



# **Natural Engineer**

## **Plug-in for NaturalONE**

Version 6.2.1.3

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Natural Engineer

## **Manual Order Number: NEE621-016ALL**

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This document applies to Natural Engineer version 8.3 and to all subsequent releases.

Specifications contained herein are subject to change, and these changes will be reported in subsequent revisions or editions.

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:

document@gensystems.com

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# ABOUT THIS MANUAL

## Purpose of this manual

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This manual contains the information pertaining to the Natural Engineer Plug-In for NaturalONE.

The details include pre-requisites, installation processes and the functions available.

The topics covered are:

- General information
  - Pre-Requisites
  - Installation
  - Execution
- Natural for Ajax Conversion.

## Target Audience

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The target audience for this manual is intended to be any User of Natural Engineer version 6.2.1 who wish to use the Natural Engineer Plug-In for NaturalONE as well as Systems Administrators responsible for installing and configuring the products.

## Typographical Conventions used in this manual

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The following conventions are used throughout this manual:

<b>UPPERCASE TIMES</b>	Commands, statements, names of programs and utilities referred to in text paragraphs appear in normal (Times) uppercase.
<b>UPPERCASE BOLD COURIER</b>	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.
□	Indicates that the instruction set consists of a single step.
1.	Indicates the first of a number of steps.

## How this manual is organized

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This manual is organized to reflect the functionality provided in the Natural Engineer Plug-in for NaturalONE.

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

<b>Chapter</b>	<b>Contents</b>
1	Provides general information for this release, including installation prerequisites, the installation process and how to execute the functions provided with the Natural Engineer Plug-In for NaturalONE.
2	Provides an overview of the Natural for Ajax functionality provided with the plug-in.

## Related Literature

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The complete set of Natural Engineer manuals consists of:

**1 Natural Engineer Concepts and Facilities (NEE62-006ALL)**

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 (NEE62-008ALL)**

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 (NEE62-010ALL)**

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

**4 Natural Engineer Administration Guide (NEE62-040WIN)  
Natural Engineer Administration Guide (NEE62-040MFR)**

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 (NEE62-020WIN)  
Natural Engineer Application Management (NEE62-020MFR)**

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

**6 Natural Engineer Application Documentation (NEE62-022WIN)  
Natural Engineer Application Documentation (NEE62-022MFR)**

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 (NEE62-023WIN)  
Natural Engineer Application Analysis and Modification (NEE62-023MFR)**

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.

## About this manual

**8 Natural Engineer Application Restructuring (NEE62-024WIN)  
Natural Engineer Application Restructuring (NEE62-024MFR)**

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 (NEE62-080WIN)  
Natural Engineer Utilities (NEE62-080MFR)**

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

**10 Natural Engineer Reporting (NEE62-025ALL)**

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] (NEE62-026MFR)**

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

**12 Natural Engineer Messages and Codes (NEE62-060ALL)**

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

**13 Natural Engineer Advanced Services (NEE82-017WIN)**

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.



# GENERAL INFORMATION

## Chapter Overview

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This chapter covers the general information for Natural Engineer Plug-In for NaturalONE

The following topics are covered:

- [Prerequisites](#)
- [Installation](#)
- [Execution](#)

# 1

## Natural Engineer Plug-in for NaturalONE

### Prerequisites

---

Before running the Natural Engineer Plug-In for NaturalONE the following must be installed.

- Natural Engineer v6.2.1.3 or above.
- Natural v6.2.3 or above and NDV Server
- NaturalONE

### Installation

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The Natural Engineer Plug-In for NaturalONE is installed when NaturalONE is installed. Please refer to the NaturalONE documentation for further details.

## Execution

The Natural Engineer plug-in works in the Natural Server view seen below in bottom left corner of the NaturalONE Perspective.

The following Figure 1-1 illustrates the NaturalONE Perspective.

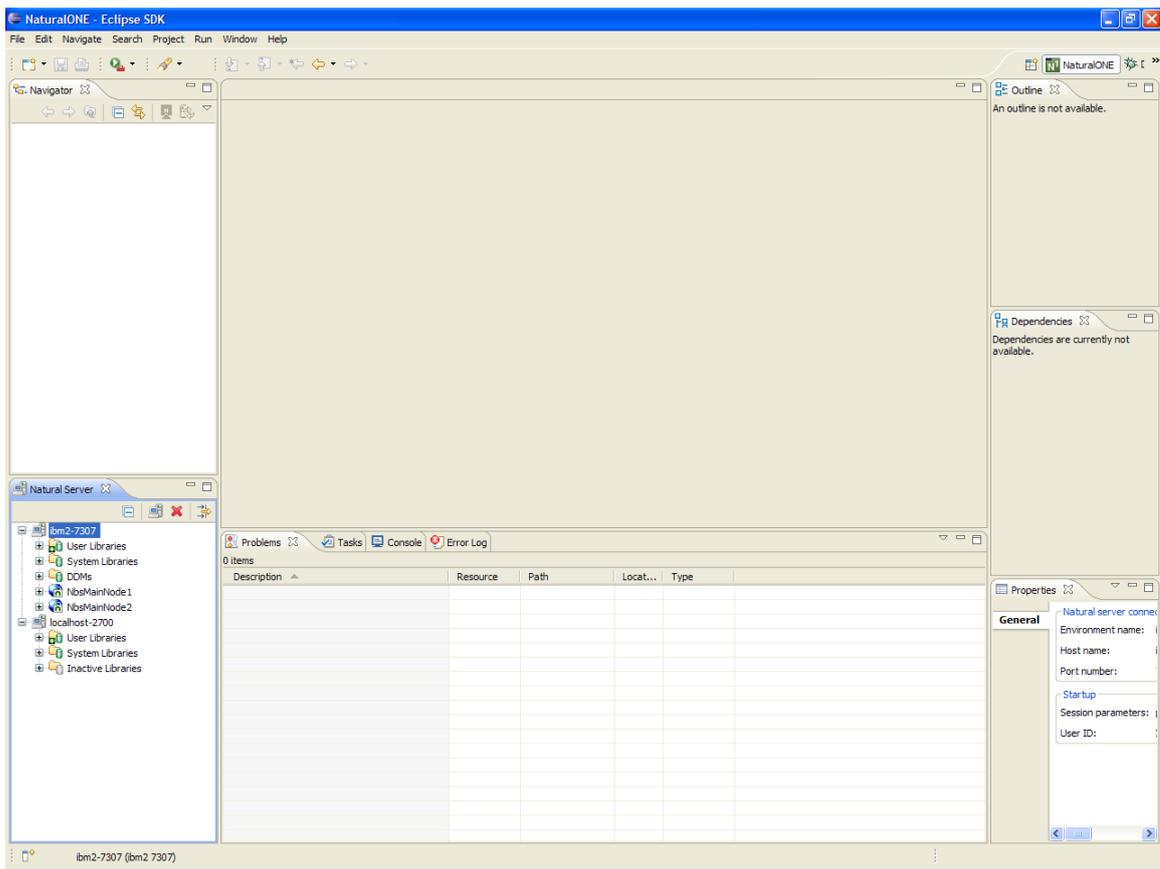


Figure 1-1 NaturalONE Perspective

# 1

## Natural Engineer Plug-in for NaturalONE

The Natural Engineer functions available on the context menu will depend on the node selected in the 'Natural Server' view.

The following Figure 1-2 illustrates the Natural Engineer Plug-in functions from the Library Node where all options are available.

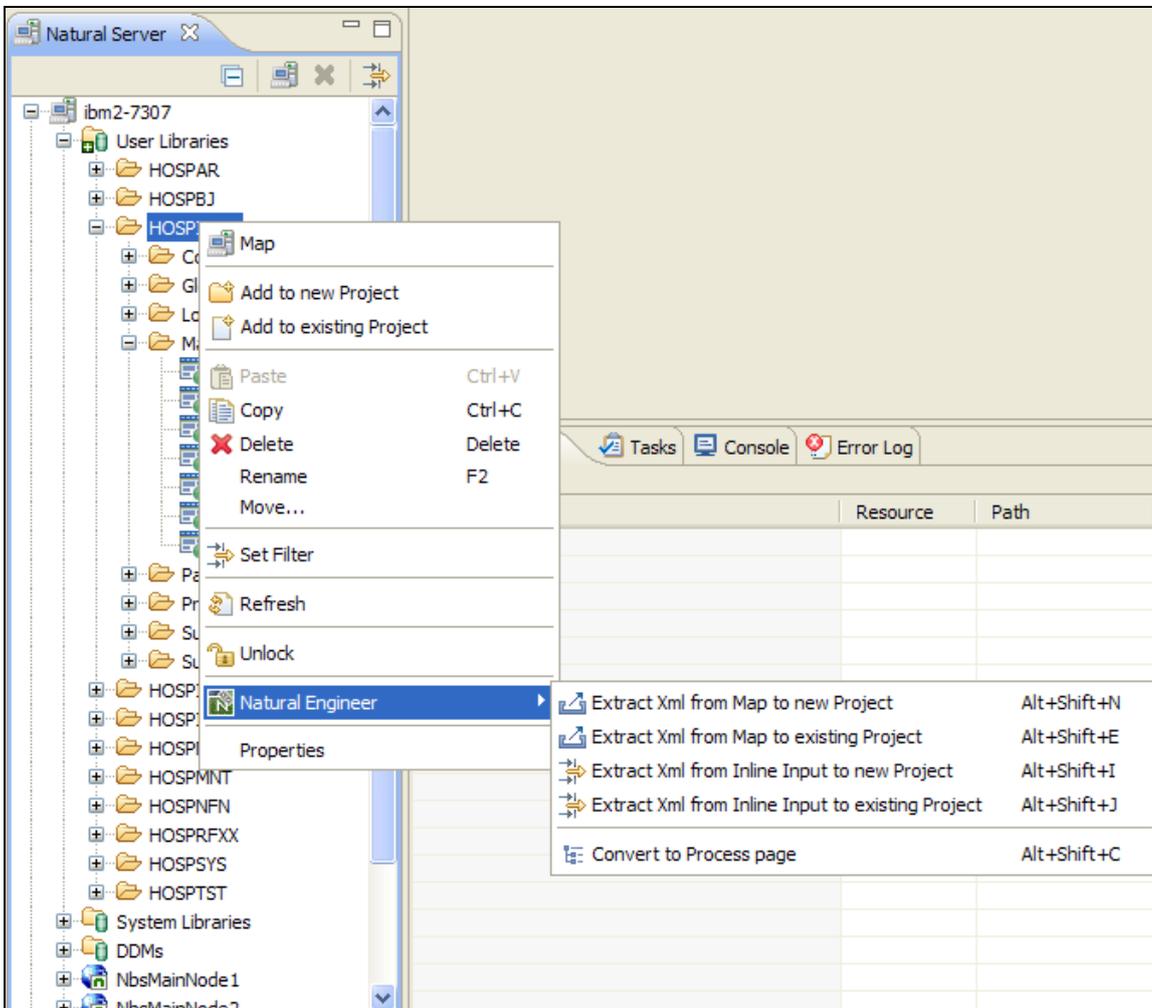


Figure 1-2 Natural Engineer Plug-in Functions from Library Node

The applicable nodes for each function are:

- Extract XML from Map
  - A Map object node.
  - A Map folder node.
  - A Library folder node
- Extract XML from inline INPUT statements
  - Object nodes for Program, Subprogram, Subroutine, Helproutine.
  - Object folder nodes for Program, Subprogram, Subroutine, Helproutine.
  - A Library folder node
- Convert to Process Page
  - Object nodes for Program, Subprogram, Subroutine, Helproutine.
  - Object folder nodes for Program, Subprogram, Subroutine, Helproutine.
  - A Library folder node



# NATURAL FOR AJAX CONVERSION

## Chapter Overview

---

This chapter describes the Natural for Ajax Conversion options available with the Natural Engineer Plug-in for NaturalONE.

The following topics are covered:

1. [Natural for Ajax Conversion Overview](#)
2. [Natural for Ajax Conversion Process](#)
3. [Extract XML from Map](#)
4. [Extract XML from Inline Input](#)
5. [Convert to Process Page](#)

## Natural for Ajax Conversion Overview

---

Natural for Ajax provides an environment that enables the creation of rich internet applications, providing Natural users on UNIX and mainframe platforms to develop Natural applications that utilize a browser based user interface.

The Natural for Ajax Conversion option provides the facility to generate a web page from either inline INPUT or MAP statements, using an encoded XML file.

The encoded XML file will be used to generate a Natural adapter (a map object within Natural for Ajax). The Natural adapter will act as the interface between the application and web page.

It is also possible to convert map objects into XML files.

Cross-reference data can be created to provide a link between the inline INPUT or MAP statements and their respective adapters.

The application objects that contain any INPUT, INPUT USING MAP, REINPUT or MAP statements can be modified to use the correct Natural for Ajax compliant code required by the new adapters.

The new encoded XML files can be added to a new NaturalONE Project or to an existing project.

The Convert to Process Page option will modify objects on the server and will place these objects in the modification library defined within Natural Engineer on the server for the application with the same name as the library selected from the 'Natural Server' view.

The Natural Engineer functions available on the context menu will dependent on the node selected in the 'Natural Server' view.

## Natural for Ajax Conversion Process

---

There are certain procedures that have to be performed in a linear fashion to complete the Natural for Ajax Conversion Process.

1. [Extract and Load Application](#)
2. [Separate Processing Rules from Maps](#)
3. [Extract XML](#)
  - a. [Extract XML from Map](#)
  - b. [Extract XML from Inline Input statements](#)
4. [Convert to Process Page](#)

### 1. Extract and Load Application

This is a Mandatory option. The chosen Natural Objects need to be extracted and loaded into the Natural Engineer Repository. This is performed within the Natural Engineer product itself.

*Note: For more information on the Extract and Load Processes, refer to the relevant Natural Engineer Application Management Guide for your environment.*

### 2. Separate Processing Rules from Maps

This is a Mandatory option. Any processing rules that are present within map objects, for the selected application, will need to be removed first.

This is done by using the Separate Processing Rules from Maps process of the Application Refactoring Processes which has to be performed via the Natural Engineer product itself. This will identify any in-line processing rules, separate them from their respective maps and generate new subprograms containing the processing rules. Existing calling objects for each map are then modified to reference the new processing rules subprograms.

*Note: For more information on the Separate Processing Rules from Maps process, refer to the Natural Engineer Refactoring manual.*

### 3. Extract XML

This is a Mandatory Option. In order to create a Natural Adapter for use with Natural for Ajax an encoded XML file, or files, must be created. This can either be from a Natural Map, using the Extract XML from Map option or from an inline INPUT or MAP statement using the Extract XML from Inline Inputs option.

#### a. Extract XML from Map

This provides the facility to select existing map objects within an application, and convert them into encoded XML files.

The encoded XML files can then be used in Application Designer to create Natural adapters which form the interface between the application code and the web page.

#### b. Extract XML from Inline Inputs

The Inline Map Extraction option provides the facility to select programming objects that contain any inline INPUT or MAP statements, and convert them into encoded XML files.

The encoded XML files can then be used in Application Designer to create Natural adapters which form the interface between the application code and the web page.

### 4. Convert to Process Page

This is a Mandatory Option. This function will attempt to convert objects that use maps and inline INPUT statements to use the new syntax designed to use Natural for AJAX, namely the PROCESS PAGE statement linking the objects to adapters generated by Application Designer (based on the encoded XML files generated). The names of the adapters depend on the code within the User Exit 4 supplied in the SYSNEE library of Natural Engineer. For INPUT USING MAP statements the user may use the supplied User Exit 4 (NEEU4) to generate the Adapter name. Typically the user exit would contain similar rules to that used to generate the Adapter name in Application Designer.

## Extract XML from Map

---

The Extract XML from Map option provides the facility to select existing map objects within an application, and convert them into encoded XML files.

The encoded XML files can then be used in Application Designer to create Natural adapters which form the interface between the application code and the web page.

The encoded XML created via the Extract XML from Map options may be added to an existing project or to a new project.

If 'Extract XML from Map to new Project' is selected a prompt will be displayed allowing the input of the project name the encoded XML files are to be saved to in the local work space. If 'Extract XML from Map to existing Project' is selected a list of projects will be displayed for selection.

The following Figure 2-1 illustrates the 'Extract XML from Map to new Project' dialog.

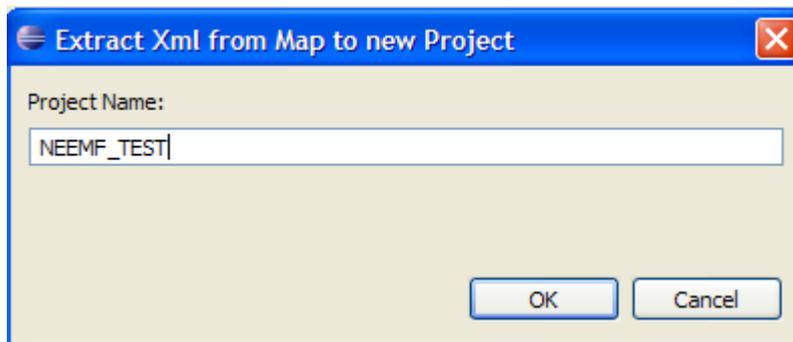


Figure 2-1 'Extract XML from Map to new Project' dialog

The processing will then create the new local workspace project and then process maps within the application to create the encoded XML files. The name of the encoded XML files will be *mapname.njx* where *mapname* is the name of the Natural Map being processed.

## 2

### Natural Engineer Plug-in for NaturalONE

After the process has been completed the NaturalONE Perspective will include the new project in the local workspace view and the Natural Engineer Console containing diagnostic messages.

The following Figure 2-2 shows a sample NaturalONE Perspective following the Extract XML from Map process.

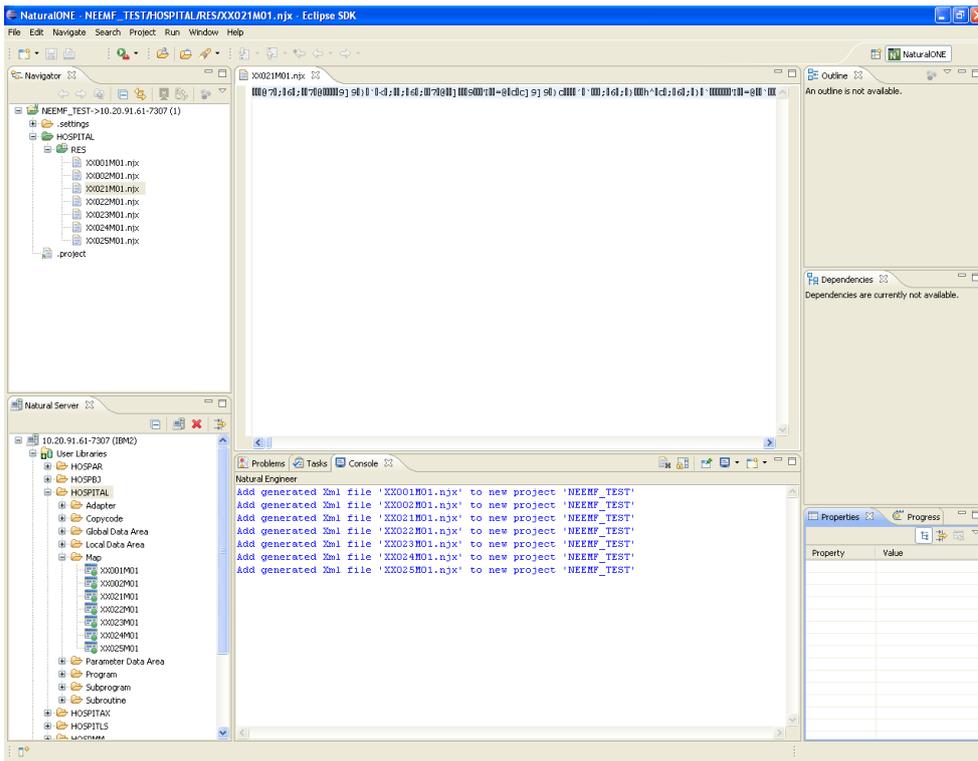


Figure 2-2 Sample NaturalONE Perspective following the Extract XML from Map process.

In the local workspace view, the new project is created and contains the .nrx files within the RES directory.

The following Figure 2-3 shows the local workspace with the newly created encoded XML files.

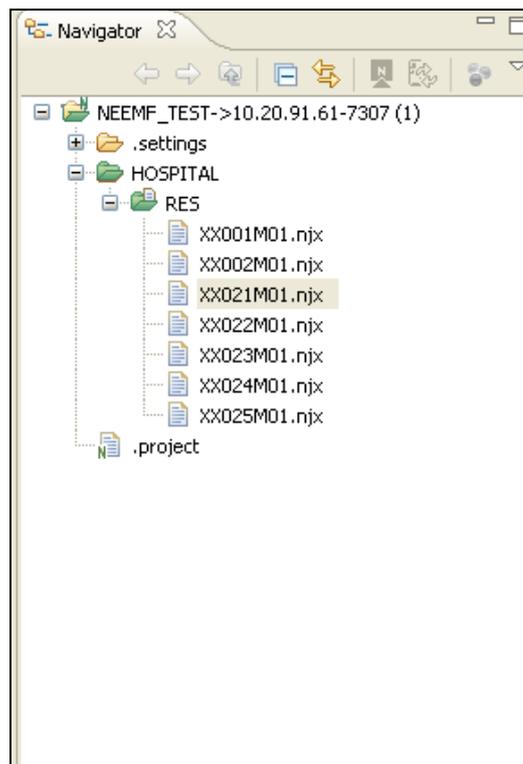


Figure 2-3 Local Workspace following XML extraction from Maps

## 2

### Natural Engineer Plug-in for NaturalONE

During the processing any diagnostic messages will be shown in the Natural Engineer console.

The following Figure 2-4 illustrates the Natural Engineer Console.

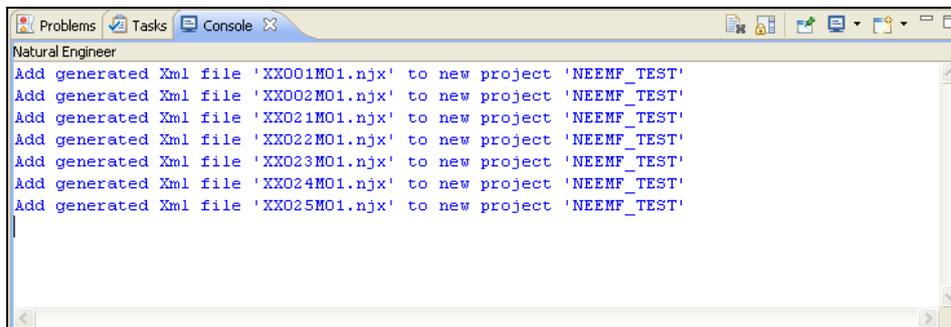


Figure 2-4 Natural Engineer Console

## Extract XML from Inline Inputs

---

The Extract XML from Inline inputs option provides the facility to select programming objects that contain any inline INPUT or MAP statements, and convert them into encoded XML files.

The encoded XML files can then be used in Application Designer to create Natural adapters which form the interface between the application code and the web page.

If 'Extract XML from Inline Inputs to new Project' is selected a prompt will be displayed allowing the input of the project name the encoded XML files are to be added to in the local work space. If 'Extract XML from Inline Inputs to existing Project' is selected a list of projects will be displayed for selection.

From the applicable node, select the required option e.g., 'Extract XML from inline INPUT to existing Project'. In this case a dialog will be presented allowing the selection of an existing project.

## 2

### Natural Engineer Plug-in for NaturalONE

The following Figure 2-6 illustrates the 'Extract XML from Inline Input to existing Project' dialog.

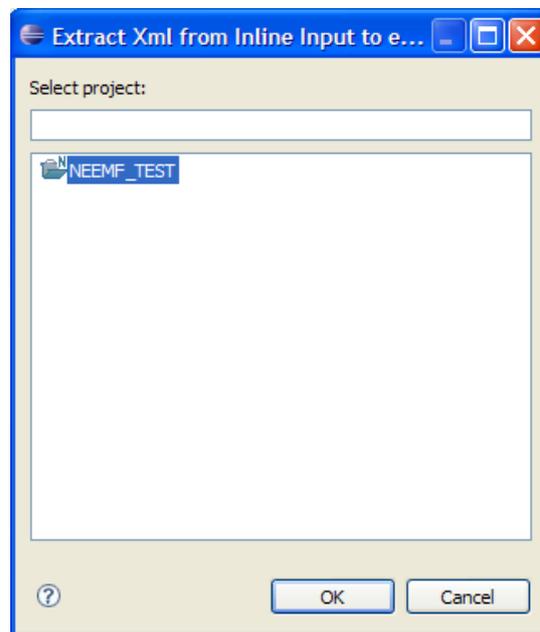


Figure 2-6 Extract XML from Inline Input to existing Project dialog

Select the project where the encoded XML files are to be stored and the process will start.

After the process has been completed the NaturalONE Perspective will include the new encoded XML in the selected project in the local workspace and the Natural Engineer Console containing diagnostic messages.

The following Figure 2-7 shows a sample NaturalONE Perspective following the Extract XML from Inline Inputs process

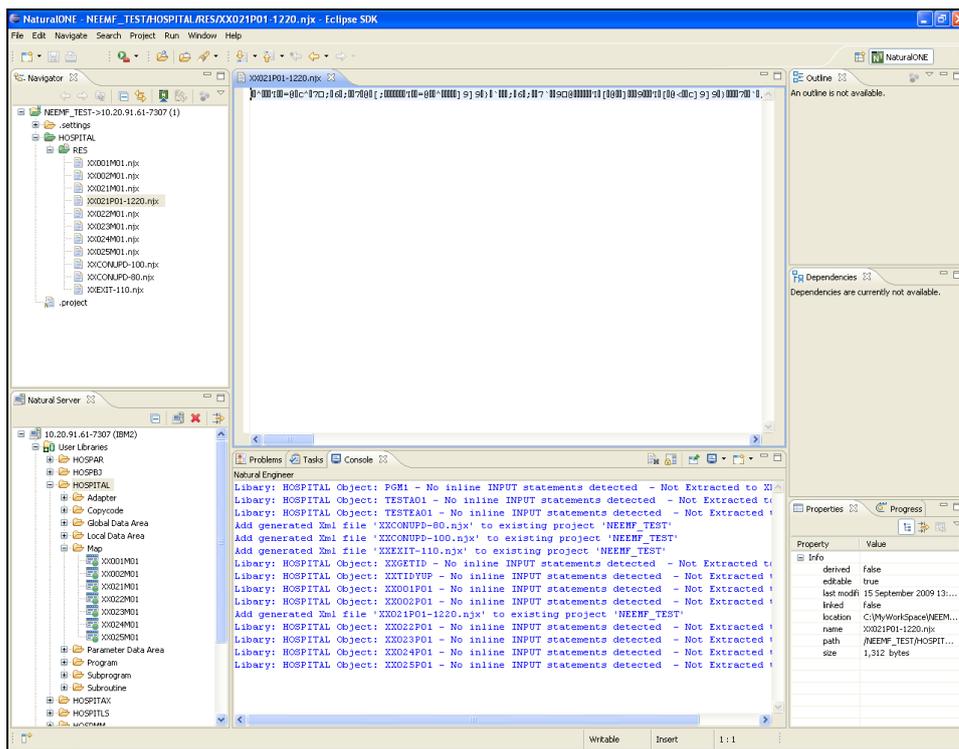


Figure 2-7 Sample NaturalONE Perspective following the Extract XML from Inline Inputs process

## 2

### Natural Engineer Plug-in for NaturalONE

Following the XML extraction process the newly created encoded XML files will be shown in the local workspace. The naming standard for the files generated by this option is *objectname\_nnnn.njx* where *objectname* is the name of the Natural Object containing the Inline Input statement and *nnnn* is the statement number where the Inline Input statement appears in the object.

The following Figure 2-8 shows the local workspace with the newly created encoded XML files from the Extract XML from Inline Inputs option.

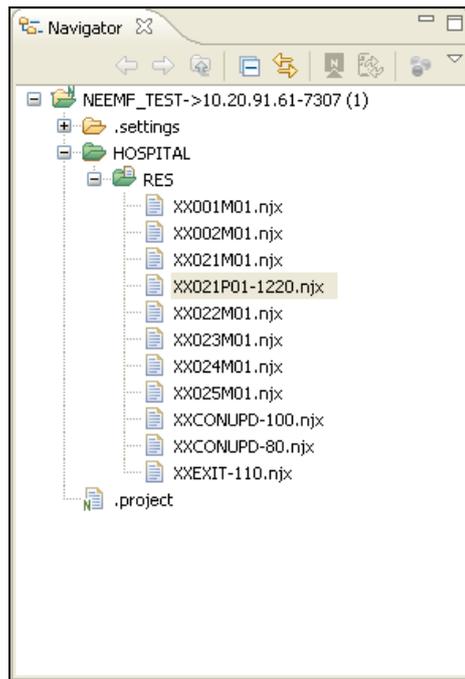


Figure 2-8 Local Workspace following XML extraction from Inline Input

As with the Extract XML from Maps option any diagnostic messages will be shown in the Natural Engineer Console.

## Convert to Process Page

---

The Convert to Process Page function will attempt to convert objects that use maps and inline INPUT statements to use the new syntax designed to use Natural for AJAX, namely the PROCESS PAGE statement linking the objects to adapters generated by Application Designer (based on the encoded XML files generated earlier).

*Note: After Modification, Natural Engineer places all modified code into the Modification Library as specified in the Preferences for the application. If this is not set, Natural Engineer places all modified code in a library name with an 'X' as the last character of the application name. If the name is already 8 characters long, the last character is removed and replaced with the 'X'. Any changes to the modification library name must be performed through the Natural Engineer Product itself and not through the Eclipse Interface.*

From the applicable node, select the required option e.g., 'Convert to Process Page'. The process will start and execute on the NDV server. Any diagnostic messages will be displayed in the Natural Engineer Console.

## 2

### Natural Engineer Plug-in for NaturalONE

After the process has been completed the NaturalONE Eclipse area will include the new objects in the modification library in the Natural Server Tab and the Natural Engineer Console.

*Note: The Natural Server view does not currently refresh. So, if the Modification Library is new, it may not initially show in the view. Manually refresh the User Libraries and then the Modification Library should be shown.*

The following Figure 2-9 shows a sample NaturalONE Perspective following the Convert to Process Page option.

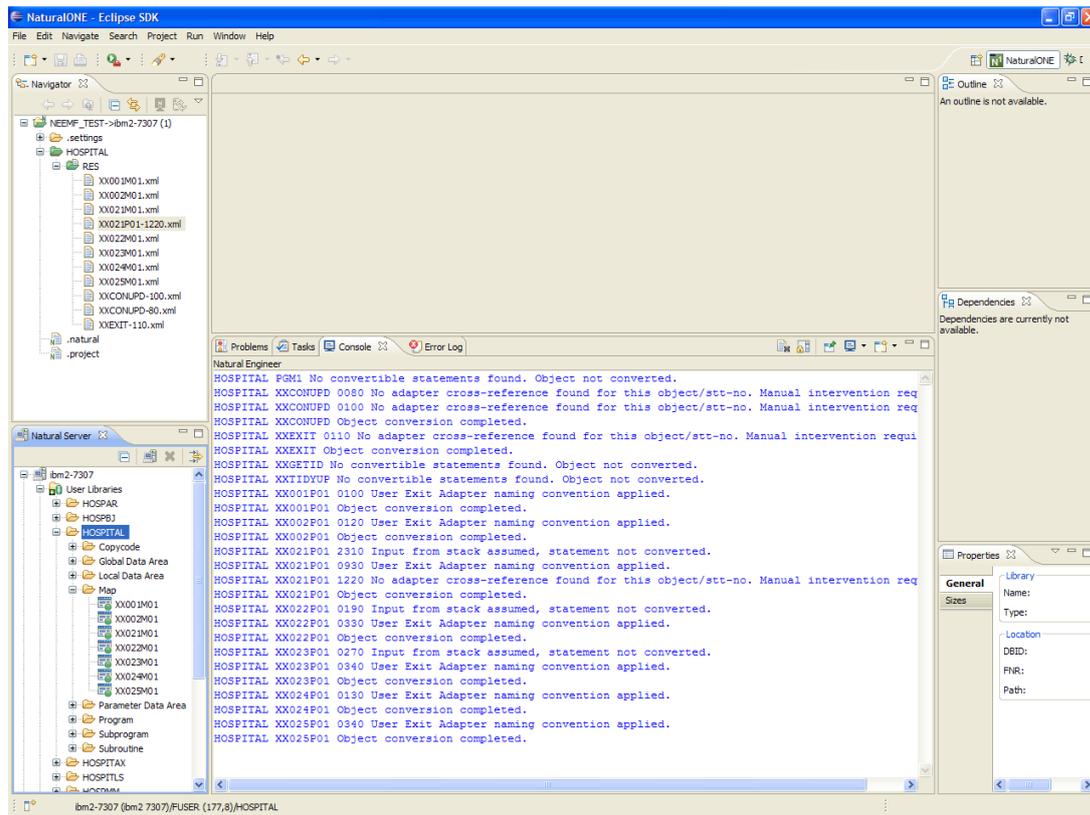


Figure 2-9 Sample NaturalONE Eclipse Area following the Convert to Process Page option

If the Modification Library is expanded the new modified objects will be shown.

The following Figure 2-10 shows a sample expanded Modification Library.

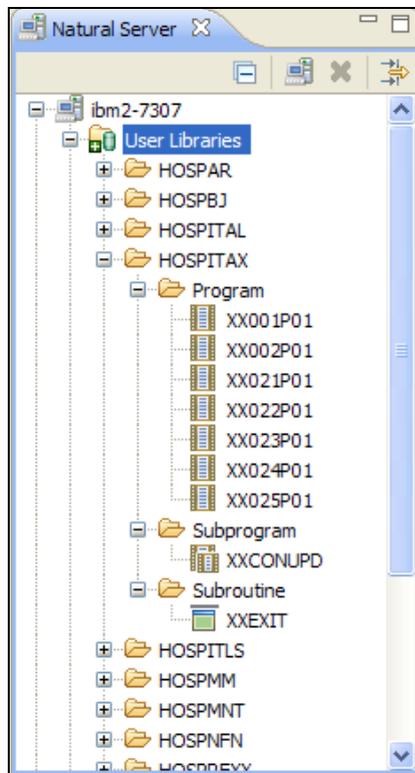


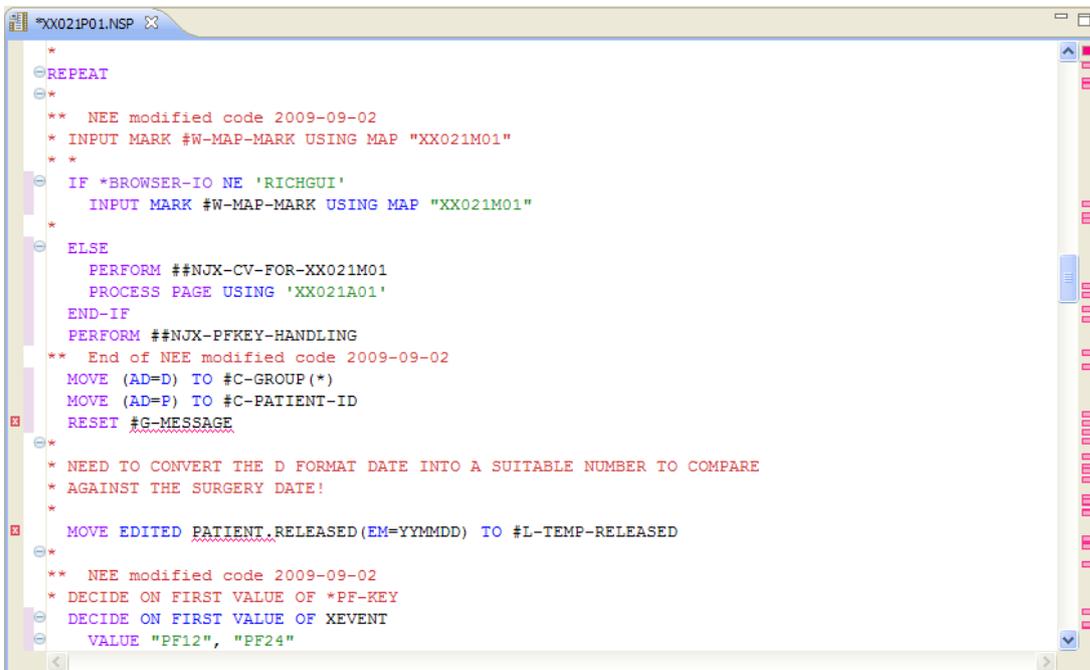
Figure 2-10 Sample Expanded Modification Library

## 2

### Natural Engineer Plug-in for NaturalONE

To view a modified object select it. A temporary project will be created in the local workspace and open the Natural editor to show the modified object.

The following Figure 2-11 shows a sample modified object following the Convert to Process Page option.



```
*
-REPEAT
** NEE modified code 2009-09-02
* INPUT MARK #W-MAP-MARK USING MAP "XX021M01"
**
IF *BROWSER-IO NE 'RICHGUI'
    INPUT MARK #W-MAP-MARK USING MAP "XX021M01"
*
ELSE
    PERFORM ##NJX-CV-FOR-XX021M01
    PROCESS PAGE USING 'XX021A01'
END-IF
PERFORM ##NJX-PFKEY-HANDLING
** End of NEE modified code 2009-09-02
MOVE (AD=D) TO #C-GROUP(*)
MOVE (AD=P) TO #C-PATIENT-ID
RESET #G-MESSAGE
*
* NEED TO CONVERT THE D FORMAT DATE INTO A SUITABLE NUMBER TO COMPARE
* AGAINST THE SURGERY DATE!
*
MOVE EDITED PATIENT.RELEASED (EM=YYMMDD) TO #L-TEMP-RELEASED
*
** NEE modified code 2009-09-02
* DECIDE ON FIRST VALUE OF *PF-KEY
DECIDE ON FIRST VALUE OF XEVENT
    VALUE "PF12", "PF24"
```

Figure 2-11 Sample modified object following the Convert to Process Page option

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