

Natural Engineer

Administration Guide for Mainframes

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Readers' comments are welcomed. Comments may be addressed to the Documentation Department at the address on the back cover. Internet users may send comments to the following e-mail address:

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ABOUT THIS MANUAL

Purpose of this manual

This manual contains the various administration topics for Natural Engineer.

It describes the Administration functions available from the Options menu within Natural Engineer. These include:

- The default Text Logic Members (TLM) used during the modification process.
- The default Global Properties.

There are several administration functions required to run Natural Engineer, which are not directly administered from within Natural Engineer itself. These and their methods are also described:

- The Initialization settings within the INI file which are used to control the various processes within Natural Engineer.
- Environment sizing options.
- Transferring a Natural Engineer Repository from the mainframe environment to the PC environment.
- Supplied Impact Search Criteria sets.

Target Audience

The target audience for this manual is intended to be any User of Natural Engineer as well as Systems Administrators responsible for installing and configuring the product.

Typographical Conventions used in this manual

The following conventions are used throughout this manual:

UPPERCASE TIMES	Commands, statements, names of programs and utilities referred to in text paragraphs appear in normal (Times) uppercase.
UPPERCASE BOLD COURIER	In illustrations or examples of commands, items in uppercase bold courier must be typed in as they appear.
< >	Items in angled brackets are placeholders for user-supplied information. For example, if asked to enter <file number>, you must type the number of the required file.
<u>Underlined</u>	Underlined parts of text are hyperlinks to other parts within the online source manual. This manual was written in MS-Word 97 using the "hyperlink" feature.

The following symbols are used for instructions:

⇒	Marks the beginning of an instruction set.
o	Indicates that the instruction set consists of a single step.
1.	Indicates the first of a number of steps.

How this manual is organized

This manual is organized to reflect all the Administration options of Natural Engineer in the following chapters:

Chapter	Contents
1	Describes the various Administration functions, which control various processes within Natural Engineer.
2	Describes various configuration administration topics, which are not directly administered from within Natural Engineer itself.

Terminology

This section offers some of the terms that are specific to the Natural Engineer product.

Note: Familiarity is assumed with the general terminology of Natural, Adabas, Microsoft and Mainframe operating systems.

Analysis

The Analysis process of Natural Engineer searches application data within the Natural Engineer Repository, according to specified Search Criteria and generates reports on the search results.

Application

An Application is a library or group of related libraries, which define a complete Application. In Natural Engineer, the Application can have a one-to-one relationship with a single library of the same name, or a library of a different name, as well as related steplibs. The Application refers to all the source code from these libraries, which Natural Engineer loads into the Repository.

Browser

An Internet Browser such as Microsoft Internet Explorer or Netscape.

Category

Categories in Natural Engineer specify whether and how a Modification is applied to the Natural code. Valid categories are: Automatic change, Manual change, Reject the default Modification, No change to the data item, and the data item is in Generated Code.

A category is further broken down according to type of change (for example: Keyword, Literal, Data Item, Database Access, Definition).

Cobol

Abbreviation of Common Business Orientated Language. A programming language.

Cobol Link

A Cobol Link is the link between the individual Cobol modules and the executable Cobol program referenced in the JCL object.

Consistency

An option in the Analysis process that causes Natural Engineer to trace an Impact through the code, using left and right argument resolution to identify further code impacted by the code found.

About this manual

Data Item

A collective term used for any data fields within a programming object. These can be user-defined variables, DDM fields or System Variables. It is inter-changeable with the term 'variable'.

Environment

The Environment process is the means by which Natural Engineer generates a structured view of the application code in the Natural Engineer Repository. This provides application analysis reports and inventory information on the application and is used as the basis for Impact Analysis.

Exception

An Exception is an Item identified as impacted that does not require a Modification. Where there are a few similar Exception Items, they can be treated as Exceptions, and rejected in the Modification review process. Where there are many similar (therefore not Exceptions), consideration should be given to changing the Search Criteria so they are not identified as impacted in the first place.

Generated Code

This is code which has been generated by a Natural code generator, such as Construct, and which is not normally modified directly in the Natural editor.

Impact

An Impact is an instance of a Natural code Item; e.g., data item or statement (a "hit" scored by the Analysis process) that matches the defined Search Criteria used in the Analysis process.

Iteration

An Iteration is one examination cycle of a field identified according to the specified Search Criteria. For example, one Iteration is reading the field right to left. Multiple Iterations are performed when the option of 'Consistency' or Multi Search is requested for Analysis, and Natural Engineer performs as many Iterations as necessary to exhaust all possibilities of expressing and tracing the field, and can be limited by a setting in the NATENG.INI file.

JCL

Job Control Language.

JCL object

A JCL object is a collection of Job Control statements in the order which they are to be executed in a mainframe batch environment. Commonly referred to as JCL.

Library

A single library of source code, which exists in the Natural system file.

Modification

A Modification is a change suggested or made to an object or data item resulting in the required compliance of that object or data item. Modifications in Natural Engineer are classified according to Category and Type.

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Refactoring

Improving a computer program by reorganizing its internal structure without altering its external behavior.

Soft Link

A Soft Link is where a link between two objects has been defined using an alphanumeric variable rather than a literal constant.

TLM

Text Logic Members are used to contain the code required to support inclusion of common code into the application. An example of this is the code to include into an application before updating a database.

Type

The Type of Modification available, for example: Data Item, Keyword and Literal.

Variable

A collective term used for any data fields within a programming object. These can be user-defined variables, DDM fields or System Variables. It is inter-changeable with the term 'data item'.

Related Literature

The complete set of Natural Engineer manuals consists of:

1 Natural Engineer Concepts and Facilities (NEE83-006ALL)

The Concepts and Facilities manual describes the many application systems problems and solutions offered by Natural Engineer, providing some guidelines and usage that can be applied to Natural applications.

2 Natural Engineer Release Notes (NEE83-008ALL)

The Release Notes describe all the information relating to the new features, upgrades to existing functions and documentation updates that have been applied to Natural Engineer.

**3 Natural Engineer Installation Guide for Windows (NEE83-010WIN)
Natural Engineer Installation Guide for Mainframes(NEE83-010MFR)
Natural Engineer Installation Guide for Unix (NEE83-010UNIX)**

The Installation Guide provides information on how to install Natural Engineer on PC, Unix and mainframe platforms.

**4 Natural Engineer Administration Guide (NEE83-040WIN)
Natural Engineer Administration Guide (NEE83-040MFR)**

The Administration Guide provides information on all the various control settings available to control the usage of the different functions within Natural Engineer.

**5 Natural Engineer Application Management (NEE83-020WIN)
Natural Engineer Application Management (NEE83-020MFR)**

The Application Management manual describes all the functions required to add Natural applications into the Repository.

**6 Natural Engineer Application Documentation (NEE83-022WIN)
Natural Engineer Application Documentation (NEE83-022MFR)**

The Application Documentation manual describes all the available functions to document a Natural application within the Repository. These functions will help enhance / supplement any existing systems documentation such as BSD / CSD / Specifications etc.

**7 Natural Engineer Application Analysis and Modification (NEE83-023WIN)
Natural Engineer Application Analysis and Modification (NEE83-023MFR)**

The Application Analysis and Modification manual describes all the available functions to carry out analysis of Natural applications; including basic keyword searches. The modification process is described and detailed to show how it can be applied to modify single selected objects within a Natural application, or the entire Natural application in one single execution.

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**8 Natural Engineer Application Restructuring (NEE83-024WIN)
Natural Engineer Application Restructuring (NEE83-024MFR)**

The Application Restructuring manual describes the analysis and modification functionality required to carryout some of the more sophisticated functions such as Object Builder.

**9 Natural Engineer Utilities (NEE83-080WIN)
Natural Engineer Utilities (NEE83-080MFR)**

The Utilities manual describes all the available utilities found within Natural Engineer and, when and how they should be used.

10 Natural Engineer Reporting (NEE83-025ALL)

The Reporting manual describes each of the reports available in detail, providing report layouts, how to trigger the report and when the report data becomes available. The various report-producing mediums within Natural Engineer are also described.

11 Natural Engineer Batch Processing [Mainframes] (NEE83-026MFR)

The Batch Processing manual describes the various batch jobs (JCL) and their functionality.

12 Natural Engineer Messages and Codes (NEE83-060ALL)

The Messages and Codes manual describes the various messages and codes produced by Natural Engineer.

13 Natural Engineer Advanced Services (NEE83-017WIN)

The Advanced Services manual describes various advanced options such as the Refactoring of Natural application source code with Natural Engineer, conversion of applications for Natural for Ajax and Business Rule processing.

ADMINISTRATION OPTIONS

Chapter Overview

There are several administration options available within Natural Engineer which allow Users or Systems Administrators, the facility to fine tune Natural Engineer to their site requirements, thus ensuring any use of the product will conform to a common set standard.

These administration options can be found using the Options menu, which can be accessed using option 'O' from the main Natural Engineer menu.

Options available:

1. **Default Text Logic Members**

Text Logic Members can be used during the modification process and allow user defined processing logic to be included as part of the modification.

2. **Global Properties**

Global Properties allow for the specification of default settings that are applicable to all Applications loaded into the Repository.

Default Text Logic Members

Site wide Text Logic Members (TLMs) may be specified using the Maintain Default Text Logic Members option from the Options menu.

TLMs are Natural objects with an object type of Text, containing the required processing code to be used during modification. They need to exist on either the modification library specified in the application properties, or can be held on the Natural SYSTEM library.

After the TLMs have been saved, they need to be defined using the Default Text Logic Members option in order that Natural Engineer can recognize them and use them during the modification process.

Note: It is possible to override the default settings using the Modification Preferences option from the Modification menu. This will override the TLMs for the current selected application only.

For more information on the Modification Preferences option refer to the Natural Engineer Application Analysis & Modification for Mainframes manual.

Supplied Default Text Logic Members

Natural Engineer comes supplied with two Default Text Logic Member (TLM) objects that are used with the Nat 2.2 to Nat 3.1 conversion:

1. N31R05T1
2. N31R05T2

Note: These objects can be found on the Natural Engineer SYSNEE library and will need to be moved to either SYSTEM or modification libraries as required. If moved to the SYSTEM library, they will be available to all modification libraries.

N31R05T1

This TLM is used by the Natural 2.2 to 3.1 conversion process for the SAG05 remedy 1.

```
0010 /* -----  
0020 /* Added for Natural 2.2 to 3.1 Conversion: SAG05 Remedy 1
```

```
0030 /* Updated by: XX-USER Dated: XX-DATE Time: XX-TIME using NEE
0040 /* -----
0050 IGNORE
```

N31R05T2

This TLM is used by the Natural 2.2 to 3.1 conversion process for the SAG05 remedy 2.

```
0010 /* -----
0020 /* Added for Natural 2.2 to 3.1 Conversion: SAG05 Remedy 2
0030 /* Updated by: XX-USER Dated: XX-DATE Time: XX-TIME using NEE
0040 /* -----
0050 ASSIGN XX-LOOPVAR = XX-MAXVAL
```

Default Text Logic Members Screen

All the specifications for the Default TLMs are defined using the Default Text Logic Member screen. This is accessed by selecting option 'T' (Default Text Logic Members) from the Options Menu screen.

The following Figure 1-1 illustrates the Maintain Default Text Logic Members screen.

- Modification Preferences -						
Text Logic Members: Site Wide TLM's for Natural Engineer						
Opt	TLM Type	Format	Length	Mode	Edit Mask	Logic Member
_	SAG05 R1	_	_____	STRUCTURED	_____	N31R05T1
_	SAG05 R2	_	_____	STRUCTURED	_____	N31R05T2

Enter	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12
	Help	TLM	Exit		Save		Prev	Next		Opts		Main

Figure 1-1 Maintain Default Text Logic Members screen

SCREEN ITEMS	DESCRIPTION
Opt	Line command options. Valid options are: T Insert a new line. D Delete the current line.
TLM Type	Specify what type of TLM is defined. Valid values are: START A TLM to be inserted at the Start of an Object. This is after the definition of the data items in the object. DATA A TLM that provides data items to be included in an object that has TLMs inserted. MISC A TLM that is placed at the end of the object that can contain processing, for example including common routines. COMMENT To be inserted at the start of the object to explain another TLM inserted in the object. The following variables can be specified and will be replaced at remedy execution. <ul style="list-style-type: none"> • XX-DATE, which will be translated into DD/MM/YYYY • XX-TIME, which will be translated into HH:MM:SS • XX-USER, which will contain the user-id of the person who executed modification for the object. CMPT COMM The Component comment inserted at the start of the new component subprogram that has been created. CMPT DATA Component parameter data inserted as the last parameter passed in the subprogram. The TLM data must be specifically coded in this routine and must contain the following definition first. 01 #EXTRA-PDA If a component TLM is required to pass a data item #RESPONSE between the new subprogram and the object calling it then the following is the structure for this TLM: 01 #EXTRA-PDA 02 #RESPONSE (A1)

SCREEN ITEMS	DESCRIPTION
SAG05 R1	<p>This is the default modification for empty FOR and REPEAT statement blocks. The TLM will insert the keyword IGNORE into the empty block. For Example:</p> <pre>1020 REPEAT 1030 IGNORE 1040 END-REPEAT</pre> <p><i>Note: Used in Nat 2.2 to Nat 3.1 conversion.</i></p>
SAG05 R2	<p>This TLM type can be used as an alternative to the default SAG05R1. This will comment out the empty statement block but then insert a line of code to set the applicable variable to the maximum value. For Example:</p> <p>FOR #A = 1 TO 10, will insert MOVE 10 TO #A.</p> <p>This will only be applied to a FOR loop block, a REPEAT loop block will only get commented out.</p> <p>Additionally, if this TLM type is selected in the preference screen, then prior to modification the update field button will need to be used on the Modification Element Maintenance screen to ensure the correct TLM is applied during modification.</p> <p><i>Note: Used in Nat 2.2 to Nat 3.1 conversion.</i></p>
Format	The format of the data item the TLM relates to. (Not used at present.)
Length	The length of the data item the TLM relates to. (Not used at present.)
Mode	Programming mode to which the TLM applies. Valid values are: <ul style="list-style-type: none"> Structured Structured mode Reporting Reporting mode
Edit Mask	The specific edit mask for the data item that the TLM relates to. (Not used at present.)
Logic Member	Name of the TLM to be used.

PFKEYS	DESCRIPTION
PF1	Activates the help function.
PF2	Displays a selection list of valid TLM Types. <i>Note: For more information on TLM Types refer to the screen item TLM Type.</i>
PF3	Exit from the current function and return to previous screen.
PF5	Saves the specified default TLM details.
PF7	Displays previous page.
PF8	Displays next page.
PF10	Displays the options available to view alternate TLM settings. <i>Note: For the Default TLM option only SiteWide TLM's are viewable.</i>
PF12	Returns to the Natural Engineer Main Menu.

Global Properties

The Global Properties option allows for the specification of default settings that are applicable to all Applications loaded into the Repository. It provides the facility to specify an alias for a Natural System File to shield the user from the particular DBID/File Number combination where the Natural System File is located.

Global Properties Screen

All the specifications for Global Properties are defined using the Global Properties screen.

This is accessed by selecting option 'P' (Global Properties) from the Options Menu screen.

The following Figure 1-6 illustrates the Global Properties screen.

```

MFGPSM01                - Global Properties -

Activate Load Audit Trail: Y

System File Alias      FUSER Dbid & Fnr  FDIC Dbid & Fnr  Modifiable?
DEV_____           00200 00050    00200 00060      Y
UAT_____           00177 00008    00177 00009      -
PRD_____           11177 00255    11177 00255      -
ROY_____           00122 00255    11177 00255      -
_____              _____ _____  _____ _____  -
_____              _____ _____  _____ _____  -
_____              _____ _____  _____ _____  -
_____              _____ _____  _____ _____  -
_____              _____ _____  _____ _____  -
_____              _____ _____  _____ _____  -
_____              _____ _____  _____ _____  -

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11---PF12---
      Help      Exit      Save      Prev  Next      Main
  
```

Figure 1-6 Global Properties screen

SCREEN ITEMS	DESCRIPTION
Activate Load Audit Trail	<p>If set on then a load audit record will be stored for each object that has been loaded into the repository that has a different timestamp with the existing repository object for an application.</p> <p>The audit trail may be viewed and maintained via option 'T' (Load Audit Trail) from the Environment menu.</p> <p><i>Note: For more information on the Load Audit Trail refer to the Natural Engineer Application Management for Mainframes manual.</i></p>
System File Alias	The alias given to the Natural System File DBID/FNR combination.
Fuser DBID & Fnr	The database and file number where the Natural System File is located.
Fdic DBID & Fnr	The database & file number where the Predict File is located.
Modifiable?	This indicates whether the Fuser is protected or not.

PFKEYS	DESCRIPTION
PF1	Activates the help function.
PF3	Exit from the current function and return to previous screen.
PF5	Saves the specified Global Properties details.
PF7	Displays previous page.
PF8	Displays next page.
PF12	Returns to the Natural Engineer Main Menu.

CONFIGURATION

Chapter Overview

This chapter describes some of the considerations and modifications you can make before running the Natural Engineer processes.

The topics that are covered are:

1. Initialization Settings
2. Environment sizing
3. Transferring Repository
4. Supplied Impact Search Criteria

Initialization Settings

The various configuration options for Natural Engineer are held as initialization parameters contained in a text member: `###CINI`. This text member resides in the Natural Engineer library `SYSNEE`.

The format within the `###CINI` text member consists of labels used to group the various parameters to the applicable function area within Natural Engineer.

The `###CINI` file can be accessed by logging onto the `SYSNEE` library and editing object `###CINI`.

###CINI Parameters

The following table lists the entire ###CINI parameters and their respective group headings.

The notation used in the table:

- [GROUP HEADER]** Group headers will be surrounded by square brackets.
- PARAMETER=** Each parameter is named and followed by an equal's sign.

Group Header / Parameter	Description
[ENVIRONMENT]	
EXIT-TERMINATE=	Default=Y Used to control the exit path from the main Natural Engineer screen (using 'PF3' (Exit) from the Natural Engineer main menu screen). If set to Y, will close down Natural Engineer and the Natural session. If set to N, will close down Natural Engineer only. The Natural session will still be available. Possible values Y,N
VIEWER-FIELDS-ALL-OR-USED =	Default=A Used by Object Viewer and Field Viewer dialogs to determine whether to show all fields or used fields only as a default. If set to A, All fields will be shown as a default. If set to U, only fields used within programming statements will be shown as a default. Possible values A,U
[APPLICATION]	

Group Header / Parameter	Description
LIBRARY=AAAAAAAA	Application name to be processed.
PROGRAM=*	Used to limit some reports.
TASKID=TTTT	The Task id used for Task Scheduler batch tasks.
[LOAD]	
REPLACE=Y	Default=Y Will replace objects if found on the Repository during the Load process.
[EXTRACT]	
ELETAB=	Default=20000 Maximum number of parsed elements per object.
VARTAB=	Default=2000 Maximum number of variable definitions per object.
OBJTAB=	Default=20000 The number of unique objects in the base library.
REFTAB=	Default=10000 The number of unique referenced objects in the base library.
GBLDDM-TAB=	Default=500 The number of unique DDM objects to be extracted per application.
DDMCACHE=	Default=0 Maximum number of DDM definitions held in memory. If this value is increased then the performance of the Extract process may be enhanced. Suggested values 0-10
PERF-PTAB=	Default=300 Amount of PERFORM statements held in internal table per object.

Group Header / Parameter	Description
PERF-DTAB=	<p>Default=130</p> <p>Amount of DEFINE subroutine statements held in internal table per object.</p>
ADABAS-SHORT-NAMES=	<p>Default=N</p> <p>This ensures that Natural Engineer will identify the 2 byte mnemonics and tie them up with the DDM.</p> <p><i>Note that this setting must only be used when the code does contain Adabas Short Names.</i></p> <p>Possible values Y,N</p>
CEE=	<p>Default=Y</p> <p>If set to Y, will use the new Extract engine.</p> <p>If set to N, will use the old Extract engine.</p> <p>Possible values Y,N</p>
NO-SECS=	<p>Default=N</p> <p>If set to N, when comparing timestamps, will include seconds, i.e. will use HH:MM:SS.</p> <p>If set to Y, when comparing timestamps, will not include seconds, i.e. will use HH:MM.</p> <p>Possible values Y,N</p>
JOBCLASS=	<p>Used by Bulk Extract and Load standalone job (BLKEXL) to specify jobclass of the extract & load jobs</p>
[IMPACT]	
IOR=	<p>Default=Y</p> <p>Used when Consistency is selected for Analysis.</p> <p>If set to Y, data elements are tracked across object boundaries following the impact process. IOR=ONLY will ensure that Natural Engineer only performs inter object tracing. Please note that this setting should only be used following a successful multiple impact or to restart a previously failed IOR process.</p> <p>Possible values Y,N, ONLY</p>

Group Header / Parameter	Description
TRACKING=	<p data-bbox="683 674 783 703">Default=N</p> <p data-bbox="683 719 1177 797">Used when Consistency or Multi Search is selected for Analysis. It controls the tracking direction for a variable.</p> <p data-bbox="683 813 1206 898">If set to F (Forward by Value), a variable is tracked in a forward direction, showing all the derivatives being populated from the variable.</p> <p data-bbox="683 913 1206 999">If set to B (Backward by Value), a variable is tracked in a backward direction, showing where the variable and derivatives have been populated.</p> <p data-bbox="683 1014 1206 1099">If set to P (Forward by Usage), a variable is tracked in a forward direction, showing where the variable and derivatives have been used.</p> <p data-bbox="683 1115 1206 1200">If set to R (Backward by Usage), a variable is tracked in a backward direction, showing where the variable and derivatives have been used.</p> <p data-bbox="683 1216 1206 1267">If set to N, both the forward and backward directions will be shown.</p> <p data-bbox="683 1283 938 1312">Possible values N,F,B,P,R</p>
IOR-LIMIT=	<p data-bbox="683 1323 794 1352">Default=20</p> <p data-bbox="683 1368 1150 1397">Used when Consistency is selected for Analysis.</p> <p data-bbox="683 1413 1177 1469">This is the number of Iterations that IOR will track objects across object boundaries.</p>
REDEFMAP=	<p data-bbox="683 1480 783 1509">Default=Y</p> <p data-bbox="683 1525 1086 1554">If set to Y, multiple redefines are tracked.</p> <p data-bbox="683 1570 879 1599">Possible values Y,N</p>

Group Header / Parameter	Description
CONSISTENCY=	<p>Default=N</p> <p>If set to Y, will mark the Consistency selection box with a tick (select) on the Impact Criteria screen. This will cause Analysis to trace code identified for further impact on other code.</p> <p>Possible values Y,N</p> <p><i>Note: For more information on the consistency option refer to Chapter 1 in the Natural Engineer Application Analysis and Modification for Mainframes manual.</i></p>
START=	<p>Used when Consistency is selected for Analysis.</p> <p>Start object name for running concurrent Impact Analysis jobs or to start Impact Analysis after failure.</p>
END=	<p>Used when Consistency is selected for Analysis.</p> <p>End object name for running concurrent impact Analysis jobs. This should be set to blank if running impact Analysis after failure.</p>
MODE=	<p>Default=RE-ENG</p> <p>This is used to control the type of impact Analysis that will be used.</p>
GLOBAL_DATAITEM=	<p>Default=Y</p> <p>Used when consistency is selected for analysis and impacts have been made to Global Data Areas. If set to default, Natural Engineer will track these fields, and derivations of these fields, until all possible impacts have been identified.</p> <p>Possible values Y,N</p>
DDM_DATAITEM=	<p>Default=Y</p> <p>Used when consistency is selected for analysis and impacts have been made to DDMs. If set to default, Natural Engineer will track these fields, and derivations of these fields, until all possible impacts have been identified.</p> <p>Possible values Y,N</p>

Group Header / Parameter	Description
PARAMETER_DATAITEM	Default=Y Used when consistency is selected for analysis and impacts have been made to Parameter Data Areas. If set to default, Natural Engineer will track these fields, and derivations of these fields, until all possible impacts have been identified. Possible values Y,N
LANG=	Default=01 Used for Multi Search. Default multi search criteria may be created and saved in DATA directory as ###DEFnn.ISC, where nn refers to the language code.
VERSION=VV	Used to indicate the Impact Version number applicable.
[MODIFY]	
COM_DA_AUTO=	Default=NEE Mod The comment line for an automatic Data Area change.
COM_DA_MAN=	Default=NEE The comment line for a manual Data Area change.
COM_AUTO=	Default=NEE Modified The comment line for an automatic non Data Area change.
COM_MAN=	Default=NEE Manual The comment line for a manual non Data Area change.
COM_NOT=	Default=NEE not Modified The comment line for no change required.

Group Header / Parameter	Description
COM_ERR=	Default=NEE not Modified (logic error) The comment line for an error in processing.
COM_COMPLEX=	Default=NEE not Modified (complex) The comment line for a Modification that could not be completed.
COMMENT-OLD-LINE=	Default=Y If set to Y, then the old code will be commented out and left in the modified object. If set to N, then the old code is deleted from the modified object.
COM_OLD_CODE=	Default=NEE Old Code There is now the ability for the user to customize the wording of the comment that is placed into the code during modification to indicate old code.
COM_LITERAL_WARN=	Default=: WARNING! CHECK LITERAL VALUE If this is present then a warning will be added to the code if a literal needs to be modified. If this parameter is not already present, then no message is added to the code, otherwise just before the line gets changed, you will get the field name involved with a literal compressed with the text for COM_LITERAL_WARN. Please note that the maximum length for a Modification comment is 32 bytes.
COMPONENT_OBJECT_NAME=	Default=#####*% Used in Object Builder. This is the primary pattern mask used to determine the name of the generated objects. <i>Note: For more information on the pattern mask refer to the chapter on Object Builder in the Natural Engineer Application Restructuring for Mainframes manual.</i>

Group Header / Parameter	Description
COMPONENT_OVERFLOW_NAME=	<p>Default=#####*% Used in Object Builder. This is an overflow pattern mask used when the primary pattern mask has been exhausted. <i>Note: For more information on the pattern mask refer to the chapter on Object Builder in the Natural Engineer Application Restructuring for Mainframes manual.</i></p>
OVERWRITE_EXISTING=	<p>This parameter allows for a setting to be set when Task Scheduler is used to execute modification. This setting will determine what is to happen with existing objects in the modification library. Possible values: YA – yes to all NA – no to all C – cancel</p>
DEF-REM-LEN	<p>Default=0 Used for Multi Search to increase the default length of an impacted field when Modification is executed. For example: Field #A is defined as (N2) and DEF-REM-LEN = 2. After Modification, #A will have its length increased to (N4).</p>
[REPORTER]	<p>DELIMITER-CHAR= Delimiter Character for CSV Files. Default = ,</p>

Group Header / Parameter	Description
[COBOL]	
SOURCE-DIR=	<p>Default= NATENG.COBOL.% APP%.SOURCE</p> <p>The full partition data set name (PDS) for the Cobol source code location.</p> <p><i>Note: The string '%APP%' must always be included within the PDS name.</i></p> <p><i>Note: Multiple PDS names may be defined in the Cobol Application Properties screen.</i></p>
SOURCE-VOL=	<p>Default=VVVVVV</p> <p>The volume serial number of the Cobol source code PDS.</p>
SOURCE-UNIT=	<p>Default=DISK</p> <p>The device name of the Cobol source code PDS.</p>
COPY-DIR=	<p>Default= NATENG.COBOL.% APP%.COPYBOOKS</p> <p>The full partition data set name (PDS) for the Cobol copybook location.</p> <p><i>Note: The string '%APP%' must always be included within the PDS name.</i></p> <p><i>Note: Multiple PDS names may be defined in the Cobol Application Properties screen.</i></p>
REPORT-MISSING-COPYBOOKS=	<p>Default=Y</p> <p>If set to Y, missing copybook details will be reported.</p> <p>If set to N, missing copybook details will not be reported.</p> <p>Possible values Y, N</p>
COPYBOOK-EXTRACT=	<p>Default=F</p> <p>If set to F, full copybook source code and header details will be extracted.</p> <p>If set to H, only copybook header details will be extracted. No copybook source code will be available.</p> <p>If set to N, no copybook source code or header details will be extracted.</p> <p>Possible values F,H,N</p>

Group Header / Parameter	Description
STT=	Default=NEEvrs.SRCE(COBSTT) Location of the Cobol STT source file.
[JCL]	
JCL-SOURCE-DIR=	Default= NATENG.JCL.%APP%.SOURCE The full partition data set name (PDS) for the JCL source code location. <i>Note: The string '%APP%' must always be included within the PDS name.</i> <i>Note: Multiple PDS names may be defined in the JCL Application Properties screen.</i>
JCL-SOURCE-VOL=	Default=VVVVVV The volume serial number of the JCL source code PDS.
JCL-SOURCE-UNIT=	Default=DISK The device name of the JCL source code PDS.
JCL-PROCLIB-DIR=	Default= NATENG.JCL.%APP%.PROCLIB The full partition data set name (PDS) for the JCL proclib member location. <i>Note: The string '%APP%' must always be included within the PDS name.</i> <i>Note: Multiple PDS names may be defined in the JCL Application Properties screen.</i>
REPORT-MISSING-PROCLIBS=	Default=Y If set to Y, missing proclib member details will be reported. If set to N, missing proclib member details will not be reported. Possible values Y, N

Group Header / Parameter	Description
EXTRACT-PROCLIB=	<p>Default=F</p> <p>If set to F, full proclib member source code and header details will be extracted.</p> <p>If set to H, only proclib member header details will be extracted. No proclib member source code will be available.</p> <p>If set to N, no proclib member source code or header details will be extracted.</p> <p>Possible values F,H,N</p>
STT=	<p>Default-NEEvrs.SRCE(JCLSTT)</p> <p>Location of the JCL STT source file.</p>
ANALYSIS-LEVEL-LIMIT=	<p>Default-0 (Unlimited)</p> <p>Allows the user to limit the amount of levels to be checked by the JCL Analysis process.</p> <p>Possible values 0-9</p>
[JCL-BS2000]	
<p><i>Note: The following parameters are used by the Natural Engineer RJE JCL text members only. They can be customized as required to meet the site standards applicable.</i></p>	
NATBAT=	<p>Default=NATEXE</p> <p>The name of the batch Natural program used during batch job submission.</p>
LOGON=	<p>Default=LOGON SYSNEE</p> <p>The name of the Natural Engineer logon library.</p> <p><i>Note: If Natural Security is being utilized then the USER and PASSWORD information can be also be specified here. For example:</i></p> <p><i>LOGON=SYSNEE,USER,PASSWORD</i></p>
[JCL-MVS]	
<p><i>Note: The following parameters are used by the Natural Engineer RJE JCL text members only. They can be customized as required to meet the site standards applicable.</i></p>	
ADADB=	<p>Default=025</p> <p>The Adabas database number.</p>

Group Header / Parameter	Description
ADASVC=	Default=233 The Adabas SVC number.
ADADEVICE=	Default=3390 The Adabas device type.
LOGON=	Default=LOGON SYSNEE The name of the Natural Engineer logon library. <i>Note: If Natural Security is being utilized then the USER and PASSWORD information can be also be specified here. For example:</i> <i>LOGON=SYSNEE,USER,PASSWORD</i>
UNIT=	Default=3390 The device type where the data set resides. If the batch environment utilizes System Managed Storage (SMS), then UNIT=SMS can be specified. <i>Note: If UNIT=SMS is specified then the JCL line containing this information is not included in the submitted JCL stack.</i>
VOL=	Default=DISK01 The volume name where the data set resides.
NATBAT=	Default=NATBAT41 The name of the batch Natural program used during batch job submission.
NATLOAD=	Default=NAT.LOAD The name of the Natural load library.
ADALOAD=	Default=ADA.LOAD The name of the Adabas load library.
PARM=	Any parameter data to be passed to the batch Natural program. For example: PARM='PROFILE=SYSNEE2' <i>Note: If PARM= is left blank, then the JCL line containing this information is not included in the submitted JCL stack.</i>

Group Header / Parameter	Description
EXTRA-STEP1=	<p>Additional load library to be included for the batch Natural program.</p> <p><i>Note: If EXTRA-STEP1= is left blank, then the JCL line containing this information is not included in the submitted JCL stack.</i></p>
EXTRA-STEP2=	<p>Additional load library to be included for the batch Natural program.</p> <p><i>Note: If EXTRA-STEP2= is left blank, then the JCL line containing this information is not included in the submitted JCL stack.</i></p>
HLQ=	<p>Default=NATENG</p> <p>The high level qualifier name used for Natural Engineer data sets.</p>
[JCL-VSE]	
<p><i>Note: The following parameters are used by the Natural Engineer RJE JCL text members only. They can be customized as required to meet the site standards applicable.</i></p>	
ADADB=	<p>Default=002</p> <p>The Adabas database number.</p>
ADASVC=	<p>Default=045</p> <p>The Adabas SVC number.</p>
ADADEVICE=	<p>Default=3390</p> <p>The Adabas device type.</p>
LOGON=	<p>Default=LOGON SYSNEE</p> <p>The name of the Natural Engineer logon library.</p> <p><i>Note: If Natural Security is being utilized then the USER and PASSWORD information can be also be specified here. For example:</i></p> <p><i>LOGON=SYSNEE,USER,PASSWORD</i></p>

[NATURAL]

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Group Header / Parameter	Description
STT=	Default=NEEvrs.SRCE(NATSTT) Location of the Natural STT source file.
REPORT-MISSING-INCLUDES	Default=Y If set to Y, any missing copycode objects will be reported during the Extract process. If set to N, will not report missing copycode objects. Possible values Y,N
REPORT-MISSING-DDMS	Default=Y If set to Y, any missing DDM objects will be reported during the Extract process. If set to N, will not report missing DDM objects. Possible values Y,N
REPORT-INCORRECT-MODE	Default=Y If set to Y, if a reporting mode object is discovered, but contains structured mode syntax, or vice-versa, then it will be reported during the Extract process. If set to N, will not be reported. Possible values Y,N

Environment Sizing

This section describes the environment sizing considerations based on one million lines of source code.

Hard Disk Space

Natural Engineer writes an Extract file (“application name”.OUT) which contains the neutral records for loading into the Natural Engineer Repository.

- For the PC platforms, 1 million lines of code require 120 Meg of hard disk space.
- For the MVS platform, 1 million lines of code requires 130 cylinders of disk space. This file can also be written to tape.

Adabas Database

Space Requirements

The main consideration when estimating space requirements for Natural Engineer depends upon the complexity of the code, for example how many include routines are present (LDAs, GDAs, PDAs, COPYCODEs etc). The more included routines, the larger the Repository size.

An average record size is 135 bytes.

For 1 million lines of code and more, this would equate to the following:

	Natural Studio	MVS Mainframe	
	Adabas 3.3.1 on Windows	3390	3380
ASSO	220 MB	520 cyls	620 cyls
DATA	250 MB	340 cyls	365 cyls
WORK	50 MB		

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Nucleus/ADARUN Parameters

The nucleus/ADARUN parameter settings listed below do not depend on the number of lines of code being processed. However, they reflect the recommended minimum set for any Natural Engineer Repository.

Parameter	Setting	Comment
LBP	20M	
LFP	40,000	
LOGGING		Set to blank.
LP	1,600	
LQ	30,000	
LS	20,000	
LU	16,000	
PLOG	NO	Set to NOPLOG
TNAA	7200	
TNAE	7200	
TNAX	7200	

Transferring Repository

It is possible to combine the processing power of the mainframe with the GUI capabilities of the PC to run Natural Engineer.

One method of achieving this is to duplicate the mainframe Natural Engineer Repository, following the EXTRACT, LOAD and IMPACT stages, to the PC.

Transferring Natural Engineer Repository from Mainframe to PC

The following steps describe the processes involved to achieve a successful transfer:

To transfer the Natural Engineer Repository from the mainframe to the PC environment requires the following steps to be followed:

1. Check the Natural Engineer Repository File layouts
2. Decompress the file on the mainframe
3. Transfer the decompressed file to the PC
4. Create a Repository file on the PC
5. Compress and load the decompressed mainframe file onto the PC.

Each of these steps is described in more detail below.

Check Natural Engineer Repository File Layouts

Prior to beginning the process, the file layouts of the Natural Engineer Repository file on the PC and the Mainframe need to be checked to ensure that they are identical.

To do this run ADAREPs on the mainframe and the PC and perform a visual check. If they are not identical then they need to be brought into line.

Decompress the File on the Mainframe

The first stage in the process is to decompress the Natural Engineer Repository data on the mainframe.

Example ADACMP JCL (MVS) to Decompress File on the Mainframe

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```
000001 //XGSLIDE JOB CLASS=K, NOTIFY=XGS1, MSGCLASS=X, MSGLEVEL=(1, 1)
000002 //*
000003 //JOBLIB DD DSN=RZDBA.DB177.NEWLOAD, DISP=SHR
000004 // DD DSN=RZDBA.DB177.LOAD, DISP=SHR
000005 //*
000006 //DECOMP EXEC PGM=ADARUN,
000007 // REGION=4M,
000008 // COND=(1, LT)
000009 //DDCARD DD *
000010 ADARUN PROG=ADACMP, SVC=249, DEVICE=3390, DB=177
000011 /*
000012 //DDASSOR1 DD DSN=DB177.SYSF.ASSOR1, DISP=SHR
000013 //DDDATAR1 DD DSN=DB177.SYSF.DATAR1, DISP=SHR
000014 //DDWORKR1 DD DSN=DB177.SYSF.WORKR1, DISP=SHR
000015 //DDAUSBA DD DSN=XGS1.DECOMP.F065.DATAV,
000016 // DISP=(, CATLG, DELETE), UNIT=DISK,
000017 // VOL=SER=EUP001,
000018 // SPACE=(CYL, (3, 2), RLSE)
000019 //DDFEHL DD SYSOUT=*
000020 //DDPRINT DD SYSOUT=*
000021 //SYSUDUMP DD SYSOUT=*
000022 //DDDRUCK DD SYSOUT=*
000023 //DDKARTE DD *
000024 ADACMP DECOMPRESS INFILE=65
000025 /*
```

Example of the Decompressed File created

DATA SET NAME : XGSL1.DECOMP.F065.DATAV

```

GENERAL DATA
VOLUME SERIAL   : EUP001
DEVICE TYPE     : 3380
ORGANIZATION    : PS
RECORD FORMAT   : VB
RECORD LENGTH   : 23472
BLOCK SIZE      : 23476
ALLOCATION TYPE  : CYL
1ST EXTENT      : 2          CYL 0   TRK
SECONDARY       : 2
SECURITY        : NONE

CURRENT-ALLOCATION
ALLOCATED CYLINDERS: 2
ALLOCATED EXTENTS : 1

CURRENT UTILIZATION
PERCENT USED: 97

```

Example of the Decompress Job Output

A D A C M P V6.2 SM1 DBID = 00177 STARTED 1999-02-01
14:21

PARAMETERS:

ADACMP DECOMPRESS INFILE=65

DECOMPRESS PROCESSING STATISTICS:

```

-----
NUMBER OF RECORDS READ                911
NUMBER OF INCORRECT RECORDS           0
NUMBER OF DECOMPRESSED RECORDS       911

```

A D A C M P TERMINATED NORMALLY 1999-02-01
14:21

Transfer the Decompress File to the PC

Now transfer the decompress file that you have just created to the PC, in Binary, non-translated format.

FTP is recommended for this transfer.

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Create Repository File on PC

If a Repository file does not currently exist on the PC then one needs to be created using the FDT file supplied in the ADA folder of the Natural Engineer installation.

This would typically be performed by using the DBA Workbench utility.

Compress and Load File on the PC

The next stage is to compress and load the decompressed file onto the Repository file on the PC.

The following steps are a guide to this process.

1. Highlight the file within DBA workbench.

The following Figure 2-1 illustrates the DBA Workbench file list screen with the Repository file selected.

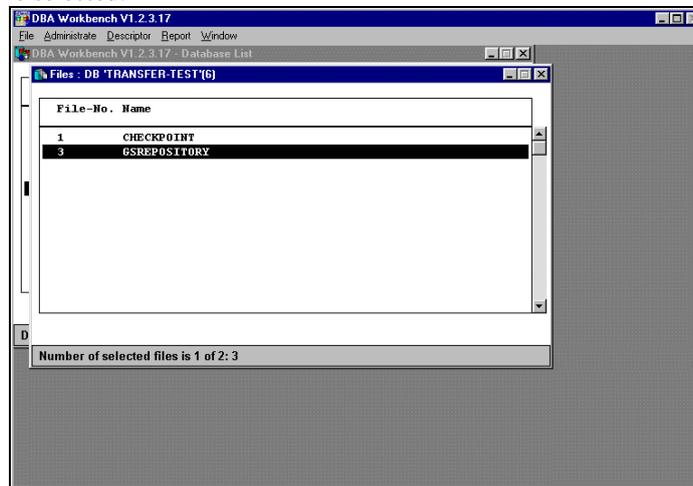


Figure 2-1 DBA Workbench file list screen

2. Select, File, Compress from the main menu:

The following Figure 2-2 illustrates the DBA Workbench file compress option.

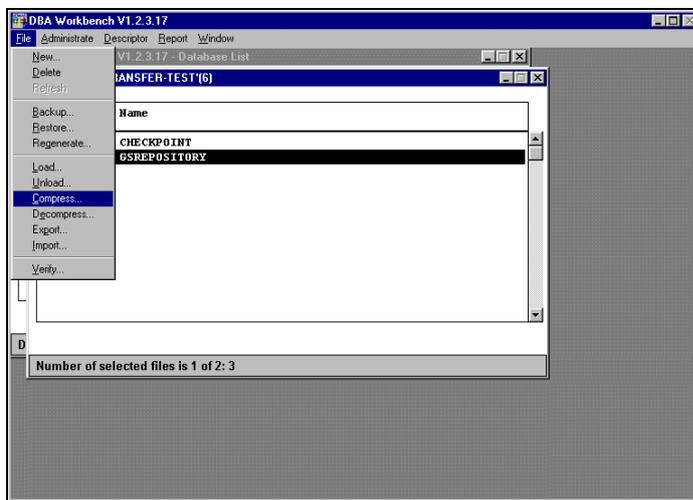


Figure 2-2 DBA Workbench file compress option

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3. The following parameters should be entered:

The Data file is the decompressed file you copied to the PC from the mainframe.

The following Figure 2-3 illustrates the Compress File options screen within DBA Workbench.

The screenshot shows a dialog box titled "Compress" with the following fields and options:

- Input:**
 - Data: C:\DECOMP.F065.DATAV (with Select... button)
 - FDT: (empty field with Select... button)
 - Record Structure: IBM-Host (FTP), VAX (dropdown menu)
 - User ISNs
 - Comma Separator
 - Number of Records to Skip: (empty text box)
 - Max. Number of Records to Process: (empty text box)
- Temporary Data:**
 - (empty text box with Select... button)
- Output:**
 - Data: c:\sag\ada\db006\DTA.006 (with Select... button)
 - DVT: c:\sag\ada\db006\DVT.006 (with Select... button)
 - Compress to Single File
 - Load Compressed Data
- Source Architecture:**
 - EBCDIC (dropdown menu)
 - IBM_370_FLOATING (dropdown menu)
 - High_Order_Byte_First (dropdown menu)

Buttons at the bottom: OK, Cancel, Fields..., Help.

Figure 2-3 Compress File screen

4. The LOAD screen will be shown

The following Figure 2-4 illustrates the Load File options screen within DBA Workbench.

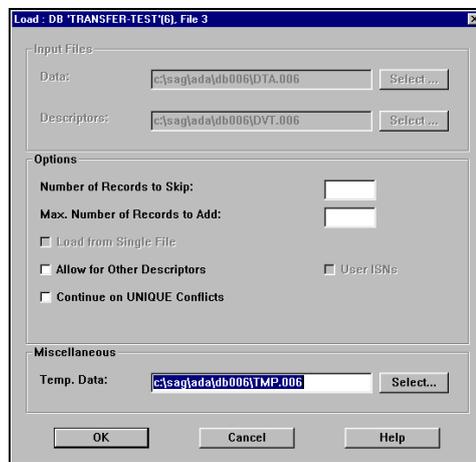


Figure 2-4 Load File screen

Click OK to start the Compress and Load process,

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5. The Compress and Load jobs should produce three output windows. Sample output in each is shown below.

The first window is showing the conversion of EBCDIC to ASCII format:

- Start converting C:\DECOMP.F065.DATAV
- converting 911 records

The second is the output from ADACMP, which is compressing the data:

```
%ADACMP-I-STARTED,      01-FEB-1999 14:14:10, Version 2.2.3.22, (WINDOWS 95)
%ADACMP-I-NACTL, ADABAS nucleus active on local node

Descriptor summary:

Descriptor VM :          80 bytes,          10 occ
Descriptor S2 :       19,005 bytes,        905 occ
Descriptor S3 :       22,625 bytes,        905 occ
Descriptor S5 :          528 bytes,         28 occ
Descriptor S6 :       2,068 bytes,         94 occ
Descriptor S7 :       1,899 bytes,         94 occ
Descriptor S8 :      17,646 bytes,        346 occ
Descriptor SA :         489 bytes,         10 occ
Descriptor SB :       6,240 bytes,        120 occ
Descriptor SC :       9,320 bytes,        253 occ
Descriptor SD :      20,414 bytes,        346 occ
Descriptor SF :       2,565 bytes,         95 occ
Descriptor SI :           0 bytes,          0 occ
Descriptor SJ :         604 bytes,         24 occ
Descriptor SK :      13,582 bytes,        905 occ
Descriptor SL :         410 bytes,         10 occ
Descriptor SM :       1,380 bytes,         60 occ
Descriptor SN :         572 bytes,         32 occ
Descriptor SO :       9,669 bytes,        328 occ
Descriptor SQ :       2,750 bytes,         53 occ
Descriptor SR :       7,045 bytes,        328 occ

%ADACMP-I-CMPINP, Number of records read      :      911
%ADACMP-I-CMPERR, Number of incorrect records :         0
%ADACMP-I-CMPREC, Number of compressed records :      911
%ADACMP-I-CMPLCR, Largest compressed record  :     1476

%ADACMP-I-IOCNT,      6 IOs on dataset CMPDTA
%ADACMP-I-IOCNT,      7 IOs on dataset CMPDVT
%ADACMP-I-IOCNT,      0 IOs on dataset CMPERR
%ADACMP-I-IOCNT,     911 IOs on dataset CMPIN
%ADACMP-I-TERMINATED, 01-FEB-1999 14:14:11, elapsed time: 00:00:01
```

The third is the output from ADAMUP, which is loading the data into the newly created Repository file:

```
%ADAMUP-I-STARTED,      01-FEB-1999 14:14:12, Version 2.2.3.22, (WINDOWS 95)
%ADAMUP-I-DBON, database 6 accessed online

%ADAMUP-W-OPNERR, dataset SORT1 , file C:\sag\ada\db006\SORT1 could not be opened
%ADAMUP-W-ERRNOM, errno (2): No such file or directory
%ADAMUP-W-OPNERR, dataset TEMP1 , file C:\sag\ada\db006\TEMP1 could not be opened
%ADAMUP-W-ERRNOM, errno (2): No such file or directory

%ADAMUP-I-DSUPD, data storage being modified
%ADAMUP-I-DSDONE, data storage completed

%ADAMUP-I-SRTWPSZE, work pool size 1500000 bytes

%ADAMUP-I-SORTDESC, sorting descriptor S3
%ADAMUP-I-LOADDESC, loading descriptor S3

%ADAMUP-I-SORTDESC, sorting descriptor S2
%ADAMUP-I-LOADDESC, loading descriptor S2

%ADAMUP-I-SORTDESC, sorting descriptor SD
%ADAMUP-I-LOADDESC, loading descriptor SD

%ADAMUP-I-SORTDESC, sorting descriptor SK
%ADAMUP-I-LOADDESC, loading descriptor SK

%ADAMUP-I-SORTDESC, sorting descriptor S8
%ADAMUP-I-LOADDESC, loading descriptor S8

%ADAMUP-I-SORTDESC, sorting descriptor SO
%ADAMUP-I-LOADDESC, loading descriptor SO

%ADAMUP-I-SORTDESC, sorting descriptor SC
%ADAMUP-I-LOADDESC, loading descriptor SC

%ADAMUP-I-SORTDESC, sorting descriptor SR
%ADAMUP-I-LOADDESC, loading descriptor SR

%ADAMUP-I-SORTDESC, sorting descriptor SB
%ADAMUP-I-LOADDESC, loading descriptor SB

%ADAMUP-I-SORTDESC, sorting descriptor SF
%ADAMUP-I-LOADDESC, loading descriptor SF

%ADAMUP-I-SORTDESC, sorting descriptor SQ
%ADAMUP-I-LOADDESC, loading descriptor SQ

%ADAMUP-I-SORTDESC, sorting descriptor S6
%ADAMUP-I-LOADDESC, loading descriptor S6

%ADAMUP-I-SORTDESC, sorting descriptor S7
%ADAMUP-I-LOADDESC, loading descriptor S7

%ADAMUP-I-SORTDESC, sorting descriptor SM
%ADAMUP-I-LOADDESC, loading descriptor SM
```

```

%ADAMUP-I-SORTDESC, sorting descriptor SN
%ADAMUP-I-LOADDESC, loading descriptor SN

%ADAMUP-I-SORTDESC, sorting descriptor SJ
%ADAMUP-I-LOADDESC, loading descriptor SJ

%ADAMUP-I-SORTDESC, sorting descriptor S5
%ADAMUP-I-LOADDESC, loading descriptor S5

%ADAMUP-I-SORTDESC, sorting descriptor SA
%ADAMUP-I-LOADDESC, loading descriptor SA

%ADAMUP-I-SORTDESC, sorting descriptor SL
%ADAMUP-I-LOADDESC, loading descriptor SL

%ADAMUP-I-SORTDESC, sorting descriptor VM
%ADAMUP-I-LOADDESC, loading descriptor VM

%ADAMUP-I-NULLDISC, no values for descriptor SI

%ADAMUP-I-DVTPASSES, DVT records processed 21 times

%ADAMUP-I-ADDREC, file 3, 911 records added

%ADAMUP-I-IOCNT,      33 IOs on dataset DATA
%ADAMUP-I-IOCNT,      73 IOs on dataset ASSO
%ADAMUP-I-IOCNT,      32 IOs on dataset MUPDTA
%ADAMUP-I-IOCNT,      651 IOs on dataset MUPDVT
%ADAMUP-I-IOCNT,       0 IOs on dataset MUPTMP
%ADAMUP-I-TERMINATED, 01-FEB-1999 14:14:14, elapsed time: 00:00:02

```

Common Load Problems

NAT3048 received during Load

This has two possible causes. The first is that someone is logged on using the file. The solution here is to log them off during the Load process.

It is also received if a previous attempt to Load the file failed. To clear this, highlight the database and from the main menu, select DATABASE, OPERATE, RESET UCB as shown below:

The following Figure 2-5 illustrates the option Reset UCB within DBA Workbench.

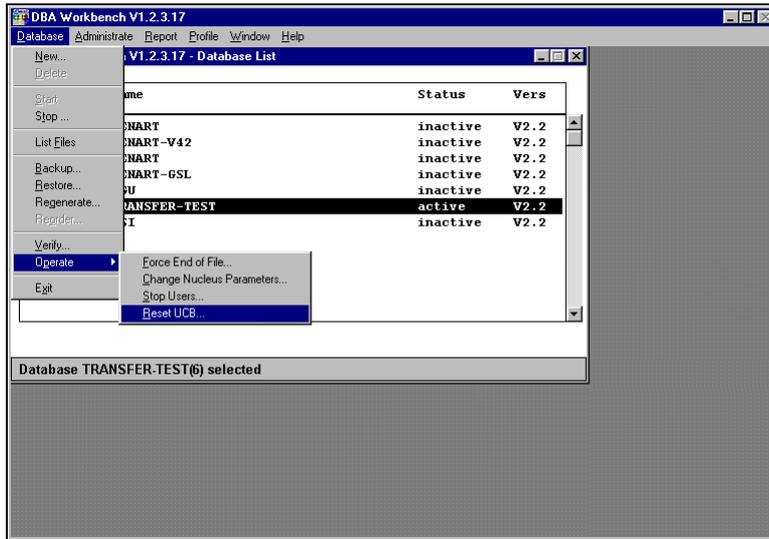


Figure 2-5 Reset UCB option

This will then present a list of items that require resetting. Select the appropriate entry to reset.

Supplied Impact Search Criteria

Natural Engineer comes supplied with several Impact Search Criteria sets, which are loaded into the Repository as part of the Natural Engineer installation process.

The installed Impact Search Criteria sets are:

1. ###DEF01
2. CODEINT

###DEF01

This is the default search criteria used during the specification of impact search criteria when the search keyword MULTI SEARCH has been selected.

The contents of this file are:

```
* Multi Search Options
* A Absolute Exclude
* I Include
* X Exclude
* IL Include Literal
* XL Exclude Literal
* * Comment
* IA Include Attribute
* XA Exclude Attribute
```

This may be customized by the User.

CODEINT

The CODEINT set contains the impact search criteria set for the search keyword INTERNATIONALIZATION.

This file can be used by using 'PF4' (GetSa) option on the Impact Criteria Summary screen.

Note: For more information on this search keyword refer to the Natural Engineer Application Analysis & Modification for Mainframes manual.

Limits

Due to constraints on different platforms, Natural Engineer has to have certain limits.

It is possible to customize these limits to suit the environment being used, for the following options:

Extract

Option	Default Value	User Modifiable	How to modify
Amount of DDMs per Object.	75	NO	
Amount of Views per Object.	100	NO	
Amount of Fields per View.	1000	NO	
Maximum number of parsed elements per Object.	10000	YES	The ELETAB= parameter in section [EXTRACT] of the ###CINI text member.
Maximum number of variable definitions per object.	1000	YES	The VARTAB= parameter in section [EXTRACT] of the ###CINI text member.
Maximum number of unique objects in the base library.	20000	YES	The OBJTAB= parameter in section [EXTRACT] of the ###CINI text member.
Maximum number of unique referenced objects in the base library.	10000	YES	The REFTAB= parameter in section [EXTRACT] of the ###CINI text member.
Maximum number of unique DDM objects per application.	500	YES	The GBLDDM-TAB= parameter in section [EXTRACT] of the ###CINI text member.
Amount of objects to retrieve from steplibs.	1000	YES	The STEPTAB= parameter in section [EXTRACT] of the ###CINI text member.

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Option	Default Value	User Modifiable	How to modify
Maximum number of DDM definitions in memory.	0	YES	The DDMCACHE= parameter in section [EXTRACT] of the ###CINI text member.
Amount of PERFORM statements per object.	300	YES	The PERF-TAB= parameter in section [EXTRACT] of the ###CINI text member.
Amount of DEFINE subroutines held per object.	130	YES	The PERF-DTAB= parameter in section [EXTRACT] of the ###CINI text member.

Impact

Option	Default Value	User Modifiable	How to modify
Amount of Impact Versions per Application.	99	NO	
Maximum number of iterations that IOR will track objects across Object boundaries when consistency used for Analysis.	20	YES	The IOR-LIMIT= parameter in section [IMPACT] of the ###CINI text member.

General

Option	Default Value	User Modifiable	How to modify
Length of Directory path name when importing external files e.g. Impact Search Criteria (*.IRE).	64	NO	
Amount of Entry Points allowed to be specified.	29	NO	

Option	Default Value	User Modifiable	How to modify
Maximum amount of Objects loaded into a list box for selection at one time.	200	YES	The LISTBOXMAX= parameter in section [LIMITS] of the ###CINI text member.

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