

Adabas Review

Concepts and Facilities

Version 4.5.2

May 2011

This document applies to Adabas Review Version 4.5.2.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

Copyright © 2011 Software AG, Darmstadt, Germany and/or Software AG USA, Inc., Reston, VA, United States of America, and/or their licensors.

Detailed information on trademarks and patents owned by Software AG and/or its subsidiaries is located at <http://documentation.softwareag.com/legal/>.

Use of this software is subject to adherence to Software AG's licensing conditions and terms. These terms are part of the product documentation, located at <http://documentation.softwareag.com/legal/> and/or in the root installation directory of the licensed product(s).

This software may include portions of third-party products. For third-party copyright notices and license terms, please refer to "License Texts, Copyright Notices and Disclaimers of Third-Party Products". This document is part of the product documentation, located at <http://documentation.softwareag.com/legal/> and/or in the root installation directory of the licensed product(s).

Table of Contents

1 Summary of Features	1
2 Adabas Review Processing and Components	3
Collecting Data in Local Mode	4
Collecting Data in Hub Mode	5
Collecting History Data	11
Processing Data Online Using SYSREVDDB	11
Processing Data in Batch Mode	11
Repositories	12
User Profile System	12
ADARUN Parameters	13
3 About Adabas Review Reports	15
Detailed vs. Summary Reports	16
Components of a Report	16
Starting Reports	22
List Report Functions	24
Record Filtering	24
4 Getting Started	27
Accessing Adabas Review Online	28
Using Function Codes	30
Using Adabas Review Commands	30
Using the Online Help System	31
Accessing Adabas Online System (AOS) from SYSREVDDB	32
Accessing Adabas Review Repositories	32
Accessing Technical System Information	33
Ending a Session	38
5 Cost Accounting Example	41
Viewing Data Online	42
Processing Data in Batch Mode	43
Adabas Review Command Response Time Calculation	44
Index	45

1 Summary of Features

Adabas Review provides a set of tools that allow you to monitor the performance of Adabas environments and the applications executing within them. Information retrieved about Adabas usage helps you tune application programs to achieve maximum performance with minimal resources.

The major Adabas Review features are listed below. Adabas Review:

- Supports *multiple Adabas nuclei clustered under a single database ID*, either in a single operating system image (Adabas Parallel Services) or under z/OS and IBM parallel sysplex, across multiple operating system images (Adabas Cluster Services).
- Can *monitor several databases (DBIDs)* and provide reports for each.
- Can be configured in a straight-forward, uniform, and consistent way under all targeted operating system platforms in a *client/server environment*.
- *Collects, reports, and controls data centrally*. The hub is a true data collection point unencumbered by dependencies on internal operations and structures of the Adabas nucleus.
- Provides unencumbered Adabas operation. The hub *reduces overhead* by eliminating the Adabas Review subtask from the Adabas address space, partition, or region.
- Allows you to *customize command logging*. Adabas Review can physically log selected commands and/or buffers based on parameters within the Adabas Review report definitions. Each command log corresponds to a particular report definition, and contains only those records that have been selected as meaningful for the end user.
- Allows you to *customize analysis tools*. Adabas Review reports may be customized to perform functions such as cost accounting and application debugging.
- *Collects history data*. Data collected for Adabas Review reports can be written to the Adabas Review repository at specified intervals and stored as history data. The data can be used in trend analysis.
- Provides *more than 40 sample report definitions*, which may be used without modification, or edited to suit specific site requirements.

- Provides *interactive screens* via the Edit Report function to help you create a report or edit an existing one.
- Supports a *wide range of data types*. More than 340 data fields are available for specifying the types of data to be collected by Adabas Review.
- Provides *user-defined data fields*. Adabas Review provides a mechanism for defining up to five data fields to meet user specifications.
- *Allows data to be retrieved online*. Adabas Review reports are executed online or in batch mode. Data collected by Adabas Review reports may be viewed online.
- Provides an *online display of Adabas availability*. The Available Availability (AA) function displays a profile of the databases that are monitored by Adabas Review.
- Provides *access to Adabas Online System (AOS)*, an online Adabas maintenance product.

2 Adabas Review Processing and Components

- Collecting Data in Local Mode 4
- Collecting Data in Hub Mode 5
- Collecting History Data 11
- Processing Data Online Using SYSREVDB 11
- Processing Data in Batch Mode 11
- Repositories 12
- User Profile System 12
- ADARUN Parameters 13

Adabas Review runs in:

- *local mode* in the Adabas address space.
- *hub mode* as a server in its own address space with a client interface in the Adabas address space.
- *batch mode* as a batch job that processes sequential Adabas command log data sets

See the *Release Notes* for this version of Adabas Review for a matrix of supported Adabas versions and other requirements.

Collecting Data in Local Mode

In local mode, the Adabas Review processor is installed as an extension to ADALOG.

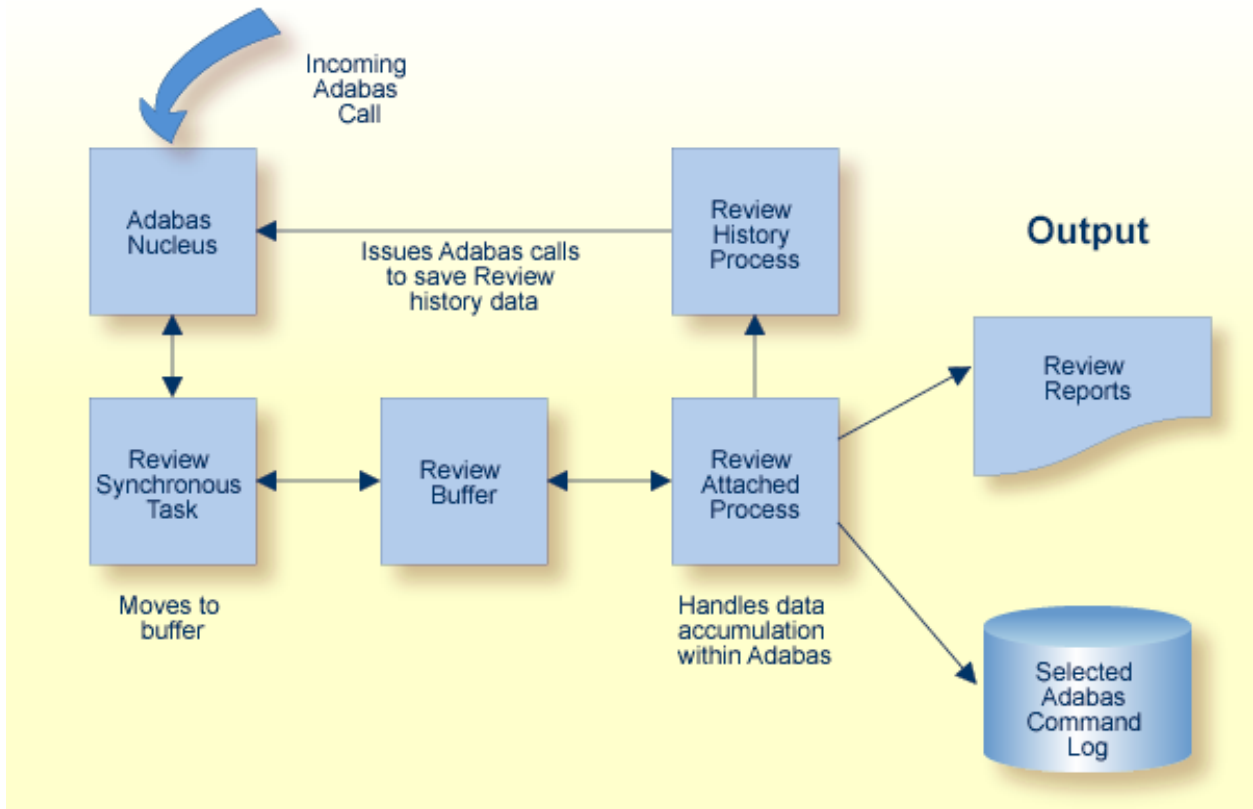
The data collection process is partly accomplished by the Adabas Review processor. The data is collected by providing code (RAOSLOCL) that runs as an extension to ADALOG. Adabas calls this module and passes information about resource usage for each command processed by the Adabas nucleus.

This module, in conjunction with the Adabas Review processor and an intermediate Adabas Review buffer, accumulates and tabulates the Adabas information based on various user-defined data requirements.

The Adabas Review data may be:

- displayed in an online environment from the Adabas Review user interface;
- saved automatically in the Adabas Review repository;
- printed automatically when the Adabas nucleus terminates; or
- downloaded directly to a personal computer (PC) using Entire Connection.

The following graphic shows the Adabas Review data collection process for local mode.



In local mode, Adabas Review job control statements should be added to the Adabas nucleus startup job.

Collecting Data in Hub Mode

In hub mode, Adabas Review uses a client/server approach to collecting data:

- an interface (the client) resides on each Adabas nucleus; and
- the hub (the server) resides in its own address space, partition, or region.

The interface uses the existing Adabas interregion communication process: ADALINK, Trans-port, ADASVC (ADARER), and ADAMPM. This process is consistent across the targeted platforms for Adabas Review. If systems are networked correctly, hub mode supports a multiple platform, multiple operating system, Adabas database environment.

In hub mode, Adabas Review job control statements should be added to the Adabas Review hub startup job.



Note: Trans-port is available only in z/OS environments.

- [The Server Hub](#)
- [The Client Interface](#)
- [Interface Calls](#)
- [Example Client/Server Environment](#)
- [Command Log Processing](#)
- [Example Hub Mode Data Collection Process](#)

The Server Hub

The Adabas Review hub is a centralized data collector and reporting interface that combines proven components of Adabas and Adabas Review.

It handles the data consolidation and reporting functions for monitoring an Adabas database, including usage information related to applications, commands, command response time, I/O activity, buffer efficiency, and others.

The interactive reporting facility allows you to pinpoint problems quickly, providing detailed and summary data about Adabas activities. Specific information about each database is also available.

The centralized collection server has several advantages:

- A single hub collects information from multiple Adabas nuclei, Adabas Parallel Services clusters, or Adabas Cluster Services (support for IBM's parallel sysplex environment) clusters.
- Because a single hub can support multiple Adabas nuclei, the number of Adabas Review nuclei required to support an enterprise-wide distribution of Adabas nuclei is reduced. This minimizes resource requirements and increases performance.
- Isolating the Adabas Review subtask from the Adabas nucleus enhances the performance of the Adabas main task and minimizes the impact of future Adabas releases on the functioning of Adabas Review.

The hub comprises

- ADAREV, a logic module that manages and supervises the incoming Adabas Review data calls and requests;
- REVHUB, a module to establish and maintain the environmental settings for Adabas Review; and
- the Adabas Review DB nucleus and subsystems including RAOSAUTO, the autostarted report parameter generation routine, and RAOSHIST, the historical data population routine.

The Client Interface

The Adabas Review interface constructs and then transmits the Adabas Review data from the Adabas nucleus to the Adabas Review hub. An Adabas Review interface is integrated with each Adabas nucleus that is monitored.

The interface comprises

- ADALOG, the Adabas command logging module;
- ADACLX, the Adabas command log extension module that is responsible for acquiring additional information not present in the Adabas command log record; and
- ADARVU, which handles the environment conditions for ADACLX and the Adabas API requirements for transmitting the Adabas Review data to the Adabas Review hub.

Interface Calls

To maximize performance, the ADARVU module issues an "optimistic" call from an Adabas nucleus to the Adabas Review hub without waiting for a completion or "post" from the hub; ADARVU assumes that the Adabas Review data was successfully passed to the hub.

However, ADARVU does perform an initialization step to ensure that the hub is active prior to any command processing by the Adabas nucleus. If the hub is not active, ADARVU informs you using WTOs or a user exit. If a user exit is used, you are given the option to wait for the hub to be activated, or continue initialization and call the hub only when it is active.

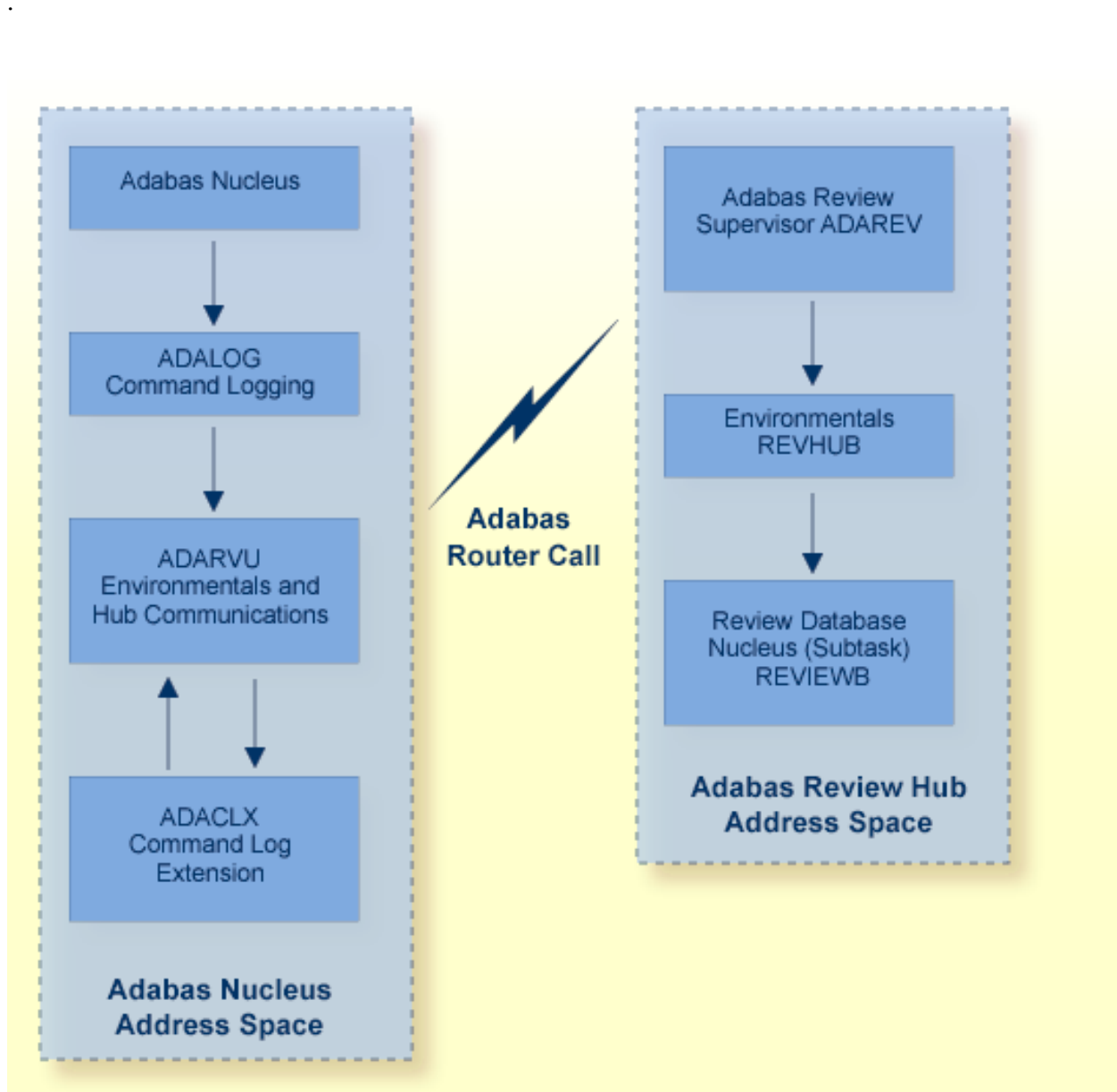
Command log records are normally buffered to reduce the number of calls from the Adabas nucleus to the Adabas Review hub. In low traffic situations, this might lead to a delay of approximately five seconds.

If the communication to the hub results in a non-zero response code (for example response code 151), ADARVU will call user exit 5 if it is available. If a user exit is used, you are given the option to resend the whole buffer (with or without a wait), although parts of the buffer may already be processed. We recommend that you *not* resend the buffer, but generate a message indicating an error has occurred correct the problem. For more information about user exit 5 read *REVUEX5: Adabas Review Hub Event Handler (Adabas Exit 5)* in the *Adabas Review Reference Guide*.

On the hub side of the call, the elimination of the cross-memory "post" call enhances performance by reducing the overhead of active communication with the Adabas clients. This allows the hub to remain a passive data collector.

Example Client/Server Environment

The following graphic shows the major components of the Adabas Review interface (Adabas nucleus address space) and hub (Adabas Review hub address space) in a client/server architecture



Command Log Processing

The data collection process is partly accomplished by the hub (server) component REVIEWB, the Adabas Review command log processing routine, which runs as an Adabas Review *subtask*; that is, a unit of work that the operating system treats as separately detachable.

At initialization, REVIEWB reads any autostarted report definitions the user has defined and collects data according to the reports' criteria. REVIEWB also processes requests to start, view, and purge reports from the Adabas Review online system.

In hub mode, Adabas responds to requests and calls the interface module ADARVU from ADALOG (Adabas's command logging module) if `REVIEW=dbid` is specified in the Adabas initialization parameters. Adabas passes to ADARVU information about resource usage for each command processed by the Adabas nucleus.

Adabas Review link routine exits are used to pass TP system and Natural information from the user's address space (origin of the Adabas call) to the Adabas address space and, using an extension of the Adabas user buffer, on to ADARVU.

ADARVU queues Adabas command log records received from ADALOG to the Adabas Review hub (server) through an intermediate REVIEW-BUFFER in the Adabas subtask address space. Note that command log records are examined prior to queuing to determine whether record filtering is active. When filtering is active, only command log records that are filtered are sent to the hub.

See [Record Filtering](#) for more information.

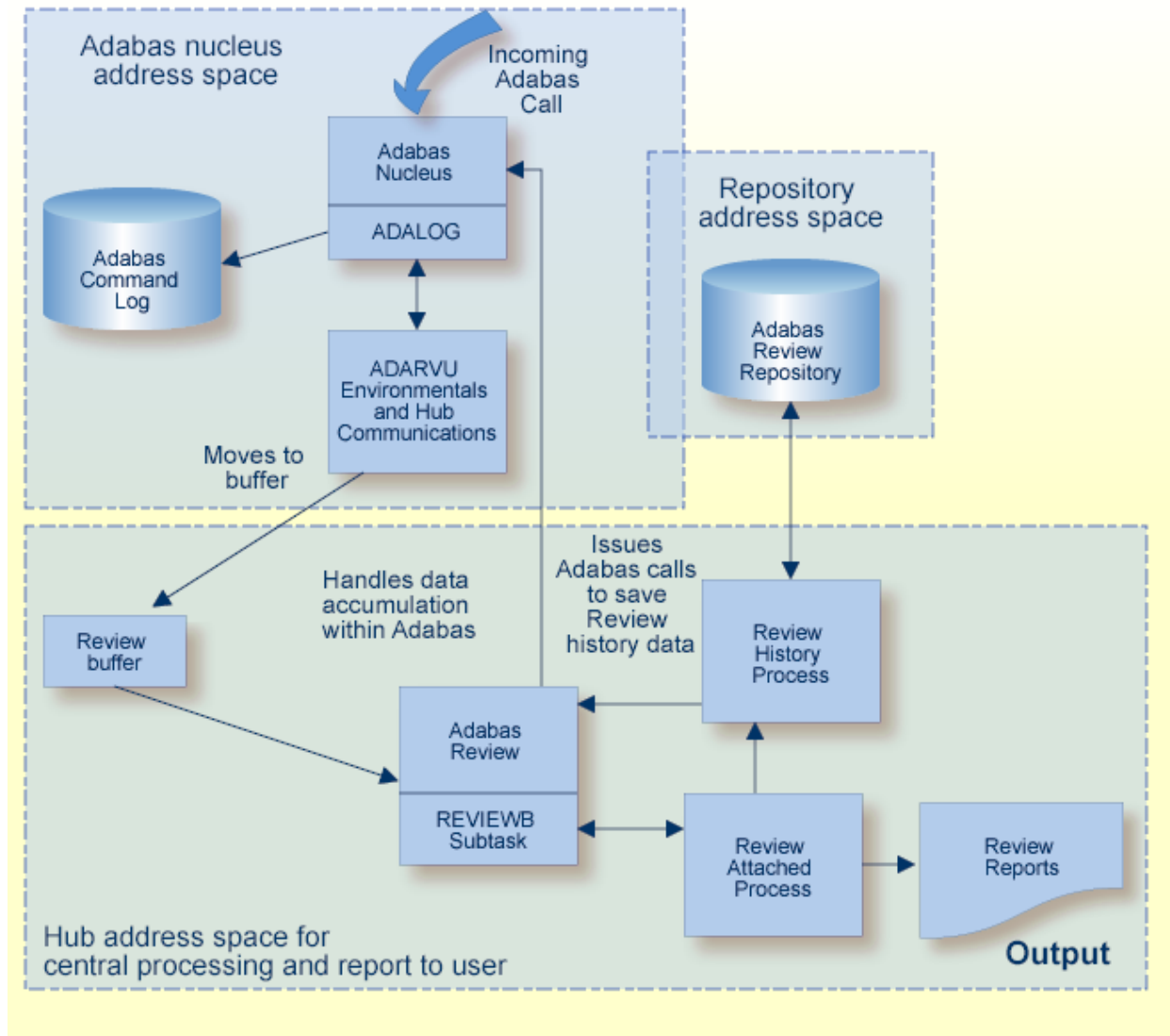
REVIEWB processes the records, accumulating and tabulating various data according to the criteria specified in any user-defined reports that are active.

The resulting nucleus statistics may be

- displayed in an online environment from the Adabas Review user interface;
- saved automatically in an Adabas file called the Adabas Review repository;
- printed automatically when the Adabas nucleus terminates; or
- downloaded directly to a personal computer (PC) using Entire Connection.

Example Hub Mode Data Collection Process

The following graphic shows the Adabas Review data collection process for hub mode. When monitoring multiple databases, Adabas Review allows you to switch from one database to another and provide reports for each.



Collecting History Data

History data collection is controlled by RAOSHIST, the Adabas Review historical data population routine.

z/OS, z/VSE, and BS2000

- RAOSHIST executes as a subtask of Adabas Review. At initialization, RAOSHIST reads the RVUALT data set to determine if there are any historical records from the previous Adabas Review session that should be written to the Adabas Review repository. History records are written to RVUALT if the database on which the Adabas Review repository resides is unavailable during Adabas Review termination.
- During normal execution of Adabas Review, REVIEWB is responsible for adding history records generated by detail history reports and by summary history reports that have a history interval.

Processing Data Online Using SYSREVDB

Adabas Review can be accessed online via a standard Natural application that resides in the Natural library SYSREVDB. Using commands and screens provided in SYSREVDB, you can:

- Perform Adabas Review administration (starting, stopping, and defining reports as well as maintaining user profiles)
- Access collected monitoring data online.

For complete information on getting started using SYSREVDB, read [Getting Started](#), elsewhere in this guide.

Processing Data in Batch Mode

As a batch job, the Adabas Review command log processing routine REVIEWB processes Adabas command log records from a sequential data set. If you use Adabas dual command logging, you must first use the Adabas utility function ADARES CLCOPY to generate a sequential command log data set suitable for input into Adabas Review.

When Adabas Review executes as a batch job, input report parameters that define the data collection criteria selected by the user are read from statements in the RVUPARM data set or the RVUAUT1/RVUAUT2 data sets. These statements can be generated using the GENCARD statement.

The storage allocated for reports is exactly the same as that for Adabas Review executing in interactive (online) mode. However, since REVIEWB is reading the command log records directly from a sequential file, no REVIEW-BUFFER is allocated.

Repositories

The Adabas Review repository is an Adabas file used for storing report definitions, historical data, and target definitions. In hub mode, this file must be located on an Adabas database which will be accessed by the hub using normal Adabas router calls.

Depending on the configuration at your site, more than one Adabas Review repository may be associated with your system. For example, if your site is running Adabas Review against more than one database, you may choose to have an Adabas Review repository for each database.

The Review command `SETFILE` (or `SET`) may be used to access different Adabas Review repositories and the reports stored on them.

User Profile System

Adabas Review administrators use the user profile system to generate profiles that define access rules for Adabas Review users. Access rules specify the systems or the functions within systems that a particular user is allowed to use.

User profiles may be created for new users, changed for existing users, and purged when no longer required.

A user profile is not required for each user. Adabas Review provides a default profile to allow access for users who do not have a profile defined.

When a user logs on, Adabas Review searches for the user's profile. If one is not found, the default profile is used.

If the default profile is customized so that the access rules meet the needs of the majority of Adabas Review users, the need for individual user profiles can be eliminated.

If a user has access needs that are different from the majority, a user profile can be created to accommodate those needs. Such a profile is generated by customizing a copy of the default profile.

ADARUN Parameters

Adabas ADARUN initialization parameters define and start the Adabas operating environment. Different ADARUN parameters are useful to the Adabas nucleus and the Adabas Review hub in different operating environments. For more information about the ADARUN parameters specific for Adabas Review in a given environment, select the appropriate link below:

- *ADARUN Parameters for Adabas Review in z/OS*
- *ADARUN Parameters for Adabas Review in z/VSE*
- *ADARUN Parameters for Adabas Review in BS2000*

3 About Adabas Review Reports

- Detailed vs. Summary Reports 16
- Components of a Report 16
- Starting Reports 22
- List Report Functions 24
- Record Filtering 24

Online or as a stand-alone batch job, Adabas Review processes Adabas command log records and generates reports according to user-defined reporting criteria. The flexible reporting structure of Adabas Review allows you to view the same data in many different ways.

It retrieves performance information about Adabas by collecting data in the form of reports, which capture command log information and provide information about both online and batch transactions. Reports collect data about multiple teleprocessing environments and batch programs that are all using the same database.

Adabas Review provides commands to:

- modify report definitions;
- modify display programs;
- control report data collection; and
- direct report output.

Detailed vs. Summary Reports

Adabas Review can produce detailed and summary reports.

- For detailed reports, data is collected continuously while the database is active. Such reports contain a complete recording of the commands processed while the database is active. Detailed reports cannot be viewed online. However, a display program is generated that may be used to view history data online if the report collects history data. Results of detailed reports are printed at database termination.
- For summary reports, data in the report is summarized by a particular field (for example, by command, user ID, or program). Results can be viewed online. Summary reports can also be printed at the time the summary report is created or at database termination.

Components of a Report

An Adabas Review report has two parts: a definition and a display program.

- A *report definition* is a set of parameters that specify the data to be captured and a set of processing rules that identify the conditions under which the data is to be captured.
- A *Natural display program* is a Natural program that specifies the appearance of the report output, whether viewed online or downloaded to a personal computer (PC).

Report Definition

Adabas Review uses a set of instructions called a *report definition* to specify the types of data to be collected. Prepared report definitions supplied with Adabas Review may be modified and custom reports may be created.

Report definitions can be created or modified using menu-driven Natural programs. Report options and processing rules allow you to specify the conditions under which the data is to be captured. Report definitions are kept in the Adabas Review repository.

The Edit Report (ER) function is used to create Adabas Review report definitions. In addition, Software AG delivers prepared report definitions called *supplied reports* with Adabas Review. Supplied reports may be modified to meet the requirements at a particular site. Detailed information about supplied reports is provided in *Supplied Report Reference*, in the *Adabas Review Reference Guide*.

An Adabas Review report definition comprises database fields to be monitored, processing rules, and option parameters, all either entered on screens or selected from lists:

- **Database fields** from which a report extracts data are listed in the order in which they are to be displayed.
- **Report processing rules** identify the conditions under which the data is to be captured by describing how field values are to be extracted for the report.
- **report option parameters**
Report option parameters specify whether Adabas Review will perform physical command logging, and whether data accumulated by the report will be written to a history file. History data may be used when analyzing database performance trends.

Database Fields

The selection of database fields defines the subject of the Adabas Review report.

A field identifies a type of information to be collected by the report; for example, information about an Adabas command, the Natural program issuing the command, the Adabas nucleus, the teleprocessing monitor, or the operating system being used. The PF11 (Flds) option is used to display a list of all available Adabas Review report fields.

Up to 20 fields may be used in a particular report. However, the number of fields that can be displayed is limited to the total line size (250 bytes) that can be displayed when a report is viewed online.

Fields to be displayed in a report are entered on the Edit Report screen of the Edit Report (ER) function as shown in the following example:

About Adabas Review Reports

```
20:35:15          A D A B A S - R E V I E W          YYYY-MM-DD
                  Edit Report                        LOCL=00009

Report Name: _____ DBID to Monitor: _____

+-----+-----+-----+-----+-----+-----+-----+-----+
| Field   | Order  | Sum   | Min  | Max  | Avg  | Pct  | Rate | Round |
+-----+-----+-----+-----+-----+-----+-----+-----+
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
+-----+-----+-----+-----+-----+-----+-----+-----+
Page 1

Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help Optns Exit          Save Start - +          Rules FlDs Menu
```

Detailed information about individual fields is provided in the *Adabas Review User's Guide*.

Report Processing Rules

Report processing rules are used to set conditions on or limit the data collected by the report.

Processing rules are entered on the Report Processing Rules screen of the Edit Report (ER) function as shown in the following example:

```

20:24:56                A D A B A S - R E V I E W                YYYY-MM-DD
                        Report Processing Rules                    LOCL=00009

                        REPORT ONE

+-----+-----+-----+-----+
| Field  | Op     | Value                                     | And/Or |
+-----+-----+-----+-----+
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
+-----+-----+-----+-----+
                        Page 1

Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help Optns Exit          Save Start -      +                      Flds Menu

```

An Adabas Review report processing rule is specified by a field, a relational operator (equal to, less than, greater than, not equal to), and a specific value or range of values.

If there are multiple processing rules, the appropriate logical operator (AND or OR) must also be specified.

Fields used in processing rules are not displayed in the report results unless they are listed on the Edit Report screen.

Report Option Parameters

Values for report option parameters can be entered on the Report Options screen of the Edit Report (ER) function as shown in the following example.



Note: One of two different Report Options screens may appear in Adabas Review, depending on whether you have selected a summary report or a detail report. The following sample is for a summary report.

```

19:33:13          ***** R E V I E W *****          2009-06-18
                   Options for summary report: COMMANDS BY HOUR          HUB=15690

+-- Summary Rpt Options ----- Summary Logging ----- History -----+
! AutoStart ..... Y      Summary Log ..... N      History ..... N !
! Break ..... Y          Summary File .. RVSUM_      History Int ... ____ !
! Wrapping ..... N      Num of Logs ..... _2      History DBID ... __123 !
! Print ..... Y          Log Size ..... 99999      History FNR .... __45 !
! Rstrt/Intrvl Y ____      Log Full Exit _____      History SVC ..... 234 !
! Max Restarts .. 999999                                     !
! Max K ..... __8          ---- Summary Exit ---- !
! ADALimit ..... __1      Exit Name ... ____ !
! Display By .. SORTED      Cmd ..... CL !
! Entries ..... 999999      Sum ..... Y !
! Limit ..... 99999999                                         !
! Page/Line .. _55 / 133                                         !
!                                                                    !
!                                                                    !
+-----+

Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help      Exit      Accpt      Dflts      Menu
    
```

Adabas Review is delivered with report options defaults:

- You can modify these defaults for all subsequent reports.
- You can modify the default values for a particular report, either new or existing.

Detailed information about using the Report Options screen is provided in the *Adabas Review User documentation*.

Report User Exits

Adabas Review provides two report user exits: one for detail reports and one for summary reports.

- A *detail report user exit* is driven when a command log record is selected for the report. Only records that pass the processing rules are provided to the user exit. This exit may be used to create SMF records, accounting records, or for any other purpose.
- A *summary report user exit* is driven when a specified Adabas command is selected for the report; and/or a report is summarized. You may control the conditions that trigger the exit.

When creating a report, the user exit is specified on the Report Options screen or in the batch REPORT statement. The actual report user exit must be provided in an executable library accessible to Adabas Review.

For more information about these exits, read *REVUXDET: Report Exit for Detailed Reports* and *REVUXSUM: Report Exit for Summary Reports*, in the *Adabas Review Reference Guide*.

Natural Display Program

When a report definition is saved, Adabas Review automatically generates a unique Natural display program, called the Adabas Review report display program. This program determines how the report data will be viewed online or downloaded to a PC. It controls the appearance of the report output for an active database or for historical data. You can run this display program:

- to view data currently being collected by the interactive Adabas Review processor.
- to retrieve and display or download historical data that has been saved and stored in the Adabas Review repository.



Note: No display program is created for buffer pool reports.

The Natural display program generates normal Natural FIND and READ statements against an Adabas Review DDM to access the data being collected by Adabas Review. By default, the Natural program displays the data at the Adabas Review user's terminal. Options exist, however, to download the data directly to a personal computer (PC).

You may use the Adabas Review-generated display program as it is created, or you may modify it for your individual needs.

The display program is executed when the VIEW command is issued to display the report results online.



Note: The output of reports that print at database termination is not controlled by a display program. At database termination, a SYSOUT from Adabas is written by REVIEWB. The format of this output cannot be modified by the Adabas Review user.

Starting Reports

Once the report definitions are edited and saved, the reports can be started. Starting a report tells the Adabas Review data collection process to start accumulating data based on the report definition parameters.

Adabas Review users can display buffer pool information, display active databases, and access the Adabas Online System, if it is available. Adabas Review administrators are also allowed to define and display target objects.

Reports can be run in either interactive or batch mode:

- In *interactive mode*, Adabas passes information to Adabas Review about resource usage for each command processed by the Adabas nucleus. Online reports are started with the `START` command.
- In *batch mode*, Adabas Review runs as a batch job that processes sequential Adabas or Adabas Review command log data sets. Batch parameter statements are generated for the report and submitted in the job stream.

Once data has been accumulated for a report, the results can be:

- saved to a file,
- viewed online,
- downloaded to a personal computer (PC) using Entire Connection, or
- printed when the Adabas nucleus terminates.

Once a report has been defined, the `SAVE` command is issued and the report definition is written to the Adabas Review repository.

Accumulated data is handled differently depending on whether the report is a detailed report or a summarized report:

- A detailed report does not have any accumulated data. Its data will be directly saved to a file and cannot be viewed online.
- A summary report accumulates data. If the report is stopped, several things may happen to the data depending on the reason the report was stopped and on the report's reporting options.

When data is kept, it can be kept on:

- `RVUPRT`
- Summary logging file
- History file

As long as the report is not stopped the data can be viewed online or downloaded to a PC using Entire connection.

Data is accumulated in written in following cases:

- The report is stopped when a CL command is issued.
- The report is stopped automatically because of interval settings.
- The report has been defined with the RESTART=Y option and stops automatically because of MAXSTORE.
- The report is stopped because Adabas Review terminates.

Data is not written if the report is stopped when a PS or RF command is issued.

Data is kept in storage and not written, if it gets written depends on the next actions a) report gets stopped with SU command b) report stops automatically because of Entries or Limit c) report has restart=N option and it stops automatically because of MAXSTORE (the report status is set to 'I')

Autostarted Reports

Adabas Review reports can be set to start automatically whenever Adabas Review initializes.

Then RAOSAUTO, the Adabas Review autostarted report parameter generation routine, generates the report definition control statements and writes them to one of two parameter files, RVUAUT1 or RVUAUT2, alternating between them by writing to the older file.

When Adabas starts, the files are read by Adabas Review using the RVUAUT1 and RVUAUT2 statements in the job stream.



Note: Under z/OS, the installation procedure defines the statements RVUAUT1 and RVUAUT2 so that they point to members of a PDS. To avoid constant compression of these data sets, the statements may point to sequential data sets.

RAOSAUTO automatically regenerates the control statements for all autostarted reports when you make changes to an autostarted report, delete an autostarted report, or modify the target definition for the database being monitored by the reports.

In exceptional circumstances (e.g., the source library becomes too full and requires compressing), you can force regeneration of the control statements for all autostarted reports by either issuing the GENAUTO command or entering the parameters manually using batch parameter statements.

Additionally, when you issue the GENCARD command, RAOSAUTO generates report parameter cards for user-specified reports and directs them to a user-specified output file.

In z/OS, z/VSE, and BS2000, RAOSAUTO executes as a subtask of Adabas Review and is only active when:

- an autostarted report definition is saved in the online system;
- GENAUTO (or GENCARD) is executed in the online system; or
- a database target definition is saved in the online system.

List Report Functions

Adabas Review provides three list functions for reports, which are accessible from the Adabas Review (DB system) menu:

Code	List . . .	This function lists . . .
LR	Report	existing Adabas Review reports by name. Reports may be edited, started, and purged using the commands in this function.
LH	History Reports	reports that have accumulated history data in the Adabas Review repository.
LS	Started Reports	reports that are currently accumulating data.

The lists displayed by the LH and LS functions are subsets of the list displayed by the LR function.

From the resulting lists, certain commands can be issued against a particular report that allow you to maintain report definitions, manage started reports, and manage the output they produce.

The commands are entered on the selection line preceding the name of the report.

Record Filtering

Adabas Review record filtering can decrease the number of command log (CLOG) records passed from the database to Adabas Review. When filtering is active, only those records needed for report processing will be passed to Adabas Review. Record filtering operation is based upon the reports currently active and cannot be directly controlled. However, the Adabas ADARUN parameter REVFILTER may be used to control whether the database allows filtering. See the appropriate installation documentation for a description of the REVFILTER parameter.

Record filtering is limited to and dependent upon select Adabas Review fields (filter fields). Reports with rules based solely on filter fields are eligible to be filtering reports. Any other report is a non-filtering report. Record filtering will be active only when all reports running are filtering reports. That is, record filtering will stop if any non-filter report is started. An example of a filtering report would be the *Exceptional Response Code* report, which has a single rule for the RSP field. If this is the only report running, only those command logs with exceptional response codes will be sent to Adabas Review.



Note: Record filtering is intended for those installations that ordinarily run very few reports (e.g., *Exceptional Response Codes*) at a time. A large number of active filtering reports will negate the performance benefits of record filtering. If your installation runs many rule-based reports, running with the ADARUN REVFILTER=NO setting is recommended. Some analysis of active reports may be necessary to fully realize filtering performance benefits.

Record Filtering Restrictions

The following restrictions apply for Adabas Review record filtering:

- For filtering to be activated, all currently active reports must have processing rules based solely on filtering fields.
- Wildcard values are not permitted. Alphanumeric values containing an asterisk (*) will result in filtering being turned off.
- EXCLUDE statements are not supported. An EXCLUDE statement will result in filtering being turned off.
- Special Adabas Review reports are non-filtering reports.
- CLOGLAYOUT=8 is required for record filtering.
- Filtering will not be active when running with LOGCLEX=YES.
- In hub mode, any active report using the artificial target ID 11111 will result in filtering being turned off.

Adabas Review Fields Eligible for Record Filtering

The following Adabas Review fields can be used in rule processing in order to activate Adabas Review Record Filtering: ACBUSER, ASSOIO, CID, CMD, CMDTYPE, DATAIO, DBID, FILE, ISN, ISNQ, JOBNAME, JOBNAME, NATAPPL, NATPROG, NATSTMT, NATUID, NUCID, RSP, STEPNAME, TPUSERID, TRANSID, and WORKIO.

The use of any other field in rules for active reports will cause filtering to be stopped. For detailed information about particular fields, see the *Field Reference*, provided with this documentation.

4 Getting Started

▪ Accessing Adabas Review Online	28
▪ Using Function Codes	30
▪ Using Adabas Review Commands	30
▪ Using the Online Help System	31
▪ Accessing Adabas Online System (AOS) from SYSREVDDB	32
▪ Accessing Adabas Review Repositories	32
▪ Accessing Technical System Information	33
▪ Ending a Session	38

This chapter tells you how to log on to Adabas Review online (SYSREVDB), use the online help system, use function codes, PF keys and commands, and how to end your Adabas Review session.

Accessing Adabas Review Online

Adabas Review can be accessed online via a standard Natural application that resides in the Natural library SYSREVDB.

► **To access Adabas Review online via SYSREVDB:**

- 1 Access Natural as you do normally.
- 2 At the NEXT prompt, enter LOGON SYSREVDB.
- 3 At the prompt, enter MENU.

Your Adabas Review administrator can tell you if an alternative logon procedure has been defined.

When you log on to Adabas Review, the Main Menu screen is displayed.

This section covers the following topics:

- [Main Menu](#)
- [General Use PF Keys](#)

Main Menu

```

20:35:09          A D A B A S - R E V I E W          2009-04-30
                   Main Menu                        LOCL=00222

      Code          Description
      -----
      AA            Available Adabas Nuclei
      AO            Adabas Online System
      EB            Edit Buffer Pool Report
      EL            Edit Pulse Report
      ER            Edit Report Definition
      ET            Edit Target Definition
      EX            Edit Cluster Services Report
      LH            List History Reports
      LR            List Report Definitions
      LS            List Started Reports
      LT            List Target Definitions
      UP            User Profiles
      -----

Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help          Fin                                Fin

```

**Notes:**

1. For an explanation of the commands in the **Code** column in the screen above, read *Commands* in the *Adabas Review Reference Guide*.
2. LOCL= and HUB= are found in the top right corner of every screen.
 In the screen pictured above, LOCL=00222 means that database 222 is being administered, running in local mode. HUB=201 means that a hub is administered.
 If the message REV00362 - REVIEW IS NOT INSTALLED IN DATABASE 210 in conjunction with display of HUB=210 (in the right top corner) is displayed, then the database 210 is not a HUB and also does not run with Adabas Review in local mode. Changing to a database or HUB is done using the DBID or HUB commands.

General Use PF Keys

The following PF keys are available on many of the Adabas Review screens:

PF	Command	Description
1	Help	Access the help system.
3	Exit	Return to the previous screen.
7	-	Scroll backward through a list display.
8	+	Scroll forward through a list display.
12	Menu	Return to the Adabas Review Main Menu.

Other Adabas Review commands and PF keys are local to a particular function or screen. These commands are usually shown on the relevant screen and have PF keys assigned to them.

Commands used in the list functions are not displayed on the screen. These commands may be displayed by using the online help system.

Using Function Codes

Adabas Review is menu-driven. A series of function codes and commands are used to navigate through its functions. Functions may contain several "layers" of screens.

Entering function codes singly accesses one layer at a time; entering a string of function codes enables you to bypass intervening screens and go directly to the screen you want.

For example, you can list the reports that have been started (LS) for Adabas Review by entering the following on the command line of the Adabas Review main menu:

```
LS
```

The LS code accesses the Started Reports screen.

Using Adabas Review Commands

Commands are used to perform specific tasks within a function.

▶ To issue an Adabas Review command:

- type the command on the command line and press ENTER

Or:

press the PF key corresponding to the command, if one has been defined.

A command may be included in a string, provided the command is the last element.

Some commands are standard throughout Adabas Review, and may be issued from any screen. These include the following:

Command	PF	Description
COLOR OFF	—	Returns to non-color display.
COLOR ON	—	Displays color attributes, if applicable.
EXIT	3	Terminates the function and returns you to the menu screen that precedes it.
FIN or QUIT	12	Terminates the Adabas Review session. Assigned to PF12 on the Adabas Review Main Menu.
HELP or ?	1	Displays the help screens for a particular screen or field. ? is used to display help for a specific field.
LOGO	—	Displays the Adabas Review logo screen.
MENU	12	Terminates the function, and returns you to the Adabas Review Main Menu.
MSG	—	Displays detailed explanations of Adabas Review messages. May be issued with or without a message number. If no message number is included, Adabas Review displays the explanation for the last message received, unless you have changed the Adabas Review screen or performed a different Adabas Review function since the message was displayed. In this case, specifying the MSG command without a message number produces an error.

Other Adabas Review commands are local to a particular system or function. These commands are usually listed on the relevant screen and have PF keys assigned to them.

Line commands used in the list functions are not displayed on the screen. These commands may be displayed by using the online help system.

Using the Online Help System

Online help is available for Adabas Review functions at any time during the Adabas Review session. You may view general help screens describing functions and commands or, if available, help windows for a specific data entry field:

▶ To access the general help screens:

- Press PF1

Or:

Enter the HELP command on the command line.

▶ **To access specific help windows:**

- Enter a question mark (?) on the data entry field.

If specific help is not available, the general help for the screen is displayed.

The following PF keys are available within the online help system:

PF	Command	Description
3	Exit	Exits from the display.
7	-	Scrolls one page backwards.
8	+	Scrolls one page forward.
9	--	Scrolls to the top of the text.
10	++	Scrolls to the bottom of the text.
12	Menu	Returns to the Adabas Review Main Menu.

Accessing Adabas Online System (AOS) from SYSREVDB

Adabas Online System (AOS) is a selectable unit of Adabas that enables database administrators to monitor and change aspects of an Adabas database interactively. Refer to the *Adabas DBA Tasks Manual* and the Adabas Online System documentation for more information.

If Adabas Online System is installed on your system and you have access privileges to it, you can access it from Adabas Review.

▶ **To access Adabas Online System from Adabas Review:**

- Enter the code `A0` on the command line.

Accessing Adabas Review Repositories

The Adabas Review repository is an Adabas file used for storing report definitions, historical data, and target definitions for Adabas Review.

Depending on the configuration at your site, more than one Adabas Review repository may be associated with your system. For example, if your site has Adabas Review installed on more than one database, there may be an Adabas Review repository for each database.

Using the SETFILE Command

The Review command `SETFILE` (or `SET`) and `SETALL` (or `SETA`) may be used to access different Adabas Review repositories and the reports stored on them.

The `SETALL` command differs from the `SETFILE` command in that it allows you to also change the current `DBID/HUBID` where Adabas Review is communicating. Changing this value has the same effect as entering `DBID=nnnnn` or `HUB=nnnnn` into the command line.

▶ To access different Adabas Review repositories:

- 1 Enter the command `SETFILE` or `SET` on the command line of any Adabas Review screen and press `ENTER`.
- 2 Provide the `DBID` and `FNR` for the Adabas Review repository you wish to access and press `ENTER`.

You are now able to access reports stored on a different Adabas Review repository. The setting remains until you either change it again or log off Adabas Review.

Accessing Technical System Information

The `TECH` command provides access to information about the Adabas Review system. It invokes the Technical Information function, which displays Adabas Review environmental and maintenance information. This function is useful for determining

- the environment in which Adabas Review is executing; and
- the maintenance (`ZAPs`) applied to the current version of Adabas Review.

You can access the Technical Information function from

- the Main Menu
- the List Report Definitions (`LR`) screen
- the List Started Reports (`LS`) screen

▶ To access technical system information:

- Type `TECH` on the command line of one of the appropriate screens and press `ENTER`.

The `TECH` command Database System Environment screen is the first to appear:

```

+-----+
! 10:07:43          REVIEW Technical Information          2010-06-01  !
!                   DATABASE System Environment          !
!                                                         !
!   Current REVIEW Target..... 15690                   !
!   REVIEW Nucleus version  ..... 4.5.2                 !
!                                                         !
!   Link routine exit version  .... 4.5                 !
!   Link routine exit status  .... Installed correctly   !
!                                                         !
!   Repository status  .... FILE AVAILABLE              !
!   Repository dbid    .... 15650                       !
!   Repository fnr    .... 50                           !
!                                                         !
!   NATURAL nucleus version  .... 4.2                   !
!   REVIEW NATURAL code version ... 4.5.2               !
!                                                         !
!   TP monitor type  .... TSO                            !
!                                                         !
!                                                         !
!                                                         !
! Press PF2 for REVIEW fix list, ENTER to exit         !
+-----+

```

From this screen, you can

- Press PF2 to continue to the Maintenance Information screens.
- Press ENTER to exit the Technical Information function.

The Database System Environment screen displays information about the following environment variables:

Field	Description
Current Review target	Database ID in local mode or the hub ID in hub mode.
Review nucleus version	Version of Adabas Review, either local or for the given Adabas Review hub.
Link routine exit version	Version of the Adabas Review link routine exit for the TP monitor currently being used.
Link routine exit status	Status of the Adabas Review link routine exit for the TP monitor currently being used.
Repository status	Status of the Adabas Review repository identified by the repository DBID.
Repository DBID	Database of the Adabas Review repository. The default corresponds to NTFILE 241 in the Natural NATPARM parameter module. This database cannot be in the hub address space.
Repository FNR	File number of the Adabas Review repository.

Field	Description
Natural nucleus version	Version of Natural currently installed at the user's site.
Review Natural code version	Version of the Natural code of the Adabas Review software.
TP monitor type	Type of TP system currently being used.

▶ **To obtain information about maintenance (ZAPs):**

- Press PF2 from the Database System Environment screen.

The TECH command Review Technical Information screen appears displaying the first set of maintenance (ZAP) information:

- Press PF2 to continue through the maintenance screens.
- Press ENTER to exit the Technical Information function.

Maintenance information screens display, by number, all of the ZAPs that have been applied to the current version of Adabas Review.

The ZAP numbers are displayed in rows, from left to right in the order they were applied. If the maintenance screen displays released/test ZAPs, the test ZAPs are highlighted. Other maintenance screens display optional ZAPs.

The types of maintenance screens available vary with the operating environment in which Adabas Review resides. Any or all of the following maintenance information screens may be displayed:

- ZAPs (released/test, and optional) applied to Adabas Review nucleus for DBID *nnnnn*
- ZAPS (released/test, and optional) applied to Adabas Review link routine exit; and
- INPLs (released/test) applied to the Adabas Review Natural code.



Note: For z/VSE systems, the first and the second screen display all zaps that are applied to the Adabas Review nucleus and the Adabas Review link routine exit.

Ending a Session

An Adabas Review session may be ended in any one of the following ways:

▶ **To end the current function and return to the menu from which the function was called:**

- Press PF3; or enter the EXIT command on the command line and press ENTER .

▶ **To end the function you are using and return to the Adabas Review Main Menu:**

- Press PF12; or enter the MENU command on the command line and press ENTER.

▶ **To end your Adabas Review session from the Adabas Review Main Menu:**

- Press PF3 (Exit); or enter the QUIT command on the command line and press ENTER.

Or:

Press PF12 (Fin); or enter the FIN command on the command line and press ENTER.

▶ **To end your Adabas Review session without returning to the Main Menu:**

- Enter the `FIN` command on the command line and press `ENTER`

Or:

Enter the `QUIT` command on the command line and press `ENTER`.

5 Cost Accounting Example

- Viewing Data Online 42
- Processing Data in Batch Mode 43
- Adabas Review Command Response Time Calculation 44

Adabas Review may be used to collect Adabas user resource consumption data that can be manipulated for cost accounting and charge-back purposes. This data can be processed and viewed online or in batch, or it can be downloaded to a personal computer for further processing.

This chapter describes the Adabas Review Cost Accounting Example.

Viewing Data Online

A sample cost accounting report "Cost Accounting Example" is supplied with Adabas Review. It may be used without modification, customized to suit site requirements, or used as a basis for other cost accounting reports. The report definition for the "Cost Accounting Example" report is shown below:

```

21:15:18          A D A B A S - R E V I E W          2009-06-18
                  Edit Report                        HUB=15690

Detail/Summary: S
Report Name: COST ACCOUNTING EXAMPLE_____ DBID to Monitor: _____

+-----+-----+-----+-----+-----+-----+-----+-----+-----+
! Field      Order  Sum  Min  Max  Avg  Pct  Rate  Round !
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
! CQJOB_____10    -    -    -    -    -    -    -    -    !
! TPUSERID   _20    -    -    -    -    -    -    -    -    !
! IOS_____    X    -    -    -    -    -    -    -    -    !
! COMMANDS   _____ X    -    -    -    -    -    -    -    -    !
! CMDRESP_   _____ X    -    -    -    -    -    -    -    -    !
! ADADURA_  _____ X    -    -    -    -    -    -    -    -    !
! _____  _____ -    -    -    -    -    -    -    -    -    !
! _____  _____ -    -    -    -    -    -    -    -    -    !
! _____  _____ -    -    -    -    -    -    -    -    -    !
! _____  _____ -    -    -    -    -    -    -    -    -    !
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Page 1
Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help Optns Exit          Save Start - +          Rules Flds Menu
    
```

In this report, the generated NATURAL display program was modified to attach a cost value to the amounts of CPU time and Adabas time used, and to the number of Adabas calls and I/Os performed by each user.

By issuing the VW command, the report may be used to examine data that has been stored in the Adabas Review repository.

The following screen shows the type of information collected by the report:

```

21:15:59          COST ACCOUNTING EXAMPLE          2009-06-18
                20:15:31 2009-06-18 Thru 21:15:17 2009-06-18          HUB=15690
                                                Page:    1

```

CQ-Job	TPUserid	Total Num-of-IOs	Total Commands	Total Cmd-Resp	Total ADA-Dur
ALSCCOMP		210	151	1.1202	5.152688
*****	SUB-T==>	210	151	1.1202	5.152688
COMPLETE		6	12	0.0702	0.251056
	USER1	318	652	1.3057	6.523424
	USER2	57	186	0.2409	0.903504
	USER3	1241	2775	5.5287	26.014992
	USER4	97	219	0.3831	2.337776
	USER5	271	831	1.2486	7.082896
	USER6	169	147	0.4203	2.965808
	USER7	117	129	0.4519	2.433072
	USER8	136	386	0.5802	3.022160
	USER9	5573	8030	7.7051	107.307856
	USER10	323	707	1.3217	6.409696

```

Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Sort  Exit                                     Menu

```

Additionally, the displayed resource consumption data may be downloaded to a personal computer using the DL command. To use this feature, the Software AG product Entire Connection must be installed.

For more information, read *Downloading Report Output* in the *Adabas Review User's Guide*.

Processing Data in Batch Mode

Cost accounting values can be defined for batch command log processing by using the COST batch parameter statement.

The member REVCOST, shown below, is a sample report for cost accounting that uses the COST statement. REVCOST is located in the Adabas Review source data set.

```

*
* This sample report allocates a cost value to three summary
* fields based on the JOBNAME and Adabas user's TPUSERID.
* In this example, each I/O is assigned a cost of $0.02,
* each command response second is valued at $0.25 and each second of
* Adabas duration costs $0.10.
*
REPORT TYPE=SUMMARY,
      TITLE='COST ACCOUNTING EXAMPLE',

```

```
PROGRAM=SR-00028,  
RESTART=Y,  
MAXSTORE=8  
DISPLAY JOBNAME,TPUSERID  
SUM      IOS,CMDRESP,ADADURA  
COST     IOS*0.02,CMDRESP*0.25,ADADURA*0.10  
*
```

For additional information about Adabas Review batch processor parameter statements, read *Using Batch Facilities*, in the *Adabas Review User's Guide*.

A sample of the data produced by the batch report is shown on the next section.

Adabas Review Command Response Time Calculation

The Adabas Review command response time calculation is based on the following information.

Adabas Review stores in the command table the minimum Adabas duration for each command type returning a zero response code.

The command table is updated whenever a lower duration value is encountered.

Index

(see Adabas Online System (AOS))

Symbols

+ command, 30, 32
++ command, 32
- command, 30, 32
-- command, 32
? command, 31

A

Adabas
 interregion communication, 5
 multiple nuclei, 1
 user buffer extension, 9
Adabas Cluster Services, 1, 6
Adabas Online System, 2, 22
 accessing, 32
Adabas Online System (AOS)
 AO function, 32
Adabas Parallel Services, 1, 6
Adabas Review
 accessing, 28
 defined, 1
 purpose of, 1
 structure of, 1, 6, 8
 summary of features, 1
 supplied reports, 1
Adabas Review DB
 nucleus and subsystems, 6
Adabas Review reports
 about, 15
ADACLX
 command log extension module, 7
ADALINK, 5
ADALOG
 command logging module, 7
 interface client component, 9
ADAMP, 5
ADAREV
 hub server component, 6
ADARUN parameters
 REVIEW, 9
ADARVU
 interface client component, 7, 9
 transferring data to the hub, 7
ADASVC, 5

AO function
 Adabas Online System (AOS), 32
AOS, 32
autostarted reports, 23

B

batch data processing, 11

C

client/server approach, 1
client/server architecture, 5
 diagram, 8
CMDRESP field, 44
COLOR command, 31
command features
 scrolling, 32
command log processing, 1
command response time
 calculation, 44
commands
 issuing, 30
 overview, 30
 standard, 31
 types used with reports, 16
 used in list functions, 31
 used to access Adabas Review information, 33
 used to access system information, 33
components
 hub server, 6, 8
 interface client, 7, 8
cost accounting
 example, 42
 processing data in batch mode, 43
 viewing data online, 42

D

data types supported, 2
database
 statistics functions, 32
database fields
 user-defined, 2
databases
 multiple, 1

E

ending a session, 38
environment screen, 33
EXIT command, 31, 32, 38

F

FIN command, 31, 38, 39
function codes
 entering a string of, 30
 overview, 30

G

GENAUTO command, 23, 24
GENCARD command, 24

H

HELP command, 30, 31
help system
 accessing, 31
 online, 30, 31
 PF keys, 32
history data, 1
 collecting, 11
hub
 requirements for use, 5
hub concept, 1
hub mode
 collecting data in, 10
 command log processing, 9
hub server
 advantages of, 6
 components, 6, 8
 defined, 6
 location, 5
 transferring data to, 7

I

interface client
 components, 7, 8
 defined, 7
 location, 5
 transferring data to the hub, 7

L

link routine exits, 9
list functions
 for reports, 24
local mode
 collecting data in, 4
 interactive and batch execution modes, 4
logging off, 38
logging on, 28
LOGO command, 31

M

main menu, 29

MENU command, 30, 31, 32, 38
MSG command, 31
multiple databases
 monitoring, 10

O

online data processing, 11

P

PF keys
 general, 30
processing data
 in batch, 11
 online, 11

Q

QUIT command, 31, 38, 39

R

RAOSAUTO, 23
 hub server component, 6
RAOSHIST, 11
 hub server component, 6
reports
 about, 15
 autostarted, 23
 batch mode, 22
 commands used with, 16
 components, 16
 database fields, 17
 display programs, 16, 21, 22
 interactive mode, 22
 list functions, 24
 option parameters, 17, 20
 overview, 16
 processing rules, 17, 19
 report definition components, 17
 report definitions, 16, 17
 starting, 22
 supplied, 17
 user exits, 21
repositories, 4, 9
 accessing, 33
 defined, 12, 32
 multiple, 12, 32
 restricted location in hub mode, 12
REVHUB
 hub server component, 6
REVIEW-BUFFER, 9
REVIEWB
 hub server component, 9
RVUALT
 alternate history data, 11
RVUAUT1, 23
RVUAUT2, 23

S

SAVE command, 22

- scroll commands, 32
- session
 - ending, 38
- SET command, 12, 33
- SETFILE command, 12, 33
- START command, 22
- supplied reports, 17
- SYSREVDDB
 - accessing online, 28
 - description, 11
- system information
 - accessing, 33

T

- TECH command, 33
- technical information
 - accessing, 36
- terminating a session, 38
- Trans-port, 5

U

- user exits
 - control transfer of data to the hub, 7
 - report, 21
- user profile system
 - default user profile, 12
 - maintaining user profiles, 12
 - purpose, 12

V

- VIEW command, 21

Z

- ZAPs
 - list of optional, 38
 - list of those applied, 36

