Natural for z/OS

Natural Review

Version 9.2.5

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ADABAS & NATURAL

This document applies to Natural for z/OS Version 9.2.5 and all subsequent releases.

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

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Preface

Getting Started with Natural Review	Explains how to start and end a Natural Review session and describes the system-wide commands that may be used in Natural Review.
Accessing Natural Monitor	Explains how to access the Natural monitor system.
Using Response Time Reports	Explains how to use response time reports.
Active User Information	Explains how to use active user information.
Technical Information	Explains how to display environmental information and history session information.
Administrative Functions	Explains how to administer Natural Monitor.
Function Codes and Commands	Gives an overview of the function codes and commands available within Natural Monitor.
LDA View Description	Describes the fields of the local data area (LDA) `L-NMHIST`.
Natural Review Repository File	Includes a copy of the repository file.

1 About this Documentation

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Dokumentationskonventionen

Konvention	Beschreibung
Fettschrift	>Kennzeichnet Elemente auf einem Bildschirm.
`Nichtproportionale Schrift`	Kennzeichnet Namen und Orte von Diensten im Format *`Ordner.Unterordner.Dienst`*, Programmierschnittstellen (APIs), Namen von Klassen, Methoden und Properties in Java.
`Kursivschrift`	Kennzeichnet: Variablen, für die Sie situations- oder umgebungsspezifische Werte angeben müssen. Neue Begriffe, wenn sie erstmals im Text auftreten. Verweise auf andere Dokumentationsquellen.
`Nichtproportionale Schrift`	Kennzeichnet: Text, den Sie eingeben müssen. Meldungen, die vom System angezeigt werden. Programmcode.
{ }	Zeigt eine Reihe von Auswahlmöglichkeiten an, von denen Sie eine auswählen müssen. Geben Sie nur die innerhalb der geschweiften Klammern vorhandenen Informationen ein. Geben Sie nicht die Klammersymbole { } ein.
`|`	Trennt zwei sich gegenseitig ausschließende Auswahlmöglichkeiten in einer Syntaxzeile voneinander ab. Geben Sie eine der Auswahlmöglichkeiten ein. Geben Sie nicht das Symbol `|` ein.
[ ]	Zeigt eine oder mehrere Optionen an. Geben Sie nur die innerhalb der eckigen Klammern vorhandenen Informationen ein. Geben Sie nicht die Klammersymbole [ ] ein.
...	Zeigt an, dass Sie mehrere Auswahlmöglichkeiten desselben Typs eingeben können. Geben Sie nur die Informationen ein. Geben Sie nicht die drei Auslassungspunkte (...) ein.

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2 Getting Started with Natural Review

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Natural Review (REVIEW NM) is a monitoring facility that provides response time and user activity information about Natural applications running under the TP monitor CICS. The product includes a User Profile System which is an administrative facility used for defining access privileges to Review.

The Natural Review documentation contains all information required to install and use Natural Review.

This section describes the procedures for logging on to Natural Review, using the online help system, using function codes, PF keys and commands, and ending your Natural Review session.

This section covers the following topics:

Notation *vrs* **or** *vr*

When used in this documentation, the notation *vrs* or *vr* represents the relevant product version (see also *Version* in the *Glossary*).

Related Documentation:

Installing Natural Review in the *Installation for z/OS* documentation

Natural Review Logon Procedure

Natural Review is a standard Natural application that resides in the Natural library SYSRNM.

To access Natural Review

1 Access Natural as you do normally.

2 At the NEXT prompt, enter LOGON SYSRNM and then MENU,

or enter SYSRNM at the NEXT prompt.

When you have successfully logged on to Natural Review, either the Natural Review logo screen or the **Main Menu** screen (see below) is displayed.

Note that the SYSRNM utility now runs in utility mode. This means, a LOGON to the library SYSRNM will no longer be performed to start the utility. See the section *Utility Activation* in the Natural *Utilities* documentation.

Natural Review Main Menu

If you press ENTER from the Natural Review logo screen, the Natural Review **Main Menu**, similar to the one shown below, is displayed.

```
10:11:35              ***** REVIEW NM UTILITY *****                  2006-03-02
                              - Main Menu -



                    Code  Function

                     NM   Natural Monitor System
                     UP   User Profile System









  REV00001 - Welcome to Review NM running under CICS
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit                                                   Fin
```

The **Main Menu** displays the Natural Review systems available at your site.

Your Natural Review user profile may be configured to bypass the Natural Review **Main Menu** and display one of the system menus instead.

The **Main Menu** provides access to the two systems of Natural Review. On the command line, type the code that corresponds to the system you wish to use, and press ENTER.

Depending on how Natural Review is configured at your site, you may use any or all of the following systems:

Code	System	Description
NM	Natural Monitor	Used to obtain response time and user information about Natural applications running under CICS.
UP	User Profile	Used to create user profiles that define access privileges to Natural Review.

Using the Online Help System

Online help is available for Natural Review systems and functions at any time during the Natural 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 for options available in lists

- Enter a question mark (?) on the data entry field (Sel column). If specific help is not available, the general help for the screen is displayed.

To access help about another context than the current

- Enter question mark (?) or HELP followed by the function code or command on the command line (NM system only).

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

PF Key	Command	Description
PF3	Exit	Exit from the display.
PF7	-	Scroll one page backwards.
PF8	+	Scroll one page forward.
PF9	- -	Scroll to the top of the text.
PF10	++	Scroll to the bottom of the text.

Natural Review Function Codes

Natural Review systems are menu-driven. A series of function codes and commands are used to navigate through the systems.

Function codes are used to access both the Natural Review systems and the functions within each system. Functions within systems may contain several “layers” of screens.

Entering a single function code 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 display the **Summary of Active Users** screen by entering the following string on the command line of the Natural Review **Main Menu**:

```
NM SA
```

The `NM` code accesses the Natural Monitor system, and the `SA` code accesses the **Summary of Active Users** screen.

Similarly, you can list the reports that have been started on the Natural Monitor system by entering the following on the command line of the Natural Review **Main Menu**:

```
NM RT LS
```

The `NM` code accesses the Natural Monitor system, the `RT` code accesses the **Response Time Subsystem**, and the `LS` code accesses the **Started Reports** screen.

Natural Review Commands

Commands are used to perform specific tasks within a function.

To issue a Natural Review command

- Type the command on the command line and press ENTER;

  or press the PF key corresponding to the command, if applicable.

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

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

Command	PF Key	Description
`COLOR OFF`		Return to a noncolor display.
`COLOR ON`		Display color attributes, if applicable.
`EXIT`	PF3	Terminate the function and return to the menu screen that precedes it.
`FIN` or `QUIT`	PF12	Terminate the Natural Review session. Assigned to PF12 on the Natural Review Main Menu. On all other screens PF12 returns you to the Natural Review Main Menu.
`HELP` or ?	PF1	Display the help screens for a particular screen or field. The question mark (?) is used to display help for a specific field. A keyword may be entered after `HELP`.

Command	PF Key	Description
LFILE		Display the used system files and allow to change the Natural Review repository files.
LOGO		Display the logo screen.
LOGON *library*		Log on to the specified Natural library.
MENU	PF12	Terminate the function, and return to the Natural Review Main Menu, except when you are already on the Natural Review **Main Menu**. There PF12 terminates the Natural Review session.
MSG		Display detailed explanations of Natural Review messages. May be issued with or without a message number. If no message number is included, Natural Review displays the explanation for the last message received.
REVPROD		Display the version number of the Natural Review subsystems being used in the current session of Natural Review.

The following PF keys are available on most Natural Monitor screens:

PF Key	Command	Description
PF1	Help	Access the help system.
PF3	Exit	Exit from the display.
PF12	Menu	Return to the Natural Review **Main Menu**.

Other Natural Review commands and PF keys are local to a particular system or function. 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.

Examples of list functions include the **List Started Reports** (LS) functions in the Natural Monitor system, and the **List User Profiles** (LU) function in the **User Profile System**.

Ending a Natural Review Session

There are several ways to end a Natural Review session. Any one of the following may be used:

To end the function you are using 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 Natural Review Main Menu

- Press PF12;

  or enter the `MENU` command on the command line and press ENTER.

To end your Natural Review session while on the Natural Review Main Menu

- Press PF3 (`Exit`);

  or press PF12 (`Fin`).

To end your Natural Review session from the command line of any Natural Review function

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

  or enter the `QUIT` command on the command line and press ENTER.

3 Accessing Natural Monitor

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Natural Monitor (NM) provides response time reporting and user activity analysis for Natural applications running under the Customer Information Control System (CICS).

Within Natural Monitor, most statistics are gathered for a transaction, which occurs each time ENTER or a PF key is pressed.

The major features of Natural Monitor include the following:

- **Response Time Reporting Subsystem**

  Provides transaction reports and response time graphs for a user-specified time interval.

  If specified, the user may also generate the following displays for a specific report:

  - **Detailed Records Display**

    Provides response time information about a user's transactions that exceed a user-defined response time threshold.

  - **Transaction Summary**

    Provides information about transaction usage and performance. Transaction summary information is available for Natural at the application level.

  - **Historical Snapshots**

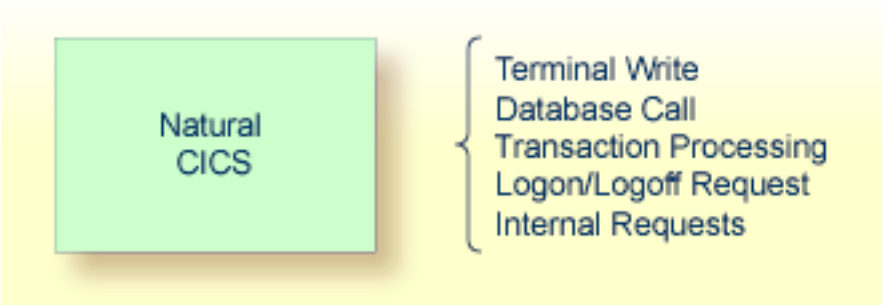
    Provides pictures of data at previous times. These pictures, similar to the display of current data, are generated for specific time intervals. Anyone who defines reports can collect history data.

- **Summary of Active Users**

  Shows the usage of system resources by users who are currently logged on and active in Natural.

- **Technical Information**

  Displays environmental information including history session information.



The figure above shows significant monitoring points between Natural and Natural Monitor. The Natural Monitor user interface allows the user to display data from these various monitoring points to evaluate performance and fine tune the system.

This section covers the following topics:

Natural Monitor System Menu

To access the Natural Monitor System menu

- Type NM on the command line in the Natural Review **Main Menu** and press ENTER.

The menu appears as shown below:

```
10:12:22                 ***** REVIEW NM UTILITY *****              2006-03-02
                                  - NM Main Menu -



                       Code  Function

                        RT   Response Time Subsystem
                        SA   Summary of Active Users
                        TE   Technical Information









  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit                                                   Canc
```

The functions shown on the menu are described in the following table:

Code	Function	Description
RT	Response Time Subsystem	Provides information about response times experienced by Natural end users and about heavily used Natural transactions. Reports may also be displayed indicating which Natural transactions are being most heavily used.
SA	Summary of Active Users	Displays information about the system activity of Natural users who have logged on since the last initialization of CICS.

Code	Function	Description
TE	Technical Information	Displays environmental information including history session information and control.

Primary Functions and Subsystems

The Natural Monitor System menu includes three primary functions and one subsystem:

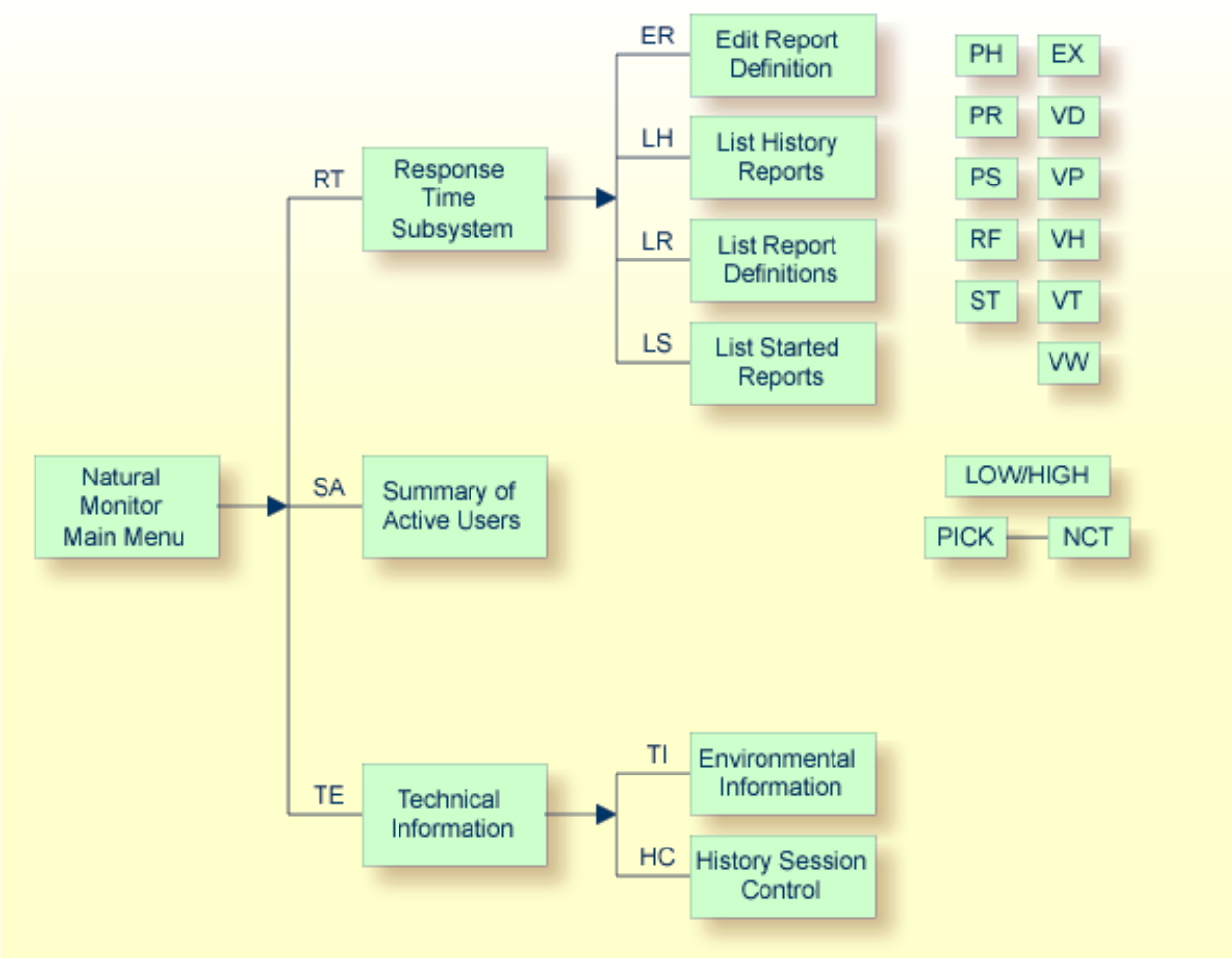
- A primary function consists of one or more screen displays.
- A subsystem consists of several subfunctions.

The subsystem is labeled as such. The other items on the menu are primary functions.

The subsystem and the primary functions are reflected in the menu structure of Natural Monitor. The following is a diagram of the Natural Monitor system and the function codes used to access each function.

Note: See *Function Codes and Commands* for a discussion of all function codes, PF keys, and commands used within Natural Monitor.

Natural Monitor System Diagram



Data Storage Locations

Natural Monitor uses the Natural system file (`FNAT`) and the Natural Monitor repository for storing data:

- The Natural system file (`FNAT`) is used for storing the user profiles.
- The Natural Monitor repository is an Adabas file used for storing response time report definitions and historical data.

Accessing Historical Data

Historical data are available for viewing as historical snapshots of previously collected data. Natural Monitor captures historical data only for the Natural Monitor Response Time subsystem. The method used to access historical data is described in section ***Using Response Time Reports***.

4 Using Response Time Reports

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Natural Monitor (NM) provides response time reports. This section discusses the types and components of these reports and how they are created, modified, and used.

This section covers the following topics:

What is a Response Time Report?

The Response Time Subsystem enables you to retrieve information about the response times experienced by end users of Natural under the Customer Information Control System (CICS).

Response time is the amount of time, in seconds, required to process a user's transaction. A *transaction* is registered each time the ENTER key or a PF key is pressed.

Response time information is collected by the Natural Monitor processor according to instructions in a *response time report definition* which consists of the following:

- A set of parameters specifying the data to be captured.
- A set of report and historical data parameter options for specifying conditions of report processing.
- A set of processing rules identifying the conditions under which that data is to be captured.

Database Elapsed Time is the time, in seconds, Natural requires to process a database call.

Database Command Time is the time, in seconds, Adabas requires to process a database call. This information is returned by the database and indicated in the **Cmd Time** command time field of the Adabas control block (ACB). The **Cmd Time** field returns the elapsed time the Adabas nucleus spent to process the command. The elapsed time does not include the time the thread spent waiting for Adabas I/O operations or other resource actions. The time (called Adabas thread time) is expressed in a binary format with 16-microsecond units.

The **Edit Report** (ER) function provides a fill-in-the-blank screen to help you create or modify a response time report definition. Once you have entered all parameter values and processing rules on the **Edit Report Definition** screen, you can issue the SAVE command to write the report definition to the Natural Review repository file.

Data accumulation for a particular report begins when you *start* the report. Report results are automatically saved until the report is *refreshed* (restarted) or *purged*.

A report may be viewed online. Report results are displayed as tables and graphs.

Two response time report definitions are supplied with Natural Monitor. These reports may be used without change, or they may be customized to meet the requirements of your particular site. You may also create your own reports.

- What are Report Processing Rules?

- How are Reports Displayed?
- What Reports are Supplied with Natural Monitor?
- How are Reports Listed?
- How are Reports Named?

What are Report Processing Rules?

Report processing rules allow you to restrict the data that a report collects. Four fields are used to specify processing rules:

- TP User ID
- Transaction program name
- Natural application
- Natural program

Each field may contain one of the following processing rules:

- A blank (collect all data)
- A single value
- A wild card

For example, the user ID `SAGAA` is a single value, and `SB*` is a wild card created by placing an asterisk after at least one other character. This wild card will result in all user IDs beginning with the characters `SB` being selected for processing.

Alphanumeric or numeric characters may be entered, but a hexadecimal value is *not* permitted.

If data is entered in more than one field, Natural Monitor uses AND logic for data collection.

How are Reports Displayed?

The following displays are available for each report:

- Detailed Records providing information sorted by user
- Transaction Summary providing information sorted by transaction
- Vertical Graph
- Horizontal Graph

- Detailed Records Display
- Transaction Summary Display

- Graphic Display

Detailed Records Display

The **Detailed Records** display provides detailed response time statistics for transactions *related to specific user IDs*. The Detail Record parameters in the report definition determine when, how many, and what kind of detail records are to be generated. Detailed records can be viewed online using the **Detailed Records** display.

Transaction Summary Display

The **Transaction Summary** display provides both detailed and summary response time statistics. The detailed statistics are specified for a particular transaction name and Natural application (library); the summary statistics are specified for a particular transaction name, regardless of the Natural application.

Transaction Summary reports are produced when the Transaction Summary parameter is set in the report definition; the report results are available online using the **Transaction Summary** display.

Graphic Display

Reports may be viewed as tables or graphs. Both vertical and horizontal graphic displays are available. The interval, in seconds, for which graphs are generated is set using the Graph parameter in the report definition.

What Reports are Supplied with Natural Monitor?

Natural Monitor supplies two reports which can be used without modification or can be customized to meet the requirements defined for your site:

- The `HIGHEST RESPONSE` report lists the transactions that have the highest response times, up to the maximum number of records allowed for the report (default = 50). This report allows the user to identify the transactions with the slowest response time of all monitored transactions.
- The `SYSTEM RESPONSE TIME` report lists the most recent transactions that exceed the response time threshold set for this report (default = 3.5 seconds).

The supplied reports can be viewed online in table or graphic form.

How are Reports Listed?

Three types of lists are used to manage reports:

- *Report definition lists* of report and started reports.
- *Started report lists* of all reports that have been started and may be accumulating data.
- *History report lists* of all reports containing historical data.

How are Reports Named?

A report name may be up to 32 alphanumeric characters in length. It may contain blanks and any special characters *except* the following:

(')	Apostrophe or single quote
(¢)	Cent sign
(:)	Colon
(,)	Comma
($)	Dollar sign
(=)	Equal sign
(%)	Percent sign
(.)	Period
(/)	Slash

Accessing the Response Time Subsystem

You can access the Natural Monitor **Response Time** subsystem in two ways.

To access the Response Time subsystem

1. From any screen *outside* the Natural Monitor System, type the code `NM RT` on the command line and press ENTER; or
2. From any screen *within* the Natural Monitor System, type `RT` on the command line and press ENTER.

The **Response Time Subsystem** menu appears as shown below:

```
10:13:23                ***** REVIEW NM UTILITY *****                2006-03-02
                         - Response Time Subsystem -



                           Code Description

                            ER  Edit Report Definition
                            LH  List History Reports
                            LR  List Report Definitions
                            LS  List Started Reports





Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit                                                   Canc
```

The functions available from this menu are described in the following table:

Code	Function	Description
ER	Edit Report Definitions	Allows you to specify the parameters used to collect information for a response time report.
LH	List History Reports	Lists the historical snapshots which contain previously accumulated data.
LR	List Report Definitions	Lists the report definitions and started reports currently available. A report definition is created or modified with the ER function.
LS	List Started Reports	Lists the reports that are currently accumulating data.

To display a list of available commands

- From a list screen, enter a question mark (?) in the selection column preceding a particular report name and press ENTER.

A window appears containing a list of available commands.

To invoke a command from the list

- Enter the desired function code in the data entry field and pressing ENTER.

See *Function Codes and Commands* for a description of all function codes, PF keys, and commands available within Natural Monitor.

- Accessing the Edit Report Definition Screen

- Modifying Report Parameters
- Adding, Modifying, or Deleting Processing Rules
- Saving a Report Definition

Accessing the Edit Report Definition Screen

There are three ways to access the **Edit Report Definition** screen.

To access the Edit Report Definition screen

1 Type `ER` on the command line and press ENTER; or

2 Type the following string on the command line and press ENTER:

```
ER reportname
```

where *`reportname`* is either the name of an existing report definition or the name for a new report definition; or

3 Type `ER` in the `Sel` column preceding the name of a report on the list of report definitions and press ENTER.

See ***How are Reports Named*** for information about naming reports.

In all three cases, the **Edit Report Definition** screen appears as shown below:

```
10:14:22                 ***** REVIEW NM UTILITY *****              2006-03-02
                          - Edit Report Definition -

                  Report Name .. SAMPLE REPORT____________________

  Graph Parameter                                Report Options
    Response Time Interval ... 0.5_                Auto Start (Y/N) .......... N
                                                   History Interval (min) .... 5__
                                                   History Refresh (Y/N) ..... Y
  Detail Record Parameters
    Response Time Threshold .. 3.5_
    Number of Records ........ 20__
    Wrapping Options ......... NONE
               (None/Std/High)                   Processing Rules
                                                   Field Value
                                                   TP Userid ............ ________
  Transaction Summary Parameter                    Transaction Id ....... ________
    Summary Option ........... NONE                NATURAL Application .. ________
                (None/Sum/Det)                     NATURAL Program ...... ________

REV00125 - Report definition has been saved
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit        Save  Start                              Canc
```

If the report name is blank, or if the report name you have entered is new to Natural Monitor, the following message is displayed on the **Edit Report Definition** screen:

```
REV00275 - NEW REPORT DEFINITION
```

If this message does not appear, Natural Monitor has recognized the report name you entered as an existing report. Any changes you make on the **Edit Report Definition** screen will modify the existing report.

You may change the report name from the **Edit Report Definition** screen by overtyping the name in the `Report Name` field with a new name and pressing ENTER.

The following PF keys are provided to help process report definitions:

PF Key	Command	Description
PF5	`Save`	Save the current report definition.
PF6	`ST`	Save the report defined on the screen and start it.

Modifying Report Parameters

When you access the **Edit Report Definition** screen, parameter values are already entered for the report:

- If you accessed an *existing* report definition, the parameter values reflect the current definition for that report.
- If you are creating a *new* report definition, the values represent the default values set in `P-NMCONF` by your Natural Monitor system administrator.

You may change the parameter values on the **Edit Report Definition** screen, and you may add, modify, or delete processing rules for the report definition.

The parameters shown on the **Edit Report Definition** screen are described in the following sections.

- Graph Parameter
- Detail Records Parameters
- Transaction Summary Parameter
- Report Options
- Controlling Color and Monochrome Attributes

Graph Parameter

The following field contains one of the parameters used to graph reports:

Parameter	Description
`Response Time Interval`	Specifies the reporting interval, in seconds, used to graph a report horizontally and vertically. Valid values are `0.1` to `99.9`.

Detail Records Parameters

The following fields contain values which specify when and if detailed records are to be generated for a report:

Parameter	Description
`Response Time Threshold`	Specifies the transaction response time value, in seconds, above which Natural Monitor creates detailed records for the Detailed Records table. This value is also used to control the color and noncolor attributes of the vertical and horizontal graphs. Response times that exceed the response time threshold are the highest response times experienced. Valid values are `0` to `99.9`.
`Number of Records`	Indicates the *maximum* number of detailed response time records to be retained. Valid values are `0` to `9999`.
`Wrapping Options`	Specifies the wrap option and has the following possible values:

Parameter	Description	
	NONE	Detailed response time records are retained to the limit specified by the Number of Records value.
	STD	(standard) The most current response time records are retained once the Number of Records value is reached.
	HIGH	The response time records with the highest value are retained once the Number of Records value is reached.

Transaction Summary Parameter

The following field is used to set the summary option:

Parameter	Description	
Summary Option	Specifies whether a **Transaction Summary** table is to be generated and, if so, what kind. Valid values are:	
	NONE	None created.
	SUM	A transaction summary is created for the root transaction program; for example N*vrs* for Natural; where *vrs* represents the relevant product version.
	DET	A detailed transaction summary is created that includes Natural application information.

Report Options

The following fields control whether a report is to be autostarted, the interval at which historical data is to be written to the Natural Review repository file, and whether the report data collection is to be refreshed after this data has been written:

Parameter	Description
Autostart	Indicates whether this report is to be started automatically when Natural Monitor initializes. Valid values are Y (yes) or N (no).
History Interval	Specifies the interval, in minutes, at which the Natural Monitor history task writes historical data to the Natural Review repository file. Valid values are 0 to 999. If this value is left at 0, *no* history report data will be saved.
History Refresh	Indicates whether the response time report should be refreshed (restarted) when the history interval has expired if it is a history response time report. Valid values are Y (yes) or N (no).

Note: The Report Options are processed by the Natural Monitor History subsystem. This subsystem must be installed for these options to take effect.

Controlling Color and Monochrome Attributes

The `Response Time Interval` and `Response Time Threshold` parameters are used to control the color and monochrome attributes of response time graphs that display totals. Response times which exceed the `Response Time Threshold` are shown on color graphs in red and on monochrome graphs as asterisks (*).

Adding, Modifying, or Deleting Processing Rules

Also shown on the **Edit Report Definition** screen are several fields which control processing rules within Natural Monitor.

Processing rules are used to restrict the accumulation of response time data to specific TP users, programs, Natural applications, or Natural programs, or to a specific set of these values.

When entering data, alphanumeric and numeric values are permitted; hexadecimal values are *not* permitted.

Each field may contain one of the following processing rules:

Field Input	Processing Rule
Blank	If a field remains blank, all data pertaining to that field is generated.
Single value	If a single value is entered in a field, data accumulation is restricted to the value entered.
Wild card	If a wild card is entered in a field, data accumulation is restricted by the value entered in that field. Example: `P*` generates data related to all and only those Natural programs that have names beginning with the value `P`.

Saving a Report Definition

When you have made all necessary changes on the **Edit Report Definition** screen, you can save the report definition two ways.

To save the report definition

1 Press PF5 (`Save`); or

2 Enter `SAVE` on the command line and press ENTER.

A new report definition does not become active until you *start* it. If you change parameters for an existing report, the new parameter settings do not become active until the report is *refreshed*.

Starting or Restarting (Refreshing) a Report

A report does not begin accumulating data until it is started. Once a report is started, tables and graphs of response time data are generated based on the parameters in the report definition.

New reports are *started*; started reports that have been modified and saved are *refreshed*. A report can be refreshed as often as necessary.

The following commands may be used to start or refresh a report:

`ST` *`reportname`*	to `START` a new report;
`RF` *`reportname`*	to `REFRESH` a modified, started report.

If you attempt to start a report that has already been started, the following message appears:

```
The report listed below is already started. Do you want to REFRESH it?
```

Type `Y` at the cursor and press ENTER to `REFRESH` the report; type `N` and press ENTER to retain the started report without any of its current modifications.

- Starting a Report
- Refreshing a Report

Starting a Report

A report is started by issuing a start (`ST`) command. The `ST` command is issued for an existing report definition that you select. How you start a report depends on your location.

To start a report

1 From any screen within Natural Monitor, type the following string on the command line and press ENTER:

```
RT ST reportname ↵
```

2 From any screen within the **Response Time** subsystem, type the following string on the command line and press ENTER:

```
ST reportname ↵
```

3 From the list of report definitions, type `ST` on the selection line preceding the name of the report to be started and press ENTER.

Note: On the list of report definitions, a started report is identified by a greater than symbol (>) preceding the report name.

After you have saved a report definition, you may start a report directly from the **Edit Report Definition** screen.

To start a report directly

1 Press PF6 (`Start`); or

2 Type `ST` on the command line and press ENTER.

Once a report is started, the following message appears:

```
REV00092 - REPORT HAS BEEN STARTED
```

Natural Monitor then begins to accumulate data based on the parameters in the report definition that you chose.

Other than the `ST` command, the `START` command starts the Natural Monitor history session.

Refreshing a Report

To restart a report

- Enter the `REFRESH` (`RF`) command.

The `REFRESH` command is issued for the started report you select. When you refresh a report, all tables and graphs for the report are deleted, and new data is generated based on the current parameters in the report definition. There are three ways to perform a refresh.

To refresh a report

1 From any screen within Natural Monitor, type the following string on the command line and press ENTER:

```
RT RF reportname
```

2 From any screen within the Response Time subsystem, type the following string on the command line and press ENTER:

```
RF reportname
```

3 From the list of started reports or the list of report definitions, type `RF` on the selection line preceding the name of the report to be refreshed and press ENTER.

On the list of report definitions, a started report is identified by a greater than symbol (>) preceding the report name. If you issue the `RF` command for a report that is *not* started, Natural Monitor automatically starts the report.

Once a report is refreshed, Natural Monitor begins to accumulate new data based on the parameters in the report definition that you chose.

Listing Reports

Three different lists of report names are available from the **Response Time Subsystem** menu:

- Report definitions
- Started reports
- History reports

In addition, a list of historical snapshots is available for any report listed on the **History Reports** screen.

The following screen-positioning PF keys and commands are available from the report lists:

PF Key	Command	Description
PF7	-	Scroll backward one screen (on list of report definitions only).
PF8	+	Scroll forward one screen.
	`TOP`	Go to the top of the display.

Note: There is no PF key available for the `TOP` command.

- Listing Report Definitions
- Listing Started Reports
- Listing Historical Reports

- Listing Historical Snapshots

Listing Report Definitions

The **List Report Definitions** function (`LR`) lists the names of the response time report definitions. There are two ways to access the screen.

To access the List Report Definitions screen

1. From any screen within Natural Review, type `RT LR` on the command line and press ENTER.
2. From any screen within the **Response Time** subsystem, type `LR` on the command line and press ENTER.

The **List Report Definitions** screen appears as shown in the example below:

```
10:15:57                 ***** REVIEW NM UTILITY *****               2006-03-02
                            - List Report Definitions -

    Sel  Report Name                    Auto Int  HInt Rf Thresh Recs Wap Tran
    __ > HIGHEST RESPONSE                 Y   0.5   60  Y   3.5    50 HIGH NONE
    __ > SAMPLE REPORT                    N   0.5    5  Y   3.5    20 NONE NONE
    __   SPECIAL REPORT                   N   0.5    2  Y   3.5    20 NONE NONE
    __ > SYSTEM RESPONSE TIME             Y   0.5   60  Y   3.5    50 STD  SUM









  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit                     -     +                      Menu
```

Started reports are indicated by a greater than symbol (>) preceding the name of the report. The `Sel` column provides a command input field for each report name.

Reports are listed in alphabetical order by name. The remaining columns on the screen indicate the values of the report definition parameters for this report. The fields shown on this screen correspond to the parameters on the **Edit Report Definition** screen as follows:

Field	Description	
Auto	Autostart option. Valid values are:	
	Y	Response time report is autostarted.
	N	Response time report is not autostarted.
Int.	Response time interval. Valid values are 0.1 to 99.9 seconds.	
HInt	History interval (in minutes) where 0 indicates that the report is *not* a history report.	
Rf	History refresh indicator. Valid values are:	
	Y	Response time report is to be refreshed after historical data is written if the report is a history report.
	N	Response time report is not to be refreshed.
Thresh	Response time threshold (in seconds).	
Recs	Number of detailed records (maximum) to be retained.	
Wrap	Wrapping option retention indicator. Valid values are:	
	NONE	The report stops at the number of records defined.
	STD	The most current records are kept if the number of records exceeds the number of records defined.
	HIGH	The records with the highest response times are retained if the number of records exceeds the number of records defined.
Tran	Transaction summary option indicator. Valid values are:	
	NONE	No Transaction Summary report is created.
	SUM	A Transaction Summary report is created for the root program.
	DET	A Transaction Summary report is created that includes Natural application information.

See *Modifying Report Parameters* for a description of these parameters.

For any report listed on the **List Report Definitions** screen, type in one of the following commands in the Sel column and press ENTER to perform the associated task:

Command	Task
CL	Close started report.
ER	Edit the report definition.
EX	Display a list of historical snapshots for the report.
PH	Purge history reports.
PR	Purge the report definition.
PS	Purge the started report.
RF	Refresh (restart) the started report.
ST	Start a report.
VD	Display detailed records for the report.

Command	Task
VH	Display a horizontal graph for the report.
VT	Display a transaction summary for the report.
VW	Display a vertical graph for the report.

To view details of a historical report

- Type EX on the selection line preceding the report listed.

An expanded list of historical snapshots (that is, pictures of data stored at previous times for the report) is displayed.

Listing Started Reports

The **List Started Reports** function lists the name of response time reports that have been started and are currently accumulating data. There are two ways to access the screen:

To access the List Started Reports screen

1. From any screen within Natural Monitor, type RT LS on the command line and press ENTER.
2. From any screen within the **Response Time** subsystem, type LS on the command line and press ENTER.

The **List Started Reports** screen appears as shown in the example below:

```
10:15:57                 ***** REVIEW NM UTILITY *****                2006-03-02
                             - List Started Reports -

    Sel  Report Name                    Auto Int. HInt Rf Thresh Recs Wrap Tran
    __   HIGHEST RESPONSE                 Y   0.5   60  Y   3.5     0 HIGH NONE
    __   SAMPLE REPORT                    N   0.5    5  Y   3.5     0 NONE NONE
    __   SYSTEM RESPONSE TIME             Y   0.5   60  Y   3.5     0 STD  SUM









  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit                          +                       Menu
```

The `Sel` column provides a command input field for each report name.

Reports are listed in alphabetical order by name. The remaining columns on the screen indicate the values of the report definition parameters for this report. The fields displayed on this screen correspond to the parameters on the **Edit Report Definition** screen as follows:

Field	Description	
`Auto`	Autostart option. Valid values are:	
	`Y`	Response time report is autostarted.
	`N`	Response time report is not autostarted.
`Int.`	Response time interval. Valid values are `0.1` to `99.9` seconds.	
`HInt`	History interval (in minutes) where `0` indicates that the report is *not* a history report.	
`Rf`	History refresh indicator. Valid values are:	
	`Y`	Response time report is to be refreshed after historical data is written if the report is a history report.
	`N`	Response time report is not to be refreshed.
`Thresh`	Response time threshold (in seconds).	
`Recs`	Number of detailed records (maximum) to be retained.	
`Wrap`	Wrapping option retention indicator. Valid values are:	
	`NONE`	The report stops at the number of records defined.
	`STD`	The most current records are kept if the number of records exceeds the number of records defined.
	`HIGH`	The records with the highest response times are retained if the number of records exceeds the number of records defined.
`Tran`	Transaction summary option indicator. Valid values are:	
	`NONE`	No Transaction Summary report is created.
	`SUM`	A Transaction Summary report is created for the root program.
	`DET`	A Transaction Summary report is created that includes Natural application information.

See *Modifying Report Parameters* for a description of these parameters.

For any report listed on the **List Started Reports** screen, type in one of the following commands in the `Sel` column and press ENTER to perform the associated task:

Command	Task
CL	Close started report.
ER	Edit the report definition.
EX	Display a list of historical snapshots for the report.
PH	Purge history reports.
PR	Purge the report definition.
PS	Purge the started report.
RF	Refresh (restart) the started report.
ST	Start a report.
VD	Display detailed records for the report.
VH	Display a horizontal graph for the report.
VT	Display a transaction summary for the report.
VW	Display a vertical graph for the report.

If you issue the ST command from the **List Started Reports** screen, Natural Monitor asks whether you want to refresh (restart) the report.

To view details of a historical report

- Type EX on the selection line preceding the report listed.

An expanded list of historical snapshots (that is, pictures of data stored at previous times for the report) is displayed.

Listing Historical Reports

The **List History Reports** function provides a summary list of historical response time reports. There are two ways to access the screen.

To access the List History Reports screen

1. From any screen within Natural Monitor, type RT LH on the command line and press ENTER.
2. From any screen within the **Response Time** subsystem, type LH on the command line and press ENTER.

The **List History Reports** screen appears as shown below:

```
10:16:30                 ***** REVIEW NM UTILITY *****                2006-03-02
                             - List History Reports -

   Sel Report Name                      Number  Records        Date Range
    __ HIGHEST RESPONSE                      1        3  1998/11/05 - 1998/11/05
    __ SPECIAL REPORT                      117      302  1998/11/05 - 1998/11/05
    __ SYSTEM RESPONSE TIME                 30      255  1998/11/05 - 1998/11/03









  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit                          +                      Menu
```

The `Sel` column provides a command input field for each report name. Reports are listed in alphabetical order by name.

The remaining fields shown on this report are as follows:

Field	Description
`Number`	Total number of historical snapshots available for each report.
`Records`	Total number of records saved for all historical snapshots.
`Date Range`	Range of dates for which historical snapshots are available. Format of date is *YYYY/MM/DD*.

To view details pertaining to any of these reports

- Type `EX` on the selection line preceding the report listed.

An expanded list of historical snapshots (i.e., pictures of data stored at previous times for the report) is displayed.

Note: When entered on the command line, the `EX` command accesses the **List History Reports** screen as shown above.

To purge all historical reports of a report destination

- Type `PH` on the selection line preceding the history report listed.

Listing Historical Snapshots

There are three ways to access the **Expanded List** of historical snapshots for a response time report listed on the List History Reports screen.

To access the Expanded List of historical snapshots

1. From any screen within Natural Monitor, type the following string on the command line and press ENTER:

   ```
   RT EX reportname
   ```

2. From any non-list display within the **Response Time** subsystem, type `EX reportname` on the command line and press ENTER.
3. From the **List History Reports** screen, type `EX` in the `Sel` column next to a report name and press ENTER.

An **Expanded List** for the history report selected appears as shown in the example below:

```
10:17:10                 ***** REVIEW NM UTILITY *****              2000/08/08
                       - Expanded List for SPECIAL REPORT -

    Date/Time Recs      Date/Time Recs      Date/Time Recs      Date/Time Recs
     2000/08/08       __ 10:47:00    2    __ 14:28:00   11    __ 14:07:00    8
  __  -Current-          2000/08/08       __ 14:27:00   14    __ 14:03:00   13
  __ 10:16:00   15    __ 14:43:00    3    __ 14:26:00   25    __ 14:02:00   18
     2000/08/01       __ 14:41:00   12    __ 14:25:00   16    __ 14:01:00   16
  __ 15:00:00    9    __ 14:40:00   16    __ 14:24:00    6    __ 14:00:00   15
  __ 14:59:00    5    __ 14:39:00   11    __ 14:23:00   15    __ 13:59:00    4
  __ 14:58:00   18    __ 14:38:00   13    __ 14:22:00   13    __ 13:58:00   12
  __ 11:03:00    6    __ 14:37:00   15    __ 14:21:00    2    __ 13:57:00   17
  __ 10:57:00    5    __ 14:36:00   12    __ 14:20:00   12    __ 13:55:00    5
  __ 10:55:00    8    __ 14:35:00   13    __ 14:19:00    8    __ 13:54:00    6
  __ 10:54:00    2    __ 14:34:00    9    __ 14:18:00    5    __ 13:53:00   16
  __ 10:53:00   14    __ 14:33:00   14    __ 14:17:00   10    __ 13:52:00    7
  __ 10:51:00    9    __ 14:32:00    7    __ 14:16:00    2    __ 13:51:00    8
  __ 10:50:00   13    __ 14:31:00    3    __ 14:11:00    2    __ 13:50:00    4
  __ 10:49:00    7    __ 14:30:00   21    __ 14:10:00   10    __ 13:48:00    9
  __ 10:48:00    9    __ 14:29:00   16    __ 14:08:00   20    __ 13:47:00   11
  REV00055 - Select a historical snapshot
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit              --           +                      Menu
```

The `Sel` column provides a command input field for each historical snapshot listed. Each historical snapshot is identified on this expanded list by date and time. Current data is marked as `-Current-` on the list.

The `Recs` column indicates the number of records written. Possible values are:

`0` No transaction, no detail records.
`1` Transactions, no detail records.
`>1` Transactions and detail records.

Note: When there are no transactions, detail records do not exist. When `Logging of empty records` is set to `NO`, reports without transaction will not be written by the history session.

The following message appears on the screen:

```
REV00055 - SELECT A HISTORICAL SNAPSHOT
```

For any snapshot listed on the **Expanded List** screen, type in one of the following commands in the `Sel` column and press ENTER to perform the associated task:

Command	Task
`PH`	Purge this historical snapshot.
`PX`	Purge marked range - start.
`PY`	Purge marked range - end.
`VD`	Display a detailed records table for the snapshot.
`VH`	Display a horizontal graph for the snapshot.
`VW`	Display a vertical graph for the snapshot.

Note: The `VT` command is *not* available when viewing historical snapshots.

Once you have accessed either the **Expanded List** or the actual historical display, you may toggle back and forth between the displays by pressing PF2.

- Viewing Earlier or Later Historical Snapshots

Viewing Earlier or Later Historical Snapshots

Using the `PREV` or `NEXT` command, you may access earlier or later historical snapshots.

To access earlier historical snapshots

- Type the command `PREV` on the command line of any historical snapshot screen and press ENTER.

To view later historical snapshots

- Type the command `NEXT` on the command line and press ENTER.

Accessing Natural Monitor Tables

The following tables may be generated for any response time report in Natural Monitor:

Command	Description
`VD`	Detailed Records table.
`VT`	Transaction Summary table.

Each table consists of one or more screens of data. The data generated from each of these tables is derived from the parameters entered in the report definition (**Edit Report Definition** screen).

The **Detailed Records table** provides response time statistics for individual transactions for individual users. A Detailed Records display is generated for a report only if the Detail Record parameters were entered on the Edit Report Definition screen for a report definition.

The **Transaction Summary** table provides response time statistics for transactions executed in Natural. A Transaction Summary display is generated for a report only if the `Transaction Summary` parameter of `SUM` or `DET` was entered on the **Edit Report Definition** screen for that report definition.

Note: Both current and historical data are available for the **Detailed Records** table. Historical data is *not* available for the **Transaction Summary** table.

- Accessing the Detailed Records Table
- Accessing the Transaction Summary Table

Accessing the Detailed Records Table

There are five ways to access the **Detailed Records** screen.

To access the Detailed Records Table

1. From any screen within Natural Monitor, type the following string on the command line and press ENTER:

```
RT VD reportname
```

2 From within the **Response Time** subsystem, type the following string on the command line and press ENTER:

```
VD reportname
```

3 From any non-list display within the **Response Time** subsystem, type VD on the command line and press ENTER. The last accessed report will be displayed.

4 From the list of **Report Definitions** or the list of **Started Reports**, type VD in the Sel column next to a started report and press ENTER.

5 From the **Expanded List** for a history report, type VD in the Sel column next to a historical snapshot and press ENTER.

The **Detailed Records** screen for a particular report appears as shown in the example below:

```
10:21:03                ***** REVIEW NM UTILITY *****              2006-03-02
                     - Detailed Records for SPECIAL REPORT -
                          - from 1998/03/16 16:23:41 -

TP       Response Natural  Trans    Natural  Natural  ______Total Database_____
Userid       Time Userid   Name     Appl     Program    Calls  ElpTime  CmdTime
GGS         0.731 GGS      NC22     SYSREVNM P-NMRTLH     394    0.388  0.08494
GGS         0.125 GGS      NC22     SYSREVNM P-NMRTEX      61    0.044  0.00819
GGS         0.111 GGS      NC22     SYSREVNM P-NMRTEX      62    0.040  0.01051









Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Hist  Exit                     -     +    Pick        ===>  Menu
```

This display is sorted in descending numeric order by Trans End Time (transaction completion time) if the WRAP option parameter value entered for the related report definition is NONE or STD. If the WRAP option parameter value is HIGH, the display is sorted in descending numeric order by response time.

A row of statistics three screens wide is presented in this display for each user ID in the list. Use one of the following commands or PF keys to access these additional screens or to display information for one particular user ID:

PF Key	Command	Description
PF2	HIST/CURR	Toggle between the historical display and the current display.
PF7	-	Scroll backward one screen (on list of report definitions only).
PF8	+	Scroll forward one screen.
PF9		Select (pick) a particular detail record.
PF10	LEFT	Scroll the display left one screen.
PF11	RIGHT	Scroll the display right one screen.
	TOP	Go to the top of the display.

Note: There is *no* PF key available for the TOP command. The PICK command *cannot* be used from the command line for these displays.

From each **Detailed Records** screen, two screens are accessible which show the remaining columns of the **Detail Records** table.

To display the remaining columns of the Detail Records table

1 Press PF11 to access the first screen.

```
10:21:43                ***** REVIEW NM UTILITY *****              2006-03-02
                     - Detailed Records for SPECIAL REPORT -
                          - from 1998/03/16 16:25:00 -

TP       Response _Avg Database__ ____________________High/Last____________________
Userid       Time ElpTime CmdTime Cmd DBID  FNR Stmt Lvl Calls ElpTime  CmdTime
GGS         0.731   0.000 0.00020 L9    10   73 2130  1   394    0.010  0.00968
GGS         0.125   0.000 0.00012 L9    10   73 7090  1    61    0.002  0.00040
GGS         0.111   0.000 0.00016 L9    10   73 7090  1    61    0.003  0.00200









 Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Hist  Exit                     -     +    Pick  <===  ===>  Menu
```

2 Press PF11 to access the second screen:

```
10:21:53                ***** REVIEW NM UTILITY *****              2006-03-02
                     - Detailed Records for SPECIAL REPORT -
                          - from 1998/03/16 16:25:00 -

TP        Response    Trans NAT  Trans     Terminal
Userid       Time    Number Thd  End Time  Name
GGS         0.731     1771   2  16:23:51  0824
GGS         0.125     1773   2  16:23:58  0824
GGS         0.111     1772   2  16:23:57  0824









Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Hist  Exit                     -     +    Pick  <===        Menu
```

3 Press PF10 to return to the first screen.

- Statistical Fields on the Natural Monitor Detailed Records Table
- Accessing the Summary of Fields Window
- Accessing Historical Data for Detailed Records

Statistical Fields on the Natural Monitor Detailed Records Table

The fields available on the four **Detailed Records** screens are described in the following table:

Field	Description
TP Userid	The CICS user ID for the transaction. Corresponds to system variable *INIT-USER.
Response Time	The transaction response time, measured between terminal input and output.
Natural Userid	The Natural user ID for the transaction. Corresponds to system variable *USER.
Trans Name	The CICS transaction ID.
Natural Appl	The Natural application for the transaction. Corresponds to system variable *LIBRARY-ID.
Natural Program	The Natural program within the transaction, that had the highest database command time or in case of no database calls, the last program executed for the transaction.

Field	Description
Total Database Calls	The number of database calls executed during the transaction.
Total Database ElpTime	The total amount of time required for database communications. This time includes database duration, cross address space time and CICS system queue time.
Total Database CmdTime	The amount of time which expired between the time the command was received by the database system and the time the result was passed back the database system.
Avg Database ElpTime	The average elapsed time for all database calls during the transaction.
Avg Database CmdTime	The average database command time for all database calls during the transaction.
High/Last Cmd	The database command issued for the Natural program that had the highest command time or the last database command issued during the transaction.
High/Last DBID	The database ID accessed by the database call issued by the Natural program that had the highest command time or the last database ID accessed during the transaction.
High/Last FNR	The database file number accessed by the database call issued by the Natural program that had the highest command time or the last database file number accessed during the transaction.
High/Last Stmt	The Natural program statement that issued the database call that had the highest command time within the transaction.
High/Last Lvl	The Natural call level of the program that issued the database call that had the highest command time or the call level of the last program executed by the transaction.
Orig Load Library	The name of the library where the program is loaded from.
High/Last Calls	The total number of database calls issued by the Natural program that had the highest database command time.
High/Last ElpTime	The elapsed time required to process the database call issued by the Natural program transaction that had the highest database command time.
High/Last CmdTime	The command time required by the database to process the call that had the highest database command time.
Trans Number	The CICS transaction number.
NAT Thd	The Natural storage thread number for the transaction. 0 indicates that a getmained storage thread or no thread was used.
Trans End Time	The time, in HH:MM:SS format, that the transaction was ended.
Terminal Name	The CICS terminal name. Corresponds to the Natural system variable *INIT-ID.

Accessing the Summary of Fields Window

You can access a single screen summary of all fields in the **Detailed Records** display for a particular transaction number for a particular user from any of the **Detailed Records** screens.

To access a single screen summary of all fields in the Detailed Records display

- Position the cursor on the row that provides information for that transaction and user ID and press PF9 (`Pick`).

Note: The `PICK` command *cannot* be used from the command line in this instance.

The **Summary of Fields** window appears as shown in the example below:

```
10:21:53                ***** REVIEW NM UTILITY *****              2006-03-02
                  - Detailed Records for SPECIAL REPORT -

                              - Detail Record -
TP System Information                 Database Information
  Userid ............... GGS           Total Calls ......... 62
  Response Time ......... 0.130         Elapsed Time ........ 0.056
  Transaction Name ...... NC22          Avg Elapsed Time .... 0.000
  Transaction Number .... 1811          Command Time ........ 0.01121
  Terminal Name ......... 0824          Avg Command Time .... 0.00017
  Transaction End Time .. 16:30:09

Natural Information                   High/Last Database Info
  Userid ............... GGS           Calls ............... 61
  Application ........... SYSREVNM      Elapsed Time ........ 0.006
  Program ............... P-NMRTEX      Command Time ........ 0.00059
  Statement ............. 7090          Command ............. L9
  Call Lev. / Thread Nbr. 3  / 0        Database Id ......... 10
  Original load library.. SYSTEM        File Number ......... 73

Command ===>
Enter-PF1---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12----
      Help  Exit                                                   Menu
```

The fields displayed on this screen are the same as those shown on the **Detailed Records** screen described above.

Accessing Historical Data for Detailed Records

There are two ways to display the **Expanded List** of historical snapshots available for the **Detailed Records** display.

To display the Expanded List of historical snapshots

1 Type `EX` on the command line of the current detail records display and press ENTER, or

2 Type `EX` in the `Sel` column in one of the three list report screens and press ENTER.

To display a particular historical snapshot from the Expanded List

- Type `VD` in the `Sel` column preceding the snapshot you want to display and press ENTER.

Once you have accessed a historical display, you may toggle back and forth between this historical display and the current display by pressing PF2.

Accessing the Transaction Summary Table

There are four ways to access the screen.

To access the Transaction Summary screen

1 From any screen within Natural Monitor, type the following string on the command line and press ENTER:

```
RT VT reportname
```

2 From within the **Response Time** subsystem, type the following string on the command line and press ENTER:

```
VT reportname
```

3 From any non-list display within the **Response Time** subsystem, type `VT` on the command line and press ENTER. The last accessed report will be displayed.

4 From the list of **Report Definitions** or the list of **Started Reports**, type `VT` in the `Sel` column next to a started report and press ENTER.

The **Transaction Summary** screen for a particular report appears as shown in the example below:

```
10:25:03                 ***** REVIEW NM UTILITY *****                2006-03-02
                   - Transaction Summary for SPECIAL REPORT -

Trans    Natural     Avg   Total ____Total Database_____  __Average Database___
Name     Appl       Resp   Trans   Calls ElpTime CmdTime  Calls ElpTime CmdTime
NC22     **SUM**   0.060      11      78   0.249   0.031   7.09   0.003  0.0004









Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit        Det   Sum          +                      Menu
```

The sample screen above is a summary version indicating that the `Transaction Summary` parameter in the related report definition is set to the value `SUM`.

Each summary table is marked with `**SUM**` in the `Natural Appl` field.

If it is set to the value `DET`, the default report would be the detailed version of the **Transaction Summary** table.

The detailed version includes the Natural application (`Natural Appl`) for each root transaction program (`Trans Name`).

The **Transaction Summary** table is sorted in alphabetic order based on the transaction name. If a detailed version of the table is accessed, a secondary sort is performed by Natural application.

The following are the additional PF keys and commands available on this screen:

PF Key	Command	Description
PF5	`DET`	Access the detailed version of the Transaction Summary table. The first line shown is a summary of all detailed transactions listed. **Note:** This table shows information on Natural application usage.
PF6	`SUM`	Access the summary version of the Transaction Summary table. **Note:** This table does *not* show information on Natural application usage.
PF8	`+`	Scroll forward one screen.
	`TOP`	Go to the top of the display.

Note: There is no PF key available for the `TOP` command.

You may use PF5 (`Det`) and PF6 (`Sum`) to toggle back and forth between the detailed and summary versions of the **Transaction Summary** table.

- Statistical Fields on the Transaction Summary Table

Statistical Fields on the Transaction Summary Table

The fields available on the **Transaction Summary** screen are:

Field	Description
`Trans Name`	The CICS transaction ID.
`Natural Appl`	The Natural application name (detail only). `**SUM**` indicates a summary line for the transaction name including all applications.
`Avg Resp`	The average response time in seconds for the transaction/application name.
`Total Trans`	The total number of transactions for the transaction/application name.
`Total Database Calls`	The total number of database calls issued by the transaction/application name.
`Total Database ElpTime`	The total amount of time in seconds for all database calls issued by the transaction/application name.
`Total Database CmdTime`	The total amount of time (seconds) required by the database to process all database calls issued by the transaction/application name.
`Average Database Calls`	The average number of database calls issued for the transaction/application name.
`Average Database ElpTime`	The average amount of time (seconds) required to process all database calls issued by the transaction/application name.
`Average Database CmdTime`	The average amount of time (seconds) required by the database to process all database calls issued by the transaction/application name.

Using Vertical and Horizontal Graphs

Response time reports are available as vertical and horizontal graphs which may be accessed from the following lists:

- Report definitions
- Started reports
- Expanded list of historical snapshots

To access a graph

- Enter either of the following commands in the Sel column for a particular report (or historical snapshot) and pressing ENTER:

Command	Description
VH	Display a horizontal graph of response time intervals.
VW	Display a vertical graph of response time intervals.

Once a default vertical or horizontal graph has been accessed, you may access similar graphs of three sets of statistics.

To display additional graphs

- Use the commands listed below.

Command	Report Description
TRANS	Response times for transactions (default graph).
CALLS	The total number of database calls issued for transactions.
ACALL	The average number of database calls issued for transactions.

The `Response Time Interval` in the report definition (**Edit Report Definition** screen) determines the whole or fractional number of seconds used to graph the response time intervals on each graph. On the vertical graph, intervals are designated as `Response Time Intervals in Seconds`. On a horizontal graph, intervals are designated as `Response Time Range`.

A graph may be displayed in color or noncolor; the availability of color depends on whether you are using an extended data stream (EDS) terminal. The `COLOR ON` command displays a color graph; the `COLOR OFF` command returns to a noncolor display.

- Interpretation of Graphs that List Totals
- Interpretation of Graphs that List Averages
- Commands Used to Control Graphs
- Accessing a Vertical Graph

- Accessing a Horizontal Graph

Interpretation of Graphs that List Totals

A vertical or horizontal graph of total transactions or total calls is interpreted in terms of two parameters set in a report definition (**Edit Report Definition** screen): the `Response Time Interval` and the `Response Time Threshold`. The following gives the physical manifestation of that interpretation as well as describing it:

Interpretation	Color	Symbol	Description
Good Response Time	Green	-	Intervals or ranges that fall *below* the value set for the Response Time Interval parameter.
Warning	Yellow	=	Intervals or ranges that fall *between* the value set for the `Response Time Interval` parameter and the value set for the `Response Time Threshold` parameter.
Poor Response Time	Red	*	Intervals or ranges that *exceed* the value set for the `Response Time Threshold` parameter.

Note: The symbol shown in the table is used when the display is *not* in color.

The following are several examples of how to interpret the values on these graphs:

- For a *good response time*:

  If the `Response Time Interval = 0.5`, all transactions with a response time under 0.5 seconds are displayed in green or with the minus sign character (`-`).

- For a *warning*:

  If the `Response Time Interval = 0.5` and the `Response Time Threshold = 3.5`, all transactions with a response time between 0.5 and 3.5 seconds are displayed in yellow or with the equal sign character (=) when not in color.

- For a *poor response time*:

  If the `Response Time Threshold = 3.5`, all transactions with a response time that exceeds 3.5 seconds are displayed in red or with the asterisk character (`*`).

Interpretation of Graphs that List Averages

A vertical or horizontal graph of average calls is interpreted in terms of average number thresholds as follows:

Interpretation	Color	Symbol	Description
Good Response Time	Green	-	Average number of calls is less than or (Threshold 25) equal to 25.
Warning	Yellow	=	Average number of calls is greater than (Threshold 50) 25 and is less than or equal to 50.
Poor Response Time	Red	*	Average number of calls is greater than (Beyond Threshold 50) 50.

Note: The symbol shown in the table is used when the display is *not* in color.

The following are several examples of how to interpret the values on these graphs:

- For a *good response time* (when the threshold is 25):

  If an average of 20 database calls is listed within the interval of 1.0 to 1.5 seconds, it is displayed in green or with the minus sign character (-).

- For a *warning* (when the threshold is 50):

  If an average of 40 database calls is listed within the interval of 1.5 to 2.0 seconds, it is displayed in yellow or with the equal sign character (=).

- For a *poor response time* (when the threshold is greater than 50):

  If an average of 70 database calls is listed within the interval of 2.5 to 3.0 seconds, it is displayed in red or with the asterisk character (*).

Commands Used to Control Graphs

In addition to the commands and PF keys that are generally available within the system, the following special commands and PF keys control the various types of vertical and horizontal graphs available:

See ***Function Codes and Commands*** for a description of all function codes, PF keys, and commands available within Natural Monitor.

PF Key	Command	Description
PF2	HIST/CURR	Toggles between current and historical data.
PF4	TRANS	Accesses the default graph, the total number of transactions.
PF5	CALLS	Displays the total number of database calls issued for the total number of transactions. Each database call increases the transaction response time.

PF Key	Command	Description
PF6	ACALL	Displays the average number of database calls issued for the total number of transactions.
PF10	HORI	Toggles to a horizontal graph from a vertical graph.
PF10	VERT	Toggles to a vertical graph from a horizontal graph.
	COLOR OFF	Displays a noncolor graph.
	COLOR ON	Displays a color graph.

Accessing a Vertical Graph

The command VW enables you to view graphs vertically. There are two ways to use it.

To access a vertical graph

1 From any screen within Natural Monitor, type the following string on the command line and press ENTER:

```
RT VW reportname ↵
```

2 From the list of report definitions, started reports, or the expanded list of historical snapshots, type VW in the Sel column next to the selected report (or historical snapshot) and press ENTER.

A default vertical graph appears similar to the one shown below:

```
10:26:12                ***** REVIEW NM UTILITY *****                2006-03-02
            - Response time per transaction: SYSTEM RESPONSE TIME -
                  - from 1998/03/16 11:00:01 to 12:00:00 -

         !
      100+
         !   286
         ! --84%
       75+ -----
% of     ! -----
Total    ! -----
Trans  50+ -----
         ! -----
         ! -----
       25+ -----
         ! -----    24     5     7     3     1     2     2     2           7
         ! ----- ===7% ===1% ===2% ==<1% ==<1% ==<1% **<1% **<1%     0 ***2%
         +------+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-
         0     0.5   1.0   1.5   2.0   2.5   3.0   3.5   4.0   4.5   5.0 Over
                           Response Time Interval in Seconds

Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Curr  Exit  Trans Calls ACall                   Hori        Menu
```

The default vertical graph illustrated above shows various response times for transactions. The following table describes the different graphs available in the vertical format:

Graph	Command/PF Key	Description
% of Total Trans	TRANS/PF4	The percentage of total transactions that a specific response time interval represents (default).
% of Total Calls	CALLS/PF5	The percentage of total calls that a specific response time interval represents.
Avg Call/Trans	ACALL/PF6	The average number of database calls issued for each transaction within a specific response time interval.

The following table describes the fields found on a vertical graph:

Field	Graph(s)	Description
Avg DB Calls/Tran	Avg Call/Trans	The average number of database calls issued for each transaction within a specific response time interval.
Response Time Interval in Seconds	Avg DB Calls/Tran % of Total Trans % of Total DB Calls	The average number of database calls issued for each transaction within a specific response time interval.

Field	Graph(s)	Description
% of Total	`% of Total Trans` `% of Total DB Calls`	The percentage of the total that a specific range represents.

The following are three examples of how to interpret the values on these graphs:

- On the graph displaying the % of total transactions (see the above screen):

  84% of all transactions experienced a response time between 0 and 0.5 of one second.
- For a graph displaying the % of total DB calls:

  20% of total calls for transactions may have occurred between 0 and 0.5 of one second.
- For a graph displaying average DB calls per transaction:

  an average of 175 DB calls per transaction may have occurred between 1.5 and 2.0 seconds.

Accessing a Horizontal Graph

The command `VH` enables you to view graphs horizontally. There are two ways to use it.

To access a horizontal graph

1. From any screen within Natural Monitor, type the following string on the command line and press ENTER:

   ```
   RT VH reportname
   ```

2. From the list of report definitions, started reports, or the expanded list of historical snapshots, type `VH` in the `Sel` column next to the selected report (or historical snapshot) and press ENTER.

A default horizontal graph appears similar to the one shown below:

```
10:26:12                ***** REVIEW NM UTILITY *****                2006-03-02
            - Response time per transaction: SYSTEM RESPONSE TIME -
                  - from 1998/03/16 11:00:01 to 12:00:00 -

  Response     Num of  % of
 Time Range     Trans Total
------------ -------- -----  ---10---20---30---40---50---60---70---80---90--100
  0.0    0.5      286  84.3  ----------------------------------------->
  0.5    1.0       24   7.0  ===>
  1.0    1.5        5   1.4  >
  1.5    2.0        7   2.0  =>
  2.0    2.5        3   0.8  >
  2.5    3.0        1   0.2  >
  3.0    3.5        2   0.5  >
  3.5    4.0        2   0.5  >
  4.0    4.5        2   0.5  >
  4.5    5.0        0   0.0
  5.0   Over        7   2.0  *>
------------ -------- -----  ---10---20---30---40---50---60---70---80---90--100
Total:            339

Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Curr  Exit  Trans Calls ACall                   Vert        Menu
```

The default horizontal graph illustrated above shows various response times for transactions. The following table describes the different graphs available in the horizontal format:

Graph	Command/PF Key	Description
% of Total Trans	TRANS/PF4	The percentage of total transactions that a specific response time interval represents (default).
% of Total Calls	CALLS/PF5	The percentage of total calls that a specific response time interval represents.
Avg Call/Trans	ACALL/PF6	The average number of database calls issued for each transaction within a specific response time interval.

The following table describes the fields found on a horizontal graph:

Field	Graph(s)	Description
Avg Calls	Avg Call/Trans	The average number of database calls issued for each transaction within a specific response time interval.
Num of DB Calls	% of Total Trans % of Total Call	The total number of database calls issued for the total number of transactions within a specific response time interval.
Num of Trans	% of Total Trans	The actual number of transactions that received a response within a specific response time interval.

Field	Graph(s)	Description
Response Time Range	% of Total Trans % of Total Calls Avg Call/Trans	The whole or fractional number of seconds used to graph response times. This number is derived from the Response Time Interval field in the report definition.
% of Total	% of Total Trans % of Total Calls	The percentage of the total that a specific range represents.

The following are three examples of how to interpret the values on these graphs:

- On the graph displaying the % of total transactions (see the above screen):

  84.3% of the total of 339 transactions, or 286 transactions, experienced a response time between 0 and 0.49 of one second.

- For a graph displaying the % of total calls:

  5.5% of the total of 21,930 calls, or 1,228 calls, may have experienced a response time between 1.5 and 1.99 seconds.

- For a graph displaying average calls per transaction:

  an average of 225 calls per transaction (total: 675) may have occurred between 2.0 and 2.49 seconds.

Purging Report Definitions and Started Reports

The following commands enable you to purge your report definitions and started reports. These commands are available from the list of report definitions and the list of started reports by entering

To purge a report definition

- Enter the command PR in the Sel column preceding the selected report and press ENTER.

To purge a started report

- Enter the command PS in the Sel column preceding the selected started report and press ENTER.

In both cases, the following message appears:

```
Please confirm PURGE request for: reportname (Y or N).
```

- Verify that the correct report has been selected.
- Type `Y` at the cursor position and press ENTER to purge the report; or

  type `N` and press ENTER to retain the report.

  - Purging a Started Report
  - Purging a Report Definition
  - Purging Historical Snapshot(s)

Purging a Started Report

When you delete a started report, you delete only the current data accumulated by the report. The related report definition is not affected and can be modified for use as another report. Historical snapshots for the report are also retained.

Before you purge a started report, remember that a started report can be refreshed (restarted) using a modified report definition. A restarted report retains historical snapshots generated using the previous report definition.

Purging a Report Definition

It is possible to purge a report definition without purging the related started report. However, that started report cannot thereafter be modified (that is, refreshed or restarted).

Before you purge a report definition, remember that a report definition can be modified for use with another report. You might decide to delete a report definition that has never been started and will never be started.

Purging Historical Snapshot(s)

You may decide to purge one or more of the historical snapshots available for a particular started report. For instance, you might decide to purge the oldest historical snapshot(s). Purging a historical snapshot has no effect on the started report or its associated report definition.

To purge a historical snapshot

- Enter the command `PH` in the `Sel` column preceding the selected report and press ENTER.

  The `PH` command is available from the list of historical reports, the list of report definitions, the list of started reports and the expanded list of historical snapshots. In addition, this command is available in the command line of the expanded list of historical snapshots screen.

To purge a marked range - start

- In the expanded list of historical snapshots, enter the command `PX` in the `Sel` column preceding the historical snapshots and press ENTER.

To purge a marked range - end

- In the expanded list of historical snapshots, enter the command `PY` in the `Sel` column preceding the historical snapshots and press ENTER.

If the range of historical snapshots to be purged is not complete, the following window appears:

```
Purge report(s)
  Date/Time From __________  _____
  Date/Time To   __________  _____
```

The following date formats are accepted:

YYYY/MM/DD	*YY/MM/DD*
YYYY-MM-DD	*YY-MM-DD*
YYYY.MM.DD	*YY.MM.DD*
YYYYMMDD	*YYMMDD*

The following time formats are accepted:

HH:*MM*

HHMM

If the range of historical snapshots to be purged is complete, the following window appears:

```
Please verify PURGE request for
the date and time listed below:
From: 1998/03/17  00:00:00
To:   1998/03/17  23:59:00

        ( Y/N )  Y
```

Verify that the correct report range has been selected; then type `Y` at the cursor position and press ENTER to purge the report(s); type `N` and press ENTER to retain the report(s).

5 Active User Information

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This section covers the following topics:

Functional Overview

The **Summary of Active Users** function displays the system resources used by all active users that have logged on to Natural since the initialization of CICS. An *active user* is one who is currently logged on to Natural under CICS.

The system resources used by each active user are captured in the following statistics:

- The total number of seconds that the user's task is waiting for the database;
- The amount of data sent back to the terminal;
- The average response time for the user's transactions.

The following display and windows are available within the **Summary of Active Users** function:

- **Summary of Active Users Display**

  Presents a list of all active users and a line of information for each user that is four screens wide.
- **Lowest 20 Window**

  Lists the 20 users who are associated with the smallest values of a system resource sort list.
- **Highest 20 Window**

  Lists the 20 users who are associated with the largest values of a system resource sort list.
- **Summary of Active User Window**

  Provides the same information as on the Summary of Active Users screen, but presents it in table form on a single screen for a single user.
- **Natural Call Table Window**

  Lists all Natural programs accessed by the user's last or current transaction as well as detailed information about the database calls issued by these Natural programs.

Note: Historical data is not available for the **Summary of Active Users** function.

Summary of Active Users Display

To access the Natural Monitor Summary of Active Users display

1 From any screen outside Natural Monitor, type the code `NM SA` on the command line and press ENTER, or

2 From any screen within Natural Monitor, type `SA` on the command line and press ENTER.

The **Summary of Active Users** display comprises four screens, which are shown on the following pages. This is the first screen:

```
16:45:09                 ***** REVIEW NM UTILITY *****              2006-03-02
                          - Summary of Active Users -

TP        Sess  Terminal  Trans     Trans  Session    Last Trans  Last Trans
Userid      Id  Name      Name     Number  Status     Date        Time
REVHIST      1  Subtask   NC22         20  Inactive   2006-03-02  16:45:00
GGS         12  0824      NC22       1928  Active     2006-03-02  16:44:44
REC         13  0838      N          1610  Inactive   2006-03-02  15:55:36
GGS         19  0773      NC22       1926  Inactive   2006-03-02  16:45:05
REC         16  0795      NR23       1576  Terminate  2006-03-02  15:51:29









Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  STerm Exit  SUser SSid  Low   High   +    Pick        ===>  Menu
```

This is the second screen:

```
16:45:46                 ***** REVIEW NM UTILITY *****                2006-03-02
                          - Summary of Active Users -

TP        ___________________NATURAL___________________ _____Last_____   Curr/Last
Userid    Userid    Appl     Program  Stmt Lvl Thd Ver Cmd  DBID  FNR DB Duration
REVHIST   REVHIST   SYSREVNM S-NMRTST 2570   2   1 2.2 RC     10   73    0.00032
GGS       GGS       SYSREVNM N-NMSA10 3630   2   2 2.2 RC     10    0    0.00624
REC       REC       SYSREVNM M-NMSA   0016   2   4 2.2 RC     10   45    0.00640
GGS       GGS       GGS      AHELLO   0000   0   3 2.2 RC     10    0    0.00656
REC       REC       REC      MAINMEM1 0016   2   0 2.3 RC     10   49    0.00032



Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  STerm Exit  SUser SSid  Low   High   +    Pick  <===  ===>  Menu
```

This is the third screen:

```
16:46:10                 ***** REVIEW NM UTILITY *****              2006-03-02
                          - Summary of Active Users -

TP       ____________________Database____________________
Userid  Curr Calls      Calls Call/Tran ElpT/Call CmdT/Call
REVHIST        701        747    747.00     0.020   0.00270
GGS              0     22,227     86.82     0.003   0.00051
REC              0        263     52.60     0.009   0.00084
GGS              0        113    113.00     0.014   0.00100
REC              0         31     31.00     0.005   0.00081
KKR              0         13     13.00     0.000   0.00046









Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  STerm Exit  SUser SSid  Low   High   +    Pick  <===  ===>  Menu
```

This is the fourth screen:

```
16:46:34                 ***** REVIEW NM UTILITY *****                2006-03-02
                          - Summary of Active Users -

TP        Avg Resp   Total   Term  Logon       Logon
Userid       Time   Trans   Data  Date        Time
REVHIST     1.999       1      0  2006-03-02  12:43:29
GGS         0.243     485   482K  2006-03-02  14:41:18
REC         0.126      33  12336  2006-03-02  15:47:34
GGS         2.267       1      0  2006-03-02  16:45:03
REC         0.211       1      0  2006-03-02  15:51:29
KKR         0.340       1      0  2006-03-02  16:45:54









Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  STerm Exit  SUser SSid  Low   High   +    Pick  <===        Menu
```

The following PF keys and commands are available from these screens:

PF Key	Command	Description
PF1	HELP	Invoke online help.
PF2	STERM SORTTERM	Sort users in ascending order by terminal name.
PF3	EXIT	Exit this function.
PF4	SUSER SORTUSER	Sort users in ascending order by user ID.
PF5	SSID SORSID	Sort users in ascending order by SID.
PF6	LOW	Show the lowest 20 values (or user IDs in an alphabetic sort) for the field column indicated by the cursor position.
PF7	HIGH	Show the highest 20 values (or user IDs in an alphabetic sort) for the field column indicated by the cursor position.
PF8	+	Scroll the display forward one page. When the bottom of the list is reached, the use of the PF key or the command causes the list to wrap to the top of the list.
	TOP	Go to the top of the display.

PF Key	Command	Description
PF9	PICK	Display all information for a user indicated by the cursor.
PF10	LEFT	Scroll the display left one screen.
PF11	RIGHT	Scroll the display right one screen.
PF12	MENU	Return to the Natural Monitor **Main Menu**.

Note: No PF key is available for the TOP command.

- Statistical Fields on the Summary of Active Users Display
- Additional Commands for the Summary of Active Users Function

Statistical Fields on the Summary of Active Users Display

The fields available on the four Summary of Active Users screens are described in the following table:

Field	Description	
TP Userid	The CICS user id for the transaction. Corresponds to Natural system variable *INIT-USER.	
Sess Id	The unique Natural Monitor session identification number for the Natural session.	
Terminal Name	The CICS terminal name. Corresponds to Natural system variable *INIT-ID.	
Trans Name	The CICS transaction ID.	
Trans Number	The CICS transaction number.	
Session Status	The current status of the Natural session. The following values are possible:	
	Active	Session actively processing.
	Inactive	Terminal I/O or other wait.
	DB Call	Database call processing.
	Logon	Session initialization.
	Terminate	Marked for termination.
Last Trans Date	The end date of the last transaction.	
Last Trans Time	The end time of the last transaction.	
Natural Userid	The Natural user ID for the transaction. Corresponds to system variable *USER.	
Natural Appl	The Natural application for the transaction. Corresponds to system variable *LIBRARY-ID.	
Natural Program	The name of the Natural program that is currently being executed.	
Natural Stmt	The statement line number within the Natural program currently being executed.	
Natural Lvl	The execution level of the Natural program currently being executed.	
Natural Thd	The Natural storage thread number for the transaction. 0 indicates that a getmained storage thread or no thread was used.	

Field	Description
Natural Ver	The Natural version for the session. Possible value: *vr*; where *vr* represents the relevant product version.
Last Cmd	The last database command issued.
Last DBID	The last database ID accessed.
Last FNR	The last database file number accessed.
Curr/Last Duration	The duration of the current or the last database call in seconds.
Database Curr Calls	The number of database calls issued by the current or last transaction.
Database Calls	The total number of database calls that have been issued by the session.
Database Call/Tran	The average number of database calls per transaction for the session.
Database ElpT/Call	The average elapsed time per database call in seconds for the session.
Database CmdT/Cal	The average database command time for all database calls issued during the session.
Avg Resp Time	The average response time in seconds for all transactions of the session.
Total Trans	The total number of transactions that have been executed for the session.
Term Data	The number of bytes that have been written to the user's terminal screen.
Logon Date	The session start date in *YYYY*/*MM*/*DD* format.
Logon Time	The session start time in *HH*:*MM*:*SS* format.

Additional Commands for the Summary of Active Users Function

There are several additional commands and PF keys that are available for use on the summary of all users and individual summary screens within this function. They are:

Command	PF Key	Description	
CANCEL		The specified session is terminated abnormally. A session may be cancelled by TP user ID (*uuu*), terminal name (*tttt*) or session ID (*nnn*), see below.	
		Format	**Example**
		CANCEL U=*uuuuuuu*	CANCEL U=ABC
		CANCEL T=*tttt*	CANCEL T=T031
		CANCEL *nnn*	CANCEL 37
DISPLAY ACT DI ACT		Display all sessions except such with status Inactive or Terminate.	
DI ALL		Display all sessions.	
EXIT	PF3	Exit from the display.	
FORCE		Deactivates Natural Monitor monitoring for the specified session. It does not affect the Natural session. A session may be forced by TP user ID, terminal name or session ID. The command format is the same as for the CANCEL command.	
HELP	PF1	Access the help system.	

Command	PF Key	Description
HIGH	PF7	Display the **Highest 20** window for the field marked by the cursor.
LEFT	PF10	Scroll left one screen.
LOW	PF6	Display the **Lowest 20** window for the field marked by the cursor.
PICK	PF9	Access a one page window of all the information available for the desired session. Enter PICK *nnn* with session ID *nnn* or position the cursor on the desired session line and press PF9.
RIGHT	PF11	Scroll the display right one screen.
STERM	PF2	Sort the display by terminal name.
SSID	PF5	Sort the display by session ID.
SUSER	PF4	Sort the display by TP user ID.
TERMNAT		The specified session is terminated normally. A session may be terminated by TP user ID, terminal name or session ID. The command format is the same as for the CANCEL command.
TOP		Scroll to the top of the display.
+	PF8	Scroll forward one screen.

The TERMNAT command causes Natural Monitor to issue an internal Natural cancel against a user. When Natural detects that the user session has been cancelled, the user's Natural session terminates normally.

The CANCEL command functions just like the TERMNAT command, except that an RNMA ABEND is received by the user who is forced and his Natural session is terminated abnormally, causing the ABEND.

The FORCE command deactivates Natural Monitor monitoring for the specified session. It does not affect the Natural session. The forced Natural session continues to run without monitoring.

Additionally, a write-to-operator (WTO) command is issued to the console indicating the user ID of the user who is cancelled, and the user ID and terminal name of the person who issued the CANCEL, TERMNAT or FORCE command.

Using the commands TERMNAT and CANCEL, a running session may be marked to terminate normally or abnormally. This will be honored the next time Natural Monitor gets control within the desired session.

The CANCEL, FORCE and TERMNAT commands may be used from within the individual user summary window as well; however, here there is no need to include the U=*user-ID*, SID, or T=*terminalname* parameters on either of these commands, since the CANCEL, FORCE or TERMNAT command is issued against the user whose session was displayed in this window.

Lowest 20 Window

The **Lowest 20** window displays one of the following:

- the first 20 users sorted alphabetically from A; or
- the 20 users who are using the least amount of a particular system resource along with the individual usage statistics for that resource for each of the 20 users.

The order of users is by intensity of use. User 01 on the **Lowest 20** window represents the least intensive user of the resource.

To access the Lowest 20 window

- Perform one of the following procedures from the **Summary of Active Users** display:
  - position the cursor at any row under the column header that represents the particular resource being monitored and press PF6 (`LOW`); or
  - type the command `LOW` on the command line. Position the cursor at any row under the column header that represents the particular resource being monitored and press ENTER.

A window appears similar to the **Lowest 20** window shown below:

```
16:53:30                  ***** REVIEW NM UTILITY *****                2006-03-02
                           - Summary of Active Users -

 +-------------------------------------------------------------------------+
 !                             - The Lowest 20 -                           !
 !                                                                         !
 !     Userid    SID  Response Time          Userid    SID  Response Time  !
 ! 01. REC        13        0.126       11.                                !
 ! 02. REC        16        0.211       12.                                !
 ! 03. GGS        12        0.235       13.                                !
 ! 04. KKR        20        0.340       14.                                !
 ! 05. REVHIST     1        1.999       15.                                !
 ! 06. GGS        19        2.267       16.                                !
 ! 07.                                  17.                                !
 ! 08.                                  18.                                !
 ! 09.                                  19.                                !
 ! 10.                                  20.                                !
 !                                                                         !
 !                                                                         !
 ! Command ===>                                                            !
 ! Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF12- !
 !       Help        Exit                                Pick         Menu  !
 +-------------------------------------------------------------------------+ -
      Help  STerm Exit  SUser SSid  Low   High   +    Pick  <===        Menu
```

Note: Use of the `PICK` command/PF9 to access the summary screen for a single user on the **Lowest 20** screen is discussed under the heading *Summary of Active User Window* below.

Highest 20 Window

The **Highest 20** window displays one of the following:

- the last 20 users sorted alphabetically from Z: or
- the 20 users who are using the greatest amount of a particular system resource along with the individual usage statistics for that resource for each of the 20 users.

The order of users is by intensity of use. User 01 on the **Highest 20** window represents the most intensive user of the resource.

To access the Highest 20 window

- Perform one of the following procedures from the **Summary of Active Users** display:
  - position the cursor at any row under the column header that represents the particular resource being monitored and press PF7 (`High`); or

- type the command HIGH on the command line. Position the cursor at any row under the column header that represents the particular resource being monitored and press ENTER.

A window appears similar to the **Highest 20** window shown below:

```
16:54:14                 ***** REVIEW NM UTILITY *****              2006-03-02
                          - Summary of Active Users -

 +-----------------------------------------------------------------------+
 !                            - The Highest 20 -                          !
 !                                                                        !
 !     Userid    SID  Response Time          Userid    SID  Response Time  !
 ! 01. GGS        19        2.267       11.                               !
 ! 02. REVHIST     1        1.999       12.                               !
 ! 03. KKR        20        0.340       13.                               !
 ! 04. GGS        12        0.234       14.                               !
 ! 05. REC        16        0.211       15.                               !
 ! 06. REC        13        0.126       16.                               !
 ! 07.                                  17.                               !
 ! 08.                                  18.                               !
 ! 09.                                  19.                               !
 ! 10.                                  20.                               !
 !                                                                        !
 !                                                                        !
 ! Command ===>                                                           !
 ! Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF12- !
 !       Help        Exit                                Pick         Menu  !
 +-----------------------------------------------------------------------+ -
      Help  STerm Exit  SUser SSid  Low   High   +    Pick  <===        Menu
```

Use of the PICK command/PF9 to access the summary screen for a single user on the **Highest 20** screen is discussed under the heading *Summary of Active User Window* below.

Summary of Active User Window

The summary screen for a single user can be accessed from any of the **Summary of Active Users** display screens by using the Pick function.

To access the Summary of Active Users display screens

- Use either the PF9 key or the PICK command:
  - To use the PF9 key, position the cursor on the row that corresponds to the user ID for which you want an individual summary display and press the PF9 key.

- To use one of the `PICK` commands (`PICK U=userid`, `PICK sid`, or `PICK T=terminalname`), type the command on the command line and press ENTER.

This command may be entered from any Natural Monitor screen by preceding it with the code `NM SA`. If you are already in Natural Monitor but are outside the **Summary of Active Users** function, type in the command preceded by the value `SA`.

An individual summary window appears similar to the one shown below:

```
16:54:47                 ***** REVIEW NM UTILITY *****               2006-03-02
                            - Summary of Active Users -
  +-------------------------------------------------------------------------+
  !                          - Summary of User GGS -                        !
  !                                                                         !
  ! Current Status  Inactive                                                !
  !                                                                         !
  ! NAT Userid .... GGS        Trans Name .. NC22      Logon Date .. 2006-03-02 !
  ! NAT Appl ...... GGS        Term Name ... 0773      Logon Time .. 16:45:03   !
  ! NAT Prog ...... AHELLO     Session ID .. 19        Trans Date .. 2006-03-02 !
  ! NAT Stmt ...... 0000       Trans Nr .... 1926      Trans Time .. 16:45:05   !
  ! NAT Version ... 2.2        Thread Nr ... 3         Num Trans ... 1          !
  ! NAT Pg Level .. 0          Resp Time ... 2.267     Term Data ... 0          !
  !                                                                         !
  !                              Database Statistics                        !
  ! Last Cmd ...... RC                                 Calls/Tran .. 113.00     !
  ! Last DBID ..... 10         Curr Calls .. 0         ETime/Call .. 0.014      !
  ! Last FNR ...... 0          Tot Calls ... 113       CmdT/Call ... 0.00100    !
  ! Last/Cur Dur .. 0.00656                                                 !
  !                                                                         !
  ! Command ===>                                                            !
  ! Enter-PF1---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12----  !
  !       Help  Exit                          Next  Nct                Menu      !
  +-------------------------------------------------------------------------+
```

The **Summary of Active User** window presents the same information provided on the **Summary of Active Users** display, but in a different format. Refer to *Statistical Fields on the Summary of Active Users Display* for an explanation of the relevant fields.

The following commands and PF keys are available from this screen:

PF Key	Command	Description
	`CANCEL`	Terminate the specified session abnormally.
	`FORCE`	Deactivate monitoring for the specified session.
	`TERMNAT`	Terminate the specified session normally.
PF1	`HELP`	Invoke online help.
PF3	`EXIT`	Exit this function.

PF Key	Command	Description
PF8	NEXT	Display the next user from a list of users on the **Summary of Active Users** screen.
PF9	NCT	Display the Natural call table which contains the programs accessed by the user's last or current transaction.
PF12	MENU	Return to the Natural Monitor **Main Menu**.

Note: No PF keys are available for the CANCEL, FORCE and TERMNAT commands.

Accessing the Natural Call Table Window

The **Natural Call Table** (NCT) contains a list of the Natural programs accessed by the user's last or current transaction and statistics about the database calls issued from these programs.

The NCT is accessible from the individual summary window.

To access the Natural Call Table window

1 Type in the command NCT and press ENTER, or

2 Press the PF9 key.

The NCT display spans two windows; the PF keys PF11 and PF10 can be used to toggle between the two.

An example of these windows is shown below. Columns contain asterisks (*) only if no database information is available because the program issued no database calls. This is the first window:

```
16:54:47                 ***** REVIEW NM UTILITY *****               2006-03-02
            +-------------------------------------------------------+
  +-------- !                 - NATURAL Call Table -                  ! -------+
  !         ! NATURAL  NATURAL  NAT  Num     DB      Total      Total  !        !
  !         ! Appl     Prog     Lvl Execs Calls  Elps Time   Cmd Time  !        !
  ! Current ! SYSTEM              0    1     11      0.300    0.01745  !        !
  !         ! SYSTEM   LOGON      1    1  ***** ********** **********  !        !
  ! NAT Use ! SYSTEM   LOGONUS    1    1      7      0.010    0.00865  ! /08/08 !
  ! NAT App ! SYSTEM   NAT00008   2    1  ***** ********** **********  ! 5:03   !
  ! NAT Pro ! SYSTEM   SECUF      2    3      7      0.359    0.01547  ! /08/08 !
  ! NAT Stm ! SYSTEM   NAT00038   3   10  ***** ********** **********  ! 5:05   !
  ! NAT Ver ! SYSTEM   SECUE      2    1  ***** ********** **********  !        !
  ! NAT Pg  ! SYSTEM   NAT00041   3    2  ***** ********** **********  !        !
  !         ! SYSTEM   LOGONEX1   2    1  ***** ********** **********  !        !
  !         ! SYSTEM   LOGONM1    3    1  ***** ********** **********  !        !
  ! Last Cm ! SYSTEM   SECPGM     2    1      1      0.001    0.00054  ! 00     !
  ! Last DB ! SYSTEM   NAT00062   3    4     69      0.643    0.04556  ! 4      !
  ! Last FN ! SYSTEM   SECUC      2    1      3      0.282    0.00777  ! 100    !
  ! Last/Cu ! SYSTEM   SECUH      2    1      2      0.006    0.00633  !        !
  !         !                                                          !        !
  ! Command ! Command ===>                                             !        !
  ! Enter-P ! Enter-PF1---PF3---PF7---PF8---PF9---PF10--PF11--PF12---  ! 2----  !
  !       H !       Help  Exit   -     +    Refr        ===>  Menu     ! u      !
  +-------- +-------------------------------------------------------+ -------+
```

This is the second window:

```
16:54:47                 ***** REVIEW NM UTILITY *****               2006-03-02
            +-------------------------------------------------------+
  +-------- !                 - NATURAL Call Table -                ! -------+
  !         ! NATURAL    NAT                Rsp        High       High  !        !
  !         ! Prog      Stmt Cmd DBID  FNR Code  Elps Time   Cmd Time  !        !
  ! Current !           0000 S1    10   50   0       0.147    0.01041  !        !
  !         ! ********  **** ** ***** **** ***  ********** **********  !        !
  ! NAT Use ! LOGONUS   6228 CL    10    0   0       0.006    0.00628  ! /08/08 !
  ! NAT App ! ********  **** ** ***** **** ***  ********** **********  ! 5:03   !
  ! NAT Pro ! SECUF     4220 L3    10   33   0       0.015    0.00584  ! /08/08 !
  ! NAT Stm ! ********  **** ** ***** **** ***  ********** **********  ! 5:05   !
  ! NAT Ver ! ********  **** ** ***** **** ***  ********** **********  !        !
  ! NAT Pg  ! ********  **** ** ***** **** ***  ********** **********  !        !
  !         ! ********  **** ** ***** **** ***  ********** **********  !        !
  !         ! ********  **** ** ***** **** ***  ********** **********  !        !
  ! Last Cm ! SECPGM    4980 OP    10   45   0       0.001    0.00054  ! 00     !
  ! Last DB ! NAT00062  2630 L3    10   45   0       0.093    0.00758  ! 4      !
  ! Last FN ! SECUC     6820 N1    10   33   0       0.220    0.00577  ! 100    !
  ! Last/Cu ! SECUH     3670 CL    10    0   0       0.005    0.00593  !        !
  !         !                                                          !        !
  ! Command ! Command ===>                                             !        !
  ! Enter-P ! Enter-PF1---PF3---PF7---PF8---PF9---PF10--PF11--PF12---  ! 2----  !
  !       H !       Help  Exit   -     +    Refr  <===        Menu     ! u      !
  +-------- +-------------------------------------------------------+ -------+
```

The following fields are shown on these screens:

Field	Description
Natural Appl	The Natural application of the program.
Natural Prog	The name of the Natural program.
NAT Lvl	The call level of the Natural program.
Num Execs	The number of times the Natural program was called during the last transaction.
DB Calls	The total number of database calls issued by the program during the last transaction.
Total Elps Time	The total amount of elapsed time (seconds) to process all of the database calls issued by the program during the last transaction.
Total Cmd Time	The total amount of time (seconds) required by the database to process all DB calls of the program during the last transaction.
NAT Stmt	The statement line number in the Natural program that generated the database call with the highest database command time.
Cmd	The database command issued by the program that resulted in the highest database command time.
DBID	The database ID accessed by the database call that resulted in the highest database command time during the program..
FNR	The database FNR accessed by the database call that resulted in the highest database command time during the program.

Field	Description
Rsp Code	The database response code of the database call that resulted in the highest database command time during the program.
High Elps Time	The database elapsed time (seconds) of the database call that resulted in the highest database command time during the program.
High Cmd Time	The highest database command time (seconds) for a database call during the execution of the Natural program.

The following commands and PF keys are available from these windows:

PF Key	Command	Description
PF1	HELP	Invoke online help.
PF3	EXIT	Exit this function.
PF7	-	Scroll backward one display.
PF8	+	Scroll forward one display.
PF9	REFRESH	Refresh the Natural Call Table display with updated information.
PF10	LEFT	Scroll left one screen.
PF11	RIGHT	Scroll right one screen.
PF12	MENU	Return to the Natural Monitor **Main Menu**.

6 Technical Information

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- Accessing the Environmental Information 81
- Accessing the History Session Control 83

This section covers the following topics:

Functional Overview

The Technical Information function displays Natural Monitor environmental information and history session information.

- Purpose of the Technical Information Function
- Accessing the Technical Information Function

Purpose of the Technical Information Function

This function is useful for determining the following:

- **Environmental Information**
  - the environment in which Natural Monitor is executing;
  - the version maintenance levels of the Natural Monitor code; and
  - various parameters and statistical information.
- **History Session Control**
  - shows details about the Natural Monitor history session definitions and history session status; and
  - allows starting and stopping the history session.

Accessing the Technical Information Function

You can access the Natural Monitor **Technical Information** function in one of two ways:

- from any screen *outside* the Natural Monitor System, type the code `NM TE` on the command line and press ENTER; or
- from any screen *within* the Natural Monitor System, type `TE` on the command line and press ENTER.

```
16:05:44                 ***** REVIEW NM UTILITY *****              2006-03-02
                             - Technical Information -


                    Code              Description

                     EI          Environmental Information
                     HC          History Session Control









  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit                                                   Menu
```

The functions available from this menu are described in the following table:

Code	Function	Description
EI	Environmental Information	Gives an overview of the environment.
HC	History Session Control	Shows details about the history session and allows starting and stopping the history session.

Accessing the Environmental Information

To access the Environmental Information screen

- Type EI on the command line and press ENTER.

The **Environmental Information** screen appears as shown below:

```
16:06:46                 ***** REVIEW NM UTILITY *****              2006-03-02
                          - Environmental Information -


  TP System ............... CICS/MVS 2.1.0  Reports Currently Active           2
  Natural Code Version ..... SYSRNM 3.6.1  Max. Active Reports ......          2
  Driver Version ......... NATGWREV 3.6.1  Report Start Requests ....          2
  Assembly Date ............... 2000/08/11
  Assembly Time ................ 13:51:00  Session Logons ...........          1
                                           Session Logoffs ..........          0
  Number of RUABs Allocated ....        1  Sessions Logged On .......          1
  Number of Entries per NCT ....       32  Max. Sessions Logged On ..          1
  System Start Date .......... 2000/09/01
  System Start Time ........... 09:48:21  Total Transactions .......         62
                                           Average Response Time ....      0.149
  Shared Storage Allocated .....     7712
  Max. Shared Storage Alloc. ...     7712  Total Database Calls .....       4697
                                           Average Database Time ....      0.001
                                           Average Adabas Cmd Time ..    0.00012


  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit                          HC                      Canc
```

The following commands are available:

Command	PF Key	Description
HC	PF8	Go to **History Session Control**.
RESET		Reset all transaction and database statistic field values to zero and release all unused RUAB storage.

The following fields are displayed for this function:

Field	Description
TP System	CICS version under which the Natural Monitor is executing.
Natural Code Version	The version of the Natural code of Natural Monitor in library SYSRNM.
Driver Version	The version of the linked nucleus module of Natural Monitor.
Assembly Date	Assembly date of the Natural Monitor system control block RNMSCB.
Assembly Time	Assembly time of the Natural Monitor system control block RNMSCB.
Number of RUABs Allocated	The number of Natural Monitor user account blocks (RUABs) allocated in CICS shared storage. One RUAB is used to monitor one Natural session. It can be reused after session termination.
Number of Entries per NCT	Number of entries in the **Natural Call Table** (NCT) of Natural Monitor. The NCT is part of each RUAB. It is used to monitor the usage of the Natural objects executed during one session.

Field	Description
System Start Date	The date when the first Natural session was monitored by Natural Monitor.
System Start Time	The time when the first Natural session was monitored by Natural Monitor.
Shared Storage Allocated	The total amount of CICS shared storage in bytes acquired by Natural Monitor.
Max. Shared Storage Alloc.	The highest amount of CICS shared storage in bytes acquired by Natural Monitor since system startup.
Reports Curr. Active	The number of reports that are currently active.
Report Start Requests	The total number of report start requests since system startup.
Session Logons	The total number of Natural sessions which were monitored by Natural Monitor since system startup.
Session Logoffs	The total number of Natural sessions terminated which were monitored by Natural Monitor.
Session Logged On	The number of Natural sessions currently monitored by Natural Monitor.
Max. Sessions Logged On	The maximum number of Natural sessions concurrently monitored by Natural Monitor.
Total Transactions	The total number of Natural transactions monitored by Natural Monitor. A transaction lasts from screen input time until next screen output.
Average Response Time	The average response time in seconds for all transactions monitored by Natural Monitor.
Total Database Calls	The total number of database calls for all sessions monitored by Natural Monitor.
Average Database Time	The average database call response time for all sessions monitored by Natural Monitor.
Average Adabas Command Time	The average Adabas call command time for all sessions monitored by Natural Monitor. The command time value is passed back by Adabas with every Adabas call.

Accessing the History Session Control

To access the History Session Control screen:

- Type `HC` on the command line and press ENTER.

The **History Session Control** screen appears as shown below:

```
15:00:41                 ***** REVIEW NM UTILITY *****              2010-06-10
                          - History Session Control -


Transaction Id ................... QA42  Start Date ............. 2010/06/09
Current Status ...........   terminated  Start Time ................ 21:40:31
Natural User Id ..............  REVHIST  End Date ................ 2010/06/09
Database Id of Repository File .. 19999  End Time .................. 21:40:34
Database Fnr of Repository File .. 1601
Date Format in Repository File .... OLD
Logging of empty reports ..........  NO

                          Dynamic Profile Parameters

PRINTER=OFF,WORK=OFF,PROFILE=RNMQA
AUTO=ON PC=OFF ETID=' ' PROGRAM=RNMHIST3 PSEUDO=OFF TTYPE=PRNT
SENDER=CONSOLE ASYNNAME=REVHIST STACK=(LOGON SYSRNM;P-NMHIST)




Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit                    EI                            Canc
```

The following commands are available:

Command	PF Key	Description
EI	PF7	Go to **Environmental Information**.
START		Start the Natural Monitor history session.
STOP		Terminate the Natural Monitor history session.

The following fields are displayed for this function:

Field	Description	
Transaction Id	The CICS transaction under which the Natural Monitor history session is running.	
Current Status	The current status of the history session. This field can have the following values:	
	not started	No session started
	initializing	Session initializing
	active	Processing history data
	inactive	Waiting for interval time expired
	terminating	Session terminating
Natural User Id	The Natural user ID (*USER) of the Natural Monitor history session.	

Field	Description	
`Database Id of Repository File`	The database ID number of the Natural Review repository file.	
`Database Fnr of Repository File`	The database file number of the Natural Review repository file.	
`Date Format in Repository File`	Indicates the date format for reports written to the repository file. Possible values are:	
	`OLD`	The date format is *YY/MM/DD*
	`NEW`	The date format is *YYYYMMDD*
`Logging of empty reports`	Indicates whether empty reports are written to the repository file. Possible values are: `YES` or `NO`.	
`Start Date`	The start date of the Natural Monitor history session.	
`Start Time`	The start time of the Natural Monitor history session.	
`End Date`	The termination date of the Natural Monitor history session.	
`End Time`	The termination time of the Natural Monitor history session.	
`Dynamic Profile Parameters`	The dynamic profile parameters for the start of the Natural Monitor history session.	

7 Administrative Functions

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- Using NATURAL User Exits 97
- Using the Natural Monitor User Exit: Response Time Detail Record 98
- Accessing Historical Data in the NM Repository File 100
- Setting Configuration Parameter Values 101

Natural Monitor administrative functions are discussed in two sections:

- the **User Profile System**, which is used to generate profiles that define access rules for Natural Monitor users; and
- functions that pertain specifically to Natural Monitor.

This section covers the following topics:

User Profile System

For an explanation of the effect of a great number of users on CICS SHARED storage requirements, see *Storage Requirements* in *Installing Natural Review on z/OS*.

The User Profile system provides a series of menus to help you generate profiles that define access rules for Natural Monitor users. You may create profiles for new users, change access rules for existing users, and purge user profiles that are no longer required.

Natural Monitor provides a default profile to allow access for users who do not have a profile defined for them. When a user logs on, Natural Monitor checks the Natural library `SYSRNM` for the user's profile. If one is not found, the default profile is used.

The default profile is also used as a basis for creating user profiles. When a profile for a new user is generated, the default profile is copied. The new profile may then be customized to suit the needs of the user.

Note: The default profile provides unrestricted access to Natural Monitor systems and functions. It is recommended that you first create a user profile for the system administrator and other privileged users; then modify the default profile so that it conforms to the needs of the majority of users.

- Accessing the User Profile System
- Customizing the Default Profile
- Creating a User Profile
- Using the List User Profiles Function
- Editing a User Profile
- Copying a User Profile

- Purging a User Profile

Accessing the User Profile System

To access the User Profile System

- Enter the `UP` code on the command line of the Natural Monitor **Main Menu** and press ENTER.

The **User Profile System** menu appears as shown below:

```
16:59:08                  *****   R E V I E W   *****                2006-03-02
                                User Profile System


                    Code              Description

                     EU          Edit User Profile
                     LU          List User Profiles









  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit                                                   Menu
```

The following commands enable you to create and edit profiles, and display lists of existing profiles:

Command	Description
`EU`	Edits a profile for a new or existing user.
`LU`	Displays a list of existing user profiles, including the default profile.

From the list of existing user profiles, you can select a particular profile to be edited or purged.

Customizing the Default Profile

You do not need to create a user profile for each user of Natural Review. By customizing the default profile so that the access rules meet the needs of the majority of Natural Monitor users, you eliminate the need for individual user profiles.

You can access the **Edit User** function to edit the default profile in two ways.

To access the Edit User screen

1. From any screen within Natural Review, type `UP EU DEFAULT` on the command line and press ENTER.
2. From any screen within the **User Profile** system, type `EU DEFAULT` on the command line and press ENTER.

The following **Edit User** screen is displayed:

```
16:59:54                  *****   R E V I E W   *****                2006-03-02
                                     Edit User

                              User Profile: DEFAULT_

  Please Mark Categories to Select

    General ................. _

    NATURAL MONITOR ......... _









  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit        Save  Accpt                                Menu
```

The `User Profile` field usually refers to the user ID corresponding to the profile; in this case it contains the word `DEFAULT`. The categories on the screen refer to types of access rules as described in the following table:

Category	Description
General	Access rules that affect all of the systems within Natural Review. Valid values are Y/N.
NATURAL MONITOR	Access rules pertaining to the Natural Monitor system. Valid values are Y/N.

For the user's default profile, you need to modify the general access rules in addition to those pertaining to Natural Monitor.

- Displaying General Access Rules
- Displaying the Natural Monitor Access Rules
- Modifying Access Rules

Displaying General Access Rules

When you select the general access rules, the **General** window appears as shown in the following screen:

```
                    General

            Name: ____________________

     Access NATURAL MONITOR System ....... Y
     Access User Profile System .......... Y
     Default Menu ........................ MM
     Confirm Purge/Save Requests ......... Y

     PF3=Exit  PF6=Accept
```

The Name field may be used for the user's name or any other appropriate identifier.

The following table describes the general access rules that appear in the **General** window.

General Access Rule	Value	Description
Access NATURAL MONITOR System	Y	The user may access the Natural Monitor system. This is the default value.
	N	The user may *not* access the Natural Monitor system.
Access User Profile System	Y	The user may access the **User Profile** system. This is the default value.
	N	The user may *not* access the User Profile system. **Note:** Before setting this access rule to N in the default profile, you must first create a user profile that allows you to access the User Profile system. **Otherwise, you will not be able to maintain user profiles.**

General Access Rule	Value	Description
Default Menu	Determines which menu screen appears on the user's terminal when the user logs on to Natural Review.	
	MM	Natural Monitor **Main Menu** This is the default value.
	NM	Natural Monitor **Main Menu**
	UP	**User Profile System Main Menu**
Confirm Purge/Save Requests	Y	Natural Monitor will prompt the user to confirm the request before the command is executed. This is the default value.
	N	Natural Monitor will *not* prompt the user to confirm the request before the command is executed.

Displaying the Natural Monitor Access Rules

When the Natural Monitor category is selected, the **NATURAL MONITOR** window appears displaying access rules as shown below:

```
                    NATURAL MONITOR

     CANCEL/FORCE/TERMNAT/START/STOP Cmd .. Y
     Edit Report Definitions ............... Y
     Purge Historical Data ................ Y
     Purge Report Definitions ............. Y
     Purge Started Reports ................ Y
     Start Reports ........................ Y
     View Reports ......................... Y

     PF3=Exit  PF6=Accept
```

The following table describes the Natural Monitor access rules that appear in the **NATURAL MONITOR** window.

Natural Monitor Access Rule	Value	Description
CANCEL/FORCE/TERMNAT/START/STOP Cmd	Y	The user may issue a CANCEL, FORCE, TERMNAT, START or STOP command. This is the default value.
	N	The user may *not* issue a CANCEL, FORCE, TERMNAT, START or STOP command.
Edit Report Definitions	Y	The user may edit response time reports (RT function). This is the default value.

Natural Monitor Access Rule	Value	Description
	N	The user may *not* edit response time reports.
Purge Historical Data	Y	The user may delete historical data. This is the default value.
	N	The user may *not* delete historical data.
Purge Report Definitions	Y	The user may delete response time report definitions. This is the default value.
	N	The user may *not* delete response time report definitions.
Purge Started Reports	Y	The user may delete the data accumulated by response time reports that have been started. This is the default value.
	N	The user may *not* delete the data.
Start Reports	Y	The user may initiate data accumulation by starting response time reports. This is the default value.
	N	The user may *not* start response time reports.
View Reports	Y	The user may view the results of started response time reports online. This is the default value.
	N	The user may *not* review the results of started response time reports online.

Modifying Access Rules

You may modify access rules by typing over the settings displayed on the screen. When you have made all of the changes to a particular group of access rules, you have the following options:

- To exit without saving the changes, press PF3 or enter the `EXIT` command.
- To save the changes temporarily while you edit the next access rules screen, press PF6 or enter the `ACCPT` command.
- To save the changes to the Natural library, press PF5 or enter the `SAVE` command.

If you selected more than one category, pressing PF3 or PF6 displays the next access rules screen instead of returning you to the previous screen.

Creating a User Profile

To create a user profile

1 From any screen within Natural Review, type the following string on the command line and press ENTER:

```
UP EU userid ↩
```

2 From any screen within the **User Profile System**, type the following string on the command line and press ENTER:

```
EU userid
```

The **User Profile System** creates a profile for the user by copying the default profile. It then displays the user profile for editing, and the following message appears at the bottom of the screen:

```
REV00101 - NEW USER PROFILE
```

If you wish to customize the user's profile, mark the appropriate categories by typing a character on the line following your selection:

- To change access to two Natural Monitor systems, mark the **General** category.
- If you wish to modify access to certain Natural Monitor system functions, mark the **Natural Monitor** category.

When the profile provides appropriate access privileges for the user, press PF5 to save the profile to the Natural library.

Refer to *Customizing the Default Profile* for information regarding access rules for the various categories.

Using the List User Profiles Function

The **List User Profiles** (LU) function displays a list of user profiles that are stored in the Natural library SYSRNM.

To access the list of user profiles

- Enter the code LU on the command line of the **User Profile System** menu and press ENTER.

The **User Profiles** screen, similar to the one shown below, is displayed:

```
11:15:14           *****   R E V I E W NM UTILITY  *****                2000-09-01
                                   User Profiles

    Sel  Userid    Name                     Sel  Userid    Name

  ! __   DEFAULT
  ! __   GGS









  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit                          +                      Menu
```

From this screen, you may edit or purge a particular user profile.

To access the Available Functions window that displays the available commands

- Enter a question mark (?) on the selection line preceding a profile name as shown below and press ENTER.

The **Available Functions** window, similar to the one shown below, is displayed:

```
    Available Functions

    EU  Edit User Profile
    PU  Purge User Profile
    .   EXIT

    __  Enter Function
```

Editing a User Profile

To edit an existing user profile

- Enter the command `EU` on the selection line preceding the profile name.

The profile is displayed and can be edited. Refer to *Customizing the Default Profile* for additional information.

If you are editing your own user profile, the changes you make take effect as soon as you save your profile. If you are editing a profile other than your own, the changes do not take effect until the user next logs on to Natural Review.

You may also use this command to copy an existing profile to create a profile for a new user. If you have several users who require access privileges that are different from those specified in your default profile, you may use an existing profile as a model for the other profiles.

Copying a User Profile

To copy a profile

1. Enter the command `EU` on the selection line preceding the profile name to be copied.
2. Type the new user ID on the line labeled `User Profile`.
3. Press PF5 to save the new user profile.

Purging a User Profile

To delete a user profile

- Enter the command `PU` on the selection line preceding the profile name.

Depending on the setting in your profile, you may or may not be prompted for confirmation of the purge command as shown in the following screen:

```
11:17:35         *****   R E V I E W  NM UTILITY *****                2000-09-01
                                User Profiles

    Sel  Userid    Name                     Sel  Userid    Name

    __   DEFAULT
    PU   GGS


                                  +-------------------------------------+
                                  !                                     !
                                  ! Please confirm PURGE request for:   !
                                  !                                     !
                                  !              GGS                    !
                                  !                                     !
                                  !             (Y or N) Y              !
                                  !                                     !
                                  +-------------------------------------+



  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help        Exit                          +                      Menu
```

Using NATURAL User Exits

Natural Monitor has two Natural user exits which are applicable to the Natural Monitor components:

- P-UEXIT1
- P-UEXIT2

These exits are located in SYSRNM, the Natural Monitor system library in Natural. They can be modified using the Natural editor.

- P-UEXIT1

- P-UEXIT2

P-UEXIT1

This program is invoked when the online portion of Natural Monitor is *entered*. You may insert code into this program to satisfy site-specific needs.

Possible uses for this exit include:

- Setting colors on (`SET CONTROL 'T3279'`).
- Turning the PC mode on or off.

Note: This program *must not* alter the Natural stack, and it *must end* with a `STOP` command.

P-UEXIT2

This program is invoked when the online portion of Natural Monitor is *terminated*. You may insert code in this program to alter the processing that occurs when terminating Natural Review.

Possible uses for this exit include:

- Terminating your Natural session.
- Logging on to another Natural application.
- Returning to a previous Natural application (using `SETUP/RETURN`).

Using the Natural Monitor User Exit: Response Time Detail Record

Each time a transaction finishes (a terminal write is performed), Natural Monitor creates a record that contains information about the resources consumed by that transaction:

- the response time for the transaction;
- the number of database calls issued for the transaction;
- the total database elapsed time and command time for all calls issued; and
- information about the user who performed the transaction.

A user exit (`RNMRTUEX`) is provided with Natural Monitor to allow the user to handle this information as follows:

- examine the record;
- process the record; and
- accept or reject the record's inclusion into any active Natural Monitor response time reports.

The user can also write this record to a sequential data set or to SMF (System Management Facility) for later processing or as input to a chargeback system.

A sample `RNMRTUEX` user exit is supplied in the Natural Monitor source library. A copy book containing a `DSECT` mapping the detailed record is also provided.

This user exit can be modified to suit the needs of a user site and must be linked into the Natural nucleus with the rest of the Natural Monitor code in the step that links the Natural nucleus with Natural Monitor; see the corresponding step in *Installing Natural Review on z/OS*.

- Calling Conventions to Invoke the User Exit

Calling Conventions to Invoke the User Exit

The following calling conventions are used to invoke the `RNMRTUEX` user exit:

- Register contents when entering the user exit:

  Register 1: Address of the parameter list

  Register 13: Address of an 18-fullword save area

  Register 14: Return address in the calling module

  Register 15: Entry address within `RNMRTUEX`
- Register contents returned by the user exit:

  Register 1: Address of the parameter list

  Registers 2 through 13: *Must be unchanged*.
- Content of parameters passed:

  Word 1: For record type 1: Response time report detail record

  Word 2: Address of the response time report detail record
- Return codes passed using Register 15:

  Zero(0): Process the record for all active response time reports

  Non-zero(0): Reject the record for response time report processing

Accessing Historical Data in the NM Repository File

The Natural Review repository file contains Natural Monitor response time report definitions and historical data for response time reports that have a history interval. The historical data can be accessed by user-written applications and used as input for other processing (for example, trend analysis).

The view for this file is called `REVIEW-NM-FILE`.

The file can be read using the following key definition against the view field `NM-KEY`:

```
1 REPORT-KEY                  (A50)
1 REDEFINE REPORT-KEY
2 REPORT-SUBSYSTEM            (A02)
2 REPORT-DATE                 (N08)
2 REPORT-TIME                 (N06)
2 REPORT-NAME                 (A32)
2 REPORT-SEQ                  (B02)
```

where:

Field	Description
`REPORT-SUBSYSTEM`	`RT` for the Response Time subsystem.
`REPORT-DATE`	Date (in *YYYYMMDD* format) that the historical data record was written.
`REPORT-TIME`	Time (in *HHMMSS* 24-hour format) that the historical data record was written.
`REPORT-NAME`	Response time report name for which the historical data record was written.
`REPORT-SEQ`	Record type for the historical data record. Record type 1 is used for response time interval data (corresponding to the `VW` or `VH` display in the **Response Time** subsystem). Record types 2 through *n* are used for response time detail records (corresponding to the `VD` display in the **Response Time** subsystem). The first detail record written for a given history interval will have a `REPORT-SEQ = 2`, and for each additional detail record written, the `REPORT-SEQ` field will increment by 1.

Two sample Natural programs are provided in the Natural Monitor library (`SYSRNM`) which read **Response Time** subsystem historical data. These two programs are called `HISTORY1` and `HISTORY2`.

`HISTORY1` is an example of how to read the response time interval history data (corresponding to the `VW` or `VH` command in the response time subsystem). For a specific response time report within a specified date and time range, `HISTORY1` reads all associated response time interval history records and performs some summary statistical evaluation.

HISTORY2 is an example of how to read the response time detail history records (corresponding to the VD command in the response time subsystem). For a specific response time report within a specified date and time range, HISTORY2 reads all associated response time detail history records and displays summary information of the 20 detail records had the highest response time.

In addition to the two sample Natural programs, a Natural local data area (LDA) called L-NMHIST is provided which incorporates fields from the Natural Monitor DDM. This LDA may be used by user-written programs to read the Natural Review repository file. See ***Local Data Area View Description*** for the contents of this LDA.

Setting Configuration Parameter Values

For an explanation of the effect of many response time reports on CICS SHARED storage requirements, see *Storage Requirements* in *Installing Natural Review on z/OS*.

Within Natural Monitor, the Natural Monitor administrator modifies the configuration program for the following reasons:

- to control the generation of historical data for response time reports;
- to control the intervals used for collection; and
- to set other response time report parameters.

The administrator uses parameters in the program P-NMCONF in library SYSRNM to control historical data and other response time report options.

The P-NMCONF program contains default configuration values for new response time report definitions. Parameter values set in the distributed P-NMCONF program are normally not changed until the default values have been in use for a test period. P-NMCONF program parameter values generally depend on the site's workload, application use, and response time.

The P-NMCONF program is a Natural program called from Natural Monitor code to set defaults in the Natural Monitor global data area. It can be edited just as any Natural program can be edited.

To access and edit the P-NMCONF configuration program

1. Type LOGON SYSRNM at the Natural NEXT prompt and press ENTER.
2. Type EDIT P-NMCONF and press ENTER.
3. Modify the P-NMCONF program by typing over the existing values.

   Note: P-NMCONF parameters and values are discussed in the following sections.

4. Type STOW and press ENTER to save and catalog the changes.

5 Type MENU at the prompt to return to Natural Review.

The changes you make to P-NMCONF take effect immediately.

- P-NMCONF Response Time Parameters
- P-NMCONF Report Parameter
- P-NMCONF Historical Data Parameters

P-NMCONF Response Time Parameters

The +RT-INTERVAL and +RT-THRESHOLD parameters are used in conjunction with one another to control the color and monochrome attributes of response time reports.

Parameter	Description	
+RT-INTERVAL	Specifies the reporting interval (in seconds) used to graph a report horizontally and vertically. Valid values are 0.1 to 99.9 (default is 0.5).	
+RT-THRESHOLD	Specifies the transaction response time value (in seconds) above which Natural Monitor creates detailed records for the Detailed Records table. Valid values are 0 to 99.9 (default is 3.5).	
+RT-MAX-DETAIL-RECS	Specifies the maximum number of detailed response time records to be retained. Valid values are 0 to 999 (default is 20).	
+RT-WRAP-OPTION	Specifies the wrap option. Valid values are:	
	NONE	Detailed response time records are retained to the limit specified by the RT-MAX-DETAIL-RECS parameter. This is the default value.
	STD	(standard) The most current response time records are retained.
	HIGH	The response time records with the highest value are retained.
+RT-TS-OPTION	Specifies the transaction summary option. Valid values are:	
	NONE	No transaction summary is created. This is the default value.
	SUM	A transaction summary is created for the root transaction program; for example, N*vrs* for Natural; where *vr* represents the relevant product version.
	DET	A detailed transaction summary is created that includes Natural application information.

P-NMCONF Report Parameter

Parameter	Description	
+RT-AUTOSTART	Specifies the autostart option. Valid values are:	
	Y	Report is autostarted by the Natural Monitor history task when it initializes. This is the default value.
	N	Report is *not* autostarted.

P-NMCONF Historical Data Parameters

Parameter	Description	
+RT-HISTORY-INTERVAL	Specifies the interval (in minutes) at which response time historical data is written to the Natural Monitor repository. Valid values are 0 to 999 minutes (default is 0). **Note:** A value of zero (0) prevents historical data from being written.	
+RT-HISTORY-REFRESH	Specifies whether the response time report that has a history interval should be refreshed after the history interval has expired.	
	Y	The history report is refreshed. This is the default value.
	N	The report is *not* refreshed.

8 Function Codes and Commands

- Command Modes 106
- Function Codes 106
- Commands 107

This section covers the following topics:

Command Modes

The Command line appears at the bottom of each screen in Natural Review. It is used to access a specific function and/or to issue a processing command.

Natural Monitor provides a menu structure to help access specific screens and issue related commands. Experienced users of Natural Review often bypass the menu structure by typing a string of function codes on the Command line, in some cases followed by a command.

Example:

- Using the menu structure, you can access the **Edit Report** screen only by first accessing the **Response Time Subsystem** menu from the **Natural Monitor System** menu.
- Using a function code string, you can access the **Edit Report** screen directly from the **Natural Monitor System** menu:

```
RT ER reportname
```

The tables below list the function codes, PF keys, and commands available within Natural Monitor.

Function Codes

Valid function codes are listed on menu screens. A string of function codes must reflect the sequence of menu screens for the particular system of Review you are accessing. Refer to the ***Natural Monitor System Diagram*** for the specific sequence of function codes.

To access the Natural Monitor system from **User Profile System** and vice versa, prefix the function code string with the appropriate system code as follows:

- `NM` for Natural Monitor
- `UP` for User Profile System

The following table lists function codes for Natural Monitor:

Function	Code	Description
RT	ER	Edit report definitions.
RT	EX	Expanded history list.
RT	LH	List history reports.
RT	LR	List report definitions.
RT	LS	List started reports.
RT	PH	Purge history reports.
RT	PR	Purge report definition.
RT	PS	Purge started report.
RT	PX	Purge start range.
RT	PY	Purge end range.
RT	RF	Refresh started report.
RT	RT	Display **Response Time Subsystem** menu.
RT	ST	Start report.
RT	VD	View detailed records.
RT	VH	View graph horizontally.
RT	VT	View transaction summary.
RT	VW	View graph vertically.
SA	SA	Display **Summary of Active Users** report.
TE	EI	Environmental information.
TE	HC	History session control.
UP	EU	Edit user profiles.
UP	LU	List user profiles.
UP	UP	Display **User Profile System** menu.

Commands

The following table describes commands used within Natural Monitor.

The `Use` category in the table lists the functions in which the command applies. Subfunctions are separated from the function with a slash (/); multiple subfunctions are separated from each other by a dash (-).

Command	PF Key	Description	Use
+, FWD	PF8	Scroll forward one screen.	In several functions.
-, BACK	PF7	Scroll backward one screen.	In several functions.
- -, TOP		Position to the top.	In several functions.
ACALL	PF7	Display the average number of database calls issued for each transaction within a specific response time interval or range.	RT/VH-VW
CALLS	PF5	Display the total number of database calls issued for the total number of transactions within each specific response time interval or range.	RT/VH-VW

CANCEL		Terminate specified session abnormally. A session may be cancelled by TP user ID, terminal name, or session ID (SID). See below:
		`CANCEL U=userid`
		`CANCEL sid`
		`CANCEL T=terminalname`
			SA, SA/PICK

COLOR OFF		Return the terminal display to monochrome.	All
COLOR ON		Set the terminal display to color.	All
CURR	PF2	Toggle to current data from historical data.	RT/EX-VD-VH-VW
DETAIL DET	PF5	Provide detailed information about Natural applications and program usage.	RT/VT

DISPLAY
DI
		Valid versions of this command are:
		`DISPLAY ACT`
		`DISPLAY ALL`
		The DISPLAY ACT version of the command causes all users except those with status Inactive or Terminate to be displayed. The DISPLAY ALL version causes a list of all users who have invoked Natural to be displayed, regardless of whether they are currently active.
			SA

END	PF12	End the Review session.	All
ER		Access the Edit Report screen for a report on the list.	RT/all
EX		List dates and time of historical snapshots.	RT/all
EXIT	PF3	Return to the previous screen, or return to a main menu.	All
FIN	PF12	End a Review session.	All
FORCE		Deactivates Review monitoring for the specified session. It does not affect the Natural session. A session may be	SA, SA/PICK

Command	PF Key	Description	Use

		forced by TP user ID, terminal name or session ID. Valid versions of this command are:
		
		`FORCE U=userid`
		`FORCE sid`
		`FORCE T=terminalname`	

HELP	PF1	Access the help system. Valid command syntax: HELP [command]	All
HIGH	PF7	Display The Highest 20 window from the Summary of Active Users display.	SA
HIST	PF2	Access historical data.	RT/VD-VH-VW
HORI	PF10	Display a horizontal graph.	RT/VW-VH
LEFT	PF10	Scroll display left one screen.	RT/VD, SA/PICK/NCT, SA
LFILE		Display and change LFILE settings.	All
LOGO		Display the logo screen.	All
LOW	PF6	Display The Lowest 20 window from the Summary of Active Users display.	SA
MENU	PF12	Return to the Natural Monitor main menu.	All
MSG		Display an extended error message online. Example: MSG REV00001,MSG1	All
NCT	PF9	Display the Natural call table listing programs accessed by user's last or current transaction.	SA/PICK
NEXT		Go to the next time interval of historical data.	RT/LH/VD-VH-VW
NEXT	PF8	Display the next user from a list of users on the Summary of Active User's screen.	SA/PICK
PH		Purge a historical snapshot	RT/LH-LR-LS-EX
PICK	PF9	Select one of the following for display: database, buffer pool display, transaction, user ID.	RT/VD, SA, SA/HIGH-LOW
PR		Purge a report definition	RT/LR-LS
PREV		Go to the previous time interval of historical data.	RT/LH-VD-VH-VW
PS		Purge a started report.	RT/LR-LS
PX		Purge start range.	RT/LH-LR-LS/EX
PY		Purge end range.	RT/LH-LR-LS/EX
QUIT	PF12	End the Review session.	All
REFRESH	PF9	Refresh the Natural call table display with updated information.	SA/PICK/NCT

Command	PF Key	Description	Use
RESET		Reset all transaction and database statistic fields to zero and release all unused RUAB storage.	TE/EI
RF		Restart a started report.	RT/LR-LS
REVPROD		Display version number of all subsystems being used in this session of Natural Review.	All
RIGHT	PF11	Scroll display right one screen.	RT/VD, SA/PICK/NCT, SA
SAVE	PF5	Save report or other data	RT/ER
ST	PF6	Start report or simulation.	RT/ER
START		Start the Natural Monitor history session.	All
STERM SORTTERM		Sort users in ascending order by terminal name.	SA
SSID SORTSID	PF5	Sort users in ascending order by SID.	SA
STOP		Terminate the Natural Monitor history session.	TE/HC
SUM SUMMARY	PF6	Summarize transactions; does not display detailed Natural program data.	RT/VT
SUSER SORTUSER	PF4	Sort the Summary of Active Users display by user ID. Use: SA	PF4

TERM
 	
TERMNAT
		Terminate specified session normally. A session may be terminated by TP user ID, terminal name, or session ID. The command format is the following:
		
		`TERMNAT U=userid`
		`TERMNAT sid`
		`TERMNAT T=terminalname`
			SA, SA/PICK

TOGGLE		Switch between current and history report data.	RT/VD-VH-VW
TOP		Return to the top of the display.	RT/EX-LH-LR-LS-VD-VT, SA
TRANS	PF4	Display response times, for transactions, in vertical or horizontal graph. (system default)	RT/VH-VW
VD		Display detailed records for a report.	RT/all
VERT		Display a vertical graph.	RT/VH-VW
VH		Display a horizontal graph.	RT/all
VT		Display a transaction summary.	RT/LR-LS
VW		Display a historical snapshot or vertical graph.	RT/all

9 Local Data Area View Description

In the following table, all fields are listed and described in the order in which they appear in the local data area `L-NMHIST`. The actual file listing follows the table.

The letter D in the DE column indicates that the field is a descriptor. A format indicator followed by a numeric field length is found in the Format/Length column. Possible format indicators include A (alphanumeric), B (binary), and N numeric.

Lvl/Field	DE	Format/ Length	Description
`1 REVIEW-NM-FILE-VIEW`			View name to be used when reading the Natural Review repository file.
`2 CONTROL-FIELDS`			History record control fields group name.
`3 NM-SUBSYSTEM`		`A2`	Natural Monitor subsystem type. Response time subsystem history records have a `NM-SUBSYSTEM` value of `RT`.
`3 NM-DATE-SAVED`		`N8.0`	For `RT` subsystem history reports this field contains the date (in *`YYYYMMDD`* format) that the record was saved.
`3 NM-TIME-SAVED`		`N6.0`	For `RT` subsystem history reports this field contains the time (in *`HHMMSS`* 24-hour format) that the record was saved.
`3 NM-DATE-COMPLEMENT`		`N8.0`	For `RT` subsystem history reports this field contains the twos-complement of the date that the record was saved.
`3 NM-TIME-COMPLEMENT`		`N6.0`	For `RT` subsystem history reports this field contains the twos-complement of the time that the record was saved.
`3 NM-SORT-FLD`		`A32`	For `RT` subsystem history reports this field contains the report name for which the record was saved.
`3 NM-SEQ`		`B2`	For `RT` subsystem history reports this field contains the record sequence number for the record that was written. A value of 1 in this field denotes that the record is a response time interval record (corresponding to the `VW` and `VH` display). A value greater than 1 in this field denotes the record sequence number for detailed records.

Lvl/Field	DE	Format/ Length	Description
2 NM-RECORD-TYPE		B4	This field is not currently used.
2 RESPONSE-TIME-SUBSYSTEM			Response time subsystem fields group name.

The following fields refer to response time subsystem report definitions (ER (edit report) command):

Lvl/Field	DE	Format/ Length	Description
3 RT-REPORT-NAME		A32	Report name.
3 RT-DEF-INTERVAL		B2	Graphing interval parameter.
3 RT-DEF-THRESHOLD		B2	Response time threshold at which a detail record is to be created.
3 RT-DEF-MAX-DETAIL		B2	Number of detail records to be retained.
3 RT-DEF-WRAP-OPTION		A4	Detail record wrapping option.
3 RT-DEF-TS-OPTION		A4	Transaction summary record option.
3 RT-DEF-AUTOSTART		A1	Autostart indicator.
3 RT-DEF-HISTORY-INTERVAL		N3.0	History interval (in minutes).
3 RT-DEF-USERID		A8	User ID selection criterion.
3 RT-DEF-PGMNAME		A8	TP transaction program name selection criterion.
3 RT-DEF-NATAPPL		A8	Natural application selection criterion.
3 RT-DEF-NATPGM		A8	Natural program selection criterion.
3 RT-DEF-HISTORY-REFRESH		A1	History refresh indicator.

The following fields refer to response time subsystem interval data historical records (VW and VH (view and view horizontal) commands):

Lvl/Field	DE	Format/ Length	Description
3 RT-VW-START-DATE		A8	Start date for interval data historical record (for DATE=OLD in *YY/MM/DD* format; for DATE=NEW in *YYYYMMDD* format).
3 RT-VW-START-TIME		A8	Start time for interval data historical record (in *HH*:*MM*:*SS* 24-hour format).
3 RT-VW-THRESHOLD		B4	Interval threshold specified.
2 RT-VW-DATA			Periodic group for interval data historical record.
3 RT-VW-INTERVAL		B4(1:11)	MU containing the intervals for which the interval data historical record was created.
3 RT-VW-TRANS		B4(1:11)	MU containing the number of transactions for each interval.
3 RT-VW-ACALLS		B4(1:11)	MU containing the number of database calls for each interval.

The following fields refer to response time subsystem detailed transaction historical records (VD (view detail) command):

Lvl/Field	DE	Format/ Length	Description
2 RT-VD-USERID		A8	TP system user ID.
2 RT-VD-TERMINAL-NAME		A8	TP system terminal name for RT subsystem historical detailed record.
2 RT-VD-NATURAL-UID		A8	Natural user ID (*USER).
2 RT-VD-PROGRAM		A8	TP system transaction program name.
2 RT-VD-TRANS-ENDTIME		A8	The transaction end time (in *HH*:*MM*:*SS* 24-hour format).
2 RT-VD-TRANS-NUMBER		B4	The TP system transaction number.
2 RT-VD-ADABAS-CALLS		B4	The total number of database calls issued.
2 RT-VD-ADABAS-CALLS-TR		B4	The total number of database calls issued for which Natural Monitor has been able to calculate a database elapsed time.
2 RT-VD-TOTAL-ELAPSE-TIME		B4	The total database elapse time (in milliseconds) for all database calls issued.
2 RT-VD-TOTAL-COMMAND-TIME		B4	The total database command time (in units of 16 microseconds) for all database calls issued.
2 RT-VD-RSP-TIME		B4	The response time (in milliseconds).
2 RT-VD-CPU-TIME		B4	This field is not currently used.
2 RT-VD-HIGH-CMD		A2	The database command issued by the Natural program that had the highest database command time.
2 RT-VD-HIGH-DBID		B2	The database ID accessed by the Natural program that had the highest database command time.
2 RT-VD-HIGH-FNR		B2	The database FNR accessed by the Natural program that had the highest database command time.
2 RT-VD-HIGH-STMT		B3	The Natural statement number that generated the database command within the Natural program that had the highest database command time.
2 RT-VD-HIGH-LEVEL		B1	The Natural call level of the Natural program that had the highest database command time.
2 RT-VD-THREAD-NUMBER		B1	The Natural thread number that was used by the Natural transaction.
2 RT-VD-HIGH-ADABAS-CALLS		B4	The total number of database calls issued by the Natural program that had the highest database command time
2 RT-VD-HIGH-NATURAL-LOADS		B4	The total number times the Natural program that had the highest database command time was loaded.
2 RT-VD-HIGH-ELAPSE-TIME		B4	The database elapsed time for the Natural program that had the highest database command time.
2 RT-VD-HIGH-COMMAND-TIME		B4	The database command time for the Natural program that had the highest database command time.

The following fields are superdescriptors used to read the Natural Review repository file:

Lvl/Field	DE	Format/ Length	Description
2 NM-KEY	D	A50	Primary search key superdescriptor for reading the Natural Review repository file.
2 NM-KEY-2S	D	A50	Secondary twos-complement search key superdescriptor for reading the Natural Review repository file.
2 NM-KEY1	D	A48	Internal use search key superdescriptor for reading the Natural Review repository file.
2 NM-KEY1-2S	D	A48	Internal use search key superdescriptor for reading the Natural Review repository file.
2 NM-KEY2-2S	D	A16	Internal use search key superdescriptor for reading the Natural Review repository file.

10 Natural Review Repository File

```
V 1 REVIEW-NM-FILE-VIEW                          REVIEW-NM-FILE
G 2 CONTROL-FIELDS                               /* NM HISTORY CONTROL FIELDS
  3 NM-SUBSYSTEM                        A    2 /* HISTORY SUBSYSTEM
  3 NM-DATE-SAVED                       N  8.0 /* DATE SAVED (YYYYMMDD FORMAT)
  3 NM-TIME-SAVED                       N  6.0 /* TIME SAVED (HHMMSS FORMAT)
  3 NM-DATE-COMPLEMENT                  N  8.0 /* TWOS COMPLEMENT DATE
  3 NM-TIME-COMPLEMENT                  N  6.0 /* TWOS COMPLEMENT TIME
  3 NM-SORT-FLD                         A   32 /* SORT FIELD (REPORT NAME)
  3 NM-SEQ                              B    2 /* HISTORY RECORD SEQ NUMBER
  2 NM-RECORD-TYPE                      B    4 /* HISTORY RECORD TYPE
G 2 RESPONSE-TIME-SUBSYSTEM                      /* RT SUBSYSTEM FIELDS
  3 RT-REPORT-NAME                      A   32 /* REPORT NAME
  3 RT-DEF-INTERVAL                     B    2 /* GRAPH INTERVAL
  3 RT-DEF-THRESHOLD                    B    2 /* DETAIL RECORD THRESHOLD
  3 RT-DEF-MAX-DETAIL                   B    2 /* MAXIMUM DETAIL RECORDS
  3 RT-DEF-WRAP-OPTION                  A    4 /* DETAIL RECORD WRAPPING OPTION
  3 RT-DEF-TS-OPTION                    A    4 /* TRANSACTION SUMMARY OPTION
  3 RT-DEF-AUTOSTART                    A    1 /* AUTOSTARTED REPORT INDICATOR
  3 RT-DEF-HISTORY-INTERVAL             N  3.0 /* HISTORY REPORT INTERVAL
  3 RT-DEF-USERID                       A    8 /* SEL.CRIT.FOR USERID
  3 RT-DEF-PGMNAME                      A    8 /* SEL.CRIT.FOR TRANS PGM NAME
  3 RT-DEF-NATAPPL                      A    8 /* SEL.CRIT.FOR NATURAL APPL
  3 RT-DEF-NATPGM                       A    8 /* SEL.CRIT.FOR NATURAL PROG
  3 RT-DEF-HISTORY-REFRESH              A    1 /* HISTORY REPORT REFRESH OPTION
  3 RT-VW-START-DATE                    A    8 /* REPORT START DATE (HISTORY)
  3 RT-VW-START-TIME                    A    8 /* REPORT START TIME (HISTORY)
  3 RT-VW-THRESHOLD                     B    4 /* REPORT THRESHOLD (HISTORY)
P 2 RT-VW-DATA                                   /* HISTORY INTERVAL DATA
  3 RT-VW-INTERVAL                      B    4 (1:11) /* INT.RANGE (HISTORY)
  3 RT-VW-TRANS                         B    4 (1:11) /* TRANS/INT.(HISTORY)
  3 RT-VW-ACALLS                        B    4 (1:11) /* CALLS/INT.(HISTORY)
  2 RT-VD-USERID                        A    8 /* DET.REC.TP SYSTEM USERID
  2 RT-VD-TERMINAL-NAME                 A    8 /* DET.REC.TERMINAL NAME
  2 RT-VD-NATURAL-UID                   A    8 /* DET.REC.NATURAL USERID
```

```
    2 RT-VD-PROGRAM                    A    8 /* DET.REC.TRANS.PGM.NAME
    2 RT-VD-NATURAL-APPL               A    8 /* DET.REC.NATURAL APPLICATION
    2 RT-VD-NATURAL-PROGRAM            A    8 /* DET.REC.NATURAL PROGRAM
    2 RT-VD-TRANS-ENDTIME              A    8 /* DET.REC.TRANS.END-TIME
    2 RT-VD-TRANS-NUMBER               B    4 /* DET.REC.TRANS.NUMBER
    2 RT-VD-ADABAS-CALLS               B    4 /* DET.REC.TOTAL DATABASE CALLS
    2 RT-VD-ADABAS-CALLS-TR            B    4 /* DET.REC.CALLS(FOR ELPS TIME)
    2 RT-VD-TOTAL-ELAPSE-TIME          B    4 /* DET.REC.TOTAL ELAPSED TIME
    2 RT-VD-TOTAL-COMMAND-TIME         B    4 /* DET.REC.TOTAL COMMAND TIME
    2 RT-VD-RSP-TIME                   B    4 /* DET.REC.RESPONSE TIME
    2 RT-VD-CPU-TIME                   B    4 /* DET.REC.CPU TIME
    2 RT-VD-HIGH-CMD                   A    2 /* DET.REC.HIGH DATABASE COMMAND
    2 RT-VD-HIGH-DBID                  B    2 /* DET.REC.HIGH DATABASE ID
    2 RT-VD-HIGH-FNR                   B    2 /* DET.REC.HIGH FILE NUMBER
    2 RT-VD-HIGH-STMT                  B    3 /* DET.REC.HIGH NATURAL STMT
    2 RT-VD-HIGH-LEVEL                 B    1 /* DET.REC.HIGH PGM.CALL LEVEL
    2 RT-VD-THREAD-NUMBER              B    1 /* DET.REC.NATURAL THREAD NR.
    2 RT-VD-HIGH-ADABAS-CALLS          B    4 /* DET.REC.HIGH DATABASE CALLS
    2 RT-VD-HIGH-NATURAL-LOADS         B    4 /* DET.REC.HIGH NAT.PGM.LOADS
    2 RT-VD-HIGH-ELAPSE-TIME           B    4 /* DET.REC.HIGH ELAPSED TIME
    2 RT-VD-HIGH-COMMAND-TIME          B    4 /* DET.REC.HIGH DB CMD TIME
    2 RT-VD-HIGH-LOAD-LIBRARY          A    8 /* DET.REC.HIGH ORIGINAL-LOAD-LIBRARY
    2 NM-KEY                           A   50 /* PRIMARY NM SEARCH KEY(SUPERD)
    2 NM-KEY-2S                        A   50 /* SECONDARY NM SEARCH KEY
    2 NM-KEY1                          A   48 /* SECONDARY NM SEARCH KEY
    2 NM-KEY1-2S                       A   48 /* SECONDARY NM SEARCH KEY
    2 NM-KEY2-2S                       A   16 /* SECONDARY NM SEARCH KEY
```