

Natural

Schema Generation

Version 9.1.3 for Windows

October 2020

This document applies to Natural Version 9.1.3 for Windows and all subsequent releases.

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

Copyright © 2003-2020 Software AG, Darmstadt, Germany and/or Software AG USA, Inc., Reston, VA, USA, and/or its subsidiaries and/or its affiliates and/or their licensors.

The name Software AG and all Software AG product names are either trademarks or registered trademarks of Software AG and/or Software AG USA, Inc. and/or its subsidiaries and/or its affiliates and/or their licensors. Other company and product names mentioned herein may be trademarks of their respective owners.

Detailed information on trademarks and patents owned by Software AG and/or its subsidiaries is located at <http://softwareag.com/licenses>.

Use of this software is subject to adherence to Software AG's licensing conditions and terms. These terms are part of the product documentation, located at <http://softwareag.com/licenses/> and/or in the root installation directory of the licensed product(s).

This software may include portions of third-party products. For third-party copyright notices, license terms, additional rights or restrictions, please refer to "License Texts, Copyright Notices and Disclaimers of Third-Party Products". For certain specific third-party license restrictions, please refer to section E of the Legal Notices available under "License Terms and Conditions for Use of Software AG Products / Copyright and Trademark Notices of Software AG Products". These documents are part of the product documentation, located at <http://softwareag.com/licenses> and/or in the root installation directory of the licensed product(s).

Use, reproduction, transfer, publication or disclosure is prohibited except as specifically provided for in your License Agreement with Software AG.

Document ID: SGEN-NSGENUSAGE-913-20201002

Table of Contents

Preface	v
1 About this Documentation	1
Document Conventions	2
Online Information and Support	2
Data Protection	3
2 Introduction	5
What is Schema Generation?	6
Restrictions	6
3 What's New?	7
Prerequisites	8
4 Before You Start	9
Enabling the Use of Plug-ins	10
Activating a Plug-in	11
Connecting to a Development Server	14
5 Elements of Schema Generation	17
Menu Commands	18
Toolbar	18
6 Generating External Objects	19
7 Incorporating External Objects	27

Preface

This documentation is organized under the following headings:

Introduction	What is Schema Generation? Restrictions.
What's New?	New features and enhancements.
Before You Start	How to activate this plug-in and how to connect to the development server.
Elements of Schema Generation	Menu commands and toolbar buttons that are available in the Natural Studio window when this plug-in has been activated.
Generating External Objects	How to generate an external object from a documentation object.
Incorporating External Objects	How to create a documentation object by incorporating information from an external object.



Note: Reference documentation is provided separately. See *Prerequisites for Natural Single Point of Development* at http://documentation.softwareag.com/natural/spod_prereq/prereq.htm for detailed information.

1 About this Documentation

▪ Document Conventions	2
▪ Online Information and Support	2
▪ Data Protection	3

Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
Monospace font	Identifies service names and locations in the format <code>folder.subfolder.service</code> , APIs, Java classes, methods, properties.
<i>Italic</i>	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
Monospace font	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the symbol.
[]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

Online Information and Support

Software AG Documentation Website

You can find documentation on the Software AG Documentation website at <http://documentation.softwareag.com>. The site requires credentials for Software AG's Product Support site Empower. If you do not have Empower credentials, you must use the TECHcommunity website.

Software AG Empower Product Support Website

If you do not yet have an account for Empower, send an email to empower@softwareag.com with your name, company, and company email address and request an account.

Once you have an account, you can open Support Incidents online via the eService section of Empower at <https://empower.softwareag.com/>.

You can find product information on the Software AG Empower Product Support website at <https://empower.softwareag.com>.

To submit feature/enhancement requests, get information about product availability, and download products, go to [Products](#).

To get information about fixes and to read early warnings, technical papers, and knowledge base articles, go to the [Knowledge Center](#).

If you have any questions, you can find a local or toll-free number for your country in our Global Support Contact Directory at https://empower.softwareag.com/public_directory.aspx and give us a call.

Software AG TECHcommunity

You can find documentation and other technical information on the Software AG TECHcommunity website at <http://techcommunity.softwareag.com>. You can:

- Access product documentation, if you have TECHcommunity credentials. If you do not, you will need to register and specify "Documentation" as an area of interest.
- Access articles, code samples, demos, and tutorials.
- Use the online discussion forums, moderated by Software AG professionals, to ask questions, discuss best practices, and learn how other customers are using Software AG technology.
- Link to external websites that discuss open standards and web technology.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 Introduction

- What is Schema Generation? 6
- Restrictions 6

This chapter covers the following topics:

What is Schema Generation?

Schema Generation is available as an optional plug-in unit for Natural Studio.

External objects can be generated or incorporated with Predict on the server or with Schema Generation in Natural Studio. Both have access to the same data.

Restrictions

In this version, generation and incorporation is supported for Adabas and DB2 structures. This includes generation and incorporation of the following:

- Adabas databases (incorporation only),
- Adabas files,
- DB2 databases,
- DB2 procedures/functions (generation only),
- DB2 storagegroups,
- DB2 tablespaces,
- DB2 tables/views,
- DDMs for Natural (generation only),
- activation of automatic processing rules (generation only).

Generation and incorporation of other external objects is currently only possible with Predict.

3 What's New?

- Prerequisites 8

This chapter summarizes the new, improved and modified features provided by this version of Schema Generation.

Prerequisites

See *Prerequisites for Natural Single Point of Development* which lists the minimum requirements for this plug-in.

4 Before You Start

- Enabling the Use of Plug-ins 10
- Activating a Plug-in 11
- Connecting to a Development Server 14

This plug-in is automatically installed when you install the Natural development environment for Windows (see the Natural for Windows installation documentation for further information). Before you can use this plug-in, however, you have to activate it using the Plug-in Manager.

This chapter covers the following topics:

Enabling the Use of Plug-ins

When the use of plug-ins has already been enabled in Natural Studio, the command **Plug-in Manager** is available in the menu **Tools > Configuration Tools**. In this case, you can skip this section.

If the command **Plug-in Manager** is not available in Natural Studio, you have to enable the use of plug-ins as described below.

➤ To enable the use of plug-ins

- 1 From the **Tools** menu, choose **Options**.

The **Options** dialog box appears.

- 2 Choose the **Workspace** tab.
- 3 Activate the **Enable Plug-ins** check box.



- 4 Choose the **OK** button.

The **Plug-in Manager** command and the corresponding toolbar button are now available (see below). When the use of plug-ins is not enabled, this command and toolbar button are not shown.

Activating a Plug-in

A plug-in is not active by default. It can be activated when the Plug-in Manager has been enabled.

Two types of activation mode are available:

- **Automatic**

The plug-in is automatically activated each time Natural is started.

- **Manual**

The plug-in must be activated manually on demand (default).

➤ **To activate a plug-in**

- 1 From the **Tools** menu, choose **Configuration Tools > Plug-in Manager**.

Or:

Choose the following toolbar button:



Note: The display of the toolbar containing this button can be switched on and off by choosing **Customize** from the **Tools** menu.

The **Plug-in Manager** window appears.

Name	Status	Mode	Type
Web Interface	Not active	Manual	Single server
Object Description	Not active	Manual	Single server
XML Toolkit	Not active	Manual	Single server
Object Compare	Not active	Manual	Single server
SYSEXT Utility	Not active	Manual	Single server
Local Versioning	Not active	Manual	Single server
Application Wizard	Not active	Manual	Shared server
Metrics and XRef Viewing	Not active	Manual	Single server
Schema Generation	Not active	Manual	Single server
Object Versioning	Not active	Manual	Single server
Program Generation	Not active	Manual	Shared server
Plug-in Manager	Active	Automatic	Shared server

- 2 Select the entry for the plug-in that you want to activate.
- 3 Click the right mouse button or press **SHIFT+F10** and from the resulting context menu, choose **Activation mode > Automatic**.

This does not automatically activate the plug-in for the current session. To activate it, you can either restart Natural or proceed as described with the next step.

- 4 Click the right mouse button or press **SHIFT+F10** while the entry for the plug-in is still selected and from the resulting context menu, choose **Activate**.

Connecting to a Development Server

In order to work with a plug-in, you have to connect to a mapped Natural development server.

Once a development server has been mapped, a node for this development server session is shown in the tree. To connect to a mapped development server, simply expand the node (or double-click the node, or select the node and press `ENTER`). If required, specify a password in the resulting **Map Environment** dialog box (detailed information on this dialog box is provided below).

When the required development server has not yet been mapped, proceed as described below.

> To map to a development server

- 1 From the **Tools** menu, choose **Map > Environment**.

Or:

Choose the following toolbar button:



Note: The display of the toolbar containing this button can be switched on and off by choosing **Customize** from the **Tools** menu.

The **Map Environment** dialog box appears. Your user ID is automatically provided.

The screenshot shows the 'Map Environment' dialog box. It has a title bar with the text 'Map Environment' and a close button (X). The dialog is divided into two sections: 'Server' and 'Startup'. The 'Server' section contains three text boxes: 'Host name:', 'Server port:', and 'Environment name:'. The 'Startup' section contains three text boxes: 'Session parameters:', 'User ID:' (with 'KOL' entered), and 'Password:'. At the bottom are three buttons: 'OK', 'Cancel', and 'Help'.

- 2 In the **Host name** text box, enter the name of the development server.
- 3 In the **Server port** text box, enter the TCP/IP port number of the development server.
- 4 Optionally. In the **Environment name** text box, enter the name that is to appear in the tree. If you leave this text box blank, a combination of server name and port number is shown in the tree.
- 5 If dynamic parameters are required for your development server, specify them in the **Session parameters** text box. Otherwise, leave this text box blank.
- 6 If Natural Security is installed on the development server, specify the required password in the **Password** text box. Otherwise, leave this text box blank.
- 7 Choose the **OK** button.

When the connection has been established, all libraries (according to the security profile) for this session are shown in your library workspace. You are automatically logged on to your default library.

5 Elements of Schema Generation

- Menu Commands 18
- Toolbar 18

When Schema Generation has been activated in the Plug-in Manager, the following additional elements are available in the Natural Studio window:

Menu Commands

When Schema Generation has been activated, the **Tools > Development Tools** menu provides the cascading menu **Schema Generation** with the following commands:

Command	Using this command, you can ...
Schema Generation	Generate an external object from a documentation object.
Schema Incorporation	Create a documentation object by incorporating information from an external object.

Toolbar

When Schema Generation has been activated, an additional toolbar is shown. The toolbar buttons represent the following menu commands:

 [Schema Generation](#)

 [Schema Incorporation](#)

 **Note:** The display of this toolbar can be switched on and off by choosing **Customize** from the **Tools** menu.

6

Generating External Objects

This chapter describes the wizard that is used for schema generation.

The wizard provides several pages in which you have to specify information. The number of pages and the information on these pages depends on the object type that has been selected on the first page of the wizard.

For detailed information on the object type-specific information that can be specified using this wizard, see *Generation of External Objects* in *External Objects in Predict*.

The wizard uses edit controls such as text boxes, check boxes or drop-down list boxes. For the description of check boxes, the reference documentation *External Objects in Predict* uses the abbreviations Y (yes) and N (no). Y means that the check box is selected, and N means that the check box is not selected.

➤ To generate an external schema

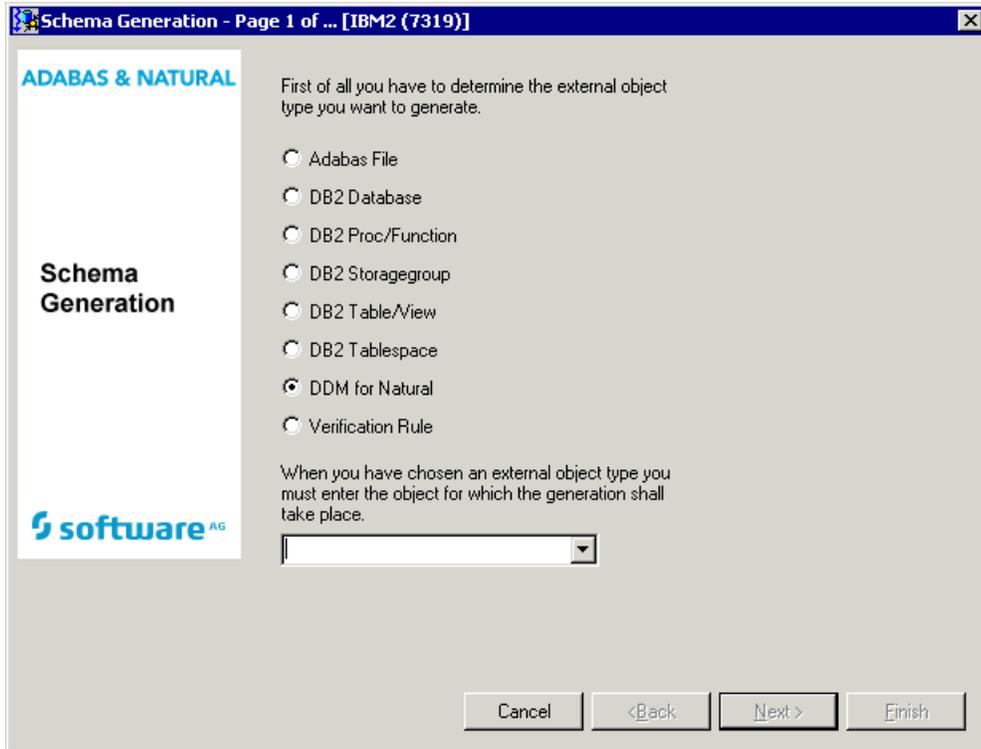
- 1 From the **Tools > Development Tools > Schema Generation** menu, choose **Schema Generation**.

Or:

Choose the following toolbar button:



The schema generation wizard appears, providing several pages.



 **Note:** If DB2 is not installed at your site, the generation functions for DB2 objects are not available.

- 2 Select the option button for the type of external object that you want to generate.
- 3 From the drop-down list box, select the object for which generation is to take place.

Or:

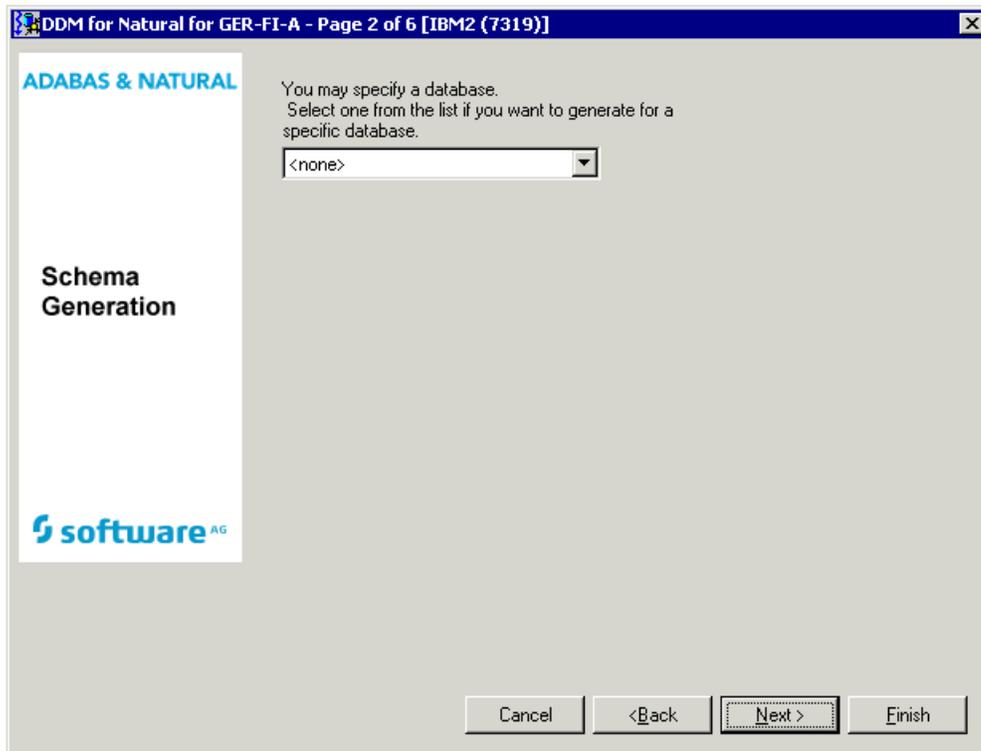
If you know the name of the object, you can also type its name in the drop-down list box.

- 4 Choose the **Next** button to proceed to the next page.

 **Note:** The **Next** button is only available when all required information has been provided.

The number of pages and the information on the next pages depends on the object type that has been selected on the first page.

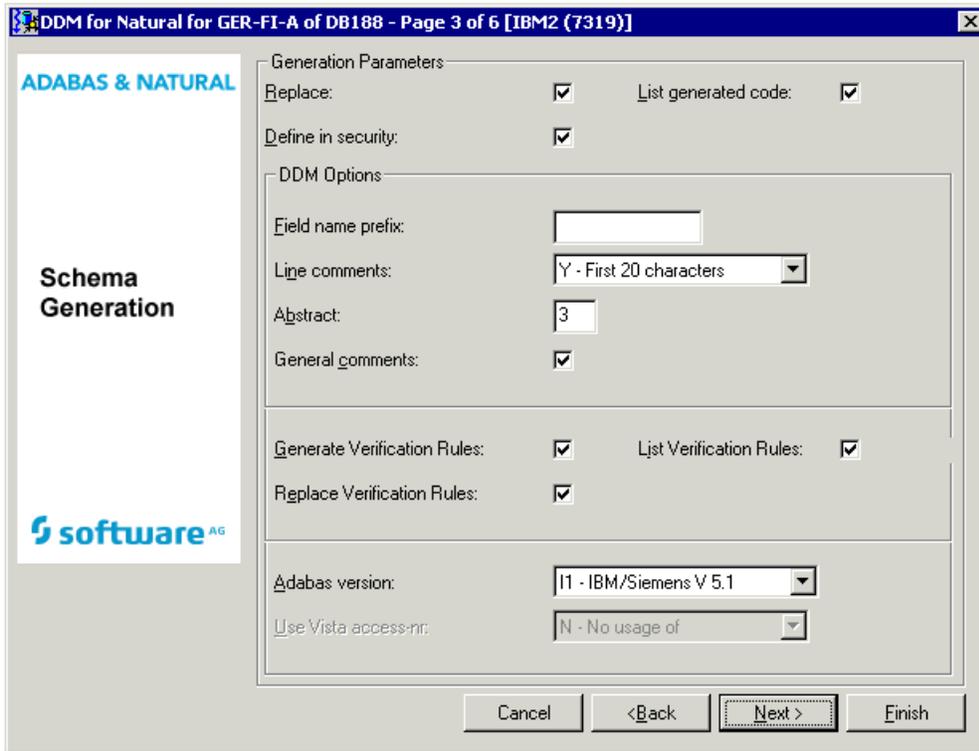
Example - generate DDM for Natural:



 **Note:** This type of page, on which you can select information from a drop-down list box, is only shown for specific types of external objects. Its appearance also depends on specific defaults defined by the administrator and/or the object that has been selected on the first page of the wizard.

- 5 Specify the required information and choose the **Next** button to proceed to the next page.

Example - generate DDM for Natural:



The **Define in security** check box is only shown when you are working in an environment in which Natural Security is active.

- 6 Specify the required information and choose the **Next** button to proceed to the next page.

The following page is only shown when you generate a DDM for Natural, and only when the **Define in security** check box has been selected in the previous page. When this check box is not selected, you proceed directly to page 5.

For information on the security parameters on this page, see the Natural Security documentation.

DDM for Natural for GER-FI-A of DB188 - Page 4 of 6 [IBM2 (7319)]

ADABAS & NATURAL

Schema Generation

software AG

Security Parameters

Status: PUBL

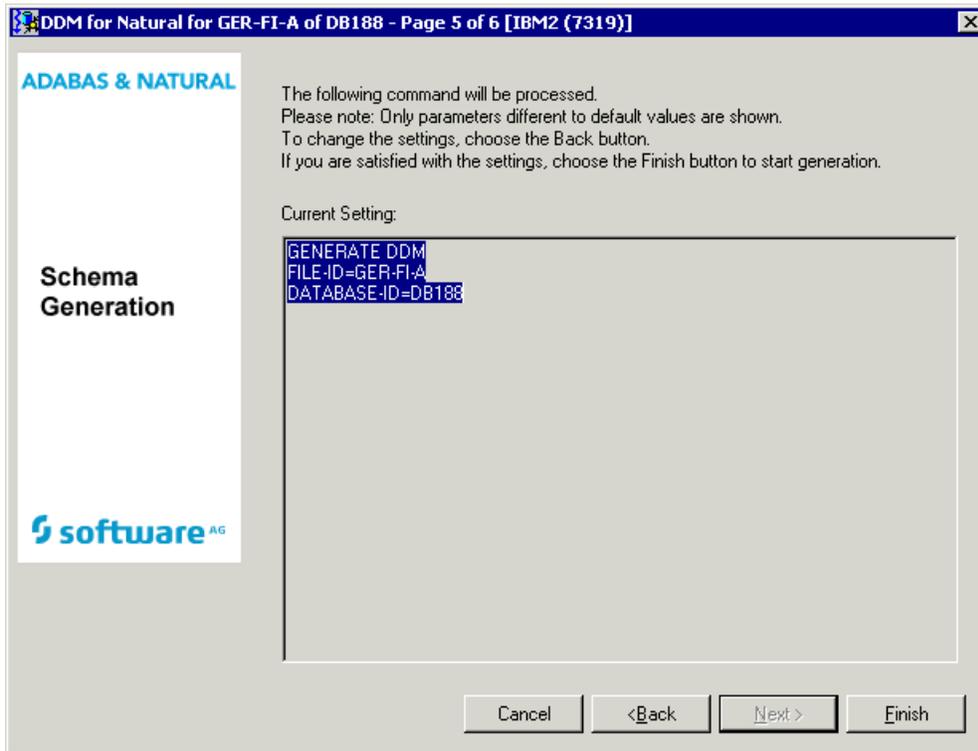
DDM Modifiers:	No. of Co-Modifiers:	DDM Owners:	No. of Co-Owners (8):

Security Notes:

Cancel <Back Next > Finish

- 7 Specify the required information and choose the **Next** button to proceed to the next page.

Example - generate DDM for Natural:



This page shows only the settings which have been modified on the previous page.

8 If all required information has been specified, choose the **Finish** button to start generation.

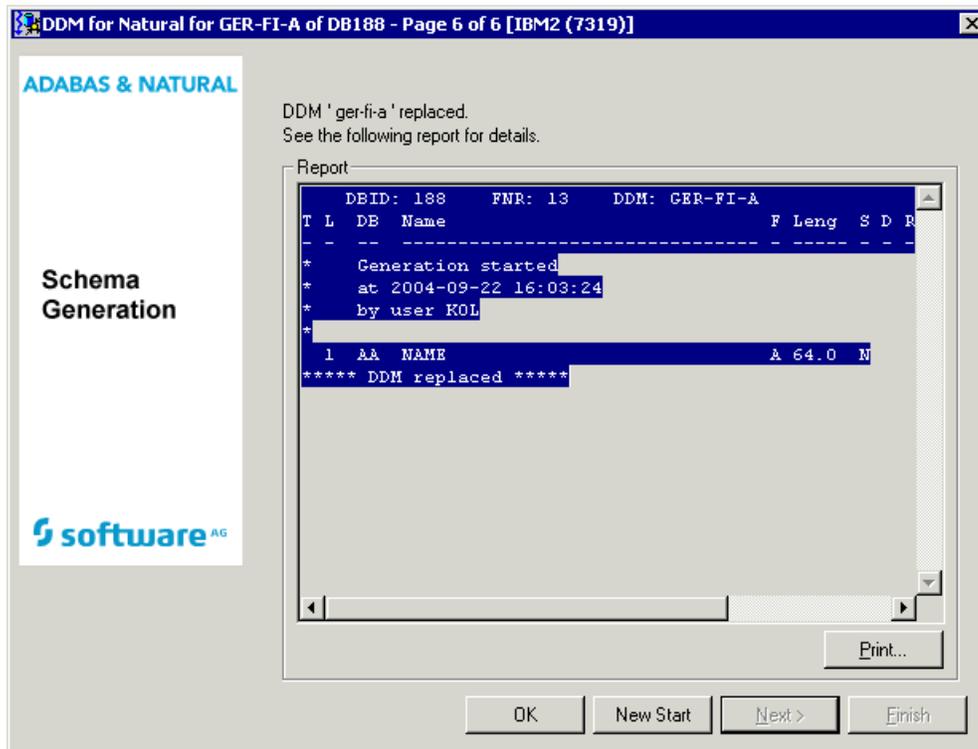
 **Note:** As long as you do not choose the **Finish** button, you can go back to the previous pages by choosing the **Back** button.

When the generation process has completed, the last page of the wizard is shown. If the **List** option has been selected previously, a report is shown. If this option has not been selected, the corresponding text box is empty.

However, if an error occurs during the generation process, an error report is shown in the text box. The error report is always shown. The setting of the **List** option is not considered in this case.

 **Note:** The complete name for the **List** option depends on the selected object type. For example, if you have selected a DDM for Natural, the name of the option is **List generated code**.

Example - generate DDM for Natural:



When you choose the **Print** button, you can print the report on a printer that is defined under Windows.

- 9 Choose the **OK** button to close the dialog box.

Or:

If you want to start generation for another object, choose the **New Start** button and proceed as described above.

7 Incorporating External Objects

This chapter describes the wizard that is used for schema incorporation.

The wizard provides several pages in which you have to specify information. The number of pages and the information on these pages depends on the object type that has been selected on the first page of the wizard.

For detailed information on the object type-specific information that can be specified using this wizard, see *Incorporation in External Objects in Predict*.

The wizard uses edit controls such as text boxes, check boxes or drop-down list boxes. For the description of check boxes, the reference documentation *External Objects in Predict* uses the abbreviations Y (yes) and N (no). Y means that the check box is selected, and N means that the check box is not selected.

➤ To incorporate an external schema

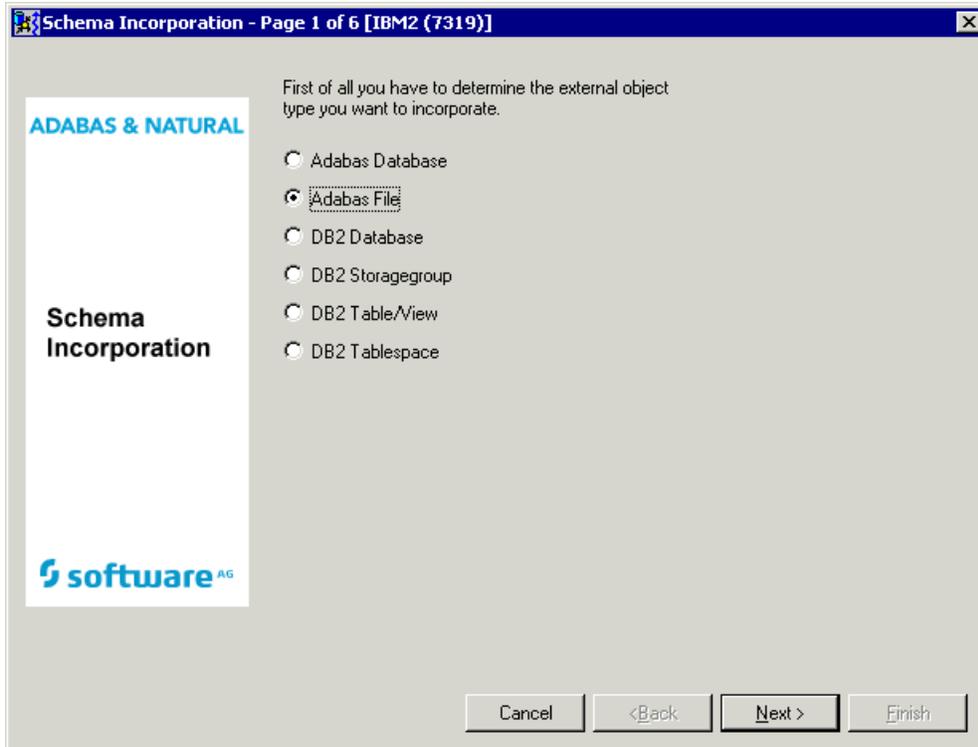
- 1 From the **Tools > Development Tools > Schema Generation** menu, choose **Schema Incorporation**.

Or:

Choose the following toolbar button:



The schema incorporation wizard appears, providing several pages.



 **Note:** If DB2 is not installed at your site, the incorporation functions for DB2 objects are not available.

- 2 Select the option button for the type of external object that you want to incorporate.
- 3 Choose the **Next** button to proceed to the next page.

The information on the next pages depends on the object type that has been selected on the first page.

Example - incorporate Adabas file:

Adabas File - Page 2 of 6 [IBM2 (7319)]

ADABAS & NATURAL

Schema Incorporation

software AG

Selection Criteria

Database number: 180

Physical file number from: 1

to: 255

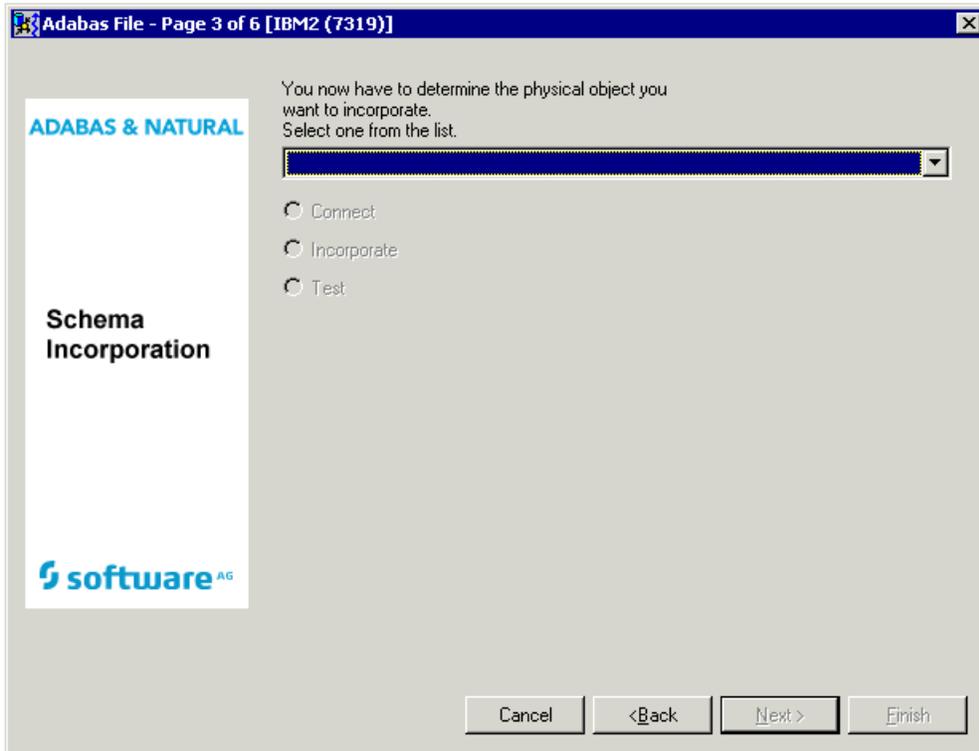
Even if only FDT exists:

Adabas password:

Cancel <Back Next > Finish

- 4 Specify the selection criteria and choose the **Next** button to proceed to the next page.

Example - incorporate Adabas file:



The incorporation functions that are available on this page depend on the object type that has been selected on the first page.

- 5 From the drop-down list box, select the object that you want to incorporate.

When an object has been selected, the option button(s) for the incorporation function(s) that can be executed for this object are no longer dimmed.

For general information on these buttons, see *Overview of Incorporation Options in External Objects in Predict*.

- 6 Select the option button for the incorporation function that you want to execute and choose the **Next** button to proceed to the next page.

An additional page appears when you have selected the incorporation function Incorporate or Connect. You can then specify the incorporation or connect options.

Example - incorporation options for an Adabas file:

The screenshot shows a dialog box titled "Adabas File for PFnr=7, Adabas name=SU-180-7 - Page 4 of 6 [IBM2 (7319)]". On the left, there is a vertical sidebar with the "ADABAS & NATURAL" logo at the top and "Schema Incorporation" in the middle, with the "software AG" logo at the bottom. The main area is titled "Incorporation Options" and contains the following fields and controls:

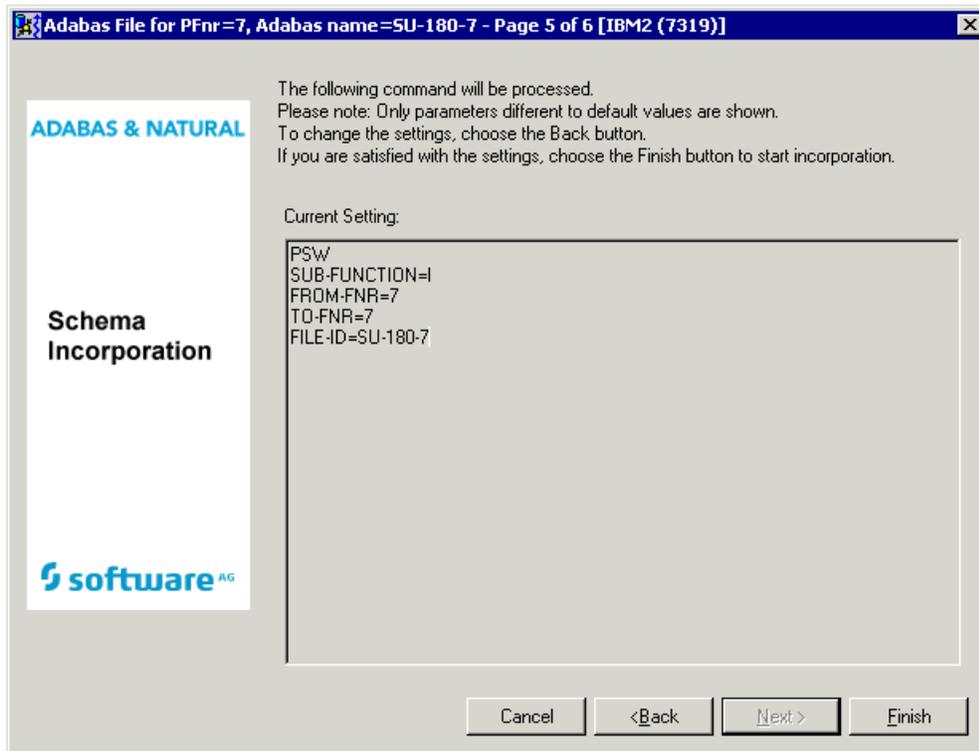
- File ID: A text box containing "SU-180-7".
- File attributes: A dropdown menu showing "R - Required attr.".
- Field name prefix: An empty text box.
- Field name suffix: An empty text box.
- List incorporated code: A checked checkbox.

At the bottom of the dialog, there are four buttons: "Cancel", "<Back", "Next >", and "Finish".

 **Note:** Such a page does not appear for the incorporation functions Test and Display Masters.

- 7 Specify the required information and choose the **Next** button to proceed to the next page.

Example - incorporate Adabas file:



This page shows only the settings which have been modified on the previous pages.

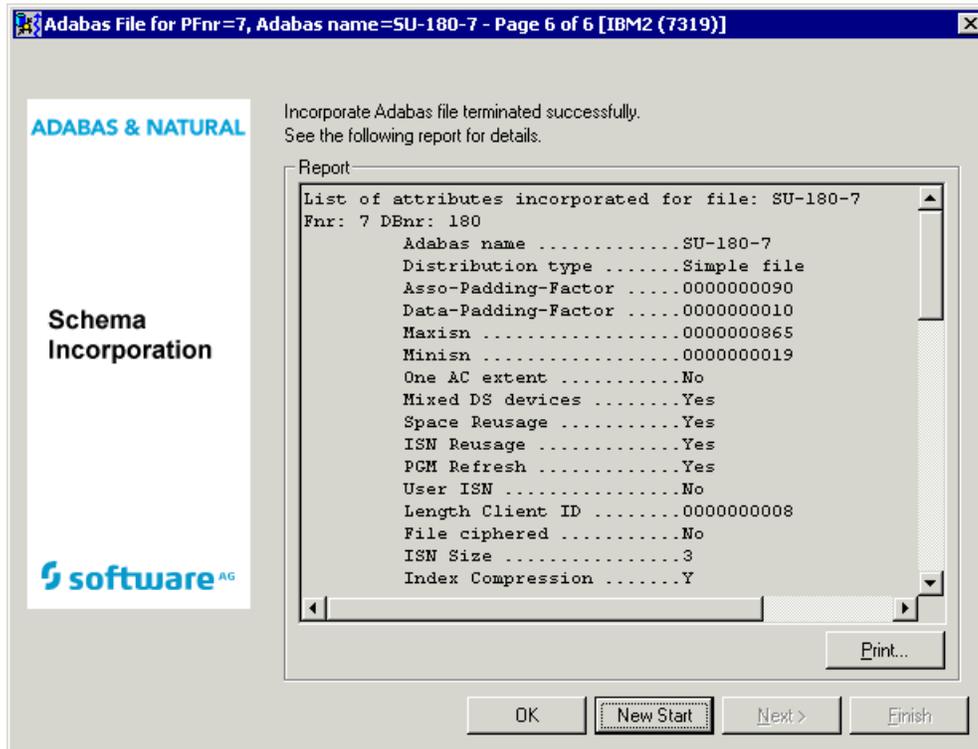
- 8 If all required information has been specified, choose the **Finish** button to start incorporation.

 **Note:** As long as you do not choose the **Finish** button, you can go back to the previous pages by choosing the **Back** button.

When the incorporation process has completed, the last page of the wizard is shown. If the **List incorporated code** option has been selected previously, a report is shown. If this option has not been selected, the corresponding text box is empty.

However, if an error occurs during the generation process, an error report is shown in the text box. The error report is always shown. The setting of the **List incorporated code** option is not considered in this case.

Example - incorporate Adabas file:



When you choose the **Print** button, you can print the report on a printer that is defined under Windows.

- 9 Choose the **OK** button to close the dialog box.

Or:

If you want to start incorporation for another object, choose the **New Start** button and proceed as described above.

