Super Natural

Administration

Version 9.2.2

October 2023

This document applies to Super Natural Version 9.2.2 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

This documentation provides information on administrating Super Natural. The documentation is organized in the following parts:

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1 About this Documentation

Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
`Monospace font`	Identifies service names and locations in the format *`folder.subfolder.service`*, APIs, Java classes, methods, properties.
`Italic`	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
`Monospace font`	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
|	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the | symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

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Product Documentation

You can find the product documentation on our documentation website at **https://documentation.softwareag.com**.

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- Browse through our vast knowledge base.
- Ask questions and find answers in our discussion forums.
- Get the latest Software AG news and announcements.
- Explore our communities.
- Go to our public GitHub and Docker repositories at **https://github.com/softwareag** and **https://hub.docker.com/publishers/softwareag** and discover additional Software AG resources.

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- Download products, updates and fixes.
- Search the Knowledge Center for technical information and tips.
- Subscribe to early warnings and critical alerts.
- Open and update support incidents.
- Add product feature requests.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 Introduction

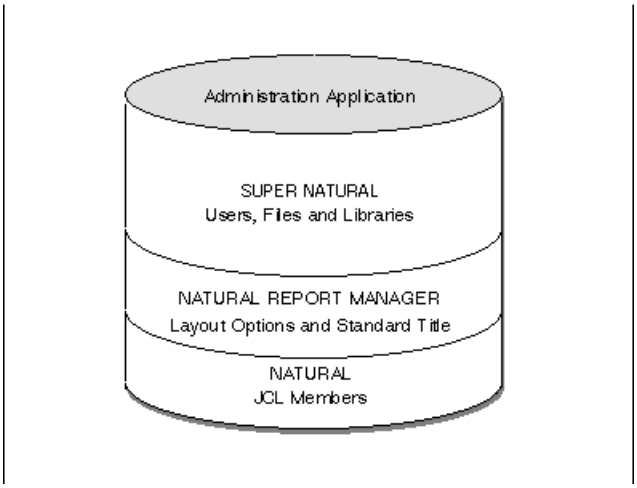
This section introduces you to the Super Natural Administration Application.

This section covers the following topics:

Administration Application Overview

Super Natural administration is an independent application with its own command processor. The users' part of Super Natural is called the Super Natural Processor.

The Super Natural Administration Application has three distinct sections as shown below:



- **Super Natural**
  You use the main part of the Super Natural Administration Application to maintain users, files (files, user files and superfiles) and libraries (public, common and private). The user interface conforms with the Super Natural Processor application.
- **Natural Report Manager**
  Parts of Natural Report Manager are incorporated. You can modify a user's layout options using part of the Natural Report Manager Profile function. You can modify the Standard Title for your site from the Special Services menu using the Layout Editor.

- **Natural**
  The Natural `LIST` command is incorporated. Choosing JCL Members from the Special Services menu is the same as issuing the following Natural commands:

```
LOGON LIBRARY ZJCL
```

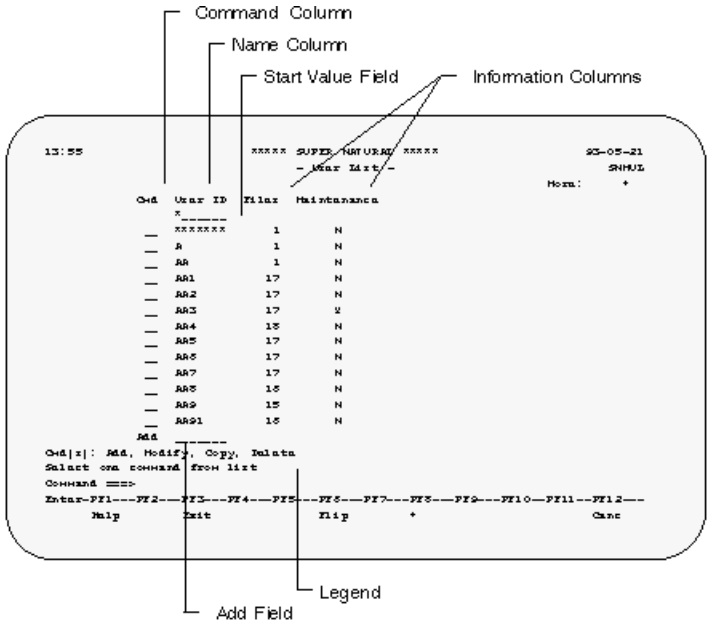
```
LIST *
```

Administration Application User Interface

The user interface for Super Natural uses menus, screens and windows.

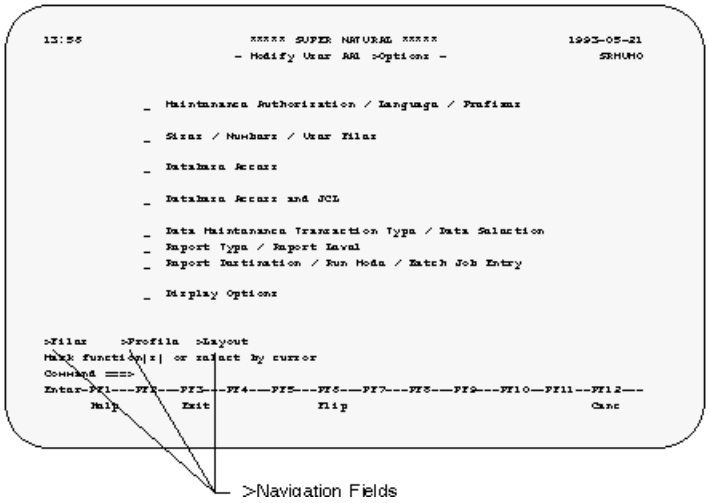
Object List Screens

Instead of the Description column found in the Processor application, the object list screens in the Administration Application have various information columns and do not have the Library and `Library Type` fields as shown below:



> Navigation

The Modify Object screens and the Import Files Object list screen have > navigation fields for navigating between groups of settings or object types in the bottom left-hand corner of the processing area as in the sample below:



To navigate between groups of settings or object types using `> navigation`

- Mark the appropriate > navigation field with the cursor position or any non-blank character and press Enter.

  Or:

  Issue one of the following commands as appropriate:

  - `>OPTIONS`
  - `>PROFILE`
  - `>USERS`
  - `>PUBLIC`
  - `>FILES`
  - `>LAYOUT`
  - `>PRIVATE`

Note: For further information on using the new Super Natural user interface, see *Using Super Natural* in the *User's Guide*.

Invoking the Super Natural Administration Application

To invoke the Super Natural Administration Application from a Super Natural session

- Select the function `Super Natural Administration` on the Processor Main Menu.

  Or:

  Issue the `MAINTENANCE` command from the Main Menu.

  The Administration Menu appears:

```
13:56                     ***** Super Natural *****               1999-05-21
                           - Administration Menu -                     SNM04
                                                                          ↩
                                                                          ↩
                                                                          ↩
                                                                          ↩
            USER  Users                                                   ↩
                                                                          ↩
                                                                          ↩
            FILE  Files                                                   ↩
            SUPER Superfiles                                              ↩
            USERF User Files                                              ↩
                                                                          ↩
            LIB   Libraries                                               ↩
            COMM  Common Libraries                                        ↩
                                                                          ↩
            SPEC  Special Services                                        ↩
                                                                          ↩
            PROC  Super Natural Processor                                 ↩
                                                                          ↩
                                                                          ↩
                                                                          ↩
                                                                          ↩
Select Object                                                             ↩
                                                                          ↩
Command ===>                                                              ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip                             Canc ↩
```

Invoking the Super Natural Processor Application from the Administration Application

To invoke the Super Natural Processor application from the Administration Application

- Issue the `PROCESSOR` command.

  The Super Natural Processor Main Menu appears.

  You can use the `PROCESSOR` *`Super-Natural-command`* command to execute Super Natural Processor commands directly from the Administration Application.

To execute a Super Natural Processor command directly from the Administration Application

- Issue the `PROCESSOR` *`Super-Natural-command`* command.

  The Super Natural Processor command is executed.

Note: You return to the Administration Application via the Super Natural Menu.

Command Overview

	User	File	Super File	User File	Lib. (U) (P)	Lib. Member	Lib. (C)	Standard Title	JCL Lib.
ADD	X	X	X				X		X
MODIFY	X	X	X	X					
COPY	X	X	X		X	X			
DELETE	X	X	X	X	X	X	X	X	
INFO						X			
IMPORT	X	X							
MULTIMOD	X	X							
MEMBER					X				
EDIT								X	X
LIST									X
PRINT									X
RENAME									X
DISPLAY								X	
TEST								X	

As users of this documentation should already be familiar with using Super Natural, only direct commands are documented. For alternative methods of issuing commands, see *Using Super Natural* in the *User's Guide*.

3 Users

This section covers the following topics:

What are Users?

Each Super Natural user has a user ID and a user profile. User profiles consist of settings for options, files, profile and layout. These settings influence the appearance of screens, and many technical details concerning the environment, output and processing of transactions.

You can adapt the settings for each user of Super Natural to suit his or her individual requirements. You can either use the settings in the default user profile ******* or change each setting individually. You can also change all users at once.

Note: A user must be authorized to use at least one library.

You can perform the following commands on the object user:

	ADD	MODIFY	COPY	DELETE	IMPORT	MULTIMOD
User	X	X	X	X	X	X

Default User *******

Software AG supplies a default user profile with the user ID ******* with Super Natural (known as global options in previous versions). When you define a user, the default user profile of user ******* is copied to the user ID you have specified.

You cannot delete the default user.

Modifying the Default User

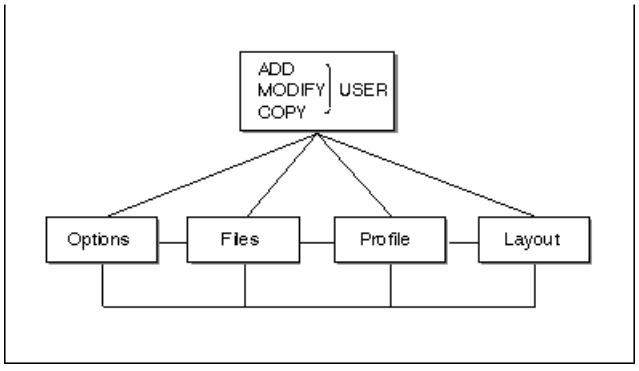
You can modify the default user ******* supplied by Software AG to suit the needs at your site.

When you add or import the next user, any modifications you have made to the options and file list of the default user are copied to the user ID you have specified. The standard profile and layout settings provided by Software AG are always copied to new users created with the `Add` or `Import` functions.

When you create a new user by copying the default user, any modifications you have made to the default user's profile and layout are copied to the user ID you have specified in addition to the modified options and file list.

User Profile

The Super Natural user profile settings are organized into four groups of equal status as shown in the following diagram:



Listing Users

To obtain a list of users currently defined to Super Natural

- Issue the `USER` command.

  Or:

  Select the object User from the Administration Menu.

  The User List screen appears:

```
13:57                    ***** Super Natural *****                   1999-05-21
                               - User List -                              SNMUL
                                                                  More:     +
            Cmd  User ID  Files  Maintenance

                 *_______

             __  *******      1       N

             __  A            1       N

             __  AA           1       N

             __  AA1         17       N

             __  AA2         17       N

             __  AA3         17       Y

             __  AA4         18       N

             __  AA5         17       N

             __  AA6         17       N

             __  AA7         17       N

             __  AA8         16       N

             __  AA9         15       N

             __  AA91        16       N

            Add  ________

Cmd(s): Add, Modify, Copy, Delete

Select one command from list

Command ===>

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +                       Canc
```

The User List screen shows the following:

- List of the users defined to Super Natural.
- The number of files each user can access.
- Whether each user is authorized as an administrator.

User IDs

Before you can add a user, you must decide which user ID to give him. The user IDs you can allocate depend on whether you are running Super Natural under Natural Security or not.

Super Natural with Natural Security

To use Super Natural with Natural Security

- Use the user's Natural Security logon ID.

  You cannot override this.

Note: If you import a user whose Natural Security logon ID is longer than 7 characters, it is truncated.

Super Natural without Natural Security

To run Super Natural without Natural Security

- Use the user's TP monitor user ID.

  Or:

  Use another ID of up to 7 non-blank characters.

  In this case, a screen appears which asks you to enter an ID valid only for Super Natural. User IDs created like this are not password-protected. Each time the user accesses Super Natural, a logon screen appears where he must enter his Super Natural user ID.

Adding Users

To add a user

- Issue the `ADD USER` *`user-ID`* command.

  Where *`user-ID`* is the ID of the new user.

  The default user `*******` is copied to the user ID you specified and the Modify User >Options screen appears. You can now modify the default user settings for the user you have created. For further information, see ***Modifying Single Users***.

Note: Natural Security users can also use the `Import User` function to define users to Super Natural.

Modifying Single Users

To modify a user

- Issue the `MODIFY USER` *name* command.

  The Modify User >Options screen appears:

```
 17:23                      ***** Super Natural *****                 2000-06-16
 POR                     - Modify User POR >Options -                     SRMUMO


              _  Maintenance Authorization / Language / Prefixes

              _  Sizes / Numbers / User Files

              _  Database Access
              _  Database Access and JCL

              _  Data Maintenance Transaction Type / Data Selection
              _  Report Type / Report Level
              _  Report Destination / Run Mode / Batch Job Entry

              _  Service Generation Options
              _  Display Options


 >Files    >Profile  >Layout
 Mark function(s) or select by cursor
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help        Exit             Flip                                  Canc
4AÂ¦                                                                    22,015
```

  You can either modify the user options or select one of the following setting groups using `>Navigation`:

  - File
  - Profile
  - Layout

Note: For information on navigating between profile setting groups, see *Navigating Between Profile Setting Groups*.

To modify a user default setting

1 Overtype it.

2 Press Enter.

Note: Users must restart their Super Natural sessions before your modifications are valid. Your modifications are valid for all new transactions but not for existing ones.

Options

When you choose `>Options`, the Modify User >Options screen appears.

To modify user options

1 Mark the group(s) of options you want to modify.

2 Press Enter.

3 Overtype existing entries as required.

4 Press Enter.

You can modify the following user options:

Note: Options which the user can modify her or himself are marked with an asterisk (*) in the following list.

Maintenance Authorization / Language / Prefixes

Option	Description
Authorized for Maintenance	Y indicates that the user will be a Super Natural administrator. N indicates that the user will not be a Super Natural administrator. Default value = N.
Language Code*	Indicates the language to be used for error messages, text constants, screens, help texts and commands. For example, 1 indicates English and 2 indicates German Default value = 1 . If Super Natural is available in one language only, the Language Code setting in all user profiles must indicate this language.
Private Library	**Prefix:** Super Natural assigns a prefix to the ID of each private library. If you leave the prefix blank, the user will have no private library and will be offered a choice of the public or common libraries he is authorized to use when he logs on to Super Natural. If he is not authorized to use any public libraries, the user can choose which common library he wants to access. Default value = Y. You cannot assign the same default prefix to private and public libraries.

Option	Description
Public Libraries	**Prefix:** Super Natural assigns a prefix to the ID of each public library. If you leave the prefix blank, the user will not be authorized to use public libraries. Default value = Z.
Common Libraries	**Prefix:** The common library prefix is assigned in `SPPARM` when Super Natural is installed and cannot be modified here. Default value = C (non-modifiable).
Transaction Programs	**Prefix:** Super Natural assigns a prefix to the ID of each transaction program. Default value = I. **Max. Numbers:** The maximum number of transactions permitted within a private library. Default value = 999.
Layouts	**Prefix:** Each transaction has a layout member with the name layout-prefix transaction-name. The layout member is in copy code. The layout prefix is assigned in `SPPARM` when Super Natural is installed and cannot be modified here. Default value = L (non-modifiable).
Prototype Programs	**Prefix:** Super Natural assigns a prefix to the ID of each prototype program. Default value = X. **Max. Numbers:** The maximum number of prototype programs permitted within a user library. Default value = 35.
Application Programs	**Prefix:** Super Natural assigns a prefix to the ID of each application program. Default value = A. **Max. Numbers:** The maximum number of application programs permitted within a user library. Default value = 35. Other Applications access If you leave the program prefix for applications blank, users are not able to access Application Programs. Therefore there is no entry `Application Programs` on the Menu.
Data Models	**Prefix:** Super Natural assigns a prefix to the ID of each data model. Default value = M. **Max. Numbers:** The maximum number of data models permitted within a user library. Default value = 35.

Sizes / Numbers / User Files

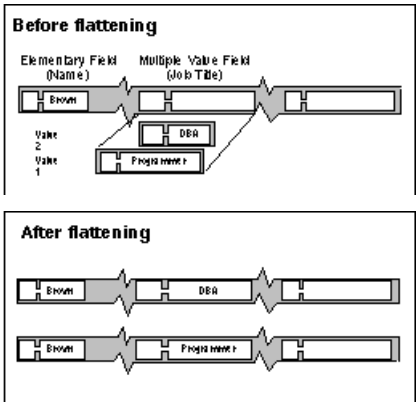
Option	Description
Online Screen Size*	Determines the screen size to be used when producing reports using Online Run mode. **Depth:** The number of lines. Default value = 24. The depth may not exceed the physical screen size of the terminal. **Width:** The width must exceed the display field length by at least 1.
Printer Page Size*	Determines the page size to be used when producing reports using Run Mode `BATCH` or Destination `PRINTER`. **Depth:** The number of lines. Default value = 60. The depth may not exceed the physical page size of the batch printer. **Width:** The number of characters per line. Minimum value = 80. Maximum value = 250. Default value = 132. The width must exceed the display field length by at least 1.
Logical Printer Number*	Number of the printer to be used for report/logging destination PRINTER. There are separate settings for `ONLINE` and `BATCH` Run Mode.

Option	Description
Work File Number*	**Read:** Work file number from which data is to be received in data selection mode `WORK FILE`. Write: Work file number to which data is to be sent with report destination `WORK FILE`.
Personal Computer Number*	**Read:** Personal computer number from which data is to be received in data selection mode `PC`. Write: Personal computer number to which data is to be sent with report destination `PC`.
User File Adabas Database ID	Database ID (DBID) of the physical Adabas file to be used as the Super Natural personal database for user files. For Natural Version 2.2 or Version 2.3 under Adabas Version 5, the range is 0 - 254. For Natural Version 2.3 under Adabas Version 6 the range is 0 - 65535. Default value = zero. Do not enter a database ID if you think you may want to change it in the future. You cannot change the database ID for existing transactions!
User File Adabas File Number	File number (FNR) of the physical Adabas file to be used as the Super Natural personal database for user files. For Natural Version 2.2 or Version 2.3 under Adabas Version 5, the range is 1 - 255. For Natural Version 2.3 under Adabas Version 6 the range is 1 - 5000. The value zero indicates that no user file is defined for the current user.
User File DDM Prefix	Super Natural assigns a prefix to the name of each file created by a user. Default value = UF.
Maximum Number of User Files	The maximum number of user files permitted per user. Default value = 255.
User File Retention Period	Time limit for user files in years, months and days. User files are deleted when they have existed for the time specified in this option. Default value = blank (no time limit defined).

Database Access

Option	Description
Multi-File Transaction Allowed	Y indicates that multiple-file transactions are allowed. N indicates that multiple-file transactions are not allowed. Default value = N.
Physical Read Allowed	Y indicates that a physical read of an entire file is allowed if required by the transaction's selection criteria in Online Run mode. N indicates that a physical read of an entire file is not allowed. There are separate settings for Online and Batch Run mode. Default value = Y. This option must be set to N for *DL/I* files.
Non-Descriptor Criteria Allowed	Y indicates that a transaction may use selection criteria that contain non-descriptors, i.e., fields that have not been defined as key fields. N indicates that the transaction may only use selection criteria comprised of key fields. There are separate settings for Online and Batch Run mode. Default value = Y.
Maximum Number of Criteria	The maximum number of criteria permitted within a transaction. There are separate settings for online and batch run mode. Default value = 99.

Option	Description
Display Values For Key Fields Allowed	Y indicates that the user can use the Values for Key Fields functions which is available from the Information column of the Worksheet. N indicates that the user may not use the Values for Key Fields function. Default value = N.
Processing Sequence*	Used to control the order in which the following are processed: File look-up (F), Calculations (C), Logical conditions (L), inter-field Arithmetic (A), external Sort (S) and Updating records (U) during transaction processing. Default sequence = FCLASU.
Flatten Repeating Fields*	Specifies when the individual occurrences of multiple-valuefields or fields contained in a periodic group should be presented as individual records when changing data for a report or updating data. B indicates flattening before processing: When you run a data maintenance or data change transaction using this option, Super Natural displays a flattened version of the selected data for editing. The occurrences of periodic groups are presented one at a time as individual records which you can update or change. Once you have updated or changed a record, you are shown how it will be output (still in flattened form) before moving on to the next record. A indicates flattening after processing (only available for data change): when you run a data maintenance or data change transaction using this option, Super Natural displays a continuous list of the selected data for editing. All occurrences are numbered. Once you have updated or changed a record, you are shown how it will be output before moving on to the next record The data is flattened and each occurrence is displayed as a separate record. blank indicates that no flattening is to be performed: when you run a data maintenance or data change transaction using this option, Super Natural displays a continuous list of the selected data for editing as for flattening after processing. Once you have updated or changed a record, you are shown how it will be output before moving on to the next record. The data is not flattened. Default value = blank.



System Functions per `Outer Loop*`	Defines the evaluation of system functions used for control break processing when two files have been linked for the transaction. Y indicates that system functions are to be evaluated for all records found in the primary file (outer loop). N indicates that system functions are to be evaluated for all records found in the secondary file (inner loop). Default value = N. The above is only

Option	Description
	relevant if two files are linked via the File Selection screen. If more than two files are linked via the Lookup function (1:n), system functions are processed per outer loop.
Adabas Sorting Allowed	Y indicates that the Adabas internal sort feature may be used for a transaction that contains sort criteria comprised of one to three key fields. N indicates that the Adabas internal sort feature may not be used. Default value = Y. There are separate settings for online and batch run mode. This option must be set to N for *DL/ I* files.
Buffer/External Sorting Allowed	Y indicates that a buffer or external sort feature may be used. N indicates that a buffer or external sort feature may not be used. Default value = Y. This option allows separate settings for online and batch run mode.

Database Access and JCL

Option	Description
DDM Checking on Modify	Y indicates that each time a Super Natural transaction is modified, a check is made to see if the transaction is still consistent with the data definition module (DDM) for the file or files involved. A warning is issued when a user modifies a transaction if the DDM has been changed. N indicates that no check is to be made. Any changes made to the DDM since the transaction was created/last modified are ignored. The default is N.
Maximum Number of Records	The maximum number of records that may be processed for a transaction. If you leave this setting blank, Super Natural will not enforce any limit on the number of records processed. This option allows separate settings for online and batch run mode. Default value = 999999. Users can reduce the maximum number of records to be read for test purposes by changing the transaction option Number of Records to be Read using the `OPTIONS` command for each transaction separately.
Maximum Report Pages	The maximum number of pages permitted for a transaction report. This option allows separate settings for online and batch run mode. Default value = 9999.
Adabas Password	If an Adabas file which is security protected is to be available to Super Natural transactions, the password for the file must be provided. See the *Adabas Security* documentation for additional information on Adabas security.
Adabas Cipher Code	If an Adabas file which is ciphered is to be available to Super Natural transactions, the cipher code for the file must be provided. See the *Adabas Security* documentation for additional information on Adabas ciphering.
JCL ID	Any user-given name. By default, each *JCL*/*JCS* member is stored in the library *ZJCL*. Default value = JCL01.

Transaction Mode Settings

The following groups of settings concern the user's transaction modes for data maintenance and for reporting:

- Data Maintenance Transaction Type / Data Selection
- Data Change / Report Type / Report Level
- Report Destination / Run Mode / Batch Job Entry

To authorize the user to use a mode

- Enter Y next to the entry.

To prevent the user from using a transaction type

- Enter N next to the transaction type entry.

To define the user's default for each group of transaction modes

- Enter the corresponding character in the Default field.

Data Maintenance Transaction Type / Data Selection

Data Maintenance Transaction Type:

Note: The data maintenance functions are intended for use on user files only, not on production or *live* data.

Transaction Mode	Description
Reporting (I)	Allows the user to execute reporting transactions.
Add Records (A)	Allows the user to add records to a file (corporate file or user file) provided the corresponding authorization level has been assigned for the file to be used.
Update Records (U)	Allows the user to update records in a file (corporate file or user file) provided the corresponding authorization level has been assigned for the file to be used.
Delete Records (D)	Allows the user to delete records from a file (corporate file or user file) provided the corresponding authorization level has been assigned for the file to be used.
Edit Data (E)	Allows the user to use the data editor for updating records. Default mode setting = I.

Data Selection:

Transaction Mode	Description
Full-Screen (F)	The user can enter selection criteria using the Selection Editor.
SQL Select (S)	Users of DB2 and SQL/DS can access the SQL SELECT Editor to write SQL SELECT statements. Super Natural does not check whether Natural DB2 is installed. If Natural DB2 is not installed, the user can still access the SQL SELECT Editor and write SELECT statements. However, when you `CHECK`, `RUN` or `SAVE` the transaction a Natural syntax error occurs (even if the syntax would be correct for SQL).
Data from Work File (W)	Allows the user to read data from a work file.
Data from PC File (P)	Allows the user to read data from a PC file. Default mode setting = F.

Data Change/Report Type/Report Level

Report Data Change Mode

Transaction Mode	Description
Map (M)	The user can use an automatically generated map to change data for a report. Data stored in the file or database is not affected by this change mode. For example, the user can use this mode to modify data before sending it to a user file or a printer.
None (N)	Data may not be changed for a report. Default mode setting = N.

Report Type

Transaction Mode	Description
List (L)	Report data is displayed with a title (optional) and column headers.
Vertical List (V)	The report is displayed vertically (one or more pages per record).
Table (T)	The report is displayed in tabular form.
CON-NECT (C)	The report is processed by Con-nect. Default mode setting = L.

Report Level

Transaction Mode	Description
Detail (D)	Y indicates that all output is desired.
Summary (S)	Y indicates that only the information that results from a control break is shown in the report. If no system functions are defined at control breaks, the records found are counted. Default mode setting = D.

Logging

Transaction Mode	Description
Data Maintenance Logging	The logging mode for data maintenance transactions can be set to the following values: Y indicates that the logging option for data maintenance transactions is enabled and set to to the default value Y. N indicates that the logging option for data maintenance transactions is enabled and set to the default value N. P indicates that the logging option for data maintenance transactions is disabled and no logging can be specified by the user. F indicates that the logging option for data maintenance transactions is always performed.

Report Destination / Run Mode / Batch Job entry

Report/Logging Destination

Transaction Mode	Description
Screen (S)	Display on the user's screen.
Printer (P)	Report data is routed to a printer. Output may be routed to a printer only if Com-plete or Natural Advanced Facilities is installed at the user site. Output may be routed to a PC only if Entire Connection is installed at the user site.
Editor (E)	Report data is written to a Natural editor source program work area. Once the output has been placed in the source program work area, the Natural editor is invoked and may then be used to edit and, if desired, to save the output in a Natural library. Y indicates that destination EDITOR is available. N indicates that destination EDITOR is not available. Default mode = N. If the EDITOR option is disabled, the user may not generate prototype programs.
Work File (W)	Report data is written to a Natural work file. If any setting other than N is entered, a number that represents the logical identification of the sequential work file must be defined as described in the section Setting Global Options. Be sure to check whether your environment supports the use of work files. See the *Natural* documentation for further information on the usage and assignment of sequential work files.
PC File (F)	Report data is transferred to a Personal Computer (PC). If any setting other than N is entered, a number that represents the logical identification of the personal computer must be defined as described in the section *Setting Global Options*. This feature is only supported if Entire Connection is installed at the user site. The connection between the host and the PC must be activated by entering %+.
User File (U)	The transaction data is written to a user file, that will be generated automatically during transaction execution. The use of the user file feature is only supported if Adabas is installed at the user site.

Transaction Mode	Description
CON-NECT (C)	The report is written as a document to a Connect system folder where it can be processed using Con-nect. The use of this feature is only supported if Con-nect is installed at the user site. Default mode setting = S.

Run Mode

Transaction Mode	Description
Online (O)	`ONLINE` run mode permits the creation and execution of transactions from an online terminal. Y indicates that online mode is available. N indicates that online mode is not available. The default is Y.
Batch (B)	`BATCH` run mode may be used to submit a transaction for execution in batch mode using a remote job entry facility. Y indicates that batch mode is available. N indicates that batch mode is not available. Default mode setting = Y.

Batch Job Entry

Transaction Mode	Description
RJE available	Super Natural transactions may be submitted for batch mode execution if the Natural RJE facility is available at the user site. Y indicates that remote job entry is available. N indicates that remote job entry is not available, i.e. a transaction for batch execution may be created but not submitted. Default mode setting = N.

Service Generation Options

Option	Description
Service Type	Here you can define which service generation is allowed: N No service generation is allowed. R RPC Service is allowed.
Generation Mode	Here you can define which generation mode is used. C Context: A context area is defined where all data is stored. The client reads the data side by side. Thereby the 30K limit can be exceeded. D Direct: All data sets are read out directly. If there are more result sets than the 30K limit allows, you receive a hint for the further data
Library Type for Service Objects	Defines in which kind of library the service objects are stored. S Super Natural Library: The service object is stored in the same library as the transaction and receives the same name as the transaction but with the prefix defined for prototyping. It is not necessary to fill in the field `Library Name`. N Specific Natural Library: You have to specify the library name (in the field `Library Name for type N`) where the service objects are stored. Here, the service object name and the transaction name are identical. F Free: The user can choose the library and object name without any restrictions.

Note: Setting the library type is important to meet the requirements of the RPC logon feature that is set on the client side. For further information see section *Create Client Side Parameters*.

Display Options

Option	Description
Display Occurrences (MU)*	Here you can define which range of occurrences is to be displayed for a field defined as a multiple-value field. You can define a start value and an end value. Default value = 1.
Display Occurrences (PE)*	The default number of occurrences to be displayed for a field contained within a periodic group. You can define a start value and an end value. Default value = 1.
Suppress Empty Lines*	Y indicates that each empty line on a transaction report is to be suppressed. N indicates that empty lines are not to be suppressed. Default value = N.
Suppress Identical Values*	Y indicates that each identical line on a transaction report is to be suppressed. N indicates that identical lines are not to be suppressed. Default value = N.
Suppress Zero Values*	Y indicates that a value of zero for a field is to be suppressed on the transaction report. N indicates that zero values are not to be suppressed. Default value = N.
Suppress Numeric Sign*	Y indicates that the sign of a numeric field is to be suppressed on the transaction report. N indicates that the signs of numeric fields are not to be suppressed. Default value = N.
Heading Width Override*	Y indicates that Super Natural may truncate headers on the transaction report if it is necessary to do so in order to prevent a line overflow condition. N indicates that header truncation may not be performed. If N is specified, a screen appears when the headers are too long where the action to be taken can be entered. Default value = N.
Map Filling Character*	Characters chosen to differentiate between alphanumeric and numeric fields in transactions generated for adding or updating data or for reporting using the Data Change mode `MAP`. Default value for alphanumeric fields = _ (underscore). Default value for numeric fields = . (period).

Files

When you choose `>Files`, the Modify User >Files screen appears:

```
13:59                     ***** Super Natural *****                1999-05-21
                         - Modify User SBE >Files -                    SRMUMF
                                                                 More:   - +
            Cmd  File Name                          Access  Password
                 *__________________________________
                  __  SAG-TOURS-E-CH-PRICES             R
                  __  SAG-TOURS-E-COMPANY               R
                  __  SAG-TOURS-E-CONTRACT              D
                  __  SAG-TOURS-E-CRUISE                R
                  __  SAG-TOURS-E-PERSON                R
                  __  SAG-TOURS-E-YACHT                 R
                  __  SUE-SUPER                         D
                  __  SUE1                              D        <
                  __  SUPER                             R
                  __  UF-SBE-NEW                        F        <
                  __  UF-SBE-SAMPLE4                    F
                 Add  __________________________________  Add Multiple: _

>Options  >Profile  >Layout
Cmd(s): Add, Modify, Delete
File deleted from file list
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit             Flip        +                      Canc
```

The Modify User Files screen displays the following:

- Files which the user can access
- Code for the data access level the user has for each file
- Whether the user has an Adabas password for password protected files.

You use the Modify User >Files screen to link a user to (give him/her authorization to use) a file or to modify or delete existing links.

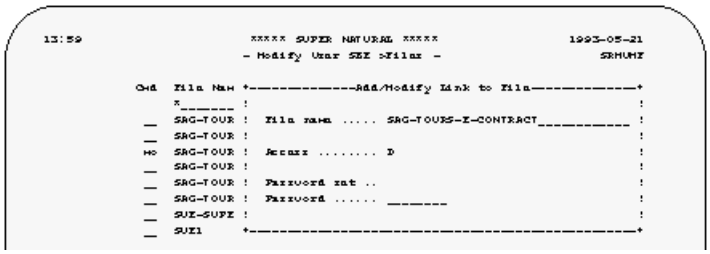
Adding / Linking Single Files to a User

To add (link) a single file to a user

1 Issue the `ADD file-name` command.

where *file-name* is the name of a file defined to Super Natural.
To obtain a selection list of files defined to Super Natural, use the `Add Multiple File` function.

The Add/Modify Link to File window appears:



2 Determine the user's access level to the file by typing one of the following codes in the Access field:

File Access Code	Description
R	Read only
U	Update (includes read). The user can update existing records in this file. Not available under Natural Security.
A	Add (includes update). The user can add new records to this file. Not available under Natural Security.
D	Delete (includes add). The user can delete records in this file.
F	If an F is entered in the Access field, the file is a user file created by the user you are modifying. All data maintenance functions are available (read, add, update and delete). For further information on user files, see ***User Files***.

3 Enter a password in the `Password` field (optional).

Users who do not have the same password cannot access transactions in public or common libraries created by this user using this file.

For further information on passwords, see **User Profile, Option and Adabas Password Hierarchies** in *Technical Information*.

4 Press Enter.

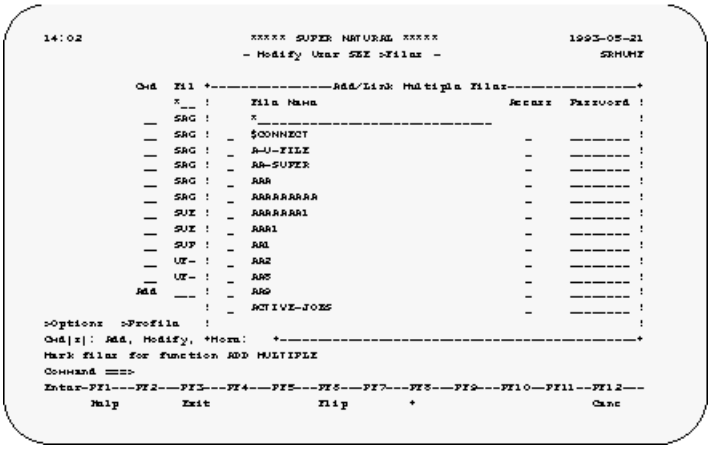
The user is now authorized to use the file at the access level specified.

Adding / Linking Multiple Files to a User

To link multiple files to a user

1 Mark the `Add Multiple Files` field on the Modify User >File screen.

The Add Multiple Files window appears:



2 Mark each file you want to the user to be able to use.

3 Type in a file access code for each file.

For further information on file access codes, see **Adding / Linking Single Files to a User** in *Users*.

4 Type in a password for each file (optional).

5 Press Enter.

The user is now authorized to use the files at the access levels specified.

Modifying Links to Files

You can modify the access code and Adabas password for files the user is already authorized to use.

To modify entries in the file list

1 Issue the `MODIFY file-name` command.

The Add/Modify Link to File window appears.

2 Modify the file access code (optional).

If the Password Set field is marked, a password is already defined for the file. You can either change or delete the password.

3 Type a new password in the Password field to change the current password (optional).

Or:

Type blanks in the Password field to delete the current password (optional) and press Enter.

The user is now authorized to use the file at the access level specified.

Deleting Links to Files

You can delete the link from a user to a file, the access code and Adabas password for files the user is already authorized to use.

To delete a file from the file list

1 Issue the DELETE *file-name* command.

2 Confirm the deletion in the window which appears.

The user is no longer authorized to the file named.

Profile

When you choose >Profile the Modify User >Profile screen appears:

```
14:02                      ***** Super Natural *****                 1999-05-21
                         - Modify User SBE >Profile -                     SRMUMP




             _  Screen Colors

             _  Screen Defaults

             _  Date/Time Formats

             _  PF-Key Settings

             _  Checklist



>Options  >Files    >Layout
Mark function(s) or select by cursor
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip                                Canc
```

The User >Profile screen is a reduced version of the Modify Profile screen in the Super Natural Processor.

Screen Colors *

Determines the user's default screen colors. On the left-hand side of the Screen Colors window there is a list of the field types and screen areas which can be colored individually with their current color code settings. The right-hand side shows a list of the colors available with their color codes.

If you mark the Mark for Default field and press Enter, you return to the default settings supplied by Software AG.

Screen Defaults *

Message Line Position

Determines the message line position. There are three choices:

- ISA (above the command line)
- TOP (at top of the screen)
- BOT (at bottom of the screen)

Header Line Variables

Determines the position of the date, time, program name, object and day within the Super Natural header.

Hello Screen

The Hello screen is the screen which welcomes you to Super Natural. You can choose to switch this screen off.

Default Entry Menu

Determines which of the following screens appears after the Hello screen when the user enters Super Natural:

- Main Menu
- Transaction List screen
- Prototype Program List screen
- Model List screen
- Spreadsheet List screen
- Application List screen
- User File List screen.

Time and Date Formats *

Time Format

Determines how the date and time are displayed. You can choose to display the time either in 24 hour format e.g. 17.30 or in am/pm format e.g. 5.30 pm.

Time Delimiter

Determines the time delimiter (the character which comes between the hours and the minutes when a time is written). You can choose which character you want to use as the time delimiter.

Date Format

Determines how the date is displayed. You can choose to display the date in any format you wish. The following are some examples of dates in different formats and with different delimiters:

American	MM/DD/YY
European	DD/MM/YY
German	DD.MM.YY
International	YY-MM-DD
Date in format	YYYYMMDD

PF Key Settings *

Determines the PF key display format. You can choose between `ISA` format, `SAA` format and action bar format.

Checklist *

Determines whether the user is to use the `Automatic Checklist` function by default and at which level.

Layout

When you choose `>Layout`, the Profile Menu appears. You are now using the `Modify User Profile` *`user-id`* part of the product Natural Report Manager.

Note: You cannot issue the `PROC` command from Natural Report Manager.

To specify the Layout

1 Mark `Layout Options`.

2 Press Enter.

The Layout Options: Screen Handling screen appears as in the following example:

```
14:03                  *** Natural REPORT MANAGER ***              1999-05-21
Layout                  - Modify User Profile SBE -                    NRMPROA
                                                                 More:     +
Layout Options: Screen Handling                                            ↩

                                                                           ↩

  Layout overview as default ..................... X                       ↩

                                                                           ↩

  Layout element literals on right side ......... X                       ↩

                                                                           ↩

  Layout Element Sorting (Choose one)                                      ↩

    No sorting decided ........................... _                       ↩

    Manual sorting via command ................... _                       ↩

    Automatic sorting after every modification .. X                        ↩

                                                                           ↩

  Layout Editor Screen State (Choose one)                                  ↩

    Full screen without PF-Keys .................. _                       ↩

    Full screen with    PF-Keys .................. X                       ↩

                                                                           ↩

                                                                           ↩

                                                                           ↩

You are on the first page.                                                 ↩

Command ===>                                                               ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +     Tech              Canc ↩
```

You can modify the following options:

Option	Description
Layout overview as default	If you mark this field, the Layout Overview screen is the first screen the user will see when he invokes Natural Report Manager. If you

Option	Description
	leave this field blank, the Layout Editor (split screen) appears with all elements in the `edit` area.
Layout element literals on right side	If you mark this field, layout element literals (the Type column) appear on the right-hand side of the Layout Editor `edit` area. If you leave this field blank, layout element literals (the Type column) appear on the left-hand side of the Layout Editor edit area.

Layout Element Sorting

To specify the Layout Element Sorting

- Mark one of the following options:

Option	Description
No sorting decided	Layout elements are shown in the Layout Editor in the order they were defined. The elements appear in logical order when the report is run.
Manual sorting via command	The user can issue the `SORT` command to sort layout elements into logical order in the Layout Editor.
Automatic sorting after every modification	Layout elements are sorted into logical order in the Layout Editor when the user presses Enter. Default value: Automatic sorting.

Layout Editor Screen State

To specify the Layout Editor Screen State

- Mark one of the following options:

Option	Description
Full screen without PF keys	When the user invokes the Layout Editor full screen, the PF key line is replaced by two extra editor lines.
Full screen with PF keys	When the user invokes the Layout Editor full screen, the PF key line is displayed. Default value: Full screen with PF keys.

Delimiter

When you page forwards, the following screen appears:

```
14:03                    *** Natural REPORT MANAGER ***                1999-05-21
Layout                    - Modify User Profile SBE -                     NRMPROC
                                                                  More:    -
Layout Options: Delimiter

           Class      Attribut   Color     Delimiter
           Text____   Default_   ________  Blank
           Text____   Intens._   ________   _
           Output__   Default_   ________   (
           Output__   Intens._   ________   )
           ________   ________   ________
           ________   ________   ________
           ________   ________   ________
           ________   ________   ________
           ________   ________   ________
           ________   ________   ________
           ________   ________   ________
           ________   ________   ________


You are on the last page.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip  -           Tech              Canc
```

You can create delimiters for the user to use in the Layout Editor using the following columns.

Column	Description
Class	The following classes are available: Text and Output Only.
Attribute	The following attributes are available: Italic/Cursive Normal (default), Intensified, Not displayed (for passwords etc.), Underlined, Reverse video, Dynamic (not available).
Color	The following colors are available: Blue, Green, Neutral, Pink, Red, Turquoise, Yellow.
Delimiter	Use special characters as delimiters to represent the combinations of class, attribute and colors you have specified.

Modifying Multiple Users

The `Modify Multiple Users` function is available from the Special Services menu. For further information, see ***Modifying Multiple Users*** in *Special Services*.

Copying Users

To copy a user

- Issue the `COPY USER source-user-id target-user-id` command.

  A new user is created with the general options, file list, profile options and layout options of the source user.

Deleting Users

To delete a user

1. Issue the `DELETE USER user-id` command.
2. Confirm the deletion in the window which appears.

Importing Users

When Super Natural is operating under the Natural Security system, you can use the `Import User` function instead of the `Add User` function to define users.

The Import User function is listed on the Special Services menu. For further information, see ***Importing Users*** in *Special Services*.

4 Files

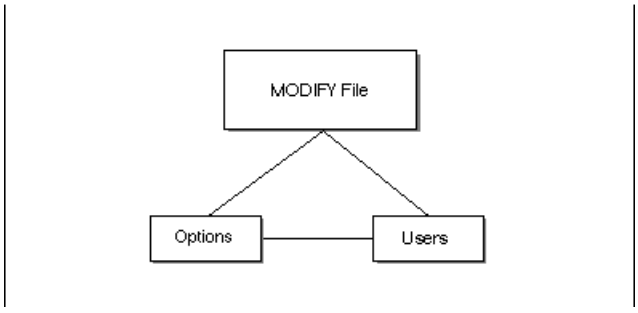
This section describes how to create and maintain file profiles.

This section covers the following topics:

What are File Profiles?

File profiles consist of file option settings and a list of the users authorized to use the file.

You can add file profiles to Super Natural before the corresponding DDM or file in the database exists or is linked toSuper Natural.



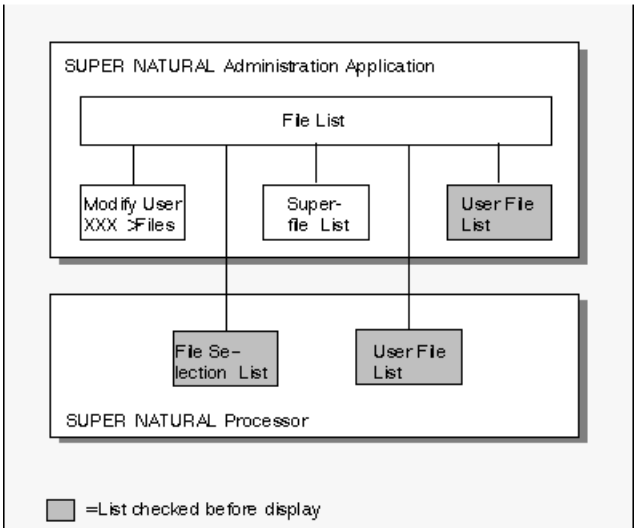
For further information on option hierarchy, see ***User Profile, Option and Adabas Password Hierarchies*** in *Technical Information*.

You can perform the following commands on file profiles:

	ADD	MODIFY	COPY	DELETE	INFO	IMPORT	MULTIMOD
File	X	X	X	X		X	

File Lists

The File List in the Administration Application lists all the file profiles defined in Super Natural. No checks are carried out to determine whether the Natural files and DDMs exist or not. All other lists of files which you can invoke in the Super Natural Administration Application and the Super Natural PROCESSOR are subsets of this list. In some cases, only files which fulfil certain conditions are displayed. The following diagram shows in which cases validity checks are carried out before a list of files is displayed:



The following table describes which checks are carried out:

List Administration Application	Files Displayed/Checks Performed Before Display
File List	All files, superfiles and user files defined in Super Natural (no checks).
Superfile List	All superfiles defined to Super Natural (no checks).
Modify User xxx >Files	All files, superfiles and user files added to the Super Natural user specified (no checks).
User File List	All user files which are defined in the current Personal Database. Super Natural checks that there is a corresponding DDM for each user file in the current FDIC. Super Natural also checks that the directory record for each user file exists.

List Super Natural Processor	Files Displayed/Checks Performed Before Display
User File List	All the user's own user files (file access code F). Super Natural checks that the directory record for each user file exists.

List Super Natural Processor	Files Displayed/Checks Performed Before Display
File Selection List for Reporting Transactions:	1. All the user's own user files (file access code F) (no checks). 2. All files and other user's user files with file access codes R, A, U and D (no checks). 3. All superfiles based on reporting transactions. Super Natural checks that the superfile transaction exists.
File Selection List for Data Maintenance Transactions: Transaction Type `ADD`:	1. All the user's own user files (file access code F) (no checks). 2. All files and other user's user files with file access codes A and D. 3. All superfiles based on data maintenance transactions with Transaction Type `ADD`.
File Selection List for Data Maintenance Transactions: Transaction Types `SINGLE/UPDATE MULTIPLE`	1. All the user's own user files (file access code F) (no UPDATE checks). 2. All files and other user's user files with file access codes A, U and D. 3. All superfiles based on data maintenance transactions with Transaction Type `UPDATE SINGLE` or `UPDATE MULTIPLE`.
File Selection List for Data Maintenance Transactions: Transaction Type `DELETE`	1. All the user's own user files (file access code F). 2. All files and other user's user files with file access codes D. 3. All superfiles based on data maintenance transactions with Transaction Type `DELETE`.

Listing File Profiles

To obtain a list of files currently defined to Super Natural

- Issue the `FILE` command.

  Or:

  Select the object `File` from the Administration Menu.

  The File List screen appears as in the following example:

```
14:31                    ***** Super Natural *****               1999-05-21
SBE                            - File List -                          SNMFL
                                                                More:     +
            Cmd  File Name                          File Type              ↩

                 *_____________________________                            ↩

                 $CONNECT                                                  ↩

                 A-U-FILE                                                  ↩

                 AA-SUPER                           Superfile              ↩

                 AAA                                Superfile              ↩

                 AAAAAAAAA                                                 ↩

                 AAAAAAA1                           Superfile              ↩

                 AAA1                                                      ↩

                 AA1                                                       ↩

                 AA2                                                       ↩

                 AA8                                                       ↩

                 AA9                                                       ↩

                 ACTIVE-JOBS                                               ↩

                 ADMINISTRATION-FILE-DDM                                   ↩

            Add  _____________________________                             ↩

Cmd(s): Add, Modify, Copy, Delete                                          ↩

Select one command from list                                               ↩

Command ===>                                                               ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit             Flip        +                      Canc ↩
```

The File List screen shows the following:

- **All files currently defined to Super Natural including DDMs, user files and superfiles.**
  The DDMs and the files on which they are based are not necessarily defined either in the database or to Natural Security. Super Natural does not check this until a user adds a transaction using the file.
- **File type.**
  User files and superfiles are indicated in the `File Type` column.

Adding Files

To add a file

- Issue the `ADD FILE` *name* command.

  You cannot add superfiles and user files.

  The file is added (linked) to Super Natural. The Modify File > Options screen appears.

You can now set options and authorize users to use the file you have added. For further information, see ***Modifying Single Files*** in *Files*.

Notes:

1. When you add (link) a file to Super Natural, the file has no option settings and no user list. If you leave the options settings and/or the user list blank, the individual file settings which are part of each user profile are valid for users when accessing this file. Otherwise, options set for a file in its file profile override options set for it in a user profile. For further information on option hierarchy, see ***User Profile, Option and Adabas Password Hierarchies*** in *Technical Information*.
2. When you have finished modifying the file options and users, the file is added to the File List.
3. The DDM and the file on which it is based are not necessarily defined either in the database or to Natural Security.Super Natural does not check this until a user adds a transaction using the file.
4. Users of Natural Security can also use the Import function to define file profiles.

Modifying Single Files

To modify a single file

- Issue the `MODIFY FILE name` command.

  The Modify File >Options screen appears. You can either modify the file options or modify the user list.

For information on navigating between profile setting groups, see *> Navigation* in *Introduction*.

Note: Users must restart their Super Natural sessions before your modifications are valid. Your modifications are valid for all new transactions but not for existing ones.

Options

Note: File options override user options. For further information on option hierarchy, see *User Profile, Option and Adabas Password Hierarchies* in *Technical Information*.

To specify Options

1 Choose `>Options`.

  The Modify File >Options screen appears.

```
14:32                    ***** Super Natural *****                 1999-05-21
SBE               Modify File SAG-TOURS-E-CONTRACT >Options             SRMFMO
                                                                             ↩
                                                                             ↩
                                                                             ↩
                                                                             ↩
             _  DDM Check / Display Options                                  ↩
                                                                             ↩
             _  Database Access                                              ↩
                                                                             ↩
             _  Exit Specification                                           ↩
                                                                             ↩
             _  VSAM Files                                                   ↩
                                                                             ↩
             _  DL/1 Files                                                   ↩
                                                                             ↩
                                                                             ↩
                                                                             ↩
                                                                             ↩
>Users                                                                       ↩
Mark function(s) or select by cursor                                         ↩
Command ===>                                                                 ↩
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip                              Canc ↩
```

2 Mark the group(s) of options you want to modify and press Enter.

3 Overtype the options you want to modify if you are modifying a file.

Or:

Type settings if you are adding a file and press Enter.

You modifications/entries are saved.

You can modify the options listed in the following sections.

DDM Check / Display Options

Option	Description
DDM Check on Modify	Y indicates that each time a Super Natural-transaction is modified, a check is made to see if the transaction is still consistent with the data definition module (DDM) for the file or files involved. A warning is issued when a user modifies a transaction if the DDM has been changed. N indicates that no check is to be made. Any changes made to the DDM since the transaction was created/last modified are ignored. The default is N.
Prefix for Inverse Field Output	Prefix used for files with both fields in regular and inverse format. See *Super Natural in Inverse Mode* in the *Setting up Super Natural* documentation. The default value is blank.
Display Occurrences (Multiple Value Field)	The default number of occurrences (i.e. values) that are to be displayed for a field defined as a multiple value field. The default setting is 1.
Display Occurrences (Periodic Group)	The default number of occurrences that are to be displayed for a field contained within a periodic group. The default setting is 1.
Suppress Numeric Sign	Y indicates that the sign of a numeric field is to be suppressed on the transaction report. N indicates that the signs of numeric fields are not to be suppressed. The default setting is N.
Run Modes Available	`ONLINE` run mode allows users to access the file online. `BATCH` run mode allows users to access the file in batch operation.

Database Access

Option	Description
Physical Read Allowed	Y indicates that a physical read of an entire file is allowed in the case of a transaction in which the selection criteria specified requires such. N indicates that a physical read of an entire file is not allowed. The default setting is Y. This option allows separate settings for online and batch run mode. This option must be N for DL/I files.
Non-Descriptor Criteria Allowed	Y indicates that a transaction may use selection criteria that contain non-descriptors, i.e., fields that have not been defined as key fields. N indicates that the transaction may only use selection criteria comprised of key fields. The default setting is Y. This option allows separate settings for online and batch run mode.

Option	Description
Maximum Number of Criteria	The maximum number of criteria permitted within a transaction. The default setting is 99. This option allows separate settings for online and batch run mode.
Display Values For Key Fields Allowed	Y indicates that users can use the Values for Key Fields function on this file. N indicates that the user may not use the Values for Key Fields function. Default value = N.
Adabas Sorting Allowed	Y indicates that theAdabas internal sort feature may be used for a transaction that contains sort criteria comprised of one to three key fields. N indicates that theAdabas internal sort feature may not be used. The default setting is Y. This option allows separate settings for online and batch run mode. This option must be N for *DL/ I*files.
Buffer/External Sorting Allowed	Y indicates that a buffer or external sort feature may be used. N indicates that a buffer or external sort feature may not be used. The default setting is Y. This option allows separate settings for online and batch run mode.
Maximum Number of Records	The maximum number of records that may be processed for a transaction. The default setting is 999999. This option allows separate settings for online and batch run mode.
Adabas Password	If an Adabas file that is security protected is to be available to Super Natural transactions, the password for the file must be provided. See the *Adabas Security* documentation for additional information on Adabas security.
Adabas Cipher Code	If anAdabas file that is ciphered is to be available to Super Natural transactions, the cipher code for the file must be provided. See the *Adabas Security* documentation for additional information on Adabas ciphering.

Exit Specification

Option	Description
Exit Module Program ID	Specify the name of the external program to be activated. The program must be accessible via a Natural `CALL` or `CALLNAT` statement.
Use Natural Object	Mark this field if the user exit program is a Natural object.
Exit Location	Defines when the exit routine is to be executed. The available options are listed on the screen. Enter the appropriate number.

The exit module specifications made as file options are used as default values when the file is accessed. Users can override the default values using the Exit Specification function described in the section *User Exits* in the *User's Guide*.

Note: If the exit program requires parameters, the user must specify them manually using the `Exit Specification` function.

For further information on user exits, see *Exit Programs*.

VSAM Files

Note: You cannot use the transaction mode for data maintenance `UPDATE MULTIPLE` with *VSAM* files.

Option	Description
Record Type Field Name	Name of the field on which the record type is based.
Record Type Format	Format of the record type.A - alphanumeric, N - numeric,B - binary.
Record Type Length	Length of the record type (1 to 10).
Record Type Offset	Number of positions in the record type base field prior to the record type value. For example, if the record type being defined is located in the third position of the base field, the value 2 would be entered as offset to skip the first two positions.
Record Type Value	Value of the record type.
Record Type End Value	End value, if the record type is to cover a range of values (optional).

Example:

```
Record type field name CRUISE-ID
Is record type a key?
Record type format  N
Record type length  1
Record type offset  1
Record type value  3
Record type end value 5
```

If a transaction is created using the user view as defined above, only those records of the physical file will be available that have the numbers 3, 4 or 5 (value/end value) as second character (offset) of the field `CRUISE-ID`.

DL/I File Options (DL/I Considerations)

Note: The file options `Physical Read Allowed` and `Adabas Sorting Allowed` must be set to N for *DL/I* files.

The following window is displayed:

```
14:32                     ***** Super Natural *****                 1999-05-21
SBE                Modify File SAG-TOURS-E-CONTRACT >Options             SRMFMO

                                    +--------------DL/1 Files---------------+
                                    ! File: SAG-TOURS-E-CONTRACT            !
                                    !                                       !
             _  DDM Check / Display O !                                     !
                                    ! Enter up to 5 PSBs where this file is !
             _  Database Access     ! included.                             !
                                    !                                       !
             _  Exit Specification  !  1 .. ________                       !
                                    !  2 .. ________                       !
             _  VSAM Files          !  3 .. ________                       !
                                    !  4 .. ________                       !
             _  DL/1 Files          !  5 .. ________                       !
                                    !                                       !
                                    !  (DL/1 only)                          !
                                    !                                       !
                                    +---------------------------------------+
```

The PSB entry is used for the NATPSB command when running a transaction against a *DL/1* file.

If only one file is accessed in the transaction, the first PSB entry will always be used.

If two files have been linked for the transaction, the PSB lists of these files are compared to find a common PSB for the linked files.

Note: This option is only valid when operating under CICS.

Users

When you choose >Users, the Modify File >Users screen appears as in the following example:

```
14:33                    ***** Super Natural *****                1999-05-21
SBE              - Modify File SAG-TOURS-E-CONTRACT >Users -           SRMFMU
                                                              More:     +
            Cmd  User ID   Access  Password
                 *_______
              __  AZ          R
              __  BF          R
              __  CCA         R
              __  CCH         R
              __  CF          D
              __  CHEF        D
              __  CMR         D
              __  CR          R
              __  DA          R
              __  DEMO1       R
              __  DEMO2       R
            Add  _________  Add Multiple: _

>Options
Cmd(s): Add, Modify, Delete
Select one command from list
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +                      Canc
```

The Modify File >Users screen displays the following information:

- Users which are authorized to use the file you are modifying.
- Code for the data access level the user has for each file.
- Whether the user has an Adabas password for password protected files.

You use the Modify File >Users screen to link users to (give him/her authorization to use) to the file you are modifying/adding or to modify or delete existing links.

If you are adding a file, the Modify File >Users screen is empty.

Adding / Linking Single Users to a File

> **To add (link) a user to a file**

1 Issue the `ADD USER` *name* command.

The Add/Modify Link to User window appears:

```
14:34                    ***** Super Natural *****                1999-05-21
SBE              - Modify File SAG-TOURS-E-CONTRACT >Users -            SRMFMU
                                                                          ↩

           Cmd  User ID   Access  Password      +--Add/Modify Link to User--+
                *_______                        !                          ↩
!
             __  AZ          R                  !  User ID ....... CF______ !
             __  BF          R                  !                          ↩
!
             __  CCA         R                  !  Access ........ D       ↩
!
             __  CCH         R                  !                          ↩
!
             mo  CF          D                  !  Password set ..         ↩
!
             __  CHEF        D                  !  Password ...... ________ !
             __  CMR         D                  !                          ↩
!
             __  CR          R                 +---------------------------+
```

2 Determine the user's access level to the file by typing one of the following codes in the Access field:

File Access Code	Description
R	Read only
U	Update (includes read). The user can update existing records in this file. Not available under Natural Security.
A	Add (includes update). The user can add new records to this file. Not available under Natural Security.
D	Delete (includes add). The user can delete records in this file.

3 Enter a password in the `Password` field (optional).

Users who do not have the same password cannot access transactions in public or common libraries created by this user using this file.

4 Press Enter.

The user is now authorized to use the file at the access level specified.

For further information on passwords, see ***User Profile, Option and Adabas Password Hierarchies*** in *Technical Information*.

Adding / Linking Multiple Users to a File

To link multiple users to a file

1 Mark the `Add Multiple` field on the Modify File >User screen.

The Add/Link Multiple Users window appears:

```
14:34                    ***** Super Natural *****                1999-05-21
SBE              - Modify File SAG-TOURS-E-CONTRACT >Users -            SRMFMU
                                                                            ↩

            Cmd  User ID   Access  Password   +----Add/Link Multiple Users----+
                 *_______                     !     User ID  Access  Password !
              __  AZ          R                !     *______                  ↩
!
              __  BF          R                !  _  *******    _     _________ !
              __  CCA         R                !  _  A          _     _________ !
              __  CCH         R                !  _  AA         _     _________ !
              __  CF          D                !  _  AA1        _     _________ !
              __  CHEF        D                !  _  AA2        _     _________ !
              __  CMR         D                !  _  AA3        _     _________ !
              __  CR          R                !  _  AA4        _     _________ !
              __  DA          R                !  _  AA5        _     _________ !
              __  DEMO1       R                !  _  AA6        _     _________ !
              __  DEMO2       R                !  _  AA7        _     _________ !
             Add  _________  Add Multiple: x    !  _  AA8        _     _________ !
                                                !  _  AA9        _     _________ !
>Options                                         !                            ↩
!
Cmd(s): Add, Modify, Delete                    +More:   +----------------------+
```

2 Mark each user you want to use the file.

3 Type in a file access code for each user.

For further information on file access codes, see *Adding / Linking Single Users to a File* in *Users*.

4 Type in a password for each file (optional).

5 Press Enter.

The users are now authorized to use the file at the access levels specified.

Modifying Links to Users

You can modify the access code and Adabas password for users already authorized to use the file.

To modify a link to a user

1 Issue the `MODIFY user`command.

The Add/Modify Link to User window appears.

2 Modify the file access code (optional).

If the `Password Set` field is marked, a password is already defined for the file. You can either change or delete the password.

3 Type a new password in the `Password` field to change the current password (optional).

Or:

Type blanks in the `Password` field to delete the current password (optional) and press Enter.

The user is now authorized to use the file at the access level specified.

Deleting Links to Users

You can delete the link from the file to a user, the access code and Adabas password for files the user is already authorized to use.

To delete a file from the file list

1 Issue the `DELETE user-id` command.

2 Confirm the deletion in the window which appears.

The user named is no longer authorized to the file.

Copying Files

To copy a file

- Issue the `COPY FILE source file-name target file-name` command.

A new file is created with the file options and user list of the source file.

Deleting Files

To delete a file

1 Issue the `DELETE FILE file-name` command.

2 Confirm the deletion in the window which appears.

Importing Files

When Super Natural is operating under the Natural Security system, you can use the `Import File` function instead of the `Add File` function to define files.

The Import File function is listed on the Special Services menu. For further information, see ***Importing Files*** in *Special Services*.

5 Superfiles

This section covers the following topics:

What are Superfiles?

Superfiles are transactions stored as files. Superfiles are transactions created by the administrator which the user can access from the Superfile Selection List window.

Superfiles reside in a Super Natural library. The name of this library is composed of the prefix for public libraries in the administrator's user profile (default Z) together with the text string SUPFILE:

```
administrator's-public-library- prefixSUPFILE
```

Note: Only users which have the same public library prefix as the administrator can use superfiles.

You can use the following commands with the object Superfile:

	ADD	MODIFY	COPY	DELETE	INFO	IMPORT	MULTIMOD
Superfile	X	X	X	X			

User Views

You can use superfiles to create logical database views which means that you can limit user access to certain data. For example, you may want users to be able to access certain fields from two files, but not all the fields from both files. You can create a transaction linking the two files, and remove the fields you don't want the users to see. By creating a superfile from the transaction and allowing users to access the superfile but not the original files, you can achieve a degree of data security.

Transaction Templates

You can use superfiles as transaction templates which users can use as a basis for their own transactions. You can create a transaction in which files are already linked and complicated or lengthy selection criteria, logical condition processing statements or calculation statements are already entered, thus saving the user time and trouble.

Superfiles which a user is authorized to use appear in the File Selection List window marked with the file access code you defined. Only the superfiles which are applicable to the transaction type selected are displayed. When a user selects a superfile, it is made available to him for modification and subsequent execution as follows:

What Users Can Modify in a Superfile

A superfile provides a basis for a transaction, but users can change the following:

- Sort and control fields
- Display fields
- System functions
- Selection criteria
- SQL
- Logical conditions
- Calculations

Modifications which users make to a superfile are only valid for the user transaction they are made in.

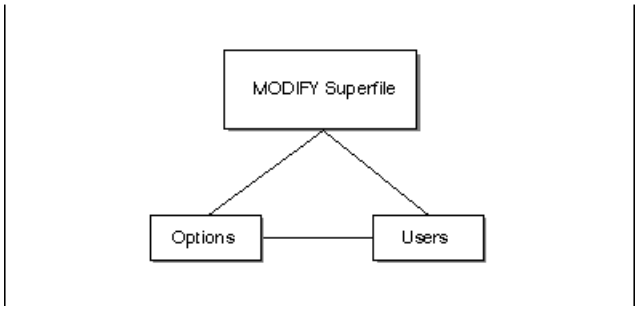
What Users Cannot Modify in a Superfile

Users cannot modify the fields and the files used in the superfile for their own transaction. Consequently, fields suppressed in a superfile will not be available to the user.

Only the Super Natural administrator can change superfile file specifications.

What are Superfile Profiles?

Superfile profiles consist of file option settings and a list of the users authorized to use the file.



Note: Superfile options override user options.

For further information on option hierarchy, see ***User Profile, Option and Adabas Password Hierarchies*** in *Technical Information*.

Listing Superfiles

To obtain a list of existing superfiles

- Issue the `SUPERFILE` command.

  Or:

  Select the object Superfile from the Administration Menu.

  The Superfile List screen appears:

```
14:37                     ***** Super Natural *****               1999-05-21
SBE                          - Superfile List -                        SNMSL
                                                                 More:   - +
            Cmd  Superfile Name                                          ↩

                 *_____________________________                          ↩

              __  SPES-UP                                                ↩

              __  SUE-SUPER                                              ↩

              __  SUP-AAA                                                ↩

              __  SUP-CCC                                                ↩

              __  SUP-HALLO                                              ↩

              __  SUP-REP                                                ↩

              __  SUPER                                                  ↩

              __  SUPER-FILE-DEUF                                        ↩

              __  SUPER-FILE-DREI                                        ↩

              __  SUPER-FILE-EINS                                        ↩

              __  SUPER-FILE-SQL                                         ↩

              __  SUPER-FILE-UFIL                                        ↩

              __  SUPER-FILE-WFILE                                       ↩

            Add  _____________________________                           ↩

Cmd(s): Add, Modify, Copy, Delete                                        ↩

Select one command from list                                             ↩

Command ===>                                                             ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +                      Canc ↩
```

Adding Superfiles

To add a superfile

1 Add and save the transaction you want to be the basis of your superfile.

2 Invoke the Superfile List screen as described in the previous section.

3 Issue the `ADD SUPERFILE name` command.

The name can be a 1-32 character value and does not need to be the same as the transaction ID.

The Add Superfile window appears:

```
14:37                     ***** Super Natural *****                1999-05-21
SBE                          - Superfile List -                        SNMSL
                                                                 More:   - +
           Cmd  Superfile Name         +------------Add Superfile------------+
                *_____________________ !                                     ↩
!
             __  SPES-UP                !  Superfile name                     ↩
!
             __  SUE-SUPER              !    SUPER-NEW_____________________ !
             __  SUP-AAA                !                                     ↩
!
             __  SUP-CCC                !  Copy from program:                 ↩
!
             __  SUP-HALLO              !                                     ↩
!
             __  SUP-REP                !    Library prefix .. P              ↩
!
             __  SUPER                  !    Library name .... _______        ↩
!
             __  SUPER-FILE-DEUF        !                                     ↩
!
             __  SUPER-FILE-DREI        !    Program prefix .. I              ↩
!
             __  SUPER-FILE-EINS        !    Program name .... _______        ↩
!
             __  SUPER-FILE-SQL         !                                     ↩
!
             __  SUPER-FILE-UFIL        +-------------------------------------+
```

4 Type the prefix of the library in which the transaction is stored in the `Library Prefix` field.

5 Type the name of the library in which the transaction is stored in the `Library Name` field.

6 Type the program prefix of the transaction in the `Program Prefix` field.

7 Type the ID of the transaction in the `Program Name` field.

8 Press Enter.

The Modify Superfile >Options screen appears. You can now set options and authorize users to use the file you have added. For further information, see ***Modifying Superfiles***.

To modify a superfile

- Issue the `MODIFY SUPERFILE` *name* command.

The Modify Superfile >Options screen appears:

You can either modify the file options or modify the user list.

For information on navigating between profile setting groups, see ***Navigating Between Profile Setting Groups*** in Introduction.

Note: Users must restart their Super Natural sessions before your modifications are valid. Your modifications are valid for all new transactions but not for existing ones.

Options

Note: Superfile options override user options. For further information on option hierarchy, see ***User Profile, Option and Adabas Password Hierarchies*** in *Technical Information*.

To specify Options

1 Choose `>Options`, the Modify Superfile >Options screen appears.

```
18:43                    ***** Super Natural *****                  1999-05-16
                        - Modify File BBFILE >Options -                   SRMFMO




              _  DDM Check / Display Options

              _  Database Access

              _  Replace Superfile Specification









 >Users
 Mark function(s) or select by cursor
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help        Exit             Flip                                 Canc
```

2 Mark the group(s) of options you want to modify.

3 Press Enter.

4 Overtype the options you want to modify if you are modifying a superfile.

Or:

Type settings if you are adding a superfile and press Enter.

You modifications/entries are saved.

Note: When you add a superfile the file has no option settings and no user list. The individual file settings which are part of each user profile are valid for users when accessing this superfile if you leave the options settings and/or the user list blank. Otherwise, options set for a superfile in its superfile profile override options set for a it in a user profile.

You can modify the following options:

DDM Check / Display Options

Option	Description
DDM Checking on Modify	Y indicates that each time a Super Natural-transaction is modified, a check is made to see if the transaction is still consistent with the data definition module (DDM) for the file or files involved. A warning is issued when a user modifies a transaction if the DDM has been changed. N indicates that no check is to be made. Any changes made to the DDM since the transaction was created/last modified are ignored. The default is N.
Prefix for Inverse Field Output	Prefix used for files with both fields in regular and inverse format. See *Super Natural in Inverse Mode* in the *Setting up Super Natural* documentation. The default value is blank.
Display Occurrences (Multiple Value Field)	The default number of occurrences (i.e. values) that are to be displayed for a field defined as a multiple value field. The default setting is 1.
Display Occurrences (Periodic Group)	The default number of occurrences that are to be displayed for a field contained within a periodic group. The default setting is 1.
Suppress Numeric Sign	Yindicates that the sign of a numeric field is to be suppressed on the transaction report. N indicates that the signs of numeric fields are not to be suppressed. The default setting is N.
Run Modes Available	ONLINE run mode allows users to access the file online. BATCH run mode allows users to access the file in batch operation.

Database Access

Option	Description
Physical Read Allowed	Y indicates that a physical read of an entire file is allowed in the case of a transaction in which the selection criteria specified requires such. N indicates that a physical read of an entire file is not allowed. The default setting is Y. This option allows separate settings for online and batch run mode. This option must be N for DL/I files.
Non-Descriptor Criteria Allowed	Y indicates that a transaction may use selection criteria that contain non-descriptors, i.e., fields that have not been defined as key fields. N indicates that the transaction may only use selection criteria comprised of key fields. The default setting is Y. This option allows separate settings for online and batch run mode.
Maximum Number of Criteria	The maximum number of criteria permitted within a transaction . The default setting is 99. This option allows separate settings for online and batch run mode.

Option	Description
Adabas Sorting Allowed	Y indicates that the Adabas internal sort feature may be used for a transaction that contains sort criteria comprised of one to three key fields. N indicates that the Adabas internal sort feature may not be used. The default setting is Y. This option allows separate settings for online and batch run mode. This option must be N for DL/I files.
Buffer/External Sorting Allowed	Y indicates that a buffer or external sort feature may be used. N indicates that a buffer or external sort feature may not be used. The default setting is Y. This option allows separate settings for online and batch run mode.
Adabas Password	If an Adabas file that is security protected is to be available to Super Natural transactions, the password for the file must be provided. See the *Adabas Security* documentation for additional information on Adabas security.
Adabas Cipher Code	If an Adabas file that is ciphered is to be available to Super Natural transactions, the cipher code for the file must be provided. See the *Adabas Security* documentation for additional information on Adabas ciphering.

Replace Superfile Specification

You use the `Replace Superfile Specification` function to update the current superfile if you have modified the transaction it uses. The `Replace Superfile Specification` function replaces the transaction on which the superfile is based with the transaction you specify.

When you choose the `Replace Superfile Specification` function, the Replace Superfile Specification window appears:

```
14:12                    ***** Super Natural *****                1995-05-17
                    - Modify File CF-SUPER >Options -                   SRMFMO

                                     +-Replace Superfile Specification--+
                                     !                                  !
                                     !  Superfile name                  !
          _  DDM Check / Display Option !    CF-SUPER                   !
                                     !                                  !
          _  Database Access         !  Copy from program:              !
                                     !                                  !
          _  Replace Superfile Specific !    Library prefix .. E        !
                                     !    Library name .... _______     !
                                     !                                  !
                                     !    Program prefix .. I           !
                                     !    Program name .... _______     !
                                     !                                  !
                                     +----------------------------------+
```

To replace the superfile transaction specification

1 In the `Library Prefix` field, type the prefix of the library which contains the transaction with which you want to replace the current superfile specification.

2 In the `Library Name` field, type the name of the library which contains the transaction with which you want to replace the current superfile specification.

3 In the `Program Prefix` field, type the program prefix of the transaction with which you want to replace the current superfile specification.

4 In the `Program Name` field, type the name of the transaction with which you want to replace the current superfile specification.

5 Press Enter.

Note: Existing transactions which use the old version of the superfile are not affected by the `Replace Superfile Specification` function.

Users

When you choose `>Users`, the Modify Superfile >Users screen appears as in the following example:

```
14:39                     ***** Super Natural *****                  1999-05-21
SBE                 - Modify File SUPER-FILE-SQL >Users -               SRMFMU

            Cmd  User      Access  Password
                 *_______
                 __  CF          R
                 __  KE          R
                 __
                 __
                 __
                 __
                 __
                 __
                 __
                 __
                 __
                Add  _________  Add Multiple: _

>Options
Cmd(s): Add, Modify, Delete
Select one command from list
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit             Flip        +                      Canc
```

The Modify Superfile >Users screen displays the following information:

- Users which are authorized to use the superfile you are modifying
- Code for the data access level the user has for each superfile
- Whether the user has an Adabas password for password protected superfiles.

You use the Modify Superfile >Users screen to link users to (authorize them to use) the superfile you are modifying/adding or to modify or delete existing links.

If you are adding a superfile, the Superfile >Users screen is empty.

Adding / Linking Single Users to a Superfile

To add (link) a user to a superfile

1 Issue the `ADD USER name` command.

The Add/Modify Link to User window appears:

```
14:39                     ***** Super Natural *****                1999-05-21
SBE                  - Modify File SUPER-FILE-SQL >Users -              SRMFMU
                                                                             ↩

           Cmd  User      Access  Password       +--Add/Modify Link to User--+
                *_______                          !                          ↩
!
            __  CF          R                    !  User ID ....... KE______ !
            mo  KE          R                     !                          ↩
!
            __                                    !  Access ........ R       ↩
!
            __                                    !                          ↩
!
            __                                    !  Password set ..         ↩
!
            __                                   !  Password ...... _________ !
            __                                    !                          ↩
!
            __                                   +--------------------------+
```

2 Determine the user's access level to the superfile by typing one of the following codes in the Access field:

File Access Code	Description
R	Read only.
U	Update (includes read). The user can update existing records in this file. Not available under Natural Security.
A	Add (includes update). The user can add new records to this file. Not available under Natural Security.
D	Delete (includes add). The user can delete records in this file.

3 Enter a password in the `Password` field (optional).

Users who do not have the same password cannot access transactions in public or common libraries created by this user using this superfile.

For further information on passwords, see ***User Profile, Option and Adabas Password Hierarchies*** in *Technical Information*.

4 Press Enter.

The user is now authorized to use the superfile at the access level specified.

Adding / Linking Multiple Users to a Superfile

To link multiple users to a superfile

1 Mark the `Add Multiple` field on the Modify Superfile >User screen.

The Add/Link Multiple Users window appears:

```
14:39                    ***** Super Natural *****                 1999-05-21
SBE                 - Modify File SUPER-FILE-SQL >Users -                SRMFMU
                                                                           ↩

           Cmd  User      Access  Password   +----Add/Link Multiple Users----+
                *_______                     !     User ID  Access  Password !
             __  CF          R                !     *______                   ↩
!
             __  KE          R                !  _  *******    _     _________ !
             __                               !  _  A          _     _________ !
             __                               !  _  AA         _     _________ !
             __                               !  _  AA1        _     _________ !
             __                               !  _  AA2        _     _________ !
             __                               !  _  AA3        _     _________ !
             __                               !  _  AA4        _     _________ !
             __                               !  _  AA5        _     _________ !
             __                               !  _  AA6        _     _________ !
             __                               !  _  AA7        _     _________ !
           Add  _________  Add Multiple: c    !  _  AA8        _     _________ !
                                              !  _  AA9        _     _________ !
>Options                                       !                               ↩
!
Cmd(s): Add, Modify, Delete                  +More:   +----------------------+
Mark users for function ADD MULTIPLE                                       ↩
```

2 Mark each user you want to use the superfile.

3 Type in a superfile access code for each user.

For further information on superfile access codes, see ***Adding / Linking Single Users to a Superfile*** in *Superfiles*.

4 Type in a password for each superfile (optional).

5 Press Enter.

The users are now authorized to use the superfile at the access levels specified.

Modifying Links to Users

You can modify the access code and Adabas password for users already authorized to use the superfile.

To modify a link to a user

1 Issue the `MODIFY user` command.

The Add/Modify Link to User window appears.

2 Modify the superfile access code (optional).

If the `Password Set` field is marked, a password is already defined for the superfile. You can either change or delete the password.

3 Type a new password in the `Password` field to change the current password (optional).

Or:

Type blanks in the `Password` field to delete the current password (optional) and press Enter.

The user is now authorized to use the superfile at the access level specified.

Deleting Links to Users

You can delete the link from the superfile to a user, the access code and Adabas password for superfiles the user is already authorized to use.

To delete a superfile from the superfile list

1 Issue the `DELETE user-id` command.

2 Confirm the deletion in the window which appears.

The user named is no longer authorized to the superfile.

Deleting Superfiles

To delete a superfile

1 Issue the `DELETE SUPERFILE superfile-name` command.

2 Confirm the deletion in the window which appears.

6 User Files

This section describes user files and covers the following topics:

This section covers the following topics:

- **What are User Files?**
- **What are User File Profiles?**
- **Listing User Files**
- **Modifying User Files**
- **Deleting User Files**

What are User Files?

User files are created by users and are stored in the personal database. The personal database consists of one or more physical Adabas files. Each user works on one file which is determined in his profile.

The user ID of the user who created it is part of each user file name. The user ID is checked each time a transaction using a user file or with Destination USER FILE is run from a private library to make sure it is the same as the private library ID.

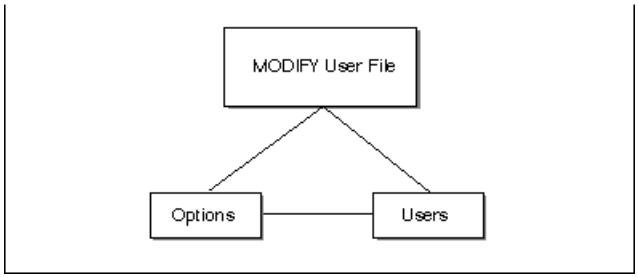
For further technical information on user files, see ***Personal Database*** in *Technical Information*.

You can use the following commands with the object `User File`:

	ADD	MODIFY	COPY	DELETE	INFO	IMPORT	MULTIMOD
User File		X		X			

What are User File Profiles?

User File profiles consist of file option settings and a list of the users authorized to use the file.



Note: User File options override user options.

For further information on option hierarchy, see ***User Profile, Option and Adabas Password Hierarchies*** in *Technical Information*.

Listing User Files

To obtain a list of existing user files

- Issue the `USERFILE` command.

  Or:

  Select the object `User File` from the Administration Menu.

  The User File List screen appears:

```
14:43                      ***** Super Natural *****                1999-05-21
SBE                           - User File List -                         SNMDL
                                                                   More:   - +
            Cmd  User File Name                     DB  FNO                  ↩

                 *________________________________                           ↩

             __  UF-HAH-A21                                                  ↩

             __  UF-HAH-A22                         10   90                  ↩

             __  UF-HAH-A23                         10   90                  ↩

             __  UF-HAH-A24                         10   90                  ↩

             __  UF-HAH-A26                         10   90                  ↩

             __  UF-HAH-A27                         10   90                  ↩

             __  UF-HAH-A28                         10   90                  ↩

             __  UF-HAH-A29                         10   90                  ↩

             __  UF-HAH-A3                               90                  ↩

             __  UF-HAH-A30                         10   90                  ↩

             __  UF-HAH-A31                         10   90                  ↩

             __  UF-HAH-A32                         10   90                  ↩

             __  UF-HAH-A33                         10   90                  ↩

                                                                             ↩
Cmd(s): Modify, Delete                                                       ↩

Select one command from list                                                 ↩

Command ===>                                                                 ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +                       Canc ↩
```

Modifying User Files

To modify a user file

- Issue the `MODIFY USERFILE name` command.

  The Modify User file >Options screen appears. You can either modify the file options or modify the user list.

  For information on navigating between profile setting groups, see ***>Navigation*** in *Introduction*.

  Note: Users must restart their Super Natural sessions before your modifications are valid. Your modifications are valid for all new transactions but not for existing ones.

Options

User file options override user options.

For further information on option hierarchy, see ***User Profile, Option and Adabas Password Hierarchies*** in *Technical Information*.

To specify the Options

1 Choose `>Options`, the Modify User File >Options screen appears:

```
14:44                     ***** Super Natural *****                 1999-05-21
SBE                   - Modify File UF-HAH-A23 >Options -                 SRMFMO
                                                                              ↩
                                                                              ↩
                                                                              ↩
                                                                              ↩
             _  Display Options                                               ↩
                                                                              ↩
             _  Database Access                                               ↩
                                                                              ↩
             _  User File Expiration Date                                     ↩
                                                                              ↩
                                                                              ↩
                                                                              ↩
                                                                              ↩
                                                                              ↩
                                                                              ↩
                                                                              ↩
                                                                              ↩
>Users                                                                        ↩
Mark function(s) or select by cursor                                          ↩
Command ===>                                                                  ↩
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit             Flip                              Canc ↩
```

2 Mark the group(s) of options you want to modify.

3 Press Enter.

4 Overtype the options you want to modify if you are modifying a user file.

Or:

Type settings if you are adding a user file.

5 Press Enter.

You modifications/entries are saved.

When you link a user to a user, file the file has no option settings and no user list. The individual file settings which are part of each user profile are valid for users when accessing this user file if you leave the options settings and/or the user list blank. Otherwise, options set for a user file in its user file profile override options set for it in a user profile.

You can modify the following options:

Display Options

Option	Description
Prefix for Inverse Field Output	Prefix used for files with both fields in regular and inverse format. See *Super Natural in Inverse Mode* in *Setting up Super Natural*. The default value is blank.
Display Occurrences (Multiple Value Field)	The default number of occurrences (i.e. values) that are to be displayed for a field defined as a multiple value field. The default setting is 1.
Display Occurrences (Periodic Group)	The default number of occurrences that are to be displayed for a field contained within a periodic group. The default setting is 1.
Suppress Numeric Sign	Y indicates that the sign of a numeric field is to be suppressed on the transaction report. N indicates that the signs of numeric fields are not to be suppressed. The default setting is N.
Run Modes Available	ONLINE run mode allows users to access the file online. BATCH run mode allows users to access the file in batch operation.

Database Access

Option	Description
Physical Read Allowed	Y indicates that a physical read of an entire file is allowed in the case of a transaction in which the selection criteria specified requires such. N indicates that a physical read of an entire file is not allowed. The default setting is Y. This option allows separate settings for online and batch run mode. This option must be N for DL/I files.
Non-Descriptor Criteria Allowed	Y indicates that a transaction may use selection criteria that contain non-descriptors, i.e., fields that have not been defined as key fields. N indicates that the transaction may only use selection criteria comprised of key fields. The default setting is Y. This option allows separate settings for online and batch run mode.

Option	Description
Maximum Number of Criteria	The maximum number of criteria permitted within a transaction. The default setting is 99. This option allows separate settings for online and batch run mode.
Adabas Sorting Allowed	Y indicates that the Adabas internal sort feature may be used for a transaction that contains sort criteria comprised of one to three key fields. N indicates that the Adabas internal sort feature may not be used. The default setting is Y. This option allows separate settings for online and batch run mode. This option must be N for DL/I files.
Buffer/External Sorting Allowed	Y indicates that a buffer or external sort feature may be used. N indicates that a buffer or external sort feature may not be used. The default setting is Y. This option allows separate settings for online and batch run mode.
Adabas Password	If an Adabas file that is security protected is to be available to Super Natural transactions, the password for the file must be provided. See the *Adabas Security* documentation for additional information on Adabas security.
Adabas Cipher Code	If an Adabas file that is ciphered is to be available to Super Natural transactions, the cipher code for the file must be provided. See the *Adabas Security* documentation for additional information on Adabas ciphering.

User File Expiration Date

The User File Expiration Date window contains the following information about the user file:

Information	Description
User File Name	The name of the user file as assigned by the user.
User File DBID	Physical ID of the Adabas database used to store the user file (see ***User File Adabas Database ID*** in *User profile*).
User File Number	Number of the Adabas file used to store the user files (see ***User File Adabas File Number*** in *User profile*).
User	ID of the user who created the user file.
Description	Three-line description entered by user creating the file.
Created	**on**: Date of creation. **at**: Time of creation.
Status	Status of the file as follows: **IN USE**: Field definitions (and possibly data) exist for this file. **DATA DEL**: Field definitions exist. Data has been cleared. **FILE DEL**: File has been deleted logically but can still be retrieved. ********: Deletion currently in process.
Record Count	Number of records contained in the file.

You can set an expiration date for the file.

Option	Description
Expiration Date	Type the file expiration date in the format YYYY-MM-DD.

Users

When you choose >Users, the Modify User File >Users screen appears as in the following example:

```
14:44                      ***** Super Natural *****                 1999-05-21
SBE                    - Modify File UF-HAH-A23 >Users -                 SRMFMU
                                                                 More:   -
            Cmd  User      Access  Password
                 *_______
             __  AA1         R
             __  AA2         D
             __  AA3         U
             __  AA4         R        <
             __
             __
             __
             __
             __
             __
             __
            Add  _________  Add Multiple: _

>Options
Cmd(s): Add, Modify, Delete
Link to User modified
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +                       Canc
```

The Modify User File >Users screen displays the following information:

- Users which are authorized to use the user file you are modifying
- Code for the data access level the user has for each
- Whether the user has an Adabas password for password protected user files.

You use the Modify User File >Users screen to link users to (authorize them to use) the user file you are modifying/adding or to modify or delete existing links.

If you are adding a user file, the User File >Users screen is empty.

Adding / Linking Single Users to a User File

To add (link) a user to a user file

1 Issue the `ADD USER name` command.

The Add/Modify Link to User window appears:

```
11:35                    ***** Super Natural *****                1999-05-24
                      - Modify File UF-HAH-A23 >Users -                SRMFMU
                                                                            ↩

           Cmd  User      Access  Password       +--Add/Modify Link to User--+
                *_______                          !                         ↩
!
            __  AA1         R                    !  User ID ....... SBE_____ !
            __  AA2         D                    !                         ↩
!
            __  AA3         U                    !  Access ........ _       ↩
!
            __  AA4         R        <           !                         ↩
!
            __                                    !  Password set ..         ↩
!
            __                                   !  Password ...... _________ !
            __                                    !                         ↩
!
            __                                   +---------------------------+
```

2 Determine the user's access level to the user file by typing one of the following codes in the Access field:

File Access Code	Description
R	Read only
U	Update (includes read). The user can update existing records in this file. Not available under Natural Security.
A	Add (includes update). The user can add new records to this file. Not available under Natural Security.
D	Delete (includes add). The user can delete records in this file.
F	Indicates that the user created the file.

3 Enter a password in the `Password` field (optional).

Users who do not have the same password cannot access transactions in public or common libraries created by this user using this user file.

For further information on passwords, see ***User Profile, Option and Adabas Password Hierarchies*** in *Technical Information*.

4 Press Enter.

The user is now authorized to use the user file at the access level specified.

Adding / Linking Multiple Users to a User File

To link multiple users to a user file

1 Mark the `Add Multiple` field on the Modify User File >User screen.

The Add/Link Multiple Users window appears:

```
14:46                    ***** Super Natural *****                1999-05-21
SBE                  - Modify File UF-HAH-A23 >Users -                SRMFMU
                                                                          ↩

           Cmd  User      Access  Password   +----Add/Link Multiple Users----+
                *_______                     !     User ID  Access  Password !
             __  AA1         R                !     *______                  ↩
!
             __  AA2         D                !  _  *******    _     _________ !
             __  AA3         U                !  _  A          _     _________ !
             __  AA4         R        <       !  _  AA         _     _________ !
             __                               !  _  AA5        _     _________ !
             __                               !  _  AA6        _     _________ !
             __                               !  _  AA7        _     _________ !
             __                               !  _  AA8        _     _________ !
             __                               !  _  AA9        _     _________ !
             __                               !  _  AA91       _     _________ !
             __                               !  _  AA92       _     _________ !
           Add  _________  Add Multiple: _    !  _  AA93       _     _________ !
                                              !  _  AA94       _     _________ !
>Options                                       !                            ↩
!
Cmd(s): Add, Modify, Delete                  +More:   +----------------------+
```

2 Mark each user you want to use the user file.

3 Type in a user file access code for each user.

For further information on user file access codes, see *Adding / Linking Single Users to a User File* in *User Files*.

4 Type in a password for each user file (optional).

5 Press Enter.

The users are now authorized to use the user file at the access levels specified.

Modifying Links to Users

You can modify the access code and Adabas password for users already authorized to use the user file.

To modify a link to a user

1 Issue the `MODIFY user` command.

The Add/Modify Link to User window appears.

2 Modify the user file access code (optional).

If the `Password Set` field is marked, a password is already defined for the user file. You can either change or delete the password.

3 Type a new password in the `Password` field to change the current password (optional).

Or:

Type blanks in the `Password` field to delete the current password (optional) and press Enter.

The user is now authorized to use the user file at the access level specified.

Deleting Links to Users

You can delete the link from the user file to a user, the access code and Adabas password for user files the user is already authorized to use.

To delete a user file from the user file list

1 Issue the `DELETE user-id` command.

2 Confirm the deletion in the window which appears.

The user named is no longer authorized to the user file.

Deleting User Files

User files can be deleted online and in batch.

To delete a user file online

1 Issue the `DELETE USERFILE userfile-name` command.

2 Confirm the deletion in the window which appears.

To delete a user file in batch

- Use the program *SNDELUF* in library *SYSSN* as described in the section *Batch Utilities*.

7 Libraries

This section covers the following topics:

What are Libraries?

For a definition of private, public and common libraries, see *Libraries* in *Using Super Natural* in the *User's Guide*.

You can perform the following commands on libraries:

	ADD	MODIFY	COPY	DELETE	INFO	MEMBER
Private Library			X	X		X
Public Library			X	X		X
Common Library			X	X		X

Super Natural libraries can contain the following types of members:

- Transaction programs
- Prototype programs
- Application programs
- Data models
- Layout member
- Work-in-progress layout member

You can perform the following commands on members:

	ADD	MODIFY	COPY	DELETE	INFO	MEMBER
Member			X	X	X	

Creating Libraries

There is no `Add Library` function.

To create a library

- Copy an existing library specifying the required library prefix for the target library.

  Common libraries are not created until they are defined in the *Common Library Definition List* (although they may appear in the *Library List*).

Note: Libraries are not created until members are copied to them.

Listing Libraries

To list libraries with a certain prefix and member prefix

1 Issue the `LIBRARY` command.

  Or:

  Select the object Library from the AdministrationMenu.

  The Library List screen appears as in the following example:

```
14:49                     ***** Super Natural *****                1999-05-21
SBE                           - Library List -                          SNMLL
                                                                 More:   - +
                  Library prefix: Y  Program prefix: I                       ↩

             Cmd  Library  Programs                                          ↩

                  *______                                                    ↩

               __  DD           7                                           ↩

               __  DEMO         1                                           ↩

               __  ESC         58                                           ↩

               __  EZA         48                                           ↩

               __  FHA          1                                           ↩

               __  FSO          3                                           ↩

               __  HAA          9                                           ↩

               __  HAH         55                                           ↩

               __  HAH1        15                                           ↩

               __  HAH2        13                                           ↩

               __  HAH3        13                                           ↩

               __  HSE          6                                           ↩

                                                                            ↩

Cmd(s): Copy, Delete, Member                                                ↩

Select one command from list                                                ↩

Command ===>                                                                ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +                      Canc ↩
```

The Library List screen shows the following:

- Library prefix
- Member prefix
- The libraries defined to Super Natural with the library prefix and member prefix shown

- The number of programs with the prefix shown contained in each library shown

2 Enter the prefix for the type of library you want to see in the `Library Prefix` field.

3 Enter the prefix for the type of program you want to see in the `Member prefix` field.

The libraries with the prefix specified are listed and the number of programs with the prefix specified contained in each library is shown.

Copying Libraries

You use the `Copy Library` function to copy members of a certain type either to an existing or to a new library. You cannot copy all the members of a library at once. You must copy each member type separately.

Notes:

1. When you copy a transaction, its layout member is also copied.
2. If you copy transactions created with Super Natural Version 2.4.2 or below, a dummy layout member is created for each one.
3. You cannot copy transactions with transaction mode for reporting Destination USER FILE between libraries.

To copy a library

- Issue the `COPY LIBRARY` command specifying source and target library prefix and name as in the following example:

```
COPY LIBRARY YTEST I ZPUBLIC I
```

If you enter `CO` in the command column of the Library List screen next to the library you want to copy, a window appears which prompts you for prefix and name information.

A window appears showing which members are currently being copied. If there is already a member with the same prefix and name in the target library, you are asked if you want to replace (overwrite) the member in the target library.

Deleting Libraries

You use the `Delete Library` function to delete members with a certain prefix from libraries. You cannot delete all the members of a library at once. You must delete each member type separately.

If you delete all transactions, the layout members which belong to them are also deleted. However, the work-in-progress layout members are not deleted. Work-in-progress layout members (prefix!) can only be deleted from the Member List screen.

Note: A library itself is not deleted until all its members are deleted.

To delete a library

1 Issue the `DELETE LIBRARY` command specifying library prefix, library name and program prefix as in the following example:

```
DELETE LIBRARY YTEST I
```

2 Confirm the deletion in the window which appears.

All the programs with the prefix specified are deleted from the library.

Or:

Enter `DE` in the `command` column of the Library List screen next to the library you want to delete.

3 Confirm the deletion in the window which appears.

All the programs with the prefix specified in the Member prefix field of the Library List screen are deleted from the library.

Note: You must delete common libraries and their definitions separately.

Listing Library Members

To list the members contained in a library

- Issue the `MEMBER` command specifying library-prefix, library-name and program-prefix.

  The Member List screen appears:

```
14:50                    ***** Super Natural *****                1999-05-21
SBE                           - Member List -                          SNMML
                                                                 More:     +
                Library prefix: Y  Member prefix: I                          ↩

            Cmd  Library  Member                                             ↩

                 SBE____  *______                                            ↩

                  __      AUTO                                               ↩

                  __      CONNECT                                            ↩

                  __      CONTROL                                            ↩

                  __      CONT2                                              ↩

                  __      DATACH                                             ↩

                  __      DATACH2                                            ↩

                  __      DATACH3                                            ↩

                  __      DATA2                                              ↩

                  __      DATA3                                              ↩

                  __      DATA4                                              ↩

                  __      DATA5                                              ↩

                  __      DATA6                                              ↩

                                                                             ↩

Cmd(s): Copy, Delete, Info                                                   ↩

Select one command from list                                                 ↩

Command ===>                                                                 ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +                       Canc ↩
```

The Member List screen contains the following information:

- Library prefix
- Member prefix

- The name of the library whose members are listed - you can overtype this with another library ID
- The members with the prefix specified contained in the library specified

Copying Library Members

To copy a library member

- Issue the `COPY MEMBER` command specifying library prefix, library name, member prefix and member name for both source and target member as in the following example:

```
COPY MEMBER YSBE ISAMPLE3 CTUTOR ISAMPLE3
```

If you enter `CO` in the command column of the Member list screen next to the member you want to copy, the Copy Member window appears which prompts you for name and prefix information for the target library and target prefix.

In some cases, you cannot copy a transaction to another library because of layout conflicts.

Note: You cannot copy transactions with transaction mode for reporting Destination USER FILE between libraries.

Deleting Library Members

To delete a library member

- Issue the `DELETE MEMBER` command specifying library prefix, library name, member prefix and member name as in the following example:

```
DELETE MEMBER YSBE ISAMPLE3
```

Note: If you enter `CO` in the command column of the Member list screen next to the member you want to copy, the copy member window appears which prompts you for name and prefix information for the target library and target prefix.

The Information / Info Function

To obtain information about a member

- Enter the command abbreviation `IN` in the command column of the Member List screen next to the member name.

  Or:

  Issue the `INFO MEMBER` command specifying library prefix, library name, member prefix and member name as in the following example:

  ```
  INFO MEMBER YSBE IDATA3
  ```

  The Transaction Information window appears:

```
11:47                     ***** Super Natural *****                1999-05-24
                               - Member List -                          SNMML
                                                                 More:     +
          +---------------------Transaction Information----------------------+
           ! Transaction .......... DATA3    Version .... 3.1.0              ↩
!
           ! Created/modified by .. SBE      Date/Time .. 1993/01/12 12:03:00 !
           ! Description ........... data maintenance transaction t          ↩
!
           !                         ype UPDATE MULTIPLE                     ↩
!
           ! Type ................. Update single                           ↩
!
           ! Selection ............ Full-screen                             ↩
!
           ! Data change .......... None                                    ↩
!
           ! Report type ..........                                         ↩
!
           ! Report level ......... Detailed                               ↩
!
           ! Destination .......... Screen                                  ↩
!
           ! Run mode ............. Online                                  ↩
!
           ! Primary file ......... PERSONNEL                               ↩
!
           ! Sec. file ............                                         ↩
!
           ! User file ............                                         ↩
!
           !                                                                ↩
!
Cmd(s): Co +More:   +-------------------------------------------------------+
                                                                            ↩

Command ===>                                                                ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip  -     +                       Canc ↩
```

The Transaction Information window supplies the following information:

- Transaction name
- Super Natural version with which the transaction was created
- Who created/last modified the transaction
- When the transaction was created/last modified

- User-entered transaction description
- Information about the transaction modes (Report Type, Data Selection etc.)
- Primary file
- Secondary file (if defined)
- Name of user file (for Destination USER FILE)

You can page forward to obtain information on the following if relevant to the transaction:

- Link and lookup fields used.
- Selection criteria
- Calculation
- Logical conditions
- Fields used

When you print the information, you are also provided with information on the entries made in the Worksheet.

8 Common Library Definitions

This section covers the following topics:

What are Common Library Definitions?

A common library definition is a name reserved for a common library which may or may not exist physically.

You can perform the following commands on common library definitions:

	ADD	MODIFY	COPY	DELETE	INFO	MEMBER
Common Library Definition	X			X		

Listing Common Library Definitions

To list common library definitions

- Issue the `COMMON` command.

  Or:

  Select the menu item Common Library Definition from the Administration Menu.

  The Common Library Definition List screen appears as in the following example:

```
14:51                    ***** Super Natural *****                1999-05-21
SBE                  - Common Library Definition List -                SNMEL
                                                                 More:     +
                 Library prefix: C                                          ↩

             Cmd  Library                                                   ↩

                  *______                                                   ↩

               __  AAA                                                      ↩

               __  AKE                                                      ↩

               __  BRIGGS                                                   ↩

               __  DEMO                                                     ↩

               __  ERROR                                                    ↩

               __  EZA                                                      ↩

               __  HWA                                                      ↩

               __  KE                                                       ↩

               __  KE24                                                     ↩

               __  LCCOMM2                                                  ↩

               __  NKA                                                      ↩

               __  NSNCAQ                                                   ↩

             Add  _______                                                   ↩

Cmd(s): Add, Delete                                                         ↩

Select one command from list                                                ↩

Command ===>                                                                ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +                      Canc ↩
```

The Library List screen shows the following:

- Common library prefix
- Common libraries which are either in use or for which a name has been reserved.

Adding Common Library Definitions

When you add a common library definition, you do not create a common library directly, but reserve a name for one. A common library does not exist physically until you copy members into it.

To add a common library definition

- Issue the `ADD COMMON` *`common-library-definition-name`* command.

  A name is reserved for the a common library.

Deleting Common Library Definitions

When you delete a common library definition, the library becomes unavailable for your users but still exists physically and is listed in the Libraries List screen.

To delete a common library definition

1. Issue the `DELETE COMMON` *`common library definition-name`* command from the Common Library Definition List.
2. Confirm the deletion in the window which appears.

   The library is unavailable to users but still exists physically.

9 Special Services

This section covers the following topics:

Invoking the Special Services Menu

To invoke the Special Services menu

- Issue the `SPECIAL` command from the Object List screens.

  Or:

  Choose the object Special Services on the Administration Menu.

  The Special Services Menu appears:

```
14:52                     ***** Super Natural *****              1999-05-21
SBE                        - Special Services Menu -                  SNM14
                                                                 More:     +



             IM USER Import Users

             IM FILE Import Files


             MULT    Modify Multiple Users


             TITL    Layout Standard Title


             JCL     JCL Members


             PROC    Super Natural Processor






Select Object

Command ===>

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

Importing Users

When Super Natural is operating under the Natural Security system, you can use the `Import User` function instead of the `Add User` function to define users.

Note: The `Import` function is only useful for users of Natural Security.

In order to import file profiles, the application *SYSSN* must be *people-protected* under Natural Security.

To import users with private files, the private files must be linked to the application *SYSSN*.

To import users

1 Issue the `IMPORT USER` *name* command.

Or:

Issue the `IMPORT USER` command.

The Import User screen appears as in the following example:

```
14:53                    ***** Super Natural *****               1999-05-21
DBA                           - Import User -                         SNMUI
                                                                More:     +
                User ID   Private Files                                   ↩
                *_______                                                  ↩
              _ ANS                                                       ↩
              _ APAXF                                                     ↩
              _ AZE                                                       ↩
              _ AZE1                                                      ↩
              _ AZE5                                                      ↩
              _ BBU                                                       ↩
              _ BBUBAT                                                    ↩
              _ BBUUSER1                                                  ↩
              _ BGW                                                       ↩
              _ BKA                                                       ↩
              _ BSE                                                       ↩
              _ BTO                                                       ↩
              _ BVUS                                                      ↩
              _ CF                                                        ↩
                                                                          ↩
Mark users to be imported into SYSSN                                      ↩
Command ===>                                                              ↩
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit             Flip        +                      Canc ↩
```

The screen lists the users defined under Natural Security and displays the number of private files for each user.

If you specified a user name, the list starts from that name.

Natural Security users of the types `Terminal` and `Group` are not listed.

2 Mark the users to be imported.

3 Press Enter.

The users' private files are added/linked automatically, if they are not yet defined to Super Natural.

Users already defined to Super Natural are shown on the list, but cannot be marked.

Importing Files

When Super Natural is operating under the Natural Security system, you can use the `Import File` function instead of the `Add File` function to define users. You can import both private and public files.

Notes:

1. The Import function is only available for users of Natural Security.
2. In order to import file profiles, the application *SYSSN* must be *people-protected* under Natural Security. Private files must be linked to the application *SYSSN*.

To import a file

1 Issue the `IMPORT FILE` *name* command.

Or:

Issue the `IMPORT FILE` command.

The Import File > Private screen appears as in the following example:

```
14:54                    ***** Super Natural *****                1999-05-21
DBA                      - Import File  >Private -                     SNMFI
                                                                           ↩

               File Name                          Type                     ↩

               *__________________________________                         ↩

            _  CO-AGREEMENT                       Priv                     ↩

            _  COMMAND-SSZ                        Priv                     ↩

            _  UF-SEK-BSP51                       Priv                     ↩

            _  UF-SEK-BSP6                        Priv                     ↩

            _                                                              ↩

            _                                                              ↩

            _                                                              ↩

            _                                                              ↩

            _                                                              ↩

            _                                                              ↩

            _                                                              ↩

            _                                                              ↩

            _                                                              ↩

            _                                                              ↩

>Public                                                                    ↩

Mark files to be imported to SYSSN                                         ↩

Command ===>                                                               ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +                      Canc ↩
```

The screen lists the private files that are already linked to the application *SYSSN*.

Files already defined to Super Natural are shown on the list, but cannot be marked.

2 If you want to import a public file, issue the `>PUBLIC` command.

The Import File >Public screen appears. The screen lists the public files that are already linked to the application *SYSSN*. Files already defined to Super Natural are shown on the list, but cannot be marked.

3 Select the file(s) to be imported.

4 Press Enter.

The file(s) have been imported to SYSSN.

5 Press Exit to enter the File List and select the desired File.

6 Press Enter.

7 Modify the file options as described in the section Files earlier in this documentation if required.

Modifying Multiple Users

You use the `Modify Multiple Users` function (called `Mass Change` in previous versions of Super Natural) to unify the options of multiple (or all) users.

To modify multiple users

1 Issue the `MULTIMOD` command.

The Modify Multiple Users window appears:

```
11:08                     ***** Super Natural *****                1999-05-24
                          - Special Services Menu -                     SNM14
                                                                          ↩

                                    +---------Modify Multiple Users---------+
                                     !                                      ↩
!
            IM USER Import Users     ! Enter a user ID to get the options of !
            IM FILE Import Files     ! this user as default options.        ↩
!
                                     ! If using '*******' you will get the  ↩
!
            MULT    Modify Multiple  ! global options as default.           ↩
!
                                     !                                      ↩
!
            TITL    Layout Standard  ! User ID: _______                     ↩
!
                                     !                                      ↩
!
           JCL     JCL Members      +---------------------------------------+
```

2 Enter the user ID whose options you want all or multiple users to get.

The Multiple Modify Multiple Users >Options screen appears:

```
11:11                    ***** Super Natural *****                1999-05-24
                      - Modify Multiple Users >Options -               SRMUQO
                                                                            ↩
                                                                            ↩
            _  Maintenance Authorization / Language / Prefixes              ↩
                                                                            ↩
            _  Sizes / Numbers / User Files                                 ↩
                                                                            ↩
            _  Database Access                                              ↩
                                                                            ↩
            _  Database Access and JCL                                      ↩
                                                                            ↩
            _  Data Maintenance Transaction Type / Data Selection           ↩
            _  Report Type / Report Level                                   ↩
            _  Report Destination / Run Mode / Batch Job Entry              ↩
                                                                            ↩
            _  Display Options                                              ↩
                                                                            ↩
                                                                            ↩
>Users                                                                      ↩
                                                                            ↩
Command ===>                                                                ↩

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip                              Canc ↩
```

3 Modify the user options as described in the section *Modifying Single Users* earlier in this section if required.

4 Select `>Users`.

The Modify Multiple Users >Users screen appears as in the following example:

```
11:12                    ***** Super Natural *****                1999-05-24
                       - Modify Multiple Users >Users -                SNMUQL
                                                              More:     +
      User ID                                                            ↩
      *______                                                            ↩
   _  *******          _  AA92             _  CALL 'C          _  DP      ↩
   _  A                _  AA93             _  CCA              _  DS      ↩
   _  AA               _  AA94             _  CCH              _  DW      ↩
   _  AA1              _  AKR              _  CF               _  ESC     ↩
   _  AA2              _  ALO              _  CHEF             _  EZA     ↩
   _  AA3              _  AS               _  CMR              _  FHA     ↩
   _  AA4              _  AZ               _  CR               _  FK      ↩
   _  AA5              _  A1               _  DA               _  FS      ↩
   _  AA6              _  BF               _  DBA              _  FSO     ↩
   _  AA7              _  BFA              _  DEMO             _  FT      ↩
   _  AA8              _  BFB              _  DEMO1            _  GAS     ↩
   _  AA9              _  BFC              _  DEMO2            _  GBAH    ↩
   _  AA91             _  BS               _  DOG              _  GBBW    ↩
                                                                          ↩
                                                                          ↩
Mark users for function Modify Multiple                                   ↩
Command ===>                                                              ↩
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              Flip        +                     Canc ↩
```

5 Mark the users you want to give the new user options.

Marked users are modified when you do one of the following:

- Issue a paging command.
- Press Enter.
- Press PF3.

Layout Standard Title

You use the `Layout Standard Title` function to edit the standard Title element which is generated for all reports at your site. For example, you may want the name of the company to appear at the top of all reports. Users can edit the Title element in each report.

Editing the Layout Standard Title Element

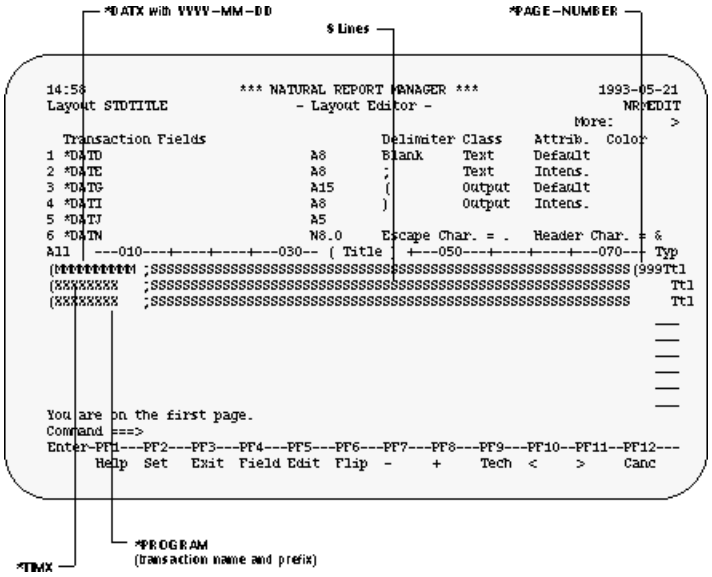
To edit the standard Title layout element

1 Issue the `TITLE` command.

The Layout Editor appears with the Standard Title element currently defined at your site in the editor area.

2 Edit the Standard Title as described in the section *Natural Report Manager* in the *User's Guide*.

Super Natural provides the following default Standard Title element:



System Variables

The Natural system variables available in Super Natural are listed in the `Transaction Fields` section of the split-screen Layout Editor. For further information on system variables, see *System Variables* in the *User's Guide*.

S Lines

The S lines are a placeholder for up to 5 lines of selection criteria. Each S line contains 60 Ss. If you either add or erase Ss from the S lines, the Ss are interpreted as text. You can edit the S lines if you wish, for example, you can move them two lines down and enter text above them.

Deleting the Standard Title

You can delete the contents of the Standard Title member in the Super Natural Administration application. The next time you choose `Layout Standard Title` from the Special Services menu, the Layout Standard Title window appears where you can choose between editing the empty Standard Title and regenerating the Super Natural default Standard Title.

You can delete the Standard Title member in *SYSSN*, however it is regenerated the next time a layout is generated for a transaction.

JCL Members

You use the `JCL Members` function to maintain JCL members using the Natural `LIST` command. By default, each JCL member is stored in library *ZJCL*. Choosing JCL Members from the Special Services menu is the same as issuing the following Natural commands:

```
LOGON LIBRARY ZJCL
LIST *
```

A user can only have access to one JCL at a time. However, you may create several JCLs in the library *ZJCL*. You can change user access to JCLs as necessary using user options.

You can perform the following commands on JCL members:

	DELETE	EDIT	LIST	PRINT	RENAME
JCL Member	X	X	X	X	X

Although other commands are available using the Natural `LIST` command, these are the only commands necessary for JCL member administration.

For further information on using Super Natural in Batch Mode, see ***Batch Processing***.

The library *ZJCL* should only be used for storing JCL members.

Invoking the JCL Members Function

To invoke the JCL Members function

- Issue the `JCL` command.

  You have now accessed the Natural `LIST` command. The Natural LIST COMMAND LIST P * screen appears as in the following example:

```
14:59:24              ***** Natural LIST COMMAND *****             1999-05-21
User SBE             LIST P *                                  Library ZJCL  ↩
                                                                             ↩
                                                                             ↩
Cmd  Name      Type         S/C  SM  Vers  Level  User-ID   Date      Time   ↩
---  --------  -----------  ---  --  ----  -----  --------  --------  -------- 
__   JCLCF     Program      S    R   2.2   0004   CF        92-12-21  11:30:22
__   JCLHAH    Program      S    R   2.2   0005   HAH       93-05-17  14:51:53
__   JCL01     Program      S    R   2.2   0003   AR        92-06-11  18:14:13
__   JCL02     Program      S    R   2.2   0003   WRKMKO    92-09-18  14:07:28
__                                                                           ↩
__                                                                           ↩
__                                                                           ↩
__                                                                           ↩
__                                                                           ↩
__                                                                           ↩
__                                                                           ↩
__                                                                           ↩
__                                                                           ↩
__                                                                           ↩
From ________ (New start value)                              4 Objects found
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit              --    -     +                      Canc ↩
                                                                             ↩
```

Deleting JCL Members

To delete a JCL member

1 Enter `DE` in the command column next to the JCL member you want to delete.

2 Confirm the deletion in the window which appears.

The JCL member is deleted.

Editing JCL Members

To edit a JCL member

- Enter `ED` in the command column next to the JCL member you want to edit.

  The Natural Program Editor appears where you can edit the JCL member. For information on editor handling, see the *Natural Reference* documentation.

Listing JCL Members

To list a JCL member

- Enter `LI` in the command column next to the JCL member you want to list.

  The JCL member is displayed in the Natural Program Editor. For further information on the Natural Program Editor, see the *Natural Reference* documentation.

Printing JCL Members

To print a JCL member

- Enter `PR` in the command column next to the JCL member you want to print.

  The JCL member is printed.

Renaming JCL Members

To rename a JCL member

1 Enter `RE` in the command column next to the JCL member you want to rename.

2 Type a new name in the window which appears.

JCL member names can have 1 to 8 characters.

3 Press Enter.

The JCL member is renamed.

For further information on the Natural `LIST` command, see the *Natural Reference* documentation.

Writing JCL Members

For information on creating JCL members, see ***Writing JCL Procedures*** in *Batch Processing*.

10 Batch Processing

This section describes set-up for batch transactions, RJE, JCL and the Super Natural batch utilities.

This section covers the following topics:

What is Batch Processing?

You use batch processing to manage resources efficiently by processing large numbers of records and printing long reports at off-peak times.

In order to run transactions in Batch mode, you must have either *Natural PROCESS* or *NATRJE* for your environment. You maintain the control procedures for your system environment in the Super Natural Administration application using the JCL Members function which in turn accesses the Natural `LIST` command.

The Super Natural administrator must organize the following:

- Setting Super Natural user options
- Deciding which users should be able to create and run batch transactions
- Writing JCL procedures
- Maintaining JCL members
- Deciding how batch jobs should be submitted
- Security and other issues.

By default, each JCL is stored in library *ZJCL*.

JCL member names should have 1 to 8 characters.

A user can only have access to one JCL at a time. However, you may create several JCL members in the library ZJCL. You can change user access to JCL members as necessary in their user options.

Variable parameters which must be changed by the user before execution of the batch job can be defined using text strings as long as they do not coincide with the job control language. You can modify the system exit *SPRJEU* so that it can provide the control procedure with user variables.

Once a job has been submitted to run a Super Natural batch transaction, do not modify the transaction until after the job has been run. Modifying the transaction can either cause an error or incorrect resulting data. For example, if a user changes the transaction defaults to Run Mode: ONLINE between batch job submission and execution, the batch job will terminate with an error.

Notes:

1. Super Natural batch transactions terminate the batch Natural session.
2. Note for BS2000/OSD users:
   If you want to run a batch transaction online, do not generate `ETID` parameters. For further information on `ETID` parameters, see your *Natural Security* documentation.
3. It is not possible to run transactions which use dynamic input fields in Batch mode.

Setting Up Batch Processing

To enable a user to run transactions in Batch mode

1 Assign the desired logical printer number for transactions in Batch mode.

2 Set the option *JCL ID* to determine which JCL member the user will use (default *JCL01*).

3 Set the appropriate user options for `Report/Logging Destination` to Y.

The following Report/Logging Destinations are available for transactions in Batch mode:

- PRINTER
- WORK FILE
- CON-NECT
- USER FILE

4 Set the user option `Run Mode: Batch` to Y.

5 Set the Natural `PRINTER` parameter high enough for the code generated by Super Natural to pass the syntax checker in the online Natural session in which Super Natural is running.

For example, if the report destination is logical printer number 8, PRINTER=8 (or higher) must be used. You can check the printer, work file and PC file numbers allocated using the Natural utility *SYSDBA*.

You can set the `PRINTER` parameter in the Natural parameter module or dynamically.

The user can now save and run batch transactions.

You can also authorize users to use certain user options (for example, non-descriptor criteria) only in Batch mode.

Setting Up Batch Processing for Remote Job Entry - RJE

The RJE facility allows users to submit batch transactions from within Super Natural without having to write the JCL themselves.

To enable a user to submit batch jobs by RJE

1 Set the user's options as described in the section Setting Up Batch Processing earlier in this section.

2 Set the user option `Batch Job Entry: RJE Available` to Y.

3 Code the JCL for the Natural batch job.

You can specify unique JCL members for each user, or more than one user for the same JCL. For further information, see ***JCL Members*** in *Special Services for Batch Transactions*.

4 Store JCL members as source members in the Natural library *ZJCL*.

To activate batch RJE, the user must set the transaction mode `Run Mode` to B using the `MODES` command from within the transaction he wants to submit.

Now the user can run transactions in Batch mode and the batch jobs will be automatically submitted.

Writing JCL Members

JCL members for use with Super Natural RJE are written the same way as any Natural batch job for your site, except for the Super Natural special characters described below.

Special Characters

The following special characters are available when creating or modifying JCL members for the submission of batch transactions:

Insert Character > (Mandatory)

Code the insert character ">" in column two on a line by itself.

Super Natural inserts the correct `LOGON` and `EX` commands when the transaction is submitted to RJE.

The insert character ">" allows a JCL member to be used repeatedly by the same and multiple users without modification.

Example:
The following example shows how the insert character ">" works. The insert character is used in the JCL for a transaction named *REPORT1* for the user `USERID` as follows:

```
 >
FIN
```

When the job is submitted, Super Natural inserts commands to change the instream data to the following:

```
LOGON SYSSN
EX IREPORT1 YUSERID
FIN
```

where `I` is the program prefix for transactions, and `Y` is the private library prefix.

User ID Generation (Recommended)

The characters "*******" are replaced by the User ID at the time the transaction is submitted for execution. You can use this character string in the job card.

Transaction Name Generation (Optional)

The characters "#######" are replaced by the transaction name when the transaction is submitted for execution as in the following example:

Example:

```
//******* JOB #######, MSGCLASS=X, CLASS=G
//NATBAT EXEC
```

Active PSB Name Generation (Optional)

The characters "pppppppp" are replaced by the active *PSB* name (DL/I files) at the time the transaction is submitted for execution (only for DL/I files).

Maintaining JCL Members

For information on maintaining JCL members, see *JCL Members* in *Special Services*.

Notes for Natural Security Users

The Natural Security environment must be set up so that the startup program *MENU* is active when batch processing is invoked. *MENU* reads the Natural commands which follow as input data, and controls the execution of the transaction.

If there is not a control record for the transaction, batch processing is not started.

The control record is created from the online environment before batch processing is started. Batch transactions are registered with Super Natural.

Transactions which are not registered with Super Natural can only be run if they are in the private library of the user, in a public library the user can access or if the relevant library is defined under Natural Security and the transaction processing is started from that library.

Set-Up

Super Natural must be set up according to the instructions in the *Setting up Super Natural* documentation.

AUTO=ON

User Type `Person` or `Administrator`.

If the user submitting the batch job is defined to Natural Security as a user of the type `Person` or `Administrator` and `AUTO=ON` is specified, the job name itself is used to perform the logon and the Natural Security logon need not be coded in your JCL. For further information, see *Generating User ID's* in *Dynamic Features*.

User Type Member

If the user is defined as a user of the type `Member`, `AUTO=ON` can still be used if the default application for that user ID is *SYSSN*.

If the member's default application is not *SYSSN*, the Natural Security logon commands must be coded in the JCL as in the following example:

```
SYSSN, USERID
%*
PASSWORD
```

RESTART=N (Natural Security Version 2)

In Natural Security Version 2, define the application *SYSSN* with `RESTART=N` on the application profile. Restart data is not used in Super Natural, and turning `RESTART` off will prevent a duplicate user ID from occurring.

Insert Character ">"

If Natural Security is installed, use the insert character ">"as the Super Natural *MENU* program expects the execute card in a specific format. For further information on the insert character">", see ***Special Characters*** in *Writing JCL Members*.

If the RJE facility is being used to submit batch jobs from Super Natural, use the insert character">" which allows Super Natural to insert the `LOGON SYSSN` and `EX IPGMNAME YLIBRARY` commands. For further information on the insert character ">", see ***Special Characters*** in *Writing JCL Members*.

If you do not use the RJE facility (i.e., the JCL is to be submitted outside of Super Natural), you can code the Natural control statements in two ways.

If private libraries are not defined to Natural Security code the Natural control statements as follows:

```
LOGON SYSSN
EX IPGMNAME YLIBRARY
```

If private libraries are defined to Natural Security code the Natural control statements as follows:

```
LOGON YLIBRARY
EX IPGMNAME
```

Naming Conventions:

If you do not use the insert character ">", and hard-code the control statements, the transaction name must consist of eight positions. If the name has less than eight characters, it must be padded to eight positions with trailing blanks. For example, if you want to run the transaction *ITEST* in library *YSALZC*, the following will result in an error under Natural Security:

```
LOGON SYSSN
EX ITEST YSALZC
```

The correct version is as follows:

```
LOGON SYSSN
EX ITEST_____ YSALZC
```

where `_____` are three trailing blanks you must enter for the five-character *ITEST* transaction.

Super Natural generates the commands correctly when the insert character ">" is used. For further information on the insert character ">", see ***Special Characters*** in *Writing JCL Members*.

Job Submission

JCL members for external submission are coded the same way as any Natural batch jobs for your site.

To log on to *SYSSN* and execute the transaction from the user's private library, code the Natural control statements as follows:

```
LOGON SYSSN
EX IPGMNAME YLIBRARY
```

To log on directly to the private library and execute the transaction, write the Natural control statements as follows:

```
LOGON YLIBRARY
EX IPGMNAME
```

Note: Users of Natural Security should see ***Notes for Natural Security Users*** in *Batch Processing*.

Submitting Batch Jobs Using Natural PROCESS

To submit batch jobs using Natural PROCESS

1 Change the submission indicator in the Natural subprogram *SPPARM* from RJE to NPR.

2 Specify a process node ID.

For further information, see the **SPPARM** source.

Modifying Submitted Batch Jobs - SPRJEU

The Natural subprogram *SPRJEU* is delivered in source form.

When Super Natural transactions are run in Batch mode, the subprogram *SPRJEU* is executed once for every job card prior to the submission of the job by *NATRJE*.

You can use *NATRJE* to add, modify and delete job cards. For further information, see the **SPRJEU** source.

11 Batch Utilities

This section describes the batch utilities provided with Super Natural.

This section covers the following topics:

What are Batch Utilities?

Super Natural provides the following batch utilities:

Batch Utility	Description
SNULD	Unloads profile data and transaction specifications
SNLOAD	Loads profile data and transaction specifications
SNDELUF	Deletes user files
SNSORTFI	Sorts file links in user profiles

Unloading and Loading Super Natural Data

You use the utilities *SNULD* and *SNLOAD* to copy Super Natural user profile data, file profile data, help texts, and transaction specifications between different Natural user system files (*FUSER*). You can also use *SNULD* to delete profile data and help texts.

Notes:

1. You cannot load help texts from Super Natural 2.3 to a Super Natural 3.1 environment.
2. Do not use the Natural utilities *SYSMAIN* or *SYSMAIN2* to copy or move Super Natural transactions between system files. These utilities only copy up to 80 characters per source line and Super Natural specifications contain up to 250 characters per line.
3. The *FDIC* file in the target environment must be the same as that in the original environment if you want to use existing transactions.

Use the Natural Object Handler to copy or move JCL members, prototype programs and objects between system files.

For further information on *SNULD* and *SNLOAD*, see the following sections.

SNULD

The program *SNULD* in library *SYSSN* unloads Super Natural user profile data, file profile data, help texts and transaction specifications from the current Natural user system file (*FUSER*) to sequential work file 4 in a form suitable to be reloaded using the program *SNLOAD*.

The following table shows which functions are available for batch jobs using *SNULD* and which parameters are required:

Function Code	Object Name	Language Code	Library
*			
D	Required		
F	Optional		
H	Optional	Optional	
S	Required		Required
U	Optional		

Functions

* Function

The `* function` unloads all user and file profiles and help texts. It does not unload transactions.

D Function

The `D` function deletes objects according to the object name parameter specified. You can use the following object name parameters with the `D` function:

*	File profile data, user profile data and help texts
F	File profile data
H	Help texts (language specific)
U	User profile data

All objects of the type specified are deleted.

F Function

The `F` function unloads either all file profiles (including user file and superfile profiles) or named file profiles. It does not unload the sources (transaction specifications) of superfiles.

H Function

The `H` function unloads either all or named help texts either in all languages or in a specified language.

Note: You cannot load help texts from Super Natural 2.3 to a Super Natural 3.1 environment.

S Function

The `S` function unloads transaction specifications. It does not unload the generated source code and the Natural object code. To regenerate the Natural source and object code, you must modify and save every transaction.

You can also use *SYSMAIN* to copy the transaction objects, so the transactions can be run immediately in the new environment.

If you do not specify a transaction name and library name containing the appropriate prefix, all transaction specifications and layouts from all libraries are unloaded.

If you use the asterisk notation (*) following the prefix, all transaction specifications and layouts or libraries with that prefix are unloaded.

U Function

The `U` function unloads either all or named user profiles.

Parameters

Parameters must be entered after the function code in the following order:

```
function-code,object-name,language-code,library
```

The parameters must be separated from the code and from one another by the Natural delimiter character. If one of the parameters is not specified, or not applicable, the character preceding it is still required. For example, if you want to unload all English help texts, the parameters must be specified as: `H,,1`

You can use the asterisk notation with the parameters to further limit the object name and library of the items to be unloaded. For example the notation `S,TR*,,Y*` would unload all transactions whose name begins with TR in the library with prefix Y.

Each function must be written on a separate line (along with its parameters).

Examples of Recommended Syntax

Example 1

```
LOGON SYSSN
SNULD
H,,1
S,TR*,,Y*
.
FIN
```

1: Unloads all English help texts.

2: Unloads all transactions whose names start with TR in libraries with the prefix Y.

Example 2

```
LOGON SYSSN
SNULD
S,*,,Y*
.
FIN
```

Unloads all transactions in all private libraries with the prefix Y.

Example 3

```
LOGON SYSSN
SNULD
S,IPGMNAME,,YUSERID
.
FIN
```

Unloads the specified transaction in the library given.

Example 4

```
LOGON SYSSN
SNULD
S,I*,,YUSERID
.
FIN
```

Unloads all transactions in the specified library whose name start with I.

Example 5

```
LOGON SYSSN
SNULD
S,*,,YUSERID
.
FIN
```

Unloads all transactions in the specified library.

Example 6

```
LOGON SYSSN
SNULD
F,*
S,*,,public-library-prefixSUPFILE
.
FIN
```

1: Unloads all file profiles including user file and superfile profiles.

2: Unloads the sources (transaction specifications) of the superfiles.

SNLOAD

The program *SNLOAD* in library *SYSSN* loads Super Natural user and file profile data, help texts and transaction specifications from sequential work file 4 to a user system file (*FUSER*). The data must be in the same format as achieved by unloading Super Natural data using the program *SNULD*.

To load Super Natural data

- Specify the following in a batch Naturalsession:

```
LOGON SYSSN
SNLOAD
.
FIN
```

SNDELUF2 - Deleting User Files in Batch

SNDELUF2 replaces *SNDELUF* and is used to delete user files in batch. *SNDELUF2* caters for the extended ranges of FNR and DBID available with NaturalVersion 2.3.

Notes:

1. *SNDELUF* is still available for compatability reasons.
2. When deleting user files in batch, the same JCL is used for the active user as for running transactions in batch mode.
3. When user files are deleted using RJE, the batch job must have the same input delimiter as the online session (Natural parameter ID).

To delete user files in batch

- Issue the following command in the library *SYSSN*:

```
LOGON SYSSN
SNDELUF2 parameter1,parameter2,parameter3,parameter4,parameter5
.
FIN
```

  with the parameters described in the following section.

Note: Parameters must be in delimiter mode (Natural parameter `IM=D`).

parameter1

DBID-FNR (N10)

Specify the physical Adabas file and database ID (DBID (N5) FNR (N5)) of the Super Natural personal database.

parameter2

User ID (A7)

Specify the ID of the user for whom the files are to be deleted. `*END` indicates the end of the sequence, `*ALL` indicates `all users`.

parameter3

File Name (A20)

Specify which file is to be processed. `blank ( )` indicates `all files`.

parameter4

Status (A3)

Specify which of the processed files are to be deleted. `blank ( )` indicates all files marked by the user for deletion and all files with expired retention period. `ALL` indicates `all files.DAT` indicates unconditional deletion of all specified data.

parameter5

User File DDM Prefix (A2)

Specify the user file DDM prefix as defined in the options (default `UF`).

SNSORTFI - Sorting File Links in User Profiles

The utility *SNSORTFI* should be used in batch mode. It sorts alphabetically the files that are linked to a user profile so that the file list at transaction creation is displayed in alphabetical order.

This utility should be used from time to time when new files are added to a Super Natural environment and are linked with users through the file profile. In this case, the file list of the user is not newly sorted alphabetically. Instead, the file is added to the end of the list.

Note: When a new file is linked through a user profile, the files of this user are automatically newly sorted.

File links in user profiles are sorted by using the program *SNSORTFI* in library *SYSSN* in the form:

```
LOGON SYSSN
SNSORTFI
parameter
FIN
```

parameter

User ID (A7)

If `parameter` is blank, file links of all user profiles are sorted. `Parameter` can be used in any of the following forms:

NAME	sorts file links in one specific user profile
NAM*	sorts file links in all user profiles starting with NAM
NAM<	sorts file links in all user profiles from the beginning until NAM
NAM>	sorts file links in all user profiles from NAM until the end

12 Exit Programs

This section describes how to define and store exit programs.

It is the administrator's responsibility to ensure that user exit programs do not have adverse effects on Super Natural!

This section covers the following topics:

What are Exit Programs?

There are two kinds of exit programs in Super Natural:

- User exits
- System exits

User Exits

User exits can be invoked from up to ten places within a transaction at run time. The user defines which exits he wants to use, the location and any parameters. An exit can be any of the following:

- Subprogram invoked by `CALL` statement
- Natural program
- Natural subprogram
- Natural subroutine
- Natural map

User exits which are Natural objects must be stored in the steplib *SYSTEM* or in the current user's private library.

Super Natural recognizes the exit type and automatically generates the relevant Natural statements such as `FETCH RETURN`, `CALLNAT` or `PERFORM` and passes parameters.

Note: You can prevent the modification of exits in transactions in a public library or in transactions which will be used as a superfile using the `LOCK` command.

Writing User Exits

When you are writing a user exit program, consider the following points:

Program Type

An exit program must be one of the following:

- An external program (e.g., COBOL or ASSEMBLER subprogram) callable by a Natural `CALL` statement.

  Or:

- One of the Natural object types listed in the previous section.

Parameters

Parameters must correspond with the call of the external program as used in the `CALL` statement; or with the parameter list used in the Natural module

If the exit program requires parameters, the user must specify them manually using the `Exit Specification` function.

Connecting User Exits to a File

To connect a user exit program with a file

- Change the file options as described in the section *Exit Specification* in the section *Files*.

Informing Users

Do not forget to provide the users with the program names of the user exits available to them, and tell them which parameters are to be passed to the subprogram.

Storing User Exit Object Modules

Natural Objects

The object modules ofNatural programs, subprograms, subroutines, or maps can be stored as follows:

- In the steplib *SYSTEM* (*FUSER* or *FNAT*) - all users of Super Natural can access these modules from their private libraries and from any common library. This is recommended in most cases.

  Or:

- In the private Super Natural libraries of selected users - only the selected users can use these user exits. IfSuper Natural is running under Natural Security, the private library of each of the selected users must be defined to Natural Security.

  Or:

- In the appropriate common library if the transaction from which the module is called is either executed in a common library or was added in a common library.

Note: When you copy a transaction which uses user exits, you must make sure that the user exit object modules are available in the target environment as described above.

Non-Natural Programs

For information on storing object modules of external (non-Natural) programs, contact your Natural administrator or see the *Natural* documentation.

System Exits

You use system exits to take control at a certain point in Super Natural. The following system exits are supplied with Super Natural in source code:

ENTRY	Program invoked as entry routine for the Super Natural session.
EXIT	Program invoked as exit routine when the Super Natural session is terminated.
SHEXIT	Program which takes over if the user presses.
SNERRU	Program invoked by error routine *SNRTE*. *SNERRU* can be modified to handle specific error conditions. For example, you can use *SNERRU* to give the user additional information or instructions when an error occurs.
SPRJEU	Natural subprogram which is executed once for every job card prior to the submission of a batch job.
SPPARM	Subprogram to define environment specific parameter settings. Parameters include: The submission indicator for batch job submission (RJE or NPR). Com-plete hardcopy support - default printer number generation or prompting for destination (default). Common library prefix character - only change at installation. Layout prefix character - only change at installation.

You can modify these user exits if required.

13 Technical Information

This section gives you technical information on how Super Natural processes data. This technical information is intended to help you increase the performance of Super Natural, estimate resource requirements and tells you how to work with certain profile settings.

This section covers the following topics:

Super Natural and Natural

Programs

The transaction is the major part of Super Natural. Users define transaction specifications using the menu-driven user interface and Super Naturalgenerates a Natural program from the transaction specification.

The Natural programs generated from Super Natural transactions are saved, cataloged and run by Natural commands like any other Natural program. One of the advantages of this is that Predict Xref data (active cross-references) can be created automatically.

Note: If you use Natural Optimizer Compiler, optimized object code is generated.

In order to generate source code flexibly, Super Natural still generates code with Reporting Mode syntax. This however does not effect performance negatively.

Each Natural program generated from a Super Natural transaction has a block of commentary lines before the source code. The size of the commentary line block depends on the transaction specification.

As opposed to source code which is only relevant at the time of compilation, the block of commentary lines contains all the information necessary for Super Natural about the program which is to be generated and may not be modified under any circumstance.

The Natural ESIZE required for a transaction depends mostly on the number of fields contained in the DDM used. Information on each field contained in the DDM is stored in the ESIZE. The most efficient way of minimizing the ESIZE requirement is to minimize the number of fields in each DDM. The user can also physically remove the fields not needed for a transaction from the source area before running a transaction using the `RELEASE` command. The fields removed are no longer available for that transaction.

Libraries and Prefixes

The Natural objects which are created (programs in source and object code) are stored in Natural libraries belonging to Super Natural. The names of these libraries are composed of an internal prefix and a library ID. There are three types of Super Natural library which are distinguished for administration purposes by an internal prefix:

- **Private**
  Belong to one user. The library name consists of an internal prefix and the user ID.
- **Public**
  Created by the administrator copying objects into them. Only the administrator can copy objects into a public library. Can be used by all those who have the same public library prefix.
- **Common**
  Can be used by all users. Users can copy objects into a common library. In order to prevent users creating common libraries at will, the administrator must name each common library the user can use.

Within each library the different object types and transaction layouts are distinguished by their individual prefixes. For example, all transactions begin with the prefix `I` (modifiable) followed by the user-defined transaction name and have a layout with the same name but with the prefix `L` (can only be modified in *SPPARM* during installation).

Natural Security Considerations

The libraries used by Super Natural need not be defined to Natural Security. This means that you do not have to define all private files both to the application *SYSSN* and to every Super Natural library. As soon as Super Natural is active, the security profile of the application *SYSSN* is valid for all Super Natural libraries.

Note: The profile of *SYSSN* should be set up so that the application is *people protected* and `Command Mode` is *Allowed*.

When generating a prototype program or using the Super Natural Report Destination EDITOR, a user could write programs to access all files defined to *SYSSN*. To prevent this, Natural performs an additional security check of the user's Super Natural profile. If the user is not authorized to access the current file, he receives Natural Security messages.

System Components

The Super Natural Processor consists of three components:

- Interaction
- Generation
- Execution of program generated

Interaction

All user entries are written to the Natural source area or to the side source buffer using Assembler subprograms. Most database access takes place for the following:

- Displaying object lists
- Reading the DDMs used in the transaction
- Displaying system messages and error messages
- Displaying Precict information
- Notepad function
- Values function
- Count function

Generation

During generation, processing takes places directly in the source area and all relevant information is read from the internal code table and converted to the relevant Natural notation.

Execution

After generation, the execution can be done in conclusion with the generation or as a single command.

The following Super Natural commands can be issued:

- SAVE: When the SAVE command is issued in Super Natural, the following Natural commands are executed:
  - RENUMBER
  - SAVE
  - CATALOG
- RUN: When the RUN command is issued in Super Natural, the following Natural commands are executed:
  - RENUMBER
  - SAVE
  - CATALOG
  - EXECUTE
- EXECUTE: When a transaction is executed from the Transaction list, the following Natural command is executed:
  - EXECUTE

  The Natural object is executed but not regenerated, saved and cataloged.

  Note: If you issue the EXECUTE command when the database has been modified since the transaction was run, or if data maintenance has taken place, your results will not be up to date.

- KEEP: When the KEEP command is issued in Super Natural, the following Natural command is executed:
  - SAVE

  Only the transaction specification (commentary lines) is saved and the transaction program is not generated. You cannot execute a transaction having just issued the KEEP command.

DDM Field Names

Do not use Natural key words as field names in DDMs to be used by Super Natural.

Natural Profile Parameters

It is recommended that all users of Super Natural have the same Natural profile parameters.

If you run a transaction which was created under a different Natural profile to yours, you may receive errors. Problems may occur if, for example the global parameters `Decimal Character` or `Control Character` are different for users of the same common library.

Data Selection and Performance

`READ` statements take priority over `FIND` statements for database access. Whenever the selection criteria allow, the query is realized using a logical sequential read. The `FIND` statement is only used for complex selection criteria or when a logical sequential read is not possible.

Examples:

descriptor>value	Cannot be realized using a logical sequential read and results in a `FIND` statement.
descriptor>=value	Results in a `READ` statement

If you use fields which are not descriptors in a query, post selection using a WHERE clause takes place.

The number of single selection criteria as well as the authorization to use non-descriptors can be determined by the administrator in a user's profile. The administrator can also determine whether a user may read a file physically.

Note: The above does not apply when using `SQL-SELECT` statements.

Post selection in user-defined logical condition statements is realized using the keywords `ACCEPT` and `REJECT`. This means that dependent on the result of a computation, a record which has been read can be either used in further processing or rejected.

COUNT Function

This function counts the number of records found by the current selection criteria using the `FIND NUMBER` statement where possible. The `FIND NUMBER` statement cannot be used in the following cases:

- if the database management system doesn't allow it
- non-descriptors are used
- for the primary file when files are linked.

VALUE Function

This function results in a `HISTOGRAM` statement using a descriptor value and can only be used if the data storage system supports it.

Performance Considerations for Mixed Format Calculation Expressions

How to achieve optimum performance when using mixed format expressions:

- Use packed format (P) for business arithmetic. The number of decimal digits in all operands should agree where possible.
- Use floating point format (F) for scientific arithmetic.
- Avoid mixed format expressions. In expressions where formats are mixed between numeric (N, P) and floating point (F), data is converted to floating point format. The conversion between the formats numeric and floating point results in considerable CPU load.

Sort

Super Natural sorts as follows:

- Database sort (if supported)

  Or:

- External sort or operating system sort.

The database sort is used when a sort using up to three descriptors or a non-descriptor is required.

If a sort using more than three descriptors or a non-descriptor is required, a Natural `SORT` statement is generated. The `SORT` statement initiates an external or operating sort depending on your environment.

A SORT statement is also generated if a post selection for the ACCEPT and REJECT keywords in logical condition statements is required together with system functions. This prevents rejected records being used in control break processing and for the system functions.

The authorization for both types of sort is separate for online and batch processing.

SORTSZE

Super Natural uses the Natural SORT statement when a transaction program is generated to sort the display fields into the order required. Because the memory necessary for this cannot be allocated until the SORT statement is performed, run time errors (NAT0910, NAT1202) may occur if the value of the Natural SORTSZE parameter is larger than the total memory capacity available.

A minimum value of 10KB (the Natural default value) is sufficient for internal sorts.

Personal Database

The personal database consists of one or more physical Adabasfiles. Each user works on one file which is determined in his profile. The number of the Adabas file is given to Natural when the user logs on to Super Natural which means that the Natural LFILE parameter is not needed.

Each physical Adabas personal database file has a Master DDM which describes how many descriptors and elementary fields of which format and length are available for user files.

The Master DDM describes the following:

- Control field AA
- Numeric descriptors
- Alphanumeric descriptors
- Numeric fields
- Alphanumeric fields

The descriptors identified in the Master DDM are defined with different lengths and the elementary fields are defined with a length of 1. All fields except for AA and CA are defined with null-value suppression.

The physical definition or Field Description Table (FDT) consists of the following:

- Internal control field AA(N8)
- Numeric fields (not in packed format)
- Alphanumeric fields
- Binary superdescriptors

- Alphanumeric superdescriptors

The superdescriptors identified in the FDT consist of the field AA and a descriptor identified in the Master DDM. Because of this, the length of the descriptors in the Master DDM is predefined.

When a user file is created, a DDM is generated according to the user input. All the descriptors required are identified with an Adabas field reference in the Master DDM according to their length. Descriptors in the user file can be shorter but not longer than their counterpart in the Master DDM. All elementary fields are created with the length required as these can be dynamically extended by Adabas.

The non null-value suppressed descriptor `CA` is used to guarantee that all data (including zero information) in a user file can be retrieved. `CA` must be present in every user file. When a Natural program accesses a user file, the Natural descriptor access is converted to access via the corresponding superdescriptor. This means that users can only perform a `READ PHYSICAL` on his own user files using the default descriptor `CA`. This allows data from different user files to be kept separate.

User files can also be processed directly from Natural but the associated DDM may not be modified.

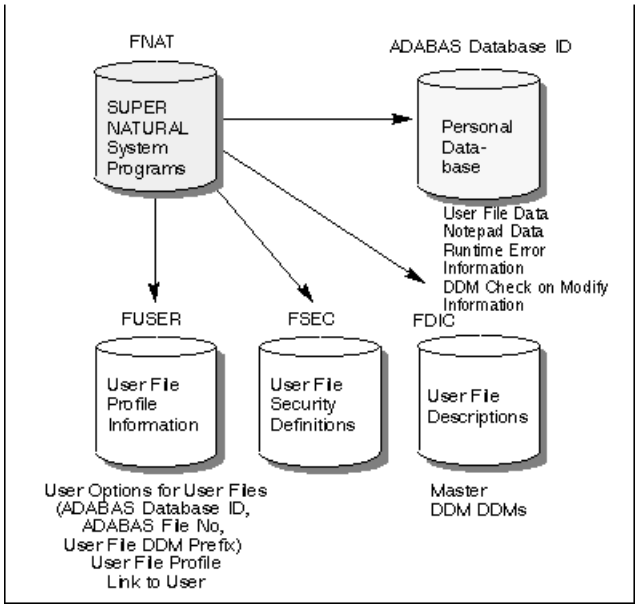
User files are defined as private files in Natural Security and automatically linked to *SYSSN*. Super Natural users may not use each other's user files unless the administrator authorizes them to. Users and administrators cannot copy transactions with Destination USER FILE.

Because of the interdependency between the DDMs and the data in the personal database, the following conditions must be fulfilled if you want to move them to another physical database:

- The Master DDM must be cataloged with DBID=0
- The Personal Database must have an Adabas file number which can also be used in the new environment

The Personal Database is also used to store Notepad data, runtime error information and information of the DDM Check on Modify functionality.

For an overview of the Personal Database, see the following diagram:



System Limits

The maximum number of possible field references within Super Natural is 676 per default.

To satisfy special requirements this limit can be enhanced up to 1196 field references by setting the following system option. The limits mentioned, include all fields of a transaction: primary, secondary, lookup, user-defined fields and system variables.

To use the extended number of fields

1 Open the module SPPARM in library SYSSN with the program editor.

2 Switch the option "XL" (extra large number of fields required) on.

```
FIELD_REF_XXL='YES'
```

Now Super Natural allows to process up to 1196 fields within a transaction.

Note: With this enhancement, the unique Super Natural field references consist of alpha and numeric characters together, for example, A0 --> A9 and 0A -->9Z. This system option is valid for the entire Super Natural system.

Error Logging

The Error Logging facility allows you to store environment information at the time of your error directly and without a delay.You can use the program *SNELOG*, stored in the Super Natural library *SYSSN*, to maintain the logging utility and review runtime errors. Error Logging is designed to report Natural System Errors.

This section covers the following topics:

- **Possible Errors**
- **Listing Error Reports**
- **Showing Error Reports**
- **Deleting Error Reports**
- **Printing Error Reports**
- **Maintaining Error Reports**
- **Migrating old Error Reports**

If you want to view the Error Logs you have to activate the Error Reporting in *SNELOG* in the library *SYSSN*.

Possible Errors

The following errors are not user errors but may occur for one of the following reasons:

Cause	Cure
System parameters are set too low (*SORTSZE*, printer size etc.)	Change system parameters
Response codes from DBMS e.g. (NAT3009)	Inform users e.g. using system user exits
Syntax errors due to incorrect Super Natural code generation	Inform Support
System errors due to incorrect Super Natural routines	Inform Support

Listing Error Reports

If you want to view the Error Reports you have to activate the Service-Routine *SNELOG* in the Library *SYSSN*.

Invoke List of Error Reports

- Invoke the Service-Routine *SNELOG* out of the library *SYSSN*.

  The following screen appears:

```
 17:02:54                  ***** Super Natural *****                2000-06-21
                        - Error Reporting and Analization -             MELOG11


                       Code Function
                       ---- ---------------------------------
                        L   List Error Reports
                        D   Delete Error Reports
                        M   Maintain Error Reporting
                        ?   Help
                        .   Exit
                       ---- ---------------------------------

   Code ............... _
   Library ........... *________
   Program Name ...... *________
   Date Time ......... 2000-06-21 *__________
                       YYYY-MM-DD HH:II:SS.T

   Personal DB DBID .. 167__
   Personal DB FNR ... 93___

 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       HELP        Exit                                                  Canc
4AÂ¦                                                                   14,024
```

Field Descriptions

Code

The following function codes are possible:

- `L`: Lists all Error Reports of the according selection criteria, consisting of Library, Program Name and Date / Time.
- `D`: Deletes all Error Reports of the according selection criteria, consisting of Library, Program Name and Date / Time.
- `M`: Maintains Error Reporting.
- `?`: Provides help concerning the Error Reports.
- `.`: Terminates the Function.

Library

Choose the library which Error Report you want to display. There are three ways to enter the Library Name:

- Enter the complete Library Name.
- Enter a `*`.

- Enter a part of the Library Name with a Wildcard (*,<,>).

Program Name

Choose the transaction whose Error Report you want to display. You can enter the program name as described **above**.

Date Time

Choose a Date / Time to display an Error Report. You can enter the Date / Time as described **above**.

The List Error Report Screen appears with the set of Error Reports according to your selection.

Personal DB DBID / Personal FNR

- Specify the database ID (DBID) and the file number (FNR) of the personal database whose logging list you want to display. The default DBID and FNR depend on the setting of the parameter `LFILE`.

List of Error Reports

```
17:35:20                  ***** Super Natural *****                2000-06-21
                            - List Error Reports -                   MELOG21

Cmd Date/Time             Err-No Library   Program   Line Stat User-ID
    2000-06-21 *_________  *___  *_______  *_______            *_______
 _  2000-06-21 15:50:23    3055  YPOR      ILIST     0860  0   POR
 _  2000-06-21 16:59:17    0082  YPOR      IERROR    0350  0   POR









Cmd's are S (Show), D (Delete), P (Print)
You are on the last page
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                 Exit              --          +                       Canc
```

Navigation

To move Up / Down

1 Use PF6 to move to the first page.

2 Use PF8 to move one page forward.

To Exit / Cancel

- Choose `Exit` or `Cancel` to leave the transaction list and reach the Error Report main screen.

Commands

Choose the required Error Report. There are three ways to process the Error Reports:

- `Show`: The selected Error Report is shown. For further information, see *Showing Error Reports*.
- `Delete`: The selected Error Report is deleted. For further information, see *Deleting Error Reports*.
- `Print`: The selected Error Report is printed. For further information, see *Printing Error Reports*.

Field Descriptions

Date / Time

Date / Time, when the error occurred and the Error Report is written. You can enter the Date / Time as described **above**.

Error-Number

Shows the number of the error that has occurred. You can enter the Error-Number as described **above**.

Library

Name of the library where the error occurred. You can enter the Library as described **above**.

Program

Program that did flag the error. You can enter the Program name as described **above**.

Line

The line number in the program where the error was identified.

Status

Additional information on the kind of error.

User-ID

User ID of the person who received the error. This information can be suppressed if desired (see section **Maintain Error Reports**). You can enter the User ID as described **above**.

Showing Error Reports

To show the Error Report

- Enter `S` to show the Error Report.

  A window appears where the most important information concerning the error is displayed.

```
17:51:44                  ***** Super Natural *****                2000-06-21
                             - Show Error Report -                    MELOG41

Error occurred at .. 2000-06-21 16:59:17       with UserID ........ POR
Error Number ....... 82                        in Library ......... YPOR
Error Program ...... IERROR   / Line .. 350    with Error Status .. 0
Message Text:
  Invalid command, or Subprogram NIX-DA does not exist in library.

------------------------ Environment Information ----------------------------

Device Type ....... PC                 Operating System .. MVS/ESA
                                       TP Monitor ........ COMPLETE
Product Versions:
  Super Natural ... 3.3.1              System Files (DBID,File):
  Natural ......... 3.1.3                PersonalDB ...... (167,93)
  Predict ......... 4.1.1                FNAT ............ (167,30)
  CON-NECT ........ 0.0.0                FUSER ........... (167,32)
  AOS ............. 0.0.0                FSEC ............ (167,30)
  NSC ............. 0.0.0                FDIC ............ (167,15)

You are on the first page
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Print Exit                          +     ++                Canc
```

Navigation

To print

- Enter `Print` (or PF2).

To move Up / Down

1 Use PF6 to page to the first page.

2 Use PF8 to page one page forward.

To Exit / Cancel

- Choose `EXIT` or `CANCEL` to leave the report and reach the Error Report List screen.

Error Report Descriptions

General Description

```
18:20:27                  ***** Super Natural *****                 2000-06-21
                            - Show Error Report -                     MELOG41

Error occurred at .. 2000-06-21 16:59:17       with UserID ........ POR
Error Number ....... 82                        in Library ......... YPOR
Error Program ...... IERROR   / Line .. 350    with Error Status .. 0
Message Text:
  Invalid command, or Subprogram NIX-DA does not exist in library.

↩
```

Listing of the major information at the time when the error occurred:

Field	Description
Error occurred at	Date / Time when the error occurred.
Error Number	Error-key
Error Program	Program that did flag the error.
Line	Program line where the error was found.
Message Text	Text, that informs about the error reason.
User ID	User ID that received the error.
Library	Library name where the error occurred.
Error Status	The following entries are possible: ■ C (Command Processing Error) ■ L (Logon Error)

Field	Description
	■ O (Object Time Error) ■ S (Non-correctable Syntax error) ■ R (Error on Remote server (in conjunction with Natural RPC)

■ Press PF8 for more information.

Environment Information

```
10:19:19                  ***** Super Natural *****                 2000-09-20
                            - Show Error Report -                     MELOG41

Error occurred at .. 2000-07-20 11:45:08      with UserID ........ -
Error Number ....... 932                      in Library ......... NEWSN
Error Program ...... SN1110   / Line .. 1510   with Error Status .. 0
Message Text:
  Program version error.

------------------------ Environment Information ---------------------------

Device Type ....... PC                Operating System .. MVS/ESA
                                      TP Monitor ........ COMPLETE
Product Versions:
  Super Natural ... 3.3.1             System Files (DBID,File):
  Natural ......... 3.1.3               PersonalDB ...... (167,93)
  Predict ......... 4.1.1               FNAT ............ (167,30)
  CON-NECT ........ 0.0.0               FUSER ........... (167,32)
  AOS ............. 0.0.0               FSEC ............ (167,30)
  NSC ............. 0.0.0               FDIC ............ (167,15)

You are on the first page
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Print Exit                          +     ++                Canc
```

Default listing of data from the error environment. This list consists of Natural environment variables.

■ Press PF8 for more information.

Natural Parameter Information

```
10:19:19                  ***** Super Natural *****                 2000-09-20
                            - Show Error Report -                     MELOG41

Error occurred at .. 2000-07-20 11:45:08      with UserID ........ -
Error Number ....... 932                      in Library ......... NEWSN
Error Program ...... SN1110   / Line .. 1510   with Error Status .. 0
Message Text:
  Program version error.

                      Natural Parameter Information (1)

  Term.Control Character (CF) .. ?  65   Limit Error (LE) ............. OFF
  Decimal Character (DC) ....... .  4B   Line Size (LS) ................ 80
  Default Format (FS) .......... ON      Print Mode (PM) ............... RP
  Help Character (HI) .......... ?  6F   Page Size (PS) ................ 23
  Input Assign (IA) ............ =  7E   Structured Mode (SM) .........
  Input Delimiter (ID) ......... ,  6B   Zero Division (ZD) ........... ON
  Input Mode (IM) .............. F       Zero Printing (ZP) ........... ON



You are on the first page
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Print Exit              --    -     +     ++                Canc
```

Information of Natural Parameters that are set by starting the session. Some information is displayed additionally in HEX characters. For more information concerning Natural parameters, see the *Natural Parameter Reference* documentation.

- Press PF8 for more information.

```
10:19:19                  ***** Super Natural *****                 2000-09-20
                            - Show Error Report -                     MELOG41

Error occurred at .. 2000-07-20 11:45:08       with UserID ........ -
Error Number ....... 932                       in Library ......... NEWSN
Error Program ...... SN1110   / Line .. 1510   with Error Status .. 0
Message Text:
  Program version error.

                       Natural Parameter Information (2)

  Max. CPU Time (MT) ........... 6000    Automatic LOGON (AUTO) ....... OFF
  Max. Program Calls (MAXCL) ... 0       Database Updating (DBUPD) .... ON
  Nat. System Commands (NC) .... OFF     Date Format (DTFORM) ......... I
  Wait on Hold (WH) ............ OFF

  Processing Loop Limit (LT) ............ 99999999
  Max. DBMS Calls between IO (MADIO) .... 0
  Read Only System Files (ROSY).......... OFF


You are on the first page
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
           Print Exit              --    -     +     ++                Canc
```

- Press PF8 for more information.

Natural System Variables Information

```
10:19:19                  ***** Super Natural *****                 2000-09-20
                            - Show Error Report -                     MELOG41

Error occurred at .. 2000-07-20 11:45:08      with UserID ........ -
Error Number ....... 932                      in Library ......... NEWSN
Error Program ...... SN1110   / Line .. 1510   with Error Status .. 0
Message Text:
  Program version error.

                     Natural System Variables Information

  *DATA .................. 0             *LOG-LS ................ 132
  *HARDCOPY .............. DAEPRTAD      *LOG-PS ................ 23
  *INIT-ID ............... DAEFTCB9      *PAGESIZE .............. 24
  *INIT-PROGRAM .......... NAT31         *PF-KEY ................ ENTR
  *INIT-USER ............. CF            *PF-NAME ...............
  *LANGUAGE .............. 1             *STARTUP ............... MENU
  *LINESIZE .............. 80            *STEPLIB ............... SYSTEM



You are on the first page
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Print Exit              --    -     +     ++                Canc
```

- Press PF8 for more information.

Natural Stack Information

```
10:19:19                  ***** Super Natural *****                 2000-09-20
                            - Show Error Report -                     MELOG41

Error occurred at .. 2000-07-20 11:45:08       with UserID ........ -
Error Number ....... 932                       in Library ......... NEWSN
Error Program ...... SN1110   / Line .. 1510   with Error Status .. 0
Message Text:
  Program version error.

                           Natural Stack Information

  Stack Level 1:
    Type ...... Stack Empty
    Contents ..
  Stack Level 2:
    Type ...... Stack Empty
    Contents ..
  Stack Level 3:
    Type ...... Stack Empty
    Contents ..

You are on the last page
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Print Exit              --    -                            Canc
```

Information on the Natural Stack status.

The Natural parameter information, the Natural system variables and the Natural stack information can be suppressed if desired (see the section *Maintain Error Reporting*).

Deleting Error Reports

This command enables you to delete an Error Report.

To delete an Error Report

1 Enter `D` (Delete) beside the transaction name in the list of Error Reports.

A window appears, where you have to confirm the delete.

You can also mark multiple Error Reports to delete.

Or:

Enter `D` (Delete) within the Error Logging main screen and choose the desired Error Reports out there.

```
10:22:11                  ***** Super Natural *****                2000-09-20
                            - List Error Reports -                    MELOG21

Cmd Date/Time             Err-No Library   Program   Line Stat User-ID
    2000*_______________   *___  *_______  *_______            *_______
 _  2000-07 !                Confirm Delete                !  -
 _  2000-07 !                                              !  -
 d  2000-07 !      1 Error Reports will be deleted.        !  -
 _  2000-07 !                                              !  -
 _  2000-07 !       Please enter 'Y' to confirm: Y         !  -
 _  2000-07 !                                              !  -
 _  2000-07 ----------------------------------------------   -
 _  2000-07-20 15:30:26    0932  NEWSN     SN1110    1520  O   -
 _  2000-07-20 16:13:08    0932  NEWSN     SN1110    1520  O   -
 _  2000-07-20 17:07:42    0932  NEWSN     SN1110    1590  O   -
 _  2000-07-21 07:56:15    0261  YCF       T00XX01   0010  S   -
 _  2000-07-21 10:41:07    0932  NEWSN     SN1110    1590  O   -
 _  2000-07-21 10:41:08    0082  SYSSN     SNREST    0000  C   -
 _  2000-07-21 10:41:08    0082  SYSSN     SNREST    0000  C   -
 _  2000-07-21 10:41:08    0082  SYSSN     SNREST    0000  C   -
Cmd's are S (Show), D (Delete), P (Print)

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

2 Enter `Y` if you want to delete the Error Report.

The Error Report is deleted now.

Printing Error Reports

This command enables you to print an Error Report.

To print Error Reports

1 Select Error Reports to be printed.

2 Enter `Print` or `PF2`.

The information of the Error Report is composed on one page and printed on the printer you have choosen.

Maintaining Error Reports

```
18:10:14                  ***** Super Natural *****                 2000-06-21
                         - Maintain Error Reporting -                MELOG811


                     Code Function
                     ---- --------------------------
                      E   Enable Error Reporting
                      D   Disable Error Reporting
                      S   Set Error Reporting Options
                      M   Migrate old Error Reports
                      ?   Help
                      .   Exit
                     ---- --------------------------


                Code .. _




Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP        Exit                                                  Canc
```

These functions help you to maintain the Error Reports. They are described **above** because the are prerequisites for error logging.

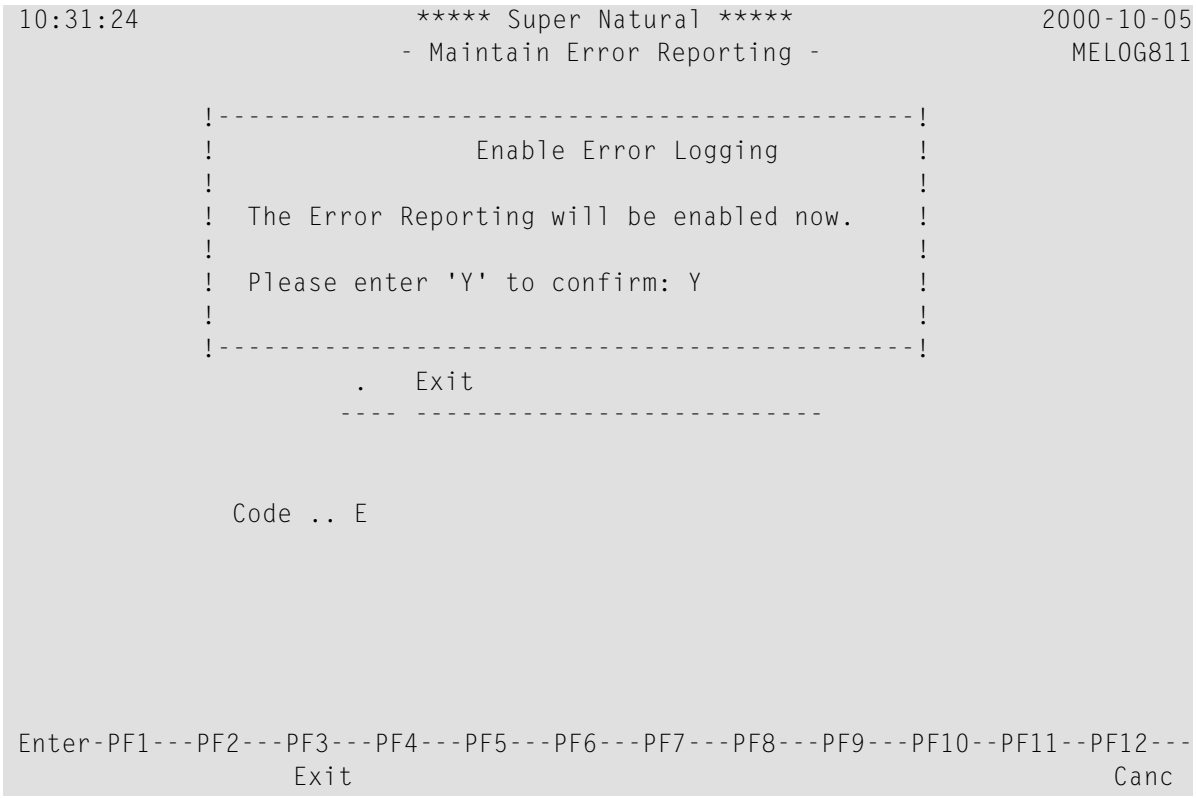
Enable Error Reporting

You have to enable Error Reporting in your user file to receive the Error Reports.

To enable Error Reporting

1 Enter `E` and press Enter.

The following window appears:



2 Enter `Y` and press Enter.

The *Error Reporting facility* is enabled

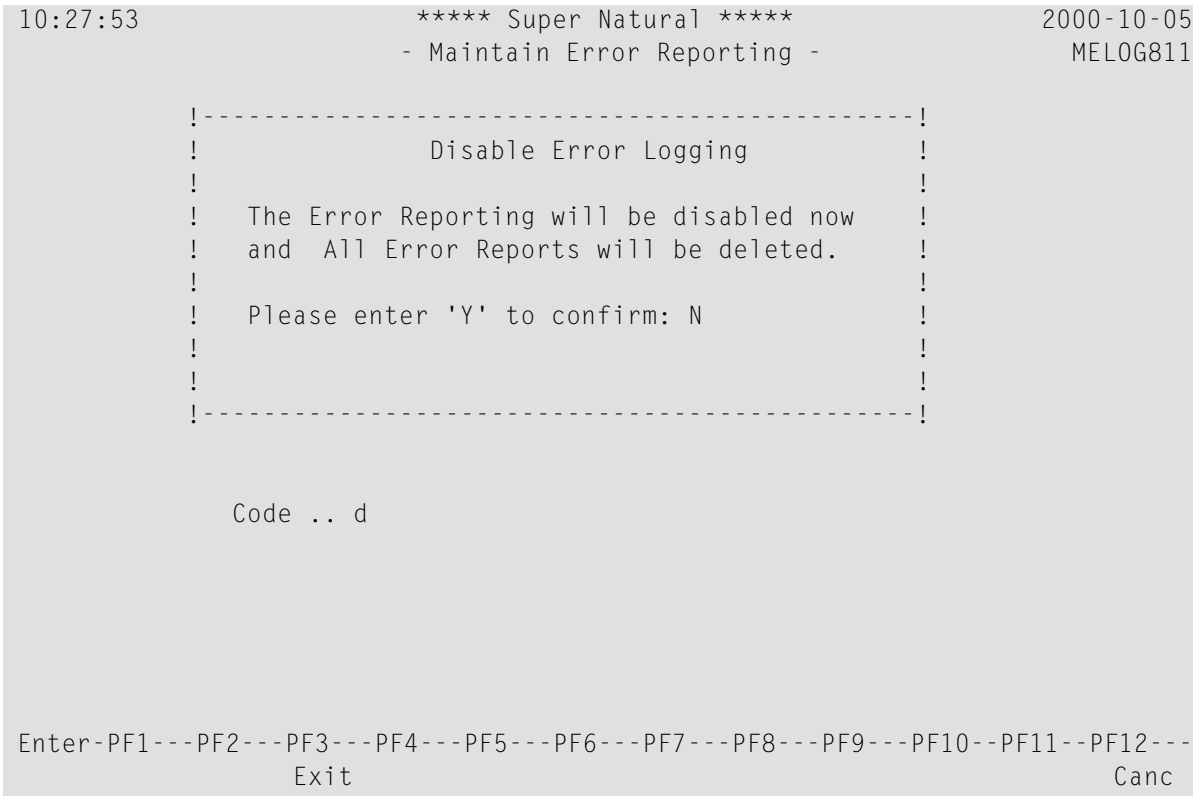
Disable Error Reporting

If you do not want to log Error Reports further on, disable this facility. All existing Error Reports are deleted and the future occurring errors are not reported.

To disable Error Reporting

1 Enter `D` and press Enter.

The following window appears:



2 Enter `Y` and press Enter.

The Error Reporting facility is disabled and all stored Error Reports are deleted.

Set Error Reporting Options

This window allows you to specify how Super Natural Errors are reported.

To set Error Reporting options

- Enter `S` and press Enter.

  The following window appears:

```
           Set Error Reporting Options

  Online Error Display
    with Error Message Text .......... N  (Y/N)

  Record Error Report Data
    with Natural Session Parameters .. Y  (Y/N)
    with Natural System Variables .... Y  (Y/N)
    with Stack Data/Commands ......... Y  (Y/N)

  Store User ID
    with Error Reports ............... N  (Y/N)
```

These options influence the online error messaging and thge date stored in an Error Report as you define them here. You can modify them to your needs. Be aware that the options you set here, concern your whole Super Natural system and are not user-specific.

Online Error Display with Error Message Text:

- Defines if the error is displayed online with message text or just with the error number.

Record Error Report Data with Natural Session Parameters:

- A selected number of Natural session parameters are logged with the values they have at the time when the error occurs.

Record Error Report Data with Natural System Variables:

- A selected number of Natural system variables are logged with the values they have at the time when the error occurs.

Record Error Report Data with Stack Data/Commands:

- The first three levels of stacked data or commands are logged.

For further information on these options, see the following Natural documentation: *Installation for z/OS*, *Installation for z/VSE*, *Installation for BS2000/OSD*, *Installation for VM/CMS* and *Operations*.

Store User ID with Error Reports

Defines if the User ID of the user who receives the error is displayed on the Error Report.

Migrating old Error Reports

If you have Error Reports that are logged by Super Natural versions earlier than 3.3.1, they will not be displayed with the new Error Reporting Facility. You have to migrate them to work with them in future. The old Reports will be structured according to the new Error Reporting facility. After the migration they are available on the List Error Report screen.

To migrate old Error Reports

1 Enter `M` and press Enter.

The following window appears:

```
!-------------------------------------------!
!               Confirm Migration           !
!                                           !
!     211 Error Reports will be migrated    !
!         to new Error Report Format.       !
!                                           !
!  The old Error Reports will be deleted    !
!  and the old Log File will be closed.     !
!                                           !
!  Please enter 'Y' to confirm: y           !
!-------------------------------------------!
```

2 Enter `Y`.

The old Error Reports are migrated. The old Error Reports will be deleted and the old log file will be closed. This means that the Error Reports cannot be viewed with an earlier version of *SNELOG* if you use a previous version of Super Natural and the current simultaneously.

DDM Check on Modify

The option DDM Check on Modify allows you, to compare the field structure of the transaction with the current field structure of the DDM used. The result decides wether the current DDM-field structure can be adapted or whether no adaptation is possible.

This section covers the following topics:

- **Results of Checking**
- **Criteria of Checking**
- **Change of References**

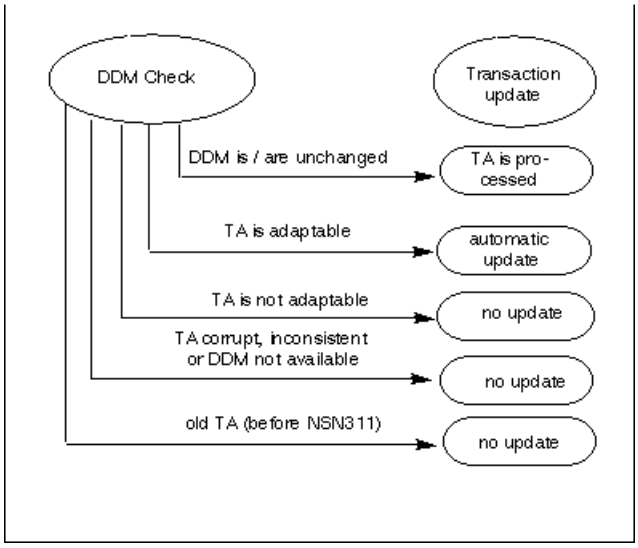
- **Modes of DDM Check on Modify**
- **Enable DDM Check on Modify**
- **Phases of DDM Check on Modify**

Furthermore there is the option SNTALOG to obtain a status report, where all information concerning deviations is listed.

Results of Checking

The following graph shows the order of events of DDM Check on Modify.

Note: DDM Check on Modify is only feasible, if the option `DDM Check on Modify` is set to yes. This option can be set in the user-profile, file-profile and superfile-profile.



DDMs are unchanged

No deviations are located between the field structure of the transaction and that of the DDM. No Status Report is written and no confirm-window is displayed.

Transaction is adaptable

Some deviations are located between the field structure of the transaction and that of the DDM, but they are automatically adaptable. A Status Report is written (if activated) and the confirm-window is displayed.

Transaction is not adaptable

Some deviations that are located between the field structure of the transaction and of the DDM, that cannot be adapted automatically. A Status Report is written (if activated) and the confirm-window is displayed.

Transaction corrupt, inconsistent or DDM not available

The transaction is detected as corrupt or inconsistent or not all DDMs used are available. A Status Report is written and a confirm-window is displayed.

Old Transaction

The transaction cannot be processed, because it was developed with a Super Natural Version before - 311. First the transaction has to be migrated separately without the option DDM Check on Modify. Then it can be adapted. No Status Report is written, but a confirm-window is displayed.

Criteria of Checking

All transaction that use `Data Selection = Full Screen` or `Data Maintenance Types` (Add, Update etc.) are checked with the option DDM Check on Modify.

Exeption:
Transactions that use other data selection modes ignore the option DDM Check on Modify although they use lookup files.

Fields checked

Primary / Secondary Files	All fields of the new DDM are loaded into the transaction. A comparison is made only between the fields of the Transaction and the DDM-Structure that are listed in the worksheet of the transaction. The remaining fields are updated without a DDM-fieldstructure check.
Lookup Files	Only used fields selected in the transaction are loaded from the DDM and compared with the transaction fields.
User Fields	User fields and system variables are only checked to see if the field reference has changed.

What Field Properties are Checked?

Fieldname and Filenumber	Criteria of comparison between the new structure of the DDM and the structure of the transaction. Fieldname and filenumber must be identical (primary file must be 1, secondary file must be 2, lookup file must be 3 or higher).Otherwise it is assumed that the field is deleted.
Database-Reference	If the Database-Reference has changed (if it exists) the field cannot be allocated any more.
Format	A change of format is an essential change that can cause errors by processing the transaction.
Level	A change of level indicates that the field is assigned to another group or that is no longer assigned to any group.
Length	If the length decreases, the values that were assigned to that field, may not fit any more.

Decimal-Places	If the length decreases, the values, that were assigned to that field, may not fit any more.
Descriptor Type	A change of the descriptor type indicates that a field obtains a different meaning within the DDM. Possible meanings: Super-Descriptor, Sub-Descriptor, Phonetic-Descriptor or Non-Descriptor.
Array Type	A change of the array type indicates that a field obtains a different occurrence within the DDM. Possible meanings: Array, Multiple, Periodic, Multiple in Periodic, Elementary Field.

Change of References

New Fields in the DDM

If new fields join the DDM, the transaction field-references are moved. All following database fields, system fields and user fields get new references. These changes will be updated automatically in all functions of the transaction.

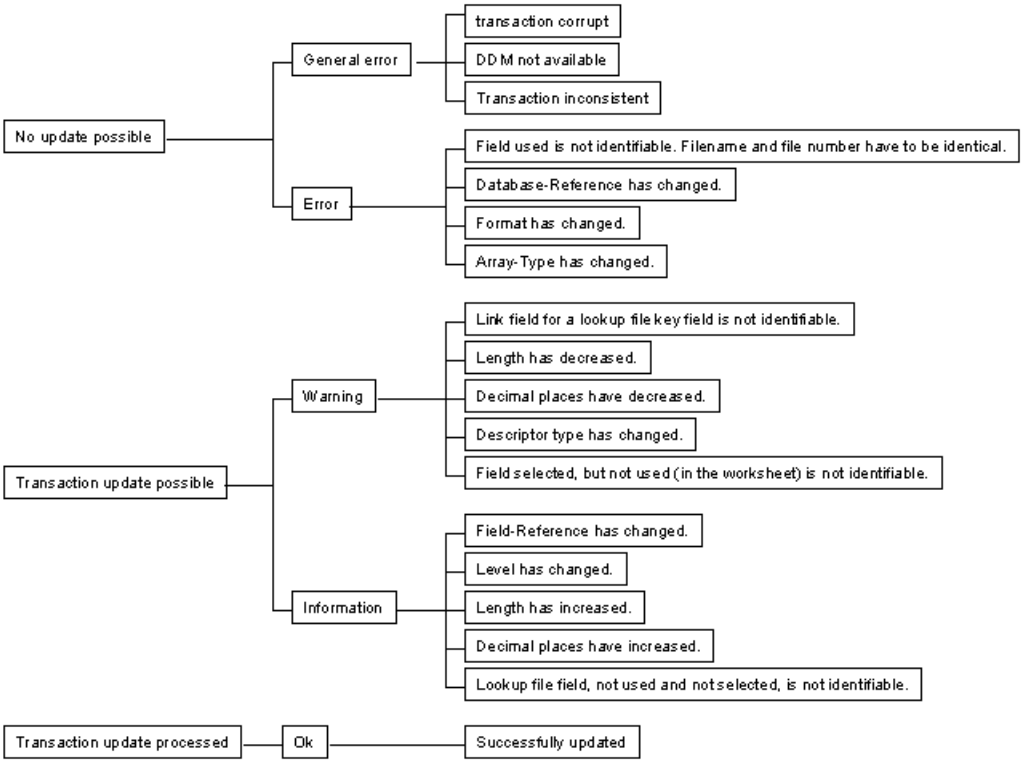
Deleted Fields in the DDM

If fields in a DDM are deleted, transaction field-references are moved. These new references are updated in all functions of the transaction.

Modes of DDM Check on Modify

A transaction check can lead to the following results:

- no update possible
- automatic update is processed
- transaction is processed without update



Enable DDM Check on Modify

The option `DDM Check on Modify` is set in the Maintenance section of Super Natural. The place where the option is set decides the consequences:

user profile	all transactions of this user will be checked
file profile	all transactions of all users, that use this file as primary- or secondary file, will be checked
super-file profile	all transactions will be checked, that use this super-file

The following section describes, how you can proceed a transaction in spite of a changed DDM. However this update is not possible, if a General Error or an Error (see Verification-Level) appears.

Phases of DDM Check on Modify

The functionality is divided into two phases:

1. Get the current DDM field-structure, compare it against the transaction field-structure and identify differences.
2. Update the references in the functional parts of the transaction. The updated field-list is provided in the worksheet.

Update possible

The following window appears:

```
+------------------Confirm-----------------+
! Changes in the data structure of one or   !
! more files used in the transaction are    !
! detected.                                 !
!  _ Update Data Structure(s)               !
!    and Enter Worksheet                    !
!  _ Leave Transaction                      !
!                                           !
+-------------------------------------------+
```

Proceed the transaction-update

1 Choose the option `Update Data Structure(s)` and Enter Worksheet.

The worksheet of the transaction appears.

2 Choose the option `Leave Transaction` if you do not want to proceed with the transaction now.

The update of the data structure(s) is canceled. A Status Report (if enabled) is written.

Conclude DDM Check on Modify

- If you conclude the transaction with `keep`, `save` or `run` the updated field-description is saved into the transaction.
- If you abandon the transaction with `cancel` or `menu`, the transaction is dropped.

No Update possible

No Update is possible if the DDM is changed so, that a system error or an error (see Modify-Options) occurs. The following screen will be displayed.

```
+-----------------Confirm-----------------+
! Changes in the data structure of one or  !
! more files used in the transaction are   !
! detected.                                !
! The differences between the former and   !
! the current data structure can not be    !
! resolved automatically.                  !
!                                          !
!  _ Leave transaction                     !
!                                          !
+------------------------------------------+
```

To leave the transaction

- Choose `Leave Transaction`.

  A Status Report (if enabled) is written. It gives the reason for not updating the transaction.

Change Transaction Manually to enable the Update

Change Transaction manually to enable the update of the data structure

1. You may switch off the option `DDM Check on Modify`.
2. Enter the transaction and remove the field usage that prevented the automatic update according the information provided within the Status Report (in enabled).
3. Modify the transaction again with the option `DDM Check on Modify`.

Status Reports

This section covers the following topics:

- **Displaying Status Reports**
- **Browsing Status Reports**
- **Deleting Status Reports**
- **Printing Status Reports**

A Status Report describes the Status of a transaction concerning the changed DDM. For each transaction that was modified using the option `DDM Check on Modify`, one Status Report is provided. It contains the current status of the transaction and shows finally, whether the transaction was successfully updated and if it was saved with the new DDM field structure.

If you want to view the Status Reports you have to activate the Service-Routine *SNTALOG* in the Library *SYSSN*. Further information, see the *Installation and Set-Up* documentation.

Displaying Status Reports

You can display the current Status Report out of a list of all available Status Reports.

Invoke List of Status Reports

- Invoke the Service-Routine *SNTALOG* out of the library *SYSSN*.

  The following screen appears:

```
11:32:21                  ***** Super Natural *****                1999-04-16
                        - Transaction Status Reports -                MTALOG11

                     Code Function
                     ---- ---------------------------------
                      L   List Transaction Status Reports
                      D   Delete Transaction Status Reports
                      ?   Help
                      .   Terminate
                     ---- ---------------------------------


  Code ............... L
  Library ........... ypor____  (with library prefix)
  Transaction Name .. I*______  (with transaction prefix)
  Date Time ......... *____________________
                      YYYY-MM-DD HH:II:SS.T

  Personal DB DBID .. 167__
  Personal DB FNR ... 93___


Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      HELP        Exit                                                  Canc
```

Field descriptions

Code

The following function codes are possible:

- L Lists all Status Reports of the corresponding library.
- D Deletes the marked Status Reports.
- ? Provides help concerning the Status Reports.
- . Terminates the function.

Library

Enter the library name with the associated prefix. A prefix is always placed in front of the library name. There are three ways to enter the library name:

- Enter the complete library name.
- Enter * (the List Transaction Status Report Screen appears where you can choose the appropriate Status Report).
- Enter a part of the library name with a wildcard (*,<,>).

Transaction Name

Choose the transaction whose Status Report you want to display. For the way to enter the transaction name see the description above.

Date Time

- Choose a Date / Time to display a Status Report. You have three ways to enter the Date / Time:
  - Enter the complete Date / Time (YYYY-MM-DD HH:II:SS.T).
  - Enter * (the List Transaction Status Report screen appears where you can choose the appropriate Status Report).
  - Enter a part of the Date / Time with a Wildcard (*,<,>).

Personal DB DBID / Personal FNR

- Specify the database ID (DBID) and the file number (FNR) of the personal database whose logging list you want to display. The default DBID and FNR depend on the setting of the parameter LFILE.

List of Status Reports

```
14:05:27                  ***** Super Natural *****                 1999-05-28
                      - List Transaction Status Reports -             MTALOG21

Cmd Library   Program   Date/Time             Level Status             User-ID
    *_______  *_______  *____________________   *
 _  CSAMPLE   IOTEST03  1999-04-29 14:57:20.0   I   Reference changed  -QE
 _  CSAMPLE   IOTEST05  1999-04-28 17:35:30.4   I   Reference changed  -QE
 _  YCF       IAAAAA    1999-04-30 15:28:46.2   I   Reference changed  CF
 _  YCF       IAAA1     1999-04-23 13:50:15.6   I   Reference changed  CF
 _  YCF       IAAA2     1999-04-23 15:08:43.3   F   Successfully updat CF
 _  YCF       IAAA3     1999-04-23 15:11:17.2   F   Successfully updat CF
 _  YCF       IAAA4     1999-04-23 15:13:13.5   F   Successfully updat CF
 _  YCF       IAABC     1999-04-29 14:37:07.3   W   Length less        CF
 _  YCF       IAAB11    1999-05-03 16:57:17.8   I   Length greater     CF
 _  YCF       IAAB4     1999-04-29 14:37:48.8   F   Successfully updat CF
 _  YCF       IAAB4SEL  1999-04-29 14:41:25.3   F   Successfully updat CF
 _  YCF       IAAB5SEL  1999-05-03 16:56:58.6   E   Not ident.(used)   CF
 _  YCF       IASDF     1999-05-17 11:36:20.6   W   Length less        CF
 _  YCF       INEU3     1999-05-10 13:34:38.4   I   Reference changed  CF
 _  YCF       INEU4     1999-05-10 10:57:45.6   F   Successfully updat CF
Cmd's are B (Browse), D (Delete), P (Print)

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                 Exit              --          +                      Canc
```

Navigation

To move Up / Down

1 Use PF6 to move to the first page.

2 Use PF8 to move one page forward.

To Exit / Cancel

- Choose `Exit` or `Cancel` to leave the transaction list and reach the Status Report main screen.

Commands

- Choose the required Status Report. There are three ways to process the Status Reports:
  - `Browse`: The selected Status Report is browsed. For further information, see *Browsing Status Reports*.
  - `Delete`: The selected Status Report is deleted. For further information, see *Deleting Status Reports*.
  - `Print`: The selected Status Report is printed. For further information, see *Printing Status Reports*.

Field Descriptions

Library

Name of the library where the Status Report is stored.

Program

Transaction name of the associated Status Report.

Date / Time

Date / Time, when the transaction is processed and the Status Report is written.

Level

Possible levels: finished, information, warning, error, general error.

Status

This field shows detailed information of the reason why the Status Report was written. The worst case is displayed.

User-ID

User ID of the person who has processed the transaction.

Browsing Status Reports

To browse the Status Report

- Enter `B` to browse the Status Report.

  A window appears where the most important information of the processed Transaction with changed DDM is displayed.

```
13:40:15                  ***** Super Natural *****                1999-04-28
                     - Browse Transaction Status Report -            MTALOG31

Transaction ..... IZ02CRU                Verified at .. 1999-04-28 13:33:46.7
Library ......... YPOR                             by .. POR
Warning ......... Length less
Primary File .... -QE-TST-21
Secondary File .. -QE-TST-24

Cmd Field Verification   Field Name                      Field Type  Format
 _  Length less          START-TIME                      Primary     N 3
 _  Reference changed    ID-YACHT                        Primary     N 8
 _  Reference changed    CHARTER-CRUISE                  Primary     Group
 _  Reference changed    ID-CONTRACT                     Primary     P 6
 _  Reference changed    START-DATE-DESTINATION          Primary     A 49
 _  Reference changed    YACHT-ID                        Secondary   N 8
 _  Reference changed    YACHT-NAME                      Secondary   A 30
 _  Reference changed    YACHT-BRANCH                    Secondary   A 1


Cmd is S (Show Details)

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Print Exit              --          +                       Canc
```

Navigation

To print

- Enter `Print` and the current Status Report is printed.

  The Status Report is printed.

To move Up / Down

1 Use PF6 to page to the first page.

2 Use PF8 to page one page forward.

To Exit / Cancel

- Choose `Exit` or `Cancel` to leave the transaction list and reach the status report list.

To Show Details

1 Select the field of the transaction you want to get further information about and enter `S` (show details).

To view multiple fields in detail:

2 Mark the required fields with `S`.

3 Press Enter.

4 Page through the selected field descriptions with PF3.

After you have paged through all field descriptions, you again reach the browse screen.

Status Report Descriptions

Transaction

Name of the current transaction with prefix.

Library

Name of the library with prefix, where the transaction is saved.

Finished / Information / Warning / Error / General Error

Finished / Information / Warning / Error / General Error are possible status of the transaction. This field shows detailed information of the reason why the Status Report was written. The worst case is displayed.

Primary File

Name of the primary file

Secondary File

Name of the secondary file if defined.

Verified at ... by

Date / Time when the transaction was accessed last with the option DDM Check on Modify and user ID, which performed the DDM check.

Note: Further field descriptions see show details.

To view the detailed description of single fields of the transaction

- Enter `S` (show details).

  You receive a detailled description of the choosen field.

Note: You can choose multiple fields simultaneously.

```
13:42:14                  ***** Super Natural *****                 1999-04-28
                       - Show Transaction Status Report -             MTALOG41

Transaction ..... IZO2CRU                 Verified at .. 1999-04-28 13:33:46.7
Library ......... YPOR                             by .. POR
Warning ......... Length less
Primary File .... -QE-TST-21
Secondary File .. -QE-TST-24

Detail Information for Field ID-YACHT
  Verification ...... Reference changed               --- In Use with ---
  Field Type ........ Primary                         Link Field
  Format ............ N 8
  Descriptor Type ... Descriptor
  Array Type ........
  Field Reference ... AL
  DB Reference ...... CT
  Linked with File ..




Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Print Exit                                                  Canc
```

Navigation

To print

- Enter `Print`.

  The current Status Report is printed.

To cancel

- Choose `Cancel` to leave the Show Details screen and reach the browse screen immediately.

To exit

- Choose `Exit` to page through the selected field descriptions (if you have chosen multiple fields). After you have paged through the field descriptions, you reach the browse screen.

Detail Information for a field

Verification

Result of DDM Check on Modify: reason for reporting for a field.

File Type

The following entries are possible:

- primary file
- secondary file
- lookup file
- system variable
- dynamic input field

Format

Field format and length.

Descriptor Type

The following entries are possible:

- empty
- descriptor
- super-descriptor
- sub descriptor
- phonetic descriptor
- hyper descriptor

Array Type

The following entries are possible

- empty
- periodic group
- multiple field

- multiple field within a periodic group

Field Reference

Unique Reference (two letters) of this field within the transaction. The reference before DDM Check on Modify is shown.

DB Reference

Adabas database reference.

Linked with File

Filename of the lookup file, which is linked with the current file.

In Use with

List of transaction functions where the current field is used.

Possible functions are:

- Display
- Control Break
- Redefinition on Field
- Interfield Arithmetic
- System Function
- Selection
- Calculation
- Logics
- Tabular
- Graphics
- Layout (report)
- User Exit
- Link / Join Field
- Connect Text Link

Deleting Status Reports

This command enables you to delete a Status Report.

To delete a Status Report

1 Enter `D` (Delete) beside the transaction name in the list of Status Reports.

A window appears, where you have to confirm the delete.

You can also mark multiple Status Reports to delete.

```
+----------------Confirm Delete-----------------+
!                                               !
! Delete Transaction Status Report IZ02CRU      !
!                       of library YPOR         !
! Please enter 'Y' to confirm: N                !
!                                               !
+-----------------------------------------------+
```

2 Enter `Y` if you want to delete the Status Report.

The Status Report is deleted now.

Printing Status Reports

This command enables you to print a Status Report.

To print a Status Report

1 Enter `P` (Print) beside the transaction name in the list of Status Reports.

A window appears, where you have to confirm printing.

You have also the possibility to mark multiple Status Reports to print.

```
+-----------------Confirm Print-----------------+
!                                               !
! Print Transaction Status Report IZ02CRU       !
!                      of Library YPOR          !
! Please enter 'Y' to confirm: N                !
!                                               !
+-----------------------------------------------+
```

2 Enter `Y`, if you want to print the Status Report.

The Status Report is printed now.

Super Natural RPC Service Functionality

This section covers the following topics:

- **Introduction**
- **Hints and Limitations**
- **Dynamic Input Fields within the RPC Service**
- **Generate an RPC Service (Server Side)**
- **Resulting RPC Service Source**
- **Create the Client Side Parameters**

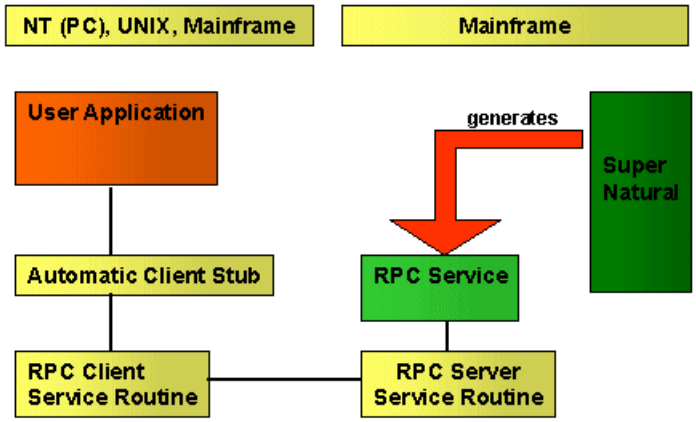
Introduction

Remote procedure call (RPC) techniques establish a framework for communication between server and client systems that can be collocated on the same computer or based on a network of identical or heterogeneous machines and operating systems. The Natural RPC facility enables a client Natural program to issue a `CALLNAT` statement to invoke a subprogram in a server Natural. The Natural client and server sessions may run on the same or on a different computer.

Natural RPC exploits the advantages of client server computing. In a typical scenario, Natural on a Windows client computer accesses server data (using a middleware layer) from a Natural on a mainframe computer. The following advantages arise from that:

- The end user on the client can use a Natural application with a graphical user interface.
- A large database can be accessed on a mainframe server.
- Network traffic can be minimized when only relevant data are sent from client to server and back.

The RPC service is designed to produceSuper Natural services for distributed working.Super Natural RPC generates a Natural RPC subprogram from a Super Natural Transaction. This NaturalRPC subprogram represents a Naturalobject that is executable in any Natural RPC environment. A Natural RPC service (subprogram) that was generated from Super Natural is executable via a Natural RPC server. The RPC client can be in a network or on a local system and is completely independent.



For further information about RPC, see the *Natural Remote Procedure Call (RPC)* documentation.

Hints and Limitations

The following points provide information on the RPC service and show which transactions are not supported:

- Before you can start using the RPC service the administrator has to set it up in the user profile.
- The RPC service is generated in Natural Reporting Mode.
- The RPC service can be used as any Natural RPC service. It contains no Super Natural-specific information.
- For each RPC service generation, the transaction is automatically saved with the Super Natural command `keep`.
- You can only use *Report Transactions* to generate the RPC service, no *Data Maintenance Transactions*.
- Transactions, defined with report type `Tabular` or `CON-NECT` are not supported by the RPC services.
- The RPC service Objects are generated to be used with automatic Natural RPC execution. This requires to set the RPC parameter to `AUTORPC=ON`. For further information, see the section *Stubs and Automatic RPC Execution* in the *Natural Remote Procedure Call (RPC)* documentation.
- The library type is important to meet the requirements of the RPC logon feature that is set on the client side. For further information, see the section *Using the Logon Option* in the *Natural Remote Procedure Call (RPC)* documentation.

Dynamic Input Fields within the RPC Service

You can process more dynamic RPC services by using the Super Natural dynamic input fields. Herewith the client application defines the selection values at execution time when calling the RPC service.

This requires an additional input structure to be generated for the RPC service. It must be part of the client interface.

Generate an RPC Service - Server Side

You can use any transaction (except the documented limitations) of your worksheet to proceed the RPC service.

To generate an RPC service

1 Select a transaction out of the transaction list with the `MODIFY` (`mo`) command.

The worksheet appears.

2 Enter `GENERATE RPC` into the command line.

3 Press Enter.

The following window with the default settings appears:

```
        RPC-Service Generation

The RPC Service will be stored with
    Object Name ........... RPCSMPL1
    in Library ............ NSNSAMPL
    with Generation Mode .. Direct
    and Record Limit ...... 545

  _  Generate with these options
  X  Change options before generation
  _  Modify Transaction
```

4 Specify how you want to proceed:

Generate with these options

The generation process starts. If the service object to be generated already exists, confirm the replacement in the appearing window.

Change options before generation

Modify the RPC service options before starting the generation process. The Modify Generation Options window appears.

Modify Transaction

Return to the preceding screen to modify the transaction.

5 Select *Change Options before Generation*.

6 Press Enter.

The following screen appears:

```
 RPC-Service - Modify Generation Options

RPC Service Object Name ........ RPCSMPL1
            Library ............ NSNSAMPL

Generation Mode ................ D  Direct
Limit of Result Records ........ 545____
(Max. possible Result Records .. 545     )
```

7 Fill in the required information.

RPC Service Object Name

Name of the RPC service Object to be generated. Depends on the user options and can be predefined by the administrator.

Library

Library of the RPC service Object to be stored. Depends on the user options and can be predefined by the administrator.

Generation Mode

Direct or Context. Defines how the Generation will be processed. For further information, see the section ***Generation Modes***.

Limit of Result Records / Max. possible Result Records

Result record handling. For further information, see the section ***Result Data Limitations***.

8 Press Enter.

The RPC service Object has been generated and is ready to use.

You can control your RPC service by looking at the Natural-Code.

To confirm the replacement of an RPC service

If you want to generate the same RPC service object twice you have to confirm the replacement of the first.

1 Specify the RPC service Object name in the RPC Options window and press Enter.

The following window apprears:

```
!-----------------------------------------!
!         Confirm Replace RPC Service     !
!                                         !
!  The RPC Service RPCSMPL1               !
!       in Library NSNSAMPL               !
!  does already exist.                    !
!  The object will be replaced now.       !
!                                         !
!  Enter Y to confirm: Y                  !
!-----------------------------------------!
↩
```

2 Confirm the replacement by entering `Y` and press Enter.

Result Data Limitations

Direct Mode

The number and the length of fields are relevant for the number of records!

Example selected result data:

#FIELD - A	N 8
#FIELD - B	A 1
#FIELD - C	A 20
#FIELD - D	A 20

- results in a record length of 49 Byte
- maximal parameter buffer is 30 KByte
- results in a maximal number of 612 records

Context Mode

The largest field length is relevant for the number of records in the context area (intermediate storage). The number of records retrieved with one client call has the same limitation as explained in direct mode but multiple calls can be performed in the context mode.

Example selected result data:

#FIELD - A	N 8
#FIELD - B	A 1
#FIELD - C	A 20
#FIELD - D	A 20

- largest field length is 20 Byte
- maximal array size for a field in the context area is 32 KByte
- results in a maximal number of 1638 records

Resulting RPC Service Source

The following section gives you an insight into the source of a generated RPC service, explains the single sections and introduces the naming conventions for input and output parameters.

Overview of the Source

```
>                                       > +  Subprogram  RPCSMPL2 Lib NSNSAMPL
Top    ....+....1....+....2....+....3....+....4....+....5....+....6....+....7..
  0010 * ***************** Super Natural - RPC Service Routine*****************
  0020 *
  0030 * Subprogram: RPCSMPL2
  0040 * Author    : Super Natural
  0050 * Date      : 2000-10-09
  0060 *
  0070 * NSN RPC Identification Area - do not touch the '* NRIA.'-lines below
  0080 * ------------------------------------------------------------------------
  0090 * NRIA. RPC YCF     IA-SMPL220001009100604820001009100112 8CF
  0100 * ------------------------------------------------------------------------
  0110 *
  0120 DEFINE DATA PARAMETER
  0130 01 #CONTROL
  0140   02 #RETURN   (N4)
  0150   02 #MORE     (L)
  0160   02 #LIMIT   (N10)
  0170   02 #CT-RES  (N10)
  0180   02 #CT-POS  (N10)
  0190   02 #CT-PAGE  (N5)
  0200   02 #MAX      (N5) 0210 01 #INPUT
  0210 01 #INPUT
  0220   02 #BI_DY_NAME-START (A20)
  0230   02 #BJ_DY_NAME-END (A20)
  0240 01 #OUTPUT (1:V)
  0250   02 #AF_PRI_FIRST-NAME-1 (A20)
  0260   02 #AE_PRI_SURNAME (A20)
  0270   02 #AL_PRI_STREET-NUMBER (A20)
  0280   02 #AN_PRI_ZIP-CODE (A10)
  0290   02 #AO_PRI_CITY (A20)
  0300   02 #AM_PRI_COUNTRY (A3)
  0310 *
  0320     CONTEXT
  0330 01 #AF_CTX (A20/1638)
  0340 01 #AE_CTX (A20/1638)
  0350 01 #AL_CTX (A20/1638)
  0360 01 #AN_CTX (A10/1638)
  0370 01 #AO_CTX (A20/1638)
  0380 01 #AM_CTX (A3/1638)
  0390 END-DEFINE
  0400 *
  0410 SET GLOBALS LE=OFF
  0420 MOVE 1638 TO #CONTROL.#LIMIT
  0430 RESET #LOOP-END(L) #CONTROL.#RETURN
  0440 REPEAT UNTIL #CONTROL.#MORE OR #LOOP-END /* Data retrieval loop
  0450   MOVE TRUE TO #LOOP-END
  0460   RESET #LT-T(P10)
  0470     #CT-OUT(P10)
  0480   #CT-MAX(P7) = 1638
  0490   MOVE #BI_DY_NAME-START TO #BI (A20)
  0500   MOVE #BJ_DY_NAME-END TO #BJ (A20)
```

```
0510   PRI. FIND ( 1639 ) SAG-TOURS-E-PERSON
0520       WITH SURNAME = #BI THRU #BJ
0530       SORTED COUNTRY SURNAME
0540     ADD 1 TO #LT-T
0550     IF #LT-T > 1638 DO
0560       MOVE 12 TO #CONTROL.#RETURN
0570       ESCAPE BOTTOM DOEND
0580 * Start: Store parameter
0590     ADD 1 TO #CT-OUT
0600     IF #CT-OUT GT #CT-MAX DO
0610       SUBTRACT 1 FROM #CT-OUT
0620       MOVE 16 TO #CONTROL.#RETURN
0630       ESCAPE BOTTOM DOEND
0640     MOVE FIRST-NAME-1(PRI.) TO #AF_CTX(#CT-OUT)
0650     MOVE SURNAME(PRI.) TO #AE_CTX(#CT-OUT)
0660     MOVE STREET-NUMBER(PRI.) TO #AL_CTX(#CT-OUT)
0670     MOVE ZIP-CODE(PRI.) TO #AN_CTX(#CT-OUT)
0680     MOVE CITY(PRI.) TO #AO_CTX(#CT-OUT)
0690     MOVE COUNTRY(PRI.) TO #AM_CTX(#CT-OUT)
0700 * End: Store parameter
0710   LOOP (PRI.)
0720 LOOP   /* Data retrieval loop
0730 IF NOT #CONTROL.#MORE MOVE #CT-OUT TO #CONTROL.#CT-RES
0740 * Start: Retrieve from context
0750 RESET #CONTROL.#CT-PAGE #CONTROL.#MORE
0760 REPEAT
0770   ADD 1 TO #CONTROL.#CT-POS
0780   ADD 1 TO #CONTROL.#CT-PAGE
0790   MOVE #AF_CTX (#CT-POS) TO #AF_PRI_FIRST-NAME-1(#CT-PAGE)
0800   MOVE #AE_CTX (#CT-POS) TO #AE_PRI_SURNAME(#CT-PAGE)
0810   MOVE #AL_CTX (#CT-POS) TO #AL_PRI_STREET-NUMBER(#CT-PAGE)
0820   MOVE #AN_CTX (#CT-POS) TO #AN_PRI_ZIP-CODE(#CT-PAGE)
0830   MOVE #AO_CTX (#CT-POS) TO #AO_PRI_CITY(#CT-PAGE)
0840   MOVE #AM_CTX (#CT-POS) TO #AM_PRI_COUNTRY(#CT-PAGE)
0850   IF #CONTROL.#CT-POS GE #CONTROL.#CT-RES ESCAPE BOTTOM
0860   IF #CONTROL.#CT-PAGE GE #CONTROL.#MAX DO
0870     MOVE TRUE TO #CONTROL.#MORE
0880     ESCAPE BOTTOM DOEND
0890 LOOP
0900 * Start: Final Handling
0910 IF #CONTROL.#RETURN EQ 0 DO
0920   IF #CONTROL.#CT-RES = 0
0930   MOVE 8 TO #CONTROL.#RETURN
0940 DOEND
0950 * End: Final handling
0960 END
```

Parameter Structure

1. CONTROL-Structure

#**RETURN** `(output parameter)`

The following return codes are possible:

Return Code	Description
0	All data is transferred without error.
4	Buffer of data is transferred without error; more data available. This indicates for the `direct mode` that not all records could be retrieved because of a too small output array definition at the client side or a result set that is larger than the 30 KB limit. This indicates for the `context mode` that more records are available and can be retrieved with a subsequent call.
8	No data with this selection found.
12	Record limit is exceeded at the primary file.
14	Record limit is exceeded at the secondary file.
16	Result record limit is exceeded. This limit depends on the limitations given by the max. possible result records and the user settings concerning the limit of result records.

#**MORE** `(input and output parameter)`

Flag that shows wether another page can be delivered (`TRUE`) or wether this is the last page (`FALSE`). In direct mode, this parameter is always set to `FALSE` what means that it is not used.

#**LIMIT** `(output parameter)`

Information for the client that indicates how many records can be processed.

#**CT-RES** `(output parameter)`

Result-Counter: Indicates how many records were found with the current selection.

#**CT-POS** `(output parameter)`

Counter-Position: For each page returned, the counter indicates the number of the last record.

CT-PAGE `(output parameter)`

Counter-Page: Indicates how many records the current page contains.

#**MAX** `(input parameter)`

Is set by the client application to indicate how many records can be retrieved by the dynamic output array.

2. INPUT-Structure

Input parameters that have to be defined by calling the service. The parameters used by defining the transaction can be taken over into the RPC service. They refer to the dynamic input variables of Super Natural.

Naming Conventions of Input Fields

#<unique identifier>_<dynamic field>_<field name>

Example:

```
#BI_DY_NAME-START
```

3. OUTPUT-Structure

Dynamic array. The limit of the array is set by the client. It contains all output fields in the order as selected in the transaction.

Naming Conventions of Output Fields

The names for the interface fields are set up with naming conventions as described as follows. Each name can be max. 32 byte.

#<unique identifier>_<field source>_<system function identifier>_<multiple fields or periodic group identifier*>_<field name>*

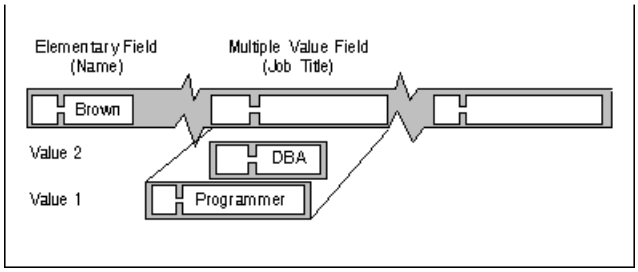
* if used in the transaction

Part of the Name	Description
Unique Identifier	Super Natural Field Reference
Field Source	Possibilities: ■ primary file (PRI) ■ secondary file (SEC) ■ lookup file (F) ■ user field (U) ■ work file field (U) ■ dynamic variable (U) ■ system variable (S)
System Function Identifier	Appears only in Summary mode.
Multiple Fields and / or Periodic Group Identifier	Appears only for database arrays.
Field Name	Name of the field used.

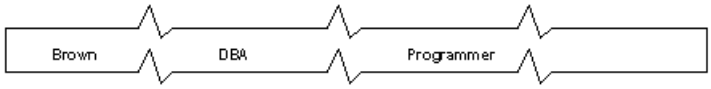
Example:

```
#AY_PRI_MAX_P2M2_BONUS
```

Periodic groups and multiple fields are flatterned for the RPC service for performance purposes as follows:



leads to



Overview of the Modes and Options

Generation Modes

Direct Generation Mode	Context Generation Mode
Returns all result data with one call.	Returns the result data with multiple calls (where conversational RPC mode is required).
The result data amount is limited to 30 KByte (general limitation for Natural subprogram parameters). For an example see section *RPC result data*.	The result data amount is limited to 32 KByte for every field (general limitation for Natural arrays). Occurrences of an output array are treated as single fields. As the result data is organized in output records, the largest field of the record defines the number of records of the result data. The result data retrieved with one call is limited to 30KByte. For an example see section *RPC result data*.
All result data is immediately available for the client. This enables the usage of the RPC service in local environments for example testing requirements.	The result data is stored in the RPC-specific context area and can be retrieved buffer by buffer to the client. No local use of the RPC service is possible.

Record Limit

The Record Limit informs you about the maximum possible number of records that can be retrieved by the RPC service. This depends on the generation mode, the used transaction, possibliy used summary mode and the largest field used in the output data. For an example see section *RPC result data*.

Generation Modes and PRC Conversation Modes

The following table gives you an overview of the Generation Modes and the possible RPC modes. For further information, see the *Natural Remote Procedure Call (RPC)* documentation.

	Direct Generation Mode	Context Generation Mode
Conversational RPC	Not required for the RPC service itself. It may be recommended if the Super Natural PRC service is part of a set of RPC services to be executed together.	Required for the PRC service to hold the conversation until all data buffers are received by the client.
Non-Conversational RPC	Recommended if the RPC service is executed as a single.	Not recommended as only the first data buffer can be received by the client. The others will be lost because the conversation is not hold.

Create the Client Side Parameters

The client side parameter structure can be created easily by using the RPC service and the Natural local data area editor as follows:

To create the client side parameters

1 Open the Natural local data area editor by entering the following command: `edit l`.

2 Enter in the first editor line the line command `.i <(your object name)>`.

3 Press Enter.

The following window appears:

```
NAT0082 Invalid command, or object NSN-RPC does not exist in library.
Local              Library EXCEL                          DBID   167 FNR    32
Command                                                                  > +
I T L Name                            F Leng Index/Init/EM/Name/Comment
All - ------------------------------- - ---- ------------------------------
  . i (r-context>!-----------------------------------------------------!
                 !                Data Area Editor                    !
                 !                                                    !
                 !                                                    !
                 !     Please select :                                !
                 !                                                    !
                 !    _  All local variables and parameters           !
                 !    _  All local variables                          !
                 !    _  Only internally defined local variables      !
                 !    _  All parameters                               !
                 !    _  Only internally defined parameters           !
                 !                                                    !
                 !-----------------------------------------------------!




---------------------------------------------------------------- S 0    L 1
```

4 Select `All Parameters`.

5 Press Enter.

The parameters are separated from the coding.

6 Save them as a local data area.

7 Export them to the client environment.

Note: Before stowing the local data area, the dynamic `#OUTPUT` array must be defined by a concrete value.

Memory Requirements

Super Natural is a Natural application and as such follows the Natural recommendations for applications. However, because Super Natural generates programs, it is advisable that you follow the recommendations below when setting your session parameters:

Buffer	Size
DATSIZE	50
ESIZE *	45
RUNSIZE	20

`* ESIZE` is dependent on the size of the DDMs you are dealing with and the number of fields used. Some transactions may need larger values than those listed above.

Example

The sample transaction *SAMPLE2* described in the section Sample Transactions in the *User's Guide* has the following transaction specification:

Primary File	*SAG-TOURS-E-CRUISE*
Display Fields	1A: *START-DATE* 1B: *END-DATE* 2: *CRUISE-PRICE* 3: *CRUISE-ID* 4: *START-HARBOR* 5: *DESTINATION-HARBOR* 6: *CHARTER-YACHT-TYPE*
Control Fields	1: `START-DATE`
System Function	Minimum on field CRUISE-PRICE
Sort Field	1: `START-HARBOR`
Selection Criteria	AT GE 500

The transaction results in the following sizes:

ESIZE	6608 Bytes
DATSIZE	612 Bytes
Buffer Pool	2684 Bytes

Example

The sample transaction *SAMPLE3* described in the section Sample Transactions in the *User's Guide* has the following transaction specification:

Primary File	*SAG-TOURS-E-CRUISE*
User Fields	MY-START-DATE MY-START-YEAR MY-START-MONTH MY-START-DAY MY-END-DATE MY-END-YEAR MY-END-MONTH MY-END-DAY
Display Fields	1: CRUISE-ID 2: START-HARBOR 3: DESTINATION-HARBOR 4A: MY-START-DATE 4B: MY-END-DATE
Selection Criteria	CHARTER-YACHT-TYPE = 'ATLANTIC 29'
Calculation Statement	MY-START-DATE=MY-START-DAY!'.'!MY-START-MONTH!'.'!MY-START-YEAR MY-END-DATE=MY-END-DAY!'.'!MY-END-MONTH!'.'!MY-END-YEAR
Logical Conditions Statement	1 I < START-DATE GT 19910701 1 T < MY-START-DATE = 'TOO LATE 1 T < MY-END-DATE = ' '

The transaction results in the following sizes:

ESIZE	8325 Bytes
DATSIZE	564 Bytes
Buffer Pool	2392 Bytes

Communication with Other Applications

Super Natural can be invoked from any other Natural application and you can invoke any other Natural application from it.

When Super Natural is invoked from another application, you can ensure that you are returned to it when exiting Super Natural by using the Natural SETUP command because Super Natural always terminates with the RETURN command.

Every application which is invoked from Super Natural must terminate with the RETURN command to ensure that Super Natural is reactivated.

The Technical Information Function

The `Technical Information` function provides you with technical information concerning your environment as in the following example:

```
18:01                      ***** Super Natural *****                 1999-04-28
SN1110                       - Transaction List -                        Friday
                                                                 More:     +
Cmd  Na +------------------------Technical Information-------------------------+
     *_ ! NSN Version ......... 3.3.1            Operating System .. MVS/XA   !
 __  AD ! PersonalDB-File ..... (0,90)           TP Monitor ........ COMPLETE !
 __  AS !                                        Device Type ....... PC       !
 __  AU ! Natural Version ..... 3.1.3                                         !
 __  CH ! PREDICT Version ..... 4.4.1            AOS Version ....... 0.0.0    !
 __  CO ! CON-NECT Version .... 0.0.0            NSC Version ....... 3.1.3    !
 __  CO !                                                                     !
 __  CO ! Buffer Sizes:   Esize ..  35 k  DATsize ... 45 k  Usize .. 31 k     !
 __  CO !                 Fsize ..  20 k  SORTsize .. 10 k  Csize ..  1 k     !
 __  CO !                                                                     !
 __  CO ! Last Error Number ... 1                                        !
 __  DA ! Last Error Program ..                  Last Error Line ...   34     !
 __  DA !                                                                     !
Add  __ ! Program: ________ was cataloged at                                 !
     !                                                                       !
Cmd(s): +-----------------------------------------------------------------------+

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

If you phone Software AG Customer Support because an error has occurred, you may be asked to enter a Super Natural module number in the Program field to obtain cataloging information.

The Technical Information function is always available.

Layout Members

When you save, run or execute a transaction, a copy code layout member is created with the name `layout-prefix transaction-name`. When you keep a transaction, a layout member with dummy copy code is created. Before you have kept, saved or run a transaction, the name `transaction-name` is reserved for its layout member. You only see the work-in-progress layout name in exceptional cases (after power cut etc.).

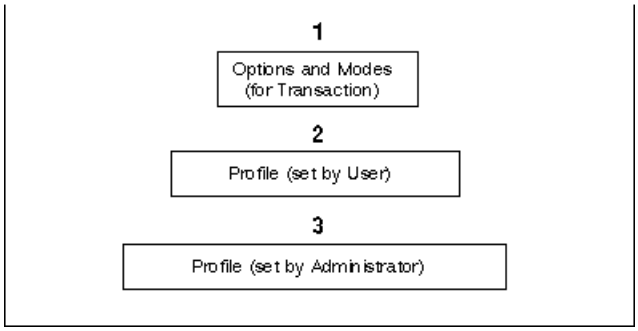
Passwords and Cipher Code

If Adabas security is being used, passwords or cipher codes can be set either for users or for files in the Super Natural Administration application. The passwords and cipher codes are read from the user profile each time a transaction is modified. Because this does not take place at run time, security errors caused by password changes may occur if a transaction is not regenerated.

User Profile, Option and Adabas Password Hierarchies

User Profile Hierarchy

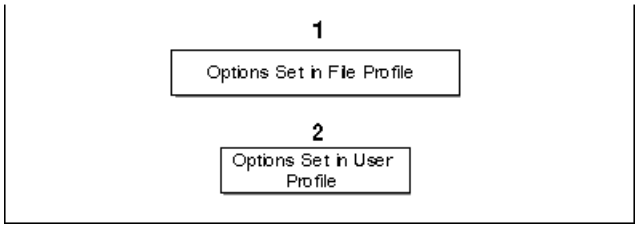
The administrator defines which files a user may use and specifies settings for profile, layout and options. The user can modify certain options and defaults from the Modify Profile screen in Super Natural Processor. The user can only modify options he is authorized to use. The user-defined profile overrides the profile set by the administrator. The user can also override his own user-defined profile just for the current transaction using the `OPTIONS` and `MODES` commands.



Option Hierarchy

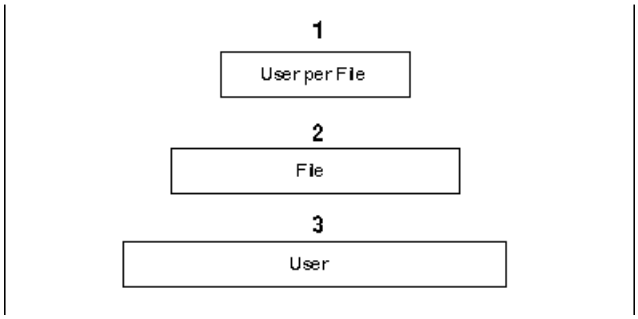
Options set for a file in the file profile override options set for a file in a user profile.

When you add (link) a file to Super Natural, the file has no option settings and no user list. The individual file settings which are part of each user profile are valid for users when accessing this file if you leave the options settings and/or the user list blank.



Adabas Password Hierarchies

Adabas passwords control file access. The hierarchy of Adabas passwords is as follows:



Passwords on upper levels have priority and are used if provided.

When an Adabas password is provided, it is generated for each transaction program or prototype program (except for those which access user files) as a Natural `PASSWORD` statement. When a program containing a `PASSWORD` clause is modified, the password entry that is active at modification time is used.

Adabas passwords and cipher codes affect existing transactions.