software AG

NaturalONE

Natural Engineer

Version 8.2.7

March 2013

NaturalONE

Table of Contents

Preface

The optional Natural Engineer component of NaturalONE is used together with the application modernization functionality of Natural for Ajax. See also *Application Modernization* in the *Natural for Ajax* documentation.

This documentation is organized under the following headings:

Introduction	What is the Natural Engineer Component of NaturalONE? How to set up a Natural Engineer environment. Context menus and commands that are available in NaturalONE when this component has been installed.
Overview of the Conversion Process	An overview of the procedures that have to be performed in a linear fashion to complete the conversion process.
Map Extraction	How to create map extract files for Natural maps.
`INPUT` **Statement Extraction**	How to create map extract files for Natural objects (such as programs) that contain `INPUT` statements.
Code Conversion	How to create new Natural objects which use the `PROCESS PAGE` statement for objects that use `INPUT` statements.

1 Introduction

What is the Natural Engineer Component of NaturalONE?

Using Natural for Ajax, you can create rich internet applications which use the Ajax (Asynchronous JavaScript and XML) technology. This enables Natural users on Windows, UNIX and mainframe platforms to develop and use Natural applications with a browser-based user interface, similar to GUI desktop applications.

The Natural Engineer component of NaturalONE can be used together with the application modernization functionality of Natural for Ajax to convert a character-based Natural application to a rich internet application which uses the Ajax technology. Natural Engineer provides conversion functionality for Natural for Ajax. See also *Application Modernization* in the *Natural for Ajax* documentation.

Using the Natural Engineer component, you can create so-called "map extract files" for Natural maps and for Natural objects which use `INPUT` statements. A map extract file contains all information about a map or an `INPUT` statement. It has the extension *.njx* and is not human-readable. It is intended as input for the map conversion in order to generate a corresponding Natural for Ajax page and eventually a Natural adapter which acts as the interface between the application and the Natural for Ajax page.

> **Note:** The conversion of the map extract file to a Natural for Ajax page is done with the **Convert Map** function which belongs to the core functionality of NaturalONE. See also *Map Conversion* in the *Natural for Ajax* documentation.

You can then specify which `INPUT` statement in your code shall relate to which Natural for Ajax page and its corresponding adapter.

Finally, for the application objects that contain `INPUT`, `INPUT USING MAP` or `REINPUT` statements, you can create new objects which use the correct Natural for Ajax compliant code to access the Natural for Ajax page through the corresponding adapter.

Setting Up a Natural Engineer Environment

You install the optional Natural Engineer component of NaturalONE using the Software AG Installer.

If you want to use this component, the following must be installed on the Natural Development Server:

■ Natural Engineer Version 6.2.1.3 or above.

For information on the recommended Natural and Natural Development Server versions, see *Using an Existing Natural Development Server Environment* in the *Installation* documentation.

The Natural Engineer component must have a specific Natural Engineer file in Adabas, and you have to start the Natural server using the *NATENG.SAG* parameter file. To set other Adabas parameters for Natural Engineer usage, refer to the readme file of Natural Engineer.

Further Reading

For information on the Natural Engineer product which runs on the server, see the Natural Engineer documentation. The most up-to-date Natural Engineer documentation is always available at *http://documentation.softwareag.com/natural/natengineer.htm*.

If you are a registered user, you can find the complete volume of Software AG's product documentation in Empower, Software AG's global extranet, at *https://empower.softwareag.com/*.

Elements of the Natural Engineer Component

The Natural Engineer component works in the **Natural Server** view. When the Natural Engineer component has been installed and when the current context (that is, the selected item in the **Natural Server** view) allows it, an additional **Natural Engineer** menu is available in the context menu. The commands in this context menu depend on the node which is currently selected. The following example shows the context menu for a library node where all commands are available.
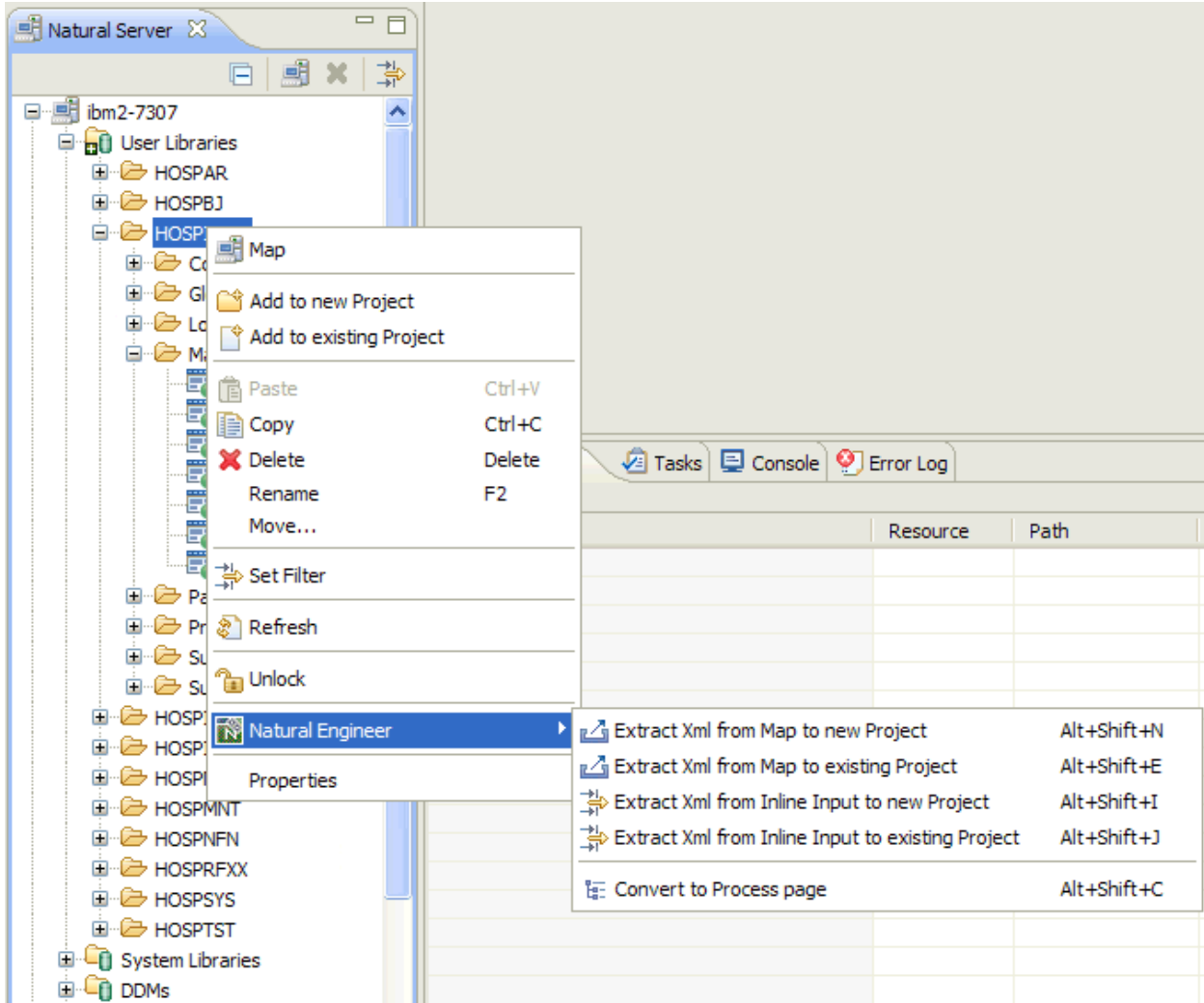
Note: The commands in the context menu are described later in this documentation.

2 Overview of the Conversion Process

There are certain procedures that have to be performed in a linear fashion to complete the conversion process. These are described below.

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 with the Natural Engineer product on the server. For more information on the extract and load processes, refer to the relevant *Natural Engineer Application Management* manual 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 (part of the application refactoring processes) which has to be performed with the Natural Engineer product on the server. This will identify any inline 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. For more information on the **Separate Processing Rules from Maps** process, refer to the *Natural Engineer Advanced Services* manual.

3. **Create Map Extract Files**

   This is a mandatory option. In order to create a Natural adapter for use with Natural for Ajax, one or more map extract files must be created. This can be either from a Natural map or from an `INPUT` statement. The Natural Engineer component of NaturalONE offers the following commands for this purpose:

   ■ **Extract Xml from Map to new Project** and **Extract Xml from Map to existing Project**

   These commands allow you to select existing maps within an application, and to convert them to map extract files. For detailed information, see *Map Extraction*.

   ■ **Extract Xml from Inline Input to new Project** and **Extract Xml from Inline Input to existing Project**

These commands allow you to select Natural objects (such as programs) that contain `INPUT` statements, and to convert them to map extract files. For detailed information, see *INPUT Statement Extraction*.

The map extract files can then be converted to Natural for Ajax pages, using the **Convert Map** function which belongs to the core functionality of NaturalONE (see also *Map Conversion* in the *Natural for Ajax* documentation). This function allows you to specify a user component interface into which the Natural for Ajax pages are to be generated.

The Ajax Developer function **Build** creates Natural adapter objects from the Natural for Ajax pages contained in a user interface component (see also *Building User Interface Components* in the *Ajax Developer* documentation). These Natural adapters form the interface of the converted application to the new user interface.

4. **Convert Application Code**
   This is a mandatory option. The Natural Engineer component of NaturalONE offers the **Convert to Process Page** command. This command allows you to create new Natural objects which use the `PROCESS PAGE` statement for any existing objects that use maps and `INPUT` statements. The `PROCESS PAGE` statement links the objects to adapters that have been generated by Ajax Developer (based on the map extract files generated earlier). For detailed information, see *Code Conversion*.

   The names of the adapters depend on the code within the User Exit 4 (`NEEUEX4`) which is supplied in the `SYSNEE` library of Natural Engineer. For `INPUT USING MAP` statements, you may use the supplied User Exit 4 to generate the adapter name. Typically, the user exit would contain similar rules to that used to generate the adapter name in Ajax Developer.
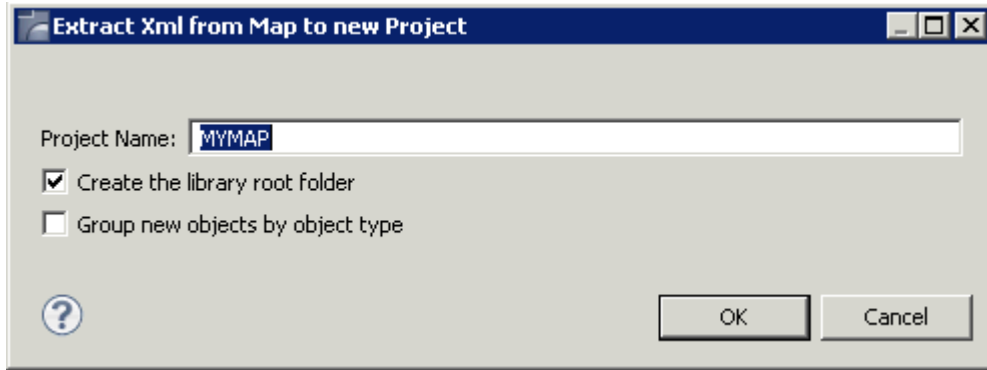
3 Map Extraction

You can select existing maps within an application and create map extract files for them. The map extract files can then be used by the **Convert Map** function, which belongs to the core functionality of NaturalONE, to create Natural for Ajax page layouts. See also *Map Conversion* in the *Natural for Ajax* documentation.

▶ **To create the map extract files**

1   In the **Natural Server** view, select one of the following:

  ▪ one or more maps,

  ▪ one or more group folders with the name **Maps**, or

  ▪ one or more libraries containing the maps.

2   Invoke the context menu and choose **Natural Engineer > Extract Xml from Map to new Project** (or press ALT+SHIFT+N).

   A dialog box appears and you can specify a project name. The name of the (first) selected node is offered as the default name. When a project with this name already exists in your workspace, the dialog box informs you and you have to specify a project name that is not yet used.

> **Note:** The dialog boxes for the extract functionality are similar to those used by the normal download functionality of NaturalONE. For information on the options in the above dialog box, see *Downloading an Existing Library or Object from a Natural Server* in *Using NaturalONE*.

Or:

Invoke the context menu and choose **Natural Engineer > Extract Xml from Map to existing Project** (or press ALT+SHIFT+E).

In this case, a dialog box appears in which you have to select the project.
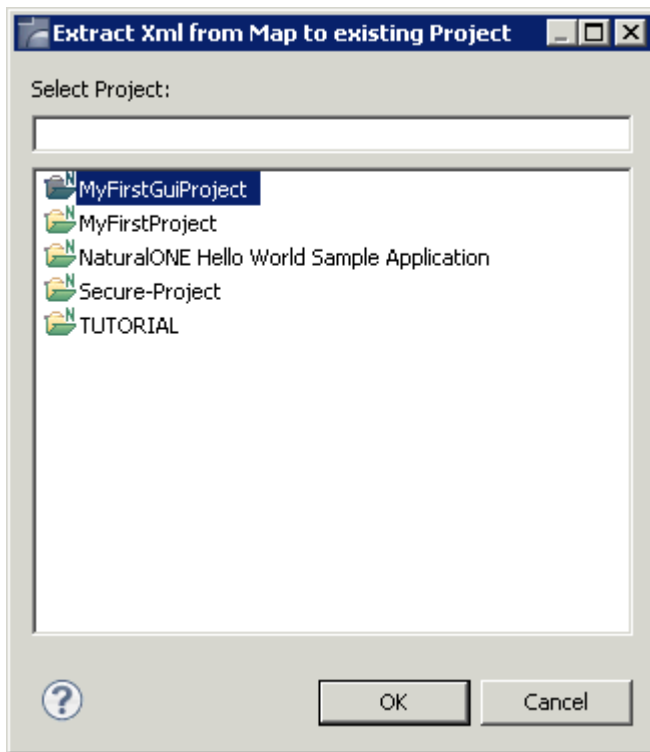
3   Choose the **OK** button to continue.

During the extraction process, the Natural Engineer console in the **Console** view shows diagnostic messages.

After the process has been completed, the newly created map extract files are shown in the **Navigator** view (in the *RES* subfolder of the appropriate library).

The naming standard for the created files is `<map-name>.njx` where `map-name` is the name of the Natural map that has been processed.
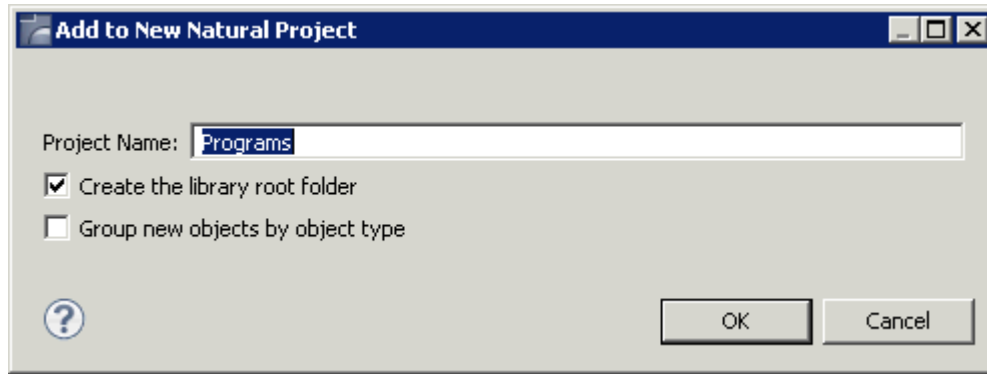
4 INPUT Statement Extraction

You can select Natural objects (such as programs) that contain `INPUT` statements and create map extract files for them. The map extract files can then be used by the **Convert Map** function, which belongs to the core functionality of NaturalONE, to create Natural for Ajax page layouts. See also *Map Conversion* in the *Natural for Ajax* documentation.

▶ **To create the map extract files**

1   In the **Natural Server** view, select one of the following:

- one or more programs, subprograms, subroutines or helproutines,

- one or more group folders with the names **Programs**, **Subprograms**, **Subroutines** and/or **Helproutines**, or

- one or more libraries containing the above-mentioned object types.

2   Invoke the context menu and choose **Natural Engineer > Extract Xml from Inline Input to new Project** (or press ALT+SHIFT+I).

A dialog box appears and you can specify a project name. The name of the (first) selected node is offered as the default name. When a project with this name already exists in your workspace, the dialog box informs you and you have to specify a project name that is not yet used.

> **Note:** The dialog boxes for the extract functionality are similar to those used by the normal download functionality of NaturalONE. For information on the options in the above dialog box, see *Downloading an Existing Library or Object from a Natural Server* in *Using NaturalONE*.

Or:

Invoke the context menu and choose **Natural Engineer > Extract Xml from Inline Input to existing Project** (or press ALT+SHIFT+J).

In this case, a dialog box appears in which you have to select the project.
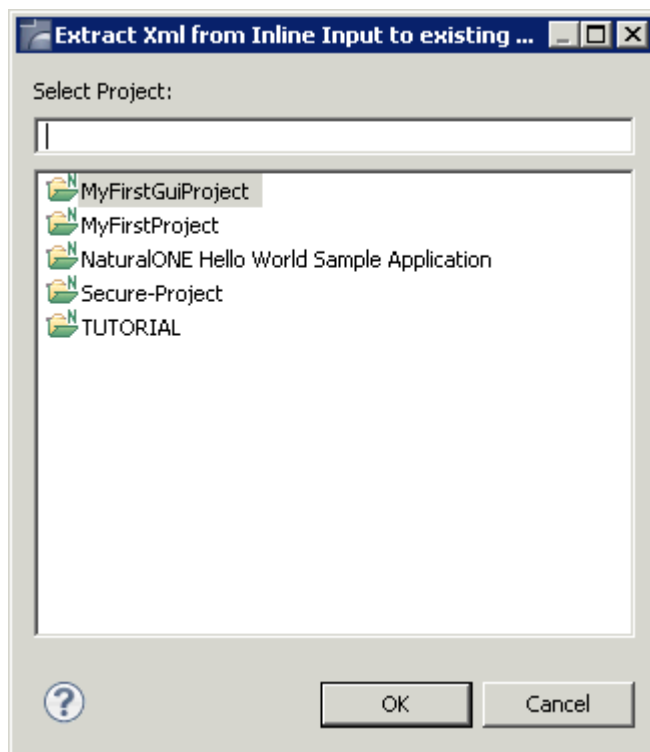
3   Choose the **OK** button to continue.

During the extraction process, the Natural Engineer console in the **Console** view shows diagnostic messages.

After the process has been completed, the newly created map extract files are shown in the **Navigator** view (in the *RES* subfolder of the appropriate library).

The naming standard for the created files is *<object-name>_<nnnn>.njx* where `object-name` is the name of the Natural object containing the `INPUT` statement and *nnnn* is the line number where the `INPUT` statement appears in the object.

5 Code Conversion

The **Convert to Process Page** command of the Natural Engineer component attempts to convert objects that use maps and inline `INPUT` statements to use the syntax of the `PROCESS PAGE` statement. This statement links the objects to adapters that have been generated by Ajax Developer (based on the map extract files generated earlier).

All converted objects are placed into a modification library. The name of this modification library depends on the following:

- If a modification library was defined with the Natural Engineer product on the server, all modified objects are placed into the defined modification library, which may have any valid library name. If you want to change (or delete) the name of the modification library, you have to do this with the Natural Engineer product on the server. It is not possible to do this using NaturalONE. See also the description of the Application Properties in the *Natural Engineer Application Management* documentation.

- If a modification library was *not* defined with the Natural Engineer product on the server, all modified objects are placed into a library which has the same name as the library containing the original objects, but which has an additional "X" as the last character. If the library name is already eight characters long, the last character is removed and replaced with the "X". For example, when the name of the original library is `HOSPITAL`, the name of the modification library is `HOSPITAX`.

▶ **To create objects with modified application code**

1   In the **Natural Server** view, select one of the following:

- one or more programs, subprograms, subroutines or helproutines,

- one or more group folders with the names **Programs**, **Subprograms**, **Subroutines** and/or **Helproutines**, or

- one or more libraries containing the above-mentioned object types.

2   Invoke the context menu and choose **Natural Engineer > Convert to Process Page** (or press ALT+SHIFT+C).

The conversion process is immediately started on the Natural server. During the conversion, the Natural Engineer console in the **Console** view shows diagnostic messages. There you can see which objects have been converted, which statements or objects have not been converted, and which objects require manual intervention.

When the conversion has been completed, new objects containing the modified application code are shown in the **Natural Server** view, in the modification library. They are not downloaded to the Eclipse workspace (**Navigator** view).

> **Note:** If the modification library is new, you may have to refresh the user libraries manually in the **Natural Server** view so that the modification library is shown.

The following sample shows an expanded modification library:
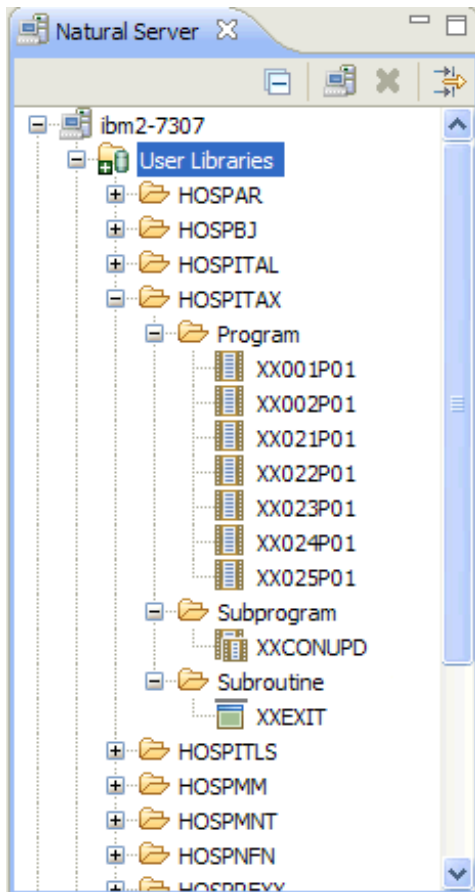
When you display an object in the **Natural Server** view using the source editor, a temporary project is created in the Eclipse workspace. The following is a sample Natural program containing converted code:

```
*
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"
```