: OTMADlay Time

#### **DLICOMTM**

The ODBM unit of work (UOW) commit elapsed time.

Source: IMS Connect

Column heading: DLI UOW Commit

#### **DLIDBNM**

Database name associated with the ODBM DL/I function call.

Source: IMS Connect

Column heading: DLI DB Name

#### **DLIDISP**

ODBM Unit of Work (UOW) disposition.

**COMT**

Committed

**ROLB**

Rolled back

***blank***

Unknown

Source: IMS Connect

Column heading: UOW Disp

**DLIFROWS**

Count of rows updated for the ODBM DL/I function call.

Source: IMS Connect

Column heading: DLI Rows Updated

**DLIFUNC**

Type of DL/I function call made by the ODBM transaction.

**ISRT**

Insert

**DLET**

Delete

**REPL**

Replace

**GHU**

Get Hold Unique

**GU**

Get Unique

**GUR**

Get Unique Record

**GHN**

Get Hold Next

**GN**

Get Next

**GHNP**

Get Hold Next Within Parent

**GNP**

Get Next Within Parent

**DELE**

Batch Delete

**UPDA**

Batch Replace

**RETR**

Batch Retrieve

Source: IMS Connect

Column heading: DLI Func

**DLIFUNCT**

Count of each type of DL/I function call made by the ODBM transaction.

Source: IMS Connect

Column heading: DLI Func Count

**DLIMSGTM**

The elapsed time taken by all messages in the DL/I function call for an ODBM transaction.

Source: IMS Connect

Column heading: DLI Msg Time

**DLIPCBNM**

PCB name associated with the DL/I function call for an ODBM transaction.

Source: IMS Connect

Column heading: DLI PCB Name

**DLIUOWSQ**

ODBM UOW relative sequence number. UOW sequence number for this DLI call aggregation, a relative count starting at 1. Usually equates to the IMS Recovery Token COMN+1.

Source: IMS Connect

Column heading: UOW Seq#

**DSAPSB**

The number of DL/I APSB calls.

Source: IMS

Column heading: DS APSB Count

**DSCHKP**

The number of DL/I CHKP calls.

Source: IMS

Column heading: DS CHKP Count

**DSDPSB**

The number of DL/I DPSB calls.

Source: IMS

Column heading: DS DPSB Count

**DSGMSG**

The number of DL/I GMSG calls.

Source: IMS

Column heading: DS GMSG Count

**DSICMD**

The number of DL/I ICMD calls.

Source: IMS

Column heading: DS ICMD Count

**DSINIT**

The number of DL/I INIT calls.

Source: IMS

Column heading: DS INIT Count

**DSINQY**

The number of system service inquiry (INQY) calls. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS



Column heading: DS INQY Count

**DSLOG**

The number of system service log (LOG) calls. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DS LOG Count

**DSRCMD**

The number of DL/I RCMD calls.

Source: IMS

Column heading: DS RCMD Count

**DSROLB**

The number of DL/I ROLB calls.

Source: IMS

Column heading: DS ROLB Count

**DSROLS**

The number of DL/I ROLS calls.

Source: IMS

Column heading: DS ROLS Count

**DSSETS**

The number of DL/I SETS calls.

Source: IMS

Column heading: DS SETS Count

**DSSETU**

The number of DL/I SETU calls.

Source: IMS

Column heading: DS SETU Count

**DSXRST**

The number of DL/I XRST calls.

Source: IMS

Column heading: DS XRST Count

**E**

**ESAFCALL**

Total ESAF call count, approximation only at completion level 5, accurate at completion level 6. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: ESAFcall Count

**ESAFCCON**

The time of day when the external subsystem completed Commit Continue processing during the transaction syncpoint.

A transaction can use more than one external subsystem (for example, Db2 and the IBM MQ adapter). In this case there will be additional report lines for each subsystem used by the transaction.

**Recommendation:** When requesting this field, also include the ESAFNAME field in the form. This will identify the subsystem to which this field applies.

Source: IMS

Column heading: ESAF CC End

**ESAFCOMT**

The elapsed time it took for the external subsystem to complete Commit processing during the transaction syncpoint.

A transaction can use more than one external subsystem (for example, Db2 and the IBM MQ adapter). In this case there will be additional report lines for each subsystem used by the transaction.

**Recommendation:** When requesting this field, also include the ESAFNAME field in the form. This will identify the subsystem to which this field applies.

Source: IMS

Column heading: ESAF SP Time

**ESAFNAME**

The name of the external subsystem used by the transaction.

A transaction can use more than one external subsystem (for example, Db2 and the IBM MQ adapter). In this case there will be additional report lines for each subsystem used by the transaction.

Source: IMS

Column heading: ESAF Name

**ESAFPRE**

ESAF Commit Prepare start time. The time of day when the external subsystem started Commit Prepare processing during the transaction syncpoint.

A transaction can use more than one external subsystem (for example, Db2 and the IBM MQ adapter). In this case there will be additional report lines for each subsystem used by the transaction.

**Recommendation:** When requesting this field, also include the ESAFNAME field in the form. This will identify the subsystem to which this field applies.

Source: IMS

Column heading: ESAF CP Start

**EXCLDEQ**

The number of DL/I exclusive dequeue calls.

Source: IMS

Column heading: Exc1 Dequeues

**EXCLENQ**

The number of DL/I exclusive enqueue calls.

Source: IMS

Column heading: Exc1 Enqueues

**EXCLWAIT**

The number of DL/I waits on DL/I exclusive enqueue calls.

Source: IMS

Column heading: Waits on Excl Enq

#### **EXITNAME**

The user message exit name for an IMS Connect transaction. This exit name is extracted from the first "message exit returned from READ" event record (log code 3E) for the transaction.

Source: IMS Connect

Column heading: Connect Exit

#### **EXPRESS**

Indicates the type of Express program. Reported values are:

##### **MSG**

EXPRESS=YES message.

##### **PGM**

EXPRESS program switch transaction.

##### **blank**

Not an EXPRESS Message/Program.

-

Unknown

## **F**

#### **FAILED**

Transaction failure indicator. The reason for an IMS or IMS Connect transaction failure. Reported values are:

##### **blank**

Transaction did not fail.

##### **ABEND**

Transaction abend (abnormal end of task).

##### **CANCEL**

Transaction cancelled.

##### **REJECT**

Transaction rejected.

##### **SESSION**

Connect transaction failed due to a session error.

##### **SF=?**

Fast Path Syncpoint Failure, code = ?

Source: IMS, and Connect

Column heading: Failure Reason

#### **Failure Reason**

See [FAILED](#)

#### **FFCHGN**

The number of full function Lock Change requests.

Source: IMS

Column heading: FFChange count

#### **FFDB50**

The number of associated full-function database update (type 50) log records.

Source: IMS

Column heading: FF DBUpd count

**FFLOCK**

The number of full function Lock requests.

Source: IMS

Column heading: FF Lock count

**FFUNLK**

The number of full function Unlock requests.

Source: IMS

Column heading: FFUnlock count

**FLD Call Count**

See [FPFLD](#)

**FP SyncP Count**

See [FPSYNCCCT](#)

**FPASIORA**

Fast Path ASYNC Read-aheads. The number of UOW asynchronous read-aheads by HSSP or the High Speed DEDB Direct Reorganization utility in a transaction (one unit of work).

Source: IMS

Column heading: ASYNC Rd-Ahead

**FPASIOWT**

Fast Path Waits for ASIO. The number of UOW asynchronous read-aheads to complete by HSSP or the High Speed DEDB Direct Reorganization utility in a transaction (one unit of work). This number should be either zero or one.

Source: IMS

Column heading: ASIO Waits

**FPBALGCT**

Fast Path BALG Queue Count at Syncpoint. The number of transactions in the balancing group (BALG) queue when this transaction entered sync point processing.

Source: IMS

Column heading: BALG Q Count

**FPBFOTHR**

Fast Path Buffers sent to OTHREAD. The number of Fast Path buffers sent to OTHREAD.

Source: IMS

Column heading: OTHREAD Buffers

**FPBFSTL**

Fast Path Buffer steals per Tran. The number of times buffer stealing is invoked by this transaction.

Source: IMS

Column heading: FPBuffer Steals

**FPBFWT**

Fast Path Waits for Buffer. The number of times the transaction waited for a buffer to become available.

Source: IMS

Column heading: FPBuffer Waits

**FPBUFFER Steals**

See [FPBFSTL](#)

**FPCALLS**

Fast Path database call count. FP DB calls are Get Unique (GU), Get Next (GN), Get Next in Parent (GNP), Get Hold Unique (GHU), Get Hold Next (GHN), Get Hold Next in Parent (GHNP), Insert (ISRT), Delete (DLET), Replace (REPL), Field (FLD), and Position (POS). Fast Path resource usage statistics are accurate, not approximations. Fast Path writes a 5937 syncpoint record for every Message Processing Program (MPP) transaction that uses a Fast Path database.

Source: IMS

Column heading: FP Call Count

**FPCHGN**

The number of Fast Path Lock Change requests.

Source: IMS

Column heading: FPChange count

**FPCILWT**

Fast Path CI Lock IWAITs.

Source: IMS

Column heading: CI Lock WAITS

**FPCOMB**

Fast Path count of combinations logged.

Source: IMS

Column heading: FP COMB Count

**FPDB5950**

The number of associated Fast Path database update (type 5950) log records.

Source: IMS

Column heading: FP DBUpd count

**FPDDEPU**

The number of Direct Dependent Segment updates for the Fast Path database.

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Recommendation:** When requesting this field, also include the DATABASE field in the form. This will identify the database to which this field applies.

Source: IMS

Column heading: DDEP Updates

**FPDECL**

Fast Path DEDB call count. DL/I calls to DEDB databases.

Source: IMS

Column heading: DEDB Calls

**FPDEGET**

Fast Path DEDB Get count.

Source: IMS

Column heading: DEDB Get Count

**FPDEPUT**

Fast Path DEDB Put count.

Source: IMS

Column heading: DEDB Put Count

**FPDEQ**

Fast Path DEDB Dequeue (DEQ) count.

Source: IMS

Column heading: FP DEQ Count

**FPDLET**

Fast Path database Delete (DLET) call count.

Source: IMS

Column heading: FP DLET Count

**FPFLD**

Fast Path Field (FLD) call count.

Source: IMS

Column heading: FLD Call Count

**FPGETS**

Fast Path database get call count. Fast Path DB get calls are Get Unique (GU), Get Next (GN), Get Next in Parent (GNP), Get Hold Unique (GHU), Get Hold Next (GHN), Get Hold Next in Parent (GHNP). Fast Path resource usage statistics are accurate, not approximations. Fast Path writes a 5937 syncpoint record for every MPP transaction that uses a Fast Path database.

Source: IMS

Column heading: FP Get Count

**FPGHN**

Fast Path database Get Hold Next (GHN) call count.

Source: IMS

Column heading: FP GHN Count

**FPGHNP**

Fast Path database Get Hold Next in Parent (GHNP) call count.

Source: IMS

Column heading: FP GHNP Count

**FPGHU**

Fast Path database Get Hold Unique (GHU) call count.

Source: IMS

Column heading: FP GHU Count

**FPGN**

Fast Path database Get Next (GN) call count.

Source: IMS

Column heading: FP GN Count

**FPGNP**

Fast Path database Get Next within Parent (GNP) call count.

Source: IMS

Column heading: FP GNP Count

**FPGNS**

Sum of Fast Path database Get Next (GN), Get Next in Parent (GNP), Get Hold Next (GHN) and Get Hold Next in Parent (GHNP) calls.

Source: IMS

Column heading: FP GNx Count

**FPGU**

Fast Path database Get Unique (GU) call count.

Source: IMS

Column heading: FP GU Count

**FPGUS**

Sum of Fast Path database Get Unique (GU) and Get Hold Unique (GHU) calls.

Source: IMS

Column heading: FP GUX Count

**FPISRT**

Fast path database Insert (ISRT) call count.

Source: IMS

Column heading: FP ISRT Count

**FPLGCI**

Fast path count of whole control intervals (CIs) logged.

Source: IMS

Column heading: FP CI Count

**FPLOCK**

Number of Fast Path Lock requests.

Source: IMS

Column heading: FP Lock count

**FPMSCl**

Fast Path MSDB call count. DL/I calls to MSDB databases.

Source: IMS

Column heading: MSDB Calls

**FPNBFS**

The Fast Path normal buffer allocation (NBA) value specified in the region startup procedure.

Source: IMS

Column heading: NBA Buffers

**FPNBFU**

Number of Fast Path normal buffer allocation (NBA) buffers used.

Source: IMS

Column heading: NBA Used

**FPNRDBFU**

Fast Path main storage database (MSDB) and sequential dependent segment (SDEP) buffers used.

Source: IMS

Column heading: SDEP Buf Used

**FPOBFS**

The Fast Path overflow buffer allocation (OBA) value specified in the region startup procedure.

Source: IMS

Column heading: OBA Buffers

**FPOBFU**

Number of Fast Path overflow buffer allocation (OBA) buffers used.

Source: IMS

Column heading: OBA Used

**FPOTELAP**

For transactions that update Fast Path DEDBs, the time taken to complete output thread (OThread) processing. OThread is an asynchronous process that performs the updates to the Fast Path databases. Depending on delays, OThread can complete before or after the end of transaction processing, but always independently. It is calculated as 5612 suffix STCK - TPCPCLCK.

Source: IMS

Column heading: Othread Time

**FPPBFU**

The number of private buffers used by High-Speed Sequential Processing (HSSP) or the High Speed DEDB Direct Reorganization utility in a transaction (one unit of work).

Source: IMS

Column heading: PVT Buff Used

**FPPBFWT**

The number of waits for private buffers by High-Speed Sequential Processing (HSSP) or the High Speed DEDB Direct Reorganization utility in a transaction (one unit of work).

Source: IMS

Column heading: PVT Buff Waits

**FPPH1PH2**

Sum of Fast Path Syncpoint Phase 1 and Phase 2 time.

Source: IMS

Column heading: PH1+PH2 FP Time

**FPPOS**

Fast Path Position (POS) call count.

Source: IMS

Column heading: POS Call Count

**FPPRCTYP**

Fast Path Process type from the 5937/38 log record. Reported values are:

**HSSP**

High-Speed Sequential Processing (HSSP)

**Non-HSSP**

Non-HSSP

**Data-Cap**

Data Capture Log written

**Abort**

APPL Abort (Sent DFS2766I)

**Java™**

JAVA Application

Source: IMS

Column heading: Process Type

**FPREPL**

Fast Path database Replace (REPL) call count.



Source: IMS

Column heading: FP REPL Count

**FPRLSE**

Fast Path Release Locks (RLSE) call count.

Source: IMS

Column heading: FP RLSE Count

**FPRTCODE**

Fast Path Routing Code.

Source: IMS

Column heading: Routing Code

**FPSDEPCI**

Commit sequential dependent segment (SDEP) control interval (CI) number used.

Source: IMS

Column heading: Commit SDEP CIs

**FPSDEPI**

The number of sequential dependent segment (SDEP) inserts for the Fast Path database.

A transaction can update more than one database. In this case there will be additional report lines for each database used by the transaction.

**Recommendation:** When requesting this field, also include the DATABASE field in the form. This will identify the database to which this field applies.

Source: IMS

Column heading: SDEP Inserts

**FPSDEPSG**

Commit sequential dependent segment (SDEP) segments used.

Source: IMS

Column heading: Commit SDEP Seg

**FPSEMHQI**

Fast Path shared expedited message handler (EMH) queue input time. Shared EMHQ input time is the elapsed time a transaction input message spends on the shared EMH queue.

Source: IMS

Column heading: SEMHQ Input

**FPSEMHQO**

Shared expedited message handler (EMH) queue output time is the elapsed time a transaction output message spends on the shared EMH queue.

Source: IMS

Column heading: SEMHQ Output

**FPSYNCCT**

The number of Fast Path synchronization points for a transaction. This value is a count of the following IMS log records for a transaction:

- X'5937' Fast Path synchronization point operation completed
- X'5938' Fast Path synchronization point operation was unsuccessful

Source: IMS

Column heading: FP SyncP Count

**FPTOTIME**

Fast Path Terminal Output time. Terminal output time is the elapsed time that the Fast Path transaction output message took to be sent to the terminal.

Source: IMS

Column heading: OutTermQ Time

**FPUNLK**

The number of Fast Path Unlock requests.

Source: IMS

Column heading: FPUUnlock count

**FPUOWLWT**

Fast Path UOW Lock IWAITs.

Source: IMS

Column heading: UOW Lock WAITS

**FPUPDATS**

Fast Path database update call count. Fast Path database update calls are Insert (ISRT), Delete (DLET), and Replace (REPL). Fast Path resource usage statistics are accurate, not approximations. Fast Path writes a 5937 syncpoint record for every MPP transaction that uses a Fast Path database.

Source: IMS

Column heading: FP Updat Count

**FPVSORFD**

Virtual Storage Option (VSO) reads from daspace. The number of control interval (CI) read requests satisfied from a daspace or coupling facility structure.

Source: IMS

Column heading: VSO Read Dataspace

**FPVSREAD**

Virtual Storage Option (VSO) reads from DASD. The number of control intervals (CIs) read from DASD into a daspace or coupling facility structure.

Source: IMS

Column heading: VSO Read DASD

**FPVSWRIT**

Virtual Storage Option (VSO) writes to DASD. The number of control intervals (CIs) with updates to a daspace or coupling facility structure. This number represents the number of CIs that would have been sent to the output thread (OTHRD) if the areas were non-VSO.

Source: IMS

Column heading: VSOWrite DASD

**FPWAITS**

Fast Path database wait count. Fast Path database waits include waits for data entry database (DEDB) buffers, control interval (CI) locks, and unit of work (UOW) locks. Fast Path resource usage statistics are accurate, not approximations. FP cuts a 5937 syncpoint record for every MPP transaction that uses a Fast Path database.

Source: IMS

Column heading: FP Wait Count

**FPWTNOC**

Fast Path IRLM internal suspend count, or suspends not related to lock requests.

Source: IMS

Column heading: FP IRLM Susp Cnt

## H

### HWSID

IMS Connect system name.

Source: IMS Connect

Column heading: Connect System

## I

### ICALCNT

Sync Callout Message count. The number of IMS calls (DL/I ICAL calls) made by this transaction. This number is taken from either the application terminate accounting (log code 07) record or the transaction-level statistics (log code 56FA) record.

Source: IMS

Column heading: ICAL Count

### IMSACK

IMS acknowledgment indicator. Indicates how the IMS Connect transaction was acknowledged by IMS. Reported values are:

#### ACK

IMS positively acknowledged (ACK)

#### NAK

IMS negatively acknowledged (NAK)

#### *blank*

Transaction was not acknowledged by IMS

Source: IMS Connect

Column heading: IMS ACK

### IMSID

Processing IMS ID. IMS subsystem ID where the transaction was processed.

Source: IMS

**Tip:** To control the source of the IMS Processing ID, see [“Log Global Options” on page 216](#).

Column heading: Proc IMS ID

IMS Problem Investigator global field: IMSID

### IMS log DD name

See [DDNAME](#)

### IMSRel

See [IMSVER](#)

### IMS Resp Time

See [RESPIMS](#)

### IMS RTp Time

See [OUTRTIMS](#)

### IMS RTp Tot Time

See [TOTRTIMS](#)

### IMS Tran Start

See [STARTIMS](#)

### IMSVER

Processing IMS Version. IMS Version of the system where the IMS transaction was processed.

Source: IMS

Column heading: Proc Vers

IMS Problem Investigator global field: IMSRe1

#### **Input Msg Len**

See [MSGLIN](#)

#### **INPUTQ**

Input queue time. The elapsed time from when the input message is enqueued onto the message queue (01/35) to when the program starts processing the transaction (31 DLI).

Source: IMS

Column heading: InputQ Time

#### **INREAD**

Input read Socket time. The elapsed time taken for IMS Connect to read the incoming message from when the transaction input message enters IMS Connect (Read Prepare) to when IMS Connect has completed reading the message (final Read Socket).

Source: IMS Connect

Column heading: ReadSock In Time

#### **IPADDR**

Client IP address, either IPv4 dot-decimal notation or IPv6 format.

Source: IMS Connect

Column heading: IP Address

### **J**

#### **JOBNAME**

Job name of the dependent region that processed the transaction.

Source: IMS, ATF

Column heading: Jobname

### **L**

#### **LOCKMAX**

The high water lock count for the Unit of Recovery. This shows the maximum number of locks held at any one time by a transaction, and can provide an insight as to whether database contention could be the cause of transaction delays. In the case of a non-message driven BMP, the value is an aggregate count for the schedule, unless the BMPSYNC (YES) option is specified, in which case the lock count is for each BMP syncpoint interval. For a Fast Path transaction, the lock count is obtained from the x'5937' SYNCLKS field, otherwise the count is obtained from the x'3730' XFERLHLD field. In the case of an abended transaction the lock count is obtained from either the x'3801' QLRILHLD field or the x'5938' SYNCLKS field, depending on the transaction type.

Source: IMS

Column heading: High Lock Cnt

#### **LOCKTIME**

Database Locking elapsed time, approximation only at completion level 5, accurate at completion level 6. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: DB Lock Time

### **LogToken**

See [CONNLTOK](#)

### **LTERM**

Input LTERM. The logical terminal (LTERM) from where the incoming transaction was initiated. For a generated message, the LTERM is unavailable and the Userid is reported.

Source: IMS, ATF

Column heading: Input LTERM

IMS Problem Investigator global field: LTerm

### **LTERMOUT**

Output LTERM. The logical terminal (LTERM) to where the output message from the transaction is sent.

Source: IMS

Column heading: Output LTERM

### **LTERMOVR**

Override LTERM. Override logical terminal (LTERM) to where the output message from the transaction is sent.

Source: IMS and IMS Connect

Column heading: Override LTERM

## **M**

### **MODE**

Description: Transaction Mode indicator

Transaction Mode indicator. Specifies when database updates and non-express output messages are committed.

Reported values are:

#### **M**

MODE=MULT transaction

#### **S**

MODE=SNGL transaction

#### **blank**

Not a message queue transaction

**Note:** The MODE keyword of the TRANSACT macro is equivalent to CMTMODE for the CREATE|UPDATE TRAN|TRANDESC dynamic definition commands.

Source: IMS

### **MSC**

Indicates whether the transaction involved Multiple Systems Coupling (MSC). Reported values are:

#### **FE**

Front-end MSC transaction, where the transaction originated.

#### **BE**

Back-end MSC transaction, where the transaction was processed.

#### **blank**

Not an MSC transaction.

Source: IMS

Column heading: MSC

## **MSDB Calls**

See [FPMSCS](#)

## **MSGLIN**

Input message length, including the message prefix. All type 01 records for the transaction input messages are accumulated to obtain the total input message length.

Source: IMS, ATF

Column heading: Input Msg Len

## **MSGLOUT**

Output message length, including the message prefix. All type 03 records for output messages issued by the transaction are accumulated to obtain the total output message length.

Source: IMS, ATF

Column heading: Output Msg Len

## **N**

### **NBA Buffers**

See [FPNBFS](#)

### **NBA Used**

See [FPNBFU](#)

## **O**

### **OBA Buffers**

See [FPOBFS](#)

### **OBA Used**

See [FPOBFU](#)

### **ODBALPSB**

ODBM allocate PSB elapsed time.

Source: IMS Connect

Column heading: Allocate PSB Time

### **ODBCORTK**

ODBM correlation token.

Source: IMS Connect

Column heading: ODBM Correlation Token

### **ODBDEPSB**

ODBM deallocate PSB elapsed time.

Source: IMS Connect

Column heading: Dealloc PSB Time

### **ODBMNAME**

ODBM name.

Source: IMS Connect

Column heading: ODBM Name

### **ODBMSGTM**

The elapsed time taken by all messages in the ODBM transaction.

Source: IMS Connect

Column heading: ODBM Msg Time

**OLR**

Indicates that a batch message processing (BMP) region is scheduled for Online Reorganization. Reported values are:

**Y**

BMP is scheduled for Online Reorg

**N**

Not an Online Reorganization (OLR) BMP

-

Unknown

Source: IMS

Column heading: OLR

**ORGIMS**

IMS subsystem ID where the IMS transaction originated.

**Note:** For shared queue transactions, the transaction was processed by the IMS subsystem in field [IMSID](#).

Source: IMS and IMS Connect

Column heading: Org IMS ID

**ORGLTERM**

Originating LTERM. Input logical terminal (LTERM) of the originating transaction in the program switch sequence. For the first transaction in a program switch sequence, ORGLTERM is the input LTERM. For subsequent transactions in the program switch sequence, ORGLTERM will be blank for List reports, and the originating LTerm for Summary reports.

Use ORGLTERM for Transit List-style reporting where you want to see the start of a program switch sequence, followed by the program switches in sequence.

ORGLTERM has special values for non-message driven transactions:

**CICS-DBCTL**

CICS APPLID (taken from the IMS recovery token)

**BMP**

Job name

Source: IMS

Column heading: Org LTERM

**ORRGTY**

Region type of the originating transaction in the program switch sequence. Reported values are:

**AER**

IMS Application Execution Region (AER)

**BAT**

Batch Application

**BMP**

Batch message processing (BMP) region

**DBC**

IMS DBCTL region

**IFP**

IMS Fast Path Message-Driven region

**JBP**

Java batch processing (JBP) region

**JMP**

Java message processing (JMP) region

**MPP**

Message processing program (MPP) region

**MSC**

Multiple Systems Coupling (MSC) transaction sent to a remote IMS system for processing

**ODB**

Open Database (ODBM/ODBA)

**SWI**

Message switch or generated output message, not a transaction

**TRK**

Tracking thread

**UTI**

Utility

Source: IMS

Column heading: Org Reg

**ORGTRAN**

Transaction Code of the originating transaction in the program switch sequence.

**Tip:** Use ORGTRAN, PARTRAN, TRANCODE and PGMSWIT (hidden) as keys for Form-based summary reporting when transit analysis is required. IMS Performance Analyzer will summarize transaction transit activity by grouping all transactions involved in program switching, in the sequence that they are processed. For an example of this kind of report, see [SWITSUMM : Program Switch Summary summary report](#).

Source: IMS and IMS Connect

Column heading: Org Trancode

**ORGUOWID**

Originating tracking unit of work (UOW) ID. Only the tracking token is reported, as this uniquely identifies a transaction in a sysplex.

**Tip:** Field [ORGIMS](#) contains the UOW originating IMS subsystem ID.

Source: IMS

Column heading: Originating UOW ID

IMS Problem Investigator global field: OrgUOWID

**ORGVER**

Version of the IMS where the transaction originated.

Source: IMS

Column heading: Org Vers

**ORIGDS**

Original IMS data store ID. For Open Transaction Manager Access (OTMA) workloads in IMS Connect, this is the name of the IMS data store specified in the IMS destination ID field (IRM\_IMSDESTID) of the IMS request message (IRM). *See also* [TARGDS](#).

Source: IMS Connect

Column heading: Original Datastor

**Orig Tmember**

*See* [TMEMBERO](#)

**OSAMREAD**

Overflow sequential access method (OSAM) data set read IO count, approximation only at completion level 5, accurate at completion level 6. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that



executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: OSAMRead Count

#### **OSAMWRIT**

Overflow sequential access method (OSAM) data set write IO count, approximation only at completion level 5, accurate at completion level 6. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: OSAMWrit Count

#### **OTHREAD Buffers**

See [FPBFOTHR](#)

#### **OTMA**

Indicates whether the transaction originated from Open Transaction Manager Access (OTMA). Reported values are:

##### **CONNECT**

Transaction originated from OTMA via IMS Connect.

##### **MQ**

Transaction originated from OTMA via IBM MQ.

##### **OTMA**

Transaction originated from OTMA via an unknown client.

##### ***blank***

Transaction did not originate from OTMA.

Source: IMS

Column heading: OTMA

#### **OTMAconf Time**

See [CONFOTMA](#)

#### **OTMADlay Time**

See [DLAYOTMA](#)

#### **OTMAproc Time**

See [PROCOTMA](#)

#### **OUTALIAS**

Target ODBM alias name. For Open Database workloads in IMS Connect, this is the name of the ODBM alias that processed the request. See also [ALIAS](#)

Source: IMS Connect

Column heading: Out Alias

#### **OUTDEQ**

The number of output messages sent (dequeued) by the transaction.

**Tip:** Outstanding output messages can fill up the message queue, causing IMS to fail. Use OUTDEQ with [OUTENQ](#) to ensure that output messages issued by transactions are being sent to the destination LTERM (dequeued).

Source: IMS

Column heading: Out DEQ Count

#### **OUTENQ**

The number of output messages issued (enqueued) by the transaction.

**Tip:** Outstanding output messages can fill up the message queue, causing IMS to fail. Use OUTENQ with [OUTDEQ](#) to ensure that output messages issued by transactions are being sent to the destination LTERM (dequeued).

Source: IMS

Column heading: Out ENQ Count

#### **OUTODBNM**

ODBM name.

Source: IMS Connect

Column heading: Output ODBMName

#### **OUTPUTG**

SMQ global output queue time. The elapsed time from when the output message is put onto the shared message queue (SMQ) by the back-end system to when it is read off the queue by the front-end system.

Source: IMS

Column heading: SMQ Glob OutQTime

#### **OUTPUTL**

SMQ local output queue time. The elapsed time from when the output message is read from the shared message queue (SMQ) to when it is sent to the output logical terminal (LTERM).

Source: IMS

Column heading: SMQ Loc1 OutQTime

#### **Output LTERM**

[See LTERMOUT](#)

#### **Output Msg Len**

[See MSGLOUT](#)

#### **OUTPUTQ**

Output queue time. The elapsed time from when the transaction ends to when the output message is sent back to the logical terminal (LTERM).

Source: IMS

Column heading: OutputQ Time

#### **OUTRTCON**

IMS Connect Resume-Tpipe time. Calculated as the elapsed time between the IMS Connect 48 Trigger Event that terminates the Send-Only Connect transaction and the subsequent IMS Connect 42 OTMA Message Received Event after the Resume-Tpipe transaction has commenced.

Source: IMS Connect

Column heading: Conn RTp Time

#### **OUTRTIMS**

IMS Resume Tpipe output time. The elapsed time from when the transaction output message is queued and eligible to be sent (transaction 35 COMMS when QLNQCTMP=0, otherwise 3730) to when the output message is sent to its final destination (transaction 31 COMMS).

Source: IMS

Column heading: IMS RTp Time

#### **OutTermQ Time**

[See FPTOTIME](#)

## **P**

### **P2P**

Program-switch indicator. Indicates whether the transaction is a program switch. The reported values are:

#### **Y**

Program switch transaction.

#### **N**

Not a program switch transaction, but may be the originating transaction in a program switch sequence.

#### **-**

Unknown. Typically a SL=2 transaction started with a type 31 (DLI GU) record.

Source: IMS

Column heading: P2P

### **PARRGTYP**

Region type of the parent transaction in a program switch sequence. Reported values are:

#### **AER**

IMS Application Execution Region (AER)

#### **BAT**

Batch Application

#### **BMP**

Batch message processing (BMP) region

#### **DBC**

IMS DBCTL region

#### **IFP**

IMS Fast Path Message-Driven region

#### **JBP**

Java batch processing (JBP) region

#### **JMP**

Java message processing (JMP) region

#### **MPP**

Message processing program (MPP) region

#### **MSC**

Multiple Systems Coupling (MSC) transaction sent to a remote IMS system for processing

#### **ODB**

Open Database (ODBM/ODBA)

#### **SWI**

Message switch or generated output message, not a transaction

#### **TRK**

Tracking thread

#### **UTI**

Utility

Source: IMS

Column heading: Par Reg

### **PARTOKEN**

The last 8 hexadecimal bytes (unique part) of the IMS unit of recovery token of the parent transaction in the program switch sequence, identifying the system where the parent transaction is processed. For CICS-DBCTL only, the recovery token ends in the 8-byte RMUOWID (a STCK value).

**Tip:** To report the full recovery token, use PARTOKEN with [PARTOKID](#).

Source: IMS

Column heading: Parent Rectoken

#### **PARTOKID**

The first 8 characters of the IMS unit of recovery token of the parent transaction in the program switch sequence, identifying the system where the parent transaction is processed. For CICS-DBCTL only, the first 8 characters of the recovery token is the CICS generic APPLID.

**Tip:** To report the full recovery token, use PARTOKID with [PARTOKEN](#).

Source: IMS

Column heading: Parent RecTokID

#### **PARTRAN**

The transaction code of the parent transaction in the program switch sequence.

Source: IMS

Column heading: Parent Trancode

#### **PGMSWIT**

Transaction number in program switch sequence. The sequence number of the transaction in the program switch sequence. The originating transaction starts the sequence at position 0.

**Tip:** Use [ORGTRAN](#), PGMSWIT (hidden) and [TRANCODE](#) as keys for form-based summary reporting when transit analysis is required. IMS Performance Analyzer will summarize transaction transit activity by grouping all transactions involved in program switching, in the sequence that they are processed.

Source: IMS

Column heading: Prog Swit#

#### **PgmSwit Time**

See [SWITTIME](#)

#### **PH1+PH2 Time**

See [FPPH1PH2](#)

#### **PORT**

IMS Connect TCP/IP port number.

Source: IMS Connect

Column heading: Port

IMS Problem Investigator global field: Port

#### **PORTDEP**

Port depth. The number of concurrently open sockets on the port from which the transaction was received. This field can be used to monitor the socket usage at the time the individual transactions were received by IMS Connect.

Source: IMS Connect

Column heading: Port Depth

#### **PORTTYPE**

Port type. Indicates whether a transaction is using a TCP/IP or local port connection. Reported values are:

**T**

TCP/IP

**L**

Local

**blank**

Not an IMS Connect transaction

Source: IMS Connect

Column heading: Port Type

**POS Call Count**

See [FPPOS](#)

**POSTOTMA**

Total post-OTMA output time. For Sync Level NONE transactions, the elapsed time from when OTMA completed processing the input message to when the transaction terminates (trigger event). For Sync Level CONFIRM transactions, the elapsed time from when OTMA completed processing the ACK response to when the transaction terminates (trigger event).

Source: IMS Connect

Column heading: PostOTMA Time

**PREOTMA**

Total pre-OTMA input time. The elapsed time from when the transaction input message enters IMS Connect (Read Prepare) to when the transaction is sent to IMS (OTMA) for processing.

Source: IMS Connect

Column heading: PreOTMA Time

**PRIORITY**

Transaction priority as specified in the TRANSACT macro PRTY parameter.

Source: IMS

Column heading: Pr

**PROCESS**

Processing time. The elapsed time the transaction spends processing in the dependent region.

Source: IMS

Column heading: Process Time

**Processing UOW ID**

See [PROUOWID](#)

**Process Start**

See [STARTDEP](#)

**Process Type**

See [FPPRCTYP](#)

**Proc IMS ID**

See [IMSID](#)

**PROCOTMA**

OTMA processing time. The elapsed time OTMA spent processing the transaction, from when the message is sent to IMS (OTMA) to when the response is received back from OTMA. Transaction messages are sent to OTMA for processing. For Sync Level CONFIRM transactions, the ACK response from the client is also sent to OTMA for processing, but this elapsed time is not included in OTMA procession time.

Source: IMS Connect

Column heading: OTMAproc Time

**PROGRAM**

Program or PSB name.

Source: IMS, ATF

Column heading: Program

IMS Problem Investigator global field: Program

**Program exec time**

See [PROCESS](#)

**Prog Swit#**

See [PGMSWIT](#)

**PROUOWID**

Processing tracking unit of work (UOW) ID.

Source: IMS

Column heading: Processing UOW ID

**PSBNAME**

PSB name.

Source: IMS Connect

Column heading: PSB Name

**PSTID**

The PST ID of the dependent region that processed the transaction.

Source: IMS

Column heading: PST

IMS Problem Investigator global field: Region

**PVT Buff Used**

See [FPPBFU](#)

**PVT Buff Waits**

See [FPPBFWT](#)

**Q**

**QCMDDEQ**

The number of DL/I queue command dequeues.

Source: IMS

Column heading: Q Cmd Dequeues

**QCMDENQ**

The number of DL/I queue command enqueues.

Source: IMS

Column heading: Queue Type

**QCMDWAIT**

The number of DL/I waits on queue command enqueues.

Source: IMS

Column heading: Queue Type

**QTYPE**

Message queue type. Indicates the type of message queue from where the transaction was taken to be processed. Reported values are:

**MSGQ**

IMS message queue

**LOCALF**

Local-first (always processed by the same system where the message was queued)

**LOCAL**

IMS shared message queue (SMQ) processed locally by the front-end IMS system

**GLOBAL**

IMS shared message queue (SMQ) processed globally by another back-end IMS system

**NONMSG**

Non-message driven BMP

**CPI-CI**

CPI-CI APPC transaction scheduled in message region

**Tip:** Use QTYPE with TRANCODE as keys for form-based summary reporting when transit analysis of input queue time is required. For shared message queues, you will be able to compare input queue times for globally and locally processed transactions.

Source: IMS

Column heading: Queue Type

**R****R0TIME**

Internal application response time. The sum of the input queue time and processing time.

Source: IMS

Column heading: ApplResp Time(R0)

**R1TIME**

Total response time. The sum of the input queue time, processing time, and output queue time.

Source: IMS

Column heading: Tot Resp Time(R1)

**RATEMIN**

Transaction rate / Minute. For form-based summary reporting only, the transaction rate per minute.

Source: IMS and IMS Connect

Column heading: Rate/Min

**RATESEC**

Transaction rate / Second. For Form-based summary reporting only, the transaction rate per second.

Source: IMS and IMS Connect

Column heading: Rate/Sec

**READEXIT**

Read message Exit time. The elapsed time the input message spent being processed by the READ Message Exit. For Sync Level NONE transactions, the READ Message Exit is called once for the input message. For Sync Level CONFIRM transactions, the READ Message Exit is called twice, initially for the input message and a second time for the ACK response from the client.

Source: IMS Connect

Column heading: ReadExit Time

**ReadSock Ack Time**

See ACKREAD

**ReadSock In Time**

See INREAD

**RECOVER**

Recoverable transaction indicator. Indicates whether a transaction is recoverable or non-recoverable as defined in the TRANSACT macro INQUIRY parameter. Reported values are:

**R**

Recoverable

**N**

Non-recoverable

**blank**

Not a message queue transaction

Source: IMS

Column heading: Rec

**RECTOKEN**

The last 8 hexadecimal bytes (unique part) of the 16-byte IMS unit of recovery token that uniquely identifies a unit of work. The reported value consists of the following fields:

**OASN**

4-byte origin application sequence number assigned at schedule time. OASN is unique and reset back to zero at cold start.

**COMN**

4-byte commit number initialized to zeros and incremented each time the application goes through commit processing.

For CICS-DBCTL only, the last 8 bytes of the CICS-generated recovery token contains the RMUOWID (a STCK value).

**Tip:** To report the full recovery token, use RECTOKEN with [RECTOKID](#).

Source: IMS, ATF

Column heading: Recovery Token

IMS Problem Investigator global field: RecToken

**RECTOKID**

The first 8 characters of the IMS unit of recovery token containing the ID of the IMS subsystem where the transaction is processed. For CICS-DBCTL only, CICS generic APPLID is reported from first 8 bytes of the CICS-generated recovery token.

**Tip:** To report the full recovery token, use RECTOKID with [RECTOKEN](#).

Source: IMS, ATF

Column heading: Recovery Token ID

**Region**

See [PSTID](#)

**REGOCCUP**

Region occupancy time. The elapsed time that an MPP transaction spends in the dependent region, from when it is scheduled, or starts processing, to when the next transaction is eligible for processing.

Source: IMS

Column heading: Region Occ Time

**REGTYPE**

Region type.

The type of region that processed the transaction. Reported values are:

**AER**

IMS Application Execution Region (AER)

**BAT**

Batch Application

**BMP**

Batch message processing (BMP) region

**DBC**

IMS DBCTL region



**IFP**

IMS Fast Path Message-Driven region

**JBP**

Java batch processing (JBP) region

**JMP**

Java message processing (JMP) region

**MPP**

Message processing program (MPP) region

**MSC**

Multiple Systems Coupling (MSC) transaction sent to a remote IMS system for processing

**ODB**

Open Database (ODBM/ODBA)

**SWI**

Message switch or generated output message, not a transaction

**TRK**

Tracking thread

**UTI**

Utility

**Note:** To report on CPI, see [APPC](#).

Source: IMS

Column heading: Reg Typ

**REJECT**

Transaction rejected indicator. Indicates whether an IMS Connect transaction has been rejected. Reported values are:

**R**

Transaction rejected

**blank**

Transaction not rejected

Source: IMS Connect

Column heading: Rej

**REROUTNM**

IMS Connect Reroute name. The name used on a NAK Reroute request to specify the new destination for the message that is to be negatively acknowledged.

Source: IMS Connect

Column heading: Reroute Name

**RESPCON**

Connect response time. The elapsed time from when the transaction input message enters IMS Connect (Read Prepare) to when the transaction terminates (trigger event).

Source: IMS Connect

Column heading: CON Resp Time

**RESPIMS**

IMS response time. IMS transaction end-user response time. The elapsed time from when the input transaction is enqueued by IMS (01/35) to when the response is sent back to the originating LTERM (31 Communications). Only transactions that respond back to their originating LTERM incur a response time. Responses may occur prior to the completion of program execution time resulting in a response time less than the total transaction time.

**Tip:** To analyze all transactions from end-to-end, regardless of their response destination, use field TOTALTM.

Source: IMS

Column heading: IMS Resp Time

#### **RESPMODE**

Response mode indicator. Indicates whether a transaction is response mode or not. Reported values are:

**R**

Response mode

**N**

Not response mode

**blank**

Not a message queue transaction

Source: IMS

Column heading: Resp Mode

#### **Resp time**

See RESPIMS

#### **RESUMETP**

Resume Tpipe indicator. Indicates whether IMS Connect uses a resume Tpipe to request asynchronous output data from IMS during a transaction. Reported values are:

**R**

Resume Tpipe is used

**N**

Resume Tpipe is not used

**blank**

Not an IMS Connect transaction

Source: IMS Connect

Column heading: Resum Tpipe

IMS Problem Investigator global field: ResumeTP

#### **Resume Tpipe Orig Msg Token**

See CONNOTOK

#### **Routing Code**

See FPRTCODE

#### **RXMLEXIT**

XML Adapter message Exit time. The elapsed time the input message from the XML Adapter spent being processed by the READ Message Exit.

Source: IMS Connect

Column heading: RXMLExit Time

#### **ROTIME**

Internal Application Response time. The sum of the input queue time and processing time.

Source: IMS

Column heading: ApplResp Time (R0)

#### **R1TIME**

Total Response time. The sum of the input queue time, processing time, and output queue time.

Source: IMS

Column heading: Tot Resp Time(R1)

## **S**

### **SAF Call Time**

See [SAFTIME](#)

### **SAFTIME**

SAF security call time. The accumulated elapsed time spent in all SAF calls for the message.

Source: IMS Connect

Column heading: SAF Call Time

### **SCHEDTM**

Schedule time. Schedule time is taken from the LINTMSCH field of the IMS Application Start (08) record. If the (08) does not contain a valid LINTMSCH value then, for a Message Region, it is the elapsed time from when the application program starts (08) to when the input message processing starts (31 DLI).

Source: IMS, ATF

Column heading: Schedule Time

### **SCHEDTYP**

Description: Schedule type.

Reported values are:

#### **REAL**

Real schedule - first transaction only is counted.

#### **QUICK**

Quick re-schedule - first transaction only is counted.

#### **FALSE**

False schedule

#### **Blank**

Unknown, or not the first transaction in schedule.

**Note:** For FALSE schedules to be reported, Form-based Transit option 'False schedules' must be set to 2 (YES).

Source: IMS

### **SCHEDWIC**

Wait time for Intent Conflict, taken from the LINTMINT field of the IMS Application Start (08) record.

Source: IMS

Column heading: Schedule WIC Time

### **SCHEDWPS**

Wait time for Pool Space, taken from the LINTMPOL field of the IMS Application Start (08) record.

Source: IMS

Column heading: Schedule WPS Time

### **SCOACKCT**

Sync Callout ACK count. The number of Sync callout ACK events attributed to the transaction. *See also* [SCOACKTM](#).

Source: IMS

Column heading: SyncCout ACK Cnt

**SCOACKTM**

Sync Callout ACK time. The elapsed time from when the Sync Callout message is sent to when the ACK is received (YOUT-YACK). If the transaction issued more than one ICAL call, then this field contains the sum of all ACK times. The count of ACK times is available in [SCOACKCT](#).

Source: IMS

Column heading: SyncCout ACK Time

**SCOCALCT**

Sync Callout Response count. The number of ICAL calls issued by the transaction that recorded a response time. *See also* [SCOCALTM](#).

Source: IMS

Column heading: SyncCout Resp Cnt

**SCOCALTM**

Sync Callout Total time. The elapsed time from when the Sync Callout message is sent to when the Response (YOUT-YRSP) or a NAK (YOUT-YNAK) is received back. If the transaction issued more than one ICAL call, then this field contains the sum of all elapsed times. The count of Total Response times is available in [SCOCALCT](#).

Source: IMS

Column heading: SyncCout RespTime

**SCOEXTCT**

Sync Callout External Response count. The total number of Sync Callout external acknowledgments or responses processed by the transaction. *See also* [SCOEXTTM](#).

Source: IMS

Column heading: SyncCout XRsp Cnt

**SCOEXTTM**

Sync Callout External Response time. The elapsed time from when the Sync Callout ACK is received to when either the Response (YOUT-YRSP) or a NAK (YOUT-YNAK) is received. If the transaction issued more than one ICAL call, then this field contains the sum of all elapsed times. The count of External Response times is available in [SCOEXTCT](#).

Source: IMS

Column heading: SyncCout XRspTime

**SCONAKCT**

Sync Callout NAK count. The number of Sync callout ACK events attributed to the transaction. *See also* [SCONAKTM](#).

Source: IMS

Column heading: SyncCout NAK Cnt

**SCONAKTM**

Sync Callout NAK time. The elapsed time from when the Sync Callout message is sent to when the NAK is received (YOUT-YNAK). If the transaction issued more than one ICAL call, then this field contains the sum of all NAK times. The count of NAK times is available in [SCONAKCT](#).

Source: IMS

Column heading: SyncCout NAK Time

**SCOTPIPE**

Sync Callout TPIPE name. TPIPE name derived from the IMS x'6701' YOUT Sync Callout record.

Source: IMS

Column heading: Callout TPIPE

**SDEP Buf Used**

See [FPNRDBFU](#)

**SECCHK**

Highest security check code returned from an ODBM command.

Source: IMS Connect

Column heading: Sec Code

**SEMHQ Input**

See [FPSEMHQI](#)

**SEMHQ Output**

See [FPSEMHQO](#)

**SMQ Glob OutQTime**

See [OUTPUTG](#)

**SMQ Locl OutQTime**

See [OUTPUTL](#)

**SOCKET**

Socket number.

Source: IMS Connect

Column heading: Sock Num

**SOCKTYPE**

Socket type.

**N**

Non-persistent socket

**P**

Persistent socket

**T**

Transaction socket

***blank***

Unknown

Source: IMS Connect

Column heading: Sock Type

**STARTCON**

Connect transaction start time. The time of day when the transaction input message enters IMS Connect (Read Prepare).

Source: IMS Connect

Column heading: CON Tran Start

**STARTDEP**

IMS transaction processing start. The time of day when the IMS Full Function transaction starts (31) or the time of day when the Fast Path transaction starts (5901+InputQ).

Source: IMS

Column heading: Process Start

**STARTIMS**

IMS transaction arrival time. The time of day when the transaction input message is enqueued onto the IMS message queue with a type 01 (INPUT MSG) or type 35 (MSG ENQ) record.

Source: IMS

Column heading: IMS Tran Start

**STARTLVL**

IMS transaction start level. Start level is an attribute that IMS Performance Analyzer assigns to every transaction reported in the IMS log. It is an indicator of how far the transaction lifecycle has already progressed at the start of the IMS log. Together with Completion level (**COMPLVL**), Start level is an indicator of the completeness of information collected about the reported transaction. The reported values are:

**1**

Transaction started with a type 01 (INPUT MSG) or type 35 (MSG ENQ) record generated when the transaction was added to the IMS Message Queue.

**2**

Transaction started with a type 31 (DLI GU) record generated when the transaction was retrieved from the IMS Message Queue for processing.

**3**

Transaction generated for a Non-message driven BMP or Thread process where the type 08 Application Start record is not available but dependent region processing has commenced.

Source: IMS

Column heading: Start Level

**STEPNAME**

Region Stepname. The stepname of the dependent region that processed the transaction.

Source: IMS, ATF

Column heading: Stepname

**SVRCOD**

Highest severity code returned from an ODBM command.

Source: IMS Connect

Column heading: Svr Code

**SWITTIME**

Program switch time.

A program switch occurs when one transaction calls another by inserting a message (destination is an IMS scheduler message block (SMB)) onto the message queue. Program switch time is the elapsed time from when the program switch message is eligible for processing to when it actually starts processing in a dependent message processing region. This time is attributed to the program switch transaction, not the originating transaction, and is analogous to input queue time for transactions coming into IMS from VTAM or OTMA.

Program-to-program (P2P) transactions are discrete transactions with their own units of recovery. Their processing eligibility depends on the type of IO PCB used to insert the message:

- For EXPRESS=YES alternate IO PCB, the P2P transaction is immediately eligible for processing (asynchronously). SWITTIME is from the enqueue of the input message (35) to the start of processing (31 DLI).
- Otherwise for IO PCB, the P2P transaction cannot start until the parent completes syncpoint phase 1 processing. SWITTIME is from syncpoint phase 2 when the message is transferred from the temporary hold queue to its permanent destination (37) to the start of processing (31 DLI).

Source: IMS

Column heading: PgmSwTch Time

**SYNCELAP**

Syncpoint total elapsed time (phases 1 and 2). The time reported depends on the following:

- For all Fast Path transactions this is X'5936'.FLDQPRTS if available, otherwise X'5937'.SYNCPRTM.
- For all other transactions this is X'5610' to X'5612', except when X'5937'.SYNCOTHR > 0 then it is X'5610' to X'5937'.

**Note:** The required log records are not always available in the log. In this case, the time reported may be the value reported for Phase 1 or Phase 2 only.

Source: IMS

Column heading: Syncpt Time

#### **SYNCFAIL**

Fast Path Syncpoint Failure code from the 5938 log record.

Source: IMS

Column heading: Sync Fail

#### **SYNCLEV**

OTMA synchronization level. Reported values are:

##### **NONE**

Synch Level=NONE. No acknowledgment is required from the client.

##### **CONFIRM**

Synch Level=CONFIRM. The client is required to acknowledge.

##### **SYNCH**

Sync Level=SYNCH. Two-phase commit processing is required.

##### **blank**

Not an OTMA transaction.

Source: IMS and IMS Connect

Column heading: Synch Level

#### **SYNCPH1E**

Syncpoint phase 1 elapsed time, measured as the time between the X'5610' and X'3730' log records.

**Note:** The required log records are not always available in which case the time will be reported as not available.

Source: IMS

Column heading: Sync PH1 Time

#### **SYNCPH2E**

Syncpoint phase 2 elapsed time.

- For all Fast Path transactions this is the value reported in log record field X'5936'.FLDQPRTS (if available), otherwise the value in X'5937'.SYNCPRTM is reported.
- For all other transactions this is the time between the X'3730' and X'5612' log records, except when the value in log record X'5937'.SYNCOTHR is greater than 0 in which case the time between log records X'3730' and X'5937' is used.

**Note:** The required log records are not always available in which case the time will be reported as not available.

Source: IMS

Column heading: Sync PH2 Time

#### **SYNCPH2F**

Syncpoint phase 2 elapsed time for Fast Path only. For all non-IFP transactions that use Fast Path this is the time between log records X'3730' and X'5937/38'. For all Fast Path transactions this is the time reported in log record field X'5936'.FLDQPRTS' (if available), otherwise the value in log record field X'5937'.SYNCPRTM' is used.

**Note:** The required log records are not always available in which case the time will be reported as not available.

Source: IMS

Column heading: Sync PH2 FP Time

### **SYNCTIME**

The time of day when the IMS Full Function transaction or Fast Path transaction ends (5612).

Source: IMS

Column heading: Syncpoint Time

## **T**

### **TARGDS**

Target IMS data store. For OTMA workloads from IMS Connect, this is the name of the IMS data store that processed the request. *See also* [ORIGDS](#).

Source: IMS Connect

Column heading: Target datastor

### **TERMINAL**

VTAM Node name or BTAM Line/PTERM number. When neither VTAM or BTAM, TERMINAL may be reported as:

- For implicit APPC transactions, network ID (LUP\_NETWORK\_ID)
- For OTMA transactions, Tpipe name (TMAMCTNM)
- For MSC transactions, origin LTERM (MSGMSINM)

Source: IMS

Column heading: Terminal

IMS Problem Investigator global field: Terminal

### **TESTDEQ**

The number of DL/I test dequeues.

Source: IMS

Column heading: Test Dequeues

### **TESTENQ**

The number of DL/I test enqueues.

Source: IMS

Column heading: Test Enqueues

### **TESTWAIT**

The number of DL/I waits on test enqueues.

Source: IMS

Column heading: Waits on Test Enq

### **TIMEOUT**

Transaction timeout indicator. Indicates whether an IMS Connect transaction has timed-out. Reported values are:

#### **T**

Transaction timed-out

#### **blank**

Transaction did not time out

Source: IMS Connect

Column heading: Time Out



**TIMERV**

Transaction timer value. This value, set by the client in the IMS request message (IRM) header, is the time IMS Connect will wait for a response from OTMA before timing out. The time is reported in microseconds. Use the **SECGROUP** operand to report values in seconds in the range 0 (no wait option) to 4200 (70 mins), or 9999 to wait forever.

**Tip:** Use the [TIMEOUT](#) field to indicate whether the IMS Connect transaction did time out.

Source: IMS Connect

Column heading: Transact Timer

**TMEMBERD**

Destination OTMA Tmember name. IMS XCF queue which delivers the message to IMS Connect.

Source: IMS Connect

Column heading: Dest Tmember

**TMEMBERO**

Originating OTMA Tmember name. IMS Connect XCF queue which will return the message to IMS.

Source: IMS

Column heading: Orig Tmember

**Total IMS Time**

See [TOTALTM](#)

**Total IO Count**

See [DBIOCALL](#)

**Total time**

See [TOTALTM](#)

**TOTALTM**

Total transaction elapsed time. The total elapsed time that the transaction incurs in message queues and being processed by IMS. For self-contained transactions, or the initial transaction in a program switch sequence, total time consists of input queue, processing and output queue times. For subsequent transactions in a program switch sequence, total time consists of switch time, processing time and output queue time.

Source: IMS

Column heading: Total IMS Time

**Tot Resp Time(R1)**

See [R1TIME](#)

**TOTRTIMS**

Resume Tpipe total time. The elapsed time from when the input message arrives (01/35) to when the Resume Tpipe takes the output message and sends it to its final destination (RTPIPE 31 COMMS). This time is useful for transactions that use SENDONLY RESUME-TPIPE protocol – it measures the overall time in IMS that contributes to end-user response time.

Source: IMS

Column heading: IMS RTp Tot Time

**TPIPE**

IMS Connect Tpipe name derived from IMS Connect Extensions journal 41 record field CERE\_41\_TPIPE\_NAME.

Source: IMS Connect

Column heading: Tpipe

**TRANCNT**

Transaction count. For Form-based summary reporting only, the number of transactions that were accumulated in this key range.

When TRANCNT is used in combination with fields that report on database activity or external subsystems, additional report lines are produced that provide a count for each database or external subsystem affected by the transaction. If requested, a summary line is also produced that reports on the total number of transactions. As transactions can update more than one database, or more than one external subsystem, the total in the summary line will not necessarily be the sum of counts listed above.

In the following example, the total number of transactions (**A**) does not equal the sum of counts for each database as some transactions have accessed more than one database.

Trancode	Database DBD Name	Tran Count
IVTNO	-	4
IVTNO	IVPDB1	7
IVTNO	IVPDB1I	6
IVTNO		11 <b>A</b>

Fields that report on database activity: [DATABASE](#), [DBACMETH](#), [DBBLKDEL](#), [DBBLKINS](#), [DBBLKREP](#), [DBBLKUPD](#), [DBORGTYP](#), [DBUPRATE](#), [DEDBAREA](#), [FPDDEPU](#), [FPSDEPI](#)

Fields that report on external subsystems: [ESAFNAME](#), [ESAFCALL](#), [ESAFCCON](#), [ESAFCOMT](#), [ESAFPRE](#)

See also [ABENDCNT](#)

Source: IMS and IMS Connect

Column heading: Tran Count

## TRANCODE

Transaction code. For CICS-DBCTL only, the CICS transaction code is reported. Otherwise, the IMS transaction code is reported.

Source: IMS and IMS Connect

Column heading: Trancode

IMS Problem Investigator global field: TranCode

## Transact Timer

See [TIMERV](#)

## U

### UORTIME

Unit-of-recovery () time, or in other words, the elapsed time the transaction spends processing in the dependent region. IMS Performance Analyzer calculates the time as the difference between the IMS X'5612' and X'5607' log records.

**Note:** UOR time is similar to Processing Time, the difference for an MPP transaction is:

- UOR time starts when the IMS unit-of-recovery commences (5607).
- Processing time starts when the MPP transaction gets the input message from the message queue (31 DLI), usually after the commencement of the .

Therefore UOR time is usually longer than Processing time.

Source: IMS

Column heading: Time

## UOW Lock WAITS

See [FPUOWLWT](#)

## UPDDEQ

The number of DL/I update dequeues.

Source: IMS

Column heading: Update Dequeues

**UPDENQ**

The number of DL/I update enqueues.

Source: IMS

Column heading: Update Enqueues

**UPDWAIT**

The number of DL/I waits on update and enqueues.

Source: IMS

Column heading: Waits on Upd Enq

**USERID**

User ID. RACF user ID, or substitute as used by IMS for security purposes.

Source: IMS, IMS Connect, and ATF

Column heading: Userid

IMS Problem Investigator global field: Userid

**V****VSAMREAD**

VSAM read IO count, approximation at completion level 5, accurate at completion level 6. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: VSAMRead Count

**VSAMWRIT**

VSAM write IO count, approximation at completion level 5, accurate at completion level 6. At completion level 5, resource usage metrics are obtained from the type 07 application termination record and apportioned equally among all transactions that executed under that schedule, regardless of their respective processing times. At completion level 6, resource usage metrics are obtained from the type 56FA transaction accounting record.

Source: IMS

Column heading: VSAMWrit Count

**VSO Read DASD**

See [FPVSREAD](#)

**VSO Read Dataspace**

See [FPVSORFD](#)

**VSO Write DASD**

See [FPVSWRIT](#)

**W****WFI TIME**

WFI elapsed time. SUBQ6 time where the message region waited before the next WFI transaction starts processing.

**Important:** IMS only records SUBQ6 time to a precision of 0.1 seconds.

Source: IMS

Column heading: WFI Time

## **X**

### **XMITEXIT**

Transmit message Exit time. The elapsed time output messages (responses) spent being processed by the XMIT Message Exit.

Source: IMS Connect

Column heading: XmitExit Time

### **XMLADAPT**

XML Adapter name. The name of the XML Adapter passed by the SOAP Gateway.

Source: IMS Connect

Column heading: XML Adapter

### **XQRYCOPY**

The number of XQuery COPY calls.

Source: IMS

Column heading: Xquery COPY Cnt

### **XQRYRSTR**

The number of XQuery RSTR calls.

Source: IMS

Column heading: Xquery RSTR Cnt

### **XQRYSAVE**

The number of XQuery SAVE calls.

Source: IMS

Column heading: Xquery SAVE Cnt

### **Related reference**

#### Sample report forms

A set of sample report forms is provided with IMS Performance Analyzer. The IMS Performance Analyzer reports and extracts produced using these sample report forms provide a detailed picture of the many aspects affecting IMS system performance.

### **Related information**

#### Transaction information provided by report forms

IMS Performance Analyzer form-based reporting is available for event data supplied in IMS logs and in IMS Connect Extensions journals. You can use form-based reporting to combine these data sources into a single report for end-to-end reporting of IMS Connect to IMS and back.

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