

Natural Engineer

Administration Guide for Windows

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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 → Administration menu within Natural Engineer. These include:

- The Initialization settings within the INI file which are used to control the various processes within Natural Engineer.
- The default Text Logic Members (TLM) used during the modification process.
- The default Global Properties.
- The specification and maintenance of User Profiles.

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:

- Adding a Natural Engineer icon to the Natural Studio toolbar.
- Environment sizing options.
- Transferring a Natural Engineer Repository from the mainframe environment to the PC environment.
- Supplied Data files.

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 and can be found from the Options → Administration menu.
2	Describes how to add a shortcut icon to the Natural Studio toolbar to invoke Natural Engineer from within Natural Studio.
3	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.

Database Access Definition

A collective term used to identify DDMs, SQL Tables or Predict User Views.

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 following menu navigation: Options → Administration from the main Natural Engineer screen.

There are three 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. [Initialization Settings](#)

Natural Engineer makes use of an initialization file NATENG.INI to control many of its various functions, from reports and graphics to the comments used during the modification process.

3. [Global Properties](#)

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

4. [User Profiles](#)

User Profiles allow for the definition of which particular functions, presentation defaults and applications a user may access within Natural Engineer. User Profiles are optional and controlled by the User Profiles setting within Global Properties.

Default Text Logic Members

Site wide Text Logic Members (TLMs) may be specified using the Default Text Logic Members option from the Options → Administration 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 Windows 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
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 Window

All the specifications for the Default TLMs are defined using the Default Text Logic Member screen. This is accessed by using the following menu navigation: Options → Administration → Default Text Logic Members from the main Natural Engineer screen.

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

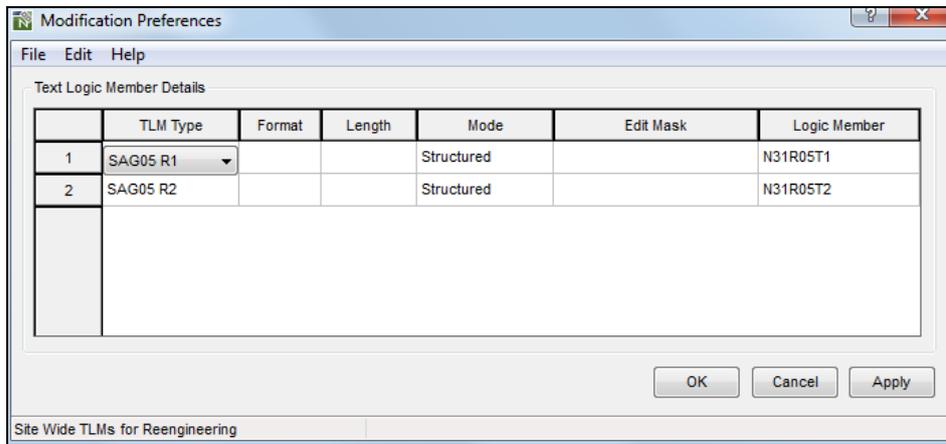


Figure 1-1 Default Text Logic Member screen

MENU ITEMS	OPTIONS	DESCRIPTION
File	Exit	Exit the Default Text Logic Member screen and return back to the main Natural Engineer screen.
Edit	Insert Row	Add a new row into the Text Logic Member Details list box.
	Delete Row	Delete an existing row from the Text Logic Member Details list box.
Help		Invoke the Default Text Logic Member help.

SCREEN ITEMS	DESCRIPTION
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.

SCREEN ITEMS	DESCRIPTION
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. <p>01 #EXTRA-PDA</p> <p>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:</p> <p>01 #EXTRA-PDA 02 #RESPONSE (A1)</p>
SAG05 R1	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: <pre>1020 REPEAT 1030 IGNORE 1040 END-REPEAT</pre> <p><i>Note: Used in Nat 2.2 to Nat 3.1 conversion.</i></p>

SCREEN ITEMS	DESCRIPTION
--------------	-------------

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.

BUTTON NAME	DESCRIPTION
-------------	-------------

OK	Save the Default Text Logic Member settings and close the current screen.
Cancel	Cancel the Default Text Logic Member process and return back to the main Natural Engineer screen.
Apply	Save the Default Text Logic Member settings and retain the current screen.

Note: This button is only enabled if any changes have been made.

STATUS BAR ITEM	DESCRIPTION
------------------------	--------------------

The Default Text Logic Member status bar is divided into 2 individual panes.

Pane 1	The name of TLM details being displayed.
---------------	--

Pane 2	Any Default Text Logic Member processing messages.
---------------	--

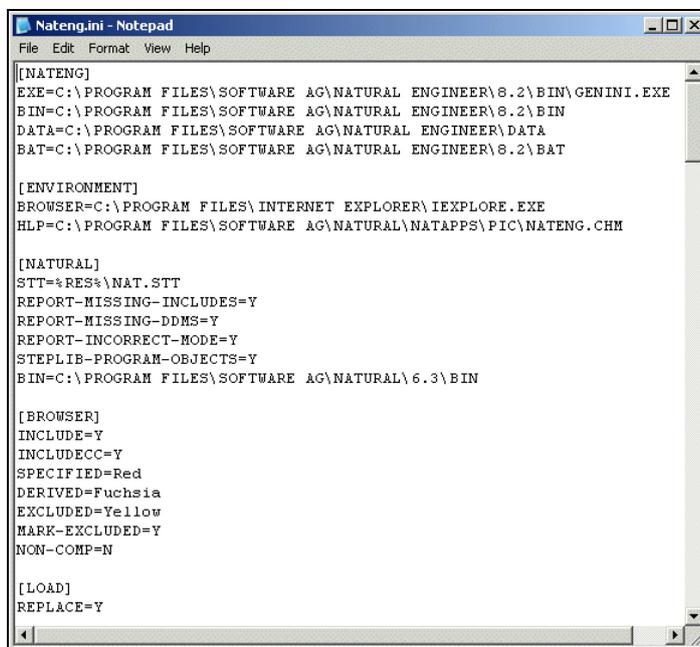
Initialization Settings

The various configuration options for Natural Engineer are held as initialization parameters contained in a PC file called NATENG.INI. This PC file resides in the directory that corresponds to Work File 1 in the NEEPARM parameter. The format within the NATENG.INI file consists of labels used to group the various parameters to the applicable function area within Natural Engineer.

The NATENG.INI file can be accessed in one of two ways:

2. Directly, by locating the NATENG.INI file in the relevant directory and opening it using a Text editor such as NOTEPAD.

The following Figure 1-2 illustrates the NATENG.INI file viewed using NOTEPAD.



```
[NATENG]
EXE=C:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\8.2\BIN\GENINI.EXE
BIN=C:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\8.2\BIN
DATA=C:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\DATA
BAT=C:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\8.2\BAT

[ENVIRONMENT]
BROWSER=C:\PROGRAM FILES\INTERNET EXPLORER\IEXPLORE.EXE
HLP=C:\PROGRAM FILES\SOFTWARE AG\NATURAL\NATAPPS\PIC\NATENG.CHM

[NATURAL]
STT=%RES%\NAT.STT
REPORT-MISSING-INCLUDES=Y
REPORT-MISSING-DDMS=Y
REPORT-INCORRECT-MODE=Y
STEPLIB-PROGRAM-OBJECTS=Y
BIN=C:\PROGRAM FILES\SOFTWARE AG\NATURAL\6.3\BIN

[BROWSER]
INCLUDE=Y
INCLUDECC=Y
SPECIFIED=Red
DERIVED=Fuchsia
EXCLUDED=Yellow
MARK-EXCLUDED=Y
NON-COMP=N

[LOAD]
REPLACE=Y
```

Figure 1-2 NATENG.INI file viewed using NOTEPAD

Entries can be added, removed or updated using the standard editing functions within NOTEPAD.

Note: Any updates must be saved in order that they are made available to Natural Engineer.

By using the Initialization Settings option from the Options menu. This opens the Initialization Settings window, which uses tab headings to group the parameters by function area. This is described in detail below.

Note: This is the preferred method.

The PC file containing the initialization settings supplied with Natural Engineer is named NATENG.INI. This name can be modified to alternate names, but the file extension '.INI' must always be retained. This allows you have multiple versions of this file, each tailored to specific settings for Natural Engineer. These alternate files must be held in the default directory for Windows. Additionally, these alternate files will need to be specified in the work file number 1 of the appropriate NATPARM being used to run Natural Engineer.

Initialization Settings Window

The Initialization Settings screen is used to manage all the initialization parameters within the NATENG.INI file. Each label found in the NATENG.INI file is represented by a tab label.

The details shown is exactly the same as the details found when viewing the NATENG.INI file using a text editor, this makes the process of modifying the initialization settings more straightforward.

The Initialization Settings option is accessed by using the following menu navigation: Options → Administration → Initialization Settings from the main Natural Engineer screen.

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The following Figure 1-3 illustrates the Initialization Settings screen.

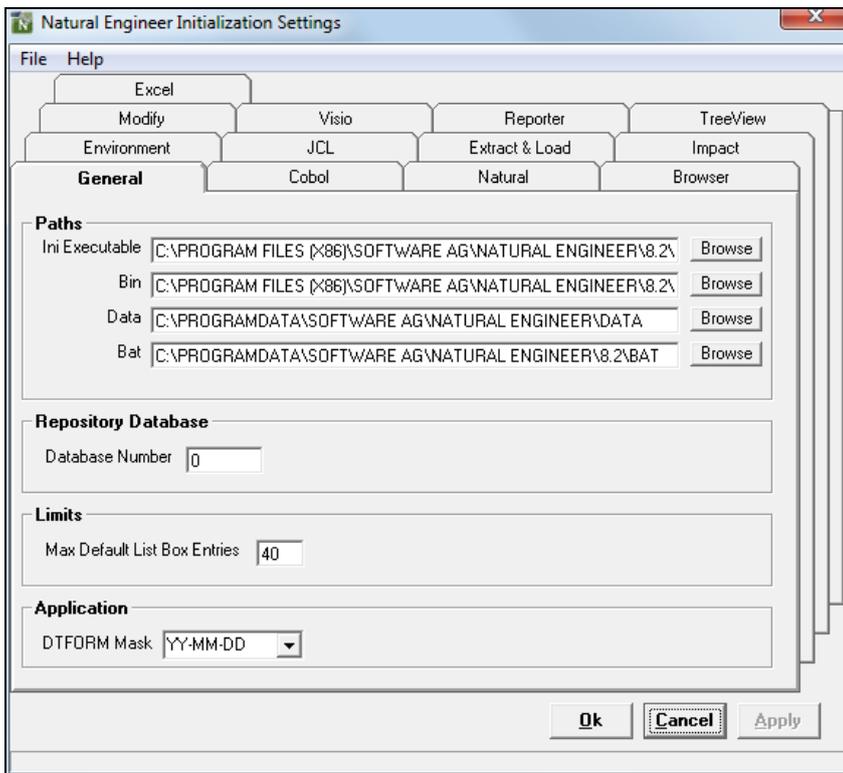


Figure 1-3 Initialization Settings screen

MENU ITEMS	OPTIONS	DESCRIPTION
File	Save	Save the Initialization settings to the NATENG.INI file.
	Exit	Exit the Initialization Settings screen and return back to the main Natural Engineer screen.
Help	About	Display the version information.

SCREEN ITEMS DESCRIPTION

Note: Only each of the tab headings is explained here. For explanations of the various parameters within each tab refer to the [NATENG.INI parameters](#) section in this manual.

General	Groups all the parameters associated with general Natural Engineer usage. Contains parameters relating to NATENG, APPLICATION, LIMITS and REPDB Groups.
Environment	Groups all the parameters associated with general Natural Engineer usage.
Browser	Groups all the parameters associated with the Browser display functions.
Extract & Load	Groups all the parameters associated with the Extract & Load functions.
Impact	Groups all the parameters associated with the Impact functions.
Modify	Groups all the parameters associated with the modification functions.
Visio	Groups all the parameters associated with the use of Microsoft Visio 2000.
Reporter	Groups all the parameters associated with the various textual reports available.
TreeView	Groups all the parameters associated with using GenTree for graphical reporting.
Excel	Groups all the parameters associated with using Spreadsheets.
Natural	Groups all the parameters associated with using Natural objects.
JCL	Groups all the parameters associated with using JCL objects.
Cobol	Groups all the parameters associated with using Cobol objects.

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BUTTON NAME	DESCRIPTION
Ok	Save the Initialization settings to the NATENG.INI file and close the current screen.
Cancel	Cancel the Initialization Settings process and return back to the main Natural Engineer screen.
Apply	Save changes and retain the current screen. <i>Note: This button is only enabled if any changes have been made.</i>

NATENG.INI Parameters

The following table lists the entire NATENG.INI 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 equals sign.

Group Header / Parameter	Description
[NATENG]	
EXE=	The full directory name where the GENINI.EXE binary for the Initialization Settings dialog is installed.
BIN=	The full directory name for the BIN directory of Natural Engineer.
DATA=	The full directory name for the DATA directory of Natural Engineer. This will typically contain the user's output files.
BAT=	The full directory name where the Natural Engineer Batch files are located. These are used for processes such as the Task Scheduler, PDF Report generation and when running Natural Engineer in a Windows Server environment.
XSL=	The full directory name where the Natural Engineer XSL style sheets and files are located. These are used for generating Natural Engineer reports to Word and PDF.
[ENVIRONMENT]	
BROWSER=	The full directory name of where your preferred Browser resides.
HLP=	The full directory name where the NATENG.CHM Natural Engineer Help file is located.

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Group Header / Parameter	Description
NETWORK=	<p>Default=N</p> <p>Used to control the Adabas calls to the Repository when running Natural Engineer in a SPoD environment.</p> <p>If set to N, the Adabas calls to the Repository are issued on the remote environment.</p> <p>If set to Y, the Adabas calls to the Repository are issued on the local environment</p> <p>Possible values Y,N</p>
EXIT-TERMINATE=	<p>Default=Y</p> <p>Used to control the exit path from the main Natural Engineer screen (using the File→Exit or the title bar Exit icon).</p> <p>If set to Y, will close down Natural Engineer and the Natural session.</p> <p>If set to N, will close down Natural Engineer only. The Natural session will still be available.</p> <p>Possible values Y,N</p>
NEETV_RECORD_DELIM=	<p>Used to cater for character diffs between windows locale. Used to replace ¬ (Logical not) on some systems e.g. Chinese (Hong Kong).</p> <p>This should only be set if the user is having problems displaying details on the nodes within Natural Engineer.</p> <p>Possible values cannot be a valid character that may be used in a Natural application name or field name, vertical bar or a tilde.</p> <p>For Chinese(Hong Kong), for example, this should be set to a semi-colon.</p>

Group Header / Parameter	Description
NEETV-SUPPRESS=	<p>Default=N</p> <p>Applications restricted by security (NEEUEX6 or Natural Security) are by default marked with a red cross on the treeview main screen if access is restricted.</p> <p>Applications restricted by security may be made invisible to the user by setting this option to Y.</p> <p>If set to N, Mark with red cross.</p> <p>If set to Y, Suppress Application.</p> <p>Possible values Y,N.</p>
VIEWER-FIELDS-ALL-OR-USED =	<p>Default=A</p> <p>Used by Object Viewer and Field Viewer dialogs to determine whether to show all fields or used fields only as a default.</p> <p>If set to A, All fields will be shown as a default.</p> <p>If set to U, only fields used within programming statements will be shown as a default.</p> <p>Possible values A,U</p>
[REPDB]	<p>DBID=</p> <p>Default=0</p> <p>Where a value of 0 is given to the DBID, no database will start up when Natural Engineer starts, nor shutdown when you close Natural Engineer. Other values will cause the database with that number to start up and shut down automatically, with Natural Engineer.</p>
[APPLICATION]	<p>DTFORM-MASK=</p> <p>Default=YY-MM-DD</p> <p>This allows users to specify their own site standard DTFORM mask.</p>

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[LOAD]

REPLACE=

Default=Y

If set to Y, will force the Load process to reload from the start.

If set to N, the Load process will check the time stamps of each object, and if the same, will not load that object.

Possible values Y,N

METRICS=

Default=Y

If set to Y, the metrics data will be generated during the Load process.

If set to N, the metrics data will not be generated during the Load process.

Possible values Y,N

VALIDATE=

Default=N

If set to Y, the Validate Objects option will be run following a successful Load process.

Possible values Y,N

ASYNC=

Default=N

If set to Y, the Load process executes in asynchronous mode, allowing real time access to objects already loaded for an application, even though the Load process is still executing.

If set to N, the Load process executes in non-asynchronous mode.

Possible values Y,N

[BROWSER]

INCLUDE=

Default=Y

This allows you to specify if you want to expand any included external data areas within the object for viewing in the Browser.

Possible values Y,N

INCLUDECC=	Default=Y This allows you to specify if you want to expand any included copycode within the object for viewing in the Browser. Possible values Y,N
INCLUDECCSUBVARS=	Default=N This allows you to specify if you want to display the value of any substitution variables within the copycode source itself when viewing in the Browser or Gensource window. Possible values Y,N
SPECIFIED=	Default=RED Color associated with directly matched data items. Valid colors are: AQUA, BLACK, BLUE, LIME, NAVY, PURPLE, SILVER, WHITE, FUCHSIA, GRAY, GREEN, MAROON, OLIVE, RED, TEAL, YELLOW.
DERIVED=	Default=FUCHSIA Color associated with data items that have been impacted by specified data items. Valid colors are: AQUA, BLACK, BLUE, LIME, NAVY, PURPLE, SILVER, WHITE, FUCHSIA, GRAY, GREEN, MAROON, OLIVE, RED, TEAL, YELLOW.
EXCLUDED=	Default=YELLOW Color associated with data items that have been excluded. Valid colors are: AQUA, BLACK, BLUE, LIME, NAVY, PURPLE, SILVER, WHITE, FUCHSIA, GRAY, GREEN, MAROON, OLIVE, RED, TEAL, YELLOW.
MARK-EXCLUDED=	Default=Y When viewing impacted code, excluded data items are highlighted and strikethrough. If set to N, excluded data items are not marked in the Browser. Possible values Y,N

[LIMITS]**LISTBOXMAX=**

Default=200

This is used to control how many objects are loaded into the list-boxes for selection before you have to read more from the Repository.

Possible values 10-200.

[EXTRACT]**ELETAB=**

Default=10000

Maximum number of parsed elements per object.

STEPTAB=

Default=1000

Maximum number of objects to retrieve from steplib.

VARTAB=

Default=1000

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.

PERF-DTAB=

Default=130

Amount of DEFINE subroutine statements held in internal table per object.

ADABAS-SHORT-NAMES=

Default=N

This ensures that Natural Engineer will identify the 2 byte mnemonics and tie them up with the DDM.

Note that this setting must only be used when the code does contain Adabas Short Names.

Possible values Y,N

CEE=Y

Default=Y

If set to Y, will use the new Extract engine.

If set to N, will use the old Extract engine.

Possible values Y,N

[IMPACT]**IOR=**

Default=Y

Used when Consistency is selected for Analysis.

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.

Possible values Y,N, ONLY

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TRACKING=

Default=N

Used when Consistency or Multi Search is selected for Analysis. It controls the tracking direction for a variable.

If set to F (Forward by Value), a variable is tracked in a forward direction, showing all the derivatives being populated from the variable.

If set to B (Backward by Value), a variable is tracked in a backward direction, showing where the variable and derivatives have been populated.

If set to P (Forward by Usage), a variable is tracked in a forward direction, showing where the variable and derivatives have been used.

If set to R (Backward by Usage), a variable is tracked in a backward direction, showing where the variable and derivatives have been used.

If set to N, both the forward and backward directions will be shown.

Possible values N,F,B,P,R

IOR-LIMIT=

Default=20

Used when Consistency is selected for Analysis.

This is the number of Iterations that IOR will track objects across object boundaries.

REDEFMAP=

Default=Y

If set to Y, multiple redefines are tracked.

Possible values Y,N

CONSISTENCY=

Default=N

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.

Possible values Y,N

Note: For more information on the consistency option refer to Chapter 1 in the Natural Engineer Application Analysis and Modification for Windows manual.

START=	Used when Consistency is selected for Analysis. Start object name for running concurrent Impact Analysis jobs or to start Impact Analysis after failure.
END=	Used when Consistency is selected for Analysis. End object name for running concurrent impact Analysis jobs. This should be set to blank if running impact Analysis after failure.
MODE=	Default=Re-eng This is used to control the type of impact Analysis that will be used.
IMP-EXCLUDE-X=	Default=Y If set to N will not show excluded fields on the dialog. Default setting shows all excluded fields. Possible values Y,N
VIEW-CODE=	Default=Y If set to default will show the source code. Default setting is to show the Natural Engineer interpretation. Possible values Y,N
GLOBAL_DATAITEM=	Default=Y 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. Possible values Y,N
DDM_DATAITEM=	Default=Y 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. Possible values Y,N

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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
IMPACT_DEBUG=	Default=N Only to be used when requested by Support personnel.
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.
[MODIFY]	
EDITOR=	Default=B The editor used to show the code to be modified.
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.
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.
MODIFY-ALL-START=	Default=N This will prompt the user, on the PC, for a starting point. If none is provided then Modification will Modify all objects. Possible values Y,N
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 Windows manual.</i>

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COMPONENT_OVERFLOW_NAME=	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 Windows manual.</i>
OVERWRITE_EXISTING=	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
WEB-SUBR=	Default=N Determines whether subroutine or subprogram objects are to be generated for application Help sub-systems. If set to Y, then subroutine objects are generated. This is required if the Help sub-system references GDA data. If set to N, then subprogram objects are generated. <i>Note: This parameter is only used by the Natural Engineer add-on component WebStar.</i>
DEF-REM-LEN	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).

[EXCEL]**EXE=**

The full directory name where your chosen spreadsheet e.g., Microsoft Excel or OpenOffice Calc is installed. For example for Microsoft Excel this may be:

C:\PROGRAM FILES\MICROSOFT OFFICE\OFFICE\EXCEL.EXE.

XLS=

The full directory name where the Natural Engineer NATENG.XLS EXCEL macro is installed.

Note: If you are using Microsoft Office 2007 or above, then you must use the macro NATENG.XLSM.

Note: Macros are only applicable if Microsoft Excel is the spreadsheet.

RCF=

The full directory name where the NATENG.RCF file that links Natural Engineer and the spreadsheet is installed.

This file is generated internally by Natural Engineer and should match work file 15 of the Natural Engineer NATPARM module.

MACRO=

Excel macro will be initiated only when set to Y. If set to any other value, raw Excel will open

If a MACRO setting is not found, the macro will always be used.

Note: Macros are only applicable if Microsoft Excel is the spreadsheet.

[VISIO]**EXE=**

The full directory name where the GENFLOW.EXE executable file that is used in the VISIO interface is located.

DAT=

The full directory name where the NATVISIO.TXT data file that is used in the VISIO interface is located.

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VSD=	The full directory name where the VISIO stencils and templates are located.
TEXT-LENGTH=	Default=15 Controls the number of text characters that will appear within each Program Flow Logic Diagram box. Possible values 15-80.
ENT-NBR-LEVELS-VISIO=	Default=3 Limits the amount of levels displayed if the Entry Point Structure Diagram is displayed in Visio or EXCEL.
[REPORTER]	All reports default to H for output, unless specified. Possible values are: N Displays to a Natural screen. X Displays using a Spreadsheet. NOTE Displays in the Microsoft Notepad editor. PAD B Displays to the Browser. Applies to IMRSRC, IMPSRC, RMRSRC. M WordMI output.. H Output to HTML format (default) P Output to PDF. Note: This relies on an external third party PDF generator. Entry Point Structure Diagram (ENTPNT) may be V,G or X V Output to Visio. G Output to Treeview (default). X Output to Spreadsheet.
PDF=	Default=N Determines whether reports may be generated into PDF format. Possible Values N,Y. <i>Note: This is dependent on a Formatting Objects Processor e.g., Apache FOP 1.1 and the Microsoft Command Line Transformation Utility (MSXSL.EXE) being installed. Further details can be found in the Generating Reports to PDF section.</i>

DEFAULT-OUTPUT=	Default=H This option can be used to set a global default destination for all textual reports. This alleviates the need to set the individual report-id parameters. Natural Engineer will still look to see if a Report id has been specifically set, if it does not find one, then this parameter will be used. <i>Note: Individual reports can still be specified to act as overrides to this default setting.</i>
GENERR=	Extract Source Code Log.
GBLDDM=	Global DDM View.
GBLDAO=	Impacted DDMs accessed by Objects.
GBLDDI=	Global DDM report for impacted DDMs.
GBLDIA=	Detailed Impacted DDMs accessed by Object.
GBLOBJ=	Cross Application used Objects.
REPSCC=	Source Code Summary.
REPOIS=	Object Summary.
REPCAL=	Objects Referencing Objects.
REPCA2=	Objects Referenced by Objects.
REPDAO=	DDMs Accessed by Objects.
REPDDM=	DDMs Referenced.
REPDDR=	Database Data Requirements.
REPDII=	Data Item Inventory.
REPVO=	DDMs Referenced by Objects.
REPEEX=	Extract Source Code Summary.
REPCAX=	Missing Objects.
REPKWD=	Keywords Summary.
REPCMO=	Construct Models Referenced by Objects.
REPCUN=	Unused Objects.
REPDOC=	Object Overview.
REPEXX=	External Objects Referenced by Objects.
REPFLD=	Data Item Usage Inventory.

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REPODF=	Objects Referenced by DDM Fields.
REPOQD=	Object Quality.
REPORD=	Object Reliability.
REPOMR=	Object Maintenance.
REPOSP=	Object Specifications.
REPOQS=	Object Quality Summary.
REPOR=	Object Reliability Summary.
REPSTP=	Steplib Object Reference.
REPSRC=	View Source Code.
	<i>Note: Display defaults to B for the Browser.</i>
IMPSCL=	Search Criteria.
IMPAIS=	Application Impact Summary.
IMPALL=	All Impacts.
IMPREP=	Impacts by Impact & Object Type.
IMPEXX=	Impacted External Objects.
IMPOIS=	Object Impact Summary.
IMPPCO=	Impacted Predict Case Components.
IMPDII=	Data Item Impact Inventory.
IMPCMO=	Impacted Construct Models.
IMPFLD=	Data Item Impact Usage Inventory.
IMPEXN=	Impacted Natural Called Objects.
IMPEXW=	Impacted External Interfaces.
IMPSDI=	Data Item Impact Steplib Inventory.
IMRSRC=	View Impacted Source Code.
	<i>Note: Display defaults to B for the Browser.</i>
REMPRD=	Predict Changes.
REMAIS=	Application Modification Summary.
REMOIS=	Object Modification Summary.
REMCAL=	Change Audit Log.
REMCOPY=	Impacted Objects Not Directly Modified.

REMDDR=	Database Data Requirements Modification.
REMDIM=	Data Item Inventory for Manual Modification.
REMDII=	Data Item Inventory Modification.
REMDIA=	Data Item Inventory for Automatic Modification.
REMCTS=	Category/Type Summary.
ENTPNT=	Entry Point Structure Diagram.
DELIMITER-CHAR=	Delimiter Character for CSV Files. Default = ,
[TREEVIEW]	
PATH=	Set to the location of your TREE directory.
GENTREE=	Show diagram structure of information.
EXE=	The full directory name where the GENTREE.EXE executable file that is used in the TREEVIEW interface is located.
FILE=	The full directory name where the NATVISIO.TXT data file that is used in the TREEVIEW interface is located.
EXPAND=	Default=Y Allows you to determine if the GENTREE structure will be automatically expanded on the screen.
INDENT=	Default=500 Left indent.
HEIGHT=	The Height of the Window. Internal Use Only.
WIDTH=	The Width of the Window. Internal Use Only.
TOP=	The Top Co-ordinate of the Window. Internal Use Only.
LEFT=	The Left Co-ordinate of the Window. Internal Use Only.
SEPARATE_LINE_NO=	Default=N Allows you to determine if Code viewed via GENTREE will be automatically separated from the line numbers on the screen.

COLOUR_SYNTAX=	Default=N Allows you to determine if Code viewed via GENTREE will be automatically colored on the screen.
SOFTLINK-DETS=	Default=Y Will show detailed softlink information in GENTREE if present including the softlink name. If set to N concise information only will be shown.
DDM-OBJECT-LIMIT=	Default=0 Will limit the number of objects shown for a DDM on the GENTREE diagram to the value shown. If the setting does not exist or is zero, the data retrieval will not be limited. This setting is applicable to the DDM Usage and DDM Field Usage Diagrams on GENTREE.
[COBOL]	
SOURCE-DIR=	Default= C:\NEE\COBOL\%APP%\SOURCE The full directory path name for the Cobol source code location. <i>Note: The string '%APP%' must always be included within the path name.</i>
COPY-DIR=	Default= C:\NEE\COBOL\%APP%\COPYBOOKS The full directory path name for the Cobol copybook location. <i>Note: The string '%APP%' must always be included within the path name.</i>
MAP-DIR=	Default= C:\NEE\COBOL\%APP%\MAPS The full directory path name for the Cobol Maps location. <i>Note: The string '%APP%' must always be included within the path name.</i>

TEMP-DIR=	Default= C:\NEE \TEMP The full directory path name for a temporary work directory location.
REPORT-MISSING-COPYBOOKS=	Default=Y If set to Y, missing copybook details will be reported. If set to N, missing copybook details will not be reported. Possible values Y, N
COPYBOOK-EXTRACT=	Default=F If set to F, full copybook source code and header details will be extracted. If set to H, only copybook header details will be extracted. No copybook source code will be available. If set to N, no copybook source code or header details will be extracted. Possible values F,H,N
STT=	Default=%RES%\COBIBM.STT Location of the Cobol STT source file.
[JCL]	
JCL-SOURCE-DIR=	Default= C:\NEE\JCL\%APP%\SOURCE The full directory path name for the JCL source code location. <i>Note: The string '%APP%' must always be included within the path name.</i>
JCL-PROCLIB-DIR=	Default= C:\NEE\JCL\%APP%\PROCLIB The full directory path name for the JCL proclib member location. <i>Note: The string '%APP%' must always be included within the path name.</i>
JCL-TEMP-DIR=	Default= C:\NEE\TEMP The full directory path name for a temporary work directory location.

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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
EXTRACT-PROCLIB=	Default=F If set to F, full proclib member source code and header details will be extracted. If set to H, only proclib member header details will be extracted. No proclib member source code will be available. If set to N, no proclib member source code or header details will be extracted. Possible values F,H,N
STT=	Default=%RES%\JCL.STT Location of the JCL STT source file.
ANALYSIS-LEVEL-LIMIT=	Default=0 (Unlimited) Allows the user to limit the amount of levels to be checked by the JCL Analysis process. Possible values 0-9.
[REFACTORING]	
MAP-PDA-GEN=	Default=Y If set to Y, a new PDA will be generated with all the map fields defined, and supporting copycode to move the map data to/from the PDA. If set to N, then no PDA and no supporting copycode is generated. Possible values Y, N

MAPPDA-PREFIX=	<p>Default= ' ' (blank)</p> <p>The default setting will use the prefix #Mnnnn- for each map PDA field, where nnnn is a sequential number internally assigned for each map PDA field.</p> <p>A prefix value can be input and will then be used for each map PDA field. The prefix value can be up to 7 characters long.</p> <p>Possible values ' ' (blank), 'prefix-value'</p>
EXT-LDA-TO-PDA=	<p>Default=N</p> <p>If set to Y, a new PDA will be generated for each external LDA found.</p> <p>If set to N, then no PDA is generated.</p> <p>Possible values Y, N</p>
TLM-BEFORE=	<p>Default= ' ' (blank)</p> <p>The name of the Text Logic Member (TLM) to be inserted at the start of a block within the generated business logic subprogram. The TLM will contain your code that you wish to execute before a block is executed. For example: manipulating AIV data.</p> <p>Possible values ' ' (blank), 'name-of-TLM-member'</p>
TLM-AFTER =	<p>Default= ' ' (blank)</p> <p>The name of the Text Logic Member (TLM) to be inserted at the end of a block within the generated business logic subprogram. The TLM will contain your code that you wish to execute after a block is executed. For example, manipulating AIV data.</p> <p>Possible values ' ' (blank), 'name-of-TLM-member'</p>
[NATURAL]	
STT=	<p>Default=%RES%\NAT.STT</p> <p>Location of the Natural STT source file.</p>
REPORT-MISSING-INCLUDES	<p>Default=Y</p> <p>If set to Y, any missing copycode objects will be reported during the Extract process.</p> <p>If set to N, will not report missing copycode objects.</p> <p>Possible values Y,N</p>

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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

BIN=

The full directory name where the Natural binaries are located. For example C:\PROGRAM FILES\SOFTWARE AG\NATURAL \6.3\BIN for installations under Natural 6.3.

[GENCOMPARE]

EXTERNAL=

This setting is only used if you wish to utilize an external compare utility instead of the internal Natural Engineer three-way compare.

A sample setting for the compare utility KDIFF would be:

```
EXTERNAL="C:\PROGRAM FILES\KDIFF3\KDIFF3.EXE" ":1:" ":2:" ":3:"
```

The parameters :1:, :2: and :3: refer to the file names for comparison that are passed from Natural Engineer to the external utility.

Please note that only Natural Objects may be used with the External compare.

Global Properties

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

This is accessed by using the following menu navigation: Options → Administration → Global Properties from the main Natural Engineer screen.

The Global Properties option uses a multi-purpose ‘tabbed’ screen to control all of the property settings available. Selecting the required tab will result in the display of the appropriate screen content for the properties required.

There are four possible tab options available:

1. [General](#)

2. [System File Aliases](#)

3. [PDS Aliases](#)

Note: This is only available if Natural Engineer is running on the PC in a SPoD environment against a mainframe server (z/OS only).

4. [JCL Triggers](#)

General Tab Screen

The General tab screen provides the facility to specify and review any general global information.

The Following Figure 1-6 illustrates the Global Properties: General Tab screen.

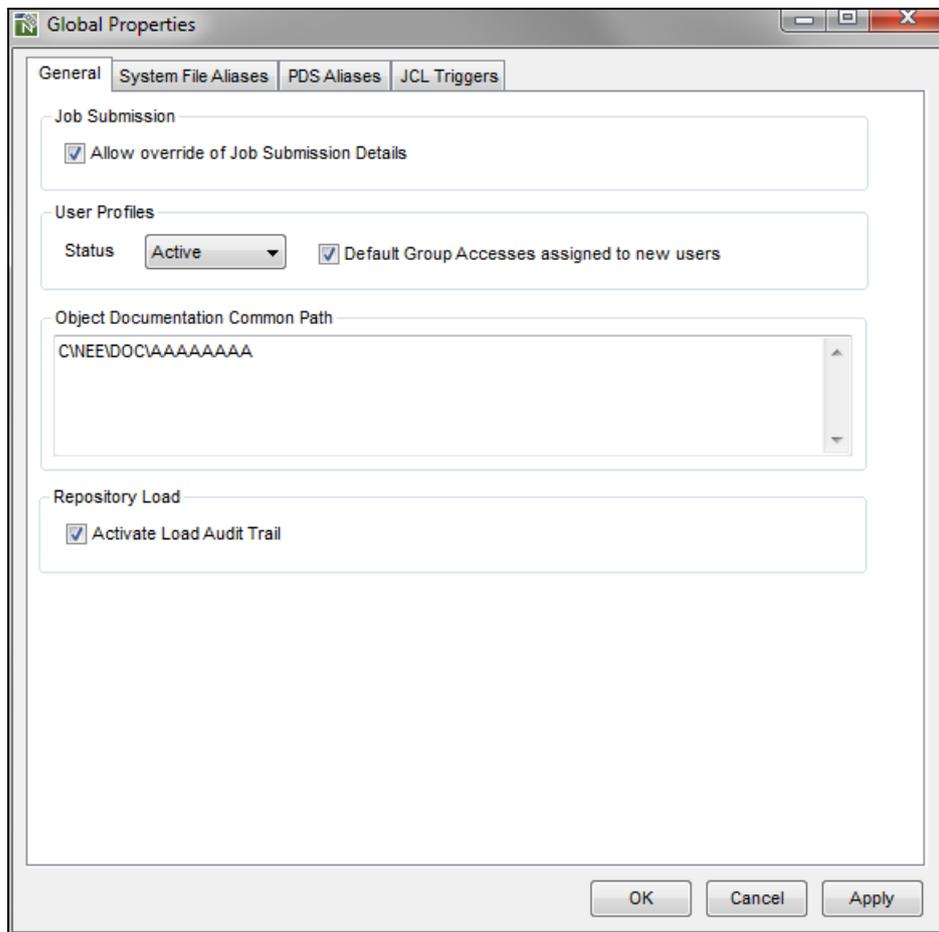


Figure 1-6 Global Properties: General Tab screen

SCREEN ITEMS	DESCRIPTION
Job Submission group:	
Allow Override of Job Submission Details	When running remotely in a Spod environment setting this flag on will allow the user to modify various job submission details prior to invoking the batch process on the server.
User Profiles group:	
Status	Determines whether User Profiles are to be used within Natural Engineer. Options Available: Inactive – User Profiles are not operational. Setup – User Profile menu options are available for the creation and maintenance of User Profiles. User Profiles themselves will not be operational in this mode. Active – User Profiles are operational. Only users who are defined to the User Profile system will be allowed access to Natural Engineer. The User Profiles in Natural Engineer correspond to the *USER Natural System Variable.
Default Group Accesses assigned to new users	If selected and User Profiles are active then Natural Engineer will automatically generate a User Profile for any user that doesn't currently have one based on the value in *USER. The functions available to these users will be based on the settings within the default User Profile Group. The default presentation preferences will be based on the settings within the NATENG.INI Initialization file at the time of generation.
Object Documentation group:	
Object Documentation Common Path	Allows the definition of a default path name where the Object Documentation is located. AAAAAAAA in the path will get substituted with the Application Name allowing for the definition of application specific sub-folders if required. The common path may be referenced by specifying \$DP\$ where needed e.g., in the Extended Documentation settings of the Object Documentation.

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SCREEN ITEMS	DESCRIPTION
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Repository Load group:

Activate Load Audit Trail	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. The audit trail may be viewed and maintained via the Quality Logs → Load Audit Trail option available from the context menu when an application node is selected.
----------------------------------	--

BUTTON NAME	DESCRIPTION
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Global Properties screen:

OK	Save changes and close the current screen.
Cancel	Cancel the Global Properties process and return back to the main Natural Engineer screen.
Apply	Save changes and retain the current screen. <i>Note: This button is only enabled if any changes have been made.</i>

System File Aliases Tab Screen

The System File Aliases tab screen 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. It is possible to add up to 20 aliases.

The Following Figure 1-7 illustrates the Global Properties: System File Aliases Tab screen.

Alias	FUSER DBID & FNR		FDIC DBID & FNR		Modifiable?
DEV	200	50	200	60	<input checked="" type="checkbox"/>
UAT	177	8	177	9	<input type="checkbox"/>
PRD	11177	255	11177	255	<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>

Figure 1-7 Global Properties: System File Aliases Tab screen

SCREEN ITEMS	DESCRIPTION
Alias	The alias given to the Natural System File DBID/FNR combination.
Fuser DBID	The database number where the Natural System File is located.
Fuser FNR	The file number where the Natural System File is located.
Fdic DBID	The database number where the Predict File is located. <i>NB: This is only applicable in a remote environment that contains Predict.</i>
Fdic FNR	The file number where the Predict File is located. <i>NB: This is only applicable in a remote environment that contains Predict.</i>
Modifiable?	This indicates whether the Fuser is protected or not.
BUTTON NAME	DESCRIPTION
Global Properties screen:	
OK	Save changes and close the current screen.
Cancel	Cancel the Global Properties process and return back to the main Natural Engineer screen.
Apply	Save changes and retain the current screen. <i>Note: This button is only enabled if any changes have been made.</i>

SCREEN ITEMS	DESCRIPTION
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PDS Alias	The alias given to the COBOL or JCL dataset.
PDS Name	The name of the COBOL or JCL dataset.
Build List	If selected then a list containing the objects within the datasets will be created once the Build Lists job has been executed.

BUTTON NAME	DESCRIPTION
-------------	-------------

Global Properties screen:

OK	Save changes and close the current screen.
Cancel	Cancel the Global Properties process and return back to the main Natural Engineer screen.
Apply	Save changes and retain the current screen. <i>Note: This button is only enabled if any changes have been made.</i>

PDS Aliases screen:

Build Lists	Will submit the batch Build Lists process for the selected datasets.
--------------------	--

PDS Aliases COBOL/JCL Tab screen:

Prev	Scrolls the PDS Aliases list to previous page.
More	Scrolls the PDS Aliases list forward one page.

JCL Triggers Tab Screen

The JCL Triggers tab screen provides the facility to define different type of JCL triggers. Triggers may be described as any action that causes a Job to be executed. For example a site may have a piece of standard JCL that may execute other jobs or use a scheduling tool to perform certain actions. Each of these individual actions could be described as a trigger.

Trigger types should be defined on this screen before loading the JCL Flow metadata via the JCL Flow Application Programming Interface (NEEAPI1) into the Natural Engineer Repository. The information is then shown on the JCL Flow Chain Diagrams allowing forward and backward tracing of JCL Flow.

For further information on the processes required to set up and maintain JCL Flow please see the JCL Flow Process section in the Natural Engineer Concepts & Facilities manual.

The following Figure 1-8 illustrates the Global Properties: JCL Triggers Tab screen.

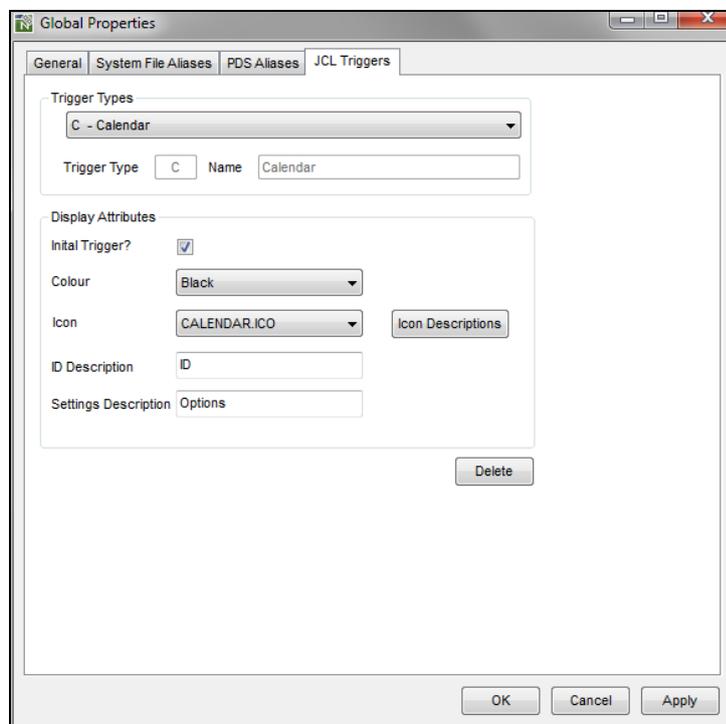


Figure 1-8 Global Properties: JCL Triggers Tab screen

SCREEN ITEMS	DESCRIPTION
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Trigger Types Group:

Trigger Types	Provides a list of existing JCL Triggers or allows for the definition of a new one.
Trigger Type	The type of the Trigger. Note: In the JCL Flow Chain diagrams, triggers that match these types will appear with 'via <i>name</i> ' i.e. via the trigger type name.
Name	The name of the Trigger.

Display Attributes Group:

Initial Trigger?	Whether the Trigger is an Initial one or not. Note: Initial Triggers will have no recursion checking or backward tracking performed on the JCL Flow diagram.
Colour	The colour of the node on the JCL Flow diagram.
Icon	The icon to identify the Trigger on the JCL Flow diagram.
ID Description	The ID Description for the Trigger.
Settings Description	The Setting description for the Trigger.

BUTTON NAME	DESCRIPTION
-------------	-------------

JCL Triggers screen:

Icon Descriptions	Describes the type of Icon.
Delete	Delete the JCL Trigger and close the current screen. <i>Note: This button is only enabled if any triggers exist.</i>

Global Properties screen:

OK	Save changes and close the current screen.
Cancel	Cancel the Global Properties process and return back to the main Natural Engineer screen.
Apply	Save changes and retain the current screen. <i>Note: This button is only enabled if any changes have been made.</i>

NB: For additional information on NEEAPII please see the Natural Engineer Concepts & Facilities manual.

User Profiles

User Profiles allow for the definition of which particular functions, presentation defaults and applications a user may access within Natural Engineer. User Profiles are optional and controlled by the User Profiles setting within Global Properties. If User Profiles are not active then all users will have access to all functions within Natural Engineer.

This is accessed by using the following menu navigation: Options → Administration → User Profiles from the main Natural Engineer screen.

There are five options available:

1. [Group Maintenance](#)

Group Maintenance allow for the definition of particular accesses that are allowed or disallowed. These are then stored as a User Profile group which individual User Profiles may be assigned to.

2. [User Maintenance](#)

User Maintenance allows for the adding and maintaining of individual User Profiles. The User Profiles have to be assigned to a User Profile Group which determines which functions the User is able to access within Natural Engineer.

3. [My User Profile](#)

My User Profile shows details for the currently logged in User. Presentation defaults for the individual user may be set and accesses allowed, via their assigned group, viewed.

4. [Export Groups and Users](#)

Allows for the export of the User Profile definitions to a user-defined files. This file may then be imported to a different repository to replicate User Profile settings.

5. [Import Groups and Users](#)

Allows for the import of previously exported User Profile definitions.

Group Maintenance

Group Maintenance allows for the adding and maintaining of User Profile Groups. These groups contain information as to which functions within Natural Engineer are accessible by any user assigned to the particular group and also detail any restricted applications.

The following Figure 1-9 illustrates the User Profile Group Maintenance screen.

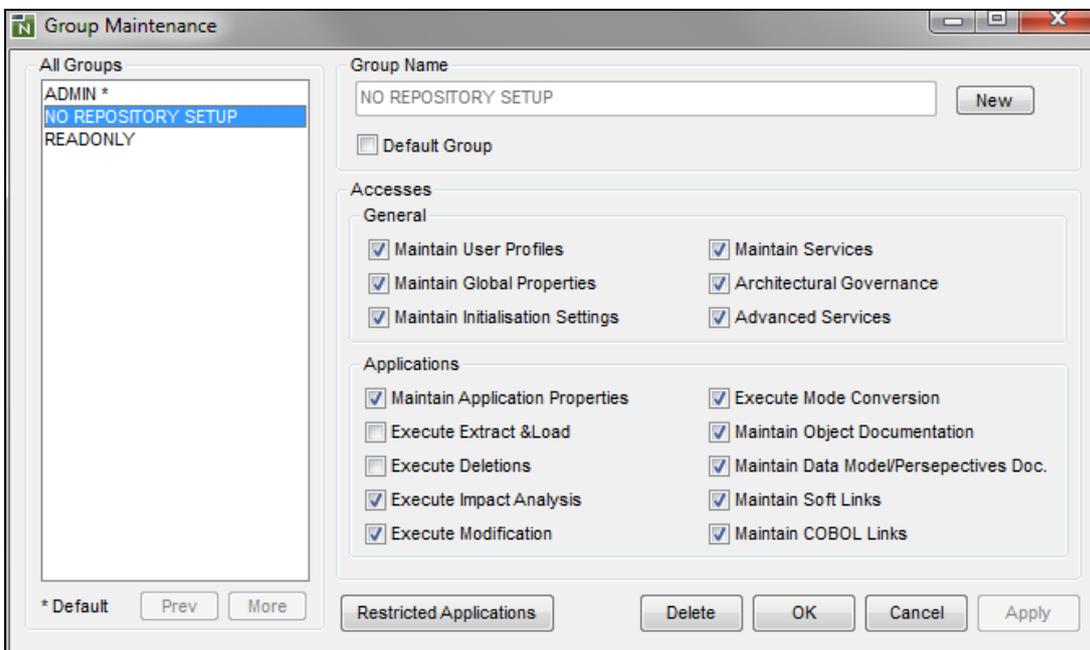


Figure 1-9 User Profile Group Maintenance screen

The first time User Profiles are initiated in Setup or Active Mode a default group of ADMIN will be created and a User created and assigned to it corresponding to the User who invoked the process.

The ADMIN group is mandatory and always has to have one User assigned to it.

SCREEN ITEMS	DESCRIPTION
Group Maintenance group:	
All Groups	Provides a list of existing User Profile Groups.
Group Name	The name of the User Profile Group selected.
Default Group	If selected then this will be the default group that each new user will get when initially set up.
Accesses group:	
General group:	
Maintain User Profiles	If selected the User may add, delete or modify User Profile and Group settings for any User.
Maintain Global Properties	If selected then the User will be able to modify Global Properties.
Maintain Initialization Settings	If selected then the User will be able to modify Initialization Settings from the Administration sub-menu of the main Natural Engineer menu.
Maintain Services	If selected the User may add, delete or modify Services documentation.
Architectural Governance	If selected then the User will be able to access the Architectural Governance menu functions from the Utilities menu.
Advanced Services	If selected then the User will be able to access the Advanced Services menu functions providing it is allowed by licensing.
Applications group:	
Maintain Application Properties	If selected the User may modify the Application Properties for an application.
Execute Extract & Load	If selected the User may execute the Extract and Load functions to import the objects into the Natural Engineer repository.
Execute Deletions	If selected the User may delete Objects and Applications from the Natural Engineer Repository (NB: Includes Validate Objects).
Execute Impact Analysis	If selected the User may execute the Impact Analysis function of Natural Engineer.
Execute Modification	If selected the User may execute Modification functions.
Execute Mode Conversion	If selected the User may execute the Mode Conversion function of Natural Engineer.

SCREEN ITEMS	DESCRIPTION
Maintain Object Documentation	If selected the User may add, delete and/or modify any Object Documentation.
Maintain Data Model/Perspectives Doc	If selected the User may maintain the Data Model Perspectives/Documentation.
Maintain Soft Links	If selected the User may add, delete and/or modify any Soft Link Information.
Maintain COBOL Links	If selected the User may modify any COBOL Link Information.
BUTTON NAME	DESCRIPTION
All Groups group:	
Prev	Scrolls the group list to previous page. This button will be available/unavailable depending on the value specified in the LISTBOXMAX parameter in the NATENG.INI file.
More	Scrolls the group list forward one page. This button will be available/unavailable depending on the value specified in the LISTBOXMAX parameter in the NATENG.INI file.
Group Name group:	
New	Allows a new User Profile Group to be defined.
User Profile Group screen:	
Restricted Applications	Allows the selection of Applications which this group will have restricted access to. The Natural Engineer functions that will not be available are: Extract & Load Delete Application/Object Modification Advanced Services Mode Conversion Application Properties
Delete	Delete the selected User Profile Group and close the current screen.
OK	Save changes and close the current screen.

Cancel Cancel the User Profile Group process and return back to the main Natural Engineer screen.

Apply Save changes and retain the current screen.

Note: This button is only enabled if any changes have been made.

Note: For more information on the NATENG.INI file parameter LISTBOXMAX refer to Chapter 1 in the Natural Engineer Administration Guide for Windows manual.

Group Maintenance Context Menu

The Group Maintenance context menu is invoked by placing the cursor on any of the items listed in the group list and using the right hand mouse button with a single click.

CONTEXT MENU ITEM	DESCRIPTION										
Change Start Position of Group List...	<p>Reposition the list of groups to start from a particular group name.</p> <p>The reposition value can be input using either a complete name or part name using an '*' (asterisk) wildcard.</p> <p>The reposition value is appended to the group list title to highlight the type of repositioning being applied.</p> <p>Possible reposition values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>' ' (blank)</td> <td>Reposition to the top of the group list.</td> </tr> <tr> <td>*</td> <td>Reposition to the top of the group list.</td> </tr> <tr> <td>XYZ</td> <td>Reposition to the first group that either matches or is greater than 'XYZ' and then continue the group list from that point.</td> </tr> <tr> <td>ABC*</td> <td>Only show groups that are prefixed by 'ABC'.</td> </tr> </tbody> </table>	Value	Result	' ' (blank)	Reposition to the top of the group list.	*	Reposition to the top of the group list.	XYZ	Reposition to the first group that either matches or is greater than 'XYZ' and then continue the group list from that point.	ABC*	Only show groups that are prefixed by 'ABC'.
Value	Result										
' ' (blank)	Reposition to the top of the group list.										
*	Reposition to the top of the group list.										
XYZ	Reposition to the first group that either matches or is greater than 'XYZ' and then continue the group list from that point.										
ABC*	Only show groups that are prefixed by 'ABC'.										
Maintain Users in Group	Invokes a selection dialog allowing Users to be assigned to the group.										

User Maintenance

User Maintenance allows for the creation and maintenance of individual Users. Users need to be added to a particular Group. They will then inherit the accesses that the Group has. This will determine which functions of Natural Engineer the user can access.

The following Figure 1-10 illustrates the User Maintenance screen.

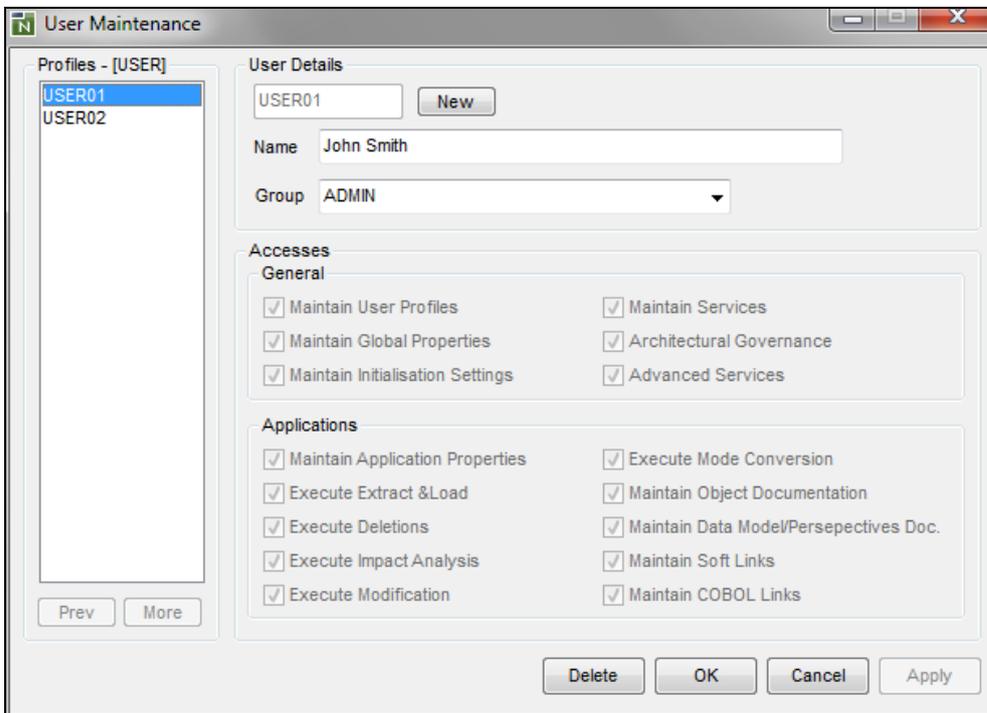


Figure 1-10 User Maintenance screen

The User Id corresponds to the *USER Natural System Variable. If the “Default Group accesses assigned to new users” option in the User Profiles section of the [Global Properties](#) screen is selected then any user that runs Natural Engineer will have a User Id automatically set up for them with the accesses as per the Default Group. If the “Default Group accesses assigned to new users” option is not selected then the Users have to be set up via this screen. Any Users that are not defined will not be allowed to run Natural Engineer.

SCREEN ITEMS	DESCRIPTION
User Maintenance group:	
All Users	Provides a list of existing Users.
User Details group:	
User Id	The User ID of the User. This should correspond to the *USER Natural System Variable.
Name	The name of the User.
Group	The group the User is assigned to.
Accesses group:	
NB: The Accesses shown are for information only and correspond to the accesses that the selected Group has.	
General group:	
Maintain User Profiles	If selected the User may add, delete or modify User Profile and Group settings for any User.
Maintain Global Properties	If selected then the User will be able to modify Global Properties.
Maintain Initialization Settings	If selected then the User will be able to modify Initialization Settings from the Administration sub-menu of the main Natural Engineer menu.
Maintain Services	If selected the User may add, delete or modify Services documentation.
Architectural Governance	If selected then the User will be able to access the Architectural Governance menu functions from the Utilities menu.
Advanced Services	If selected then the User will be able to access the Advanced Services menu functions providing it is allowed by licensing.
Applications group:	
Maintain Application Properties	If selected the User may modify the Application Properties for an application.
Execute Extract & Load	If selected the User may execute the Extract and Load functions to import the objects into the Natural Engineer repository.
Execute Deletions	If selected the User may delete Objects and Applications from the Natural Engineer Repository (NB: Includes Validate Objects).
Execute Impact Analysis	If selected the User may execute the Impact Analysis function of Natural Engineer.

SCREEN ITEMS	DESCRIPTION
Execute Modification	If selected the User may execute Modification functions.
Execute Mode Conversion	If selected the User may execute the Mode Conversion function of Natural Engineer.
Maintain Object Documentation	If selected the User may add, delete and/or modify any Object Documentation.
Maintain Data Model/Perspectives Doc	If selected the User may maintain the Data Model Perspectives/Documentation.
Maintain Soft Links	If selected the User may add, delete and/or modify any Soft Link Information.
Maintain COBOL Links	If selected the User may modify any COBOL Link Information.

BUTTON NAME	DESCRIPTION
All Users group:	
Prev	Scrolls the user list to previous page. This button will be available/unavailable depending on the value specified in the LISTBOXMAX parameter in the NATENG.INI file.
More	Scrolls the user list forward one page. This button will be available/unavailable depending on the value specified in the LISTBOXMAX parameter in the NATENG.INI file.
User Details group:	
New	Allows a new User to be defined.
User Maintenance screen:	
Delete	Delete the selected user and close the current screen.
OK	Save changes and close the current screen.
Cancel	Cancel the User Maintenance process and return back to the main Natural Engineer screen.
Apply	Save changes and retain the current screen. <i>Note: This button is only enabled if any changes have been made.</i>

User Maintenance Context Menu

The User Maintenance context menu is invoked by placing the cursor on any of the items listed in the user list and using the right hand mouse button with a single click.

CONTEXT MENU ITEM	DESCRIPTION										
Change Start Position of User List...	<p>Reposition the list of users to start from a particular user name.</p> <p>The reposition value can be input using either a complete name or part name using an '*' (asterisk) wildcard.</p> <p>The reposition value is appended to the user list title to highlight the type of repositioning being applied.</p> <p>Possible reposition values are:</p> <table><thead><tr><th>Value</th><th>Result</th></tr></thead><tbody><tr><td>' ' (blank)</td><td>Reposition to the top of the user list.</td></tr><tr><td>*</td><td>Reposition to the top of the user list.</td></tr><tr><td>XYZ</td><td>Reposition to the first user that either matches or is greater than 'XYZ' and then continue the user list from that point.</td></tr><tr><td>ABC*</td><td>Only show users that are prefixed by 'ABC'.</td></tr></tbody></table>	Value	Result	' ' (blank)	Reposition to the top of the user list.	*	Reposition to the top of the user list.	XYZ	Reposition to the first user that either matches or is greater than 'XYZ' and then continue the user list from that point.	ABC*	Only show users that are prefixed by 'ABC'.
Value	Result										
' ' (blank)	Reposition to the top of the user list.										
*	Reposition to the top of the user list.										
XYZ	Reposition to the first user that either matches or is greater than 'XYZ' and then continue the user list from that point.										
ABC*	Only show users that are prefixed by 'ABC'.										

My User Profile

My User Profile allows an individual User to define their own default presentation settings and view the functions that they are allowed to access as part of their assigned group. When a User is created the presentation settings are based on those in the NATENG.INI initialization file however once a User has been created and User Profiles are active then these settings override the ones specified in the NATENG.INI file.

My User Profile is only available when User Profiles are in an Active status.

The following Figure 1-11 illustrates the My User Profile screen.

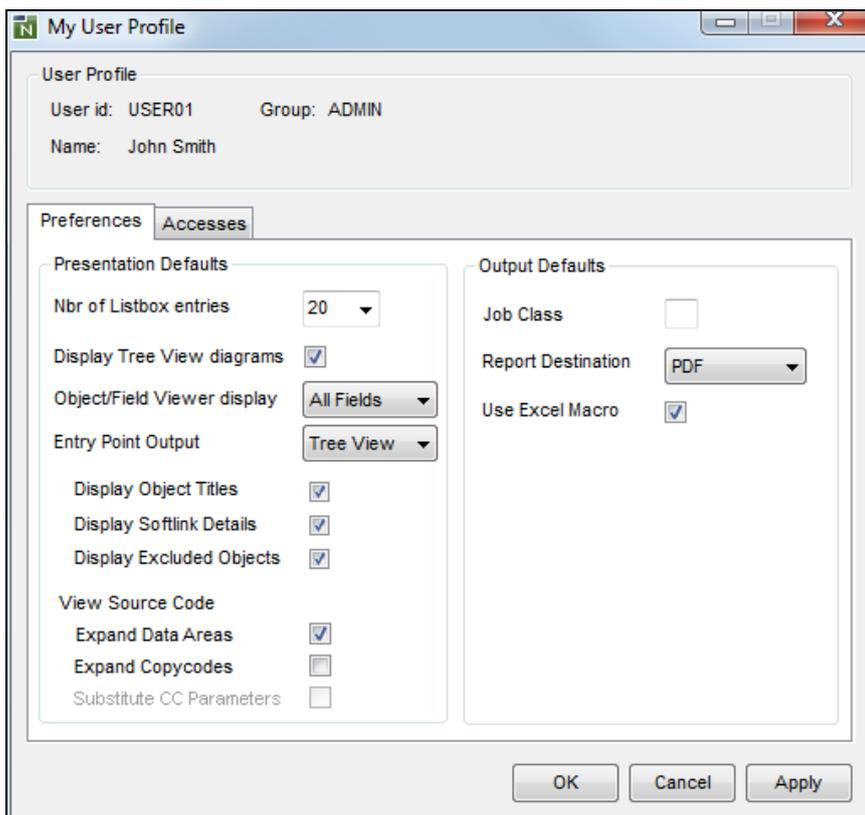


Figure 1-11 My User Profile screen

SCREEN ITEMS	DESCRIPTION
--------------	-------------

Output Defaults Group:

Report Destination	<p>Determines the default output destination for reports.</p> <p>Options available: Screen, Reporter, Word, Spreadsheet, HTML, PDF.</p> <p><i>Note: PDF is only available if a third-party PDF generator is installed and PDF=Y is set in the [REPORTER] section of the NATENG.INI file. Please see the Generating Reports to PDF section for configuration details.</i></p>
---------------------------	--

Job Class	Sets the default job class to be used when submitting batch jobs in a SPoD environment.
------------------	---

Use Macro	If selected then any reports to Microsoft Excel will be generated with formatted header and footer depending on the report chosen. If not selected then just the base data will be shown on the report.
------------------	---

Preferences Tab:

Presentation Defaults Group:

Nbr of Listbox entries	This is used to control how many objects are loaded into the list-boxes for selection before you have to read more from the Repository.
-------------------------------	---

Object/Field Viewer display	If set to All Fields then all fields whether used in a programming statement or defined only will be shown as a default. If set to Used Fields then only those fields actually used in a programming statement will be shown as a default. This applies to Object Viewer and Field Viewer only.
------------------------------------	---

Display Tree View Diagrams	If selected GENTREE will be activated to show the structure analyzer diagrams from Object Viewer, Entry Point Diagram or View Structure Diagram for Search Criteria. If not selected no GENTREE diagram will be shown when using these functions.
-----------------------------------	---

Display Softlink Details	If selected detailed softlink information will be shown in GENTREE if present including the softlink name. If not selected only concise information will be shown.
---------------------------------	--

Entry Point Output	<p>Determines the default output for the function Entry Point Structure Diagram. Tree View will invoke the GenTree Structure Analyzer.</p> <p>Options available: TREEVIEW, VISIO, SPREADSHEET</p>
---------------------------	---

SCREEN ITEMS	DESCRIPTION
Display Object Titles	If selected and Object Documentation is present for a particular object then the Object Title will be displayed next to the Object Name within the GenTree diagram. <i>NB: Only available if Tree View or Spreadsheet is selected as the Entry Point Output.</i>
Display Excluded Objects	If selected any excluded objects will be shown on the GENTREE diagram but no further relationship chain information for that object will be displayed. <i>NB: Only available if Tree View or Spreadsheet is selected as the Entry Point Output.</i>
Number of Levels	If the selected output destination is Visio or EXCEL then the amount of levels displayed will be limited by this setting. <i>NB: Only available if Visio or Spreadsheet is selected as the Entry Point Output.</i>
Expand Data Areas	If selected any included external data areas within an object will be expanded when viewing source code in a Browser.
Expand Copycodes	If selected any included copycodes within an object will be expanded when viewing source code in a Browser.
Substitute CC Parameters	If selected any substitution variables will be expanded within the copycode itself when viewing source code in the Browser or Gensource window. <i>NB: Only available if Expand Copycodes has been selected.</i>

Accesses Tab:

The Accesses shown are for information only and correspond to the accesses that the selected Group has.

BUTTON NAME	DESCRIPTION
My User Profile screen:	
OK	Save changes and close the current screen.
Cancel	Cancel the My User Profile process and return back to the main Natural Engineer screen.
Apply	Save changes and retain the current screen. <i>Note: This button is only enabled if any changes have been made.</i>

Export Groups and Users

Export Groups and Users allows the existing User Profile definitions to be exported to a file. If selected a file selection dialog will be shown where the user can decide where to save the exported details to. All User Profile information contained within the repository will be exported.

Import Groups and Users

Import Groups and Users allows a previously exported file containing User Profiles to be imported into the repository. This process will replace any existing User Profile definitions with those contained in the selected file.

ADDING AN ICON TO THE NATURAL STUDIO TOOLBAR

Chapter Overview

This chapter describes how to set up an automatic link to Natural Engineer from within Natural Studio, using an icon on the Natural Studio toolbar.

This provides a round-trip mechanism allowing Natural Engineer to be invoked from within Natural Studio in a single operation.

How to add an icon to the Natural Studio toolbar

► Open the Natural Studio Tools option

1. To add an Icon to the Toolbar within Natural Studio, you must add a new toolbar using the following option from the Natural Studio menu: Tools → Customize.

The following Figure 2-1 illustrates the Customizing Toolbar option.

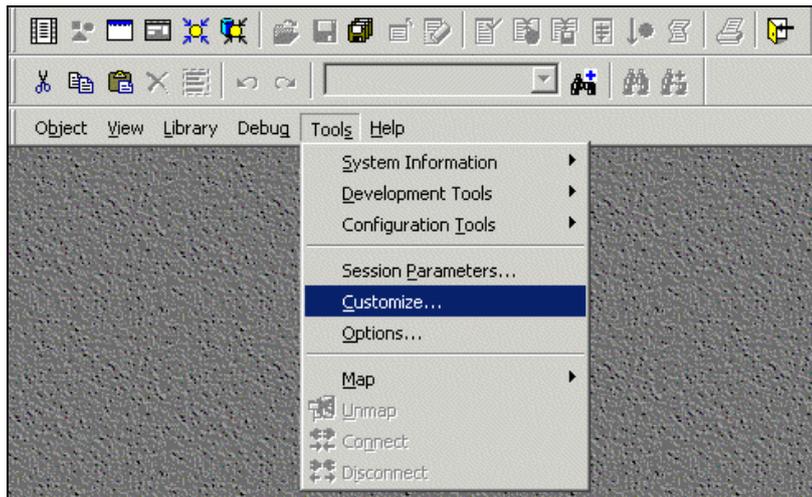


Figure 2-1 Customizing Toolbar Option

2. This presents the Customize dialog where you should select the Toolbars tab.
3. Use the New button to add a new toolbar. You will be asked to specify a name for the Toolbar. For example: Natural Engineer.

The following Figure 2-2 illustrates adding a New Toolbar option.

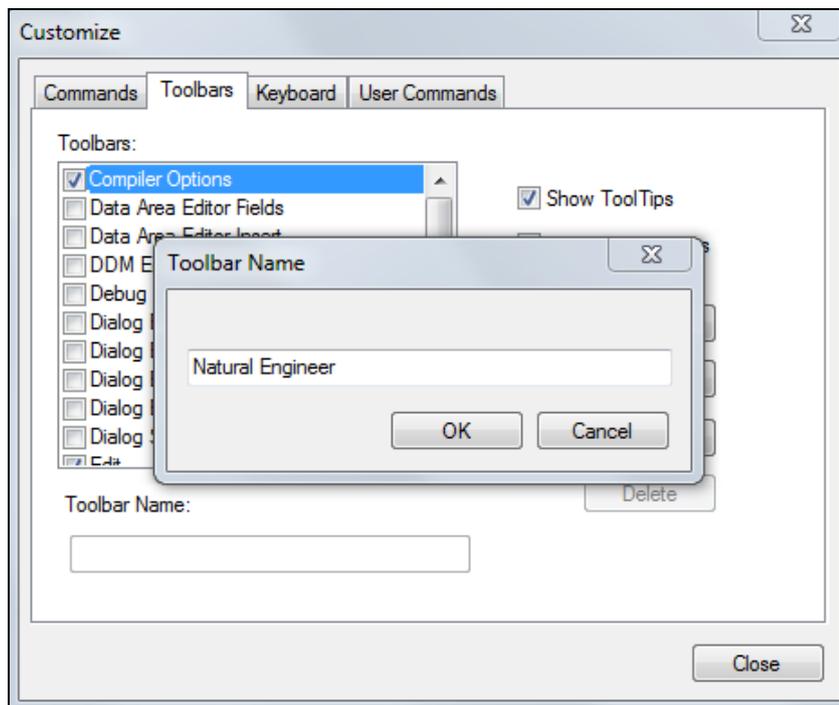


Figure 2-2 Adding a New Toolbar

► **Assign a User Command**

4. The next step is to assign a User Command to the new Natural Engineer toolbar. This can be done by selecting the User Commands tab on the Customize dialog.
5. Select User Command 1 and type in 'LOGON SYSNEE;NATENG-D' as the Natural command.
6. Click on the Assign button to add the command.

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The following Figure 2-3 illustrates the assign a User Command.

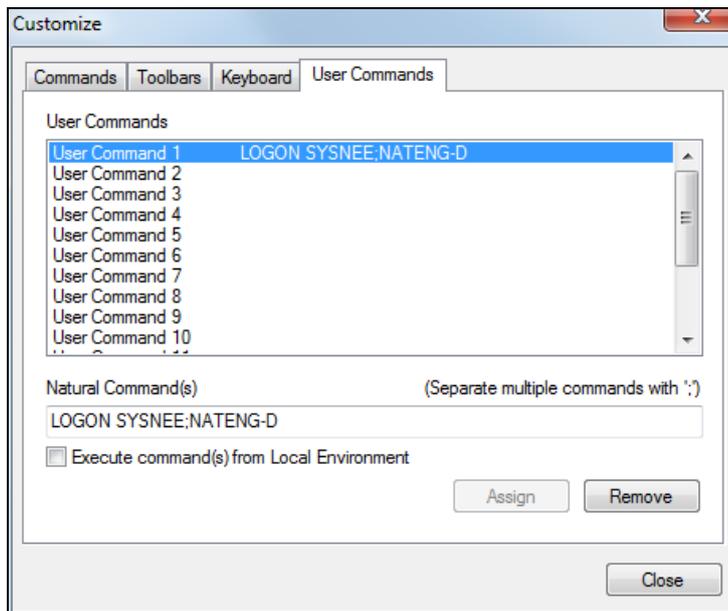


Figure 2-3 Assign a User Command

► Add the User Command to the Natural Engineer Toolbar

7. The next step is to add the User Command to the new Natural Engineer Toolbar. To do this, select the Commands tab on the Customize dialog.

8. Then select User Commands from the Categories drop down menu.

The following Figure 2-4 illustrates the Customize dialog after the category ‘User Commands’ has been selected, and then the previously defined User Command 1 selected.

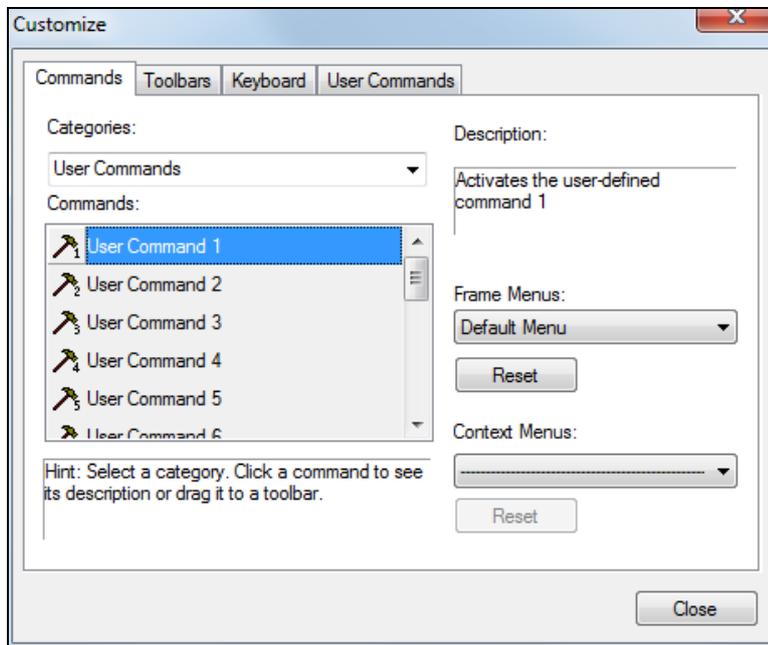


Figure 2-4 Selecting the new User Command 1

9. Select User Command 1 from the commands listed under the Commands list box by clicking down the left mouse button and holding it; drag the command to the Natural Engineer Toolbar.

The following Figure 2-5 illustrates the Natural Engineer Toolbar with the User Command added.



Figure 2-5 Natural Engineer Toolbar with the User Command added

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► Customize the appearance of the Natural Engineer toolbar button

It is possible to change the appearance of the User Command to make it more easily identifiable.

10. This can be done by leaving the Customize dialog still open with the Natural Engineer Toolbar selected, use the right mouse button to select the User Command in the toolbar. This will present a sub menu of options, from here select Button Appearance.

The following Figure 2-6 illustrates how to change the appearance of the Toolbar button.

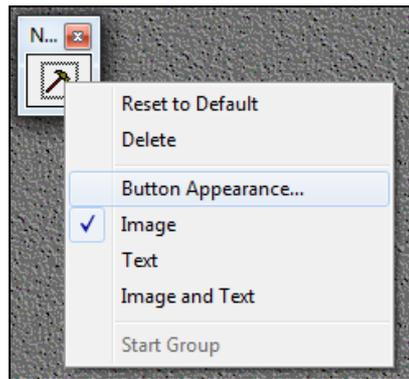


Figure 2-6 Changing the appearance of the Toolbar Button

11. To make the User Command more easily identifiable, the button appearance should be changed to show text 'NEE'.

Adding an Icon to the Natural Studio Toolbar

The following Figure 2-7 illustrates the Button Appearance dialog with the appearance settings changed to show text only, with text 'NEE'.

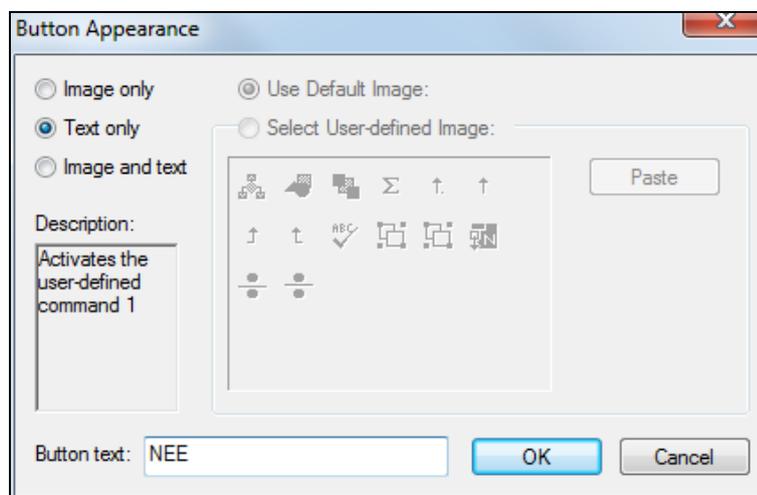


Figure 2-7 Button Appearance changed to show Text 'NEE' only

The following Figure 2-8 illustrates the new appearance of the Natural Engineer Toolbar.

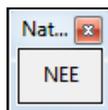


Figure 2-8 New appearance of the Natural Engineer Toolbar

Once you have done this, the Natural Engineer Toolbar is now complete and you may drag it to the main Natural Toolbars. The following Figure 2-9 illustrates the new Natural Engineer Toolbar in position.

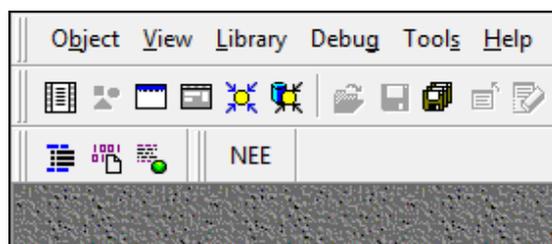


Figure 2-9 Natural Engineer Toolbar in position

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. [Environment Sizing](#)
2. [Transferring Repository](#)
3. [Supplied Data Files](#)
4. [Limits](#)

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 z/OS platform, 1 million lines of code require 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	z/OS Mainframe	
	Adabas 6.1.3 on Windows	3390	3380
ASSO	220 MB	520 cys	620 cys
DATA	250 MB	340 cys	365 cys
WORK	50 MB		

For ADABAS v5 and below set

Asso Block Size: 4KB
Data Block Size: 4KB
Work Block Size: 16KB

For ADABAS v6 and above set

Asso Block Size: 4KB
Data Block Size: 32KB
Work Block Size: 16KB

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	
LS	20,000	
NH	1,000	
NISNHQ	250	
PLOG	NO	Set to NOPLOG
TNAA	7200	
TNAE	7200	
TNAX	7200	

Note: Parameters LP and LS are not applicable for Adabas 5.

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 (z/OS) to Decompress File on the Mainframe

```
000001 //XGSL1DE 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 //DDRUCK DD SYSOUT=*
000023 //DDKARTE DD *
000024 ADACMP DECOMPRESS INFILE=65
000025 /*
```

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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.

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 3-1 illustrates the DBA Workbench file list screen with the Repository file selected.

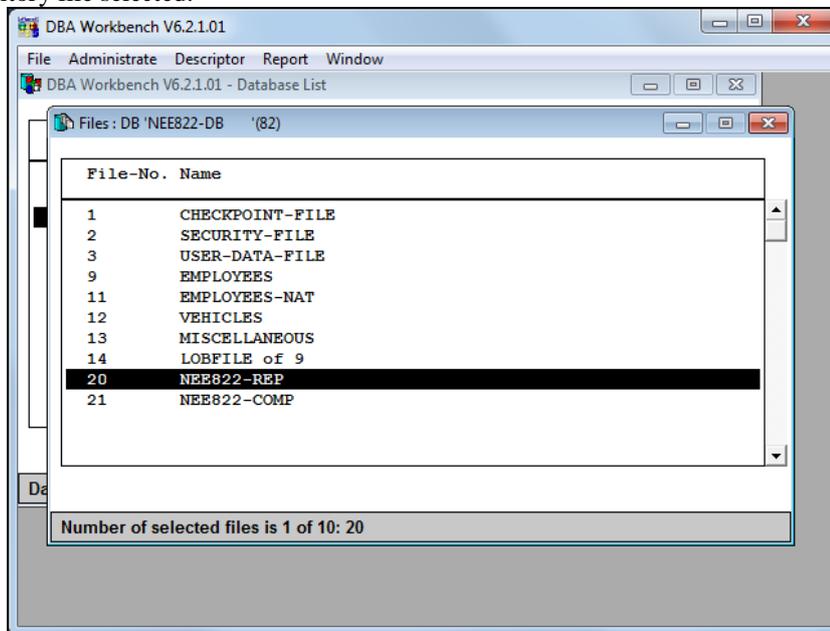


Figure 3-1 DBA Workbench file list screen

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Select, File, Compress from the main menu:

The following Figure 3-2 illustrates the DBA Workbench file compress option.

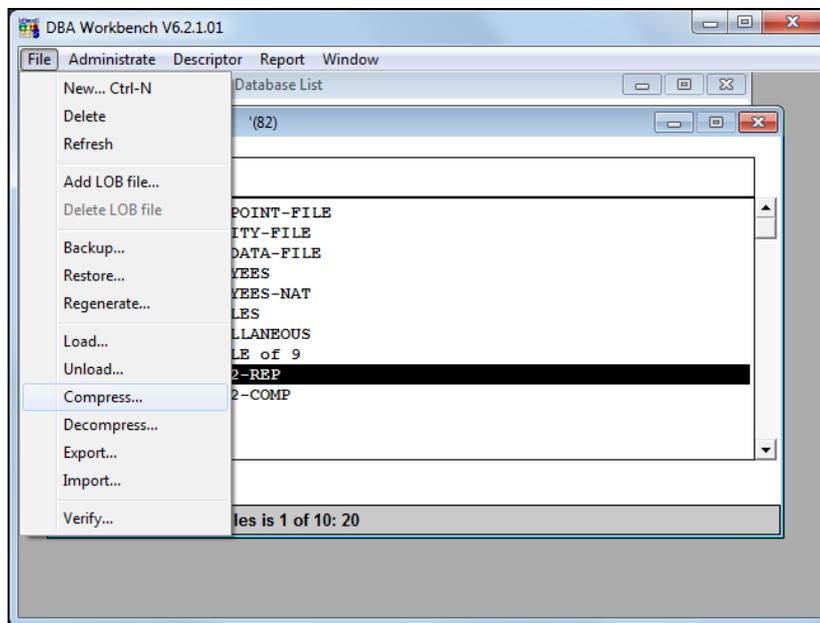


Figure 3-2 DBA Workbench file compress option

The following parameters should be entered:

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

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

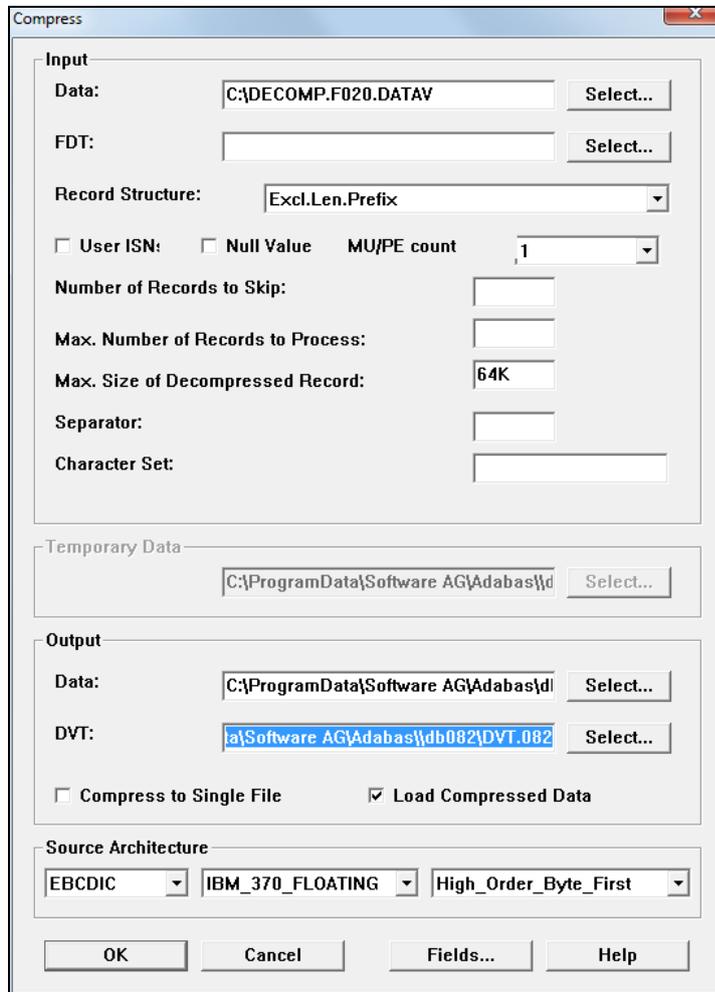


Figure 3-3 Compress File screen

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The LOAD screen will be shown

The following Figure 3-4 illustrates the Load File options screen within DBA Workbench.

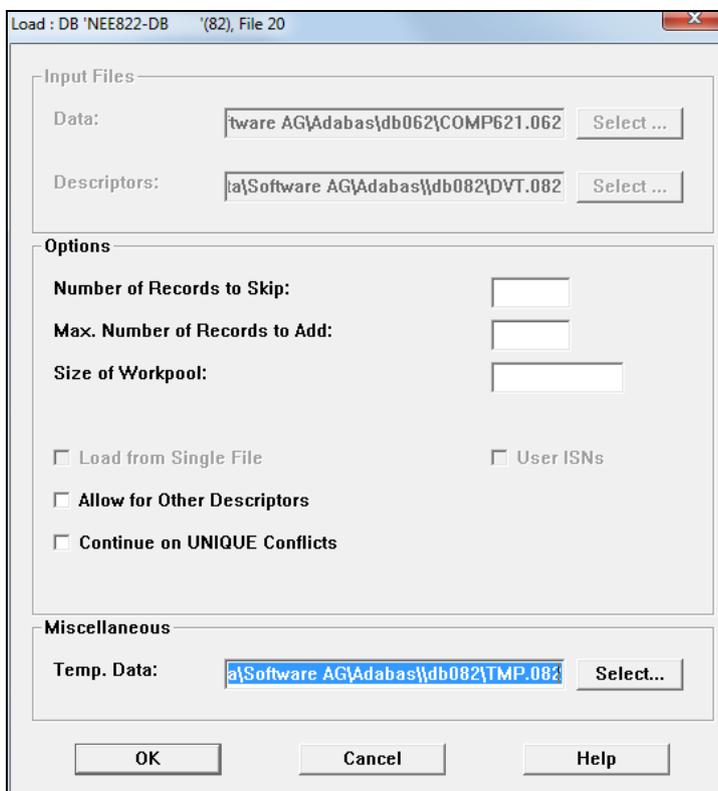


Figure 3-4 Load File screen

Click OK to start the Compress and Load process,

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.F020.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:

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```
%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-NULDESC, 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 3-5 illustrates the option Reset UCB within DBA Workbench.

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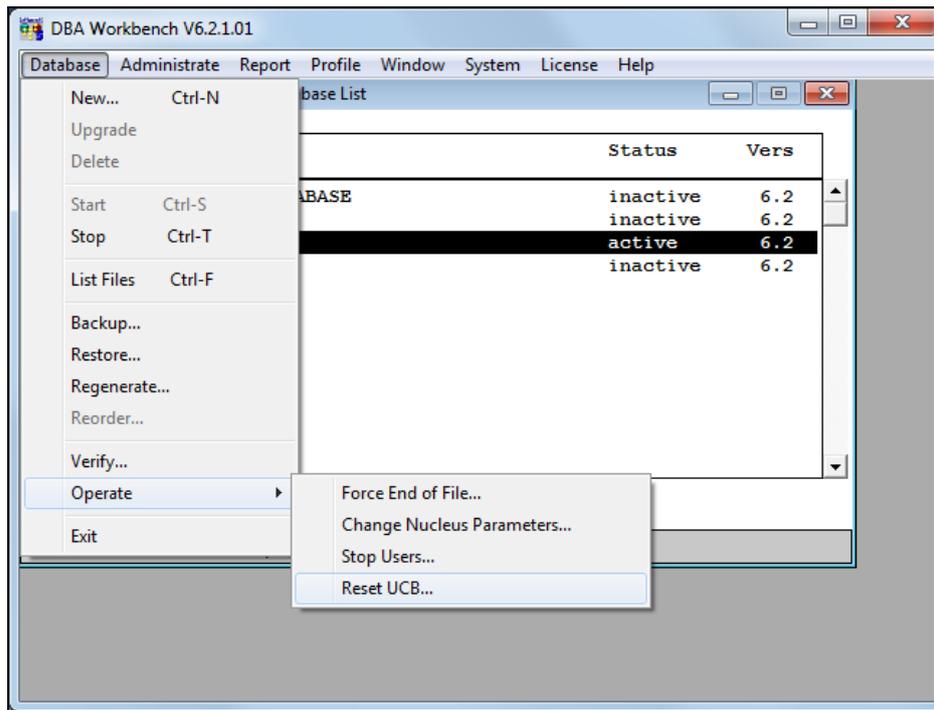


Figure 3-5 Reset UCB option

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

Supplied Data Files

Natural Engineer comes supplied with several default data files that are installed during the Natural Engineer installation process. They reside in the DATA directory of the Natural Engineer installation and its sub-directories.

1. VSD folder
2. XLS folder
3. ###DEF01.ISC file
4. CODEINT.IRE file

VSD Folder

This folder contains various stencils and templates used by Microsoft Visio to draw diagrams for the following Natural Engineer options:

- Structure Flow Diagram.
- Program Flow Logic Diagram.
- JCL Diagram

Note: For more information on these options refer to the Natural Engineer Application Documentation for Windows manual.

The contents of the Vsd folder are:

1. GENFLOW.VSS

This is the stencil file used by the Structure Flow Diagram option.

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GENFLOW.VST

This is the template file used by the Structure Flow Diagram option.

GENJCL.VSS

This is the stencil file used by the JCL Diagram option.

GENJCL.VST

This is the template file used by the JCL Diagram option.

GENJSP.VSS

This is the stencil file used by the Program Flow Logic Diagram option.

GENJSP.VST

This is the template file used by the Program Flow Logic Diagram option.

XLS Folder

This folder contains the required files used by the spreadsheet packages when the Spreadsheet reporting display mode has been selected to view a Natural Engineer report.

Note: For more information on reporting display modes and all the Natural Engineer reports refer to the Natural Engineer Reporting manual.

The contents of the XLS folder are:

1. **Legend.gif**

This is the image used for the Application Metrics graphical report: Object Type Summary.

The following Figure 3-6 illustrates the Legend.gif image.



Figure 3-6 Legend.gif image

Nateng.xls

This is the Microsoft Excel worksheet containing the relevant macros to display the various textual reports using Microsoft Excel.

Nateng.xlsm

This is the Microsoft Excel worksheet containing the relevant macros to display the various textual reports using Microsoft Excel, if you are using Microsoft Office 2007 or above.

###DEF01.ISC File

This is the default file 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.IRE File

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

This file can be used by using the File→Open menu option on the Impact Criteria Summary tab screen.

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

Generating Reports to PDF

Natural Engineer has the ability to generate reports to various formats; Word, spreadsheet e.g., Microsoft Excel or OpenOffice Calc, HTML and PDF. In order to generate reports to PDF a Formatting Objects Processor e.g., Apache FOP 1.1 and the Microsoft Command Line Transformation Utility (MSXSL.EXE) will need to be installed and then Natural Engineer configured to utilize them.

Steps required:

1. Install Formatting Objects Processor

The latest version of Apache FOP may be downloaded from <http://xmlgraphics.apache.org/fop/>

Install it into a directory e.g. C:\FOP

2. Install Microsoft Command Line Transformation Utility

The Microsoft Command Line Transformation Utility (MSXSL.EXE) may be downloaded from <http://www.microsoft.com/en-gb/download/details.aspx?id=21714>

Copy it to the same directory that the Formatting Objects Processor was installed in so you have for example:

C:\FOP\FOP-1.1

C:\FOP\MSXSL.EXE

3. Configure BAT files

The BAT directory of Natural Engineer contains batch files that are used by Natural Engineer when running in a Windows Server environment, the Task Scheduler and when generating reports to PDF.

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The BAT files that are used by the PDF generation process are:

fopexe.bat

transformfo.bat

By default the batch files are supplied with a prefix of SAMPLE. They should be renamed to the names above before configuring.

Each bat file needs to be configured to point to the directories where the FOP utility, MSXSL.EXE and Natural Engineer were installed to e.g.,

fopexe.bat

```
rem pause
rem echo %1
rem echo %2
rem pause
cd c:\fop
c:\fop\fop-1.1\fop %1 %2
rem pause
```

transformfo.bat

```
rem pause
rem echo %1
rem echo %2
c:\fop\msxsl.exe %1 "C:\ProgramData\Software AG\Natural
Engineer\8.3\XSL\html_to_fo.xsl" -o %2
rem pause
```

4. Configure NATENG.INI file

The [REPORTER] section in the NATENG.INI file needs to have the PDF setting set to Y to enable the generation of reports to PDF e.g.,

```
[REPORTER]
PDF=Y
```

Configuration **3**

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. The Extract parameters only apply if you are using the non-enhanced extract engine.

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 NATENG.INI file.
Maximum number of variable definitions per object.	1000	YES	The VARTAB= parameter in section [EXTRACT] of the NATENG.INI file.
Maximum number of unique objects in the base library.	20000	YES	The OBJTAB= parameter in section [EXTRACT] of the NATENG.INI file.
Maximum number of unique referenced objects in the base library.	10000	YES	The REFTAB= parameter in section [EXTRACT] of the NATENG.INI file.
Maximum number of unique DDM objects per application.	500	YES	The GBLDDM-TAB= parameter in section [EXTRACT] of the NATENG.INI file.
Amount of objects to retrieve from steplib.	1000	YES	The STEPTAB= parameter in section [EXTRACT] of the NATENG.INI file.

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 NATENG.INI file.
Amount of PERFORM statements per object.	300	YES	The PERF-TAB= parameter in section [EXTRACT] of the NATENG.INI file.
Amount of DEFINE subroutines held per object.	130	YES	The PERF-DTAB= parameter in section [EXTRACT] of the NATENG.INI file.

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 NATENG.INI file.

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	

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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 NATENG.INI file.

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