

webMethods EntireX

Adapter Services Wrapper for Natural

Version 9.7

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Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Adapter Services Wrapper for Natural

- Common EntireX Workbench Documentation vi

The Adapter Services Wrapper for Natural enables webMethods Integration Server to call Natural subprograms. The interface of the Natural subprograms is extracted and connections and adapter services are generated in Integration Server.

This document covers the following topics:

Introduction Introduction to the Adapter Services Wrapper for Natural.

Using Using the Adapter Services Wrapper for Natural.

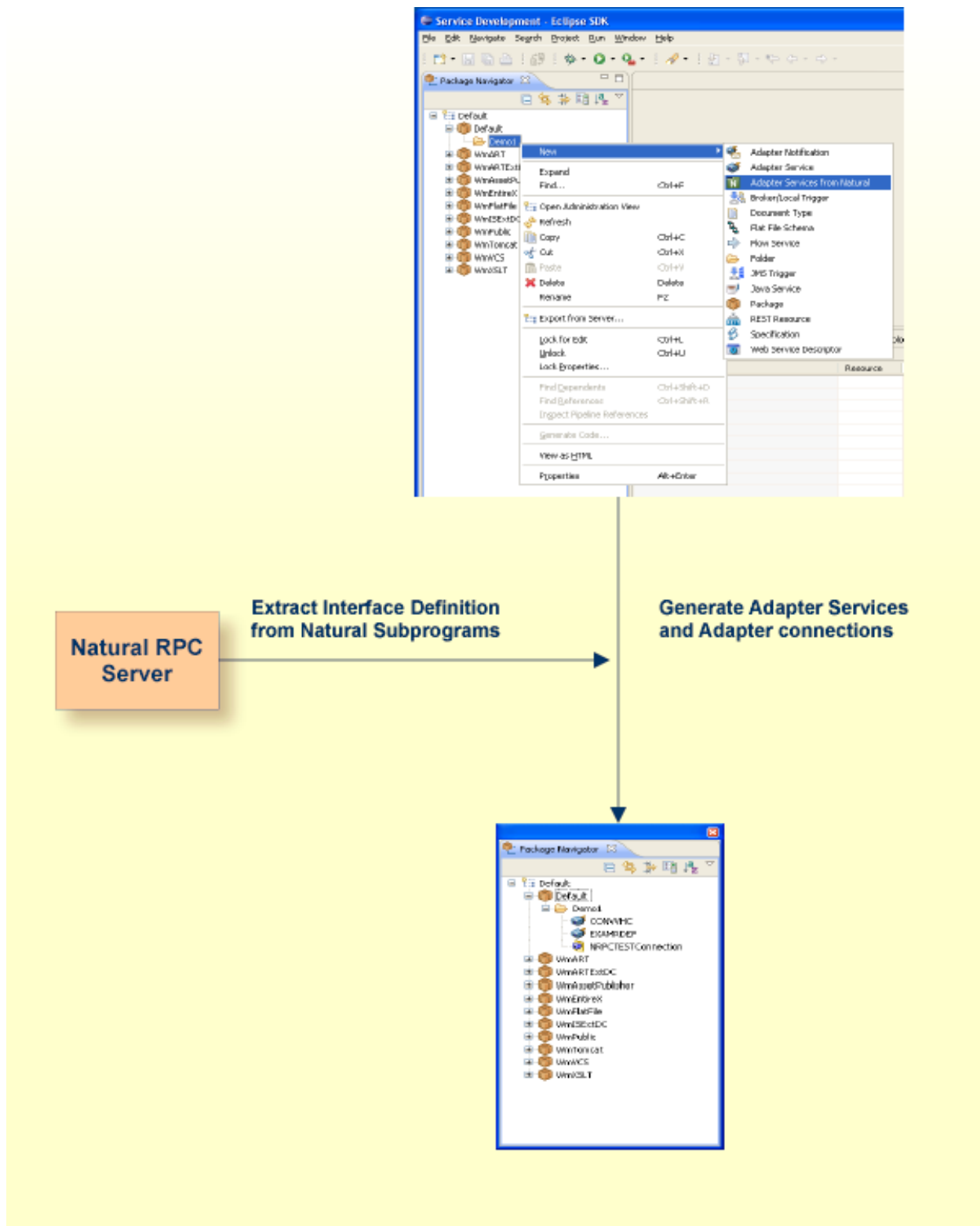
Common EntireX Workbench Documentation

- *RPC Environment Manager*
- *RPC Environment Monitor*
- *EntireX and your webMethods Integration Server Applications*
- *Integration Server Wrapper*
- *IDL Extractor for Integration Server*

1 Introduction to the Adapter Services Wrapper for Natural

As a developer of webMethods Integration Server services (formerly webMethods ESB) you use this wrapper to connect Natural subprograms with adapter services. At runtime, the adapter services use EntireX RPC connections or EntireX Direct RPC connections to call Natural subprograms via Natural RPC server. Connection type Reliable RPC is supported if there are inbound parameters only. For EntireX RPC connections, an EntireX Broker is used.

At design time, the **Service Development** perspective with the **Package Navigator** is used to start the wizard, which extracts the interface definitions from Natural subprograms and generates adapter connections and adapter services in one step.



The “Adapter Services from Natural” wizard is an “Eclipse New Wizard”. It supports extraction of the interface definition from Natural subprograms from a Natural RPC server or local files.

The wizard can extract subprograms in one library. Each subprogram corresponds to an adapter service and the library corresponds to an adapter connection. If the interface of one subprogram is modified, the extraction has to include all subprograms from the first extraction. If a connection is overwritten, all adapter services that depend on this connection are deleted before creating the new connection and the new adapter services.

2 Using the Adapter Services Wrapper for Natural

■ Prerequisites	6
■ Generating an Adapter Service from a New Natural RPC Environment	6
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■ Preferences	23

This chapter describes how to use the Adapter Services Wrapper for Natural.

Prerequisites

1. webMethods Integration Server with connections and services generated.
2. The Service Development feature in Software AG Designer. This is installed with Software AG Installer into Software AG Designer.
3. The Natural subprograms in source or object form available through a Natural RPC server or as local files.

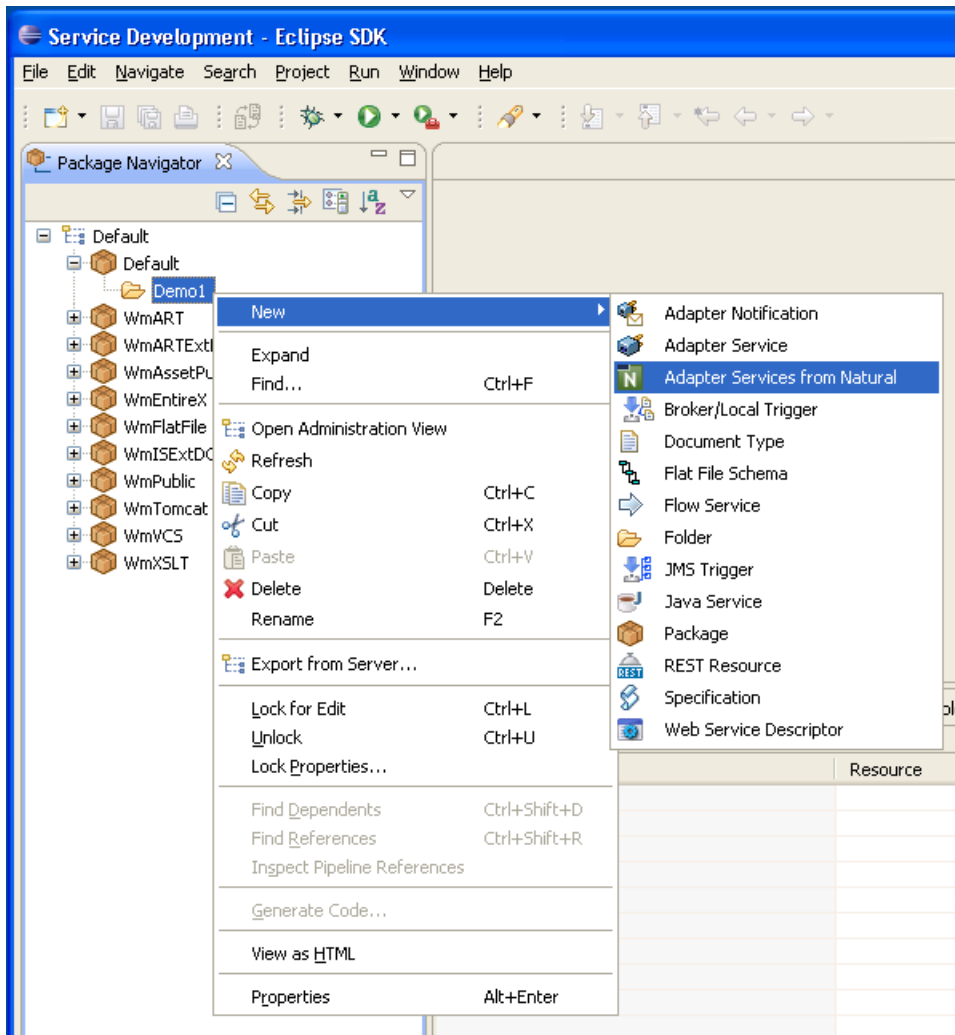
Generating an Adapter Service from a New Natural RPC Environment

This section covers the following topics:

- [Step 1: Start the Adapter Services Wrapper for Natural Wizard](#)
- [Step 2: Create a New RPC Environment](#)
- [Step 3: Edit RPC Environment](#)
- [Step 4: Select Natural Library from RPC Environment \(Optional\)](#)
- [Step 5: Select Natural Subprogram from RPC Environment](#)
- [Step 6: Redesign the Interface for Natural Subprograms \(Optional\)](#)
- [Step 7: Create New Adapter Services](#)

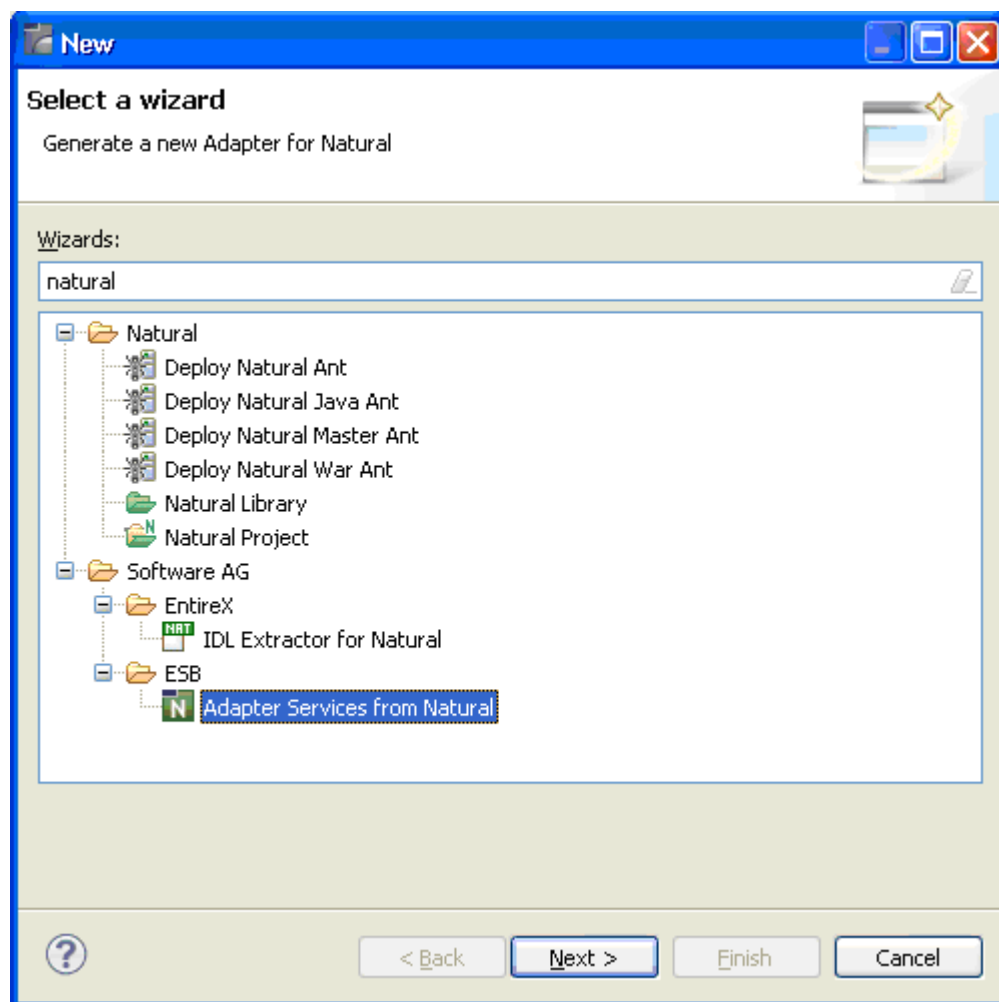
Step 1: Start the Adapter Services Wrapper for Natural Wizard

Usually, the wizard is started from the context menu of a folder in the **Package Navigator**. This view opens when the **Service Development** perspective opens:



As an alternative, you can start the wizard with one of the following options:

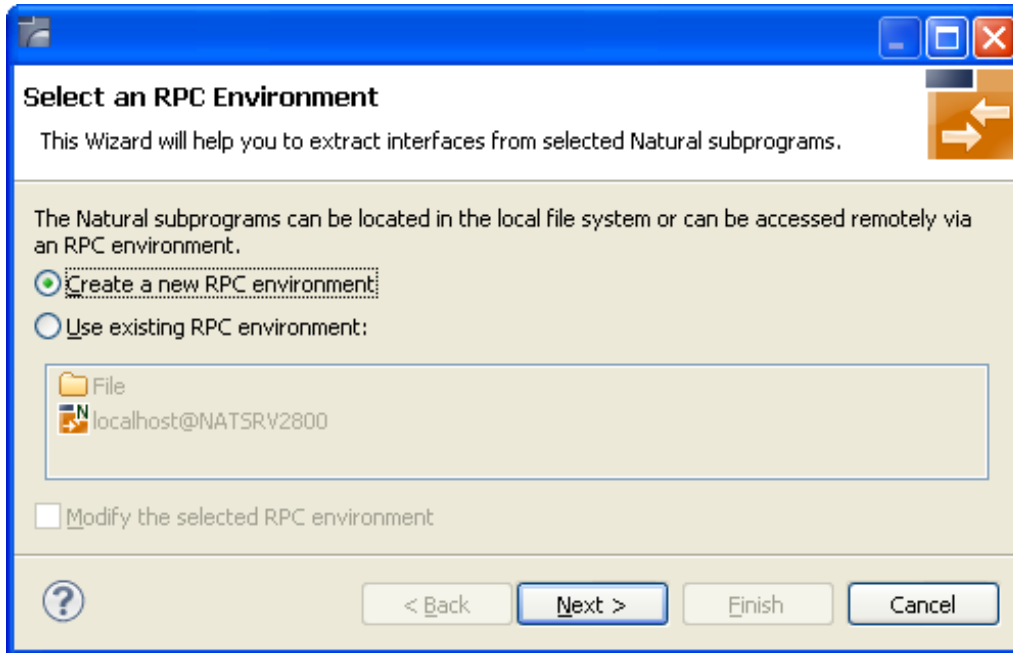
- Choose **File > New**.
- Choose the "New" icon from the toolbar.
- Choose **New** from a context menu in another view.
- Press Ctrl-N.




Choose **Next** and continue with [Step 2: Create a New RPC Environment](#).

Step 2: Create a New RPC Environment

If no RPC environments are defined, you only have the option to **Create a New RPC Environment**. The RPC environments are managed in the [Preferences](#).



Choose **Create a new RPC Environment** and press **Next** to create a new RPC environment. Continue with [Step 3: Edit RPC Environment](#).

 **Note:** The folder **File** and the RPC environment **localhost@NATSRV2800** (default RPC server for NaturalONE) are available only if NaturalONE plugins are installed.

Step 3: Edit RPC Environment

IDL Extractor for Natural

Edit RPC Environment
Define a new RPC Environment.

Broker Parameters

Broker ID: *ibm2:3762

Server Address: *RPC/NPC42X6/CALLNAT Edit...

Timeout (Seconds): 60

EntireX Authentication

User ID:

Password:

RPC Server Authentication

RPC User ID:

RPC Password:

Extractor Settings

Enter names, or use filter for range of values (wildcards * and ? on any position, < and > as final character only).

Library Name: NRPC*

Program Name: CO>

Wrapper Settings

☒ Save locally

☐ Save remotely

Target Library Name: *

Environment Name

☐ Default (ibm2:3762@RPC/NPC42X6/CALLNAT)

☒ Other: ibm2:3762@RPC/NPC42X6/CALLNAT

? < Back Next > Finish Cancel

Define the new RPC environment on this page. Required fields are **Broker ID**, **Server Address** and the **Environment Name**. The timeout value must be in the range 1-9999 seconds (default: 60).

The **EntireX Authentication** fields apply to the broker.

The **RPC Server Authentication** fields apply to the RPC server. If the Natural RPC Server operates under Natural Security,

- your user ID and password must be defined in Natural Security. If the Natural Security user ID or password differs from the broker user ID and password, use **RPC Server Authentication** - otherwise use **EntireX Authentication** for both.
- access to the Natural system library SYSIDL is required



Note: Users who do not have access rights to the Natural system library SYSIDL are not allowed to extract IDL from your Natural environment.

With **Extractor Settings**, specify the Natural library and program name from which you want to extract. You have the following options to select a range of Natural libraries and programs:

- wildcard asterisk "*" (any position) to list libraries or program names matching any sequence of characters.
- wildcard question mark "?" (any position) to list libraries or program names matching any single character.
- wildcard greater than ">" (final character only) to list libraries or program names after.
- wildcard lower than "<" (final character only) to list libraries or program names before.
- no wildcard to extract from the given library or program. If the library or program does not exist, an error message will be displayed.

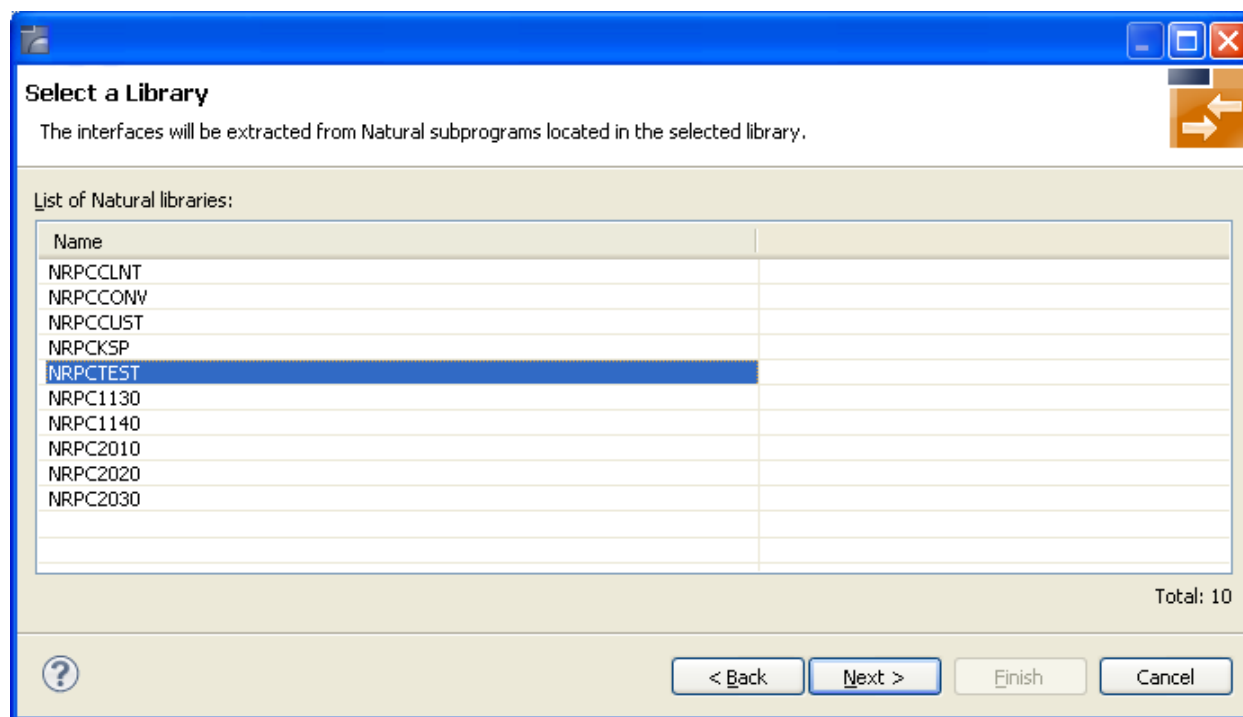
Any Natural RPC Server can be used. Only Natural libraries that reside in the FUSER system file of the Natural RPC Server can be accessed. Special configuration is required only for operating system IBM i; see *Natural RPC Server Configuration for the IDL Extractor for Natural* in the IBM i administration documentation.

Press **Next** to continue.

- If **Library Name** (using any wildcards) matches one Natural library only, continue with [Step 5: Select Natural Subprogram from RPC Environment](#).
- If **Library Name** matches more than one Natural library, continue with [Step 4: Select Natural Library from RPC Environment \(Optional\)](#).

Step 4: Select Natural Library from RPC Environment (Optional)

All Natural libraries that reside in the FUSER system file of the Natural RPC Server and that match the specification in the **Extractor Settings** are listed here. See [Step 3: Edit RPC Environment](#). This step is skipped if exactly one Natural library matches the specification. In this case continue with *Step 5: Select Natural Subprograms from RPC Environment*.

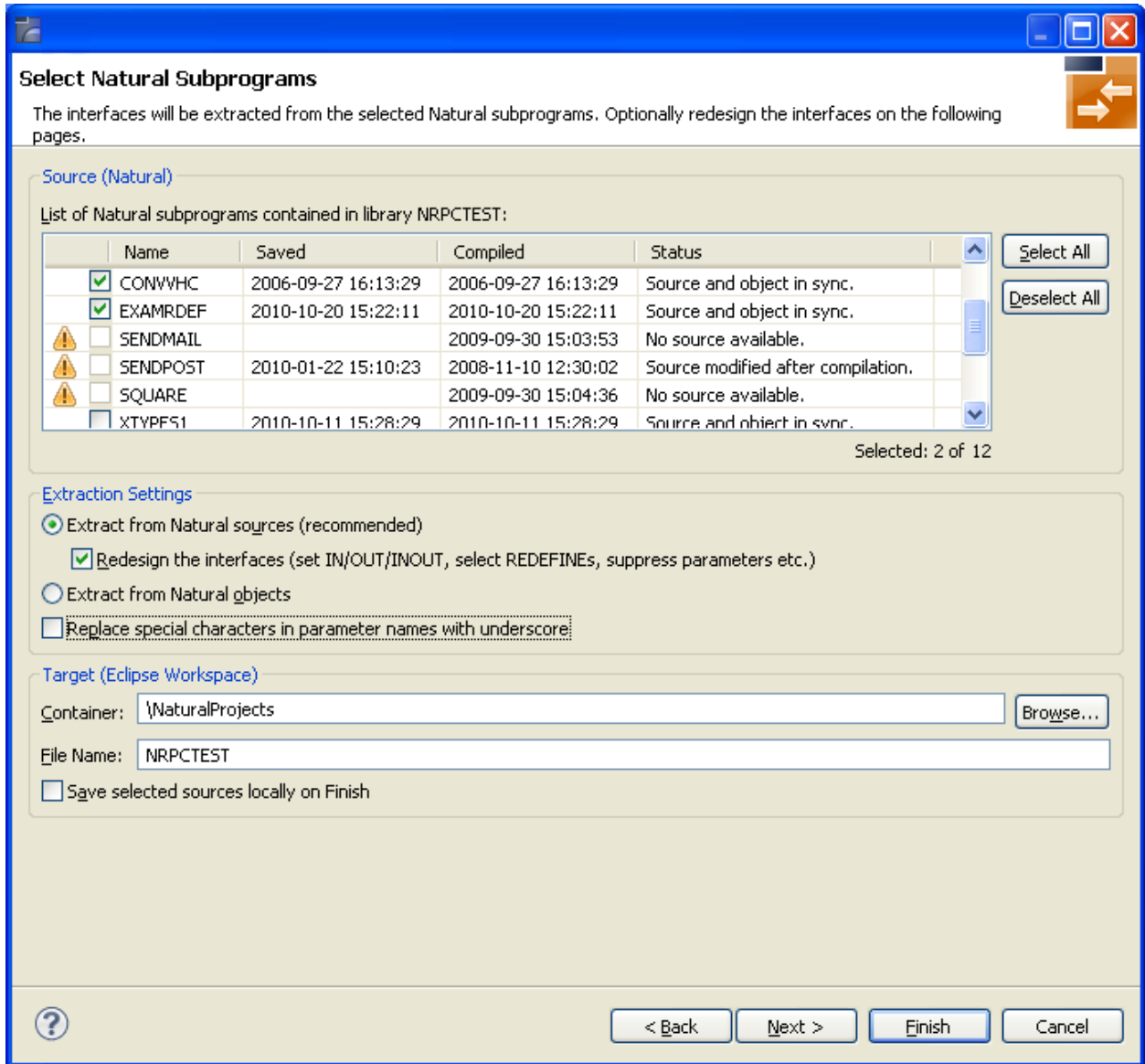


Only Natural libraries from the Natural User System file (*FUSER*) are displayed. If the Natural RPC server operates under Natural Security, Natural libraries are displayed only if you are allowed to access the library. This means that if a library is people-protected and you do not have access rights, it is not displayed. See also **RPC Server Authentication** under [Step 3: Edit RPC Environment](#).

Select the Natural library from the list and choose **Next** to continue with [Step 5: Select Natural Subprogram from RPC Environment](#).

Step 5: Select Natural Subprogram from RPC Environment

All Natural subprograms that match the specification in the Extractor Settings are listed here. See [Step 3: Edit RPC Environment](#).



In the **Source** pane select at least one program from the list of Natural subprograms (CALLNATs). You can also choose **Select All** or **Deselect All**.

In the **Extraction Settings** pane, specify whether the IDL is to be extracted from Natural subprogram sources or compiled objects. The following restrictions apply:

■ **Extract from Natural sources (recommended)**

Extracting from a source is only possible if the compiled object and source are in sync. For example, in the screen above, source extraction is not possible for

- SENDMAIL, because there is no source, only an object
- SENDPOST, because the source is modified after last compilation

■ **Extract from Natural objects**

Extracting from an object is always possible.

Check **Redesign the interfaces** if you want to design the extracted interfaces to the Natural subprograms. The **Next** button will be enabled. See *Redesigning the Extracted Interface*. If you do not check **Redesign the interfaces**, refer to *Natural to IDL Mapping* in the IDL Extractor for Natural documentation for default mappings.

Check **Replace special characters in parameter names with underscore** to substitute the special characters '\$', '#', '&', '@', '/' by underscores. See also *Extracting IDL Parameter Names* in *Natural to IDL Mapping* in the IDL Extractor for Natural documentation.

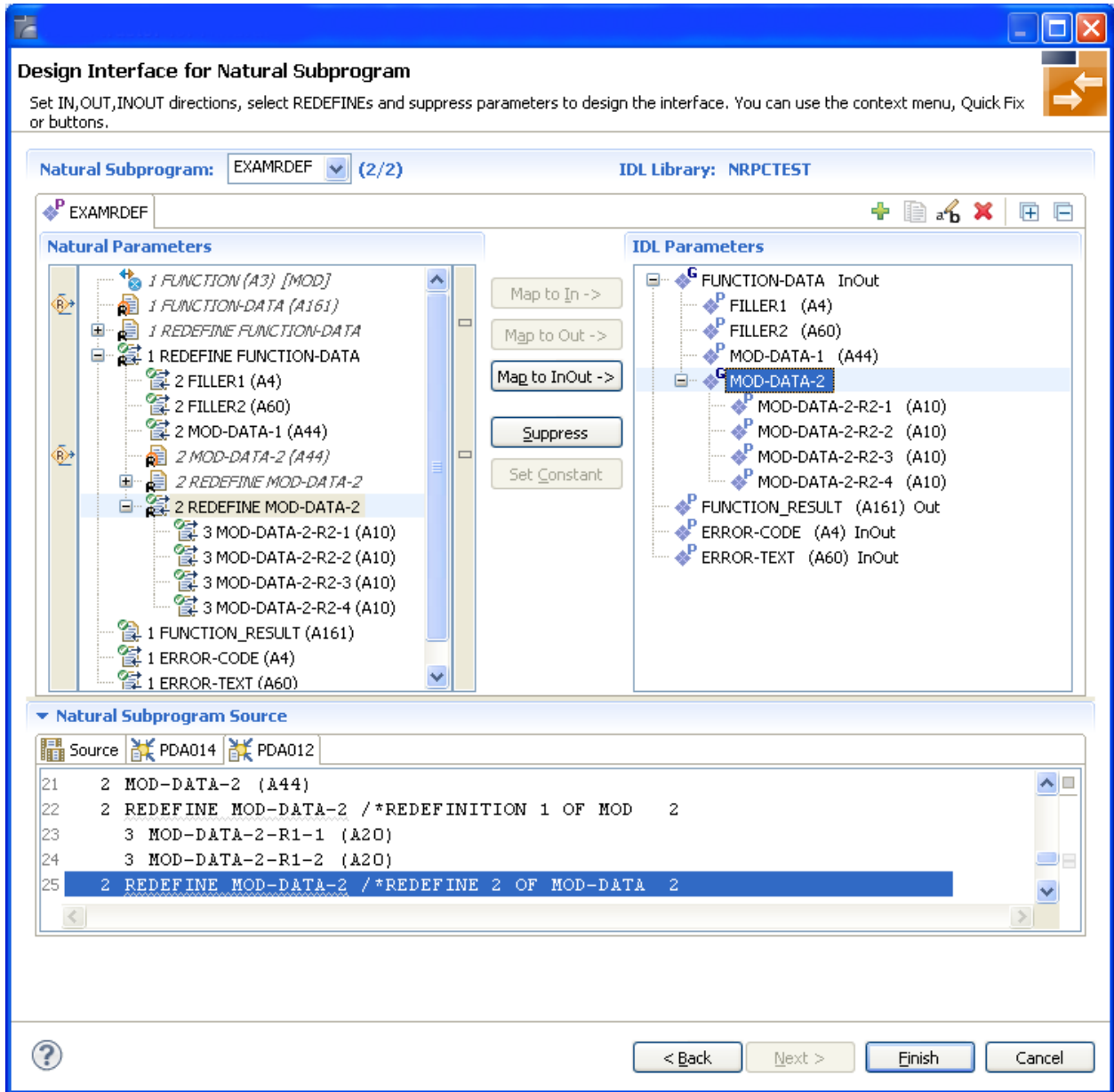
If multiple Natural subprograms have been selected in the Natural subprogram selection step, redesign the next interface. The amount of subprograms extracted so far is indicated by the fraction next to the title (current/total).

If only one Natural subprogram has been selected or no further one has to be redesigned, continue with [Step 7: Create New Adapter Services](#).

Step 6: Redesign the Interface for Natural Subprograms (Optional)

In this step, you can redesign the interface. This includes:

- *Extracting Multiple Interfaces*
- *Extracting Natural REDEFINES*
- *Extracting IDL Directions (IN, OUT, INOUT)*
- *Setting Natural Parameters to Constants*
- *Suppressing Natural Parameters*
- *Renaming a Program*



Use this page for the following tasks:

- Define the direction of parameters in the extracted interface. Choose **Map to In**, **Map to Out** or **Map to InOut** for each parameter on level 1.
- Define which parameters redefined in the Natural PDA are part of the extracted interface. Choose **Map to In**, **Map to Out** or **Map to InOut** for the **REDEFINE** base parameter or any **REDEFINE** path.
- Hide or suppress unneeded parameters in the extracted interface. Choose **Suppress**.
- Set parameters to constants and hide or suppress them in the extracted interface. Choose **Set Constant**.

This page consists of the following main parts:

■ Top line

The top line contains the current Natural subprogram and the IDL library name. The combo box can be used as quick navigation if more than one Natural subprogram is selected.

■ Middle

The middle part contains a tab item for each interface (IDL program) extracted from the Natural subprogram.



Note: It is possible to extract more than one interface (IDL program) from a Natural subprogram. To create, rename and remove interfaces, use the toolbar on the right side of tab folder.

Icon	Function	Description
	Create	Creates a new interface (IDL program) based on the original parameters of the Natural subprogram.
	Duplicate	Creates a new interface (IDL program) based on the current interface (active tab). All modifications of the current interface are copied.
	Rename	Change the name of the current interface (active tab). The name must be unique.
	Remove	Removes the current interface (active tab). At least one interface must exist.
	Expand All	Expands the Natural and IDL tree.
	Collapse All	Collapse the Natural and IDL tree.

■ Middle left

Input pane. The parameters of the Natural subprogram to extract from. For each Natural subprogram parameter you can choose one of the operations **Map to In**, **Map to Out**, **Map to InOut**, **Suppress** and **Set Constant**. Additionally for **REDEFINES**, a quick fix is available (icons on the left side of the pane) to choose which parameters redefined in the Natural PDA are part of the extracted interface.



Notes:

1. The mapping operations **Map to In**, **Map to Out**, **Map to InOut**, **Suppress** and **Set Constant** are also available in the context menu of the Natural parameter tree.
2. Natural parameters that are suppressed or set to constant in the interface are rendered in italic type. For example, in the screen above, *FUNCTION (A3)* is set to constant; *FILLER1(A4)* and *FILLER2(A60)* are suppressed; *FUNCTION-DATA(A161)* and its first **REDEFINE** path are implicitly suppressed because the second **REDEFINE** path with prefix **MOD-DATA-2-R2** is selected.
3. The value for Natural parameters set to constant are displayed behind the parameter in the Natural parameter tree (e.g. in the screen above, *FUNCTION (A3) [MOD]*).
4. Natural parameters mapped in the interface are displayed with a green tick (✔).

- **Middle right**

Output pane. The extracted interface (IDL).

- **Bottom**

Reference. The Natural subprogram source and its PDA sources, each displayed in a separate tab.

Tips:

- The panes can be resized.
- To enlarge parameter lists, use the vertical bars on the side.
- You can close the bottom pane if it is not needed by clicking on the triangle next to **Natural Subprogram Source**. In this way, you have more space for viewing the upper panes.

Use the quick navigation or choose **Next** to continue. If multiple Natural subprograms have been selected in the Natural subprogram selection step, redesign the next interface. The amount of subprograms extracted so far is indicated by the fraction next to the title (current/total).

If multiple Natural subprograms have been selected in the Natural subprogram selection step, redesign the next interface. The amount of subprograms extracted so far is indicated by the fraction next to the title (current/total).

If only one Natural subprogram has been selected or no further one has to be redesigned, continue with [Step 7: Create New Adapter Services](#).

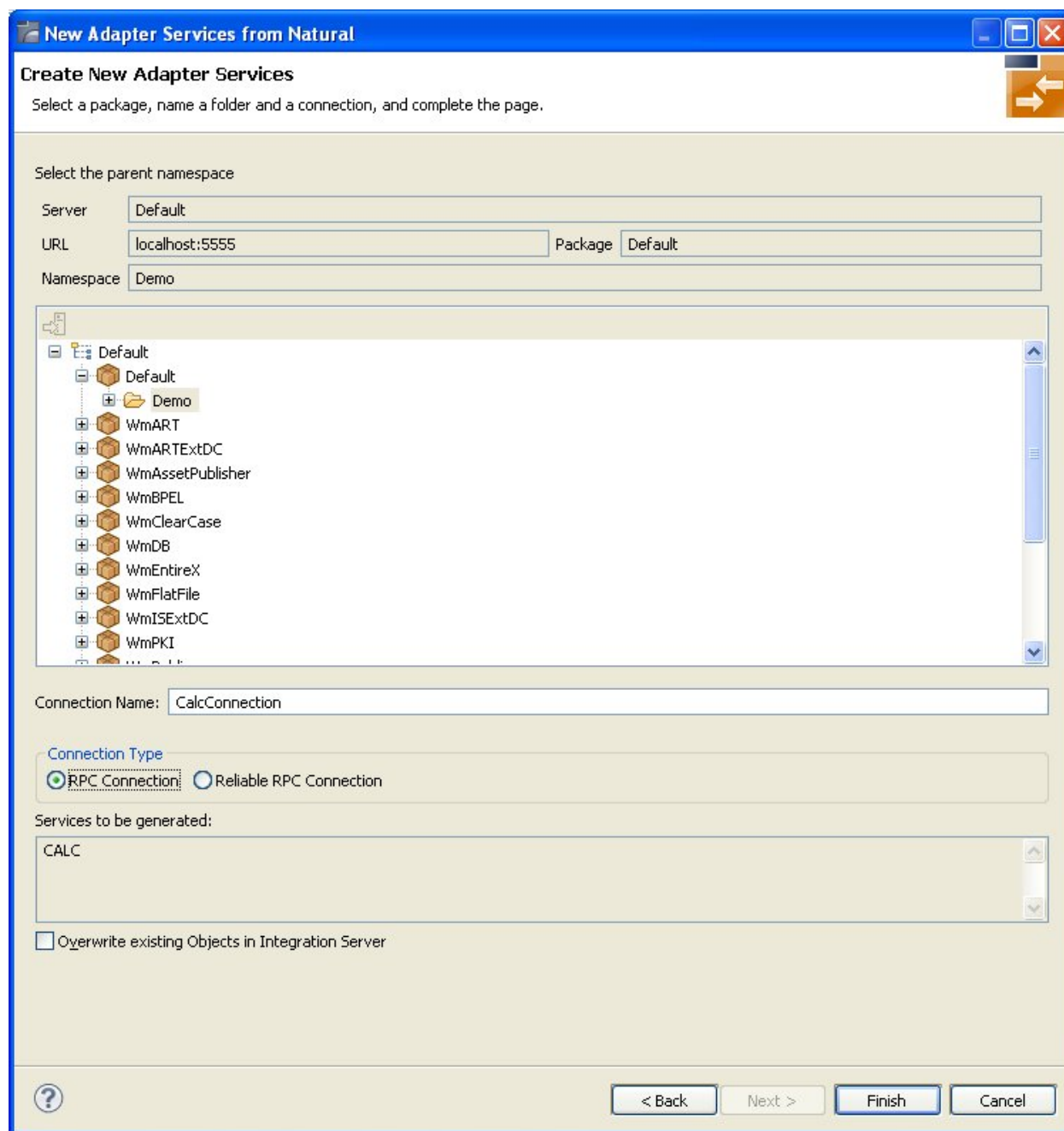
Step 7: Create New Adapter Services

After you have defined the interfaces for the selected Natural subprograms, the wizard asks for the webMethods ESB, the package and the namespace (folder) for the new connection and the services.

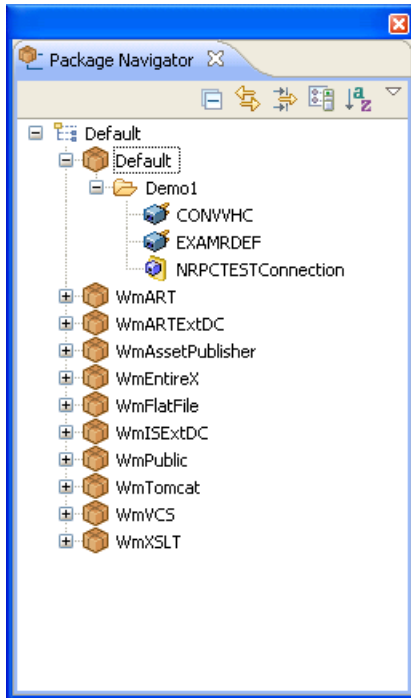
The **Connection Name** default is `<library name>Connection`. Adapter services have the same name as the corresponding Natural subprograms. You cannot change the services names within this wizard.

The default **Connection Type** **RPC Connection**. If there are inbound parameters only, you can also specify connection type **Reliable RPC Connection**.

If the connection or adapter services already exist in this webMethods ESB, you can overwrite them by checking **Overwrite existing Objects in Integration Server**.



The result of the generation step is visible in the Package Navigator:

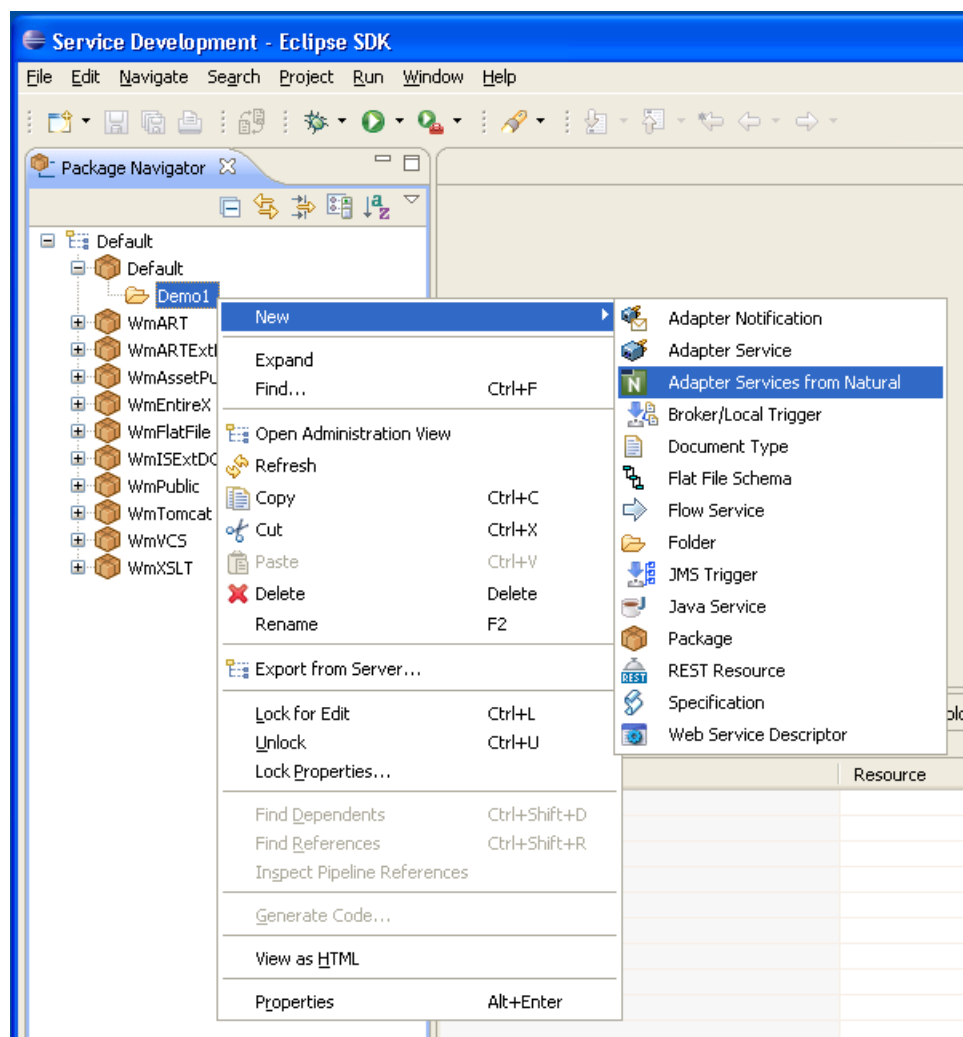


Generating an Adapter Service from an Existing Natural RPC Environment

- Step 1: Start the Adapter Services Wrapper for Natural Wizard
- Step 2: Select an RPC Environment

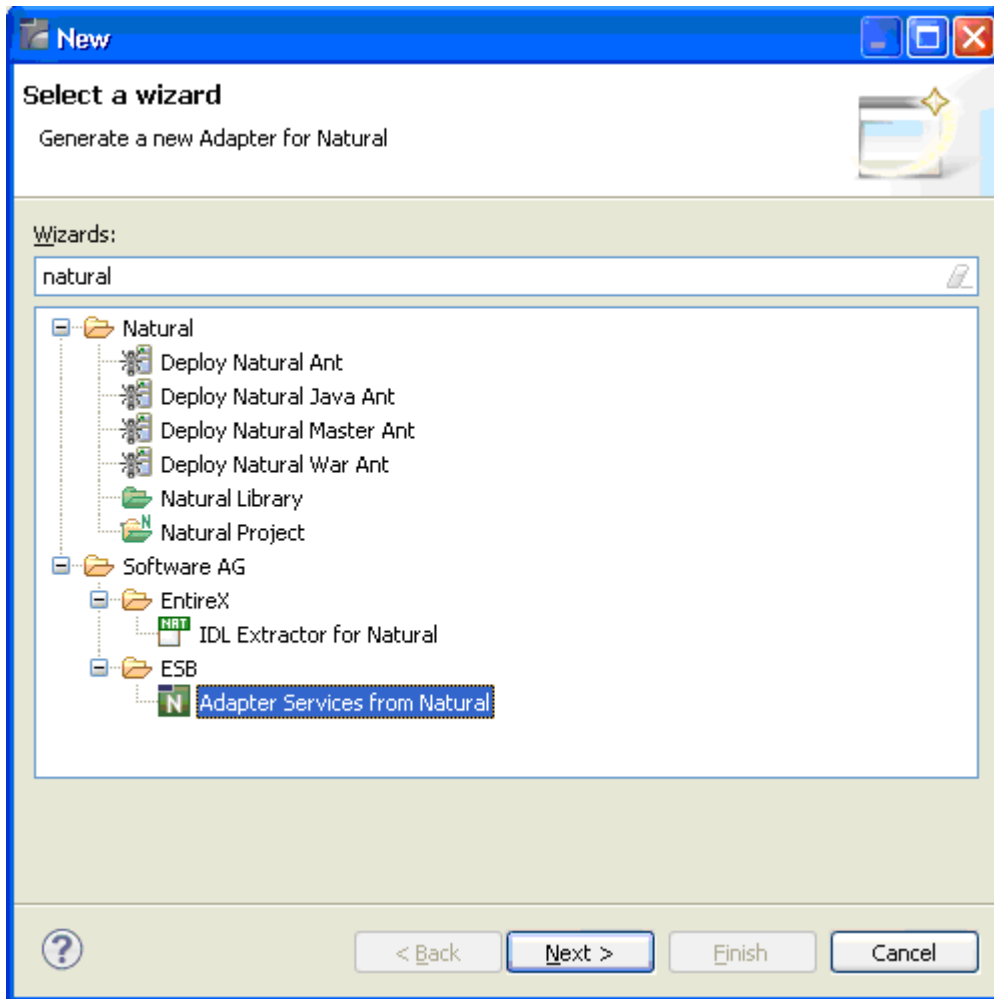
Step 1: Start the Adapter Services Wrapper for Natural Wizard

Usually, the wizard is started from the context menu of a folder in the **Package Navigator**. This view opens when the **Service Development** perspective opens:



As an alternative, you can start the wizard with one of the following options:

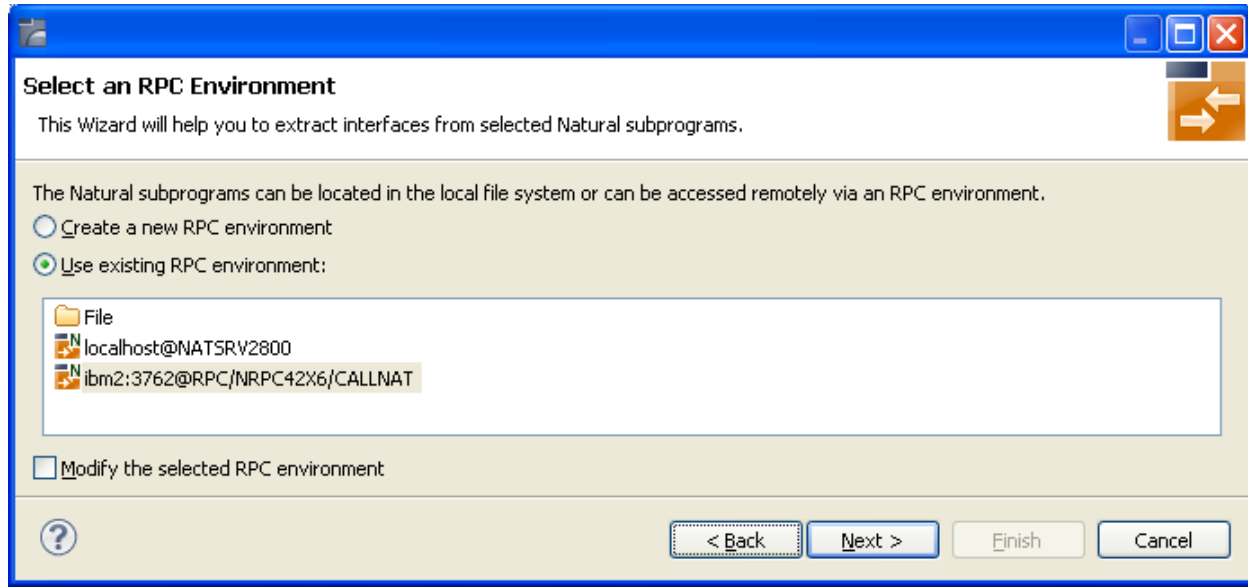
- Choose **File > New**.
- Choose the "New" icon from the toolbar.
- Choose **New** from a context menu in another view.
- Press Ctrl-N.



Choose **Next** and continue with [Step 2: Select an RPC Environment](#).

Step 2: Select an RPC Environment

If RPC environments are defined, you can select an existing one. RPC environments are managed in the [Preferences](#).



Select **Use existing RPC environment** and select the appropriate RPC environment from the list below.

If **Modify the selected RPC environment** is checked, the selected RPC environment can be modified before extraction starts.

Press **Next** to continue.

- If **Modify the selected RPC environment** is *checked*, continue with [Step 3: Edit RPC Environment](#) above.
- If **Modify the selected RPC environment** is *not checked* and the Natural library name matches *one* Natural library only (using any wildcard defined in [Step 3: Edit RPC Environment](#)), continue with [Step 5: Select Natural Subprogram from RPC Environment](#) above.
- If **Modify the selected RPC environment** is *not checked* and the Natural library name matches *more than one* Natural library, continue with [Step 4: Select Natural Library from RPC Environment \(Optional\)](#) above.



Note: The folder **File** and the RPC environment **localhost@NATSRV2800** (default RPC server for NaturalONE) are available only if NaturalONE plug-ins are installed.

Preferences

Use the *RPC Environment Manager* to manage RPC environments.

Use the preference page for the IDL Extractor for Natural to manage the default values relevant for [Step 5: Select Natural Subprogram from RPC Environment](#). See *Preferences* under *Using the Software AG IDL Extractor for Natural*.

