software AG

Natural Engineer

Installation Guide for Mainframes

Version 8.3

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Natural Engineer

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ABOUT THIS MANUAL

Purpose of this manual

This manual contains the Installation details for Natural Engineer and the Natural Engineer Web Interface (NEA).

It describes all aspects of installing Natural Engineer on supported mainframe platforms, namely z/OS, BS2000/OSD and z/VSE.

This manual should be read carefully before installing and using the product.

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:

$\Rightarrow$	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 the installation requirements for Natural Engineer in the following chapters:

Chapter	Contents
1	Describes how to install and customize Natural Engineer on your PC for the purpose of execution under Natural for the Windows operating system.
2	Describes the installation procedure on the supported mainframe platforms (z/OS, z/VSE, BS2000/OSD).
3	Describes the installation procedure on UNIX platforms.
4	Describes the environment considerations for sizing and architecture when using Natural Engineer for the Windows operating system.
5	Describes the installation of the Natural Engineer Web Interface (NEA).

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.

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.

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 (NEE83-010UNX)

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.

**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.

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INSTALLATION ON THE MAINFRAME

Chapter Overview

This chapter describes the installation procedure on the supported mainframe platforms (z/OS, z/VSE, BS2000/OSD). This information is organized in the following sections:

- Installation Jobs on the Mainframe.

- Mainframe Prerequisites.

- The z/OS Installation Tape.

- The z/VSE Installation Tape.

- The BS2000/OSD Installation Tape.

- Mainframe Installation steps.

- Mainframe Customization.

- Modifying Natural Engineer Jobs.

- Natural Engineer Processes and Related Jobs.

Installation Jobs on the Mainframe

The installation of Natural Engineer on mainframe platforms is performed by installation jobs. These jobs are either adapted "manually" or generated by SYSTEM MAINTENANCE AID (SMA).

For each step of the installation procedure described below, the job number of a job performing the respective task is indicated. This job number refers to an installation job generated by SMA. If you are not using SMA, a sample installation job of the same number is provided in the job library on the installation tape; you must adapt this example job to your requirements. Please note that the job numbers on the tape are preceded by a product code (for example, NEEI061 or NEEI050).

Using SYSTEM MAINTENANCE AID

If you are using Software AG's SYSTEM MAINTENANCE AID (SMA) for the installation process, please note the following before generating jobs:

1. Load the SMA table data as described in the SYSTEM MAINTENANCE AID manual (if you have not already done so).

2. Set NEE832 in the list of available products for your environment to "TO BE INSTALLED".

3. Set the following SMA parameters specific to Natural Engineer:

   In group OPTION:
   NEE-FIRST-INSTALL   = Y (for first-time installation of Natural Engineer)
   NEE-FIRST-INSTALL   = N (for migration installation of Natural Engineer)
   NEE-REFACT   = Y (for migration installation of Natural Engineer Refactoring)
   NEE-REFACT-NEW   = Y (for first-time installation of Natural Engineer Refactoring)

   In group FILNUM:
   FNEE = <file number of Natural Engineer Refactoring>
   FNEE1 = <file number of Natural Engineer Repository>
   FNEE1-DBID= <database number of Natural Engineer Repository>

Mainframe Prerequisites

The following products must be installed before you install Natural Engineer:

NATURAL

Natural version 8.2.4 or above.

Note: Under z/OS, Natural must be LE enabled to utilize the updated Extract engine.

ADABAS

Adabas version 8.2.2 or above.

Natural Development Server

Natural Development Server (NDV) version 2.2.7 or above.

Note: This is optional and is only required if you wish to execute Natural Engineer in a remote development environment (SPoD). It is recommended to use an NDV Server using batch subtasks if processing JCL and/or COBOL.

Installation Tape for Natural Engineer under z/OS

Tape Contents

The installation tape contains the data sets listed in the table below. The sequence of the data sets is shown in the Report of Tape Creation that accompanies the installation tape. The notation '*vrs*' in Data Set Name represents the version number, release level and SM level of the product.

Data Set Name	Contents
NEE*vrs*.SRCE	Source library, containing member CINI (initialization parameters) and statement members for updated Extract engine.
NEE*vrs*.JOBS	Job library with sample JCL for the Natural Engineer process.
NEE*vrs*.INPL	Natural modules in INPL format.
NEE*vrs*.ERRN	SYSERR messages for Natural Engineer.
NEE*vrs*.SYS1	Natural Engineer Repository file in ADAULD format.
NEE*vrs*.SYS2	Natural Engineer Refactoring file in ADAULD format.
NEE*vrs*.EXPL	Example application library and miscellaneous sample objects library.
NEE*vrs*.HELP	Natural Engineer Help File.
NEEvrs.LOAD	C modules for Extract engine.

Copying the Tape Contents to a z/OS Disk

If you are using SMA, refer to the *System Maintenance Aid* documentation.

If you are not using SMA, follow the instructions described below.

This section explains how to:

- Copy data set COPY.JOB from tape to disk.

- Modify this data set to conform to your local naming conventions.

The JCL in this data set is then used to copy all data sets from tape to disk.

If the data sets for more than one product are delivered on the tape, the data set COPY.JOB contains the JCL to unload the data sets for all delivered products from the tape to your disk.

After that, you will have to perform the individual install procedures for each component.

Step 1 - Copy data set COPY.JOB from tape to disk.

The data set COPY.JOB (Label 2) contains the JCL to unload all other existing data sets from tape to disk. To unload COPY.JOB use the following sample JCL:

```
//SAGTAPE JOB SAG,CLASS=1,MSGCLASS=X
//*
//COPY     EXEC PGM=IEBGENER
//SYSUT1    DD DSN=COPY.JOB,DISP=(OLD,PASS),UNIT=(CASS,,DEFER),
//             VOL=(,RETAIN,SER=tape-volume),LABEL=(2,SL)
//SYSUT2    DD DSN=hilev.COPY.JOB,DISP=(NEW,CATLG,DELETE),
//             UNIT=3390,VOL=SER=volume,SPACE=(TRK,(1,1),RLSE),
//             DCB=*.SYSUT1
//SYSPRINT  DD SYSOUT=*
//SYSIN     DD DUMMY
//*
```

Where:

hilev	is a valid high level qualifier.
tape-volume	is the tape volume name, for example: T12345.
volume	is the disk volume name.

Step 2 - Modify COPY.JOB on Your Disk.

Modify the COPY.JOB on your disk to conform to your local naming conventions and set the disk space parameters before submitting this job.

There are three parameters that must be set before submitting the COPY.JOB:

- Set HILEV to a valid high level qualifier.
- Set LOCATION to a storage location.
- Set EXPDT to a valid expiration date.

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Step 3 - Submit COPY.JOB

Submit COPY.JOB to unload all other data sets from the tape to your disk.

Installation Tape for Natural Engineer under z/VSE

Tape Contents

The installation tape contains the data sets listed in the table below. The sequence of the data sets is shown in the Report of Tape Creation that accompanies the installation tape. The notation '*vrs*' in Data Set Name represents the version number, release level and SM level of the product.

Data Set Name	Contents
NEE*vrs*.LIBR	Source library, containing member CINI (initialization parameters).
NEE*vrs*.LIBJ	Job library with sample JCL for the Natural Engineer process.
NEE*vrs*.INPL	Natural modules in INPL format.
NEE*vrs*.ERRN	SYSERR messages for Natural Engineer.
NEE*vrs*.SYS1	Natural Engineer Repository file in ADAULD format.
NEE*vrs*.SYS2	Natural Engineer Refactoring file in ADAULD format.
NEE*vrs*.EXPL	Example application library and miscellaneous sample objects library.
NEE*vrs*.HELP	Natural Engineer Help File.

Copying the Tape Contents to a z/VSE Disk

If you are using SMA, refer to the *System Maintenance Aid* documentation.

If you are not using SMA, follow the instructions below.

This section explains how to:

- Copy data set COPY.JOB from tape to disk.

- Modify this data set to conform to your local naming conventions.

The JCL in this data set is then used to copy all data sets from tape to disk.

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If the data sets for more than one product are delivered on the tape, the data set COPYTAPE.JOB contains the JCL to unload the data sets for all delivered products from the tape to your disk, except the datasets that you can directly install from tape, for example, Natural INPL objects.

After that, you will have to perform the individual install procedures for each component.

Step 1 - Copy data set COPYTAPE.JOB from tape to disk.

The data set COPYTAPE.JOB (Label 2) contains the JCL to unload all other existing data sets from tape to disk. To unload COPYTAPE.JOB use the following sample JCL:

```
* $$ JOB JNM=LIBRCAT,CLASS=0,
* $$ DISP=D,LDEST=(*,UID),SYSID=1
* $$ LST CLASS=A,DISP=D
// JOB LIBRCAT
* ****************************************
*     CATALOG COPYTAPE.JOB TO LIBRARY
* ****************************************
// ASSGN SYS004,NNN
// MTC REW,SYS004
// MTC FSF,SYS004,4
// ASSGN SYSIPT,SYS004
// TLBL IJSYSIN,'COPYTAPE.JOB'
// EXEC LIBR,PARM='MSHP; ACC S=lib.sublib'
// MTC REW,SYS004
// ASSGN SYSIPT,FEC
/*
/&
* $$ EOJ
```

Where:

NNN   is the tape address.

lib.sublib   is the catalog library name.

Step 2 - Modify COPYTAPE.JOB to conform to local site standards.

Modify COPYTAPE.JOB to conform to local site standards and complete the disk space parameters before submitting the COPYTAPE.JOB.

Step 3 - Submit COPYTAPE.JOB

Submit COPYTAPE.JOB to unload all other data sets from the tape to your disk.

Installation Tape for Natural Engineer under BS2000/OSD

Tape Contents

The installation tape contains the data sets listed in the table below. The sequence of the data sets is shown in the *Report of Tape Creation* that accompanies the installation tape. The notation '*vrs*' in Data Set Name represents the version number, release level and SM level of the product.

Data Set Name	Contents
NEE*vrs*.JOBS	Natural Engineer example installation jobs.
NEE*vrs*.INPL	Natural modules in INPL format.
NEE*vrs*.ERRN	SYSERR messages for Natural Engineer.
NEE*vrs*.SYS1	Natural Engineer Repository file in ADAULD format.
NEE*vrs*.SYS2	Natural Engineer Refactoring file in ADAULD format.
NEE*vrs*.EXPL	Example application library and miscellaneous sample objects library.
NEE*vrs*.HELP	Natural Engineer Help File.

Copying the Tape Contents to a BS2000/OSD Disk

If you are using SMA, refer to the *System Maintenance Aid* documentation.

If you are not using System Maintenance Aid (SMA), use the procedure described below. In this procedure, the values specified below must be supplied.

To copy the data sets from tape to disk, perform the following steps:

Step 1 - Copy the library SRV*vrs*.LIB from tape to disk.

This step is not necessary if you have already copied the library SRV*vrs*.LIB from another Software AG installation tape. For further information, refer to the element #READ-ME in this library. The library SRV*vrs*.LIB is stored on the tape as a sequential file named SRV*vrs*.LIBS containing LMS commands. The current version *vrs* can be obtained from the Report of Tape Creation. To convert this sequential file into an LMS-library, execute the following commands:

```
/IMPORT-FILE   SUPPORT=*TAPE(FILE-NAME=SRVvrs.LIBS, -
/    VOLUME=volser, DEV-TYPE=tape-device)
/ADD-FILE-LINK  LINK-NAME=EDTSAM, FILE-NAME=SRVvrs.LIBS, -
/    SUPPORT=*TAPE(FILE-SEQ=3), ACC-METH=*BY-CAT, -
/    BUF-LEN=*BY-CAT, REC-FORM=*BY-CAT, REC-SIZE=*BY-CAT
/START-EDT
@READ   '/'
@SYSTEM 'REMOVE-FILE-LINK  EDTSAM'
@SYSTEM 'EXPORT-FILE   FILE-NAME=SRVvrs.LIBS'
@WRITE   'SRVvrs.LIBS'
@HALT
/ASS-SYSDTA  SRVvrs.LIBS
/MOD-JOB-SW  ON=1
/START-PROG  $LMS
/MOD-JOB-SW  OFF=1
/ASS-SYSDTA  *PRIMARY
```

Where:

vrs   is the current version number (see Report of Tape Creation).

volser   is the VOLSER of the tape (see Report of Tape Creation).

tape-device   is the device-type of the tape, for example: TAPE-C4

Step 2 - Copy the Procedure COPY.PROC from Tape to Disk.

To copy the procedure COPY.PROC from tape to disk, call the procedure P.COPYTAPE in the library SRV*vrs*.LIB:

```
/CALL-PROCEDURE   (SRVvrs.LIB, P.COPYTAPE), -
/   (VSNT=volser, DEVT=tape-device)
```

Where:

vrs	is the current version number (see Report of Tape Creation).
volser	is the VOLSER of the tape (see Report of Tape Creation).
tape-device	is the device-type of the tape, for example: TAPE-C4

If you use a TAPE-C4 device, you may omit the parameter DEVT.

Step 3 - Copy all Product Files from Tape to Disk.

To copy all Software AG product files from tape to disk, enter the procedure COPY.PROC:

```
/ENTER-PROCEDURE   COPY.PROC, DEVT=tape-device
```

Where:

tape-device	is the device-type of the tape, for example: TAPE-C4

If you use a TAPE-C4 device, you may omit the parameter DEVT. The result of this procedure is written to the file 'L.REPORT.SRV'.

Mainframe Installation Steps

Perform the following steps after copying the tape contents to disk.

1. **Establish Natural Engineer Database Files**

SMA Reference: Job I050, Step 7000

❑ Load the Natural Engineer Repository file contained in data set NEE*vrs*.SYS1.

SMA Reference: Job I050, Step 7001

❑ Load the Natural Engineer Refactoring file contained in data set NEE*vrs*.SYS2.

Note: This is optional and is only required if you wish to use the Natural Engineer Refactoring function.

2. Apply changes to Repository FDT

The Jobs NEEI051 provided with the example job library contain the necessary Adabas utility JCL required to apply each of the changes to the Repository FDT.

From Natural Engineer Version 8.2.1

If you are upgrading from Natural Engineer version 8.2.1 to Natural Engineer version 8.2.2 then there are no conversion tasks to be performed.

From Natural Engineer Version 8.2.2 Base Release

If you are upgrading from Natural Engineer version 8.2.2 to Natural Engineer version 8.2.2.1 you will need to perform the following task:

SMA Reference: Job I051, Step 7110

[i] Release the following Superdescriptor:

SQ= AA(1,8), AZ(1,1), AK(1,32), RC(1,1), AB(1,8)

[ii] Conversion is Complete

From Natural Engineer Version 8.2.2.1

If you are upgrading from Natural Engineer version 8.2.2.1 to Natural Engineer version 8.2.2.2 you will need to perform the following task:

SMA Reference: Job I051, Step 7120-7170

[i] Add the following fields to the end of the REPOSITORY file:

    01,NQ,65,A,NU

[ii] Invert the following Superdescriptor:

    ST= AA(1,8), AB(1,8), NQ(1,65)

[iii] Decompress the Repository file.

[iv] Backup and then delete the existing Repository file.

[v] Compress and Load using the inline definitions in the Job.

[vi] Conversion is Complete

From Natural Engineer Version 8.2.2.2

SMA Reference: Job I082, Step 7004

[i] If you are upgrading from Natural Engineer version 8.2.2.2 to Natural Engineer version 8.2.3 and have JCL loaded into your repository you will need to run the following object in the SYSNEE library:

    NEEJXCNV

Note: This program is completely re-executable and should be executed in a Natural session invoked using the Natural Parameter file: NATENG

From Natural Engineer Version 8.2.3 Base Release

SMA Reference: Job I082, Step 7005

[i] If you are upgrading from Natural Engineer version 8.2.3 to Natural Engineer version 8.2.3.1 you will need to run the following object in the SYSNEE library:

    NEEEXCNV

Note: This program is completely re-executable and should be executed in a Natural session invoked using the Natural Parameter file: NATENG

From Natural Engineer Version 8.2.3.1

SMA Reference: Job I082, Step 7006

[i] If you are upgrading from Natural Engineer version 8.2.3.1 to Natural Engineer version 8.2.3.2 and have COBOL Links defined then you will need to run the following object in the SYSNEE library:

NEECLCNV

Note: This program is completely re-executable and should be executed in a Natural session invoked using the Natural Parameter file: NATENG

From Natural Engineer Version 8.2.3.2

If you are upgrading from Natural Engineer version 8.2.3.2 to Natural Engineer version 8.3.1 you will need to perform the following tasks:

SMA Reference: Job I051, Step 7180

[i] Invert the following Superdescriptors:

```
SU= AA(1,8), NL(1,1), AN(1,32)

SV= AA(1,8), NL(1,1), OL(1,1), AS(1,1), AN(1,32)

SW= AA(1,8), NL(1,1), OL(1,1), AN(1,32)
```

If you have soft links within your applications then the following object needs to be needs to be run to ensure that the soft link records are converted to the new format.

SMA Reference: Job I082, Step 7007

[i] To apply the necessary conversions run the following object in the SYSNEE library

NEESLCNV

Note: This program is completely re-executable and should be executed in a Natural session invoked using the Natural Parameter file: NATENG:

[ii] Conversion is complete

From Natural Engineer Version 8.3.1 Base Release

If you are upgrading from Natural Engineer version 8.3.1 Base Release to Natural Engineer version 8.3.2 there are no conversion tasks to be performed.

From Natural Engineer Version 8.3.2 Base Release

If you are upgrading from Natural Engineer version 8.3.2 Base Release to Natural Engineer version 8.3.3 there are no conversion tasks to be performed.

3. Modify, Reassemble and Link the NATPARM Module

SMA Reference: Job I060, Step 0010 (BS2000/OSD, z/VSE), Step 0010 + 0015 (z/OS)

1. Modify the NATPARM module used for the Natural Engineer process as described in the table below.

Note: As an alternative to this step, users can use dynamic parameters in their Natural environment. The size parameters are recommendations only. You may have to adapt these values to your particular environment.

Parameter	Setting
DATSIZE=512	This is the maximum value. It is recommended to cover all values that may have been in place when an object was compiled.
LFILE=(095,001,010)	Location of the Natural Engineer Refactoring file. Logical number is 095 Physical Database is 001. Modify as required for the environment. Physical File Number is 010. Modify as required for the environment.
LFILE=(096,001,011)	Location of the Natural Engineer Repository file. Logical number is 096 Physical Database is 001. Modify as required for the environment. Physical File Number is 011. Modify as required for the environment.
ZD=OFF	This prevents NAT1302 error during the Load process.
XML=(ON,RODC=ON,PARSE=ON)	Only required if the Bulk Extract & Load processes (BLKEXL and BLKEXX) are to be used.
NTWORK=((1-24),AM=STD,OPEN=ACC,CLOSE=CMD)	
NTPRINT=((1-2),OPEN=ACC,AM=STD,CLOSE=FIN)	

2. Assemble and link the NATPARM module.

4. Link the Batch NATURAL Nucleus

SMA Reference: Job I060, Step 0020 (z/OS, z/VSE) Step 3801 (BS2000/OSD).

1. Find the JCL used to link your current batch Natural nucleus.
   This will ensure that all INCLUDE statements specified when you built your current batch Natural nucleus are supplied in this step.

2. In the INCLUDE statement for the NATPARM, specify the name of the NATPARM module that you reassembled in Step 3.

3. Link the Natural nucleus.

5. Load Natural Engineer System Programs

SMA Reference: Job I061, Step 7000

❑ The Natural Engineer system programs are contained in the data set NEE*vrs*.INPL. Load them to your Natural FNAT and FUSER system files using the Natural utility INPL.

Note: If you have an existing Natural Engineer Installation and are upgrading to Natural Engineer v8.2.3 or above from a previous version then please delete the RJE Text Members prefixed JCL* from your SYSNEE library and the relevant SYSNEEx library before loading the Natural Engineer system programs.

For z/OS, the JCL is supplied within library SYSNEEM.

For z/VSE, the JCL is supplied within library SYSNEEV.

For BS2000/OSD, the JCL is supplied within library SYSNEEB.

6. Load Natural Engineer SYSERR messages

SMA Reference: Job I061, Step 7001

❑ The Natural Engineer SYSERR messages are contained in the data set NEE*vrs*.ERRN. Load them to your Natural FUSER system files using the Natural utility ERRLODUS.

7. Load Example Application and Miscellaneous Sample Objects

SMA Reference: Job I061, Step 7002

❑ The Natural Engineer example application (HOSPITAL) and the miscellaneous sample objects (NEEEXPG) are contained in the data set NEE*vrs*.EXPL. Load it to your Natural FUSER system files using the Natural utility INPL.

8. Load the Natural Engineer Jobs z/OS

SMA Reference: Job I200, Steps 7001-7026.

7001	NEEDELAP	DELAPP
7002	NEEEXTMI	EXTMIS
7003	NEEEXTRA	EXTRACT
7004	NEEIMPAC	IMPACT
7005	NEELOAD	LOAD
7006	NEEREPEN	REPORTEN
7007	NEEREPGL	REPORTGL
7008	NEEREPIM	REPORTIM
7009	NEEREPMO	REPORTMO
7010	NEEMODIF	MODIFY
7011	NEETASK	TASKSCH
7012		IMPFLD
7013		JCLANAL
7015		NEARPC
7016		NEASERV
7017		NEASERVC
7020	NEERPC	NEERPC
7021		SQLEXT
7022		SQLLOD
7023		SOFTLINK
7024		DELLODLG
7025		BLKEXX
7026		BLKEXL

❑ The Natural Engineer sample jobs are contained in the JOBS data set for z/OS. Load the sample jobs to your designated Natural Engineer job library.

The sample jobs supplied are for running in Batch Mode when not using the Natural Engineer RJE function.

9. Modify Sample Jobs

1. The Job card statement will need to be set up with the correct site standard Job Name convention applicable at your site. The Job Class will also need to be set to a valid class applicable at your site. (It is recommended that you set this to a class that equates to a 'medium' run time as a default for ALL jobs.)

2. Each of the Work File data set names contains a reference to the Application being run through Natural Engineer. This can be identified in the sample jobs by looking for 'AAAAAAAA' within the data set names. It is recommended that you change this for each Application that you are running through Natural Engineer to avoid overwriting any of the data sets.

3. Work File 1 contains the Natural Engineer Initialization parameters (CINI) and is required in ALL the sample Jobs provided. It is set up as a PDS member called 'CINI' (in NEEvrs.SRCE). For each Application you are running you will need to edit CINI to reflect the correct Application Library name. This can be identified within CINI as 'LIBRARY=AAAAAAAA'.

10. Natural Engineer RJE Jobs

❑ Any batch jobs submitted via the Natural Engineer RJE function utilize JCL text members to build up the jobs. These are loaded as part of the install process.

The user must modify these jobs and the Natural text members according to their requirements.

Note: For z/OS, the JCL is supplied within library SYSNEEM. These should be copied to the SYSNEE library.

For BS2000/OSD, the JCL is supplied within library SYSNEEB. These should be copied to the SYSNEE Library.

For z/VSE, the JCL is supplied within library SYSNEEV. These should be copied to the SYSNEE Library. When running under z/VSE, the minimum partition recommended to execute Natural Engineer batch jobs is 8MB.

11. General Adaptions

1. Supplied member name is ###CINIX. If this is a new installation, rename to
    ###CINI. If this is an existing installation, check parameters in ###CINIX and see if
    they need transferring to existing ###CINI file.

Group Header / Parameter	Description
Note: The following parameters are used by updated Extract Engine under z/OS only. They can be customized as required to meet the site standards applicable.	
[NATURAL]	
STT=	Default=NEEvrs.SRCE(NATSTT)
	Location of the NATSTT source file.
REPORT-MISSING-INCLUDES	Default=Y
	If set to Y, any missing copycode objects will be reported during the Extract process.
	If set to N, will not report missing copycode objects.
	Possible values Y,N
REPORT-MISSING-DDMS	Default=Y
	If set to Y, any missing DDM objects will be reported during the Extract process.
	If set to N, will not report missing DDM objects.
	Possible values Y,N
REPORT-INCORRECT-MODE	Default=Y
	If set to Y, if a reporting mode object is discovered, but contains structured mode syntax, or vice-versa, then it will be reported during the Extract process.
	If set to N, will not be reported.
	Possible values Y,N
[COBOL]	
STT=	Default=NEEvrs.SRCE(COBSTT)
	Location of the COBSTT source file

Group Header / Parameter	Description
(JCL)	
STT=	Default-NEEvrs.SRCE(JCLSTT)
	Location of the JCLSTT source file
[EXTRACT]	
CEE=	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
NO-SECS=	Default=N
	If set to Y, when comparing timestamps, will include seconds, i.e. will use HH:MM:SS.
	If set to N, when comparing timestamps, will not include seconds, i.e. will use HH:MM.
	Possible values Y,N
JOBCLASS=	Used by Bulk Extract and Load standalone job (BLKEXL) to specify jobclass of the extract & load jobs.

2. Supplied member name ###DEFnn. If this is a new installation, rename to ###DEF01. This contains the default values for the Multi-Search feature in Impact Analysis.

3. The supplied stand-alone batch jobs and Natural Engineer RJE JCL text members need to be reviewed before any batch jobs are submitted. Modify as required to meet your site standards.

   Note: For more information on modifying the batch jobs refer to section Modifying Natural Engineer Batch Jobs.

4. The Application name associated with each Work File data set is handled automatically by Natural Engineer RJE function.

12. NATURAL SECURITY Considerations

To run Natural Engineer under Natural Security:

❑   Define library SYSNEE to Natural Security for all Platforms.

❑   Define library SYSNEEI to Natural Security for all Platforms.

❑   Define library NEEEXPG to Natural Security for all Platforms.

❑   Define library HOSPITAL to Natural Security for all Platforms.

❑   Define library HOSPITAX to Natural Security for all Platforms.

❑   Define library SYSNEEM to Natural Security for z/OS.

❑   Define library SYSNEEV to Natural Security for z/VSE.

❑   Define library SYSNEEB to Natural Security for BS2000.

13. Loading Natural Engineer Help System

SMA Reference: JOB I500, Step 7010

To run the load of the Natural Engineer Help System, execute member HELPLOAD from the NEEvrs.JOBS data set. This will delete the existing Natural Engineer help and replace it with the new version of the help from NEEvrs.HELP data set.

Note: For z/VSE, the member HELPLOAD is located in the NEEvrs.LIBJ data set.

14. User Exit Considerations

Natural User Exits

Natural Engineer utilizes various Natural user exits. These need to be made available to the Natural session where you are running Natural Engineer.

> USR2021N
> USR3005N
> USR4206N
> USR4209N

If you are using the Natural Engineer Web Interface then the following user exit also needs to be made available.

> USR1005N

Note: It is recommended that these User Exit objects are copied from SYSEXT to the FNAT library SYSTEM.

Natural Engineer User Exits

Natural Engineer user exit modules are supplied named 'NEEUEXnX' where 'n' in the number of the User Exit, on the Natural Engineer SYSNEE library supplied in the NEEvrs.INPL data set. This is to avoid overwriting any existing (modified) versions on the production SYSNEE library during Natural Engineer installation. If the user exit has not been loaded before, then it will need to be renamed to 'NEEUEXn' e.g. NEEUEX2, NEEUEX3 or NEEUEX4 accordingly before making use of the User Exit functionality.

N.B., NEEUEX5 and NEEUEX6 need to be present on the SYSNEE library before starting Natural Engineer.

i. NEEUEX1 – Application Lock Password

❑   NEEUEX1 is used if you wish to change the Application Lock Release Password from the default value. The new value must be uppercase and contain no special characters.

ii. NEEUEX2 – RJE Job Submission

❑   This is used to customize RJE online job submission.

❑

iii. NEEUEX3 - Modification

❑ NEEUEX3 is used in modification.

The user exit module can be customized to replace selected items, which have been impacted by the Impact Analysis process, within an object with up to 20 lines of new source code.

iv. NEEUEX4 – NJX Processing

❑ NEEUEX4 allows the dynamic generation of adapter and variable names in the Natural for Ajax processing.

v. NEEUEX5 – Generate Application Names

❑ NEEUEX5 allows for the dynamic generation of application names within Natural Engineer.

vi. NEEUEX6 – Access to Applications

❑ NEEUEX6 controls access to applications when Natural Security does not exist. This is only used if you are running in a SPoD environment against a mainframe server.

Further information on the usage of these user exits are contained within the source of the user exits themselves on the SYSNEE FNAT library.

15. Verify the Installation

❑ To confirm that the installation was successful, follow the procedure described in the *Natural Engineer Application Management* manual against the supplied example application library.

Mainframe Customization

Setting Initialization Parameters

The various configuration options for Natural Engineer are held as initialization parameters and are used to control both the online and batch processes within Natural Engineer.

The initialization parameters are available in two locations:

1. Text member ###CINI located in the Natural Engineer library SYSNEE. This is used by the online and Natural Engineer RJE batch job submission processes.

2. PDS Member CINI located in the installation tape data sets. This is used by any stand-alone batch jobs only.

In both cases, the same initialization parameters can be applied.

Note: For more information on the various initialization parameters refer to Chapter 2 in the Natural Engineer Administration Guide for Mainframes manual.

Modifying Natural Engineer Batch Jobs

The Natural Engineer batch jobs need to be reviewed and administered to ensure that they comply with your site standards before any batch job is submitted.

The Natural Engineer batch jobs are supplied in two formats:

1. **Stand-alone batch jobs**

   The stand-alone batch jobs can be manually submitted after the appropriate online selections and settings have been made.

   For z/OS the JCL is supplied in the NEEvrs.JOBS data set on the installation tape.

2. **Natural Engineer RJE JCL text members**

   The Natural Engineer RJE JCL text members are automatically submitted when a batch function is selected online and the Natural Engineer RJE submission screen is presented.

   For z/OS, the JCL is supplied within library SYSNEEM. These should be copied to the SYSNEE library.

   For z/VSE, the JCL is supplied within library SYSNEEV. These should be copied to the SYSNEE library.

   For BS2000/OSD, the JCL is supplied within library SYSNEEB. These should be copied to the SYSNEE library.

Supplied Natural Engineer Stand-alone Batch Jobs

The following Natural Engineer stand-alone batch jobs are supplied:

Extract and Load Members	Description
EXTMIS	Extract Missing Objects.
EXTRACT	Extract Application.
LOAD	Load Repository.
BLKEXX	Bulk Extract & Load Parameter Generator
BLKEXL	Bulk Extract & Load Execution.
SQLEXT	SQL Tables Extract.
SQLLOD	SQL Tables Load.

Application Management Members	Description
JCLANAL	JCL Analysis.
SOFTLINK	Softlink Import.
SRVANAL	Services Analysis.

Impact Member	Description
IMPACT	Impact Execution.
IMPFLD	Impact Execution – Field Analysis.

Data Modification Member	Description
MODIFY	Execute Modification for all Objects.

Report Members	Description
REPORTGL	Global Reports.
REPORTIM	Impact Reports.
REPORTMO	Modification Reports.

REPORTEN	Application Reports.

Deletion Members	Description
DELAPP	Application Delete.
DELLODLG	Delete Load Audit Log Records.

Natural Engineer Web Interface Members	Description
NEARPC	NEA RPC Engine.
NEASERV	NEA Server Start.
NEASERVC	NEA Server Cancel.

Bulk Extract & Load

There are two supplied Natural Engineer stand-alone batch jobs that may be used to provide automatic extract and load of one or more applications.

BLKEXX   Bulk Extract & Load Parameter Generator

BLKEXL   Bulk Extract & Load Execution.

BLKEXX is designed to run against an existing repository and will read all current extract and load settings and produce an XML file that may be tailored by the user to their own requirements. This XML file is then used by the Bulk Extract & Load Execution process (BLKEXL).

If you wish to run the Bulk Extract & Load then the following Natural parameter should be added to the session where you are running Natural Engineer:

XML=(ON,RODC=ON,PARSE=ON)

Bulk Extract & Load Parameter Generator

BLKEXX will produce an XML Template based on existing extract and load settings. It requires three input parameters:

```
*  #IN-OPT(A03)       - TMP for template xml file
*                     - EXT for xml file containing application overrides
*  #IN-OVERRIDES(A01) - Y = Individual application settings for extract
*                       languages, Sync flags & Natural Objects for
*                       Compilation & Called Objects will be included.
*  #IN-APP-RANGE(A17) - Application Range (wildcards or range A:BB)
```

NB: Wildcard names for Application Range may be 'starting from' e.g., ABC* will process all applications beginning with ABC or 'ending a't e.g., *XYZ will process all applications ending in XYZ.

Sample Bulk Extract & Load XML template

If you wish to build your own template for input into the Bulk Extract & Load Execution process then a text member BLKEXX-T is provided in the Natural Engineer SYSNEE library explain the tags required. It contains;

```
<?xml version='1.0' ?>
<BLKEXL>
<GeneralParms>
    <JobName></JobName> <!-- Mandatory. Defaults to 5 chars of *USER. Only
                    1st  5  chars  used  in  job  submission  to  allow
                    sequential numbering of jobnames -->
    <JobClass></JobClass>    <!-- Mandatory. -->
    <JobSysid></JobSysid>
    <ExtractParms>
      <Applications></Applications>    <!-- Mandatory. Wildcards  &  ranges
                                        allowed  e.g.  A:BZZZZZZZ)  Multiple
                                        tags allowed. -->
      <Languages></Languages>          <!-- Mandatory. N,J and/or C  -->
      <NaturalSync></NaturalSync>      <!-- Mandatory. Y/N -->
      <CobolSync></CobolSync>          <!-- Mandatory. Y/N -->
      <JCLSync></JCLSync>              <!-- Mandatory. Y/N -->
      <NaturalObjCompilation></NaturalObjCompilation> <!-- Mandatory.Y/N->
      <NaturalCalledObjects></NaturalCalledObjects>  <!-- Mandatory.Y/N->
    </ExtractParms>
    <LoadParms>
       <!—Following tags are mandatory. Y/N, Values obtained from ini file
        if present -->
      <CalculateMetrics></CalculateMetrics>
      <ForceReplace></ForceReplace>
      <ValidateObjects></ValidateObjects>
    </LoadParms>
</GeneralParms>
```

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```
<AppOverrides>                                <!-- Optional section -->
    <App>
        <AppName></AppName>
          <ExtractParms>
          <Languages></Languages>  <!-- If present, overrides General Parms
                               Languages. N J and or C -->
          <Natural>
                <ObjectTypes></ObjectTypes>
                <!-- If present, overrides General Parms Y/N -->
                <Sync></Sync>
                <ObjCompilation></ObjCompilation
                <CalledObjects></CalledObjects>

                <InclObjectRange></InclObjectRange>
                <UserDefFile></UserDefFile>
                <EntryPointApp></EntryPointApp>
                <EntryPointObject></EntryPointObject>
                <EntryPointLevels></EntryPointLevels>
                <ExclObjectRange></ExclObjectRange>
        <ExclUserDefFile></ExclUserDefFile>
        <ValidMissObjects></ValidMissObjects>
    </Natural>
    <Cobol>
        <Sync></Sync>     <!-- If present, overrides General Parms Y/N -->
        <InclObjectRange></InclObjectRange>
        <UserDefFile></UserDefFile>
        <ExclObjectRange></ExclObjectRange>
        <ExclUserDefFile></ExclUserDefFile>
        <ValidMissObjects></ValidMissObjects>
    </Cobol>

    <JCL>
        <Sync></Sync>       <!-- If present, overrides General Parms Y/N -->
        <InclObjectRange></InclObjectRange>
        <UserDefFile></UserDefFile>
        <ExclObjectRange></ExclObjectRange>
        <ExclUserDefFile></ExclUserDefFile>
        <ValidMissObjects></ValidMissObjects>
    </JCL>
</ExtractParms>

 <LoadParms>
    <!-- If present, overrides General Parms Y/N -->
    <CalculateMetrics></CalculateMetrics>
    <ForceReplace></ForceReplace>
    <ValidateObjects></ValidateObjects>
 </LoadParms>
</App>
</AppOverrides>
</BLKEXL>
```

JCL Analysis

The supplied JCLANAL stand-alone job for JCL Analysis may be modified to process a selection of applications and objects as required.

The parameters into the process are specified as follows;

```
//CMSYNIN   DD   *
LOGON SYSNEE
JCEANA-P AAAAAAAA,U,Q,SSSSSSSS,EEEEEEEE,N
FIN
/*
//* ****************************************************
//*
//* WHERE
//*
//* AAAAAAAA      - APPLICATION
//* U            - UNPROCESSED JOBS, Y OR N
//* Q            - ALL OBJECTS? Y OR N
//* SSSSSSS      - OBJECT START (XX* IS VALID)
//* EEEEEEEE     - OBJECT END
//*              - (IF COMPLETED, MUST BE GREATER THAN START)
//* N            - OBJECT-LIMIT 0-9 VALID
//* ****************************************************
```

Some examples:

JCEANA-P HOSPITAL,Y,N,XX*,,5
Will perform analysis on all unprocessed jobs in HOSPITAL in range XX* to object level limit of 5.

JCEANA-P HOSPITAL,N,Y,,,0
Will perform analysis on all jobs in HOSPITAL with no limit check.

JCEANA-P HOSPITAL,Y,Y,,,5
Will perform analysis on all unprocessed jobs in HOSPITAL to object level limit of 5
.
JCEANA-P HOSPITAL,N,N,XX00001,XX00100,5
Will perform analysis on all jobs in HOSPITAL with range XX00001-XX00100 to object level limit of 5.

Global Changes for z/OS

Stand-alone Batch Jobs

The supplied Natural Engineer stand-alone batch jobs for z/OS should be reviewed to adapt them to your site standards. The following changes need to be addressed:

Value	Description
UNIT=3390	Specify correct UNIT type.
VOL=SER=XXXXXX	Specify correct DASD volume.
PGM=NAT*vrs*BAT	Specify correct batch Natural program.
DSN=NEE*vrs*.SRCE	Specify name of supplied NEEvrs.SRCE.
DSN=NAT.LOAD	Specify name of batch Natural steplib.
DSN=ADA.LOAD	Specify name of Adabas steplib.
DB=025	Specify normal database for ADARUN parameters.
SVC=233	Specify correct SVC number for ADARUN parameters.
DEVICE=3390	Specify correct DEVICE for the database.
AAAAAAAA	Specify name of application to be processed.

Additional Changes for Stand-alone Batch Jobs

Check that the environment settings for 'MSGCLASS=' and 'MSGLEVEL=' are correct for your site standards.

A default Job Name and Job Class are supplied with each stand-alone batch job. These can be modified to your site standards as required.

Natural Engineer RJE JCL Text Members

The supplied Natural Engineer RJE JCL text members for z/OS should be reviewed to adapt them to your site standards. This can be done by reviewing the following initialization parameters in the Natural Engineer text member ###CINI:

Group Header / Parameter	Description
[JCL-MVS]	
Note: The following parameters are used by the Natural Engineer RJE JCL text members only. They can be customized as required to meet the site standards applicable.	
ADADB=	Default=025
	The Adabas database number.
ADASVC=	Default=233
	The Adabas SVC number.
ADADEVICE=	Default=3390
	The Adabas device type.
LOGON=	Default=LOGON SYSNEE
	The name of the Natural Engineer logon library.
	Note: If Natural Security is being utilized then the USER and PASSWORD information can be also be specified here. For example:
	LOGON=SYSNEE,USER,PASSWORD
UNIT=	Default=3390
	The device type where the data set resides.
	If the batch environment utilizes System Managed Storage (SMS), then UNIT=SMS can be specified.
	Note: If UNIT=SMS is specified then the JCL line containing this information is not included in the submitted JCL stack.
VOL=	Default=DISK01
	The volume name where the data set resides.

Group Header / Parameter	Description
NATBAT=	Default=NAT*vrs*BAT
	The name of the batch Natural program used during batch job submission.
NATLOAD=	Default=NAT*vrs*.LOAD
	The name of the Natural load library.
ADALOAD=	Default=ADA*vrs*.LOAD
	The name of the Adabas load library.
PARM=	Any parameter data to be passed to the batch Natural program. For example:
	PARM='PROFILE=SYSNEE2'
	Note: If PARM=is left blank, then the JCL line containing this information is not included in the submitted JCL stack.
EXTRA-STEP1=	Default=NEE*vrs*.LOAD
	Additional load library to be included for the batch Natural program.
	Note: If EXTRA-STEP1=is left blank, then the JCL line containing this information is not included in the submitted JCL stack.
EXTRA-STEP2=	Additional load library to be included for the batch Natural program.
	Note: If EXTRA-STEP2=is left blank, then the JCL line containing this information is not included in the submitted JCL stack.
HLQ=	Default=NATENG
	The high level qualifier name used for Natural Engineer data sets.

Note: Do not change the application name setting of 'AAAAAAAA', this is dynamically replaced by the Natural Engineer RJE Job submission screen with the name of the currently selected application.

Additional Changes for Natural Engineer JCL text member JCLSTART

Check that the environment settings for Job Class, 'MSGCLASS=' and 'MSGLEVEL='
are correct for your site standards.

Note: Do not change the job name setting of 'NNNNNNNN', this is dynamically replaced
by the Natural Engineer RJE Job submission screen.

Global Changes for z/VSE

Stand-alone Batch Jobs

The supplied Natural Engineer stand-alone batch jobs for z/VSE should be reviewed to
adapt them to your site standards. The following changes need to be addressed:

Value	Description
VVVVVV,,,XXXX,YYYY	Specify correct DASD volume, start track and number of tracks.
EXEC NAT*vrs*BA	Specify correct batch Natural program.
SAGLIB.NAT*vrs*	Specify name of batch Natural steplib.
SAGLIB.ADA*vrs*	Specify name of Adabas steplib.
DB=002	Specify normal database for ADARUN parameters.
SVC=045	Specify correct SVC number for ADARUN parameters.
DEVICE=3390	Specify correct DEVICE for the database.
AAAAAAAA	Specify name of application to be processed.

Note: The batch job CREATE.J creates the CINI (initialization parameters) file to be used
by subsequent stand-alone batch jobs. This must be run before any other stand-alone
batch jobs in order to correctly establish the CINI file.

Additional Changes for Stand-alone Batch Jobs

Check that the environment settings for 'DISP=' and 'DEST=' are correct for your site
standards.

A default Job Name and Job Class are supplied with each stand-alone batch job. These can be modified to your site standards as required.

Natural Engineer RJE JCL Text Members

The supplied Natural Engineer RJE JCL text members for z/VSE should be reviewed to adapt them to your site standards. This can be done by reviewing the following initialization parameters in the Natural Engineer text member ###CINI:

Group Header / Parameter	Description
[JCL-VSE]	
Note: The following parameters are used by the Natural Engineer RJE JCL text members only. They can be customized as required to meet the site standards applicable.	
ADADB=	Default=002
	The Adabas database number.
ADASVC=	Default=045
	The Adabas SVC number.
ADADEVICE=	Default=3390
	The Adabas device type.
LOGON=	Default=LOGON SYSNEE
	The name of the Natural Engineer logon library.
	Note: If Natural Security is being utilized then the USER and PASSWORD information can be also be specified here. For example:
	LOGON=SYSNEE,USER,PASSWORD

Note: Do not change the application name setting of 'AAAAAAAA', this is dynamically replaced by the Natural Engineer RJE Job submission screen with the name of the currently selected application.

Additional Changes for Natural Engineer JCL text member JCLSTART

Check that the environment settings for Job Class, 'DISP=' and 'DEST=' are correct for your site standards.

Note: Do not change the job name setting of 'NNNNNNNN', this is dynamically replaced by the Natural Engineer RJE Job submission screen.

The supplied Natural Engineer RJE text member JCLSTART for z/VSE includes settings for dynamic JCL parameters which are used throughout the Natural Engineer RJE JCL text members for z/VSE. These are dynamically resolved at run time.

Review the following dynamic JCL parameters in JCLSTART:

Value	Description
USRLIB='SAGLIB.USRNAT*vrs*'	Specify name of batch Natural steplib.
ADALIB='SAGLIB.ADA*vrs*'	Specify name of Adabas steplib.
NATBAT='NAT *vrs*BA'	Specify correct batch Natural program.
DEV001	Specify the disk name for the data set.
ssss,nnnn	Specify the start track and number of tracks for the data set

Note: The disk name, start track and number of tracks information is repeated for each Natural Engineer data set required. They are identified by the 'SETPARM' JCL statement.

Global Changes for BS2000/OSD

Natural Engineer RJE JCL Text Members

The supplied Natural Engineer RJE JCL text members for BS2000/OSD should be reviewed to adapt them to your site standards. This can be done by reviewing the following initialization parameters in the Natural Engineer text member ###CINI:

Group Header / Parameter	Description
[JCL-BS2000]	
Note: The following parameters are used by the Natural Engineer RJE JCL text members only. They can be customized as required to meet the site standards applicable.	
NATBAT=	Default=NATEXE
	The name of the batch Natural program used during batch job submission.
LOGON=	Default=LOGON SYSNEE
	The name of the Natural Engineer logon library.
	Note: If Natural Security is being utilized then the USER and PASSWORD information can be also be specified here. For example:
	LOGON=SYSNEE,USER,PASSWORD

Note: Do not change the application name setting of 'AAAAAAAA', this is dynamically replaced by the Natural Engineer RJE Job submission screen with the name of the currently selected application.

Additional Changes for Natural Engineer JCL text member JCLSTART

Check that the various environment settings are correct for your site standards.

Note: Do not change the job name setting of 'NNNNNNNN', this is dynamically replaced by the Natural Engineer RJE Job submission screen.

Natural Engineer Processes and Related Jobs

This section illustrates the relationships between the Natural Engineer batch processes, the stand-alone batch jobs and the Natural Engineer JCL text members.

Extract Missing Objects

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
EXTMIS	JCLSTART
	JCLINIWT
	JCLEXTMS
	JCLLAST

Extract Application

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
EXTRACT	JCLSTART
	JCLINIWT
	JCLEXTRT

Load Repository

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
LOAD	JCLSTART
	JCLINIWT
	JCLLOAD
	JCLLAST

Extract and Load

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
EXTRACT	JCLSTART
LOAD	JCLINIWT
	JCLEXTLD

Extract, Load and Impact

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
EXTRACT	JCLSTART
LOAD	JCLINIWT
IMPACT	JCLEXLDI

Impact Execution

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
IMPACT	JCLSTART
	JCLINIWT
	JCLIMPCT
	JCLLAST

Impact Execution Field Analysis

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
IMPFLD	JCLSTART
	JCLINIWT
	JCLIMPWZ
	JCLLAST

Execute Modification for all Objects

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
MODIFY	JCLSTART
	JCLINIWT
	JCLREMDY
	JCLLAST

Global Reports

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
REPORTGL	JCLSTART
	JCLINIWT
	JCLREPGL
	JCLREPCT
	JCLLAST

Application Reports

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
REPORTEN	JCLSTART JCLINIWT JCLREPAP JCLREPCT JCLLAST

Impact Reports

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
REPORTIM	JCLSTART JCLINIWT JCLREPIM JCLREPCT JCLLAST

Modification Reports

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
REPORTMO	JCLSTART JCLINIWT JCLREPRM JCLREPCT JCLLAST

Application Delete

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
DELAPP	JCLSTART
	JCLINIWT
	JCLDELET

Application Management

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
JCLANAL	JCLSTART
	JCLINIWT
	JCLEXEC
	JCLLAST
SRVANAL	JCLSTART
	JCLINIWT
	JCLEXEC
	JCLLAST

SQL Tables Extract

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
SQLEXT	JCLSTART
	JCLINIWT
	JCLSQLEX

SQL Tables Load

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
SQLLOD	JCLSTART
	JCLINIWT
	JCLSQLLD

Soft Links Import

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
SOFTLINK	JCLSTART JCLINIWT JCLEXEC JCLLAST

Delete Load Audit Log Records

Stand-alone Batch Job	Equivalent Natural Engineer RJE JCL text members
DELLODLG	JCLSTART JCLINIWT JCLEXEC JCLLAST

NATURAL ENGINEER WEB INTERFACE

Chapter Overview

This chapter describes some additional installation process and options to use the Natural Engineer Web Interface (NEEGUI) with Natural Engineer (NEE).

The Natural Engineer Web Interface is a web based application that accesses the Natural Engineer repository via additional Natural programs. Two installation options are available, multi user install where clients access a common NEE repository or a single user install where the NEE repository is on the client machine. A multi user environment uses a web server (IIS or Apache) and can use either EntireX or NAS to execute the NEE Natural objects.

The topics covered are:

1.   Post Installation Configuration

Describes the post installation configuration tasks required to the Natural components of the NEA Installation.

2.   Installation of NEA Server

3.   ENTIREX Configuration

4.   Web Server Backend

5.   Additional Information

Post Installation Configuration

This section describes the post installation configuration tasks that are required to the Natural components of the NEA installation. This is applicable to both single and multi-user modes. The Natural Objects to run the Natural Engineer Web Interface will have been loaded into the SYSNEEI library during the normal Natural Engineer Installation.

Initialization Routines

There are three supplied initialization routines in SYSNEEI library: INIMF-NX, INIPC-NX and INIUX-NX. If this is a new installation, rename these objects to INIMF-N, INIPC-N and INIUX-N respectively and amend the entries to match your environment. If this is an existing installation, check parameters in INIMF-NX, INIPC-NX and INIUX-NX and see if they need transferring to existing objects.

If running on a mainframe environment any Application Properties that are set within Natural Engineer for COBOL and JCL directory locations will override the SOURCE-DIR, COPY-DIR and MAP-DIR settings within the initialization routine.

Settings

Group Header / Parameter	Description
##COBOL-SECTION	
SOURCE-DIR	The full directory name where the COBOL Source members are located.
SOURCE-EXTNS	The suffixs of the COBOL Source members.
	Default = ,COB,CBL,CCP
	NB: The initial , (comma) means also check for members with no suffix.
COPY-DIR	The full directory name where the COBOL Copycode members are located.

Group Header / Parameter	Description
COPY-EXTNS	The suffixs of the COBOL Copycode members.
	Default = ,CPY, COP
	NB: The initial , (comma) means also check for members with no suffix.
MAP-DIR	The full directory name where the COBOL Map members are located.
MAP-EXTNS	The suffixs of the COBOL Map members.
	Default = ,BMS
	NB: The initial , (comma) means also check for members with no suffix.

NB: COBOL only applicable to PC (INIPC-N) and Mainframe(INIMF-N)

Group Header / Parameter	Description
##JCL-SECTION	
SOURCE-DIR	The full directory name where the JCL Source members are located.
SOURCE-EXTNS	The suffixs of the JCL Source members.
	Default = ,JCL
	NB: The initial , (comma) means also check for members with no suffix.
COPY-DIR	The full directory name where the JCL Copycode members are located.
COPY-EXTNS	The suffixs of the JCL Copycode members.
	Default = ,PRC
	NB: The initial , (comma) means also check for members with no suffix.
PROCLIB-DIR	The full directory name where the JCL Procedures are located.
PROCLIB-EXTNS	The suffixs of the JCL Procedures.
	Default = ,PRC
	NB: The initial , (comma) means also check for members with no suffix.

NB: JCL only applicable to PC (INIPC-N) and Mainframe(INIMF-N)

##APPS-SECTION

XAPPS	List of Applications to be excluded from being shown.
	Applications to be excluded are specified delimited by a comma'
	Default = ' '
NCST	Show Natural Construct generated modules.
	Default = 'Y'
	Valid values = 'Y' , 'N'
OBJ-GROUP-MAX	Maximum number of objects to be shown per Object group.
	Default = '1000'
OBJ-COMMENTS	Show Object Comments when hovering.
	Default = 'Y'
	Valid values = 'Y', 'N'
XREF-LEVEL-MAX	The amount of levels to drill down to for showAppMapXref and showAppXref functions.
CODEPAGE	The name of the codepage to be used.
	Default = ' '
	Valid values = '*codepagename'*, SYSTEM,ON
	'codepagename' = use specified codepage source but source codepage overrides.
	SYSTEM = use *CODEPAGE setting to encode all source but source codepage overrides *CODEPAGE.
	ON = only encode any source with a codepage set.
	NB: This is used in conjunction with the settings in the mainframe Natural Parameter module.

##RPC-SECTION

BUFSIZE   The Buffer size for RPC.

                                     Default = ' ' (will be set internally to 30K)

##TRACE-SECTION

TRACE   Internal debug setting to set Tracing on.

                                     Default = ' '

                                     Valid values = 'Y' , ' '

                                     Only to be used when requested by Support
                                     personnel.

FILE   Internal debug setting to specify location of Trace
                                     file.

                                     Only to be used when requested by Support
                                     personnel.

LEVEL   Internal debug setting to specify Trace Level.

                                     Only to be used when requested by Support
                                     personnel.

##REQUESTS-SECTION

LISTLITERALSLIMIT   Limits the amount of records retrieved by the LIST
                                     LITERALS Report.

                                     Default = '5000'

Natural Parameter Modules

If this is a new installation you will need to create a Natural Parameter module for the NEA interface. The following steps should be followed to achieve this.

1. Using the Natural Configuration utility save a copy of the NEEPARM parameter file as NEEGUI

2. Modify the NEEGUI parameter module as follows:

   i. Natural Execution Configuration - System Variables

      1. Check the Automatic logon checkbox.

      2. Change the startup library (INIT-LIB) to be SYSNEEI.

      3. Remove the Startup program (STARTUP).

      4. Add SYSNEE to the steplib list.

      5. Move SYSNEE to the top of the steplib list.

      6. Remove all work file entries.

      7. If using codepages set Regional Settings

         CP= codepagename.

         CPCVERR=OFF.

3. Save the parameter file NEEGUI.

Mainframe Natural Parameter Module

   i. Natural Execution Configuration – Regional Settings (if using codepages)
      1. CFICU=ON
      2. CP= *codepagename.*
      3. CPCVERR=OFF.

If using codepages then the CODEPAGE setting in the mainframe initialization routine (INIMF-N) will need to be set also.

NEA Server (NAS) Installation

This section describes the installation of the NEA Server (NAS). This is used if the Natural Engineer Web Interface is running in local mode (on one PC) or may be used in multi-user mode with a web-server instead of EntireX.

Windows

1. Update NAS.INI file to match your directory structure used, default is

    C: \Natural Engineer\NEA

    If using Natural Security

    [NEE]

    NATLIB=SYSNEEI,userid,password

    Where *userid* and *password* are the userid and password defined to Natural Security for the NEA Server.

    With Natural Security (either AUTO=ON or AUTO=OFF) ensure that SYSNEE is a STEPLIB for library SYSNEEI. It is recommended to make SYSNEE and SYSNEEI libraries not protected.

2. NEA uses port number 19999 by default, (PORT= setting in [NAS] section of the NAS.INI). If you need to change this then you must also change the CONFIG.js file in the 'C:\Natural Engineer\NEA\iie\config' subdirectory.

3. Update NATURAL.BAT file to match your Natural environment. This will include the name of the directory Natural executes from and the NATPARM module created (default NEEGUI).

4. Start NAS.EXE and a command window will appear.

    NB: If you are running in a Windows 7 environment then you will need to ensure that the NAS.EXE is "Run as Administrator".

5. Start Web Interface by executing C:\Natural Engineer\NEA\IIE\iie.html

Mainframe (z/OS)

On the NEE*vrs*.JOBS dataset you will find a member called NEASERV which contains a sample for running the Natural Engineer Access (NEA) server. It references two members from the NEE*vrs*.SRCE dataset:

- NEAPARM

    o Contains parameters controlling Natural Sessions that will be activated by the NEA server.

- NEAINI

    o Initialization settings controlling the NEA server.

Customizing NEAPARM

Modify the NEAPARM module used for the NEA (NAS) Server as follows:

1. If you are running with Natural Security with AUTO=OFF you will need:

    IM=D,AUTO=OFF

2. Set the LFILE setting for LFILE 96 to be the Natural Engineer Repository file.

3. Ensure DBCLOSE setting is set ON.

Customizing NEAINI

Modify the NEAINI module:

1. If you are running with Natural Security with AUTO=OFF you will need:

    [NEE]
    NATLIB=SYSNEEI,userid,password

2. Check the following setting points to the NEE*vrs*.SRCE dataset as set in your environment:
    [NAS]
    WEBROOT= NEEvrs.SRCE

NOTE: With Natural Security (either AUTO=ON or AUTO=OFF) ensure that SYSNEE is a STEPLIB for library SYSNEEI. It is recommended to make SYSNEE and SYSNEEI libraries not protected.

It is recommended to start the NEA server as a started task as it will wait to process requests from NEE Web clients. To shutdown the NEA Server a member NEASERVC may be utilized. This is located on the NEE*vrs*.JOBS dataset.

NB: ADARUN needs to be linked REUS if the mainframe NEA server is to be used.

Unix

1. Update NAS.INI file to match your directory structure used, default is

   /opt/softwareag/nee/v*vrs*/INSTALL/NEA/NAS

   If you are using compression (the default) then the relevant ZLIB package for your Unix operating system will need to be installed. The zlib= setting in the NAS.INI needs to be set for your operating system.

   NB: If the ZLIB package is installed into a non-default directory then the LIBPATH environment variable will need to be changed accordingly.

2. Update natural.sh file to match your Natural environment. This will include the name of the directory Natural executes from and the NATPARM module created (default NEEGUI).

3. Copy the relevant nas server executable for your operating system from $NEEDIR/$NEEVERS/INSTALL/NEA/NAS/BIN/*operating_system* to the same directory that the nas.ini is located in. Default is $NEEDIR/$NEEVERS/INSTALL/NEA/NAS

4. Start the nas server executable.

Web Server Backend

This section describes the configuration of the Web Server backend. This is only necessary if you are running the Natural Engineer Web Interface in multi-user mode. The user may use EntireX or a NAS server if EntireX is unavailable.

1)   Copy the following files from the WEB directory to the 'scripts' directory of the web server for IIS, or 'cgi-bin' for Apache: IIE.EXE, IIE.INI

2)   Update IIE.INI as required to match your environment

(a) If using EntireX change the following;

[NEE]
DRIVER=RPC

[RPC]
BROKER=name of broker executing:port number
SERVER=NEERPC
NATLIB=SYSNEEI
TIMEOUT=600
USERID= broker userid
PASSWORD=broker password

NB: , If no USERID/PASSWORD supplied will default to IIEUSER/IIEPASS.

SECURITY=   (if set to Y set kernel security to Y in ACI calls)

If using Natural Security with EntireX configuration:

SUSERID=   (userid of RPC Server jobs)
SPASSWORD=   (password of RPC Server jobs)

NOTE: With Natural Security (either AUTO=ON or AUTO=OFF) ensure that SYSNEE is a STEPLIB for library SYSNEEI. It is recommended to make SYSNEE and SYSNEEI libraries not protected.

NB: If using EntireX then the tasks in the EntireX Configuration section will also need to be followed.

b) If using NAS change the following;

    [NEE]
    DRIVER=NAS ,

    [NAS]
    HOST=IP Address or host name of the machine that NAS is running on.

If EntireX or EntireX mini runtime is not installed on the machine NAS is executing on then rename iie.exe to be iieold.exe and rename iienas.exe to be iie.exe.

c) Review the CACHE settings;

    [CACHE]
    CACHE=Y
    DIR= C:\inetpub\wwwroot\IIE\cache

Setting CACHE=Y means that requests accessed via the webserver will store the results in the directory specified.

NOTE: Set the permissions to allow WRITE access for all users to this directory. Any other clients accessing the same request via the webserver will not require the request to execute again but be resolved by the webserver.

Any changes in applications loaded in the Natural Engineer repository will mean the cache files for the application must be removed to access the most up to date information.

If webserver caching is set on then the CACHE-CONTROL setting needs to be changed to turn off client caching and the LAST-MODIFIED setting needs to be commented out.

```
[IIE]
CACHE-CONTROL=no-cache,no-store
; LAST-MODIFIED=Thu, 01 Jan 2009 01:00:00 GMT
```

Clients can view the cache file by the option "listCache" under "Site" on the tree view. A batch process is available to list, delete and add caching entries. The modules are in the CACHE dir under NEA.

A cache.bat file is provided to execute the cache module, examples of the input parameters are contained in the top of the file.

Parameter values are listed below:

1.   Option – the option required
Parameter name -opt   Possible values (list, del, add)

2.   Output – optional output file for messages
Optional output file for messages from the processing

3.   Application – application name options
Parameter name   -app   Possible values (appname, appname …. Or * for all)
Parameter name   -alvl   Reports produced, values (a – application reports, o - object reports, f – field reports)
Parameter name   -gbl   Global reports, values (y – site reports and other object types loaded on tree view)

Examples

1.   Process COBJCLNT application accessed on web server and cache object level reports and log output messages

cache.exe -opt add -url http://mywebsite/scripts/iie.exe -app COBJCLNT -alvl o - out C:\temp\neacache.txt

2.   Delete COBJCLNT cached objects

cache.exe -opt del -url http://mywebsite/scripts/iie.exe -app COBJCLNT

3.   List COBJCLNT objects

cache.exe -opt list -url http://mywebsite/scripts/iie.exe -app COBJCLNT

3)   Copy the IIE directory to the WEBROOT directory of the webserver e.g., c:\inetpub\wwwroot.

4)   Change CONFIG.JS in the IIE\CONFIG sub directory (normally located in c:\inetpub\wwwroot\iie\config\) so that the web server is selected e.g.,

```
// Web Server (default)
NAS_SERVER       = "/scripts/iie.exe";
RUN_MODE         = 'S';
```

5) Microsoft® Silverlight® introduces two new file extensions and thus need to add the MIME types for those file extensions to your web server so that it recognizes Silverlight® content appropriately. MIME types you need to add to the server configuration

- .xaml   application/xaml+xml

- .xap   application/x-silverlight-app

6) Command to execute the NEEGUI via web server is 'http://hostname/iie/iie.html'

EntireX Configuration

This section describes the configuration of Entire X, if required. Only if using a web server.

1)   Add an entry to the Broker attributes file:

Typical setting:

```
DEFAULTS = SERVICE
  CONV-LIMIT         = UNLIM
  CONV-NONACT        = 20M
  LONG-BUFFER-LIMIT  = UNLIM
  NOTIFY-EOC         = YES
  SERVER-NONACT      = 5M
  SHORT-BUFFER-LIMIT = UNLIM
  CONVERSION         = (SAGTRPC,OPTION=SUBSTITUTE)

CLASS=RPC,SERVER=NEERPC,SERVICE=CALLNAT
```

2)   Create new NATPARM module NEERPC with the same entries as NEEGUI

3)   Update the NEERPC module to include RPC entries, add to RPC Server tag the following: Start session as RPC server activated, Server name is NEERPC, Server node is the Broker name used.

Typical Settings:

```
DBID=200,
FNAT=(200,7),
FUSER=(200,50),
FDIC=(200,60),
LFILE=(96,200,96),
CFICU=ON,CP=AUTO,
STACK=(LOGON SYSNEEI),
STEPLIB=SYSNEE,
RPC=(SERVER=ON,RPCSIZE=256,MAXBUFF=252,SRVNAME=NEERPC,NTASKS
=(1,5),
SRVNODE=broker-name,TIMEOUT=20,TRACE=2,CPRPC=IBM01140)
```

If the Remote Procedure Call (RPC) server is located on the mainframe (z/OS) there is a sample JCL in NEE*vrs*.SRCE(NEARPC). This uses a member from the NEE*vrs*.SRCE dataset:

- NEARPC

    - Contains sample RPC parameters and the user should amend the following:

LFILE 96	Point to the NEE repository file.
SRVNAME	Name of Broker Service
SRVNODE	Name of Broker instance

EntireX MiniRuntime

You will need to ensure that the Web Server has access to the EntireXMiniRunTime 32 bit environment.

EntireXMiniRunTime_x32.EXE should be executed on the Web Server.

Once installed, you should copy erx.dll from "C:\Program Files (x86)\Common Files\Software AG" to the "scripts" directory (normally c:\inetpub\scripts when using IIS).

Microsoft IIS Configuration

If you are using a Microsoft IIS Webserver then the following steps will need to be performed:

1.   Install CGIModule Handler Mapping

Add the Module for CgiModule for the ‚Default Web Site' and ensure that it is enabled.

Note: If not present, select 'Add Managed Modules' and select 'System.Web.Handlers.ScriptModule, System.Web.Extensions' giving it a name such as CGIModule.

2. Configure Microsoft IIS directories

Add the required Active Virtual Directory for the 'Default Web Site' e.g., C:\inetpub\scripts ensuring that the Execute Permissions are set to "Scripts and Executables".

The following figure shows sample settings for Microsoft IIS v6.
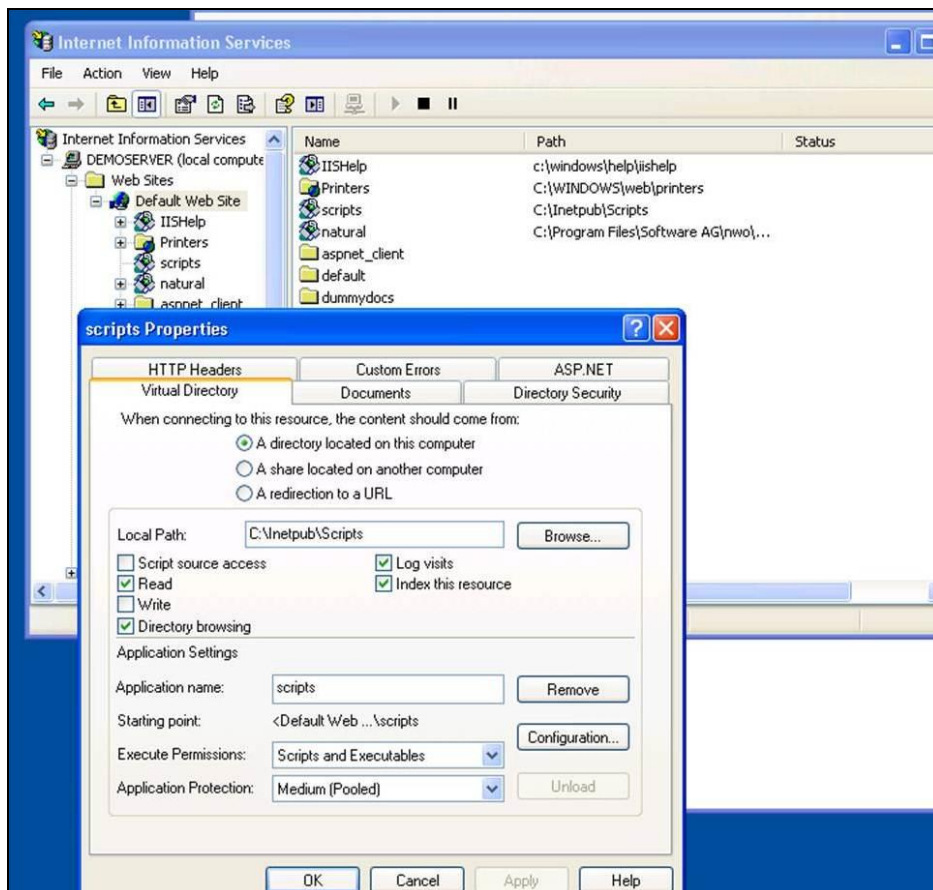
3. If using IIS v7, add script map for IIE Executable

Select the default web site and then select ‚Handler Mappings'

Select ‚Add Script Map…' and set

Request Path = iie.exe

Executable = C:\inetpub\scripts\iie.exe

Name = IIE
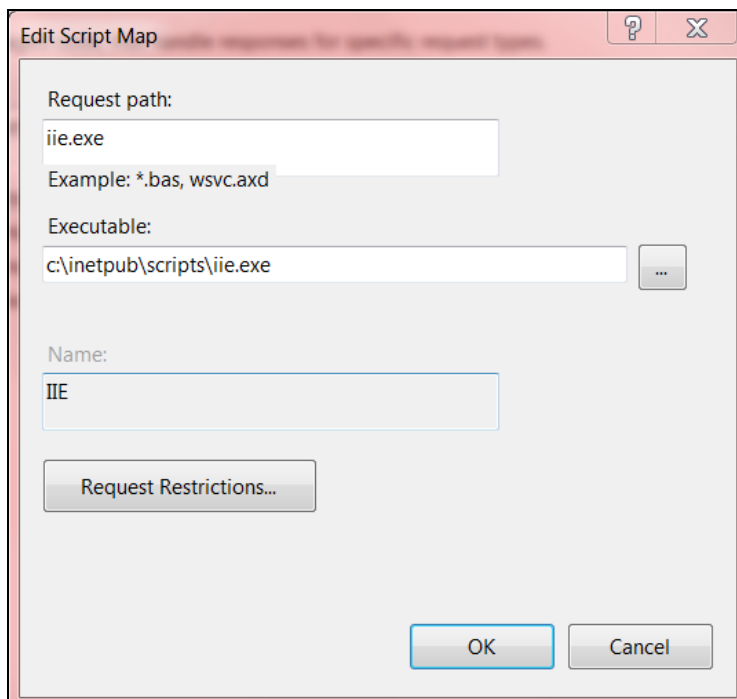
Additional Information

This section describes any additional considerations and information pertaining to the NEA Installation.

Predict Access

1) If you have information in Predict you can view file and field information in NEE by connecting your FDIC file to the NEEGUI parameter module.

Execution Commands

Multi-User Mode

The following commands may be input to invoke particular functions of NEA via the web server.

Function	Command
NEEGUI	http://hostname/iie/iie.html
ONLINE Help	http://hostname/iie/help.html
Book Overview	http://hostname/iie/book.html

Single-User Mode

The following commands may be input to invoke particular functions of NEA directly on the users machine.

Function	Command
NEEGUI	C:\Natural Engineer\NEA\IIE\iie.html
ONLINE Help	C:\Natural Engineer\NEA\IIE\help.html
Book Overview	C:\Natural Engineer\NEA\IIE\book.html

Single-User Mode with Microsoft Internet Explorer(IE)

If you are using Microsoft Internet Explorer the following command may be input instead of the standard NEEGUI command to invoke the NEEGUI directly on the users machine using the IE application software.

Function	Command
NEEGUI	C:\Natural Engineer\NEA\IIE\iie.hta

Test Connectivity outside of Web Browser

To test connectivity without using the Web Server, within a command prompt, go to the scripts directory & type:

iie.exe NEE?listEnv

This will issue a call direct to the EntireX & RPC Servers.

The output should be similar to the following:

INDEX